

# Turkey Point Plant

## Initial Ecological Condition Characterization Report

June 2012



Prepared for:



Prepared by:



# TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
<b>ES EXECUTIVE SUMMARY .....</b>	<b>ES-1</b>
<b>1 INTRODUCTION .....</b>	<b>1-1</b>
<b>2 METHODS and MATERIALS .....</b>	<b>2-1</b>
2.1 Sampling Design.....	2-1
2.2 Porewater Measurements.....	2-2
2.3 Tracer Suite Sample Collection.....	2-4
2.4 Statistical Analyses .....	2-5
<b>3 RESULTS AND DISCUSSION .....</b>	<b>3-1</b>
3.1 Metrological Conditions.....	3-1
3.2 Temperature and Specific Conductance/Salinity .....	3-2
3.2.1 Biscayne Bay.....	3-3
3.2.2 Marsh and Mangroves .....	3-4
3.3 Analytical Data.....	3-5
3.3.1 Tri-linear (Piper) Diagrams .....	3-6
3.3.2 Hierarchical Cluster Analysis .....	3-7
3.3.3 Discriminant Function Analysis.....	3-7
3.3.4 Singular and Binary (Ionic and Isotopic) Assessments.....	3-8
<b>4 SUMMARY AND CONCLUSIONS .....</b>	<b>4-1</b>
<b>5 REFERENCES .....</b>	<b>5-1</b>

## **APPENDICES**

- A DRAFT QUALITY ASSURANCE PROJECT PLAN (QAPP)  
[FPL 2010] PROPOSED MODIFICATIONS AS PROVIDED  
TO SFWMD IN NOVEMBER 2010**
- B DESCRIPTION OF POREWATER SAMPLING LOCATIONS**
- C BOX AND WHISKER PLOTS**
- D FIELD DATA SHEETS**
- E CALIBRATION LOG SHEETS**
- F Field Photo Documentation**
- G Level IV Laboratory Reports**
- H Data Usability Summaries for Porewater Laboratory  
Results**

# LIST OF TABLES

<b><u>Table</u></b>	<b><u>Page</u></b>
1-1 Sampling Events and Locations.....	1-3
1-2 Tracer Suite Analysis Locations from the September 2010 Sampling Event .....	1-4
1-3 Tracer Suite Analysis Locations from the April 2011 Sampling Event .....	1-5
2-1 Number of Sampling Locations by Event in Each Habitat .....	2-7
2-2 Broad-scale Porewater Grid Sites .....	2-8
2-3 Areas of Ecological Interest.....	2-14
3-1 Descriptive Wet and Dry Season Ambient Temperature Statistics.....	3-11
3-2 Summary Statistics by Season, Habitat and Depth for Temperature, Salinity and Specific Conductance.....	3-12
3-3 Minimum, Maximum and Mean Differences between Pairs of Samples at AEI Sites ..	3-15
3-4 Comparisons of Temperature “Replicates” for AEI Sites by Habitat, Season and Depth.....	3-16
3-5 Comparisons of Salinity “Replicates” for AEI Sites by Habitat, Season and Depth.....	3-16
3-6 Comparisons of Porewater Temperature between AEI Site and Grid Points of the Same Season, Habitat and Depth.....	3-17
3-7 Comparisons of Porewater Salinity between AEI Site and Grid Points of the Same Season, Habitat and Depth .....	3-18
3-8 Within Season and Habitat Depth Comparisons for Temperature and Salinity.....	3-19
3-9 Average ( $\pm$ Standard Error) of Air, Water and Porewater Temperature and Salinity for the Dry (April 2010) and Wet (August 2010) Season Surveys .....	3-22
3-10 Analytical Results from the Tracer Suite Analyses for September 2010.....	3-23
3-11 Analytical Results from the Tracer Suite Analyses for April 2011.....	3-25
3-12 Minimum, Maximum and Mean Values of Porewater Tracer Suite Analyses from September 2010 (Bay only) and April 2011 (Biscayne Bay, Mangroves and Marshes).....	3-31
3-13 Evaporation Pan Tritium Data ( $\pm 1 \sigma$ ) from March to June 2011 .....	3-32
B.1-1 Porewater Sampling Grid Points Raw Data (April 2010 Dry Season) .....	B-3
B.1-2 Porewater Sampling Areas of Ecological Interest Raw Data (April 2010 Dry Season).....	B-10
B.1-3 Porewater Sampling Grid Points (April 2010 Dry Season) .....	B-13
B.1-4 Porewater Sampling Areas of Ecological Interest (April 2010 Dry Season) .....	B-28



---

B.2-1	Porewater Sampling Grid Points Raw Data (August 2010 Dry Season).....	B-37
B.2-2	Porewater Sampling Areas of Ecological Interest Raw Data (August 2010 Dry Season).....	B-43
B.2-3	Porewater Sampling Grid Points (August 2010 Dry Season).....	B-45
B.2-4	Porewater Sampling Areas of Ecological Interest (August 2010 Dry Season).....	B-55
B.3-1	Porewater Sampling Grid Points Raw Data (September 2010 Wet Season).....	B-60
B.3-2	Porewater Sampling Areas of Ecological Interest Raw Data (September 2010 Wet Season).....	B-62
B.3-3	Porewater Sampling Grid Points (September 2010 Wet Season).....	B-63
B.4-1	Porewater Sampling Grid Points Raw Data (April 2011 Dry Season).....	B-70
B.4-2	Porewater Sampling Areas of Ecological Interest (April 2011 Dry Season).....	B-75
B.4-3	Porewater Sampling Grid Points (April 2011 Dry Season).....	B-77
B.4-4	Porewater Sampling Areas of Ecological Interest (April 2011 Dry Season).....	B-83

# LIST OF FIGURES

<b><u>Figure</u></b>	<b><u>Page</u></b>
1-1 Site Map and Extent of Broad-scale Porewater Survey .....	1-7
1-2 Locations of Initial Porewater Sample Sites .....	1-8
1-3 Wet Season Porewater Sample Locations .....	1-9
2-1 Example of Stainless Steel PushPoint Sampler Setup .....	2-16
2-2 Metal Plate Stabilizes PushPoint Sampler for Collecting Porewater from Soft Sediments .....	2-16
2-3 The PushPoint Sampler has a Perforated Tip .....	2-16
2-4 Collecting Porewater from the Mangroves .....	2-17
2-5 Subtidal Porewater was Collected using an Insulated Pushpoint Sampler .....	2-17
2-6 A Porewater Sample is Measured by a Technician .....	2-18
2-7 Surface Water Specific Conductance and Temperature are Determined by Dropping Probe into the Water .....	2-18
2-8 Porewater for Analytical Samples was Extracted using a Peristaltic Pump from Two Locations per Point .....	2-19
3-1 2010 Dry Season Maximum, Mean and Minimum Temperatures (°C) .....	3-33
3-2 2011 Dry Season Maximum, Mean and Minimum Temperatures (°C) .....	3-33
3-3 2010 Wet Season Maximum, Mean and Minimum Temperatures (°C) .....	3-34
3-4 2010 and 2011 Dry Season Rainfall Totals .....	3-34
3-5 Porewater Salinity in Biscayne Bay (April 2010) .....	3-35
3-6 Zoomed-in Porewater Salinity in Biscayne Bay (April 2010) .....	3-36
3-7 Porewater Salinity in Biscayne Bay (August 2010) .....	3-37
3-8 Zoomed-In Porewater Salinity in Biscayne Bay (August 2010) .....	3-38
3-9 Porewater Salinity in the Marsh and Mangroves (April 2010) .....	3-39
3-10 Zoomed-in Porewater Salinity in the Marsh and Mangroves (April 2010) .....	3-40
3-11 Piper Diagram of Bay Samples (September 2010) .....	3-41
3-12 Piper Diagram of Bay Samples of the Wet Season (September 2010) Compared to the Dry Season (April 2011) .....	3-42
3-13 Piper Diagram for all Bay, Mangrove and Marsh Samples for April 2011 .....	3-43
3-14 Hierarchical Cluster Analysis Based on Analytical Data from the Biscayne Bay Porewater Samples from September 2010 .....	3-44

3-15	Hierarchical Cluster Analysis Based on Analytical Data from the Biscayne Bay Porewater Samples from April 2011 .....	3-45
3-16	Hierarchical Cluster Analysis Dendrogram Based on Analytical Data from the Marsh Porewater Samples from April 2011 .....	3-46
3-17	Hierarchical Cluster Analysis Dendrogram Based on Analytical Data from the Mangrove Porewater Samples April 2011 .....	3-47
3-18	Canonical Discriminant Function Analysis for the Porewater Analytical Parameters of the Three Habitat Groups in April 2011 .....	3-48
3-19	Specific Conductance and Carbon Isotope Signatures for Porewater from the Bay, Mangrove and Marsh in April 2011.....	3-49
3-20	Specific Conductance and $\text{Sr}^{2+}/\text{Ca}^{2+}$ for Porewater from the Bay, Mangrove and Marsh in April 2011 .....	3-49
3-21	Porewater $\delta^{18}\text{O}$ and $\delta\text{D}$ from the Bay, Mangrove and Marsh in April 2011 .....	3-50
3-22	Wet Season (September 2010) Porewater Tritium Values .....	3-51
3-23	Dry Season (April 2011) Porewater Tritium Values .....	3-52
3-24	Porewater (Bay, Marsh and Mangrove) and April 2011 Evaporation Pan Tritium Concentrations with Distance from the CCS .....	3-53
3-25	Porewater (Bay, Marsh and Mangrove) Specific Conductance versus Tritium Concentrations for April 2011.....	3-53
C-1	Box and Whisker Plot Explanatory Diagram .....	C-1
C-2	Box and Whisker Plot for April 2010 Grid Points (Bay) and AEI-Bay Surface Water Temperatures.....	C-2
C-3	Box and Whisker Plot for April 2010 Grid Points (Bay) and AEI-Bay Bottom Water (0 cm) Temperatures .....	C-2
C-4	Box and Whisker Plot for April 2010 Grid Points (Bay) and AEI-Bay 20 cm Porewater Temperatures .....	C-3
C-5	Box and Whisker Plot for April 2010 Grid Points (Bay) and AEI-Bay 40 cm Porewater Temperatures .....	C-3
C-6	Box and Whisker Plot for April 2010 Grid Points (Bay) and AEI-Bay 60 cm Porewater Temperatures .....	C-4
C-7	Box and Whisker Plot for April 2010 Grid Points (Mangrove) and AEI-Mangrove Surface Water Temperatures .....	C-5
C-8	Box and Whisker Plot for April 2010 Grid Points (Mangrove) and AEI-Mangrove 20 cm Porewater Temperatures .....	C-5
C-9	Box and Whisker Plot for April 2010 Grid Points (Mangrove) and AEI-Mangrove 40 cm Porewater Temperatures .....	C-6
C-10	Box and Whisker Plot for April 2010 Grid Points (Mangrove) and AEI-Mangrove 60 cm Porewater Temperatures .....	C-6
C-11	Box and Whisker Plot for April 2010 Grid Points (Marsh) and AEI- Marsh 20 cm Porewater Temperatures .....	C-7
C-12	Box and Whisker Plot for April 2010 Marsh and AEI- Grid Points (Marsh) 40 cm Porewater Temperatures .....	C-7

C-13	Box and Whisker Plot for April 2010 Marsh and AEI- Grid Points (Marsh) 60 cm Porewater Temperatures .....	C-8
C-14	Box and Whisker Plot for August 2010 Grid Points (Bay) and AEI- Grid Points (Bay) Surface Water Temperatures .....	C-9
C-15	Box and Whisker Plot for August 2010 Grid Points (Bay) and AEI-Bay Bottom Water (0 cm) Temperatures.....	C-9
C-16	Box and Whisker Plot for August 2010 Grid Points (Bay) and AEI-Bay 20 cm Porewater Temperatures .....	C-10
C-17	Box and Whisker Plot for August 2010 Grid Points (Bay) and AEI-Bay 40 cm Porewater Temperatures .....	C-10
C-18	Box and Whisker Plot for August 2010 Grid Points (Bay) and AEI-Bay 60 cm Porewater Temperatures .....	C-11
C-19	Box and Whisker Plot for April 2011 Grid Points (Bay) and AEI-Bay Surface Water Temperatures.....	C-12
C-20	Box and Whisker Plot for April 2011 Grid Points (Bay) and AEI-Bay Bottom Water (0 cm) Temperatures .....	C-12
C-21	Box and Whisker Plot for April 2011 Grid Points (Bay) and AEI-Bay 60cm Porewater Temperatures .....	C-13
C-22	Box and Whisker Plot for April 2011 Grid Points (Mangrove) and AEI-Mangrove Surface Water Temperatures .....	C-14
C-23	Box and Whisker Plot for April 2011 Grid Points (Mangrove) and AEI-Mangrove 60 cm Porewater Temperatures .....	C-14
C-24	Box and Whisker Plot for April 2011 Grid Points (Marsh) and AEI- Marsh Surface Water Temperatures.....	C-15
C-25	Box and Whisker Plot for April 2011 Marsh and AEI- Grid Points (Marsh) 60 cm Porewater Temperatures .....	C-15
C-26	Box and Whisker Plot for April 2010 Grid Points (Bay) and AEI-Bay Surface Water Salinities .....	C-16
C-27	Box and Whisker Plot for April 2010 Grid Points (Bay) and AEI-Bay Bottom Water (0 cm) Salinities.....	C-16
C-28	Box and Whisker Plot for April 2010 Grid Points (Bay) and AEI-Bay 20 cm Porewater Salinities .....	C-17
C-29	Box and Whisker Plot for April 2010 Grid Points (Bay) and AEI-Bay 40 cm Porewater Salinities .....	C-17
C-30	Box and Whisker Plot for April 2010 Grid Points (Bay) and AEI-Bay 60 cm Porewater Salinities .....	C-18
C-31	Box and Whisker Plot for April 2010 Mangrove and AEI-Grid Points (Mangrove) Surface Water Salinities .....	C-19
C-32	Box and Whisker Plot for April 2010 Mangrove and AEI- Grid Points (Mangrove) 20 cm Porewater Salinities.....	C-19
C-33	Box and Whisker Plot for April 2010 Mangrove and AEI-Mangrove 40 cm Porewater Salinities .....	C-20



C-34	Box and Whisker Plot for April 2010 Mangrove and AEI- Grid Points (Mangrove) 60 cm Porewater Salinities.....	C-20
C-35	Box and Whisker Plot for April 2010 Marsh and AEI- Grid Points (Marsh) 20 cm Porewater Salinities .....	C-21
C-36	Box and Whisker Plot for April 2010 Marsh and AEI- Grid Points (Marsh) 40 cm Porewater Salinities .....	C-21
C-37	Box and Whisker Plot for April 2010 Marsh and AEI- Grid Points (Marsh) 60 cm Porewater Salinities .....	C-22
C-38	Box and Whisker Plot for August 2010 Grid Points (Bay) and AEI- Grid Points (Bay) Surface Water Salinities.....	C-23
C-39	Box and Whisker Plot for August 2010 Grid Points (Bay) and AEI- Grid Points (Bay) Bottom Water (0 cm) Salinities .....	C-23
C-40	Box and Whisker Plot for August 2010 Grid Points (Bay) and AEI- Grid Points (Bay) 20 cm Porewater Salinities .....	C-24
C-41	Box and Whisker Plot for August 2010 Grid Points (Bay) and AEI-Bay 40 cm Porewater Salinities .....	C-24
C-42	Box and Whisker Plot for August 2010 Grid Points (Bay) and AEI-Bay 60 cm Porewater Salinities .....	C-25
C-43	Box and Whisker Plot for April 2011 Grid Points (Bay) and AEI-Bay Surface Water Salinities .....	C-26
C-44	Box and Whisker Plot for April 2011 Grid Points (Bay) and AEI-Bay Bottom Water (0 cm) Salinities.....	C-26
C-45	Box and Whisker Plot for April 2011 Grid Points (Bay) and AEI-Bay 60 cm Porewater Salinities .....	C-27
C-46	Box and Whisker Plot for April 2011 Mangrove and AEI- Grid Points (Mangrove) Surface Water Salinities .....	C-28
C-47	Box and Whisker Plot for April 2011 Mangrove and AEI- Grid Points (Mangrove) 60 cm Porewater Salinities.....	C-28
C-48	Box and Whisker Plot for April 2011 Marsh and AEI- Grid Points (Marsh) Surface Water Salinities .....	C-29
C-49	Box and Whisker Plot for April 2011 Marsh and AEI- Grid Points (Marsh) 60 cm Porewater Salinities .....	C-29
C-50	Box and Whisker Plot for April 2010 Grid Point Bay Porewater Temperatures .....	C-30
C-51	Box and Whisker Plot for April 2010 AEI-Bay Porewater Temperatures .....	C-30
C-52	Box and Whisker Plot for April 2010 Grid Point Mangrove Porewater Temperatures.....	C-31
C-53	Box and Whisker Plot for April 2010 AEI-Mangrove Porewater Temperatures.....	C-31
C-54	Box and Whisker Plot for April 2010 Grid Point Marsh Porewater Temperatures .....	C-32
C-55	Box and Whisker Plot for April 2010 AEI-Marsh Porewater Temperatures .....	C-32
C-56	Box and Whisker Plot for August 2010 Grid Point Bay Porewater Temperatures .....	C-33
C-57	Box and Whisker Plot for August 2010 AEI-Bay Porewater Temperatures.....	C-33
C-58	Box and Whisker Plot for September 2010 Grid Point Bay Porewater Temperatures.....	C-34

C-59	Box and Whisker Plot for April 2011 Grid Point Bay Porewater Temperatures .....	C-35
C-60	Box and Whisker Plot for April 2011 AEI-Bay Porewater Temperatures .....	C-35
C-61	Box and Whisker Plot for April 2011 Grid Point Mangrove Porewater Temperatures .....	C-36
C-62	Box and Whisker Plot for April 2011 AEI-Mangrove Porewater Temperatures.....	C-36
C-63	Box and Whisker Plot for April 2011 Grid Point Marsh Porewater Temperatures .	C-37
C-64	Box and Whisker Plot for April 2011 AEI-Marsh Porewater Temperatures .....	C-37
C-65	Box and Whisker Plot for April 2010 Grid Point Bay Porewater Salinities .....	C-38
C-66	Box and Whisker Plot for April 2010 AEI-Bay Porewater Salinities .....	C-38
C-67	Box and Whisker Plot for April 2010 Grid Point Mangrove Porewater Salinities....	C-39
C-68	Box and Whisker Plot for April 2010 AEI-Mangrove Porewater Salinities .....	C-39
C-69	Box and Whisker Plot for April 2010 Grid Point Marsh Porewater Salinities .....	C-40
C-70	Box and Whisker Plot for April 2010 AEI-Marsh Porewater Salinities .....	C-40
C-71	Box and Whisker Plot for August 2010 Grid Point Bay Porewater Salinities .....	C-41
C-72	Box and Whisker Plot for August 2010 AEI-Bay Porewater Salinities .....	C-41
C-73	Box and Whisker Plot for September 2010 Grid Point Bay Porewater Salinities ...	C-42
C-74	Box and Whisker Plot for April 2011 Grid Point Bay Porewater Salinities .....	C-43
C-75	Box and Whisker Plot for April 2011 AEI-Bay Porewater Salinities .....	C-43
C-76	Box and Whisker Plot for April 2011 Grid Point Mangrove Porewater Salinities....	C-44
C-77	Box and Whisker Plot for April 2011 AEI-Mangrove Porewater Salinities .....	C-44
C-78	Box and Whisker Plot for April 2011 Grid Point Marsh Porewater Salinities .....	C-45
C-79	Box and Whisker Plot for April 2011 AEI-Marsh Porewater Salinities .....	C-45
F-1	Photos of Taller Mangrove Fringe where M7a is to be Located .....	F-1
F-2	Atypical Growth of Red Mangroves as Seen in M7 Area .....	F-2
F-3	Evidence of Dead Red Mangroves was Noted through the Open Patch of M6a .....	F-3
F-4	Site W2b is 2 m SE of W2a, also Located in the Area of Thick Tree Vegetation ....	F-4
F-5	Fine Silty Sediment Characterized Samples Taken at Transect F15 .....	F-5
F-6	Photos Representative of Transect HI-8 .....	F-6

## **LIST OF ACRONYMS**

%	percent
‰	parts per mille
≥	greater than or equal to
°C	degrees Celsius
µg/mg	micrograms per milligram
µM/mM	micromoles per millimole
µmols/m <sup>2</sup> /sec	micromoles per square meter per second
µS/cm	microsiemens per centimeter
AEI	Areas of Ecological Interest
Agencies	South Florida Water Management District, the Florida Department of Environmental Protection, and Miami-Dade County Department of Environmental Resources Management
ANOVA	analysis of variance
Annual Monitoring Report	Florida Power & Light Company Turkey Point Plant Annual Monitoring Report for the Units 3 and 4 Uprate Project
AT100	Aqua TROLL <sup>®</sup> 100 (probe)
AT200	Aqua TROLL <sup>®</sup> 200 (probe)
B	bottom
Ba	barium
BB	Biscayne Bay Area of Ecological Interest
BF	Benthic Feature
C	carbon
Ca	calcium
CaCO <sub>3</sub>	calcium carbonate
CCS	cooling canal system

---

CCV	continuing calibration verification
CERP	Comprehensive Everglades Restoration Plan
Cl	chloride
cm	centimeter(s)
CO <sub>2</sub>	carbon dioxide
DFA	discriminant function analysis
DIC	dissolved inorganic carbon
E & E	Ecology and Environment, Inc.
e.g.	for example
FDEP	Florida Department of Environmental Protection
Fe	iron
FIU-WQM	Florida International University Water Quality Monitoring
FPL	Florida Power & Light Company
ft	foot/feet
g/cm <sup>3</sup>	grams per cubic centimeter
g/mg	grams per milligram
GPS	global positioning system
H	hydrogen
H <sub>2</sub> S	hydrogen sulfide
i.e.	that is
IC	initial calibration
ICV	initial calibration verification
K	potassium
km	kilometer
L	liter
m	meter(s)
MDL	minimum detectable limit
mg	milligram
mg/L	milligram(s) per liter
Mg	magnesium
mi <sup>2</sup>	square mile(s)

---



---

mL	milliliter(s)
Monitoring Plan	Groundwater, Surface Water, and Ecological Monitoring Plan for the Florida Power & Light Company Turkey Point Nuclear Power Plant (2009)
Na	sodium
NAD 83	North American Datum of 1983
ND	not detected
NE	northeast
NH <sub>3</sub>	ammonia
NIST	National Institute of Standards and Technology
NW	northwest
O	oxygen
ohm cm	ohm-centimeter
pCi/L	picocuries per liter
PERA	(Miami-Dade County) Department of Permitting, Environment and Regulatory Affairs [formerly known as Department of Environmental Resources Management (DERM)]
ppt	parts per thousand
PQL	practical quantitative limit
PSS78	The Practical Salinity Scale of 1978
QA	quality assurance
QAPP	Quality Assurance Project Plan
RECOVER	Restoration Coordination and Verification
RSMAS	Rosenstiel School of Marine & Atmospheric Science
SE	southeast
SFWMD	South Florida Water Management District
SO <sub>4</sub>	sulfate
Sr	strontium
SU	salinity unit
SW	surface water; <i>also</i> southwest
TDS	total dissolved solids
TestAmerica	TestAmerica Laboratories, Inc.

---

---

TKN	total Kjeldahl nitrogen
TN	total nitrogen
TP	total phosphorus
TPEVP	Turkey Point Evaporation Pan
TPGW	Turkey Point Groundwater
TPM-1	Turkey Point Meteorological Station
TPP	Turkey Point Plant
TPSWC	Turkey Point Surface Water Canal
TPSWCCS	Turkey Point Surface Water Cooling Canal System
USGS	United States Geological Survey

# EXECUTIVE SUMMARY

Florida Power & Light Company (FPL) has prepared this Initial Ecological Condition Characterization Report as a requirement of Section 3.6.5 in the Turkey Point Power Plant Groundwater, Surface Water and Ecological Monitoring Plan (Monitoring Plan). The scope of this report encompasses the initial broad-scale porewater efforts conducted during the first year of monitoring. Details and supporting data for specific transect establishment for ecological monitoring are detailed in the 2011 Semi-Annual and Annual Reports. Based on the data collected, there was no clear landscape-scale indication of cooling canal system (CCS) water, via a groundwater pathway within the marsh, mangrove or Biscayne Bay sites measured.

The primary purpose of the Ecological Condition Characterization Report is to summarize the efforts and results associated with both wet season and dry season broad-scale porewater surveys in the wetlands and offshore area surrounding the CCS. The information will be helpful in assessing the spatial distribution of environmental conditions that affect biota. The porewater surveys consist of two phases: a broad-scale field measurement of specific conductance, salinity and temperature across the landscape and up to 60 centimeters (cm) into the soils, and a second phase of sampling a subset of these locations for porewater chemistry analysis of Tracer Suite parameters, as defined in Section 1 of this report. If CCS water was present in any of the samples, this could be observed by higher temperatures and/or salinity values with depth not explainable by meteorological, evapotranspiration and environmental conditions. The presence of CCS water would also be supported by the Tracer Suite data.

The first phase was conducted in the marsh, mangrove and Biscayne Bay in an approximately 70 square mile (mi<sup>2</sup>) area around the Turkey Point Plant. The broad-scale porewater surveys were conducted in both the dry (April 2010) and wet (August 2010) seasons and encompassed areas defined in a grid pattern as well as areas of ecological interest (AEI) jointly defined by FPL and the South Florida Water Management District (SFWMD), the Miami-Dade County Department of Permitting, Environment and Regulatory Affairs (PERA), and the Florida Department of Environmental Protection (FDEP) herein collectively referred as the Agencies. Specific conductance, salinity, and temperature were measured at 101 points identified in the marsh and mangroves, and 102 points in the Bay; several depths were sampled at each point. The second phase involved collecting porewater for laboratory analysis. Samples collected were analyzed for Tracer Suite parameters (20 analytes for ions and isotopes) as defined in the Monitoring Plan. A total of 90 Tracer Suite sample sites (30 at each habitat type) were identified by the Agencies following review of the initial results from the first phase. Tracer Suite sampling took place in September 2010 and April 2011.

Subsequent to the field measurements and laboratory analyses, a series of statistical analyses were conducted to test for patterns and differences among the sites and across depth within a habitat. Statistical analyses of field measurements from the marsh, mangrove and the Bay did not clearly indicate a landscape-scale influence of the CCS. Observed smaller-scale site differences

appeared to be primarily a function of hydrology interacting with localized conditions such as slight topographic variations, proximity to shoreline, and community type. For example, unlike the open marsh with higher evaporative rates, lowered salinities at marsh AEI locations (most of which were located in tree islands) could be a consequence of lower evaporation due to greater canopy cover and the shaded conditions within these islands.

Due to the large number of analytical parameters, the data were examined using different multi-parameter approaches; these methods determined whether there were differences among locations, and what analytes were useful in explaining those differences. First, ionic data were qualitatively assessed using Piper (tri-linear) diagrams for each habitat and season. Second, hierarchical cluster analyses of all analytical parameters were used to separate relationships among the samples in a habitat and view how similar these samples were chemically. Third, in the dry season, a discriminant function analysis (DFA) that included all analytical parameters, was used to identify which analyte best explained the variation in the data across habitats. Finally, binary plots were graphed to see if there was any further insight into the data patterns and trends.

None of the multivariate approaches showed any clear landscape-scale influence of the CCS on the surrounding habitats. Tri-linear diagrams demonstrated that all samples were either consistent with the seawater sodium-chloride dominated patterns, Everglades carbonate freshwater, or a mix of both water sources. The cluster analyses showed several outliers that were dissimilar from other sample locations in that habitat. In most cases this appears to be the result of localized influences. For example, two marsh sites located north of the CCS close to the Bay had higher specific conductance and ionic contents relative to the other samples; this was not unexpected as both sites were in impounded areas that had restricted hydrology. The DFA showed that specific conductance was the best discriminator of the sample types, explaining most (88%) of the variability among the samples; the remaining 17% was explained by carbon isotope ( $\delta^{13}\text{C}$ ) signatures, sulfide concentrations, and tritium levels. Therefore, specific conductance is a reliable discriminator as it is able to distinguish among the sample types (i.e., marsh, mangrove, Bay).

Dry season tritium values were higher than wet season values, likely because of greater dry season evaporation rates and lower humidity. The highest values of tritium were recorded south and east of the CCS, in the hypersaline scrub mangroves where there was limited tidal flushing coupled with high evaporation rates. The patterns of tritium during the dry season were not unexpected as evaporation pan tritium values ranged from 11-283 picocuries per liter (pCi/L) around the CCS (March-June 2010) and rainfall tritium values ranged from 4-34 pCi/L during that time period (February-June); it is possible that atmospheric transport and deposition can, under the physical conditions around the CCS, result in values of several hundred picocuries per liter. Note that 490 pCi/L was observed in the CCS evaporation pan in May 2011. Although most of the sites had dry season tritium levels within values observed in the evaporation pans, two hypersaline scrub mangrove sites south of the S-20 Canal had values > 283 pCi/L; a third site south of the CCS has a tritium value > 200 pCi/L. The specific conductance of all the sites sampled during the dry season, however, did not show a significant relationship with the tritium concentrations; thus there is no clear indication of a landscape-scale groundwater derived



pathway of CCS water contributing to the tritium values observed. Lastly, the amount of tritium detected is far below concentrations that would give rise to any public health and safety concern.

# **1. INTRODUCTION**

Florida Power & Light Company (FPL) is pleased to submit the Initial Ecological Condition Characterization Report. This report is prepared in accordance with the FPL Turkey Point Power Plant Groundwater, Surface Water and Ecological Monitoring Plan, referred to herein as the Monitoring Plan (October 2009). The Monitoring Plan requires the collection of groundwater, surface water, meteorological, flow and ecological data in and around the plant to establish baseline conditions and determine the horizontal and vertical effects and extent, if any, of the cooling canal system (CCS) water.

The scope of this report is outlined in Section 3.6.5 of the Monitoring Plan. This report encompasses the initial broad-scale porewater efforts conducted during the first year of monitoring. The details and supporting data for specific transect establishment for ecological monitoring are detailed in the 2011 Semi-Annual and Annual Reports (FPL 2011a and 2011b). The report summarizes the efforts and results associated with both wet season and dry season broad-scale porewater surveys in the wetlands and offshore area surrounding the Turkey Point Plant CCS in 2010 and 2011. The information can be helpful in assessing the spatial distribution of environmental conditions that affect biota and are potentially influenced by CCS water. The survey covers approximately 70 square miles (mi<sup>2</sup>) (180 square kilometers [km<sup>2</sup>]) around and excluding the CCS (Figure 1-1).

The purpose of this effort was to spatially characterize ecological conditions via broad reconnaissance surveys. Per the Monitoring Plan, three general habitats were identified for broad-scale porewater surveys:

- Freshwater wetlands (Marsh);
- Mangroves; and
- Biscayne Bay and Card Sound.

The broad-scale porewater surveys were conducted in both the wet and dry season and consisted of two phases. In the first phase, porewater specific conductance, salinity and temperature were sampled at locations throughout the landscape (Figure 1-2). The sample locations were established based on a grid pattern with additional areas of interest jointly defined by FPL, the South Florida Water Management District (SFWMD), the Miami-Dade County Department of Permitting, Environment and Regulatory Affairs (PERA), and the Florida Department of Environmental Protection (FDEP) herein collectively referred as the Agencies. Measurements were made at 20 centimeter (cm), 40 cm, and 60 cm depths at each location, and the top (surface) and bottom (0 cm) of the water column where applicable.

In the second phase, porewater samples were collected at specified locations for laboratory analyses of the following parameters:

- Ions (sodium, calcium, magnesium, potassium, boron, strontium, bromide, chloride, fluoride, sulfate, sulfide, alkalinity and bicarbonate);
- Trace metals barium and iron;
- Dissolved inorganic carbon (DIC)
- Stable isotopes (hydrogen [ $^2\text{H}/^1\text{H}$ ], oxygen [ $^{18}\text{O}/^{16}\text{O}$ ], strontium [ $^{87}\text{Sr}/^{86}\text{Sr}$ ], and carbon [ $^{13}\text{C}/^{12}\text{C}$ ]); and
- Tritium.

These parameters are referred to as Tracer Suite constituents in the Monitoring Plan (2009). The sample locations in this second phase were based on the results of the first phase and samples were collected from 60 cm depth. All field events are shown in Table 1-1.

The initial dry season porewater survey was conducted in April 2010. Specific conductance, salinity and temperature measurements were taken at 101 sites in the marsh (freshwater wetlands) and mangrove areas, and 102 sites in Biscayne Bay/Card Sound. Over 800 measurements were made during the dry season. Figure 1-2 shows the locations of the initial porewater sample locations. Following review of the initial results, the Agencies identified 30 marsh, 30 mangrove and 30 Bay dry season Tracer Suite sample locations (Tables 1-2 and 1-3); the Tracer Suite sampling took place in April 2011 as April-May 2010 was wetter-than-normal.

The initial wet season porewater survey was conducted in August 2010 followed closely by the wet season Tracer Suite sampling in September 2010. The wet season survey focused only on Biscayne Bay. Measurements were collected at the same 102 locations (>400 measurements) as established in the dry season survey (Figure 1-3). Tracer Suite samples were collected at the same 30 locations in the Bay as the dry season.

# TABLES

**Table 1-1. Sampling Events and Locations**

Habitat	April 2010 (Dry Season)	August 2010 (Wet Season)	September 2010 (Wet Season)	April 2011 (Dry Season) *
Marsh	Specific Conductivity and Temperature at 56 points	N.A.	N.A.	Tracer Suite Analysis at 28 locations
Mangrove	Specific Conductivity and Temperature at 45 points	N.A.	N.A.	Tracer Suite Analysis at 29 locations
Biscayne Bay and Card Sound	Specific Conductivity and Temperature at 102 points	Specific Conductivity and Temperature at 102 points	Tracer Suite Analysis at 30 locations	Tracer Suite Analysis at 31 locations

**Note:**

\* Thirty Tracer Suite samples were supposed to be collected at each location in April 2011 but no water could be extracted from two locations in the Freshwater Wetland and one location in the Mangroves after pumping up to 12 spots at each site for an hour. In Biscayne Bay and Card Sound, the 31<sup>st</sup> sample was a mid-water sample collected from Biscayne Bay as a "reference" for the Bay and Sound samples.

**Key:**

N.A. = Not applicable.

**Table 1-2. Tracer Suite Analysis Locations from the  
September 2010 Sampling Event**

Habitat	Location Name	Latitude	Longitude
Biscayne Bay	BF	25.40720	-80.32733
Biscayne Bay	F14	25.30646	-80.34383
Biscayne Bay	G11-Bay	25.34461	-80.33256
Biscayne Bay	G3	25.42761	-80.32525
Biscayne Bay	GH2B	25.44009	-80.32442
Biscayne Bay	GH5	25.40770	-80.32517
Biscayne Bay	GH6	25.39653	-80.32487
Biscayne Bay	H2B	25.44601	-80.31630
Biscayne Bay	H3	25.43008	-80.31902
Biscayne Bay	H4	25.41903	-80.31883
Biscayne Bay	H5	25.40787	-80.31901
Biscayne Bay	H10	25.35142	-80.31932
Biscayne Bay	H9-Bay	25.36151	-80.32159
Biscayne Bay	HI1	25.45299	-80.31242
Biscayne Bay	HI10	25.35130	-80.31265
Biscayne Bay	HI11	25.33996	-80.31244
Biscayne Bay	HI6	25.39632	-80.31250
Biscayne Bay	HI7	25.38610	-80.31248
Biscayne Bay	I3	25.42976	-80.30699
Biscayne Bay	IJ1	25.45311	-80.30052
Biscayne Bay	IJ3	25.43043	-80.30023
Biscayne Bay	IJ4	25.41892	-80.30003
Biscayne Bay	IJ7	25.38516	-80.30024
Biscayne Bay	IJ8	25.37379	-80.30002
Biscayne Bay	J12	25.32879	-80.29476
Biscayne Bay	J5	25.40750	-80.29392
Biscayne Bay	J6	25.39647	-80.29420
Biscayne Bay	J9	25.36254	-80.29424
Biscayne Bay	JK7	25.38527	-80.28759

**Table 1-3. Tracer Suite Analysis Locations from the April 2011 Sampling Event**

Habitat	Location Name	Latitude	Longitude
Freshwater Wetland	A9	25.36217	-80.40620
Mangrove	B12	25.33297	-80.39467
Freshwater Wetland	B7	25.38647	-80.39362
Freshwater Wetland	B8	25.37601	-80.39024
Saline Wetland	C10	25.35089	-80.38044
Freshwater Wetland	C2	25.44271	-80.37913
Freshwater Wetland	C3	25.43441	-80.38152
Freshwater Wetland	C5	25.40755	-80.37691
Freshwater Wetland	C6	25.39676	-80.37731
Freshwater Wetland	C8	25.37444	-80.37906
Saline Wetland	D10	25.35155	-80.36880
Freshwater Wetland	D2	25.44202	-80.36827
Freshwater Wetland	D3	25.43062	-80.36847
Freshwater Wetland	D4	25.41925	-80.36832
Freshwater Wetland	D6	25.39682	-80.36829
Freshwater Wetland	D7	25.38576	-80.36906
Freshwater Wetland	D8	25.37409	-80.37009
Freshwater Wetland	D9	25.36235	-80.36912
Saline Wetland	E10	25.35155	-80.35645
Mangrove	E11	25.33850	-80.35261
Mangrove	E12	25.32898	-80.35667
Freshwater Wetland	E1-2	25.44764	-80.35654
Freshwater Wetland	E2	25.44143	-80.35645
Freshwater Wetland	E3	25.43054	-80.35606
Freshwater Wetland	E4	25.41999	-80.35674
Mangrove	F1	25.44886	-80.34098
Saline Wetland	F10	25.35180	-80.34456
Mangrove	F11	25.34043	-80.34595
Mangrove	F12	25.32887	-80.34420
Freshwater Wetland	F1-2	25.44778	-80.34634
Biscayne Bay	F13	25.31781	-80.34410
Biscayne Bay	F14	25.30635	-80.34383
Saline Wetland	F2	25.44174	-80.34361
Saline Wetland	F2-3	25.43589	-80.34332
Mangrove	FG11	25.33868	-80.33829
Biscayne Bay	FG12	25.32885	-80.33823
Mangrove	G10	25.35515	-80.33212
Biscayne Bay	G11 OFF	25.34311	-80.33280
Mangrove	G11 ON	25.34395	-80.33539
Mangrove	G1-2	25.44760	-80.33795

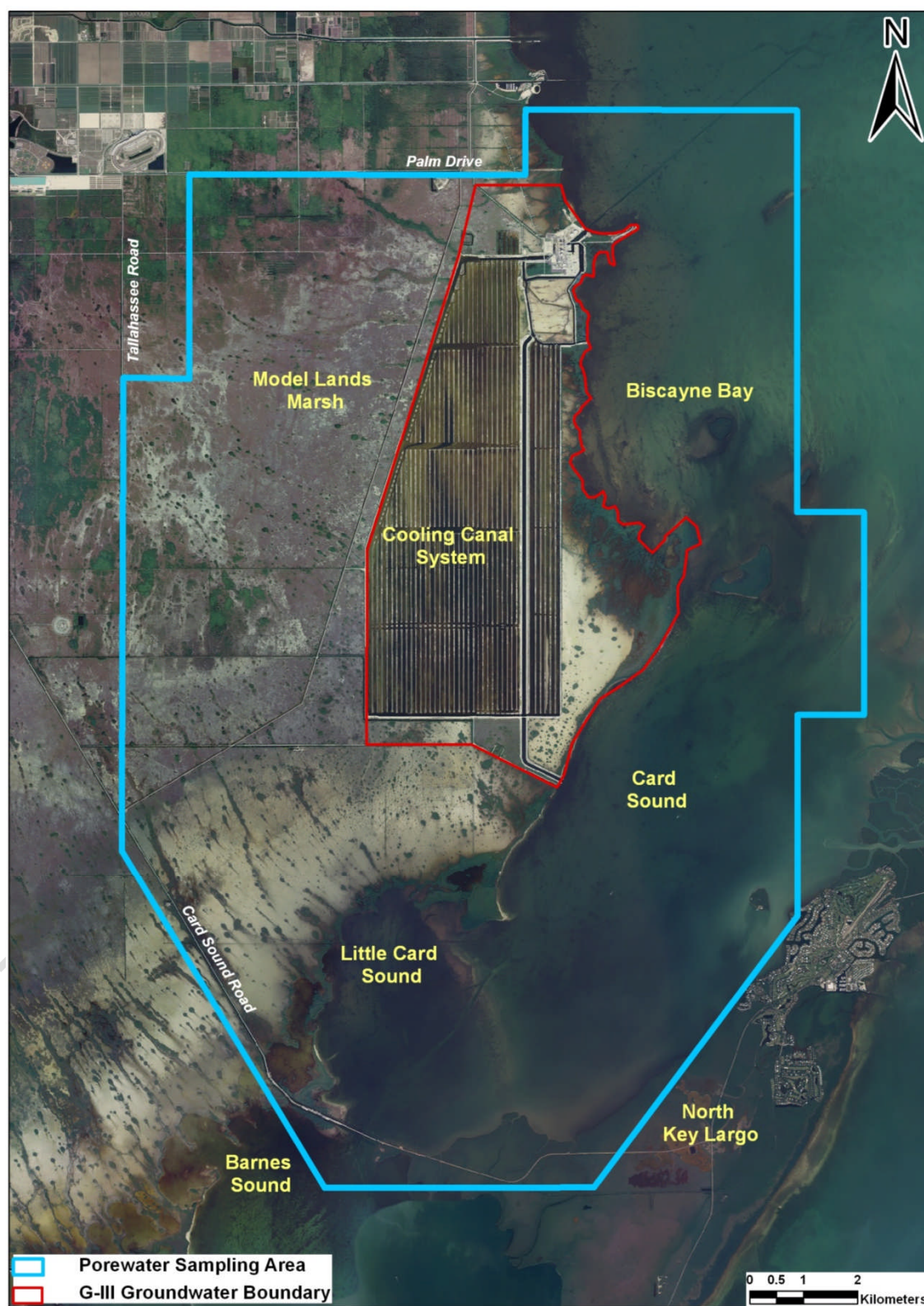


**Table 1-3. Tracer Suite Analysis Locations from the April 2011 Sampling Event**

Habitat	Location Name	Latitude	Longitude
Biscayne Bay	G1-OFF	25.45268	-80.33080
Mangrove	G1-ON	25.45175	-80.33427
Mangrove	G2	25.44174	-80.33099
Mangrove	G6	25.39654	-80.33058
Mangrove	G7	25.38528	-80.33092
Mangrove	G8	25.37401	-80.33097
Mangrove	G9	25.36279	-80.33096
Mangrove	G9-10	25.35673	-80.32763
Biscayne Bay	GH10	25.35138	-80.32491
Mangrove	GH8	25.37388	-80.32500
Biscayne Bay	H11	25.34010	-80.31939
Biscayne Bay	H12	25.32898	-80.31970
Biscayne Bay	H5	25.40785	-80.31890
Biscayne Bay	H6	25.39648	-80.31888
Biscayne Bay	H7	25.38519	-80.31889
Biscayne Bay	H9 OFF	25.36259	-80.31863
Mangrove	H9 ON	25.36372	-80.31930
Biscayne Bay	HI1	25.45246	-80.31332
Biscayne Bay	HI10	25.35152	-80.31242
Biscayne Bay	HI2	25.44150	-80.31201
Biscayne Bay	HI7	25.38610	-80.31247
Mangrove	HI8	25.37227	-80.31123
Biscayne Bay	I3	25.43019	-80.30614
Mangrove	I7	25.38516	-80.30656
Biscayne Bay	IJ3	25.43039	-80.29943
Biscayne Bay	IJ4	25.41928	-80.29994
Biscayne Bay	IJ7	25.38506	-80.30009
Biscayne Bay	IJ8	25.37392	-80.30010
Biscayne Bay	J11	25.33998	-80.29451
Biscayne Bay	J12	25.32911	-80.29475
Biscayne Bay	J9	25.36263	-80.29424
Biscayne Bay	JK7	25.38509	-80.28744
Biscayne Bay	K1 -surface	25.45212	-80.28064
Biscayne Bay	K8	25.37360	-80.28175

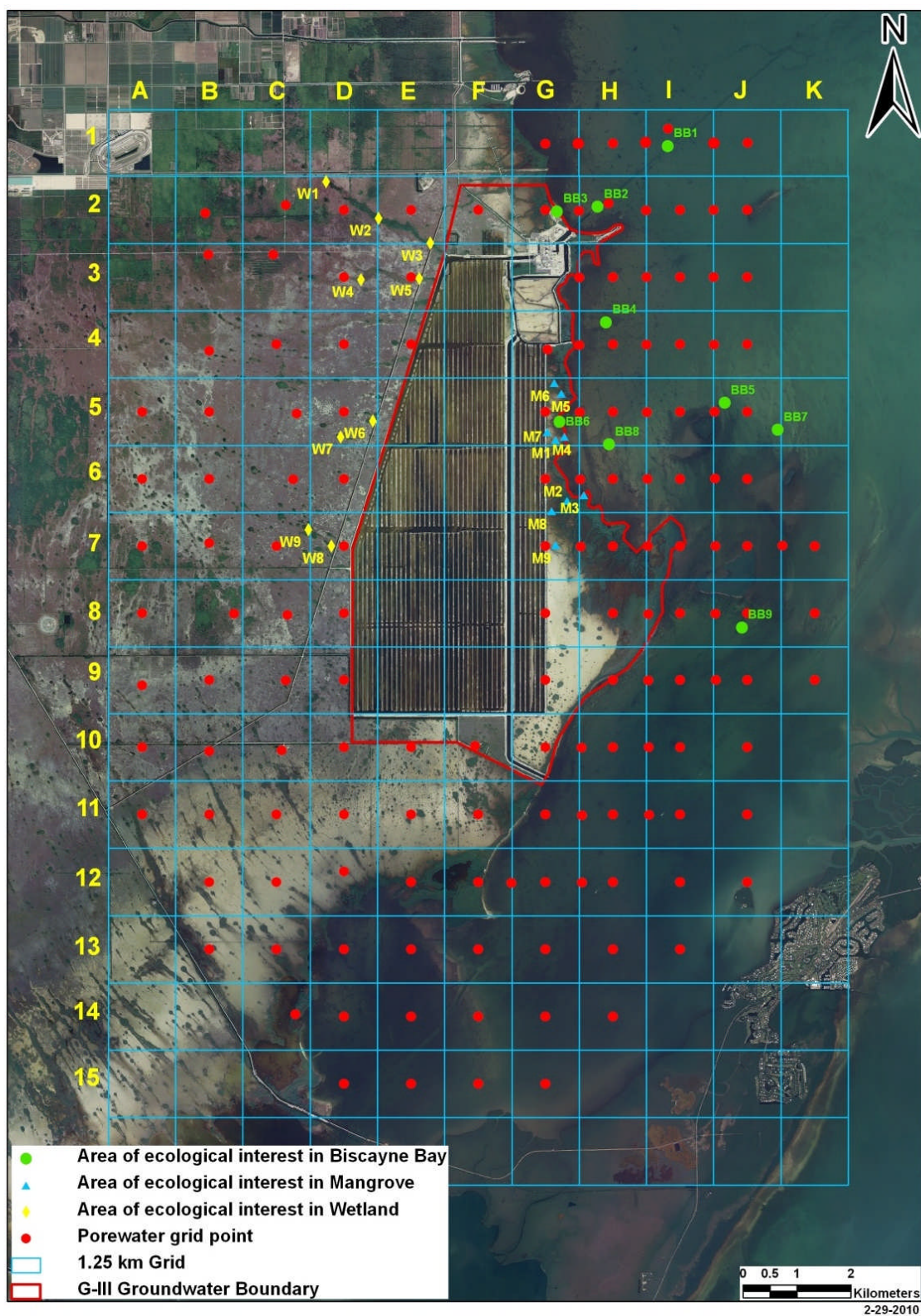
Note: Some of the freshwater wetland and mangrove sites were reclassified as "saline wetlands" due to their vegetation composition and salinity.

# FIGURES



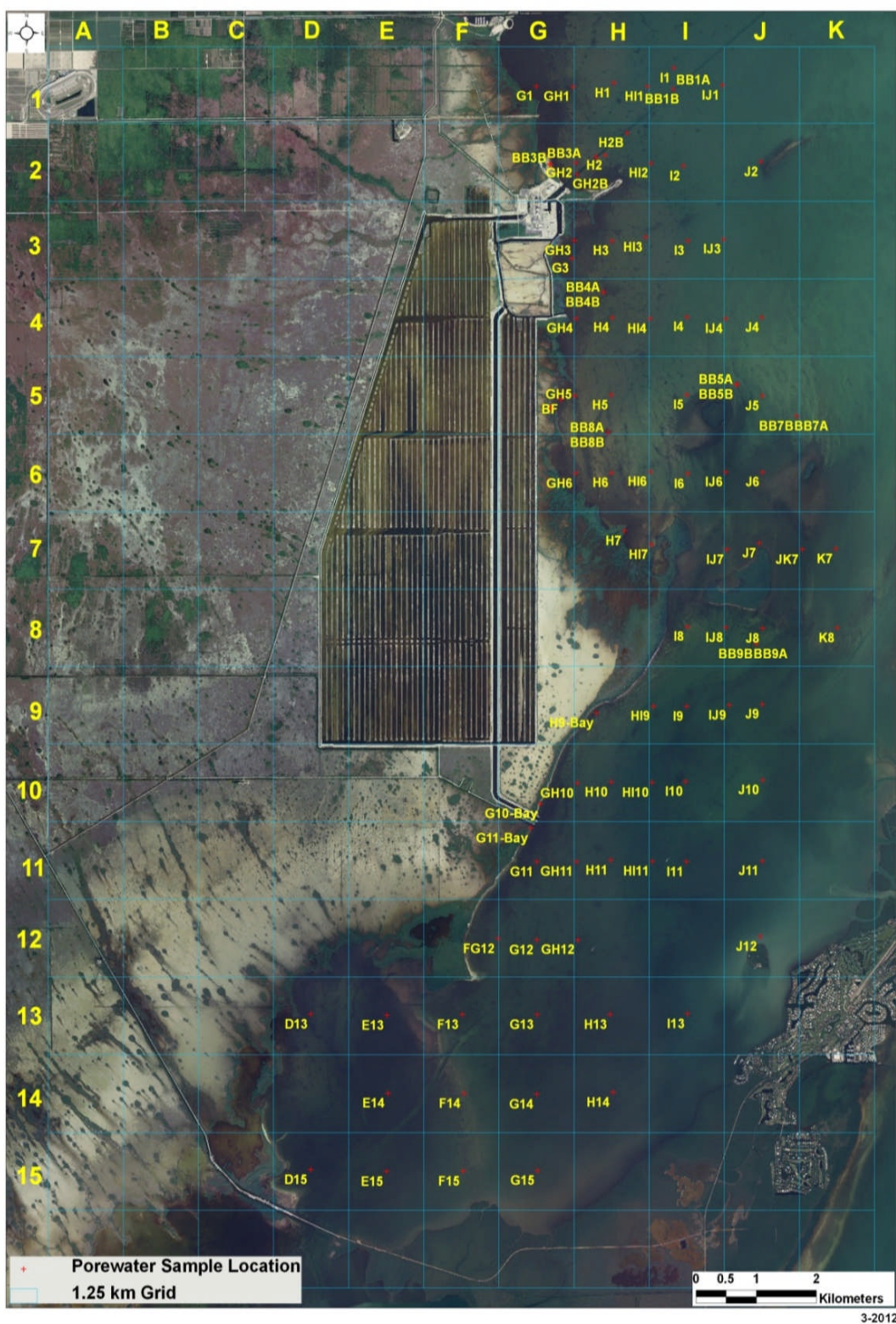
**Figure 1-1. Site Map and Extent of Broad-Scale Porewater Survey.**





**Figure 1-2. Locations of Initial Porewater Sample Sites.**





**Figure 1-3. Wet Season Porewater Sample Locations.**

## **2. METHODS AND MATERIALS**

To implement the broad-scale survey and better understand the overall conditions around the Turkey Point Power Plant, over 200 locations were selected across the landscape in the marsh, mangrove, and Biscayne Bay habitats around the CCS.

### **2.1 Sampling Design**

In November 2009, within a month of the Monitoring Plan approval, areas of interest were identified jointly by FPL and the Agencies. Aerial images (taken April 2009) provided by the SFWMD and Comprehensive Everglades Restoration Plan (CERP) Restoration Coordination and Verification (RECOVER) were used to determine any areas with differing vegetation patterns and/or unusual features (i.e., mangrove ponds, areas of shorter seagrass).

Additionally, five general areas were identified for further assessment in the Monitoring Plan:

1. An atypical mangrove area, east of the CCS (25.41°N, 80.32°W);
2. Short fringe mangroves, south of the Sea Dade Canal (25.34°N, 80.33°W);
3. Stunted sawgrass site, west of the CCS (25.43°N, 80.35°W);
4. Pond area in saltwater mangrove area east of the CCS (25.3799°N, 80.3268°W); and
5. Nearshore benthic features within Card Sound (25.4072°N, 80.3273°W).

In total, 27 points of ecological interest were selected: nine locations in freshwater wetlands, nine in mangroves, and nine in Biscayne Bay.

One hundred and one points were identified in the marsh and mangroves and 102 points were selected in the Bay (Tables 2-1 to 2-3). The landscape of interest was organized into a grid (Figure 1-2) of 1.56 km<sup>2</sup> (1.25 km x 1.25 km) cells. The grid extended east-west from Tallahassee Road/Southwest (SW) 137 Avenue to approximately 4.0 km in Biscayne Bay. The north-south points spanned from north of Palm Drive/SW 344 Street south to Card Sound Road/State Road 905A, with a number of points located in Little Card Sound. The grid pattern encompassed freshwater wetlands, mangroves, and Biscayne Bay.

The sampling effort was initiated during the April 2010 dry season when all 203 points were sampled. The initial porewater survey involved instruments that reported porewater parameters *in-situ*, including temperature, specific conductance and salinity. The electronic instruments used to obtain readings included a field sampling probe attached to a console read-out unit. For this study, an AquaTROLL<sup>®</sup> 100 (AT100) or AquaTROLL<sup>®</sup> 200 (AT200) connected to a handheld Rugged Reader<sup>®</sup> that used Win-Situ<sup>®</sup> Mobile (version 5.6.0) software was used to view and record field readings (In-Situ Inc., Fort Collins, Colorado). The conductivity resolution of the AquaTROLL is 0.1 microsiemens per centimeter (µS/cm) and is accurate to 0.1% across the full operating range (0-100,000 µS/cm) at operating temperatures (0-50 degrees Celcius [°C]). The

temperature sensor for the AT100 or AT200 is accurate to 0.1°C at a resolution level of at least 0.01°C. Specific methods used to obtain each sample are detailed in the Turkey Point Monitoring Project Porewater Sampling Protocol (Appendix A, per FPL QAPP [FPL 2011c]). Any deviations are discussed further below.

Briefly, coordinates of the sampling points were pre-selected based on aerial imagery (Figure 1-2) and entered into a handheld global positioning system (GPS) device (Rino 530X, Garmin Ltd., Olathe, Kansas), accurate to <3 meters (m) and set to North American Datum of 1983 (NAD 83). All sites were located on either FPL or Agency property. Where possible, selected marsh points were in the middle of each grid cell and adjusted to avoid privately owned parcels or trees and canals. Upon discussion with the Agencies, selected mangrove and Biscayne Bay locations were positioned in the middle of and on the grid cell lines to obtain a finer resolution of the area to the east and southwest of the CCS. One point was measured per grid location but two data points were collected at each area of ecological interest.

Points were named based on the column letter followed by the row number in which they occurred (e.g., C5, B12), and the depth of the sample noted; points that occurred on the grid lines were named for both adjoining cells followed by the number (i.e., IJ2, JK7). Areas of special interest were named for the habitat type (i.e., W = wetland, M = mangrove, BB = Biscayne Bay), and numbered in order starting from north to south (e.g., Biscayne Bay features were labeled BB1 to BB9). As two sample points were collected from an ecological area of interest, the points were labeled “A” and “B” (e.g., BB7A and BB7B).

As these points had been selected from aerial imagery, upon arrival at each site the locations were sometimes adjusted for safe access and sampling constraints. In some cases, the exact location could not be accessed due to dense exotic/poisonous vegetation or sampled as there was no soil (i.e., surface bedrock). Property ownership maps were used to determine the nearest possible location of the accessible FPL or Agency property to complete sampling near the identified coordinates. The coordinates of all locations visited are shown in Tables 2-2 and 2-3. All sites were accessed via helicopter, amphibious vehicle, on foot or by boat.

## **2.2 Porewater Measurements**

Sample collection was initially attempted using a porewater sampler following procedures detailed in the Porewater Sampling Protocol (Appendix A) as originally presented in the FPL QAPP (FPL 2011a); however, after a number of attempts the sampler was found to be unwieldy and unreliable in producing consistent readings. Consequently, the primary sampling protocol (i.e., PushPoint sampler) was adopted and maintained for the remainder of the initial porewater survey and all future survey sampling events. In brief, sampling involved the use of PushPoint samplers (PPX36, MHE Products, East Tawas, Michigan), metal sampling platforms, Tygon<sup>®</sup> tubing, 60 milliliter (mL) syringes, 50 mL cuvettes and a ruler or sounding rod to measure water depth (Figures 2-1 to 2-6).

The PushPoint sampler (Figure 2-1) assembly of the internal stabilizing rod within the external rod was first inserted to the required depth. A metal sampling platform (Figure 2-2) was used to

stabilize the setup when the sediment was soft. The external rod had a sharpened and perforated tip (Figure 2-3) that allowed water to be extracted from the set depth. Once the sampler was at the set depth, the internal rod was removed and the syringe assembly was connected to the top of the hollow external rod (Figure 2-4). Additionally, samples from the Bay had an insulated jacket to minimize temperature change during water collection (Figure 2-5).

The first aliquot of water (roughly one equipment volume) was used as rinsate and discarded. The second or third aliquot was used to obtain a reading. If a sample was excessively turbid, it was allowed to sit until the silt settled before measurements were taken. Samples were collected in a 50 mL cuvette and the probe (AT100 or AT200) inserted (Figure 2-6). The readings were allowed to stabilize for a few minutes before the final reading was recorded electronically using the Rugged Reader<sup>®</sup> and manually on a field datasheet.

Probes (AT100 or AT200) used in this effort were calibrated for specific conductance according to the manufacturer's specifications at the start of each event; an initial calibration (IC) was performed at the beginning of each sampling week, immediately followed by an initial calibration verification (ICV). A bracketed two-point continuing calibration verification (CCV) was performed after the ICV, and during the morning (before sampling) and afternoon (after sampling) of each sampling day for the remainder of the week. Probe temperature readings were verified within  $\pm 0.5^{\circ}\text{C}$  of a National Institute of Standards (NIST) traceable thermometer at the beginning of each sampling event at minimum.

For terrestrial (marsh, mangrove) sites, if standing water was present, surface water parameters were measured and recorded as 0 cm depth. The PushPoint sampler was then inserted to 20 cm, and porewater extracted. This process was repeated at 40 cm and 60 cm depths unless the instrument was rejected because of bedrock. In the event that the PushPoint sampler was rejected at depths less than 60 cm, between 5-50 adjacent sites were probed to reach 60 cm. If after >5 attempts 60 cm could not be reached, then the greatest depth found was where porewater was sampled and the appropriate depth recorded. In addition to porewater specific conductance and temperature readings, a short description of the physical properties of the porewater was recorded including odor, turbidity, and color; where present, suspended sediment particulate type was also described.

The ecology of the surrounding environment and approximate water depth within a 2.0 meter (m) radius was also recorded along with the air temperature provided by a separate NIST certified temperature instrument (Control Company 4039 Traceable<sup>®</sup> Waterproof Thermometer with probe or *ebro*<sup>®</sup> TFX410-1 thermometer w/TFX100 Probe). At all special interest sites identified by the Agencies, two locations within 2.0 m of each other were sampled.

Slight modifications to the sampling method were needed for Biscayne Bay. In addition to porewater parameters measured at 20, 40 and 60 cm below the sediment surface, where the Bay was greater than 1.5 – 2.0 m deep, readings of specific conductance and temperature were obtained with the probes at 30 cm below the water surface, and 30 cm above Bay bottom (Figure 2-7). The depth of the Bay was also recorded using a sounding rod (where <5 feet deep) or a depth sounder on the boat. A separate temperature probe data logger (TCTemp1000,



Thermoworks, Lindon, Utah) was installed up to 60 cm below the sediment and the time recorded at insertion and removal for the August 2010, September 2010 and April 2011 sampling events (Tables 2-2 and 2-3). Later the recorded time at which porewater was sampled was matched with the time in the temperature data logger and those values were used for analysis.

## **2.3 Tracer Suite Sample Collection**

For events that involved collecting porewater samples for Tracer Suite analyses, water was obtained using a Geotech Geopump™ Series II Peristaltic Pump, an SP100 or SP 200, instead of a handheld 60 mL syringe because more sample was required for laboratory analysis (Figure 2-8). Tubing and field equipment was decontaminated after each sampling point as outlined in the QAPP (2011), per FDEP SOP 001/01.

Samples obtained during the September 2010 wet season and the April 2011 dry season were collected 60 cm below ground surface (per Agency request). If the sampling depth could not be reached after >5 attempts, samples were collected from the greatest depth found. As the minimum volume for sampling required at least 1.0 liter (L) of porewater, two samples of at least 500 mL were obtained within 2.0 m of each other and then composited. Two samples were collected from each point to minimize extracting too much sample from one depth at one location. Pulling too much water from one depth can potentially result in water from adjacent depths being extracted into the sample.

After compositing, the sample was then pumped into an analyte bottle. Minimum volumes (Section 2.6.3 in the QAPP) were used due to limited sample availability. Each analyte bottle was labeled, placed in ice, and turned over to TestAmerica Laboratories, Inc. (TestAmerica) or the United States Geological Survey (USGS) for chemical analyses.

Samples collected for Tracer Suite analyses involved testing for the following parameters:

- Ions (sodium, calcium, magnesium, potassium, boron, strontium, bromide, chloride, fluoride, sulfate, sulfide, alkalinity and bicarbonate);
- Trace metals barium and iron;
- Dissolved inorganic carbon (DIC)
- Stable isotopes (hydrogen ( $^2\text{H}/^1\text{H}$ ), oxygen ( $^{18}\text{O}/^{16}\text{O}$ ), strontium ( $^{87}\text{Sr}/^{86}\text{Sr}$ ), and carbon ( $^{13}\text{C}/^{12}\text{C}$ ); and
- Tritium.

A number of the samples turned over to TestAmerica were subsequently sent to the University of Miami for the following:

- University of Miami Rosenstiel School of Marine & Atmospheric Science (RSMAS) Laboratory analyzed for carbon isotopes.
- University of Miami L7 Isotope Laboratory analyzed for hydrogen and oxygen isotopes.

Tritium and strontium isotopes were analyzed by the USGS at the following facilities:

- USGS Menlo Park, Tritium Laboratory – tritium; and
- USGS Menlo Park, Strontium Laboratory - strontium isotope.

Details of the analytical methodologies for each analyte are provided in the project QAPP.

## **2.4 Statistical Analyses**

Descriptive statistics and means testing were accomplished using NCSS statistical software (Hintze 2004). Analysis of Variance (ANOVA) was used to compare means within and among groups of interests. There were a number of data groups and the explanations for how these were analyzed are given below.

The sampling protocol for areas of ecological interest (AEI) was different from that of the grid points. It was recognized that hydrogeological conditions could potentially change over very short distances resulting in localized conditions that could negatively impact surrounding vegetation. In order to try and capture whether any such fine scale variability was occurring at sites identified as potentially exhibiting ecological stress, temperature and specific conductance were sampled twice for each depth at each AEI site. The two measurements were taken approximately two meters from each other. Having two samples collected from the same AEI location helped to ensure that samples representative of the prevailing conditions were collected and also allowed a comparison to determine whether the AEIs were possibly being affected by varying, localized physiochemical characteristics.

The pairs of AEI samples were compared within each season and habitat (Bay, mangrove, marsh) using an ANOVA. For the purpose of these statistical tests, at each AEI site, the two samples were treated as if they were independent. The decision to treat them independently was based on the samples not being technically duplicates because they were collected two meters from one another with the idea that localized and unique conditions may be present. In reality, at sites this close together, physiochemical parameters at one sampling site are likely to be influenced by those at the adjacent site (however, this does not necessarily affect the ANOVA's ability to detect differences between replicates).

In order to determine whether the AEI sites exhibited physiochemical differences compared to the grid points, ANOVAs were used to compare temperature and salinity between AEI and grid point sites within each habitat, depth and sampling season. The previously described analyses examining the AEI replicates revealed that there were only very small differences between samples taken at each site. Again, while not technically replicates, the close proximity of the pairs of samples and that they are statistically similar makes comparing all of the pairs of AEI samples to the grid points statistically problematic. In essence treating each of the individual AEI samples as an independent data point and directly comparing them to the grid points would erroneously inflate the sample size and corresponding degrees of freedom. In order to avoid this, the pairs of AEI points were averaged and the mean of each pair used to represent that particular AEI sampling site.

ANOVAs were also used to determine whether there were differences in temperature and salinity among the sampling depths within each sampling season and habitat. For these analyses all sample depths were treated as independent and it was assumed for the purposes of the statistical analyses that adjacent depths were not affected by one another. In reality this is not the case as certainly water at 40 cm will interact with and both affect and be affected by water above and below it, and will do so to varying degrees depending local environmental and geologic conditions. For statistically significant ANOVAs, a conservative Tukey-Kramer post-hoc test was used to identify at which depth differences in means occurred.

Piper diagrams were generated on the major cations and anions using GW-Chart (v. 1.23.3.0), a publicly available program developed by the USGS (Winston 2000). A Hierarchical Cluster Analysis was determined for all cases with complete sets of analytical data within each habitat using PASW Statistics (v. 17.0.2, IBM Corporation, Armonk, NY).

# TABLES

**Table 2-1. Number of Sampling Locations by Event in Each Habitat**

Event	Date	Habitat			Total Number of Samples Measured
		Marsh	Mangrove	Biscayne Bay	
Dry Season Broad-scale Survey	3/18/10 – 4/12/10	56	45	102	203
Wet Season Broad-scale Survey	8/17/10 - 8/26/10	0	0	102	102
Dry Season Tracer Suite	4/4/11 - 4/20/11	28	29	31	88*
Wet Season Tracer Suite	9/22/10 - 9/28/10	0	0	30	30

\* Water could be collected at only 88 of the 95 total sites visited.

**Table 2-2. Broad-scale Porewater Grid Sites**

<b>Site Name</b>	<b>Latitude (Decimal Degrees)</b>	<b>Longitude (Decimal Degrees)</b>	<b>Habitat Type</b>
A5	25.40831	-80.40573	W
A6	25.39698	-80.40523	W
A7	25.38544	-80.40668	W
A8	25.37411	-80.40540	W
A9	25.36222	-80.40604	W
A10	25.35291	-80.40684	W
A11	25.34072	-80.40650	W
B2	25.44774	-80.39375	W
B3	25.43442	-80.39346	W
B4	25.41893	-80.39362	W
B5	25.40915	-80.39368	W
B6	25.39656	-80.39333	W
B7	25.38614	-80.39362	W
B8	25.37498	-80.39034	W
B9	25.36304	-80.39402	W
B10	25.35098	-80.39372	W
B12	25.33294	-80.39471	M
C2	25.44273	-80.37917	W
C3	25.43442	-80.38146	W
C4	25.41934	-80.38079	W
C5	25.40774	-80.37735	W
C6	25.39666	-80.37778	W
C7	25.38549	-80.38023	W
C8	25.37480	-80.37942	W
C9	25.36273	-80.37940	W
C10	25.35088	-80.38035	M
C14	25.30668	-80.37738	M
D2	25.44202	-80.36830	W
D3	25.43057	-80.36845	W
D4	25.41940	-80.36849	W
D5	25.40821	-80.36852	W

**Table 2-2. Broad-scale Porewater Grid Sites**

<b>Site Name</b>	<b>Latitude (Decimal Degrees)</b>	<b>Longitude (Decimal Degrees)</b>	<b>Habitat Type</b>
D6	25.39669	-80.36867	W
D7	25.38577	-80.36903	W
D8	25.37411	-80.37009	W
D9	25.36285	-80.36874	W
D10	25.35162	-80.36890	M
D13	25.31795	-80.36915	BB
D14	25.30653	-80.36921	BB
D15	25.29539	-80.36945	BB
E1-2	25.44765	-80.35655	W
E2	25.44152	-80.35609	W
E3	25.43055	-80.35611	W
E4	25.41999	-80.35673	W
E10	25.35155	-80.35648	M
E11	25.34029	-80.35651	M
E12	25.32907	-80.35668	M
E13	25.31777	-80.35654	BB
E14	25.30646	-80.35646	BB
E15	25.29509	-80.35673	BB
F1-2	25.44780	-80.34634	M
F2	25.44176	-80.34356	W
F2-3	25.43587	-80.34402	W
F10	25.35174	-80.34460	M
F11	25.34045	-80.34590	M
F12	25.32921	-80.34426	M
F13	25.31779	-80.34412	BB
F14	25.30638	-80.34386	BB
F15	25.29508	-80.34409	BB
FG11	25.33909	-80.33791	M
FG12	25.32886	-80.33829	BB
G1	25.45279	-80.33071	BB
G1-Off	25.45268	-80.33080	BB

**Table 2-2. Broad-scale Porewater Grid Sites**

<b>Site Name</b>	<b>Latitude (Decimal Degrees)</b>	<b>Longitude (Decimal Degrees)</b>	<b>Habitat Type</b>
G1-On	25.45175	-80.33427	M
G1-2	25.44763	-80.33798	M
G2	25.44175	-80.33123	M
G2-3	25.43531	-80.33552	M
G4	25.41840	-80.33075	M
G5	25.40792	-80.33076	M
G6	25.39639	-80.33089	M
G7	25.38529	-80.33089	M
G8	25.37397	-80.33097	M
G9	25.36279	-80.33158	M
G9-10	25.35637	-80.32761	M
G10	25.35511	-80.33216	M
G10-Bay	25.34837	-80.33105	BB
G11	25.34005	-80.33163	BB
G11-Bay	25.34485	-80.33264	BB
G11-Off	25.34311	-80.33280	BB
G11-On	25.34395	-80.33539	M
G12	25.32882	-80.33176	BB
G13	25.31773	-80.33160	BB
G14	25.30618	-80.33190	BB
G15	25.29517	-80.33185	BB
GH1	25.45267	-80.32500	BB
GH2	25.44150	-80.32481	BB
GH2B	25.43996	-80.32449	BB
GH3	25.43029	-80.32495	BB
GH4	25.41899	-80.32485	BB
GH5	25.40776	-80.32504	BB
GH6	25.39646	-80.32489	BB
GH8	25.37390	-80.32498	BB
GH10	25.35136	-80.32500	BB
GH11	25.33983	-80.32497	BB



**Table 2-2. Broad-scale Porewater Grid Sites**

<b>Site Name</b>	<b>Latitude (Decimal Degrees)</b>	<b>Longitude (Decimal Degrees)</b>	<b>Habitat Type</b>
GH12	25.32858	-80.32490	BB
H1	25.45261	-80.31851	BB
H2	25.44266	-80.31950	BB
H2B	25.44592	-80.31617	BB
H3	25.43029	80.31888	BB
H4	25.41909	-80.31868	BB
H5	25.40778	-80.31901	BB
H6	25.39652	-80.31899	BB
H7	25.38804	-80.31693	M
H9	25.36946	-80.31925	M
H9-Bay	25.36153	-80.32168	BB
H9-Off	25.36259	-80.31863	BB
H9-On	25.36372	-80.31930	M
H10	25.35147	-80.31927	BB
H11	25.34013	-80.31940	BB
H12	25.32902	-80.31972	BB
H13	25.31767	-80.31955	BB
H14	25.30644	-80.31927	BB
HI1	25.45271	-80.31268	BB
HI2	25.44141	-80.31226	BB
HI3	25.43035	-80.31245	BB
HI4	25.41883	-80.31248	BB
HI5	25.40765	-80.31246	BB
HI6	25.39643	-80.31249	BB
HI7	25.38605	-80.31245	BB
HI8	25.37202	-80.31137	M
HI9	25.36262	-80.31252	BB
HI10	25.35138	-80.31260	BB
HI11	25.33997	-80.31252	BB
I1	25.45527	-80.30839	BB
I2	25.44160	80.30638	BB

**Table 2-2. Broad-scale Porewater Grid Sites**

<b>Site Name</b>	<b>Latitude (Decimal Degrees)</b>	<b>Longitude (Decimal Degrees)</b>	<b>Habitat Type</b>
I3	25.43034	-80.30630	BB
I4	25.41915	80.30628	BB
I5	25.40781	-80.30645	BB
I6	25.39635	-80.30650	BB
I7	25.38520	-80.30656	BB
I8	25.37393	-80.30669	BB
I9	25.36247	-80.30673	BB
I10	25.35128	-80.30691	BB
I11	25.33997	-80.30685	BB
I12	25.32885	-80.30695	BB
I13	25.31780	-80.30694	BB
IJ1	25.45273	-80.29981	BB
IJ2	25.44158	-80.30018	BB
IJ3	25.43037	-80.30016	BB
IJ4	25.41893	-80.30004	BB
IJ5	25.40770	-80.30013	BB
IJ6	25.39645	-80.30012	BB
IJ7	25.38518	-80.30010	BB
IJ8	25.37386	-80.30010	BB
IJ9	25.36249	-80.29988	BB
J1	25.45275	-80.29372	BB
J2	25.44162	-80.29401	BB
J3	25.43047	-80.29402	BB
J4	25.41906	-80.29398	BB
J5	25.40758	-80.29398	BB
J6	25.39644	-80.29416	BB
J7	25.38616	-80.29465	BB
J8	25.37382	-80.29423	BB
J9	25.36259	-80.29430	BB
J10	25.35146	-80.29440	BB
J11	25.33989	-80.29442	BB

**Table 2-2. Broad-scale Porewater Grid Sites**

<b>Site Name</b>	<b>Latitude (Decimal Degrees)</b>	<b>Longitude (Decimal Degrees)</b>	<b>Habitat Type</b>
J12	25.32896	-80.29469	BB
JK7	25.38525	-80.28761	BB
K1- Surface	25.45212	-80.28064	BB
K7	25.38527	-80.28174	BB
K8	25.37362	-80.28174	BB
K9	25.36228	-80.28191	BB
BF	25.40722	-80.32729	BB

Key:

BB = Biscayne Bay.

M = Mangrove.

W = Marsh.

**Table 2-3. Areas of Ecological Interest**

<b>Site Name</b>	<b>Latitude (Decimal Degrees)</b>	<b>Longitude (Decimal Degrees)</b>
BB1A	25.45224	-80.30854
BB1B	25.45225	-80.30851
BB2A	25.44238	-80.32148
BB2B	25.44236	-80.32159
BB3A	25.44140	-80.32897
BB3B	25.44144	-80.32894
BB4A	25.42278	-80.32004
BB4B	25.42279	-80.32001
BB5A	25.40916	-80.29819
BB5B	25.40932	-80.29826
BB6A	25.40605	-80.32894
BB6B	25.40601	-80.32898
BB7A	25.40462	-80.28829
BB7B	25.40463	-80.28829
BB8A	25.40236	-80.31955
BB8B	25.40237	-80.31961
BB9A	25.37148	-80.29531
BB9B	25.37149	-80.29535
M1A	25.40305	-80.32949
M1B	25.40306	-80.32946
M2A	25.39290	-80.32739
M2B	25.39280	-80.32745
M3A	25.39377	-80.32435
M3B	25.39374	-80.32430
M4A	25.40354	-80.32827
M4B	25.40355	-80.32825
M5A	25.40996	-80.32976
M5B	25.40997	-80.32977
M6A	25.41259	-80.32965
M6B	25.41253	-80.32964
M7A	25.40541	-80.33043

**Table 2-3. Areas of Ecological Interest**

Site Name	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)
M7B	25.40546	-80.33040
M8A	25.39115	-80.33031
M8B	25.39111	-80.33028
M9A	25.38548	-80.32973
M9B	25.38548	-80.32969
W1A	25.44676	-80.37180
W1B	25.44674	-80.37182
W2A	25.43957	-80.36063
W2B	25.43950	-80.36060
W3A	25.43621	-80.35294
W3B	25.43626	-80.35294
W4A	25.43023	-80.36545
W4B	25.43014	-80.36546
W5A	25.43027	-80.35482
W5B	25.43030	-80.35478
W6A	25.40639	-80.36423
W6B	25.40639	-80.36420
W7A	25.40350	-80.36907
W7B	25.40350	-80.36911
W8A	25.38730	-80.37111
W8B	25.38733	-80.37113
W9A	25.38822	-80.37524
W9B	25.38828	-80.37530

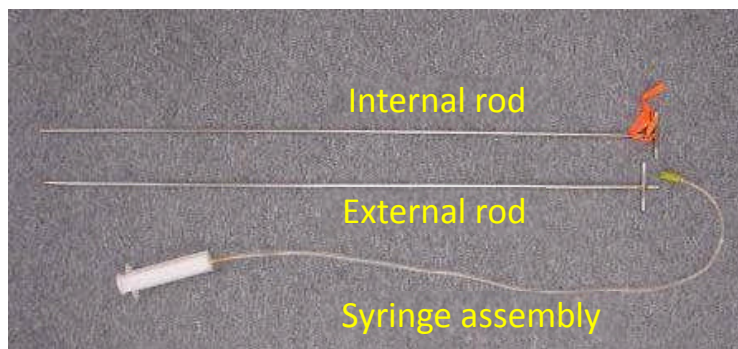
Key:

BB = Biscayne Bay.

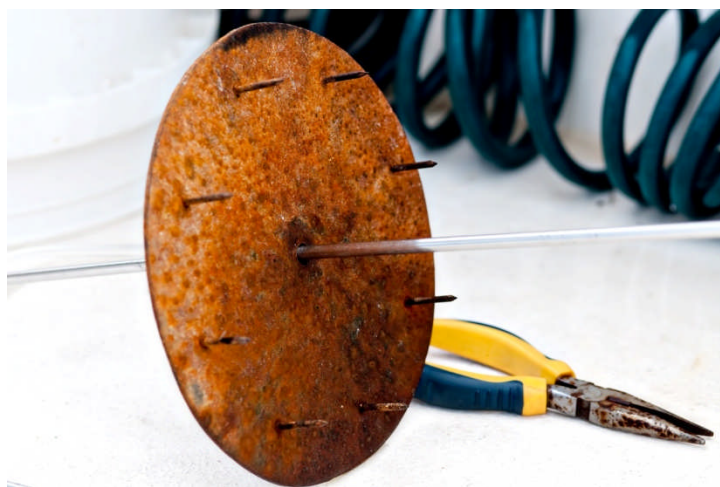
M = Mangrove.

W = Marsh.

# FIGURES



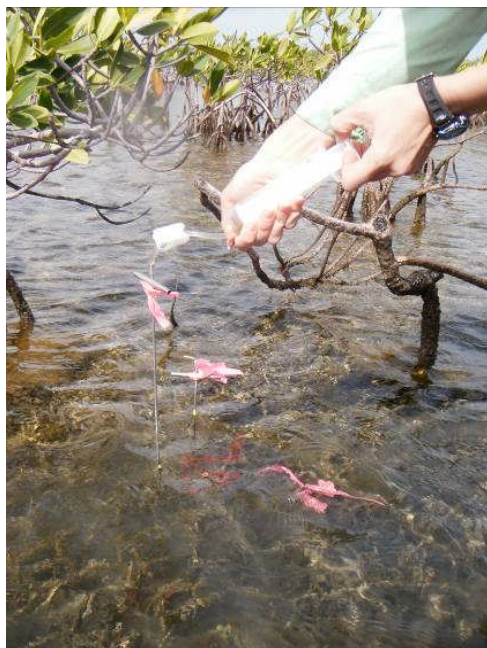
**Figure 2-1. Example of Stainless Steel PushPoint Sampler Setup.**



**Figure 2-2. Metal Plate Stabilizes PushPoint Sampler for Collecting Porewater from Soft Sediments.**



**Figure 2-3. The PushPoint Sampler has a Perforated Tip.**



**Figure 2-4. Collecting Porewater from the Mangroves.**

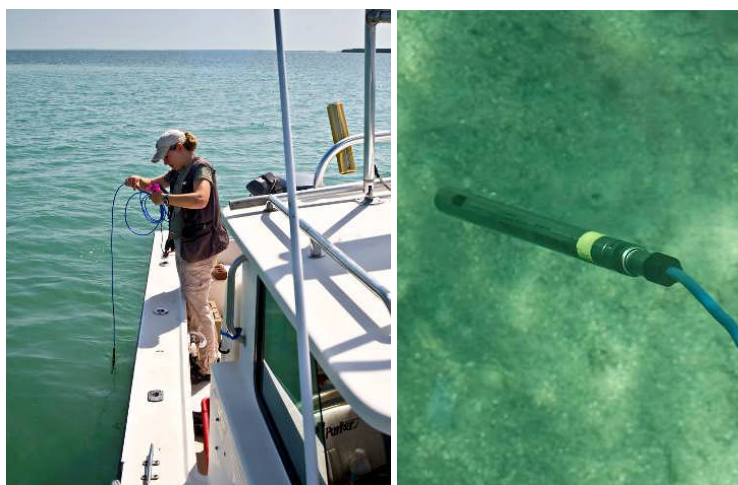


**Figure 2-5. Subtidal Porewater was Collected using an Insulated Pushpoint Sampler.**





**Figure 2-6. A Porewater Sample is Measured by a Technician.** Porewater samples were put in a 50 mL cuvette and measured with either an AT100 or AT200 probe.



**Figure 2-7. Surface Water Specific Conductance and Temperature are Determined by Dropping Probe into the Water.**



**Figure 2-8. Porewater for Analytical Samples was Extracted using a Peristaltic Pump from Two Locations per Point.**

## **3. RESULTS AND DISCUSSION**

This section presents results and statistical analyses from both the wet and dry season broad-scale porewater survey as well as the Tracer Suite analyses conducted in 2010 and 2011. Sampling was conducted over an approximately 70 mi<sup>2</sup> area in the marsh, mangroves and in Biscayne Bay. Findings from over 800 points in the water column and at various porewater depths for specific conductance, temperature, and salinity, as well as 118 sets of Tracer Suite analytical data are described in the following sections and related to the environmental conditions around the CCS. Descriptions of each of the locations sampled are provided in Appendix B as information on each of these sites provides additional understanding into the values and patterns observed at each location.

### **3.1 Meteorological Conditions**

In order to characterize conditions present at the time of sampling, meteorological data were recorded and examined for several months prior to sampling. Dry season temperature and rainfall patterns were examined for January, February, March and April (broad scale and tracer suite sampling month) while wet season conditions were examined for July, August (broad-scale sampling month) and September (Tracer Suite sampling month). The on-site meteorological station did not come online until July 26, 2010. Therefore, to remain consistent, all meteorological data presented in this report were derived from the Homestead Air Force Base meteorological station (Figures 3-1 to 3-4), just north of the study area.

Florida weather is typified by wet warm conditions during the summer months of May through October, and by drier cooler conditions in the winter (November-April) (Chen and Gerber 1990); approximately 75% of the 1.5 m (59 inches) of rainfall occurs during the summer months, often from storm or hurricane events. No hurricanes occurred during the study period.

Rainfall and ambient temperature conditions varied by season and between years (Figures 3-1 to 3-4, Table 3-1). The 2010 dry season (January-April 2010) was cooler and wetter compared to the same time period in 2011. The weather conditions were a consequence of 2010 being a moderate La Niña year which in South Florida usually results in cooler and wetter than average conditions. The following year, 2011, however, was an average year with limited rainfall during the winter dry months.

Ambient temperatures in the 2010 dry season months ranged from -1.1°C (30°F) in January to 30.0°C (86°F) in April while 2011 dry season ambient temperatures ranged from 3.3°C (38°F) in January to 32.2°C (90°F) in April (Table 3-1; Figures 3-1 and 3-2). Mean ambient temperatures were greater during the 2011 dry season (average  $\pm$  standard deviation = 21.6  $\pm$  3.5°C) than the 2010 dry season (average  $\pm$  standard deviation = 18.6  $\pm$  4.7°C;  $t_{238} = -5.58$ ,  $p < 0.001$ ). During the

2010 wet season ambient temperatures ranged from 22.2°C (72°F) in August to 33.9°C (93°F) in July (Table 3-1; Figure 3-3).

The 2010 and 2011 dry seasons also differed in both the quantity and timing of rain received. From January 1 to April 30, 2010, 25.6 cm (10.1 inches) of rain fell while over this same period in 2011, only 16.5 cm (6.5 inches) of rain were recorded (Figure 3-4). In 2010 almost half (4.9 inches) of the total rainfall was received in April when dry season Tracer Suite samples were originally scheduled to be collected, while in 2011 almost two-thirds (4 inches) of the total rainfall occurred in January (Figure 3-4). The dry season Tracer Suite collection for 2010 was deferred to the following year in agreement with the Agencies as a consequence of the wetter than normal 2010 spring. The wet season of 2010 was an average rainfall year, recording a total of 57.4 cm (22.6 inches), with 29.7 cm (11.7 inches) of the amount occurring during September.

## **3.2 Temperature and Specific Conductance/Salinity**

Summary statistics for temperature, specific conductance and salinity for each habitat and depth for each sampling season are summarized in Table 3-2 as well as in Appendix C. Note that it was not always possible to obtain measurements at each depth. For example, during the dry season there was no standing water in the marsh. In some areas of Biscayne Bay where water depth was <3 feet, only one water sample was measured in the overlying surface. Additionally, in some of the Bay areas, bedrock was sometimes encountered between 30-60 cm below sediment surface.

Specific conductance data for each site and depth are presented in Appendix B but subsequent discussion and statistical analyses will be limited to temperature and salinity only. Salinity is derived from specific conductance using the Practical Salinity Scale of 1978 (PSS78) calculation and extrapolated linearly for calculations above and below the application range by the instrument manufacturer. Salinity is presented in lieu of specific conductance as it is a more widely used and easily understood parameter. Other than in the summary table (Table 3-2), specific conductance measurements are not reported in statistical analyses.

The general breakdown of the information presented in this section is as such. First, differences within each habitat are compared across depth. Second, due to the interest in areas defined as “Areas of Ecological Interest” (AEI), these subsets of sites were extracted from the full dataset and analyzed against the grid points.

Porewater field measurement differences within the AEI points are shown in Table 3-3, and comparisons between the two replicates are shown in Tables 3-4 and 3-5. In general, the differences in temperature and salinity between pairs of samples at AEI sites were small and non-significant, indicating that the prevailing conditions were captured at each site. The maximum difference in temperature across all habitats and seasons was 3.8°C while the mean difference was 0.6°C. For salinity, the maximum difference across all habitats and seasons was 4.5 and the mean was 0.6. There were no statistical differences between AEI replicates within habitats for either temperature (Table 3-4) or salinity (Table 3-5). This finding was consistent across all depths during the April 2010, August 2010 and April 2011 seasons.

As there were no differences between the AEI points, the combined means of the AEIs were compared against grid points (referred to as “Bay”, “Mangrove” or “Marsh”) as shown in Tables 3-6 and 3-7. Across all seasons, habitats and depths there were no differences in water temperature between AEI and grid point sites (Table 3-6). However, in April 2010 there were some differences observed in salinity (Table 3-7). At 20 cm porewater depth, marsh grid point samples were higher in salinity than marsh AEI samples. Likewise, mangrove samples were higher in salinity than AEI samples at porewater depths of 40 and 60 cm. There were no other significant differences in salinity between grid point and AEI sites detected for any other seasons or depths. These differences will be expanded upon in each respective section below.

There were a number of instances where there were differences in porewater temperatures among depths (Table 3-8). In almost all of the cases, the significant difference was driven at least in part by surface water temperatures that were either warmer or cooler than water beneath the surface. This finding is not unexpected given that with all else equal, surface temperatures are more likely to fluctuate than subsurface temperatures because of the direct interface with ambient conditions and radiant heating.

### **3.2.1 Biscayne Bay**

Differences in temperature among the water column surface readings and porewater across all depths were small ( $< 1^{\circ}\text{C}$ ) within each season. Differences between the air and water temperatures were greater. For example, during the dry season survey in April 2010, mean surface water temperature in Biscayne Bay ( $23.1^{\circ}\text{C}$ ) was  $1.8^{\circ}\text{C}$  cooler than the average air temperature ( $24.9^{\circ}\text{C}$ ); similarly, in the wet season (August 2010) survey, average Bay surface water temperature ( $31.5^{\circ}\text{C}$ ) was  $0.9^{\circ}\text{C}$  lower than mean air temperature ( $32.4^{\circ}\text{C}$ ).

Both Bay water and air temperatures were between  $7.0$ - $8.0^{\circ}\text{C}$  higher in the summer wet season sampling of August 2010 compared to April 2010, reflective of the seasonal conditions of each time period. The magnitude of observed air-water differences reflect the seasonal atmospheric conditions observed during the respective sampling time periods (i.e., dry season spring-time April 2010 temperatures had a bigger monthly minimum-maximum difference [Table 3-1] compared to August 2010). The more consistent air temperatures observed in August 2010 (Table 3-9) allowed the water column and porewaters to equilibrate and remain consistent in the absence of any strong external thermal contributing factors.

ANOVAs were conducted on temperature and salinity data within each habitat for each season across depth (either top of water column in the Bay or just above sediment surface (0 cm, 20 cm, 40 cm and 60 cm in the sediment). The univariate ANOVA of the April 2010 temperatures showed that the average shallow 20 cm Bay porewater was slightly warmer ( $23.8^{\circ}\text{C}$ ) than the overlying water column ( $23.1^{\circ}\text{C}$ ), but soils at 40 cm and 60 cm were cooler ( $F_{3,253} = 3.598$ ,  $p < 0.05$ ). This slight warming within the 20 cm soil layer in shallow Biscayne Bay is most likely due to thermal warming of the substrate due to solar insolation.

In August 2010, the Bay water at the bottom of the water column ( $31.7^{\circ}\text{C}$ ) was not significantly different from all depths of porewater (ANOVA,  $F_{3,345} = 0.292$ ,  $p > 0.10$ ); porewater temperature

remained consistent among all 3 soil depths sampled (i.e., 31.6°C). The homogeneity of the temperatures is not unexpected as the limited change in atmospheric conditions in the previous weeks would have allowed for the equilibration of water temperatures with the underlying soils.

Salinity patterns at the bottom of the water column varied only 1 unit (in PSS78 scale) from April to August 2010, unlike the observations from Biscayne National Park (2007) that showed a 2 ppt flux between August 2005, April 2006 and August 2006 in the Turkey Point vicinity (site BISC08B). Salinity within the Bay porewater did not differ with depth in April 2010; values were within 0.5 from the water column all the way to 60 cm depth ( $F_{3,250} = 0.626$ ,  $p > 0.10$ ). In August 2010, however, there was a difference ( $F_{3,334} = 22.110$ ,  $p < 0.001$ ) in salinity between the bottom of the water column (34.0 in PSS78 scale) with the sediment (34.8-35.1 in PSS78 scale) although the three sediment depths sampled did not differ among depths.

When the data were separated to compare the grid points with the AEI samples in the Bay, both April and August 2010 porewater temperatures and salinity did not show any differences within each depth sampled (Table 3-6 and 3-7). Therefore, the grid points and AEI were compared across depth within a location. Differences were observed in the temperature of the grid points vertically across depth (Table 3-8). Although temperature differences were  $<1.0^{\circ}\text{C}$  between the water column and all sediment depths, the water was warmer in the sediment compared to the water column in April 2010. In August 2010, there were no differences observed among depths for the Bay or AEI temperatures but there was a difference in grid point salinities; salinity was higher within the sediment compared to the water column (Table 3-9).

Field observations from over 200 locations and 3 porewater depths across both seasons do not clearly indicate any temperature influences from the CCS. As water from the CCS is warmer than the surrounding water bodies, it is expected that water at depth would be warmer relative to the surface. For both seasons, however, there was no difference in temperatures across depths (Table 3-9). The data reflect seasonal trends but the consistency in the salinity and temperature within the porewater (20, 40 and 60 cm) each season indicate that over the sampling periods there is no evidence of CCS water influencing Bay porewaters.

No salinity differences were observed with depth either season sampled (Table 3-9) but there was some spatial variability in salinity among the basins. Card Sound had the lower salinity compared to Little Card Sound and Biscayne Bay for both April and August 2010 (Figures 3-5 to 3-8). These inter-basin observations may be a reflection of the deeper, more sedimented basin of Card Sound compared to the shallower hard-bottom Biscayne Bay.

### **3.2.2 Marsh and Mangroves**

Both the marsh and mangrove were sampled at the end of the dry season in March-April 2010. At that time of the year, despite it being a wetter than normal (Table 3-1) dry season, the landscape surface in these habitats was mostly dry and there were very few locations where standing water could be found, hence the limited surface water data (Table 3-9).

A comparison of April 2010 marsh temperature and salinity data indicated no significant differences (ANOVA<sub>temperature</sub>,  $F_{3,154} = 1.990$ ,  $p > 0.05$ ; ANOVA<sub>salinity</sub>:  $F_{3,154} = 0.734$ ,  $p > 0.05$ ) among the depths sampled and the surface water. In the mangroves, the temperature and salinity patterns were statistically significant (ANOVA<sub>temperature</sub>,  $F_{3,147} = 5.525$ ,  $p < 0.05$ ; ANOVA<sub>salinity</sub>:  $F_{3,147} = 3.679$ ,  $p < 0.05$ ) among the depths sampled and the surface water. Soil temperatures were slightly higher at the soil surface compared to depth due to radiant heating while salinity increased slightly at depth (60 cm), indicating salinity build-up with depth. This salinity profile has been observed in other mangrove ecosystems with limited tidal flushing (e.g., in the Indian River Lagoon [Sobrado and Ewe 2006]).

When the comparisons within each habitat were separated, there were no differences between temperatures with the marsh grid points and AEI comparisons at each depth. Similarly, there was also no difference between the mangrove grid points and AEI (Table 3-6). The salinity patterns however showed a significant difference between the grid points (average salinity = 1.02) and AEI (average salinity = 0.46) in the marsh at 20 cm (Table 3-7). Most of the marsh AEI points are actually sampled in the tree islands. Unlike the open marsh with higher evaporative rates, lowered salinities at these AEI locations could be a consequence of lower evaporation due to greater canopy cover and the shaded conditions within the tree islands.

Comparison of the mangrove grid points versus the AEI locations showed that the difference was not at the 20 cm porewater but rather among the warmer, less saline soil surface with the cooler more saline 40 and 60 cm porewater depths (Table 3-9). Similar to the marsh sites, radiant heating at the soil surface results in many of the AEI sites being less saline as they are generally located in pools of water. The higher average salinity values at depth observed in the mangrove grid points are a consequence of higher salinity values observed at the black mangrove (*Avicennia germinans*) dominated basin forest at H9, and within the scrub red mangrove (*Rhizophora mangle*) forest south of the CCS (e.g. in B12, C10, E10, E11).

The highest salinities observed in the marsh at 20, 40 or 60 cm were 3.5, 4.4 and 4.7 (in PSS78 scale), respectively (Figures 3-9 through 3-10). Several hypersaline values are present at each depth in the mangrove habitat, most notably immediately south of the S-20 Canal and on the land outcrop east of the power plant. The highest salinity of 62.6 (in PSS78 scale) was observed at gridpoint H9 at 60 cm. Hypersalinity is not unusual in mangrove habitats, especially in areas where there is limited tidal flushing and high seawater evaporation rates.

### **3.3 Analytical Data**

Analytical data for both seasons are shown in Tables 3-10 and 3-11. Summary descriptive statistics are shown in Table 3-12. To first examine the major ion chemistry ( $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{Cl}^-$ ,  $\text{SO}_4^{2-}$ , Alkalinity, Bicarbonate alkalinity), Piper diagrams were generated for each habitat for each season (Figure 3-11 to 3-13). Subsequently, all the analytical data were examined in their entirety using a cluster analysis for each of the habitats and seasons to determine the similarity among samples. For the 2011 Tracer Suite points, a Discriminant Function Analysis (DFA) was also conducted to determine the key drivers contributing to the observed patterns. Finally, based on the parameters identified by the DFA, binary plots and landscape plots are shown to demonstrate the patterns among the locations.

#### **3.3.1. Tri-linear (Piper) Diagrams**

Although Piper diagrams include the major ions, these diagrams have been shown to be unable to distinguish CCS water from the surrounding surface or groundwater as CCS waters are concentrated marine waters and the ionic ratios are similar to that of Bay samples. Nonetheless, this qualitative assessment was conducted to determine the relative relationships between the samples observed in the marsh, mangrove and Bay.

Most of the September 2010 Bay samples were consistent with the seawater sodium-chloride dominated patterns (Figure 3-11). Consistent anionic content were observed for all 30 samples but some of the samples separated along the cationic axes. Specifically, the Benthic Feature (BF) just north of the Turkey Point plant (Figure 1-3), and F14 in Card Sound had higher  $\text{Ca}^{2+}$  values compared to the other samples. Both of these samples were quite turbid during collection and because samples are not filtered prior to analysis, it is possible that marl particulates could have been digested during the analytical process and analyzed, thus resulting in high  $\text{Ca}^{2+}$  contents that were not accompanied by other changes in ionic differences. Bay samples GH5 and H5 had lower  $\text{Mg}^{2+}$  compared to the other samples and also group separately from the remaining samples.

April 2011 Bay samples were subsequently overlaid on the September 2010 Bay samples (Figure 3-12). The dry season (April) samples were more tightly clustered compared to the September data, indicating convergence and similarity in analytical ratios. The only exception for that season was F14 which had high  $\text{Ca}^{2+}$ , similar to the observations from September 2010. Another sample of note was H3 which was of lower salinity (but with the same ionic ratios as the other samples), indicative of a rain-marine mix.

When all the April 2011 data were plotted on the same diagram (Figure 3-13), most of the mangrove samples overlaid the Bay samples indicating marine influence in these samples. However, the marsh samples were distributed along a spectrum of values ranging from freshwater to marine, indicating a mix of different sources (Figure 3-13). Water in this mixing zone spanned the range from fresh calcium-dominated water to a marine sodium-chloride end-member, encompassing the range of mixtures as well as a few samples that had high calcium-magnesium values (e.g., A9, C3 and C5). The values from A9, C3 and C5 are offset from the



other marsh samples along the continuum from Everglades freshwater to marine water; these samples appear to fall along a mixing line observed by Price and Swart (2006) to be a composite of Everglades freshwater and a connate well (G3323B).

Within the mangrove-defined samples (Figure 3-13), F10 was shown to have lower  $\text{Ca}^{2+}$  and  $\text{Mg}^{2+}$  compared to the other mangrove samples. This sample is more correctly defined as a marsh sample as it occurs in the southern end of the CCS, near the crocodile-mitigation habitat where FPL has routed increasing amounts of fresh water to maintain suitable habitat for nesting crocodiles. Ecologically, this site is dominated by marsh vegetation and should have been classified as such by the Agencies.

Mangrove samples G1 (onshore) and HI8 had 7900 milligrams per liter (mg/L) and 7800 mg/L of sulfate ( $\text{SO}_4^{2-}$ ), respectively, and did not cluster closely with other mangrove samples. In contrast to the scrub mangroves present at most mangrove sites, the values observed represent a build-up of  $\text{SO}_4^{2-}$ , a likely consequence of the combination of the hydrology and geomorphology at this costal fringe.

### **3.3.2. Hierarchical Cluster Analysis**

Subsequently all specific conductance, temperature and analytical porewater data for each habitat for both the wet and dry seasons were categorized in a hierarchical cluster diagram to identify similarities among the samples. For the Bay wet season, the cluster diagram identified H3 and GH6 as being dissimilar from the other samples. Both H3 and GH6 were distinguished by lower specific conductance values compared to the other samples (Figure 3-14) although the ionic ratios of these samples were consistent with a marine source. The  $\delta\text{D}$  and  $\delta^{18}\text{O}$  signature of H3 however, was indicative of a sample that consisted of a rainwater-marine mix. As this sample was collected from a relatively shallow (24 cm) sediment depth from a hard bottom shell-hash area, it is possible that overlying surficial water from this area was collected during sampling as well. Although GH6 had lower specific conductance relative to the other Bay samples, this sample was in other respects (major ions, sulfate and sulfides, and isotopically) consistent with a marine sample. It appears likely that there may be a small amount of fresh groundwater within this sample during the wet season.

In the dry season (April 2011), BB2 and BB4 were identified as outliers in the Bay sample dendrogram. BB2A was distinguished from the other samples because it had higher specific conductance,  $\delta^{18}\text{O}$  and  $\delta\text{D}$  values (but not Tritium) compared to the other samples (Figure 3-15). The BB4 sample had lower specific conductance relative to the other samples; nonetheless, the ionic and isotopic values of this sample was similar to the other Bay samples.

In the marsh, F1 and F1-2 were identified as outliers (Figure 3-16). Both sites, located north of the CCS, are in an impounded area and had higher specific conductance and ionic contents relative to the other marsh samples. As both these sites are impounded and the marsh water has high residence time, the observed analytical values are not unexpected. Within the mangroves, the outlier from the cluster analysis shown was F10 (Figure 3-17); this sample is less saline than the other mangrove samples as it is in a mitigation area that has been rehydrated to promote

freshwater flow into the area as discussed in section 3.3.1; vegetation in this area reflective of the brackish conditions are scrub red mangroves and the freshwater marsh dominant, sawgrass (*Cladium jamaicense*) are found in the vicinity of the sample point.

### **3.3.3 Discriminant Function Analysis**

A step-wise DFA was conducted on all 20 analytical parameters for all 90 locations (marsh, mangrove, Bay) in April 2011 (Figure 3-18). The step-wise analysis removes parameters that are not significant in explaining the data. In the current analysis four explanatory parameters (Table 3-12) were identified: specific conductance,  $\delta^{13}\text{C}$  signatures, sulfide concentration, and tritium. All samples separated out on two axes based on Specific Conductance which explained 87.6% of the variability among the samples along Function 1, and with  $\delta^{13}\text{C}$  which explained 12.4% of the variance along Function 2 (Table 3-12).

Function 1 showed that specific conductance clearly distinguished the marsh samples from the mangrove and Bay samples (Figure 3-18). Although there was some spread in the distribution of the marsh and mangrove samples as a consequence of locations such as F1, F1-2 and F10 for reasons described in Sections 3.3.1 and 3.3.2 Mangrove and Bay samples were similar along Function 1 as these samples had very similar specific conductance values. The mangrove and Bay samples, however, differentiated along Function 2 while the marsh samples showed a wide spread indicating a wide range of  $\delta^{13}\text{C}$  values observed.

### **3.3.4 Singular and Binary (Ionic and Isotopic) Assessments**

To further explore the patterns of distribution based on the DFA,  $\delta^{13}\text{C}$  was plotted against specific conductance for all samples (Figure 3-19). The  $\delta^{13}\text{C}$  of a sample is the function of the processes that have influence on the dissolved inorganic carbon pool. Geophysical processes within the aqueous carbonate bedrock, biogenically-derived uptake and release of  $\text{CO}_2$ , the exchange of the water with atmospheric  $\text{CO}_2$ , or mixing of carbon from various sources can all influence the  $\delta^{13}\text{C}$  value observed. Data from April 2011 indicate that there was a wide distribution of  $\delta^{13}\text{C}$  in the marsh samples (-2.36‰ to -15.11‰), followed by the mangroves (-6.58‰ to -16.47‰) and Biscayne Bay (-0.49‰ to -8.34‰). Sources that can influence the  $\delta^{13}\text{C}$  of these nearshore samples include limestone dissolution (0‰), atmospheric  $\text{CO}_2$  (-8‰), carbonate weathering by soil  $\text{CO}_2$  in Florida aquifers results in a  $\delta^{13}\text{C}$  of -13‰ (Sackett et al. 1997), and terrestrially-derived  $\text{C}_3$  carbon (-26‰). Unlike Sackett et al. (1997) and Bouillon et al. (2007) that showed significant positive relationships between  $\delta^{13}\text{C}$  and salinity, the porewater data from this work did not demonstrate clear patterns with salinity.

Determining the patterns contributing to these values is not the focus of this work. However, some general observations can be made from this dataset. The values observed in each habitat indicate that there are a number of differing driving factors controlling  $\delta^{13}\text{C}$  in each of these samples. Broadly, in the marsh the  $\delta^{13}\text{C}$  patterns are most likely a composite of the influences of  $\text{C}_3$  and  $\text{C}_4$  ( $\delta^{13}\text{C} \sim -12$ ) vegetation (Note:  $\text{C}_3$  and  $\text{C}_4$  are vegetation photosynthesis types), interacting with the soil-influenced carbonate weathering and equilibrating with the atmosphere. The mangrove  $\delta^{13}\text{C}$  appear to be influenced by a number of factors (i.e., as listed above) but are

primarily organically mangrove-driven. Similarly, the  $\delta^{13}\text{C}$  values of Biscayne Bay are indicative of a number of influencing factors such as atmospheric equilibration, limestone dissolution and the dominant seagrass, *Thalassia testudinum* (-13.5‰ to -5.2‰, per Fourqurean et al. 2005). Additionally as these samples were all collected from the porewater, it is likely that all samples reflect a contribution of microbial-derived  $\delta^{13}\text{C}$  as well.

$\text{Sr}^{2+}/\text{Ca}^{2+}$  ratios are often used to determine groundwater versus surface water sources in water bodies. For example Surge and Lohmann (2002), and Stalker et al. (2009) have used  $\text{Sr}^{2+}/\text{Ca}^{2+}$  ratios to distinguish freshwater inputs into estuarine systems in Florida. In the work by Stalker et al. (2009), groundwater ( $0.07\ \mu\text{M}/\text{mM} = 0.15\ \mu\text{g}/\text{mg}$ ) and precipitation ( $0.89\ \mu\text{M}/\text{mM} = 1.946\ \mu\text{g}/\text{mg}$ ) had significantly lower  $\text{Sr}^{2+}/\text{Ca}^{2+}$  ratios compared to Atlantic seawater ( $9.38\ \mu\text{M}/\text{mM} = 20.51\ \mu\text{g}/\text{mg}$ ). In this study, the marsh samples had significantly lower  $\text{Sr}^{2+}/\text{Ca}^{2+}$  ratios than did the mangrove and Bay samples ( $F_{2,86} = 78.4$ ,  $p < 0.00001$ ) (Figure 3-20). Most of the terrestrial marsh samples had low specific conductivities and  $\text{Sr}^{2+}/\text{Ca}^{2+}$  ratios ( $4.85\text{--}12.78\ \mu\text{g}/\text{mg}$ ) with the exception of the brackish outliers, F1 and F1-2. The single sample of marine water collected from the Bay in April 2011 (K1-midH<sub>2</sub>O) had a lower  $\text{Sr}^{2+}/\text{Ca}^{2+}$  ratio ( $16.80\ \mu\text{g}/\text{mg}$ ) compared to the 2004-2006 data from Stalker et al. (2009). The Bay and mangrove samples had significant overlap in both specific conductance and the  $\text{Sr}^{2+}/\text{Ca}^{2+}$  ratios with the exception of several mangrove samples; these ratios indicate that for most mangrove samples the primary water source originated from the Bay but in the cases of the impounded F10, and nearshore samples (G1-2 and G8) that had lower  $\text{Sr}^{2+}/\text{Ca}^{2+}$  ratios, these values most likely had some shallow terrestrially-derived contributions.

Porewater  $\delta\text{D}$  and  $\delta^{18}\text{O}$  indicates that marsh samples were the least enriched and approached values similar to the global meteoric water line, indicating water that was most recently derived from precipitation and least evaporated (Figure 3-21). The mangrove and Bay samples were, however, more enriched and deviated from the meteoric water line, indicating water that had undergone evaporation. These samples overlapped significantly but nonetheless, when all data were included in a single regression, there was a statistically significant regression ( $\delta\text{D} = (5.73\ \delta^{18}\text{O}) + 5.237$ ,  $R^2 = 0.6419$ ,  $p < 0.05$ ) that was similar to the slope (5.16) observed by Price and Swart (2006) for South Florida.

In the wet season, the highest tritium values observed in the Bay were found at gridpoint H9 (29 pCi/L, Figure 3-22); the value observed at this location was most likely a consequence of evaporated seawater as this site also had the highest  $\delta^{18}\text{O}$  value (1.9‰) observed. In the dry season, higher tritium values were observed in comparison to the wet season, most likely due to the greater evaporation rates and lowered humidity values (Figure 3-23). Several tritium values in excess of 100 pCi/L were observed. The highest values of tritium were recorded south and east of the CCS, in the hypersaline scrub mangroves where there was limited tidal flushing coupled with high evaporation rates. A tritium value of 146 pCi/L was also observed at the impounded site, F1-2. None of the open Bay porewater samples showed tritium values  $>30$  pCi/L, consistent with the wet season observations.

Rainfall and evaporation pan tritium concentrations are measured as part of the monitoring in order to help determine the conditions at and surrounding the CCS. Information on rainfall

collector locations and setup was provided in the FPL Monitoring Plan (FPL 2009) while the evaporation pan setup was provided in the FPL Annual Report (FPL 2011b). Rainfall collected as part of the monitoring in June 2011 showed rainfall tritium concentrations ranged from 4-34 pCi/L (FPL 2012). Evaporation pan tritium concentrations are a function of the tritium concentration of water vapor in the atmosphere, the amount and timing of rainfall and the tritium concentration in the rainfall (FPL 2012). Evaporation pan tritium concentrations at and around the CCS ranged from 11-490 pCi/L from March-June 2011 (Table 3-13). The highest tritium values were observed at TPEVP-13 within the CCS in May (490 pCi/L). At the evaporation pan site closest to the plant, TPEVP-2, values were greatest in April (249 pCi/L) and May (283 pCi/L) 2011, towards the end of the dry season. Tritium values however, dropped off with distance from the plant (Figure 3-24).

Unlike the evaporation pans which are re-filled and hence diluted monthly, the porewater tritium levels are cumulative until diluted by rainfall and/or tidal inputs. Evaporation pan results can be lower than the porewater values depending on the timing of sampling. During the dry season (April 2011), 86 out of 88 (97.7%) of the porewater values were less than the tritium value recorded at TPEVP-2 in April 2011. Porewater tritium values were also comparable to tritium levels measured in evaporation pans at corresponding distances from the CCS. The few notable exceptions were at stations C10 and D10 where porewater values in close proximity to the CCS were in excess of 249 pCi/L during the April 2011 sampling event (Table 3-13). A third sample, at F11, was 228 pCi/L. It is also notable that almost half (42 out of 88; 47.7%) of the tritium porewater values were lower than the rainfall value at TPRF-2 (i.e. 34 pCi/L).

Tritium levels were then compared against specific conductance and chloride concentrations to determine if there were significant positive associations between these parameters, indicating a groundwater pathway contributing to CCS. A Pearson correlation ( $r = 0.008$ ,  $P > 0.10$ ) indicated that there was no association between tritium concentrations and specific conductance; if there were an association, the plot in Figure 3-28 would show a linear positive association of tritium with specific conductance. There was also no association between chloride concentrations and the tritium values in the samples ( $r = 0.015$ ,  $P > 0.10$ ). The lack of an association between tritium with specific conductance and chloride concentrations indicate that the tritium values in each habitat as well as across the landscape are not linked to a groundwater pathway of CCS water transfer.

These observations (i.e., no association between tritium with specific conductance and chloride concentrations, and decreasing porewater tritium values with distance from the CCS) indicate that the vapor phase contribution, which can range from at least 249-490 pCi/L in the dry season, may be an important contributor to tritium in the porewater in proximity to the CCS.

The three sites with tritium values of 228-569 pCi/L are located close to the CCS. All three sites are within the hypersaline scrub mangroves that do not encounter much tidal exchange. It is possible that limited tidal exchange, coupled with high evaporation rates and atmospheric deposition of tritium may contribute to the values observed during the dry season. In any case, the amount of tritium detected is far below concentrations that would give rise to any public health and safety concern.

# TABLES

**Table 3-1. Descriptive Wet and Dry Season Ambient Temperature Statistics**

Ambient Temperature (°C)									
Year	Month	Mean Daily Max	Average Daily Mean	Mean Daily Min	Monthly Max	Average Daily Max	Average Daily Mean	Monthly Min	Average Daily Min
2010	Jan	23.2	18.6	13.9	28.9	21.3	16.4	-1.1	11.4
	Feb				26.7	21.6	16.7	5.0	11.8
	Mar				30.0	23.4	18.3	3.9	13.2
	Apr				30.0	26.5	22.8	12.8	19.4
2011	Jan	26.2	21.6	16.9	28.3	23.4	18.4	3.3	13.2
	Feb				28.3	25.3	20.8	9.4	16.3
	Mar				30.6	26.6	21.8	8.9	17.2
	Apr				32.2	29.6	25.3	17.8	21.2
2010	Jul	31.8	28.3	25.0	33.9	31.9	28.6	23.3	25.3
	Aug				33.3	32.2	28.5	22.2	27.8
	Sept				33.3	31.2	27.9	22.8	24.8

**Table 3-2. Summary Statistics by Season, Habitat and Depth for Temperature, Salinity and Specific Conductance**

Season	Habitat	Depth	n	Temperature (°C)			Salinity			Specific Conductance (µS/cm)		
				Min	Max	Mean	Min	Max	Mean	Min	Max	Mean
April 2010	Bay	Surface	83	20.2	25.2	23.2	27.8	36.1	33.2	42,573	53,815	49,966
		0 cm	83	20.3	25.1	23.2	27.7	35.3	32.9	43,007	53,485	50,142
		20 cm	56	19.7	26.7	23.9	27.6	35.0	32.8	42,244	52,436	49,454
		40cm	37	21.5	27.0	23.6	27.4	35.8	33.0	42,113	53,393	49,747
		60 cm	24	21.2	27.3	23.7	29.4	36.9	33.5	44,834	54,879	50,326
	AEI – Bay	Surface	18	21.3	24.9	22.8	30.6	35.2	33.2	46,421	52,632	49,943
		0 cm	15	21.2	25.5	22.8	32.2	34.7	33.4	49,254	52,619	50,852
		20 cm	17	21.4	25.7	23.3	28.0	34.0	32.1	42,887	51,020	48,449
		40cm	12	21.1	27.3	22.9	28.9	33.4	31.8	44,058	50,213	48,058
		60 cm	10	20.9	24.7	22.6	27.1	34.6	32.0	41,749	51,883	48,376
	Mangrove	Surface	8	23.7	30.1	25.8	9.4	34.7	30.1	15,888	51,905	45,495
		20 cm	22	20.5	26.9	24.2	24.0	45.6	33.3	37,331	66,367	49,998
		40cm	23	20.7	27.1	23.8	28.0	59.5	37.3	42,826	83,229	55,284
		60 cm	23	20.3	28.3	23.6	31.8	62.6	40.6	48,095	86,963	59,542
	AEI – Mangrove	Surface	12	22.3	29.0	25.3	29.8	35.1	33.0	45,293	52,451	49,590
		20 cm	16	20.1	27.1	24.1	30.3	34.8	32.2	46,069	52,032	48,542
		40cm	18	20.3	27.4	23.7	29.8	37.1	32.6	45,298	55,081	49,102
		60 cm	18	19.9	26.3	23.3	29.7	39.7	33.5	45,250	58,786	50,375
	Marsh	Surface	5	18.5	25.0	21.7	0.2	0.9	0.5	420	1,770	905
		20 cm	33	19.2	24.4	22.1	0.3	3.5	1.0	633	6,394	1,950
		40cm	31	19.5	24.1	21.7	0.3	4.4	1.2	630	7,925	2,312
		60 cm	25	19.1	24.6	21.5	0.3	4.5	1.3	639	7,960	2,513
	AEI - Marsh	20 cm	13	19.8	25.1	22.5	0.2	1.7	0.5	454	3,153	998
		40cm	18	18.9	24.4	21.7	0.2	3.6	0.8	510	6,435	1,475

**Table 3-2. Summary Statistics by Season, Habitat and Depth for Temperature, Salinity and Specific Conductance**

Season	Habitat	Depth	n	Temperature (°C)			Salinity			Specific Conductance (µS/cm)		
				Min	Max	Mean	Min	Max	Mean	Min	Max	Mean
		60 cm	18	19.3	24.2	21.5	0.2	6.2	1.1	345	10,840	2,001
August 2010	Bay	Surface	77	30.0	35.0	31.6	31.0	36.2	33.8	46,868	54,212	50,650
		0 cm	81	30.0	35.0	31.8	28.0	36.2	33.9	42,783	53,684	50,726
		20 cm	82	29.4	34.4	31.8	32.5	37.1	35.0	48,861	54,890	52,193
		40cm	69	29.6	33.7	31.7	31.9	37.3	35.2	47,984	55,143	52,462
		60 cm	54	29.9	33.6	31.7	30.6	37.3	34.9	46,330	55,145	52,044
	AEI - Bay	Surface	13	29.9	32.9	31.0	31.5	35.5	33.9	47,479	52,839	50,683
		0 cm	13	30.2	33.3	31.7	34.0	36.6	35.0	50,821	54,317	52,101
		20 cm	16	29.6	33.1	31.1	32.8	36.8	35.0	49,178	54,564	52,156
		40cm	14	29.6	32.9	31.0	32.3	36.4	34.4	48,609	53,971	51,421
		60 cm	11	29.8	32.9	30.9	31.8	36.7	34.3	47,883	54,420	51,187
September 2010	Bay	Surface	30	27.6	30.5	28.6	15.4	34.2	26.3	25,405	52,154	41,098
		0 cm	30	27.6	30.5	28.5	15.5	33.1	27.1	25,524	50,650	42,168
		60 cm	30	27.6	29.6	28.7	18.2	35.1	30.7	29,461	53,421	47,342
April 2011	Bay	0 cm*	26	25.3	28.8	27.0	35.8	39.1	37.3	54,147	58,616	56,166
		0-5 cm*	28	25.0	28.9	27.1	34.4	38.8	37.1	52,327	58,175	55,989
		60 cm	28	23.7	32.4	28.4	32.5	37.6	35.2	49,810	56,786	53,413
	AEI - Bay	0 cm*	8	25.7	27.8	26.6	37.1	39.5	38.0	55,972	59,129	57,164
		0-5 cm*	8	26.0	27.4	26.7	36.8	39.2	37.7	55,561	58,752	56,739
		60 cm	8	26.7	28.7	27.6	29.7	39.4	34.6	45,942	59,097	52,595
	Mangrove	0-5 cm	18	24.7	35.8	30.5	17.7	62.1	41.8	28,765	88,049	62,171
		60 cm	23	25.6	31.6	28.4	16.4	48.1	35.1	26,817	70,226	53,178
	AEI - Mangrove	0-5 cm	5	27.4	35.6	33.1	37.8	49.6	42.1	56,851	72,629	62,869
		60 cm	6	24.9	31.0	29.0	33.3	42.9	36.8	50,984	63,778	55,603



**Table 3-2. Summary Statistics by Season, Habitat and Depth for Temperature, Salinity and Specific Conductance**

Season	Habitat	Depth	n	Temperature (°C)			Salinity			Specific Conductance (µS/cm)		
				Min	Max	Mean	Min	Max	Mean	Min	Max	Mean
	Marsh	0-5 cm	8	25.1	32.1	28.7	0.3	2.0	0.9	660	3,868	1,675
		60 cm	18	25.6	32.8	28.0	0.3	3.8	1.5	706	7,020	2,779
	AEI - Marsh	0-5 cm	4	25.6	26.8	26.4	0.3	0.5	0.4	653	986	803
		60 cm	7	26.4	28.8	27.5	0.3	2.0	0.7	542	3,834	1,304

**Notes:**

Values reported for AEIs are based on all sampled points, not combined as described in Section 3-2.

\* 0 cm = standing water at the soil interface; 0-5 cm = porewater extracted just below the soil surface.

**Table 3-3. Minimum, Maximum and Mean Differences between Pairs of Samples at AEI Sites**

Season	Habitat	Depth	Difference between Replicate Comparison					
			Temperature (°C)			Salinity		
			Min	Max	Mean	Min	Max	Mean
April 2010	AEI - Bay	Surface	0.03	0.81	0.30	0.01	0.62	0.18
		0 cm	0.00	2.40	0.56	0.00	0.23	0.10
		20 cm	0.06	2.03	0.69	0.14	2.79	1.09
		40cm	0.01	3.77	0.88	0.05	4.46	1.23
		60 cm	0.10	0.48	0.25	0.57	2.69	1.39
	AEI – Mangrove	Surface	0.05	1.53	0.46	0.03	3.88	0.88
		20 cm	0.51	2.47	1.12	0.31	2.40	1.09
		40cm	0.57	2.20	1.40	0.16	2.08	0.98
		60 cm	0.20	1.87	0.94	0.21	3.78	1.44
	AEI - Marsh	20 cm	0.10	1.26	0.55	0.01	0.68	0.19
		40cm	0.01	1.85	0.48	0.01	0.10	0.04
		60 cm	0.05	1.36	0.56	0.02	1.57	0.32
August 2010	AEI - Bay	Surface	0.02	0.21	0.12	0.02	1.07	0.24
		0 cm	0.00	0.21	0.07	0.01	0.89	0.18
		20 cm	0.12	1.05	0.46	0.22	0.88	0.44
		40cm	0.00	1.11	0.71	0.10	0.96	0.50
		60 cm	0.10	0.88	0.52	0.12	1.11	0.59
April 2011	AEI - Bay	0 cm*	0.00	2.10	0.60	0.06	0.13	0.09
		0-5 cm*	0.00	0.30	0.13	0.07	0.44	0.19
		60 cm	0.10	1.20	0.70	0.49	1.85	1.23

\* 0 cm = standing water at the soil interface; 0-5 cm = porewater extracted just below the soil surface.

**Table 3-4. Comparisons of Temperature “Replicates” for AEI Sites by Habitat, Season and Depth**

AEI Replicate Porewater Temperature (°C)												
Habitat	Season	Replicate	Surface		20 cm		40cm		60 cm		0 cm	
			Mean	ANOVA	Mean	ANOVA	Mean	ANOVA	Mean	ANOVA	Mean	ANOVA
Bay	April 2010	a	22.68	$F_{1,17}=0.12$ , $p=0.73$	23.70	$F_{1,16}=1.91$ , $p=0.19$	23.15	$F_{1,11}=0.26$ , $p=0.62$	22.73	$F_{1,9}=0.36$ , $p=0.56$	22.54	$F_{1,14}=0.34$ , $p=0.57$
		b	22.86		22.96		22.67		22.28		22.95	
Mangrove	April 2010	a	25.04	$F_{1,11}=0.12$ , $p=0.74$	24.59	$F_{1,15}=0.72$ , $p=0.41$	23.81	$F_{1,17}=0.08$ , $p=0.79$	23.11	$F_{1,17}=0.16$ , $p=0.70$		
		b	25.52		23.66		23.53		23.48			
Marsh	April 2010	a			22.52	$F_{1,12}=0.01$ , $p=0.94$	21.91	$F_{1,17}=0.23$ , $p=0.64$	21.39	$F_{1,17}=0.20$ , $p=0.66$		
		b			22.43		21.57		21.64			
Bay	August 2010	a	31.00	$F_{1,12}=0.01$ , $p=0.94$	31.09	$F_{1,15}<0.01$ , $p=0.96$	30.92	$F_{1,13}=0.08$ , $p=0.78$	30.96	$F_{1,10}=0.04$ , $p=0.85$	31.75	$F_{1,12}=0.09$ , $p=0.77$
		b	30.97		31.11		31.07		30.85		31.56	
Bay	April 2011	a	26.70*	$F_{1,7}<0.01$ , $p=0.95$					27.63	$F_{1,7}=0.03$ , $p=0.86$	26.3	$F_{1,7}=2.10$ , $p=0.20$
		b	26.68*						27.53		26.9	

\* Sampled depths ranged from 0 – 5 cm.

**Table 3-5. Comparisons of Salinity “Replicates” for AEI Sites by Habitat, Season and Depth**

AEI Replicate Porewater Salinity												
Habitat	Season	Replicate	Surface		20 cm		40cm		60 cm		0 cm	
			Mean	ANOVA	Mean	ANOVA	Mean	ANOVA	Mean	ANOVA	Mean	ANOVA
Bay	April 2010	a	33.17	$F_{1,17}=0.00$ , $p=1.00$	31.90	$F_{1,16}=0.11$ , $p=0.74$	31.32	$F_{1,11}=0.91$ , $p=0.36$	31.85	$F_{1,9}=0.03$ , $p=0.87$	33.40	$F_{1,14}<0.01$ , $p=0.98$
		b	33.17		32.23		32.2		32.10		33.93	
Mangrove	April 2010	a	33.48	$F_{1,11}=0.86$ , $p=0.38$	32.0	$F_{1,15}=0.18$ , $p=0.68$	32.64	$F_{1,17}=0.02$ , $p=0.89$	33.73	$F_{1,17}=0.10$ , $p=0.76$		
		b	32.60		32.3		32.49		33.28			
Marsh	April 2010	a			0.52	$F_{1,12}<0.01$ , $p=0.96$	0.79	$F_{1,17}<0.01$ , $p=0.98$	1.20	$F_{1,17}=0.07$ , $p=0.79$		
		b			0.53		0.78		0.98			
Bay	August 2010	a	33.95	$F_{1,12}=0.02$ , $p=0.88$	35.00	$F_{1,15}<0.01$ , $p=0.98$	34.06	$F_{1,13}=0.55$ , $p=0.47$	33.96	$F_{1,10}=0.25$ , $p=0.63$	34.95	$F_{1,12}<0.01$ , $p=0.97$
		b	33.83		34.99		34.65		34.53		34.97	
Bay	April 2011	a	37.62*	$F_{1,7}=0.04$ , $p=0.85$					34.63	$F_{1,7}<0.01$ , $p=0.98$	38.04	$F_{1,7}=0.01$ , $p=0.94$
		b	37.77*						34.57		37.99	

\* Sampled depths ranged from 0 – 5 cm.

**Table 3-6. Comparisons of Porewater Temperature between AEI Site and Grid Points of the Same Season, Habitat and Depth**

Porewater Temperature (°C)											
Season	Habitat	Surface		20 cm		40cm		60 cm		0 cm	
		Mean	ANOVA	Mean	ANOVA	Mean	ANOVA	Mean	ANOVA	Mean	ANOVA
April 2010	Bay	23.22	$F_{1,91}=1.38, p=0.24$	23.93	$F_{1,64}=1.88, p=0.18$	23.64	$F_{1,42}=0.196, p=0.17$	23.73	$F_{1,29}=2.55, p=0.12$	23.18	$F_{1,90}=1.23, p=0.27$
	AEI - Bay	22.77		23.23		22.88		22.80		22.73	
	Mangrove	25.81	$F_{1,14}=0.04, p=0.85$	24.24	$F_{1,29}=0.01, p=0.91$	23.83	$F_{1,31}=0.05, p=0.83$	23.56	$F_{1,31}=0.13, p=0.73$		
	AEI - Mangrove	25.57		24.14		23.68		23.31			
	Marsh			22.07	$F_{1,40}=0.63, p=0.43$	21.74	$F_{1,39}<0.01, p=0.98$	21.52	$F_{1,33}=0.00, p=1.00$		
	AEI - Marsh			22.54		21.73		21.52			
August 2010	Bay	31.63	$F_{1,83}=2.87, p=0.09$	31.76	$F_{1,90}=2.63, p=0.11$	31.66	$F_{1,77}=2.27, p=0.14$	31.72	$F_{1,59}=2.63, p=0.11$	31.76	$F_{1,87}=0.17, p=0.68$
	AEI - Bay	30.95		31.18		31.18		31.07		31.57	
April 2011	Bay	27.09*	$F_{1,31}=0.78, p=0.39$					28.44	$F_{1,31}=0.76, p=0.39$	26.97	$F_{1,29}=0.73, p=0.40$
	AEI - Bay	26.69*						27.58		26.60	
	Mangrove	30.48*	$F_{1,22}=2.93, p=0.10$					28.37	$F_{1,28}=0.53, p=0.47$		
	AEI - Mangrove	33.08*						28.98			
	Marsh	28.66*	$F_{1,11}=3.64, p=0.09$					27.99	$F_{1,24}=0.31, p=0.59$		
	AEI - Marsh	26.40*						27.54			

Notes:

\* Sampled depths ranged from 0 – 5cm.

ANOVA comparisons and the means reported in this table for AEI sites used combined replicate means as described in Section 3-2.

**Table 3-7. Comparisons of Porewater Salinity between AEI Site and Grid Points of the Same Season, Habitat and Depth**

Porewater Salinity											
Season	Habitat	Surface		20 cm		40cm		60 cm		0 cm	
		Mean	ANOVA	Mean	ANOVA	Mean	ANOVA	Mean	ANOVA	Mean	ANOVA
April 2010	Bay	33.19	$F_{1,91}=0.01, p=0.96$	32.84	$F_{1,64}=1.16, p=0.29$	33.04	$F_{1,42}=2.96, p=0.09$	33.46	$F_{1,29}=3.02, p=0.09$	32.88	$F_{1,90}=0.88, p=0.35$
	AEI - Bay	33.17		32.16		31.75		32.1		33.41	
	Mangrove	30.13	$F_{1,14}=0.68, p=0.42$	33.29	$F_{1,29}=0.46, p=0.50$	37.28	$F_{1,31}=4.49, p=0.04$	40.57	$F_{1,31}=6.31, p=0.02$		
	AEI - Mangrove	32.86		32.15		32.56		33.50			
	Marsh			1.02	$F_{1,40}=4.55, p=0.04$	1.22	$F_{1,39}=1.41, p=0.24$	1.33	$F_{1,33}=0.26, p=0.61$		
	AEI - Marsh			0.46		0.78		1.09			
August 2010	Bay	33.81	$F_{1,83}=0.03, p=0.86$	35.03	$F_{1,90}=0.01, p=0.99$	35.24	$F_{1,77}=2.82, p=0.10$	34.92	$F_{1,59}=0.62, p=0.44$	33.93	$F_{1,87}=3.12, p=0.08$
	AEI - Bay	33.90		35.04		34.58		34.48		34.91	
April 2011	Bay	37.12*	$F_{1,31}=1.57, p=0.22$					35.16	$F_{1,31}=0.35, p=0.56$	37.25	$F_{1,29}=3.70, p=0.06$
	AEI - Bay	37.69*						34.60		38.01	
	Mangrove	41.82	$F_{1,22}=0.01, p=0.94$					35.06	$F_{1,28}=0.49, p=0.49$		
	AEI - Mangrove	42.13						36.79			
	Marsh	0.85*	$F_{1,11}=2.29, p=0.16$					1.45	$F_{1,24}=3.68, p=0.07$		
	AEI - Marsh	0.39*						0.66			

Notes:

\* Sampled depths ranged from 0 – 5 cm.

ANOVA comparisons and the means reported in this table for AEI sites used combined replicate means as described in Section 3-2.

Shaded cells indicate statistical differences.

**Table 3-8. Within Season and Habitat Depth Comparisons for Temperature and Salinity**

Within Habitat Depth Comparisons								
Season	Habitat	Depth *	Temperature (°C)			Salinity		
			Mean	ANOVA	Tukey-Kramer	Mean	ANOVA	Tukey-Kramer
April 2010	Bay	Surface	23.22	$F_{4,282}=4.51, p=0.002$	20cm $\neq$ Surface, 0 cm	33.19	$F_{4,282}=0.95, p=0.44$	
		0 cm	23.18			32.88		
		20 cm	23.93			32.84		
		40cm	23.64			33.04		
		60 cm	23.73			33.46		
	AEI - Bay	Surface	22.77	$F_{4,37}=0.26, p=0.90$		33.17	$F_{4,37}=1.78, p=0.16$	
		0 cm	22.73			33.41		
		20 cm	23.23			32.16		
		40cm	22.88			31.75		
		60 cm	22.80			32.10		
	Mangrove	Surface	25.81	$F_{3,75}=3.09, p=0.03$	Surface $\neq$ 60cm	30.13	$F_{3,75}=6.75, p<0.001$	60cm $\neq$ Surface, 20cm
		20 cm	24.24			33.29		
		40cm	23.83			37.28		
		60 cm	23.56			40.57		
	AEI - Mangrove	Surface	25.57	$F_{3,32}=1.74, p=0.18$		32.86	$F_{3,32}=0.59, p=0.63$	
		20 cm	24.14			32.15		
		40cm	23.68			32.56		
		60 cm	23.31			33.50		

**Notes:**

\* Depths are categorized as such: Surface = 5 cm from top of water surface, 0 cm = 0-5 cm from sediment surface, 20 cm = 20 cm deep in the soil, 40 cm = 40 cm deep in the soil, 60 cm = 60 cm deep in the soil.

\*\* Indicates difference in ANOVA but not in post-hoc Tukey-Kramer pair-wise comparison.

ANOVA comparisons and the means reported in this table for AEI sites used combined replicate means as described in Section 3-2.

Shaded cells indicate statistical differences.

The Tukey-Kramer multiple comparison identifies those depths that differ from one another for significant ANOVAs.

**Table 3-8. Within Season and Habitat Depth Comparisons for Temperature and Salinity**

Within Habitat Depth Comparisons								
Season	Habitat	Depth	Temperature (°C)			Salinity		
			Tukey-Kramer	Mean	Tukey-Kramer	Mean	ANOVA	Tukey-Kramer
April 2010	Marsh	20 cm	22.07	$F_{2,88}=1.49, p=0.23$		1.02	$F_{2,88}=0.95, p=0.39$	
		40cm	21.74			1.22		
		60 cm	21.52			1.33		
	AEI - Marsh	20 cm	22.54	$F_{2,25}=0.91, p=0.42$		0.46	$F_{2,25}=0.58, p=0.57$	
		40cm	21.73			0.78		
		60 cm	21.52			1.09		
August 2010	Bay	Surface	31.63	$F_{4,362}=0.25, p=0.91$		33.81	$F_{4,362}=22.06, p<0.001$	Surface $\neq$ 20, 40, 60cm 0 cm $\neq$ 20, 40, 60cm
		0 cm	31.76			33.93		
		20 cm	31.76			35.03		
		40cm	31.66			35.24		
		60 cm	31.72			34.92		
	AEI - Bay	Surface	30.95	$F_{4,37}=0.37, p=0.83$		33.90	$F_{4,37}=0.89, p=0.48$	
		0 cm	31.57			34.91		
		20 cm	31.18			35.04		
		40cm	31.18			34.58		
		60 cm	31.07			34.48		
September 2010	Bay	Surface	28.63	$F_{2,89}=1.37, p=0.26$		26.29	$F_{2,89}=6.71, p=0.002$	60cm $\neq$ Surface, 0 cm
		0 cm	28.45			27.06		
		60 cm	28.67			30.72		

**Notes:**

\* Depths are categorized as such: Surface = 5 cm from top of water surface, 0 cm = 0-5 cm from sediment surface, 20 cm = 20 cm deep in the soil, 40 cm = 40 cm deep in the soil, 60 cm = 60 cm deep in the soil.

\*\* Indicates difference in ANOVA but not in post-hoc Tukey-Kramer pair-wise comparison.

ANOVA comparisons and the means reported in this table for AEI sites used combined replicate means as described in Section 3-2.

Shaded cells indicate statistical differences.

The Tukey-Kramer multiple comparison identifies those depths that differ from one another for significant ANOVAs.

**Table 3-8. Within Season and Habitat Depth Comparisons for Temperature and Salinity**

Within Habitat Depth Comparisons								
Season	Habitat	Depth	Temperature (°C)			Salinity		
			Mean	ANOVA	Tukey-Kramer	Mean	ANOVA	Tukey-Kramer
April 2011	Bay	Surface	27.09	$F_{2,81}=10.98, p<0.001$	60cm $\neq$ Surface, 0 cm	37.12	$F_{2,81}=32.24, p<0.001$	60cm $\neq$ Surface, 0 cm
		60 cm	28.44			35.16		
		Bottom	26.97			37.25		
	AEI - Bay	Bottom	26.60	$F_{2,11}=4.71, p=0.039^{**}$		38.01	$F_{2,11}=3.11, p<0.09$	
		Surface	26.69			37.69		
		0 cm	26.60			38.01		
		60 cm	27.58			34.60		
	Mangrove	Surface	30.48	$F_{1,40}=8.44, p=0.006$	Surface $\neq$ 60 cm	41.82	$F_{1,40}=9.31, p=0.004$	Surface $\neq$ 60 cm
		60 cm	28.37			35.06		
	AEI - Mangrove	Surface	33.08	$F_{1,10}=5.70, p=0.040$	Surface $\neq$ 60 cm	42.13	$F_{1,10}=4.54, p=0.06$	
		60 cm	28.98			36.79		
	Marsh	Surface	28.66	$F_{1,25}=0.54, p=0.47$		0.85	$F_{1,25}=2.39, p=0.13$	
		60 cm	27.99			1.45		
	AEI - Marsh	0 Surface	26.40	$F_{1,10}=5.96, p=0.037$	Surface $\neq$ 60 cm	0.39	$F_{1,10}=0.70, p=0.42$	
		60 cm	27.54			0.66		

**Notes:**

\* Depths are categorized as such: Surface = 5 cm from top of water surface, 0 cm = 0-5 cm from sediment surface, 20 cm = 20 cm deep in the soil, 40 cm = 40 cm deep in the soil, 60 cm = 60 cm deep in the soil.

\*\* Indicates difference in ANOVA but not in post-hoc Tukey-Kramer pair-wise comparison.

ANOVA comparisons and the means reported in this table for AEI sites used combined replicate means as described in Section 3-2.

Shaded cells indicate statistical differences.

The Tukey-Kramer multiple comparison identifies those depths that differ from one another for significant ANOVAs.



**Table 3-9. Average ( $\pm$  Standard Error) of Air, Water and Porewater Temperature and Salinity for the Dry (April 2010) and Wet (August 2010) Season Surveys**

	April 2010			August 2010		
Depth	n	Temperature (°C)	Salinity (PSS 78 scale)	n	Temperature (°C)	Salinity (PSS 78 scale)
<b>Biscayne Bay</b>						
Air temperature	102	24.9 $\pm$ 0.1		102	32.4 $\pm$ 0.0	
Top of water column	101	23.1 $\pm$ 0.0	33.2 $\pm$ 0.1	91	31.5 $\pm$ 0.0	33.8 $\pm$ 0.0
Bottom of water column	98	23.1 $\pm$ 0.0 <sup>a</sup>	33.0 $\pm$ 0.1	95	31.7 $\pm$ 0.0	34.0 $\pm$ 0.1 <sup>a</sup>
20 cm	73	23.8 $\pm$ 0.1 <sup>b</sup>	32.7 $\pm$ 0.1	99	31.6 $\pm$ 0.0	35.0 $\pm$ 0.0 <sup>b</sup>
40 cm	49	23.5 $\pm$ 0.1 <sup>ab</sup>	32.7 $\pm$ 0.1	83	31.6 $\pm$ 0.0	35.1 $\pm$ 0.0 <sup>b</sup>
60 cm	34	23.4 $\pm$ 0.1 <sup>ab</sup>	33.0 $\pm$ 0.2	65	31.6 $\pm$ 0.0	34.8 $\pm$ 0.1 <sup>b</sup>
<b>Marsh</b>						
Air temperature	56	23.7 $\pm$ 0.4				
0 cm/water column	8	22.6 $\pm$ 0.9	0.7 $\pm$ 0.2			
20 cm	50	22.2 $\pm$ 0.2	1.4 $\pm$ 0.3			
40 cm	53	21.8 $\pm$ 0.2	1.7 $\pm$ 0.4			
60 cm	47	21.6 $\pm$ 0.2	2.0 $\pm$ 0.5			
<b>Mangroves</b>						
Air temperature	44	23.5 $\pm$ 0.4				
0 cm/bottom of water column	22	25.4 $\pm$ 0.4 <sup>a</sup>	29.3 $\pm$ 2.1 <sup>a</sup>			
20 cm	41	24.1 $\pm$ 0.3 <sup>b</sup>	31.3 $\pm$ 1.0 <sup>ab</sup>			
40 cm	44	23.7 $\pm$ 0.3 <sup>b</sup>	33.7 $\pm$ 1.2 <sup>ab</sup>			
60 cm	44	23.4 $\pm$ 0.3 <sup>b</sup>	35.8 $\pm$ 1.4 <sup>b</sup>			

Note: Values followed by the same superscript letter are not significantly different at  $p < 0.05$  for comparisons among the samples at the bottom of the water column, 20 cm, 40 cm and 60 cm..

Table 3-10. Analytical Results from the Tracer Suite Analyses for September 2010

Parameter	Units	BB-5B	BB-BF	BB-F14	BB-GH5	BB-GH6	BB-G11-Bay	BB-GH2B	BB-G3	BB-H3	BB-I3	BB-H2B	BB-H4	BB-H5	BB-H9-Bay	BB-H10	BB-HI1	BB-HI6	BB-HI10	BB-HI11		
		9/25/2010	9/25/2010	9/26/2010	9/25/2010	9/25/2010	9/26/2010	9/26/2010	9/27/2010	9/28/2010	9/24/2010	9/24/2010	9/28/2010	9/27/2010	9/25/2010	9/26/2010	9/26/2010	9/28/2010	9/25/2010	9/26/2010	9/26/2010	
Temperature	°C	28.66		28.99	28.69	28.60	28.84	28.96	29.02	28.81	27.65	28.76	28.86	28.69	28.23	29.05	28.42	28.86	28.51	28.46	28.42	
pH	SU																					
Dissolved Oxygen	mg/L																					
Spec Cond	µS/cm	47744		38528	48101	41851	27700	49709	45321	41936	29461	45626	47100	42478	51909	52196	50771	45762	51030	53333	47762	
Turbidity	NTU																					
Arsenic	mg/L																					
Barium	mg/L	0.016	U	0.032	I	0.069	I	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	
Beryllium	mg/L																					
Cadmium	mg/L																					
Copper	mg/L																					
Iron	mg/L	0.730	I	6.1	27.0	29.0	2.6	1.6	2.5	V	0.500	IV	2.1	17.0	0.470	IV	2.5	V	0.660	I	0.990	I
Lead	mg/L																					
Manganese	mg/L																					
Molybdenum	mg/L																					
Nickel	mg/L																					
Selenium	mg/L																					
Thallium	mg/L																					
Vanadium	mg/L																					
Zinc	mg/L																					
Silica	mg/L																					
Calcium	mg/L	420		3200	2100	700	540	700	610	390	320	550	350	430	320	470	440	380	500	500	510	
Magnesium	mg/L	1200		1000	1200	660	1200	1200	1000	1000	660	1100	1000	990	680	1300	1200	1100	1300	1300	1200	
Potassium	mg/L	340		330	360	220	360	370	320	330	220	370	310	300	230	400	380	330	380	410	390	
Sodium	mg/L	9300		8900	10000	8900	9600	10000	8700	8200	5600	9500	8400	8300	11000	11000	10000	8800	10000	11000	11000	
Boron	mg/L	4.5		3.7	4.3	6.0	4.4	4.3	3.4	4.4	3.0	4.3	3.7	3.5	3.1	4.7	4.4	4.0	4.9	4.7	4.5	
Strontium	mg/L	7.0		17.0	22.0	6.6	7.9	8.4	8.5	6.7	4.9	7.9	6.3	6.7	4.9	7.9	7.6	6.7	8.4	8.3	8.2	
Chromium VI	mg/L																					
Mercury	mg/L																					
Bromide	mg/L	65	J	59	62	47	64	65	74	J	46	J	36	65	56	J	53	65	J	68	76	
Chloride	mg/L	19000	J	18000	21000	15000	18000	19000	18000	J	18000	J	11000	17000	18000	J	16000	20000	J	20000	22000	
Fluoride	mg/L	0.20	UJ	0.20	U	0.98	I	0.20	U	0.85	I	0.20	UJ	0.69	J	0.20	U	0.59	J	0.20	U	
Sulfate	mg/L	2600	J	2400	2500	J-	2300	2400	2500	3000	J	2900	J	1500	2500	3800	J	2100	2600	J	2700	
Total Ammonia	mg/L as N																					
Ammonium ion NH4	mg/L as N																					
Unionized NH3	mg/L																					
Nitrate/Nitrite as N	mg/L																					
TKN	mg/L																					
TN <sup>9</sup>	mg/L																					
Orthophosphate	mg/L																					
Phosphorus (P)	mg/L																					
Alkalinity	mg/L (CaCO <sub>3</sub> )	180	J	290	440	300	350	180	190	J	250	J	180	310	130	J	180	300	J	170	320	
Bicarbonate Alkalinity as CaCO3	mg/L	180	J	290	440	300	350	180	190	J	250	J	180	310	130	J	180	300	J	170	320	
Sulfides	mg/L	6.7		1.0	U	5.1	4.0	8.5	6.1	1.0	U	12	2.2	4.8	1.0	U	3.5	6.2	6.4	17	14	
Total Dissolved Solids	mg/L																					
Dissolved Inorganic Carbon	mg/L	45		56	100	61	87	43	29	61	42	45	30	37	77	46	47	41	90	64	73	
δ18O	‰	1.6		1.7	1.8	1.4	1.7	1.8	1.4	1.5	0.9	1.6	1.7	1.5	1.8	1.9	1.7	1.5	1.8	1.9	1.7	
δ2H	‰	17.0		14.0	14.0	11.0	15.0	20.0	12.0	13.0	8	10.0	14.0	12.0	20.0	14.0	13.0	9.0	17.0	17.0	17.0	
δ13C	‰	-3.64		-5.24	-1.80	-4.27	-3.80	-5.81	-3.40	-5.83	-5.30	-3.07	-3.48	-4.13	-3.47	-4.00	-3.02	-3.82	-5.14	-3.46	-2.70	
Gross Alpha	pCi/L																					
Salinity	‰	31.0		24.4	31.2	26.7	31.0	32.4	29.2	26.8	18.2	29.4	30.5	27.2	34.1	34.2	33.2	29.5	33.4	35.1	31.0	
Sr 87/86	‰	0.70918		0.70916	0.70914	0.70919	0.70918	0.70918	0.70916	0.70909	0.70916	0.70914	0.70916	0.70917	0.70913	0.70916	0.70917	0.70917	0.70916	0.70919	0.70916	
Tritium	pCi/L (1σ)	10 (6)		7.6 (7)	17.7 (6.2)	5.3 (6.3)	UJ	6.8(5.9)	25.4 (6.2)	-0.9 (5.9)	UJ	9.8 (6.1)	0.5(7.2)	UJ	15(6.2)	14.5(5.9)	6.4 (6.1)	15.1(8.3)	22.2(6.4)	9.9(5.7)	7.6(6.9)	

Notes:  
\* = No criteria specified for porewaters  
I = Value between the MDL and PQL.  
J = Estimated (+/- indicate bias).  
MDL = Minimum detectable limit.  
N.A. - Not applicable.  
NTU = Nephelometric turbidity unit.  
PQL = Practical Quantitative Level.  
SU = Salinity units.  
U = Analyzed for but not detected at the reported value.



Table 3-10. Analytical Results from the Tracer Suite Analyses for September 2010

Parameter	Units	BB-HI7	BB-IJ3	BB-IJ4	BB-IJ7	BB-IJ8	BB-J5	BB-J6	BB-J9	BB-J12	BB-JK7	BB-IJ1	BB-FBlank	BB-EB	BB-FCEB
		9/27/2010	9/25/2010	9/25/2010	9/27/2010	9/26/2010	9/25/2010	9/23/2010	9/26/2010	9/26/2010	9/26/2010	9/28/2010	9/26/2010	9/28/2010	9/28/2010
Temperature	°C	29.63	27.70	28.36	28.71	28.64	28.44	29.22	28.40	28.94	28.66	28.89			
pH	SU														
Dissolved Oxygen	mg/L														
Spec Cond	µS/cm	53421	45457	46845	47243	51967	49199	51454	48971	46303	50431	50658			
Turbidity	NTU														
Arsenic	mg/L														
Barium	mg/L	0.016	U	0.016	U	0.016	U	0.019	U	0.016	U	0.019	U	0.019	U
Beryllium	mg/L														
Cadmium	mg/L														
Copper	mg/L														
Iron	mg/L	0.330	I V	1.7	1.1	1.5	V	0.590	I	0.760	I	2.6	0.510	I	3.1
Lead	mg/L														
Manganese	mg/L														
Molybdenum	mg/L														
Nickel	mg/L														
Selenium	mg/L														
Thallium	mg/L														
Vanadium	mg/L														
Zinc	mg/L														
Silica	mg/L														
Calcium	mg/L	470	450	390	420	520	460	630	460	680	J	480	480	0.10	U
Magnesium	mg/L	1300	1300	1000	1100	1300	1200	1400	1300	1300	J	1300	1100	0.020	U
Potassium	mg/L	380	360	310	340	420	380	620	410	400	J	390	330	0.19	U
Sodium	mg/L	10000	9900	8600	9300	11000	10000	10000	11000	10000	J	11000	8700	0.31	U
Boron	mg/L	4.1	4.8	3.5	3.6	5.2	5.0	5.1	4.8	4.6	4.6	4.1	0.010	U	0.010
Strontium	mg/L	8.2	7.6	6.4	7.3	8.4	7.3	9.9	8.0	10.0	8.1	7.4	0.001	U	0.001
Chromium VI	mg/L														
Mercury	mg/L														
Bromide	mg/L	59	69	55	69	71	62	66	79	130	J	75	61	J	0.027
Chloride	mg/L	20000	18000	17000	18000	20000	19000	19000	20000	21000	J	20000	20000	J	0.20
Fluoride	mg/L	0.20	U	0.20	U	0.20	U	0.81	I	0.20	U	0.20	U	0.94	I
Sulfate	mg/L	2300	2700	2200	2700	2600	2500	2500	3600	2700	J	3100	3100	J	0.20
Total Ammonia	mg/L as N														
Ammonium ion NH4	mg/L as N														
Unionized NH3	mg/L														
Nitrate/Nitrite as N	mg/L														
TKN	mg/L														
TN <sup>9</sup>	mg/L														
Orthophosphate	mg/L														
Phosphorus (P)	mg/L														
Alkalinity	mg/L (CaCO <sub>3</sub> )	280	170	160	160	390	250	430	170	230	J	220	240	J	1.4
Bicarbonate Alkalinity as CaCO3	mg/L	280	170	160	160	390	250	430	170	230	J	220	240	J	1.4
Sulfides	mg/L	10	14	3.2	4.0	25	9.4	7.2	9.9	9.4	7.7	7.5	1.0	U	1.0
Total Dissolved Solids	mg/L														
Dissolved Inorganic Carbon	mg/L	69	44	39	37	100	63	110	42	57	55	57	1.0	U	1.0
δ18O	‰	1.8	1.7	1.5	1.6	1.8	1.7	1.8	1.8	1.7	1.8	1.8	-1.2	-1.3	-1.3
δ2H	‰	15.0	17.0	13.0	15.0	15.0	13.0	17	13.0	15.0	17	16.0	-6	-7.0	1.0
δ13C	‰	-8.16	-4.08	-3.27	-3.47	-2.66	-3.29	-0.84	-2.93	-3.38	-3.66	-3.09	-11.78	-13.72	-11.51
Gross Alpha	pCi/L														
Salinity	‰	35.1	29.4	30.3	30.6	34.1	32.1	33.7	31.9	30.0	32.9	33.1			
Sr 87/86	‰	0.70914	0.70917	0.70917	0.70917	0.70917	0.70918	0.70916	0.70914	0.70916	0.70919	0.70915	0.01ppb	U	0.562ppb
Tritium	pCi/L (1σ)	15(6)	21.4(6)	21.6(6.2)	16.3(5.9)	12.4(8.3)	9.4(5.9)	7.8(5.9)	18.6(6.1)	11.1(5.8)	14.4(8)	8.6(6)	1.4 (5.9)	UJ	2.3 (6)

Notes:  
\* = No criteria specified for porewaters  
I = Value between the MDL and PQL.  
J = Estimated (+/- indicate bias).  
MDL = Minimum detectable limit.  
N.A. - Not applicable.  
NTU = Nephelometric turbidity unit.  
PQL = Practical Quantitative Level.  
SU = Salinity units.  
U = Analyzed for but not detected at the reported value.



Table 3-11. Analytical Results from the Tracer Suite Analyses for April 2011

		BB1A/B-60		BB2A/B-30		BB4A/B-55		BB5A/B-60		A9-60		B7-60		B8-50		B12-60		C2-60		C3-60		C5-60		C6-60		C10-60		D2-60		D3-60		D4-60		D6-60	
Parameter	Units	4/4/2011		4/5/2011		4/5/2011		4/5/2011		4/20/2011		4/20/2011		4/20/2011		4/20/2011		4/14/2011		4/14/2011		4/20/2011		4/20/2011		4/13/2011		4/14/2011		4/21/2011		4/20/2011		4/20/2011	
Temperature	°C	28		28.2		26.8		28.7		27.14		27.35		27.43		29.7		26.21		25.58		27.1		29.95		28.3		30.87		28.39		26.15		26.92	
pH	SU																																		
Dissolved Oxygen	mg/L																																		
Spec Cond	µS/cm	51786		59097		48096		54118		4151		1502		5483		58763		1973		3882		5866		2782		57559		843		2773		2471		706	
Turbidity	NTU																																		
Arsenic	mg/L																																		
Barium	mg/L	0.016	U	0.016	U	0.016	U	0.016	U	0.057	I	0.021	I	0.025	I	0.016	U	0.016	U	0.055	I	0.022	I	0.024	I	0.016	U	0.016	U	0.016	U	0.037	I	0.016	U
Beryllium	mg/L																																		
Cadmium	mg/L																																		
Copper	mg/L																																		
Iron	mg/L	3.6		0.48	I	0.98	I	0.54	I	3.9		2		2.7		1.7		3.7		3		2.1		0.37	I	1.1		0.87	I	0.7	I	1.9		0.69	I
Lead	mg/L																																		
Manganese	mg/L																																		
Molybdenum	mg/L																																		
Nickel	mg/L																																		
Selenium	mg/L																																		
Thallium	mg/L																																		
Vanadium	mg/L																																		
Zinc	mg/L																																		
Silica	mg/L																																		
Calcium	mg/L	460.00		520.00		510.00		490.00		1600.00	J	180.00		540.00		860.00		250.00		1300.00	J	1200.00	J	200.00		660.00		130.00		200.00		680.00	J	73.00	
Magnesium	mg/L	1300.00		1400.00		1200.00		1300.00		60.00	J	19.00		65.00		1600.00		23.00		41.00	J	63.00	J	29.00		1400.00		12.00		50.00		54.00	J	8.90	
Potassium	mg/L	400.00		450.00		370.00		430.00		10.00	J	5.10		9.80		430.00		0.86	I	4.40	J	16.00	J	7.40		380.00		1.20		5.80		8.70	J	3.90	
Sodium	mg/L	10000.00		11000.00		9100.00		11000.00		550.00	J	140.00		670.00		12000.00		180.00		420.00	J	830.00	J	310.00		11000.00		52.00		310.00		270.00	J	51.00	
Boron	mg/L	3.9		4.9		3.9		4.5		0.13		0.063		0.089		5.1		0.062	J	0.094	J	0.11		0.053		3		0.069	J	0.12	J	0.12		0.032	I
Strontium	mg/L	7.5		8.6		7.8		7.9		7.8		2.3		3.9		11		2		6.4		6.4		2.2		12		0.83		1.8		3.9		0.7	
Chromium VI	mg/L																																		
Mercury	mg/L																																		
Bromide	mg/L	62.00		71.00		63.00		66.00		3.70		0.95		4.30		79.00		1.00		2.90		6.10		2.10		76.00		0.29		1.60		1.60		0.23	
Chloride	mg/L	20000.00		21000.00		17000.00		20000.00		1200.00		280.00		1500.00		23000.00		330.00		980.00		1800.00		620.00		22000.00		68.00		630.00		490.00		100.00	
Fluoride	mg/L	0.62		0.58		0.74		0.60		0.10		0.08		0.10		0.38	I	0.21	I	0.20	U	0.20	U	0.06		0.20	U	0.25	I	0.20	U	0.08		0.07	
Sulfate	mg/L	2400.00		2700.00		2300.00		2700.00		4.00		1.90		39.00		3400.00		40.00		31.00		52.00		7.20		2500.00		0.31	IJ-	19.00		21.00		9.60	
Total Ammonia	mg/L as N																																		
Ammonium Ion NH4	mg/L as N																																		
Unionized NH3	mg/L																																		
Nitrate/Nitrite as N	mg/L																																		
TKN	mg/L																																		
TN <sup>9</sup>	mg/L																																		
Orthophosphate	mg/L																																		
Phosphorus (P)	mg/L																																		
Alkalinity	mg/L (CaCO <sub>3</sub> )	210.00		180.00		250.00		190.00		390.00		370.00		480.00		370.00		480.00		350.00		280.00		420.00		330.00		360.00		430.00		440.00		170.00	
Bicarbonate Alkalinity as CaCO <sub>3</sub>	mg/L	210.00		180.00		250.00		190.00		390.00		370.00		480.00		370.00		480.00		350.00		280.00		420.00		330.00		360.00		430.00		440.00		170.00	
Sulfides	mg/L	1.00	U	11.00		4.00		5.60		1.10		1.90		4.50		20.00		1.00	U	1.00	U	3.50		2.60		1.10		1.00	U	5.30		2.60		2.60	
Total Dissolved Solids	mg/L																																		
Dissolved Inorganic Carbon	mg/L	51.00		40.00		54.00		44.00		10.00	U	10.00	U	10.00		10.00	U	12.00		10.00	U	10.00	U	10.00	U	10.00	U	10.00	U	11.00		10.00	U	10.00	U
δ18O	‰	1.4		2.3		1.3		1.7		0.1		0.8		-0.5		3.5		-1.7		-1.4		-0.8		-0.3		3.4		-1.5		0.3		0.4		-0.3	
δ2H	‰	17		18		9		15		4		10		5		22		-4		-3		2		4		19		-6		7		9		3	
δ13C	‰	-5.78		-4.98		-3.24		-3.09		-6.07		-8.55		-10.24		-12.41		-7.83		-9.36		-11.16		-7.44		-8.23		-4.53		-7.43		-7.75		-4.60	
Gross Alpha	pCi/L																																		
Salinity	‰																																		
Sr 87/86	‰	0.70914		0.70914		0.70911		0.70916		0.70915		0.70913		0.70913		0.70913		0.70913		0.70914		0.70915		0.70915		0.70906		0.70914		0.70913		0.70915		0.70917	
Tritium	pCi/L (16)	17.4(7.2)		18.6(7.2)		19.4(7.1)		23.9(7.4)		28.5(5.5)		30.3(5.5)		24.1(8)		41.8(6)		30.3(7.9)		20.9(7.8)		20.3(7.9)		42.1(8.9)		569(46)		27.9(8.1)		31.4(7.2)		48.7(6.3)		137.4(10.5)	

Notes:  
\* = No criteria specified for porewaters.  
I = Value between the MDL and PQL.  
J = Estimated (+/- indicate bias).  
MDL = Minimum detectable limit.

N.A. - Not applicable.  
PQL = Practical Quantitative Level.  
U = Analyzed for but not detected at the reported value.



Table 3-11. Analytical Results from the Tracer Suite Analyses for April 2011

Parameter	Units	D7-60	D8-60	D9-60	D10-60	E1-2-60	E2-60	E3-60	E4-60	E11-60	E12-60	F1-60	F1-2-60	F2-60	F10-60	F11-60	F12-60	F13-30												
		4/20/2011	4/20/2011	4/20/2011	4/13/2011	4/15/2011	4/20/2011	4/21/2011	4/20/2011	4/13/2011	4/7/2011	4/19/2011	4/18/2011	4/15/2011	4/13/2011	4/13/2011	4/7/2011	4/7/2011												
Temperature	°C	26.22	31.68	28.95	29.10	32.80	26.53	27.70	26.78	28.50	27.70	26.12	30.37	31.50	27.20	26.20	27.00	29.60												
pH	SU																													
Dissolved Oxygen	mg/L																													
Spec Cond	µS/cm	2385	3008	1446	60751	1308	1095	1322	7020	50477	49863	26816	21038	8688	10291	48756	59971	52805												
Turbidity	NTU																													
Arsenic	mg/L																													
Barium	mg/L	0.016	U	0.017	I	0.019	I	0.016	U	0.016	U	0.022	I	0.016	U	0.022	I	0.016	U											
Beryllium	mg/L																													
Cadmium	mg/L																													
Copper	mg/L																													
Iron	mg/L	1.8	0.66	I	0.39	I	0.93	I	1.4	6.7	2.5	0.7	I	1	0.69	IJ	0.36	I	0.3	I	0.62	I	0.18	I	0.82	I	1.6	J	0.92	J
Lead	mg/L																													
Manganese	mg/L																													
Molybdenum	mg/L																													
Nickel	mg/L																													
Selenium	mg/L																													
Thallium	mg/L																													
Vanadium	mg/L																													
Zinc	mg/L																													
Silica	mg/L																													
Calcium	mg/L	150.00	190.00	130.00	670.00	300.00	J	330.00	J	310.00	490.00	620.00	520.00	240.00	280.00	1000.00	120.00	480.00	700.00	490.00										
Magnesium	mg/L	29.00	34.00	27.00	1500.00	14.00	J	16.00	J	20.00	120.00	1200.00	1300.00	560.00	460.00	160.00	170.00	1200.00	1500.00	1300.00										
Potassium	mg/L	9.60	15.00	7.40	440.00	1.90	J	4.50	J	2.10	32.00	370.00	380.00	200.00	150.00	41.00	67.00	360.00	480.00	420.00										
Sodium	mg/L	280.00	390.00	160.00	12000.00	78.00	J	58.00	J	110.00	1000.00	9500.00	9300.00	4900.00	3600.00	1200.00	1600.00	9200.00	12000.00	10000.00										
Boron	mg/L	0.076	0.086	0.092	3.5	0.061	0.049	I	0.049	IJ	0.19	4.6	4.1	2.7	1.5	0.36	0.9	4.4	5.2	4.2										
Strontium	mg/L	1.4	1.6	1.6	10	1.5	1.6	1.8	3.6	8.1	7.6	3.8	3.7	5.1	1.3	7.6	10	8.4												
Chromium VI	mg/L																													
Mercury	mg/L																													
Bromide	mg/L	1.50	2.20	0.82	75.00	0.42	0.29	J	0.57	5.70	J+	65.00	68.00	33.00	35.00	5.20	J+	7.60	72.00	76.00	69.00									
Chloride	mg/L	520.00	750.00	220.00	24000.00	130.00	86.00	J	180.00	2000.00	19000.00	19000.00	9400.00	8200.00	2300.00	J-	3100.00	18000.00	23000.00	20000.00										
Fluoride	mg/L	0.42	I	0.11	0.16	0.25	I	0.20	U	0.07	J	0.20	U	0.20	I	0.62	0.62	J	0.63	0.37	I	0.14	3.60	0.53	0.64	J	0.56	J		
Sulfate	mg/L	60.00	5.50	5.60	J-	2800.00	1.80	5.30	J	15.00	140.00	2400.00	2500.00	1100.00	780.00	J-	42.00	160.00	2400.00	2800.00	2600.00									
Total Ammonia	mg/L as N																													
Ammonium Ion NH4	mg/L as N																													
Unionized NH3	mg/L																													
Nitrate/Nitrite as N	mg/L																													
TKN	mg/L																													
TN <sup>9</sup>	mg/L																													
Orthophosphate	mg/L																													
Phosphorus (P)	mg/L																													
Alkalinity	mg/L (CaCO <sub>3</sub> )	300.00	380.00	420.00	390.00	450.00	350.00	J	340.00	420.00	550.00	440.00	350.00	540.00	630.00	570.00	430.00	700.00	200.00											
Bicarbonate Alkalinity as CaCO <sub>3</sub>	mg/L	300.00	380.00	420.00	390.00	450.00	350.00	J	340.00	420.00	550.00	440.00	350.00	540.00	630.00	570.00	430.00	700.00	200.00											
Sulfides	mg/L	3.40	2.70	2.10	1.30	1.00	U	1.00	U	1.40	14.00	6.90	23.00	6.40	3.40	7.00	35.00	25.00	3.40	5.40										
Total Dissolved Solids	mg/L																													
Dissolved Inorganic Carbon	mg/L	10.00	U	10.00	U	10.00	U	10.00	U	10.00	U	10.00	U	13.00	120.00	10.00	U	13.00	17.00	15.00	10.00	U	180.00	43.00						
δ18O	‰	0.3	0.9	0.8	2.9	-1.4	-1.6	0.4	0.4	3	1.8	0.5	0.4	-0.2	0.3	2.8	1.6	1.8												
δ2H	‰	6	12	12	21	-8	-2	5	7	20	12	10	3	5	0	18	16	14												
δ13C	‰	-8.81	-6.00	-5.90	-9.73	-5.8	-5.50	-6.34	-12.44	-11.83	-12.74	-15.11	-12.36	-11.54	-13.70	-12.08	-13.48	-4.70												
Gross Alpha	pCi/L																													
Salinity	‰	1.2	1.5	0.7	40.6	0.6	0.5	0.7	3.8	33.0	32.6	16.4	12.5	4.8	5.8	31.8	40.1	34.7												
Sr 87/86	‰	0.70916	0.70914	0.70918	0.70911	0.70917	0.70914	0.70913	0.70913	0.70915	0.70914	0.70912	0.70913	0.70915	0.70911	0.70914	0.70915	0.70914												
Tritium	pCi/L (16)	92(9)	80.2(10.9)	104.2(8.8)	392(33)	40(8.5)	37(5.8)	78.2(7.6)	98(9)	58(9.4)	41.1(6.4)	39.2(6.6)	146(16)	49.2(9.1)	87.4(10.9)	228(21)	35(6.1)	26.5(6.1)												

Notes:  
\* = No criteria specified for porewaters.  
I = Value between the MDL and PQL.  
J = Estimated (+/- indicate bias).  
MDL = Minimum detectable limit.

N.A. - Not applicable.  
PQL = Practical Quantitative Level.  
U = Analyzed for but not detected at the reported value.



Table 3-11. Analytical Results from the Tracer Suite Analyses for April 2011

Parameter	Units	F14-60	FG11-60	FG12-20	G1on-60	G1 off-40	G1-2-60	G2-60	G6-60	G7-60	G8-60	G9-10-60	G9-60	G10-60	G11 on 60	G11 off 30	GH8-60	GH10-20										
		4/7/2011	4/8/2011	4/8/2011	4/11/2011	4/4/2011	4/18/2011	4/15/2011	4/12/2011	4/18/2011	4/19/2011	4/11/2011	4/19/2011	4/19/2011	4/8/2011	4/8/2011	4/21/2011	4/11/2011										
Temperature	°C	30.40	29.50	27.60	31.60	25.80	30.87	28.80	29.70	27.25	29.83	30.30	29.46	29.26	28.20	28.80	25.63	28.20										
pH	SU																											
Dissolved Oxygen	mg/L																											
Spec Cond	µS/cm	51586	54185	53291	46516	50078	48665	58991	50551	56784	59002	56844	49970	50060	52805	52998	51657	56383										
Turbidity	NTU																											
Arsenic	mg/L																											
Barium	mg/L	0.016	U	0.016	U	0.016	U	0.026	I	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U									
Beryllium	mg/L																											
Cadmium	mg/L																											
Copper	mg/L																											
Iron	mg/L	20	1.2	0.78	I	0.4	I	1.1	2.1	1.5	0.56	I	0.64	I	1.9	0.43	I	0.43	I	0.63	I	0.47	I	0.46	I	0.67	I	1.3
Lead	mg/L																											
Manganese	mg/L																											
Molybdenum	mg/L																											
Nickel	mg/L																											
Selenium	mg/L																											
Thallium	mg/L																											
Vanadium	mg/L																											
Zinc	mg/L																											
Silica	mg/L																											
Calcium	mg/L	1600.00	660.00	480.00	770.00	J	600.00	1300.00	560.00	520.00	580.00	1200.00	690.00	480.00	530.00	570.00	510.00	490.00	620.00									
Magnesium	mg/L	1300.00	1500.00	1400.00	2000.00	J	1200.00	1200.00	1400.00	1300.00	1300.00	1500.00	1500.00	1200.00	1200.00	1300.00	1300.00	1300.00	1500.00									
Potassium	mg/L	410.00	450.00	450.00	580.00	J	390.00	390.00	460.00	390.00	430.00	500.00	460.00	410.00	400.00	410.00	440.00	420.00	460.00									
Sodium	mg/L	9800.00	11000.00	11000.00	14000.00	J	9600.00	9100.00	11000.00	9800.00	11000.00	12000.00	9700.00	9700.00	10000.00	11000.00	10000.00	11000.00										
Boron	mg/L	4.3	4.9	4.5	6.7	4	4.2	4.7	4.3	4.5	5	5.2	4.7	4.9	4.4	4.3	4.4	4.8										
Strontium	mg/L	18	9.8	8.5	12	8.9	11	9.1	8.5	8.7	12	9.6	7.8	7.6	8.6	8.7	7.9	9.3										
Chromium VI	mg/L																											
Mercury	mg/L																											
Bromide	mg/L	67.00	72.00	70.00	91.00	J	60.00	61.00	69.00	64.00	72.00	80.00	72.00	63.00	68.00	64.00	73.00	63.00	62.00									
Chloride	mg/L	19000.00	22000.00	21000.00	15000.00	J	20000.00	J-	18000.00	21000.00	19000.00	20000.00	23000.00	22000.00	19000.00	19000.00	19000.00	20000.00	19000.00	J-	19000.00							
Fluoride	mg/L	0.61	J	0.59	0.51	J	0.65	0.56	0.02	U	35.00	0.59	0.66	1.20	0.75	0.74	0.59	0.58	0.74	1.00								
Sulfate	mg/L	2000.00	2800.00	2800.00	7900.00	J	2900.00	1900.00	2700.00	1900.00	2200.00	2600.00	2400.00	2100.00	2100.00	3000.00	2700.00	3400.00	J-	2000.00								
Total Ammonia	mg/L as N																											
Ammonium Ion NH4	mg/L as N																											
Unionized NH3	mg/L																											
Nitrate/Nitrite as N	mg/L																											
TKN	mg/L																											
TN <sup>9</sup>	mg/L																											
Orthophosphate	mg/L																											
Phosphorus (P)	mg/L																											
Alkalinity	mg/L (CaCO <sub>3</sub> )	590.00	660.00	160.00	420.00	J	330.00	570.00	200.00	400.00	440.00	240.00	510.00	260.00	200.00	370.00	180.00	280.00	130.00									
Bicarbonate Alkalinity as CaCO <sub>3</sub>	mg/L	590.00	660.00	160.00	420.00	J	330.00	570.00	200.00	400.00	440.00	240.00	510.00	260.00	200.00	370.00	180.00	280.00	130.00									
Sulfides	mg/L	7.00	25.00	4.20	5.30	5.00	4.20	3.50	10.00	6.10	1.80	12.00	7.70	8.20	21.00	4.30	37.00	2.20										
Total Dissolved Solids	mg/L																											
Dissolved Inorganic Carbon	mg/L	130.00	170.00	36.00	11.00	79.00	14.00	10.00	U	10.00	U	11.00	10.00	U	13.00	10.00	U	10.00	U									
δ18O	‰	1.8	2	2	0.5	1.6	1.4	2.9	1.9	2.5	4.1	0.8	3.1	3	2.8		2.7	1.8										
δ2H	‰	14	20	16	13	12	14	24	15	20	24	12	23	19	17		19	16										
δ13C	‰	-0.49	-13.08	-3.74	-15.18	-5.69	-12.98	-10.1	-10.40	-12.28	-6.58	-14.06	-10.23	-10.02	-11.84	-3.68	-13.00	-2.66										
Gross Alpha	pCi/L																											
Salinity	‰	33.7	35.7	35.1	30.0	32.8	31.6	39.3	33.0	37.7	39.3	37.7	32.6	32.6	34.7	34.8	34.0	37.4										
Sr 87/86	‰	0.70914	0.70914	0.70913	0.70914	0.70913	0.70912	0.70914	0.70916	0.70915	0.70913	0.70914	0.70915	0.70913	0.70913	0.70915	0.70914	0.70913										
Tritium	pCi/L (16)	25.1(6.1)	105.8(11.7)	32.7(8.4)	18.4(7.7)	46.1(8.8)	32.1(8.6)	21.3(8.1)	81.9(9.8)	75.1(10.6)	102(12)	10.5(8.2)	104(12)	77.2(10.6)	150.3(12.7)	31.2(7.9)	39.8(7.5)	14.7(7.8)										

Notes:  
\* = No criteria specified for porewaters.  
I = Value between the MDL and PQL.  
J = Estimated (+/- indicate bias).  
MDL = Minimum detectable limit.

N.A. - Not applicable.  
PQL = Practical Quantitative Level.  
U = Analyzed for but not detected at the reported value.



Table 3-11. Analytical Results from the Tracer Suite Analyses for April 2011

Parameter	Units	H5-30	H6-40	H7-60	H9on-60	H9off-30	H11-30	H12-60	H11-60	H12-60	H17-60	H18-60	H110-30	I3-60	I7-60	IJ3-60	IJ4-30	IJ7-60
		4/5/2011	4/5/2011	4/6/2011	4/11/2011	4/11/2011	4/7/2011	4/7/2011	4/4/2011	4/4/2011	4/6/2011	4/11/2011	4/11/2011	4/4/2011	4/6/2011	4/4/2011	4/5/2011	4/6/2011
Temperature	°C	30.50	30.20	27.00	26.70	29.80	29.80	32.30	28.23	27.30	25.6	26.60	28.80	29.70	26.1	28.60	27.90	32.4
pH	SU																	
Dissolved Oxygen	mg/L																	
Spec Cond	µS/cm	56785	54269	50724	70226	56280	52717	52906	49810	54323	51000	49076	55245	52535	54804	51864	56200	51740
Turbidity	NTU																	
Arsenic	mg/L																	
Barium	mg/L	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016
Beryllium	mg/L																	
Cadmium	mg/L																	
Copper	mg/L																	
Iron	mg/L	1.4	0.86	I	0.95	IJ	0.53	I	0.93	I	0.98	IJ	0.97	IJ	0.52	I	1.1	0.83
Lead	mg/L																	
Manganese	mg/L																	
Molybdenum	mg/L																	
Nickel	mg/L																	
Selenium	mg/L																	
Thallium	mg/L																	
Vanadium	mg/L																	
Zinc	mg/L																	
Silica	mg/L																	
Calcium	mg/L	580.00	540.00	530.00	520.00	520.00	530.00	520.00	520.00	500.00	450.00	440.00	740.00	480.00	590.00	510.00	600.00	480.00
Magnesium	mg/L	1400.00	1300.00	1300.00	1200.00	1400.00	1300.00	1300.00	1200.00	1300.00	1200.00	1200.00	1400.00	1300.00	1400.00	1300.00	1400.00	1300.00
Potassium	mg/L	470.00	430.00	410.00	360.00	450.00	400.00	430.00	390.00	430.00	380.00	390.00	450.00	420.00	440.00	410.00	460.00	420.00
Sodium	mg/L	11000.00	10000.00	10000.00	9000.00	11000.00	10000.00	11000.00	9600.00	11000.00	9300.00	9700.00	11000.00	10000.00	11000.00	10000.00	11000.00	10000.00
Boron	mg/L	4.7	4.4	4.2	4	4.7	3.9	4.3	4	4.5	4.2	4.6	5	4.4	4.3	4.4	4.7	4.4
Strontium	mg/L	9	8.3	8.1	7.5	8.6	8.3	8.6	7.8	8.2	7.2	7	11	7.7	9	8	9.2	8.2
Chromium VI	mg/L																	
Mercury	mg/L																	
Bromide	mg/L	71.00	69.00	59.00	57.00	71.00	65.00	67.00	65.00	72.00	65.00	J	58.00	J	69.00	68.00	73.00	67.00
Chloride	mg/L	21000.00	20000.00	19000.00	17000.00	21000.00	20000.00	20000.00	18000.00	20000.00	19000.00	J	16000.00	J	21000.00	20000.00	21000.00	20000.00
Fluoride	mg/L	0.55	0.55	0.59	0.91	0.59	0.57	J	0.57	J	0.65	0.59	0.58	J	1.10	J	0.57	0.63
Sulfate	mg/L	2800.00	2700.00	2500.00	1800.00	2400.00	2600.00	2700.00	2300.00	2700.00	2500.00	J	7800.00	J	2200.00	2700.00	2700.00	2500.00
Total Ammonia	mg/L as N																	
Ammonium Ion NH4	mg/L as N																	
Unionized NH3	mg/L																	
Nitrate/Nitrite as N	mg/L																	
TKN	mg/L																	
TN <sup>9</sup>	mg/L																	
Orthophosphate	mg/L																	
Phosphorus (P)	mg/L																	
Alkalinity	mg/L (CaCO <sub>3</sub> )	170.00	200.00	190.00	450.00	120.00	250.00	210.00	340.00	170.00	240.00	J	210.00	J	170.00	180.00	460.00	290.00
Bicarbonate Alkalinity as CaCO <sub>3</sub>	mg/L	170.00	200.00	190.00	450.00	120.00	250.00	210.00	340.00	170.00	240.00	J	210.00	J	170.00	180.00	460.00	290.00
Sulfides	mg/L	2.40	4.20	6.90	9.90	2.60	5.90	6.10	5.60	3.00	5.80	J	8.30	J	2.70	4.50	4.30	8.50
Total Dissolved Solids	mg/L																	
Dissolved Inorganic Carbon	mg/L	36.00	46.00	48.00	11.00	10.00	U	61.00	51.00	81.00	41.00	60.00	10.00	U	10.00	U	42.00	110.00
δ18O	‰	2	1.8	1.9	1.1	1.8	1.5	1.8	1.4	1.9	1.5	0.5	1.6	1.6	1.5		1.6	1.5
δ2H	‰	15	16	18	15	10	17	12	13	15	13	9	12	60	12		13	8
δ13C	‰	-3.05	-3.52	-8.34	-13.42	-3.58	-2.80	-4.06	-3.88	-2.75	-7.29	-16.47	-3.46	-3.02	-12.25	-3.10	-2.23	-2.11
Gross Alpha	pCi/L																	
Salinity	‰	37.6	35.7	33.2	48.1	37.2	34.6	34.6	32.5	35.9	33.4	32.0	36.5	34.5	36.3	34.0	37.2	33.8
Sr 87/86	‰	0.70914	0.70912	0.70915	0.70912	0.70916	0.70914	0.70916	0.70913	0.70916	0.70916	0.70916	0.70914	0.70912	0.70914	0.70916	0.70915	0.70916
Tritium	pCi/L (1δ)	22.4(7.5)		45.7(6.5)	8.1(7.5)	6.4(7.5)	UJ	18.6(5.9)	6.7(5.8)	12.9(7)	18.1(8.1)	25.5(7)	34.8(8.2)	17.8(8.8)	14.4(8.6)	26.1(6.9)	14.4(8.6)	6.7(6.8)

Notes:  
\* = No criteria specified for porewaters.  
I = Value between the MDL and PQL.  
J = Estimated (+/- indicate bias).  
MDL = Minimum detectable limit.

N.A. - Not applicable.  
PQL = Practical Quantitative Level.  
U = Analyzed for but not detected at the reported value.





Table 3-11. Analytical Results from the Tracer Suite Analyses for April 2011

Parameter	Units	IJ8-40	J9-40	J11-40	J12-50	JK7-45	K1-midH <sub>2</sub> O	K8-60	M2A/B-60	M3A/B-60	M5A/B-60	M7A/B-60	M8A/B-60	M9A/B-60	W1A/B-60	W2A/B-60	W3A/B-60												
		4/6/2011	4/11/2011	4/7/2011	4/7/2011	4/6/2011	4/11/2011	4/6/2011	4/19/2011	4/21/2011	4/12/2011	4/12/2011	4/18/2011	4/18/2011	4/15/2011	4/14/2011	4/14/2011												
Temperature	°C	27.9	27.50	26.60	28.50	23.7	28.80	27.00	27.24	24.92	30.70	31.00	30.14	29.95	26.42	28.19	28.83												
pH	SU																												
Dissolved Oxygen	mg/L																												
Spec Cond	µS/cm	51571	55570	53110	52767	54247	56304	52341	55744	54281	52000	50984	56830	63777	933	1609	553												
Turbidity	NTU																												
Arsenic	mg/L																												
Barium	mg/L	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U												
Beryllium	mg/L																												
Cadmium	mg/L																												
Copper	mg/L																												
Iron	mg/L	0.76	IJ	0.33	I	1	J	3.3	1.2	J	0.33	I	1	J	5.9	0.52	I	0.42	I	0.55	I	2.4		1.8	2.8	0.42	I	0.57	I
Lead	mg/L																												
Manganese	mg/L																												
Molybdenum	mg/L																												
Nickel	mg/L																												
Selenium	mg/L																												
Thallium	mg/L																												
Vanadium	mg/L																												
Zinc	mg/L																												
Silica	mg/L																												
Calcium	mg/L	500.00	480.00	580.00	550.00	510.00	500.00	510.00	680.00	480.00	500.00	490.00	470.00	1000.00	140.00	94.00	43.00												
Magnesium	mg/L	1300.00	1400.00	1400.00	1200.00	1300.00	1500.00	1300.00	1200.00	1300.00	1400.00	1300.00	1200.00	1600.00	7.80	40.00	8.90												
Potassium	mg/L	420.00	440.00	420.00	410.00	430.00	470.00	380.00	380.00	450.00	430.00	410.00	420.00	510.00	5.80	1.40	5.00												
Sodium	mg/L	10000.00	11000.00	10000.00	10000.00	11000.00	12000.00	9300.00	9500.00	11000.00	10000.00	10000.00	10000.00	13000.00	59.00	190.00	51.00												
Boron	mg/L	4.2	4.6	4.6	4.2	4.5	5	4.5	3.9	4.4	4.5	4.5	4.1	5	0.043	I	0.23	J	0.063	J									
Strontium	mg/L	8.2	8.1	9.4	9.2	8.7	8.4	7.9	8.6	8.2	8.1	7.7	8.1	12	1.1	1	0.46												
Chromium VI	mg/L																												
Mercury	mg/L																												
Bromide	mg/L	70.00	68.00	67.00	62.00	J+	73.00	71.00	65.00	71.00	71.00	55.00	66.00	73.00	86.00	0.26	0.96	J	0.24										
Chloride	mg/L	19000.00	21000.00	20000.00	20000.00	21000.00	J-	21000.00	19000.00	21000.00	21000.00	J-	20000.00	19000.00	22000.00	25000.00	84.00	490.00	J	75.00									
Fluoride	mg/L	0.63	0.56	0.64	J	0.56	J	0.59	0.94	0.54	0.73	0.68	J-	0.92	0.94	0.64	15.00	0.12	I	0.44	IJ	0.13							
Sulfate	mg/L	2500.00	2200.00	2600.00	2600.00	2800.00	2200.00	2400.00	2200.00	2600.00	2100.00	2100.00	J3	2300.00	2500.00	0.65	1.40	J	3.10										
Total Ammonia	mg/L as N																												
Ammonium Ion NH <sub>4</sub>	mg/L as N																												
Unionized NH <sub>3</sub>	mg/L																												
Nitrate/Nitrite as N	mg/L																												
TKN	mg/L																												
TN <sup>9</sup>	mg/L																												
Orthophosphate	mg/L																												
Phosphorus (P)	mg/L																												
Alkalinity	mg/L (CaCO <sub>3</sub> )	260.00	130.00	480.00	210.00	260.00	110.00	410.00	520.00	200.00	230.00	170.00	190.00	940.00	330.00	310.00	J	130.00											
Bicarbonate Alkalinity as CaCO <sub>3</sub>	mg/L	260.00	130.00	480.00	210.00	260.00	110.00	410.00	520.00	200.00	230.00	170.00	190.00	940.00	330.00	310.00	J	130.00											
Sulfides	mg/L	6.10	2.70	9.40	2.40	4.50	1.00	U	6.70	2.90	11.00	8.60	5.10	4.60	8.30	1.00	U	2.10		1.80									
Total Dissolved Solids	mg/L																												
Dissolved Inorganic Carbon	mg/L	69.00	10.00	U	120.00	46.00	65.00	10.00	U	110.00	12.00	10.00	U	10.00	U	10.00	U	19.00	10.00	U	10.00	U	10.00	U					
δ18O	‰	1.5	1.5		1.5	1.6	1.4	1.4	1.9	1.9	1.9	2.1	2.7	2	-0.9	-1.5	-1.8												
δ2H	‰	13	15		13	15	18	13	19	18	20	20	25	19	-4	-2	-6												
δ13C	‰	-2.33	-2.87	-2.66	-3.13	-1.84	-0.49	-1.29	-12.62	-13.47	-12.03	-8.12	-8.7	-13.02	-2.36	-8.25	-3.52												
Gross Alpha	pCi/L																												
Salinity	‰	33.8	36.8	35.0	34.7	35.9	37.3	34.4	37.0	35.9	34.0	33.3	37.7	42.9	0.5	0.8	0.3												
Sr 87/86	‰	0.70913	0.70914	0.70916	0.70913	0.70914	0.70913	0.70915	0.70916	0.70916	0.70914	0.70916	0.70913	0.70916	0.70913	0.70911	0.70917												
Tritium	pCi/L (1δ)	8.5(6.9)	7.4(7.6)	UJ	15.4(7)	9.4(5.9)	9.2(6.6)	7.1(7.6)	UJ	12.3(6.8)	45.1(6.5)	39.5(6.2)	24.5(7.8)	63.3(9.1)	62.2(10.5)	72.1(10.3)	39.2(8.5)	33.7(8.2)	72.3(10.3)										

Notes:  
\* = No criteria specified for porewaters.  
I = Value between the MDL and PQL.  
J = Estimated (+/- indicate bias).  
MDL = Minimum detectable limit.

N.A. - Not applicable.  
PQL = Practical Quantitative Level.  
U = Analyzed for but not detected at the reported value.





Table 3-11. Analytical Results from the Tracer Suite Analyses for April 2011

		4/21/2011																									
		W4A/B-60		W5A/B-60		W6A/B-60		W9A/B-60		EB1		FB1		FCEB1		EB		FB1		FB1		FB1		FB1			
Parameter	Units	4/21/2011		4/21/2011		4/20/2011		4/20/2011		4/4/2011		4/5/2011		4/6/2011		4/7/2011		4/8/2011		4/12/2011		4/14/2011		4/19/2011		4/21/2011	
Temperature	°C	27.93		26.89		27.52		27.14																			
pH	SU																										
Dissolved Oxygen	mg/L																										
Spec Cond	µS/cm	3834		842		541		810																			
Turbidity	NTU																										
Arsenic	mg/L																										
Barium	mg/L	0.016	U	0.02	I	0.016	U	0.016	U	0.00081	U	0.00081	U	0.016	U	0.0018	I	0.00081	U	0.00081	U	0.0011	IV	0.00082	I	0.0017	I
Beryllium	mg/L																										
Cadmium	mg/L																										
Copper	mg/L																										
Iron	mg/L	0.19	I	0.054	U	0.25	I	0.8	I	0.0042	I	0.006	I	3.9		0.31		0.0027	U	0.0037	I	0.0098	I	0.0027	U	0.0027	U
Lead	mg/L																										
Manganese	mg/L																										
Molybdenum	mg/L																										
Nickel	mg/L																										
Selenium	mg/L																										
Thallium	mg/L																										
Vanadium	mg/L																										
Zinc	mg/L																										
Silica	mg/L																										
Calcium	mg/L	190.00		60.00		45.00		97.00		0.10	U	0.10	U	0.10	U	0.10	I	0.10	U	0.33	I	0.29	I	0.10	U	0.10	U
Magnesium	mg/L	79.00		12.00		7.50		8.40		0.02	U	0.02	I	0.02	U	0.04	I	0.02	U	0.03	I	0.04	I	0.03	IV	0.04	IV
Potassium	mg/L	4.10		2.50		1.90		4.00		0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
Sodium	mg/L	500.00		65.00		50.00		51.00		0.45	I	0.31	U	0.31	U	0.31	I	0.31	U	0.32	I	0.31	U	0.31	U	0.31	U
Boron	mg/L	0.25	J	0.045	IJ	0.052		0.029	I	0.032	I	0.052		0.064		0.068		0.1		0.038	I	0.1		0.072		0.067	
Strontium	mg/L	2.1		0.65		0.58		1.1		0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.0033	I	0.0016	I	0.001	U	0.001	U
Chromium VI	mg/L																										
Mercury	mg/L																										
Bromide	mg/L	2.30		0.35		0.20		0.30		0.03	U	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
Chloride	mg/L	900.00		140.00		78.00		97.00		0.20	U	0.20	U	1.10		2.00		0.20	U	0.34	I	0.22	I	0.20	U	0.20	U
Fluoride	mg/L	0.29	I	0.20	U	0.07		0.12		0.02	U	0.02	U	0.02	U	0.15		0.02	U	0.02	I	0.02	U	0.02	U	0.02	U
Sulfate	mg/L	28.00		13.00		12.00		4.60		0.20	U	0.20	U	0.20	U	0.39	I	0.20	U	0.20	U	0.20	U	0.22	I	0.20	U
Total Ammonia	mg/L as N																										
Ammonium Ion NH4	mg/L as N																										
Unionized NH3	mg/L																										
Nitrate/Nitrite as N	mg/L																										
TKN	mg/L																										
TN <sup>9</sup>	mg/L																										
Orthophosphate	mg/L																										
Phosphorus (P)	mg/L																										
Alkalinity	mg/L (CaCO <sub>3</sub> )	510.00		140.00		110.00		230.00		1.00	U	1.00	U	3.10		1.00	U	2.10		2.00		1.40		1.60		1.00	U
Bicarbonate Alkalinity as CaCO <sub>3</sub>	mg/L	510.00		140.00		110.00		230.00		1.00	U	1.00	U	3.10		1.00	U	2.10		2.00		1.40		1.60		1.00	U
Sulfides	mg/L	1.90		4.20		3.00		2.40		1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U
Total Dissolved Solids	mg/L																										
Dissolved Inorganic Carbon	mg/L	13.00		10.00	U	10.00	U	10.00	U	10.00	U	10.00	U	10.00	U	10.00	U	10.00	U	10.00	U	10.00	U	10.00	U	10.00	U
δ18O	‰	-0.4		-0.6		-0.9		-0.1		-1.5		-1.4		-1.4		1.4		-1.3		-1.4		-1.4		-1.2		-1.3	
δ2H	‰	0		3		-5		6		-6		-5		-4		10		-6		-5		-4		-6		-5	
δ13C	‰	-11.69		-9.63		-6.90		-5.43		-23.90		-26.61		-26.80		-16.77		-20.73		-20.99		-17.05		-28.94		-28.03	
Gross Alpha	pCi/L																										
Salinity	‰	2.0		0.4		0.3		0.4																			
Sr 87/86	‰	0.70913		0.70915		0.70924		0.70912																			
Tritium	pCi/L (16)	20.8(6.7)		61.8(7.8)		108.1(9)		82.4(8.4)		-1.6(7.5)	UJ			-0.9(6.9)	UJ	9.5(5.7)		5.3(6.1)	UJ	1.9(6.6)	UJ	-0.2(6.1)	UJ	9.2(7.7)		1.8(7.3)	UJ

Notes:  
\* = No criteria specified for porewaters.  
I = Value between the MDL and PQL.  
J = Estimated (+/- indicate bias).  
MDL = Minimum detectable limit.

N.A. - Not applicable.  
PQL = Practical Quantitative Level.  
U = Analyzed for but not detected at the reported value.



**Table 3-12. Minimum, Maximum and Mean Values of Porewater Tracer Suite Analyses from September 2010 (Bay only) and April 2011 (Biscayne Bay, Mangroves and Marshes)**

Analyte	Bay						Mangrove (n= 30)			Marsh (n= 27)		
	Sept. 2010 (n= 30)			April 2011 (n= 30)								
	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean
Barium (mg/L)	<0.016	0.069	0.0192	<0.016	0.016	0.016	<0.016	0.039	.017	<0.016	0.057	.022
Iron (mg/L)	0.33	29.00	3.68	0.33	20.00	1.78	0.18	5.90	1.10	0.054	6.70	1.56
Calcium (mg/L)	320	3,200	629	450	1,600	564	120	1,300	613	43	1,600	378
Magnesium (mg/L)	660	1,400	1,130	1,200	1,500	1,317	170	2,000	1,298	7.5	460	54.4
Sodium (mg/L)	5,600	11,000	9,590	9,100	11,000	10,323	1,600	14,000	10,133	50	3,600	431
Potassium (mg/L)	220	620	356	370	470	422	67	580	407	0.9	150	13.4
Boron (mg/L)	3	6	4	3.9	5.0	4.4	0.9	4.4	4.6	0.03	1.5	0.15
Strontium (mg/L)	4.9	22.0	8.4	7.2	18.0	8.8	1.3	12.0	8.7	0.46	7.8	2.5
Bromide (mg/L)	36	130	66	59	77	68	7.6	91	66.7	0.2	35.0	3.0
Chloride (mg/L)	11,000	22,000	18,667	17,000	21,000	19,867	3,100	25,000	19,283	68	8,200	898
Fluoride (mg/L)	0.20	0.98	0.49	0.51	1.00	0.61	0.02	35.00	2.75	0.06	0.44	0.18
Sulfate (mg/L)	1,500	3,800	2,693	2,000	2,900	2,540	160	7,900	2,705	0	780	50
Alkalinity (mg/L)	130	440	246	120	590	234	170	940	402	110	630	362
Bicarbonate (mg/L)	130	440	246	120	590	234	170	940	402	110	630	362
Sulfides (mg/L)	<1	25	8	<1	11	5	1.1	37.0	10.9	<1	14	3
DIC (mg/L)	29	110	58	<10	130	52	<10	180	32	<10	17	11
δ <sup>18</sup> O (‰)	0.9	1.9	1.7	1.3	2.3	1.7	0.3	4.1	2.1	-1.8	0.9	-0.4
δ <sup>2</sup> H (‰)	8	20	14	8	18	14	0	25	17	-8	12	2
δ <sup>13</sup> C (‰)	-8.16	-0.84	-3.81	-8.34	-0.49	-3.51	-16.47	-6.58	-11.97	-12.44	-2.36	-7.68
<sup>87</sup> Sr/ <sup>86</sup> Sr	0.7091	0.7092	0.7092	0.7091	0.7092	0.7091	0.7091	0.7092	0.7091	0.7091	0.7092	0.7092
Tritium	0.5	29	13	6.4	46.1	18.9	8.1	569	89.5	20.3	146	58.7

Key:

‰ = Parts per mille.

DIC = Dissolved inorganic carbon.

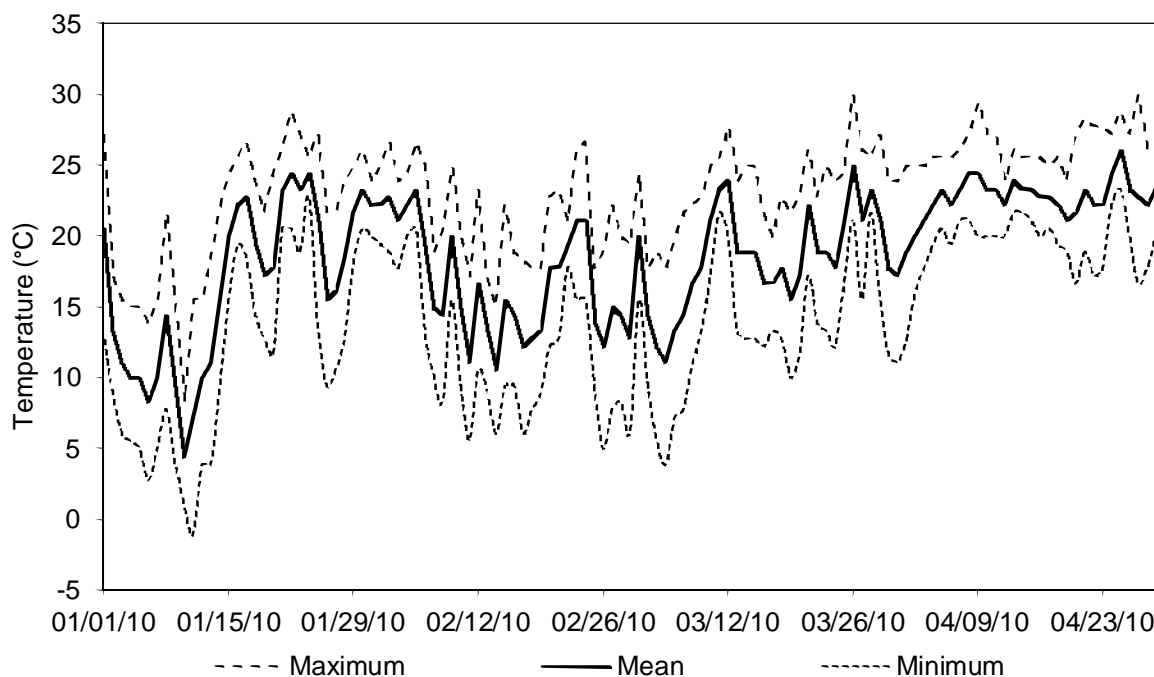
mg/L = Milligrams per liter.

**Table 3-13. Evaporation Pan Tritium Data ( $\pm 1 \sigma$ ) from March to June 2011**

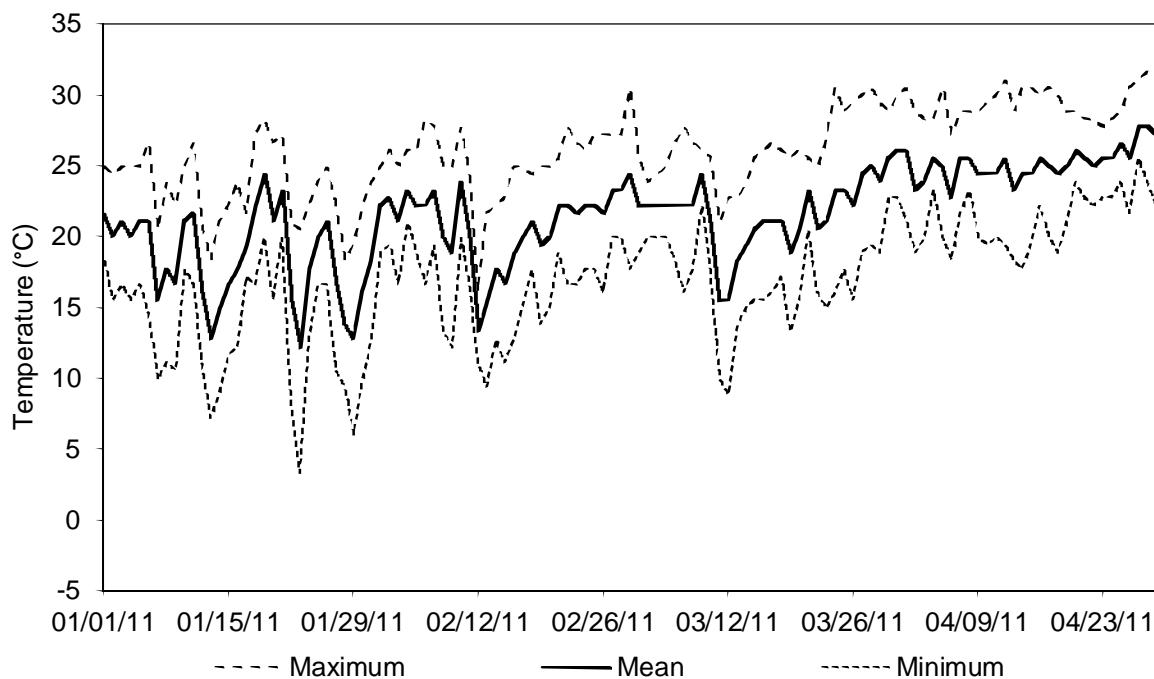
Location	March	April	May	June
Source Water (Municipal Water)	$5.0 \pm 6.3$	$13.4 \pm 5.3$	$15.3 \pm 8.3$	$21.4 \pm 6.7$
TPGW-2	$153 \pm 13$	$249 \pm 19.0$	$283.4 \pm 19.6$	$26.3 \pm 6.8$
TPGW-3	$43.4 \pm 7.7$	$45.1 \pm 6.5$	$36.0 \pm 7.2$	$17.9 \pm 6.7$
TPGW-12	$22.1 \pm 6.9$	$55.0 \pm 6.9$	$30.0 \pm 6.9$	$22.6 \pm 6.6$
TPGW-13A (Grand Canal)	NA	NA	$490.3 \pm 31.5$	$274.7 \pm 19.0$
Source Water (Municipal Water)	$5.0 \pm 6.3$	$23.5 \pm 5.5$	$20.8 \pm 6.7$	$20.9 \pm 6.6$
TPGW-5	$11.0 \pm 6.4$	$49.6 \pm 7.0$	$39.2 \pm 7.2$	$39.0 \pm 7.2$

Note: TPGW-5 is usually re-filled a day or two after the other pans. Hence, a separate source water sample is collected when that pan is being re-filled.

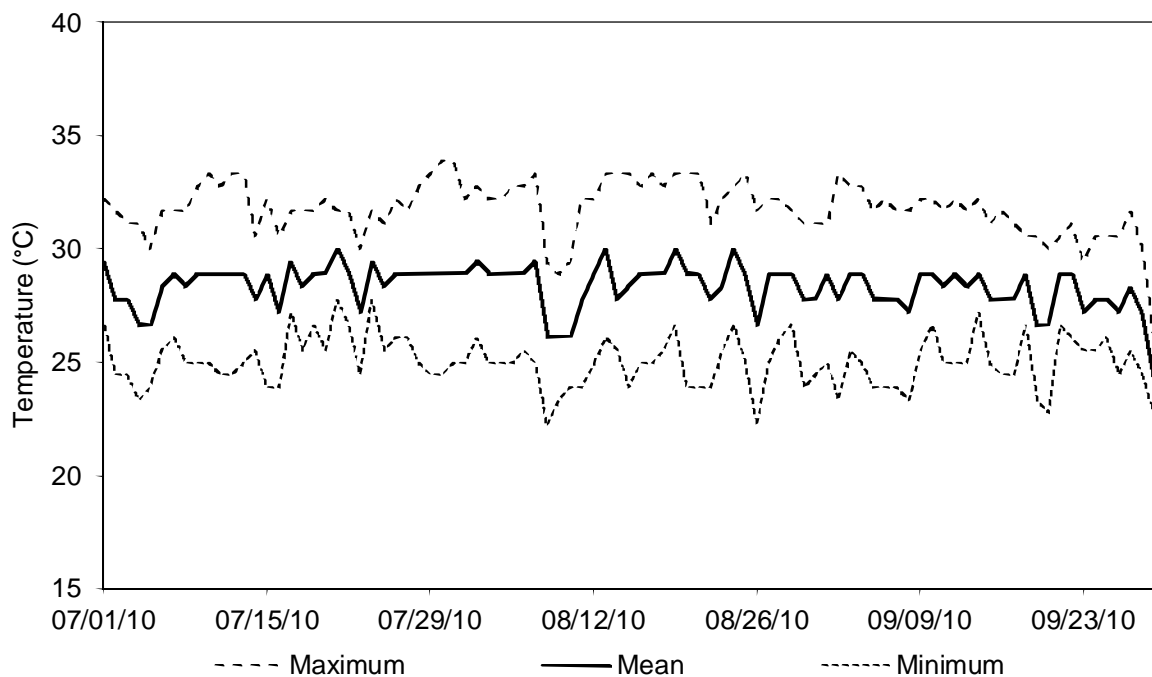
# FIGURES



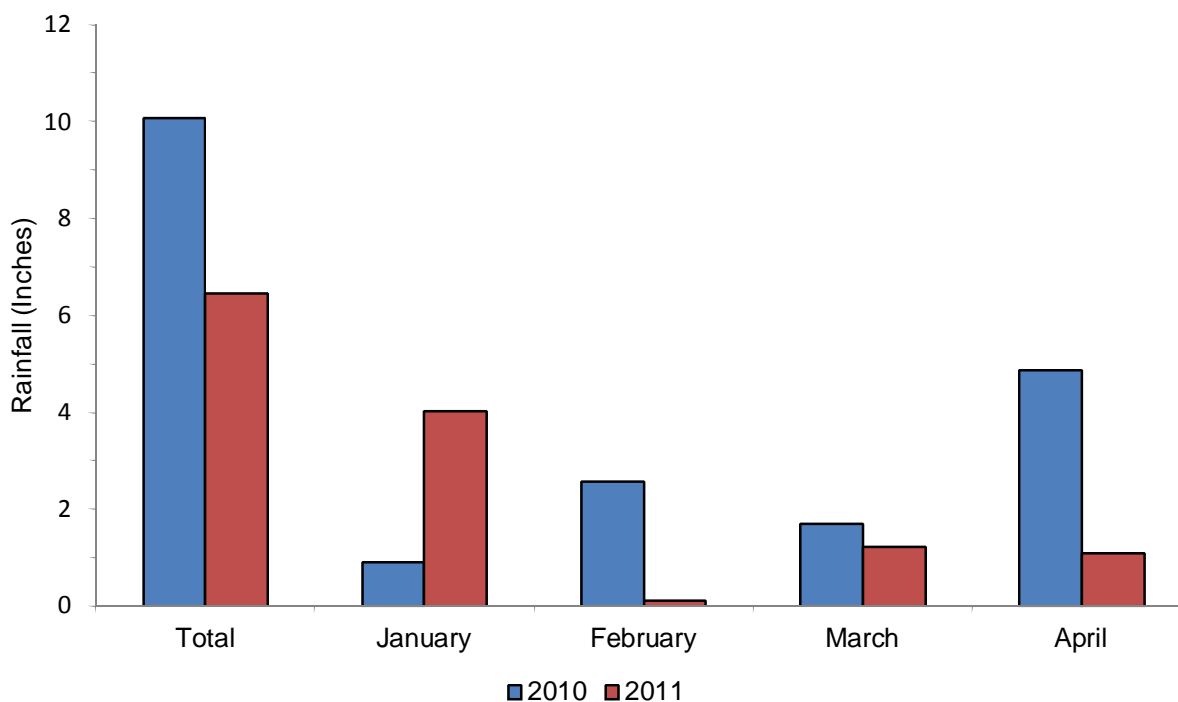
**Figure 3-1. 2010 Dry Season Maximum, Mean and Minimum Temperatures (°C).**



**Figure 3-2. 2011 Dry Season Maximum, Mean and Minimum Temperatures (°C).**



**Figure 3-3. 2010 Wet Season Maximum, Mean and Minimum Temperatures (°C).**



**Figure 3-4. 2010 and 2011 Dry Season Rainfall Totals.**



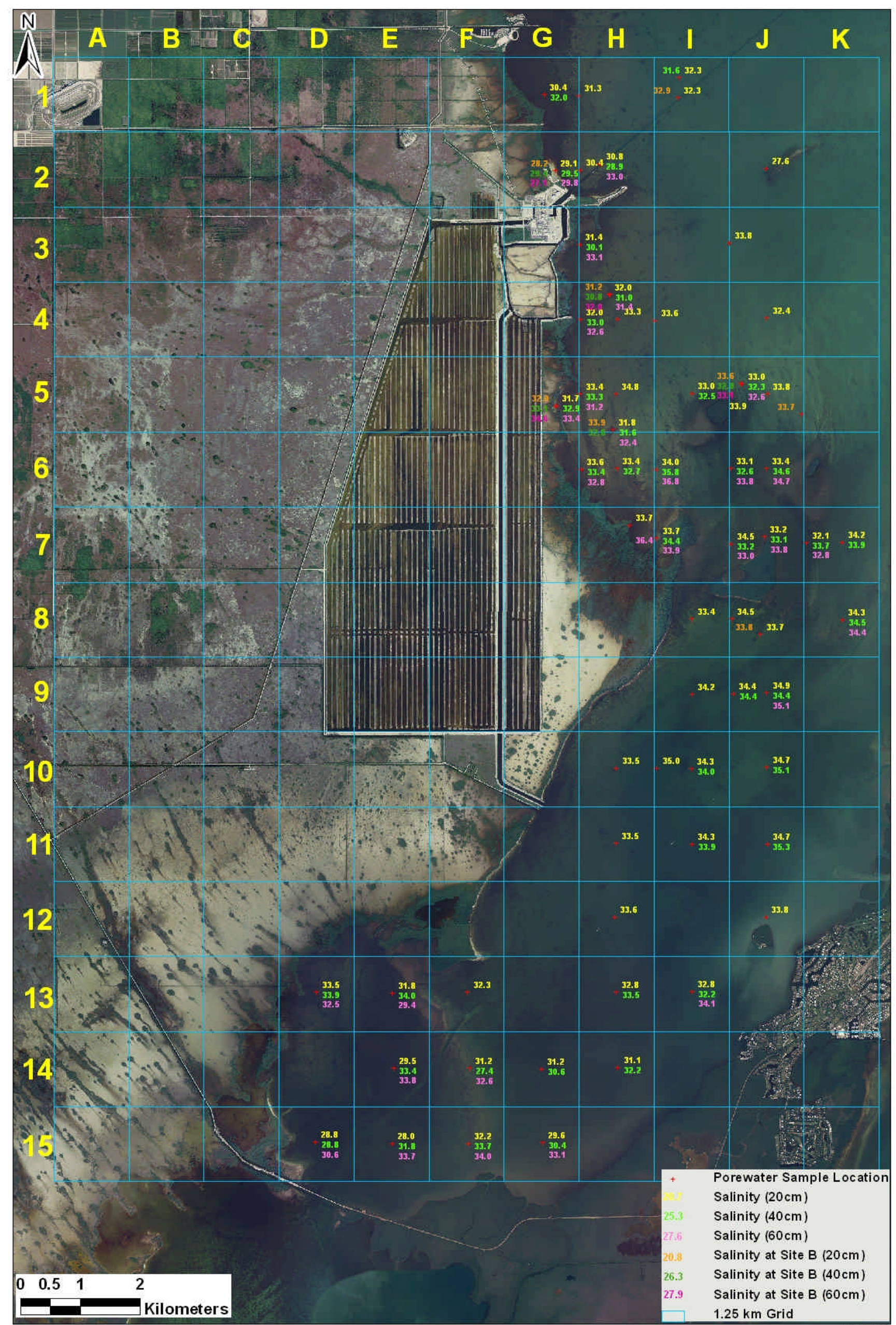


Figure 3-5. Porewater Salinity in Biscayne Bay (April 2010).

5-17-2011





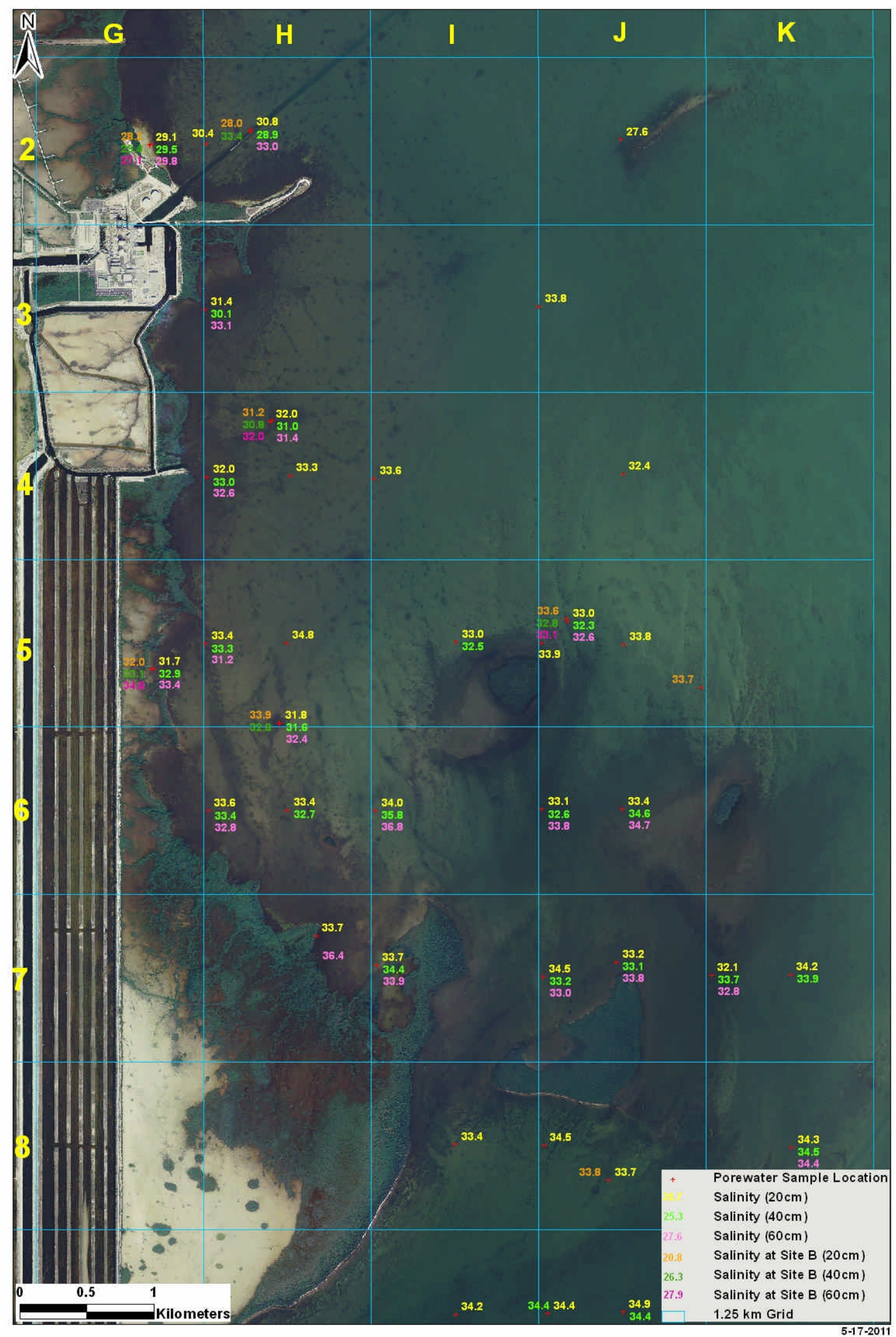


Figure 3-6. Zoomed-in Porewater Salinity in Biscayne Bay (April 2010).

5-17-2011





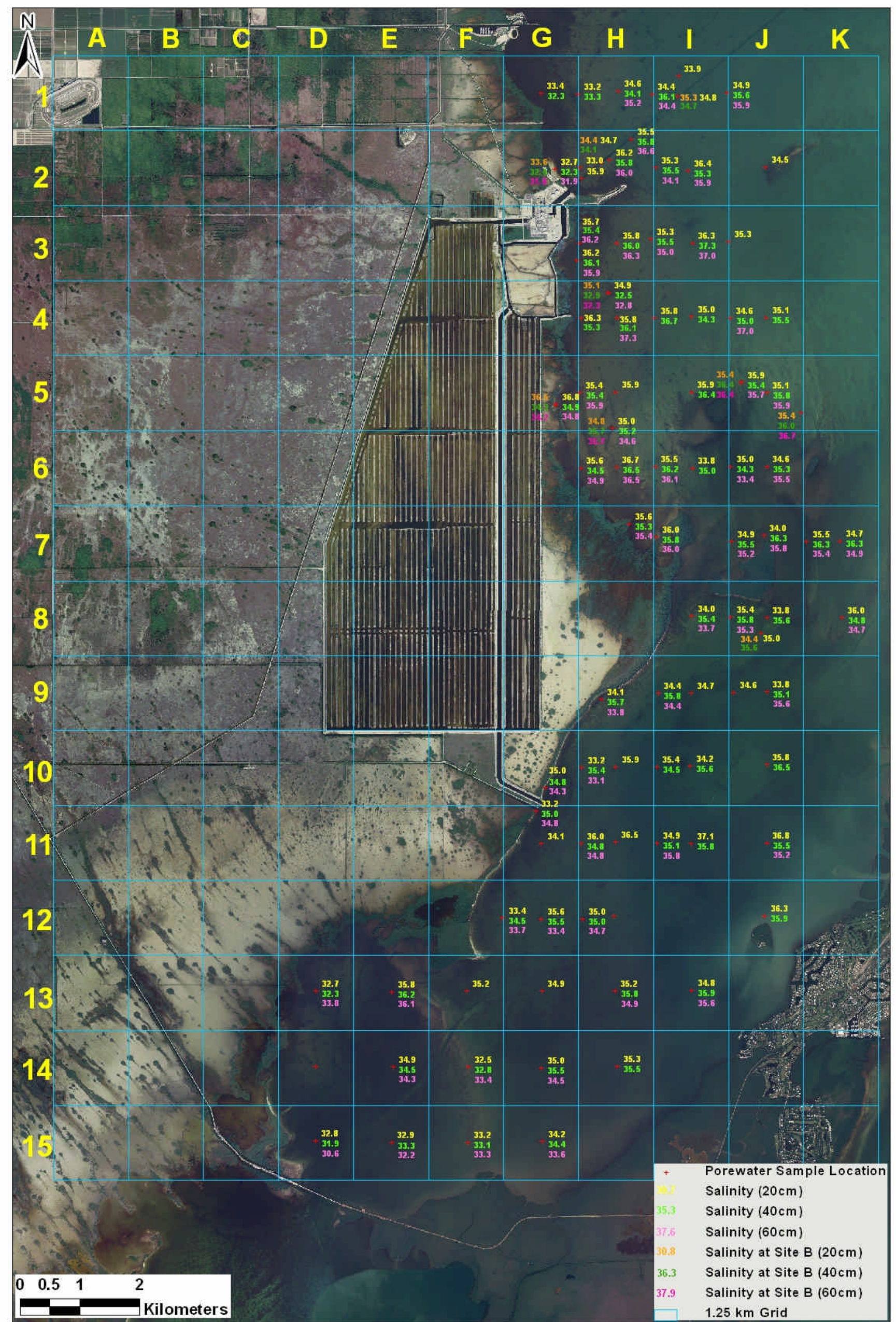


Figure 3-7. Porewater Salinity in Biscayne Bay (August 2010).

5-17-2012







Figure 3-8. Zoomed-In Porewater Salinity in Biscayne Bay (August 2010).





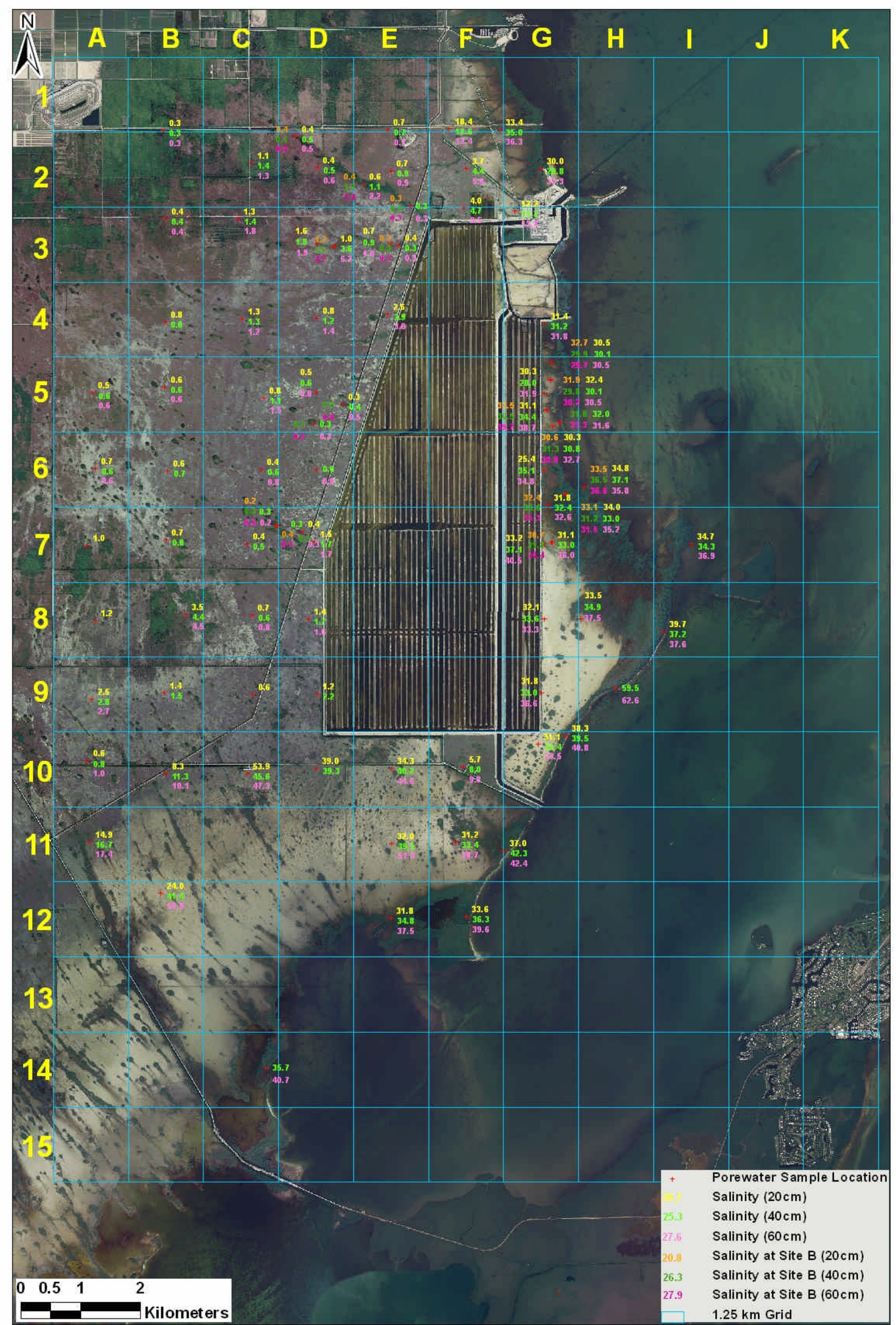
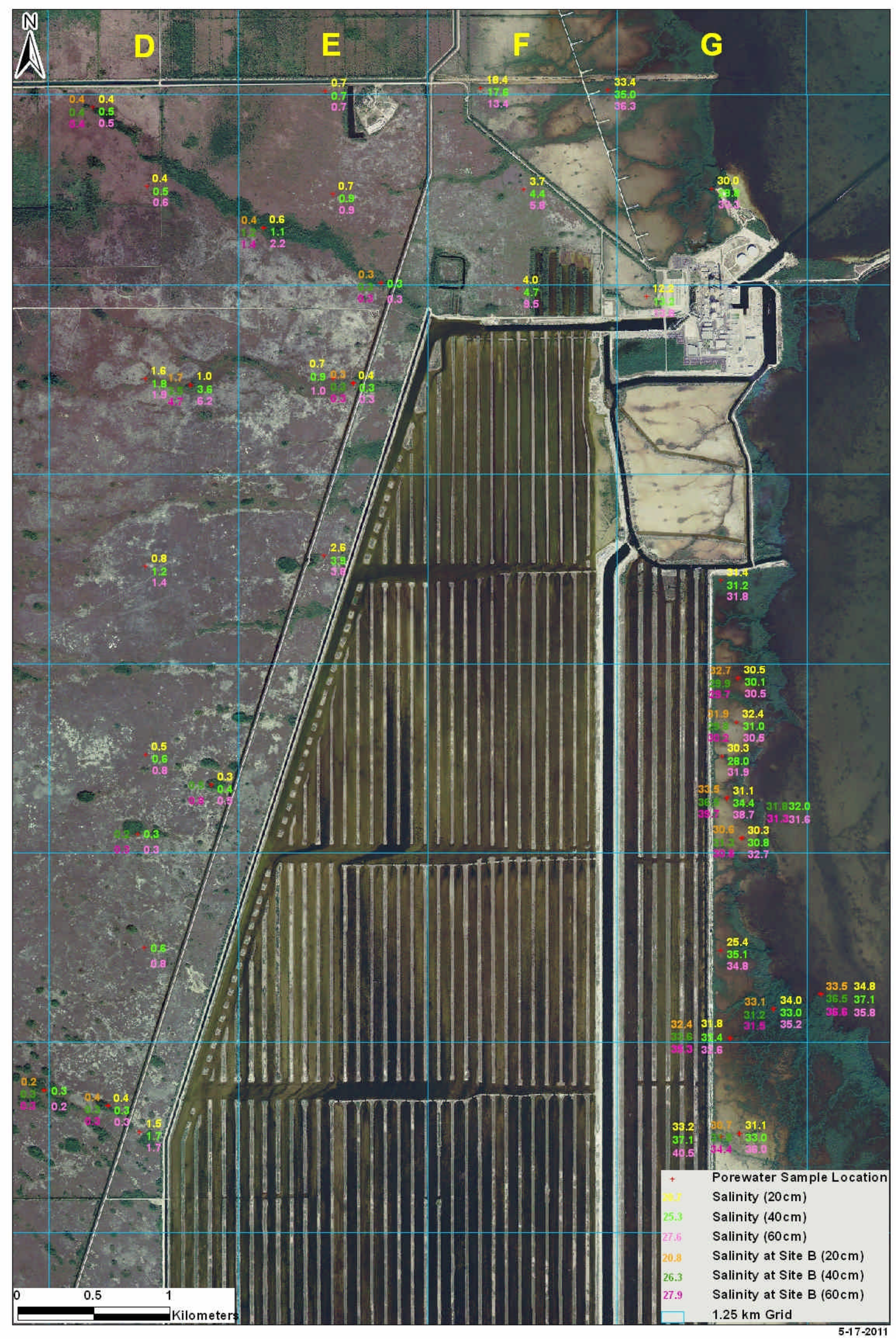


Figure 3-9. Porewater Salinity in the Marsh and Mangroves (April 2010).

5-17-2011







5-17-2011





## September 2010 Bay

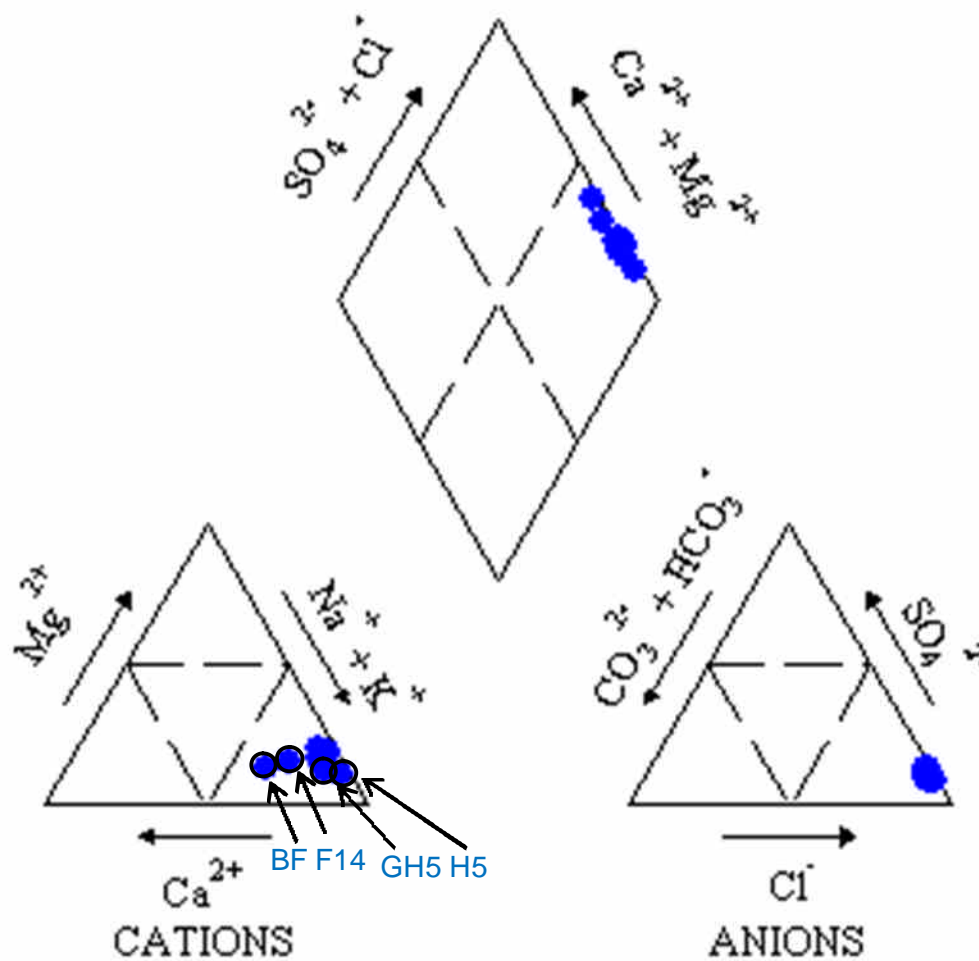


Figure 3-11. Piper Diagram of Bay Samples (September 2010).

### Comparative seasonal data for Biscayne Bay

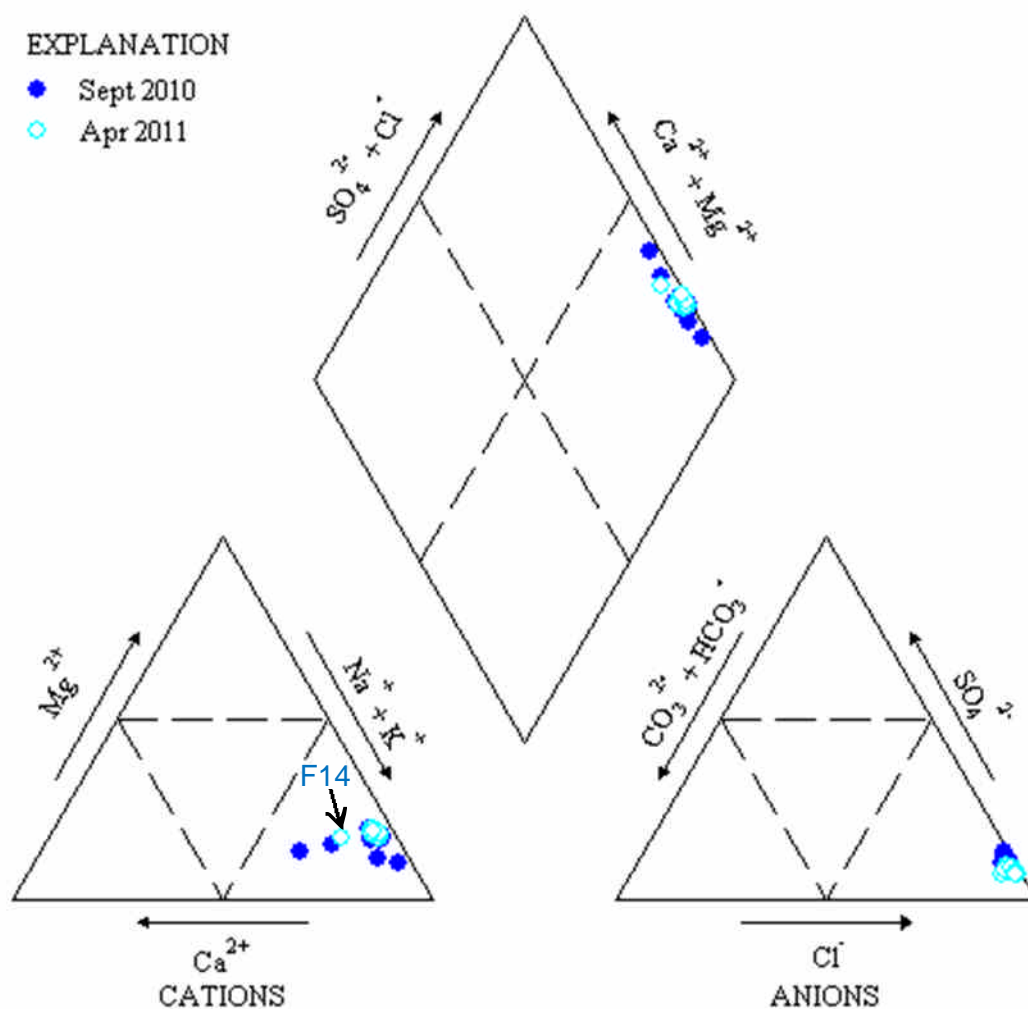


Figure 3-12. Piper Diagram of Bay Samples of the Wet Season (September 2010) Compared to the Dry Season (April 2011).

# April 2011 Marsh, Mangrove and Biscayne Bay

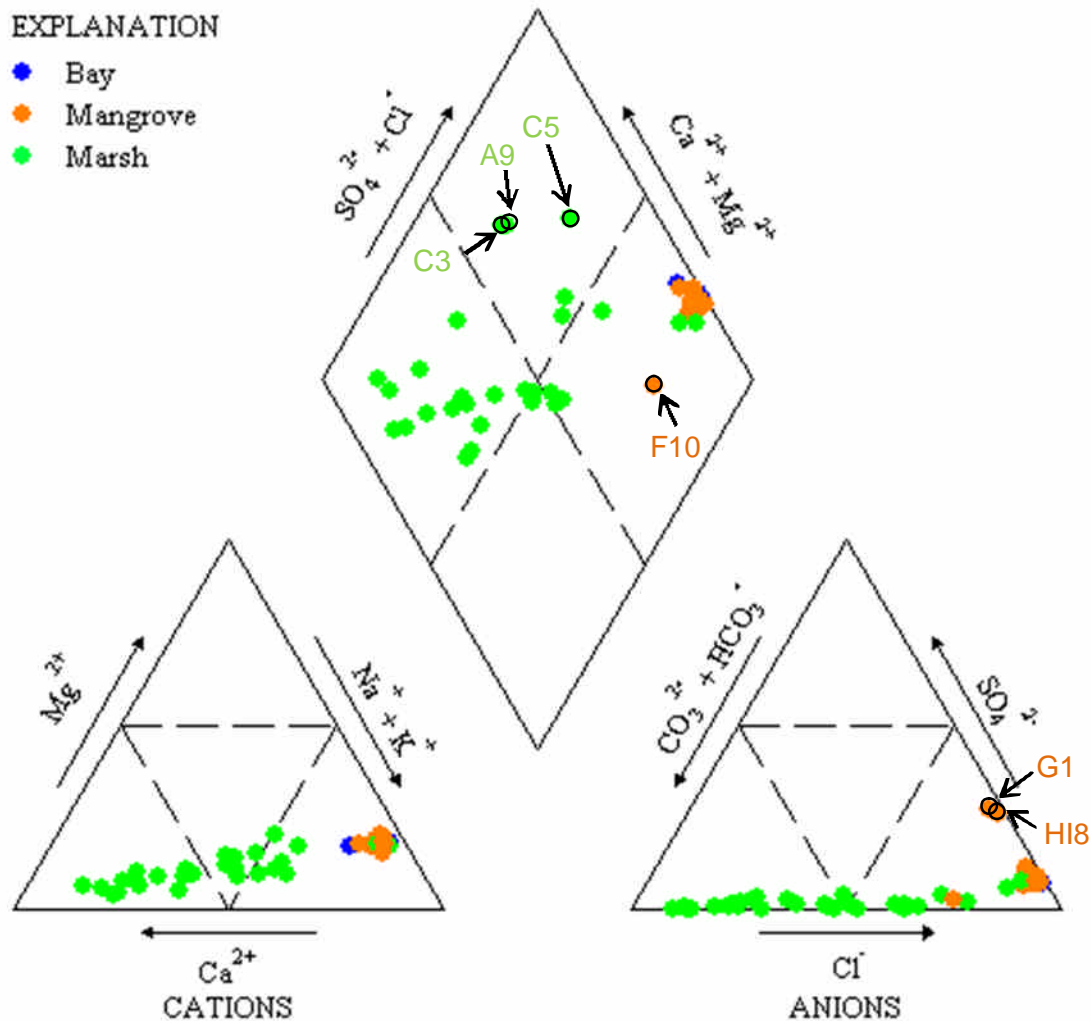
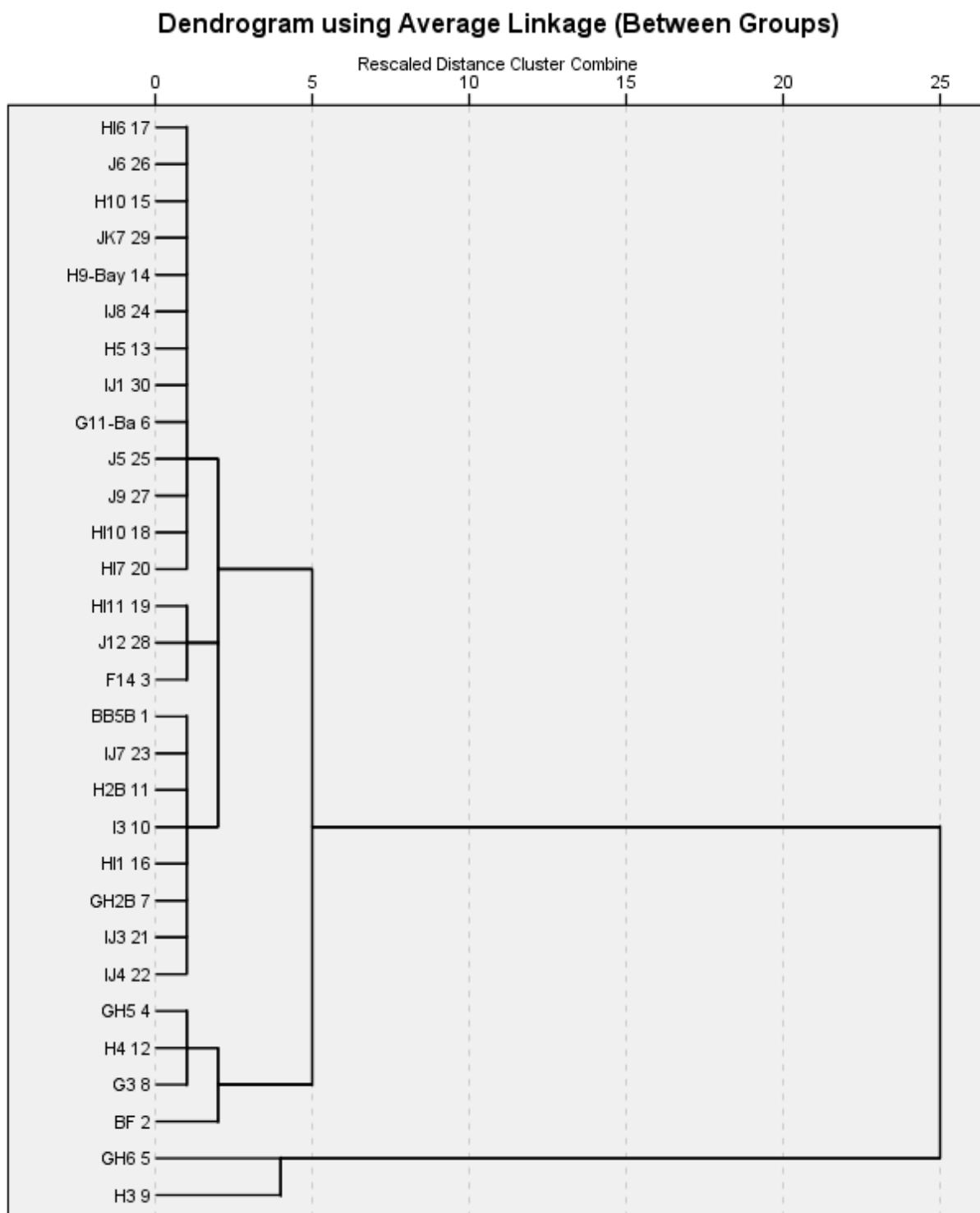
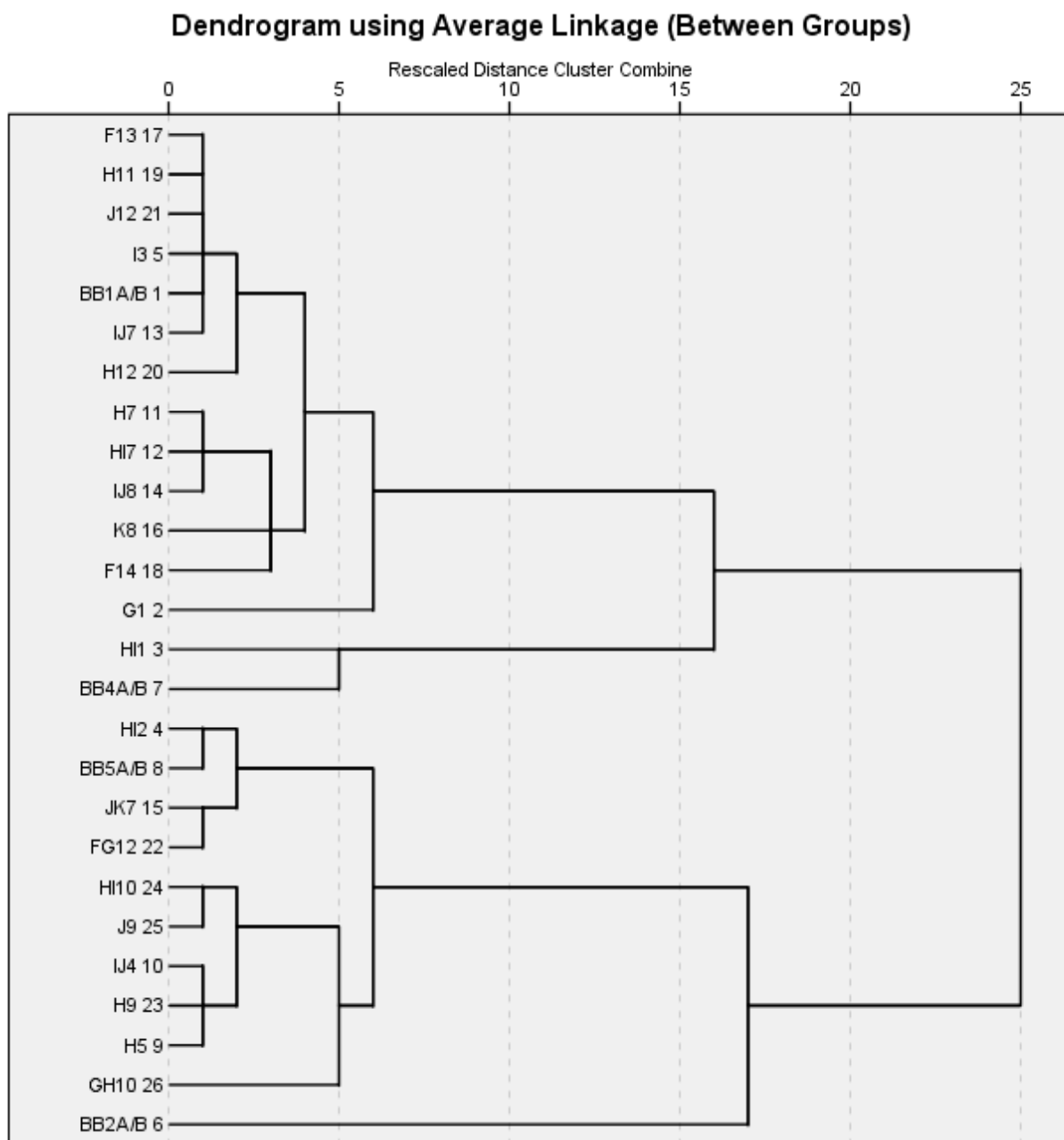


Figure 3-13. Piper Diagram for All Bay, Mangrove and Marsh Samples for April 2011.

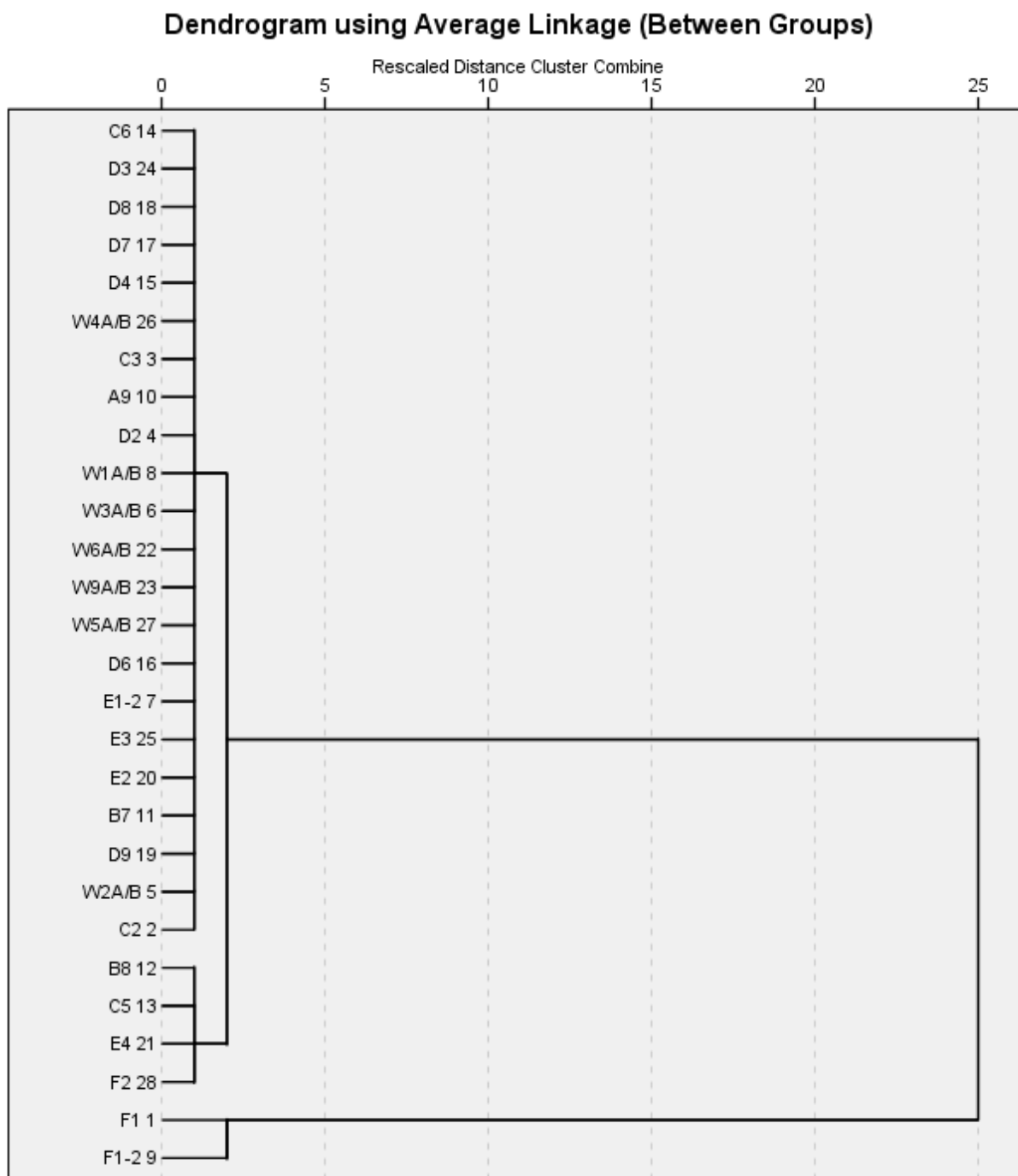


**Figure 3-14. Hierarchical Cluster Analysis Based on Analytical Data from the Biscayne Bay Porewater Samples from September 2010.**

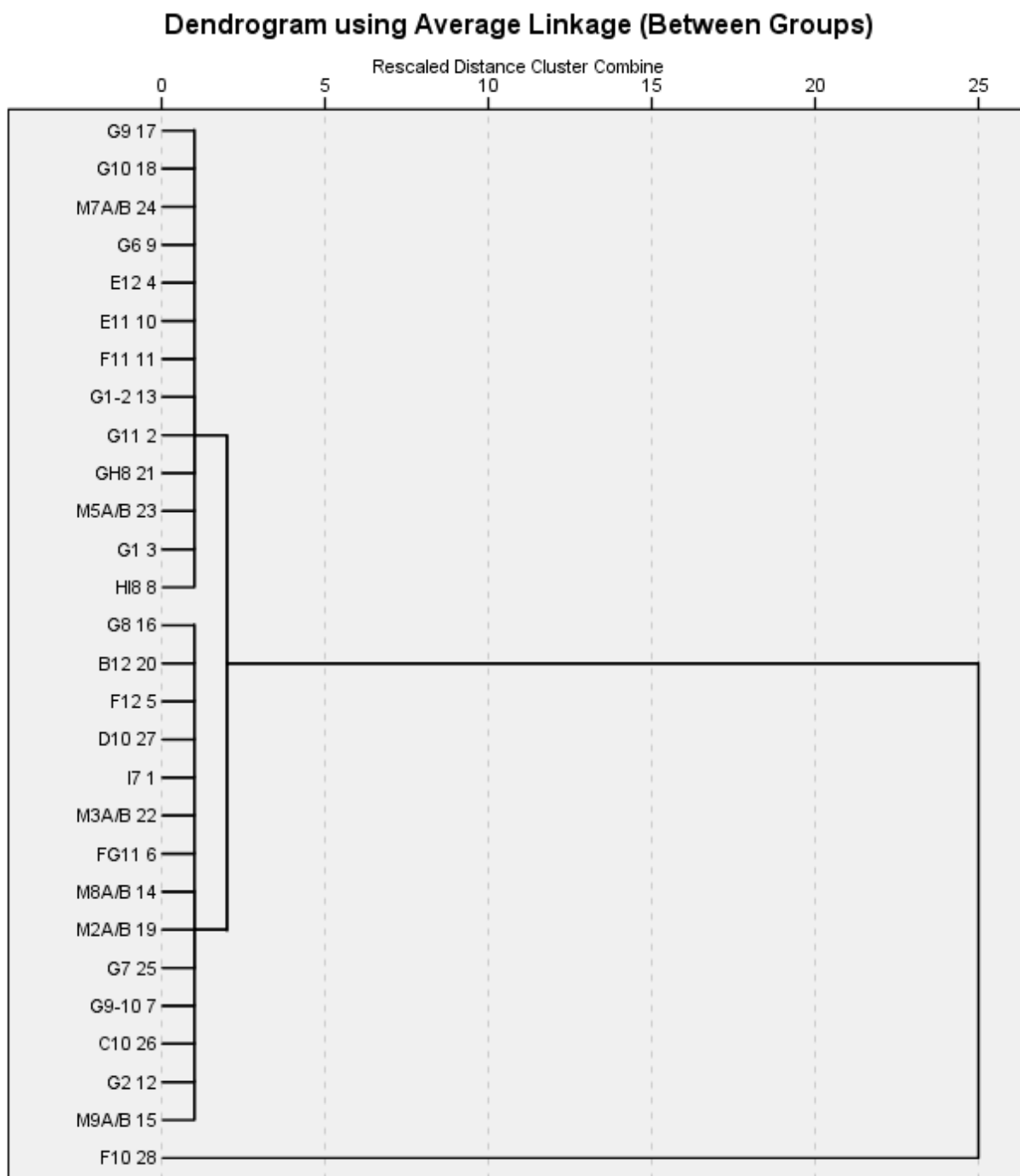




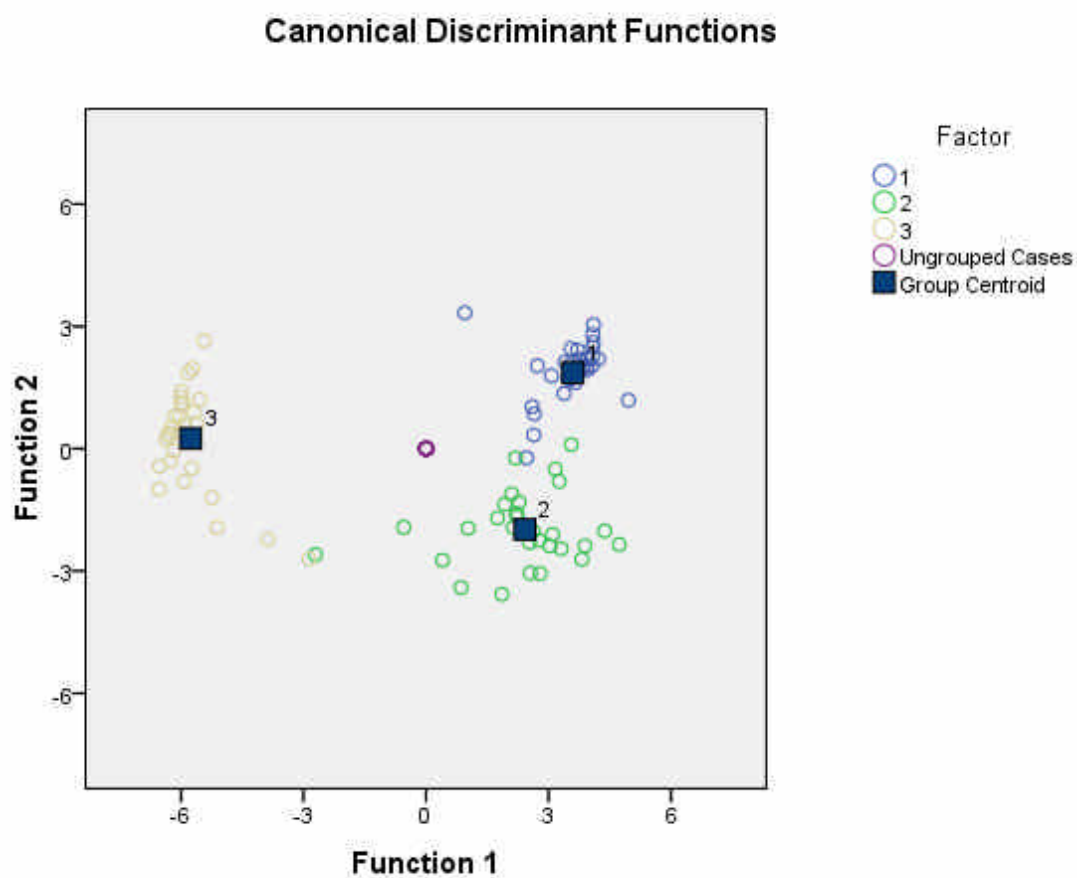
**Figure 3-15. Hierarchical Cluster Analysis Based on Analytical Data from the Biscayne Bay Porewater Samples from April 2011.**



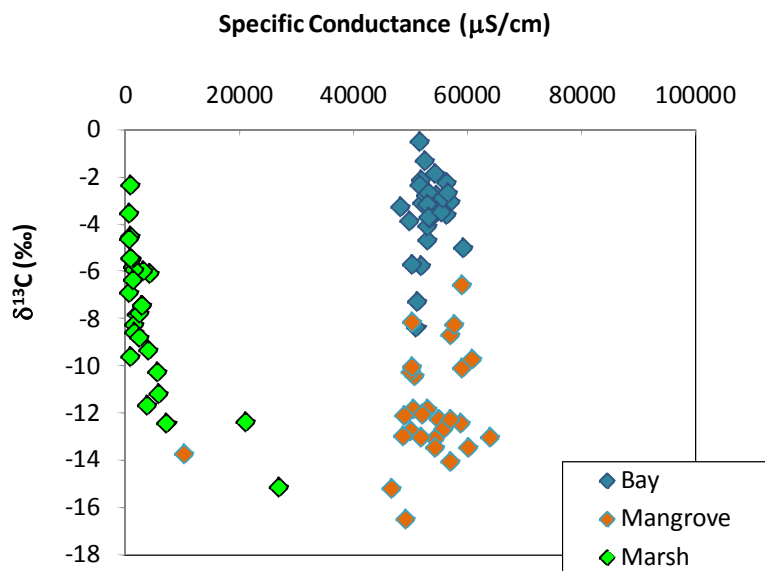
**Figure 3-16. Hierarchical Cluster Analysis Dendrogram Based on Analytical Data from the Marsh Porewater Samples from April 2011.**



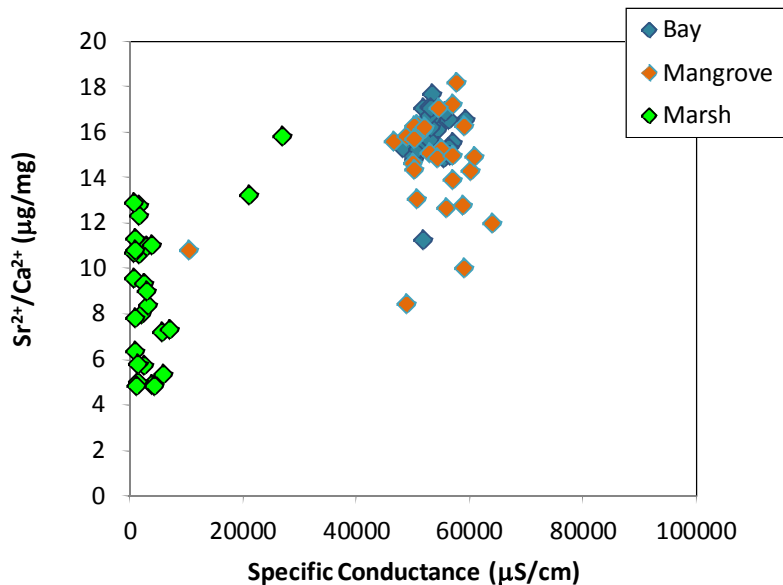
**Figure 3-17. Hierarchical Cluster Analysis Dendrogram Based on Analytical Data from the Mangrove Porewater Samples April 2011.**



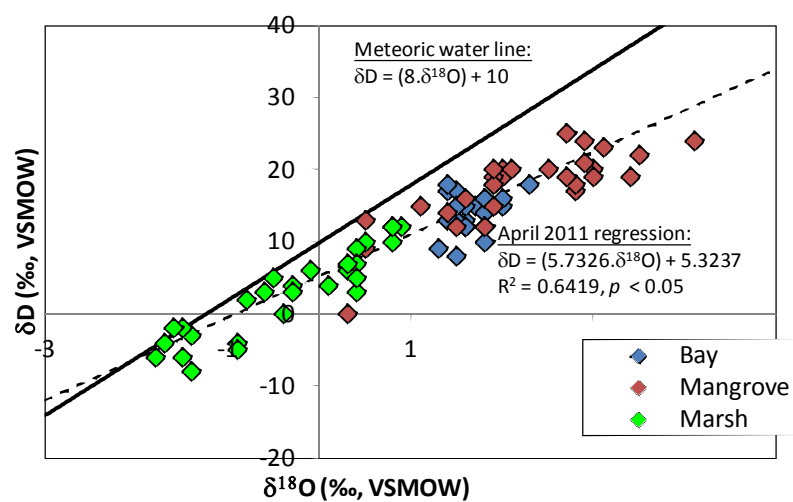
**Figure 3-18. Canonical Discriminant Function Analysis for the Porewater Analytical Parameters of the Three Habitat Groups in April 2011.** Groups are as follows: 1 = Biscayne Bay, 2 = Mangrove, 3 = M.



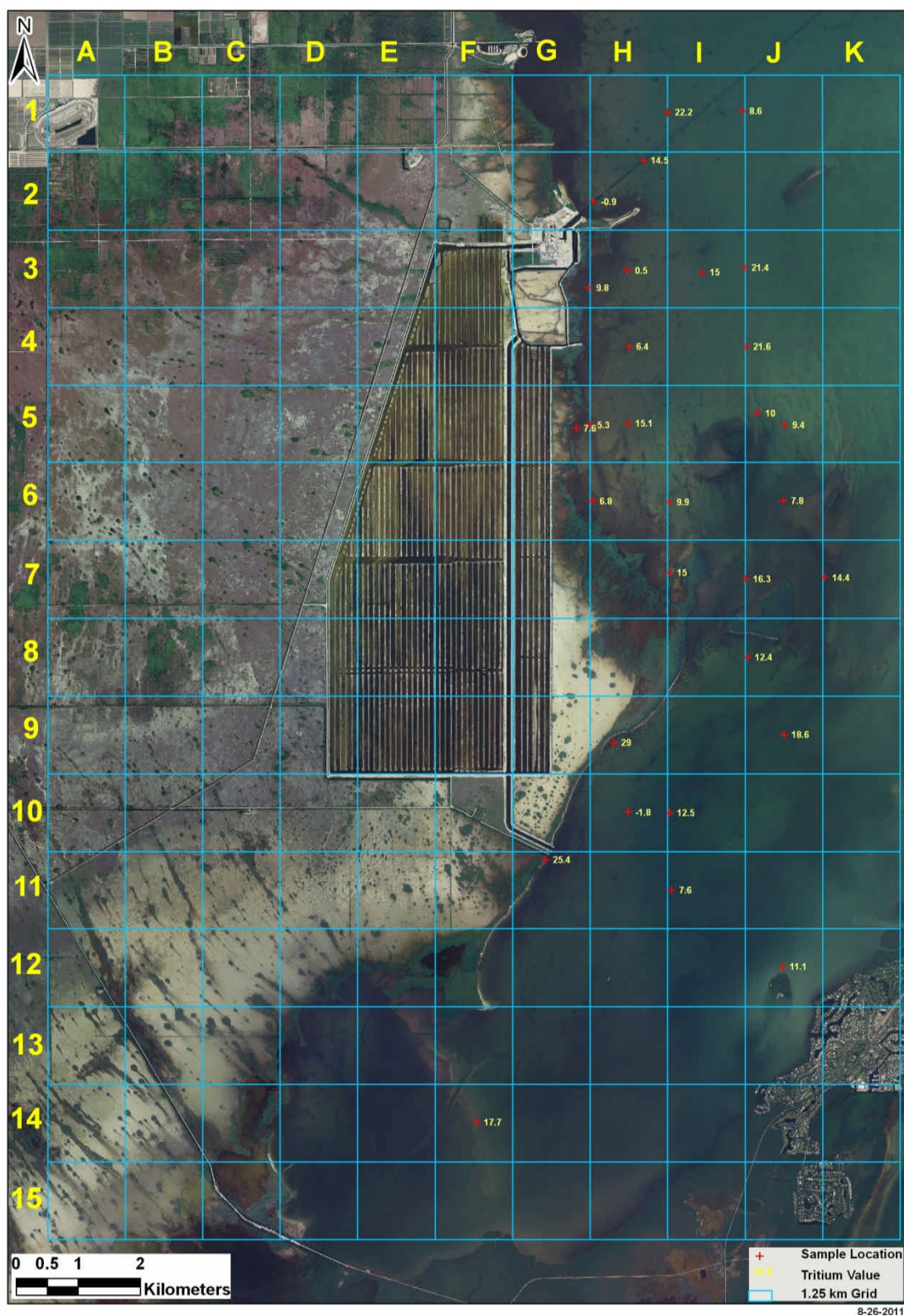
**Figure 3-19. Specific Conductance and Carbon Isotope Signatures for Porewater from the Bay, Mangrove and Marsh in April 2011.**



**Figure 3-20. Specific Conductance and Sr/Ca for Porewater from the Bay, Mangrove and Marsh in April 2011.**



**Figure 3-21. Porewater  $\delta^{18}\text{O}$  and  $\delta\text{D}$  from the Bay, Mangrove and Marsh in April 2011.**



**Figure 3-22. Wet Season (September 2010) Porewater Tritium Values.**



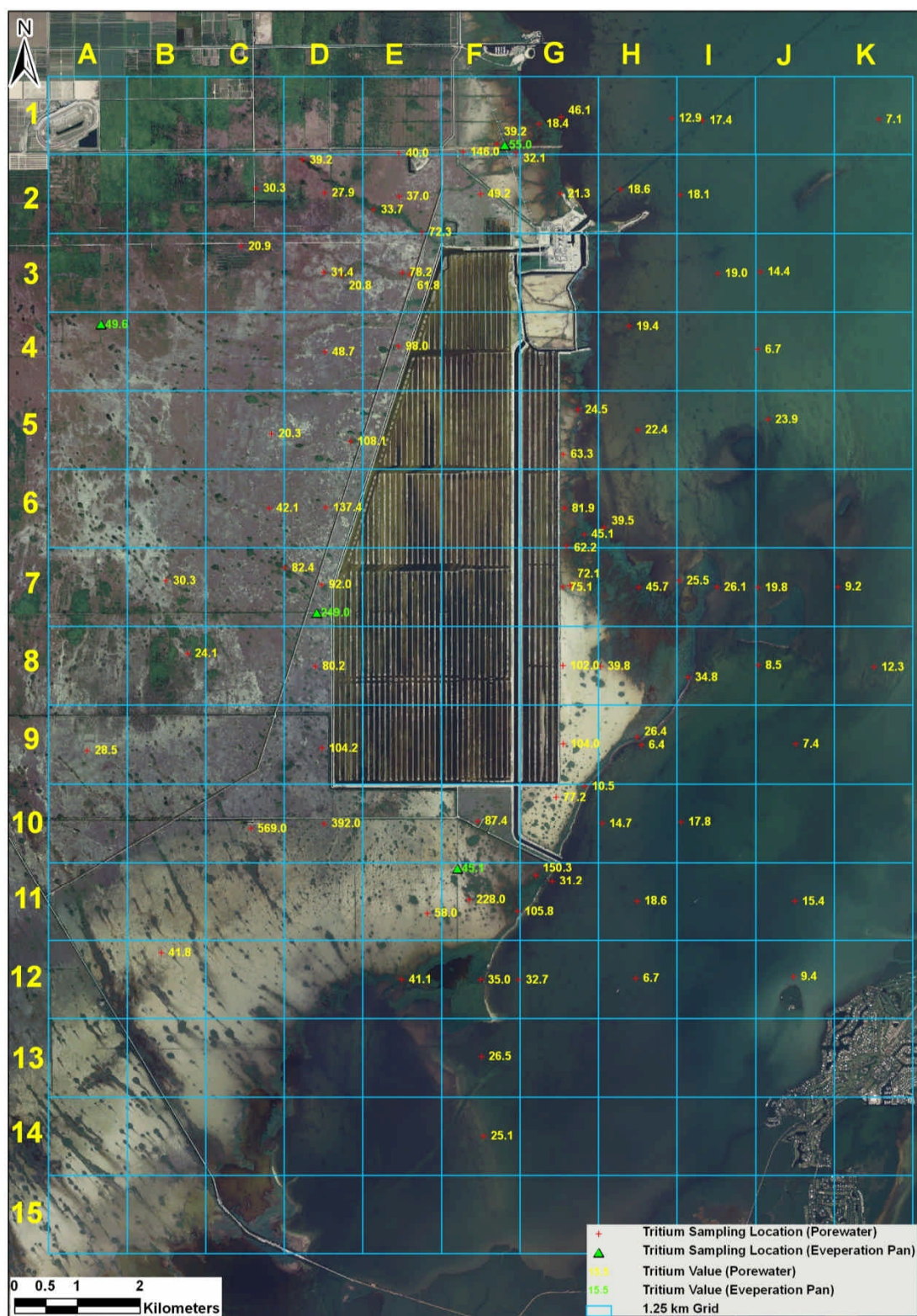
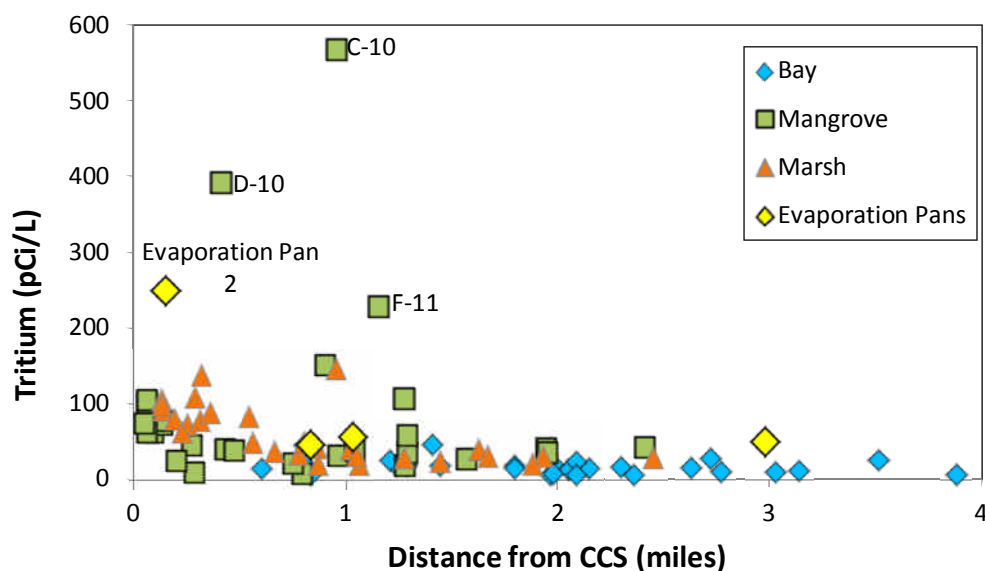
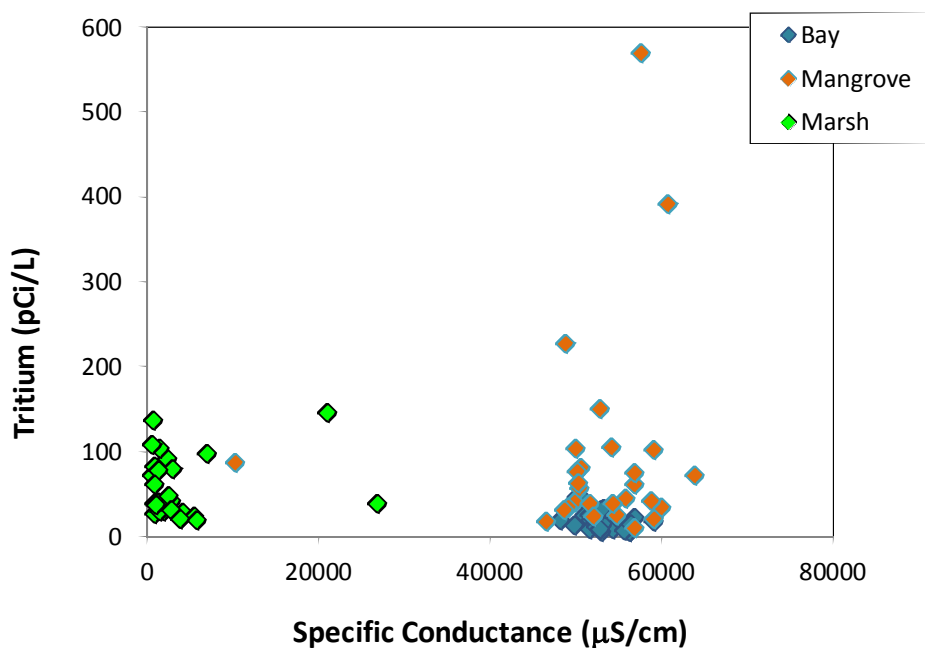


Figure 3-23. Dry Season (April 2011) Porewater Tritium Values.





**Figure 3-24. Porewater (Bay, Marsh and Mangrove) and April 2011 Evaporation Pan Tritium Concentrations with Distance from the CCS.**



**Figure 3-25. Porewater (Bay, Marsh and Mangrove) Specific Conductance versus Tritium Concentrations for April 2011.**

## **4.0 SUMMARY AND CONCLUSIONS**

The porewater surveys were designed and implemented to help better characterize conditions over an approximately 70 mi<sup>2</sup> area around the Turkey Point Plant CCS and determine whether water from the CCS can be detected in the surrounding habitats. For this effort the focus has been on the water found in the soil pore space in the upper 60 cm of the soil column. If water is upwelling from the CCS into Biscayne Bay or in the marsh and mangrove areas, it can potentially be detected in 3 possible ways: 1) significantly warmer porewater with depth that cannot be explained by meteorologic or localized conditions, 2) significantly higher saline concentrations with porewater depth that cannot be explained by meteorologic or localized conditions, and 3) water chemistry (ion concentrations and ratios, and isotopes) indicating the presence of CCS water. The data collected during the four broad-scale porewater sampling events will help to characterize the porewater and establish whether any relationship exists between porewater and the CCS. Based on the data collected, there was no clear landscape-scale indication of CCS water, via a groundwater pathway within the marsh, mangrove or Biscayne Bay sites measured.

Initial porewater measurements were collected at 203 points (102 Bay, 45 mangrove, 56 marsh) in April 2010 and 101 points in the Bay only in August 2010 to determine general porewater characteristics (specific conductance, salinity and temperature) across the landscape. Most of the initial survey locations were chosen based on a grid system, but several AEIs were identified by the Agencies and also incorporated. These sites were designated as areas of interest because they tended to differ from habitats in the immediate vicinity. In order to determine whether CCS water may be present, samples were collected at 0, 20, 40 and 60 cm depths below the sediment's surface (or until bedrock was encountered) at all sites. To characterize water samples chemically and potentially determine their source, a subset of sites were identified based on the results of the initial, general porewater surveys. Porewater samples were subsequently collected from 30 sites in the Bay in September 2010 and 88 sites (31 Bay, 29 mangrove, and 28 marsh) in April 2011 and analyzed for a broad suite of ions, several trace metals, isotopes and field parameters which are referred to in the Monitoring Plan as Trace Suite parameters. Tracer Suite samples were collected from 60 cm depth (bedrock depths permitting) in September 2010 and April 2011.

Statistical analyses were performed on salinity and temperature field measurements to determine if there were any significant differences within each of the habitats across depth (i.e., vertically). In other words, statistical tests were performed to compare the average salinity and temperature

---

at each depth to determine whether they were different from one another. This was done separately for each of the three habitats. This test was important because it helped to determine whether salinity and temperatures were higher in sediments compared to surface water, and if they increased with sediment depth, a sign that upwelling of CCS water could be occurring.

In some cases the tests did indicate significant temperature differences between the overlying surface water (0 cm) and the porewater. Ambient air temperatures more directly influenced surface water than porewater, resulting in surface water temperatures that were more variable than porewater conditions. Although not statistically significant, porewater temperatures (20 cm to 60 cm depth) decreased slightly with depth in all habitats, a trend that indicates CCS water is not affecting porewater via a groundwater derived pathway. Salinity increased slightly with depth for the mangrove sites, but not for the Bay or marsh (Table 3-9). The increase in salinity with depth within the mangroves is most likely a result of salt buildup and limited tidal flushing within the marl sediments, a pattern observed in other mangrove ecosystems around Florida. As porewater salinity increases are not coupled with increased temperature at depth or higher tritium levels across the landscape, these salinity values are most likely not attributable to the CCS but rather a result of the inherent hydrologic dynamics of the mangrove forests around the CCS. Therefore, there was not statistical evidence that CCS waters were upwelling across the landscape.

Statistical tests were also used to determine whether the AEI sites, areas that were identified because they differed from the habitats around them, had different temperatures and salinities than the grid point samples of the same habitat type (e.g., Bay grid point salinities compared to Bay AEI salinities). The purpose of these tests was to determine whether the ecological differences between the grid point and AEI sites could be explained by differences in salinity and/or temperature. The statistical tests determined that there were no temperature differences between AEI and grid point samples of the same habitat at any depth. The tests did identify some differences in salinity between AEI and grid point samples in both the marsh and mangrove habitats. When statistical differences were observed in April 2010 within each depth compared, the AEI sites in both the marsh and mangroves had lower salinities compared to the grid points. (Table 3-7). These differences can likely be explained by the variability in localized conditions. The marsh grid point samples were collected in open areas with high evaporative rates while the AEI samples were located in tree islands with canopies that inhibit evaporation, resulting in slightly lower salinities. Differences in salinity between mangrove grid point samples and AEI samples can be similarly explained; several AEI mangrove points were located in deep pools that would prevent high evaporation rates in the sediment, resulting in lower salinities at depth.

Since porewater temperature and salinity did not indicate an influence from the CCS, further analyses were performed to assess differences in the porewater chemistry. Piper diagrams were

used to assess the ionic composition of porewater across the landscape and with depth. The analysis only includes eight ions (calcium, magnesium, sodium, chloride, alkalinity, bicarbonate alkalinity, sulfate, total dissolved solids) but captures those ions which dominate in fresh and marine waters. Examining the ratios of various ions and presenting them in a piper diagram gives insight into the source of the water (e.g., seawater is dominated by sodium and chloride). The results from April 2011 revealed 6 grid points (A9, C3, C5, F10, G1 and HI8) with ion concentrations that fell between a seawater source and a freshwater source. All differences could be explained by local ecological factors not related to CCS waters; for example, the calcium magnesium concentrations at A9, C3 and C5 are between that of a freshwater source and a connate well, indicating a mix of surface freshwater and connate well water. Additionally, the calcium and magnesium concentrations at mangrove site F10 resembled that of a marsh site, which was explained by its proximity to the crocodile-mitigation habitat where freshwater has been diverted to benefit nesting crocodiles. The basic ions did not provide insight into the presence of CCS water and a more complete analysis including all chemical characteristics was warranted to further evaluate the data.

The hierarchical cluster analysis is a similar concept to the piper diagrams except that it uses all available ionic, specific conductance and temperature characteristics to identify potential differences in source water. The analysis was organized such that points from the same habitat collected in the same season were compared to one another. Outliers identified in this analysis included H3, GH6, BB2, BB4, F1 and F1-2, generally because they had higher or lower specific conductance compared to other sampling points within their respective habitats. However, the differences in specific conductance could again be explained by local factors; for example F1 and F1-2 had higher specific conductance and ionic contents relative to other marsh sites, but both of these sites are located in an impounded area north of the plant with high residence time, allowing for low freshwater influx and higher evaporation rates.

To better understand which porewater constituents had the greatest influence on the observed differences among the samples across all habitats, a DFA was performed using all 20 analytical parameters from the April 2011 sampling event. The DFA identified four explanatory parameters: Specific conductance,  $\delta^{13}\text{C}$ , sulfide concentration and tritium. Specific conductance,  $\delta^{13}\text{C}$  and tritium were then used in a singular and binary assessment to further explore patterns of distribution. Specific conductance was shown to be an excellent indicator of habitat explaining 88% of the variability in the data. As indicated in the Annual Report (FPL 2011), FPL indicated that tritium may be the most viable tracer since it may be able to distinguish CCS water from Biscayne Bay water down to lower concentrations than seen using other isotopes or ions. During the September 2010 event, tritium values found in the Bay porewater did not exceed 30 pCi/L.

Evaporation pan tritium values in and around the CCS ranged from 11-490 pCi/L between March-June 2011, with values decreasing with distance from the plant. The highest value was observed at the CCS in May 2011 (TPGW-13A; 490.3 pCi/L) while 283 pCi/L was observed at TPGW-2, 0.2 miles away from the CCS, during the same month. During that time period, tritium in rainfall varied from 4-34 pCi/L. The porewater data showed that the 2011 dry season values were less than 283 pCi/L in 98% (86 out of 88 values) of the samples. The two samples that were higher than the evaporation pan value at TPGW-2 are close to the CCS; both samples do not have significantly higher levels of chloride or specific conductance values compared to other nearby samples which would be indicative of CCS water via a groundwater pathway. This indicates that these two porewater values may be reflective of some vapor-phase transport contribution due to their proximity to the CCS. However, additional rainfall and evaporation pan data needs to be collected to confirm that the limit values noted above are attributable to an atmospheric pathway. Lastly, it should also be noted that the amount of tritium detected is far below concentrations that would give rise to any public health and safety concern. After thorough analysis of both field parameters and analytical constituents there are a few locations that warrant further assessment; however, there is no convincing evidence demonstrating a landscape-scale effect of CCS waters on porewater in the area surrounding the Turkey Point plant via a groundwater pathway.

## **5.0 REFERENCES**

- Biscayne National Park. 2007. Salinity sampling in Biscayne Bay (2005-2006). Annual Report to the United States Army Corps of Engineers for the Monitoring and Assessment Plan of the Comprehensive Everglades restoration Plan for RECOVER Assessment Team Southeast Estuary Subteam. 151 pp.
- Bouillon, S., F. Dehairs, B. Velimirov, G. Abril, and A.V. Borges. 2007. Dynamics of organic and inorganic carbon across contiguous mangrove and seagrass systems (Gazi Bay, Kenya). *Journal of Geophysical Research*. Vol. 112, GO2018, doi: 10.1029/2006JG000325, 2007.
- Chen, E. and Gerber, J.F. 1990. Climate. In: R.L. Myers and J.J. Ewel (eds). *Ecosystems of Florida*. University of Central Florida Press, Orlando, Florida.
- Fourqurean, J.W., S.P. Escorcía, W.T. Anderson, J.C. Zieman. 2005. Spatial and Seasonal Variability in Elemental Content,  $\delta^{13}\text{C}$ , and  $\delta^{15}\text{N}$  of *Thalassia testudinum* from South Florida and Its Implications for Ecosystem Studies. *Estuaries*, 28(3):447-461.
- FPL, 2012. Florida Power & Light Company Semi-Annual Report for the Turkey Point Monitoring Project. Prepared for Florida Power & Light Company by Ecology and Environment, Inc., Effective Date: 03/28/2012. March 2012.
- \_\_\_\_\_. 2011a. Florida Power & Light Company Semi-Annual Report for the Turkey Point Monitoring Project. Prepared for Florida Power & Light Company by Ecology and Environment, Inc., Effective Date: 02/15/11. February 2011.
- \_\_\_\_\_. 2011b. Florida Power & Light Company Annual Report for the Turkey Point Monitoring Project. Prepared for Florida Power & Light Company by Ecology and Environment, Inc., Effective Date: 08/31/11. August 2011.
- \_\_\_\_\_. 2011c. Florida Power & Light Company Quality Assurance Project Plan for the Turkey Point Monitoring Project. Prepared for Florida Power & Light Company by Ecology and Environment, Inc., Effective Date: 08/10/10. August 2010.
- Hintze, J. (2004). NCSS 2004. NCSS, LLC. Kaysville, Utah, USA. [www.ncss.com](http://www.ncss.com).
- Price, R.M., P.K. Swart, J.W. Fourqurean. 2006. Coastal groundwater discharge – an additional source of phosphorus for the oligotrophic wetlands of the Everglades. *Hydrobiologia*, 569:23-36.

- Sackett, W.M., T. Neratanawong, M.E. Holmes. 1997. Carbon-13 variations in the dissolved inorganic carbon in estuarine waters. *Geophysical Research Letters*. 24(1):21-24.
- Sobrado, M.A. and Ewe S.M.L. 2006. Linking hypersalinity to leaf physiology in *Avicennia germinans* and *Laguncularia racemosa* coexisting in a scrub mangrove forest at the Indian River Lagoon, Florida. *Trees*. 20:679-687.
- South Florida Water Management District (SFWMD). 2009. FPL Turkey Point Power Plant Groundwater, Surface Water, and Ecological Monitoring Plan (Exhibit B). Prepared by South Florida Water Management District, Florida Department of Environmental Protection and Miami-Dade County Department of Environmental Resource Management. October 14, 2009.
- SPSS Inc. (2009). PASW STATISTICS 17.0 Command Syntax Reference. SPSS Inc., Chicago.
- Stalker, J.C, R.M. Price, P.K. Swart. 2009. Determining Spatial and Temporal Inputs of Freshwater, Including Submarine Groundwater Discharge, to a Subtropical Estuary Using Geochemical Tracers, Biscayne Bay, South Florida. *Estuaries and Coasts*. 32:694-708.
- Surge, D.M. and K.C. Lohmann. 2002. Temporal and Spatial Differences in Salinity and Water Chemistry in SW Florida Estuaries: Effects of Human-impacted Watersheds. *Estuaries*, 25(3):393-408.
- Winston, R.B., 2000, Graphical User Interface for MODFLOW, Version. 4: U.S. Geological Survey Open-File Report 00-315, 27 p. Shareware:  
[http://water.usgs.gov/nrp/gwsoftware/GW\\_Chart/GW\\_Chart.html](http://water.usgs.gov/nrp/gwsoftware/GW_Chart/GW_Chart.html). v. 1.23.3.0.

**APPENDIX A:**

**DRAFT QUALITY ASSURANCE  
PROJECT PLAN (QAPP)  
[FPL 2010] PROPOSED  
MODIFICATIONS AS PROVIDED  
TO  
SFWMD IN NOVEMBER 2010**







## SOUTH FLORIDA WATER MANAGEMENT DISTRICT

March 16, 2010

Ms. Barbara Linkiewicz  
Director of Environmental Licensing  
Florida Power and Light Company  
700 Universe Blvd.  
Juno Beach, FL 33408

Dear Ms. Linkiewicz,

**Subject: FPL Turkey Point Power Plant Groundwater, Surface Water, and Ecological Monitoring Plan (Monitoring Plan); Quality Assurance Protection Plan**

The Fifth Supplemental Agreement between the South Florida Water Management District (District) and Florida Power & Light (FPL), executed October 16, 2009, requires FPL to develop and implement a "Monitoring Plan" for the purpose of "delineating current ecologic, surface water and groundwater impacts from the operation of the cooling canal system on the water resources of the District in general and the facilities and operations of the District". Section 3.3 of the referenced "Monitoring Plan" requires preparation of a Quality Assurance/Quality Control Plan (QA/QC) for approval by the agencies within 60 days of the approval of the Monitoring Plan.

On December 15, 2009, FPL provided a draft Quality Assurance Protection Plan (QAPP) to the District consistent with this requirement. The District, in coordination with the other agencies, has provided review comments on the draft QAPP which FPL is in the process of incorporating into the draft. In order to expedite implementation of the Monitoring plan and to facilitate dry season sampling in 2010, the QAPP is being completed and approved in sections.

FPL submitted a draft porewater section of the QAPP to the District on March 4, 2010 for review and approval. The District distributed this section to the agencies for their review and comment on March 5, 2010. Agency comments along with District comments have been conveyed to FPL.

Attached is the final approved version of the porewater section of the QAPP to be followed in the collection, processing and reporting of samples during the broad-scale porewater survey. This approval relates only to the attached document, it does not authorize, approve, or warranty any other section or sub-part of the draft QAPP currently under review by the agencies.

Should you have any questions, please do not hesitate to contact me. We look forward to our continued cooperation in the completion of the QAPP and implementation of the Monitoring Plan.

Sincerely,

A handwritten signature in blue ink, appearing to read "TB", is written over the name "Terrie Bates".

Terrie Bates  
Assistant Deputy Executive Director  
Regulatory & Public Affairs

TB/le  
Attachment

# Porewater Sampling Protocol

## 1 Objective

The objective of this work is to examine the vertical and spatial heterogeneity of porewater conductivity and temperature in areas surrounding the Turkey Point Plant (TPP) including areas such as the Model Land Marsh and the subtidal areas of Biscayne Bay, to determine if there is any Cooling Canal System (CCS) impact on the flora and fauna around the area. This porewater survey is a screening process to determine if there is any warm hypersaline water observed in the areas surrounding the TPP, and to identify areas for CCS tracer suite analyses. Results from these surveys will identify potential zones of CCS water connectivity with surface sediments and soils via seepage and groundwater pathways, providing information on potential influence of the CCS on the surrounding biota.

## 2 Methods and Materials

Specific conductance and temperature profiles (at 20 cm intervals to 60 cm or refusal) will be measured in-situ, using field meter and probes at 104 points in the wetlands, both freshwater and saline, and at 100 points in Biscayne Bay and Card Sound. The boundaries of the surveyed wetlands shall be as far west as Tallahassee Road and Card Sound Road, as far north as the Florida City Canal and south to Card Point, and east to the estuarine shoreline. The boundaries of estuarine porewater surveys shall be as far east as 4 km offshore from the Biscayne Bay and Card Sound shoreline between the Mowry Canal and Card Sound Road (Figure 1).

The survey will be conducted in the marsh, mangrove and Biscayne Bay areas during the dry season, but only in Biscayne Bay during the wet season. The sites are approximately evenly distributed (i.e., grid) across the landscape, but will also focus on areas of ecological interest (i.e., landscape features such as tree islands, remnant creeks, areas where groundwater input is suspected, etc.) (Figure 1).

### 2.1 Proposed Locations

For this initial porewater survey effort, a total of 204 sampling points are proposed: 104 locations in the marsh and mangroves, and 100 locations in Biscayne Bay (Figure 1, Table 1). The proposed locations for the grid effort are shown in Figure 2 and Table 2 while areas of ecological interest are shown in Figure 3 and Table 3.

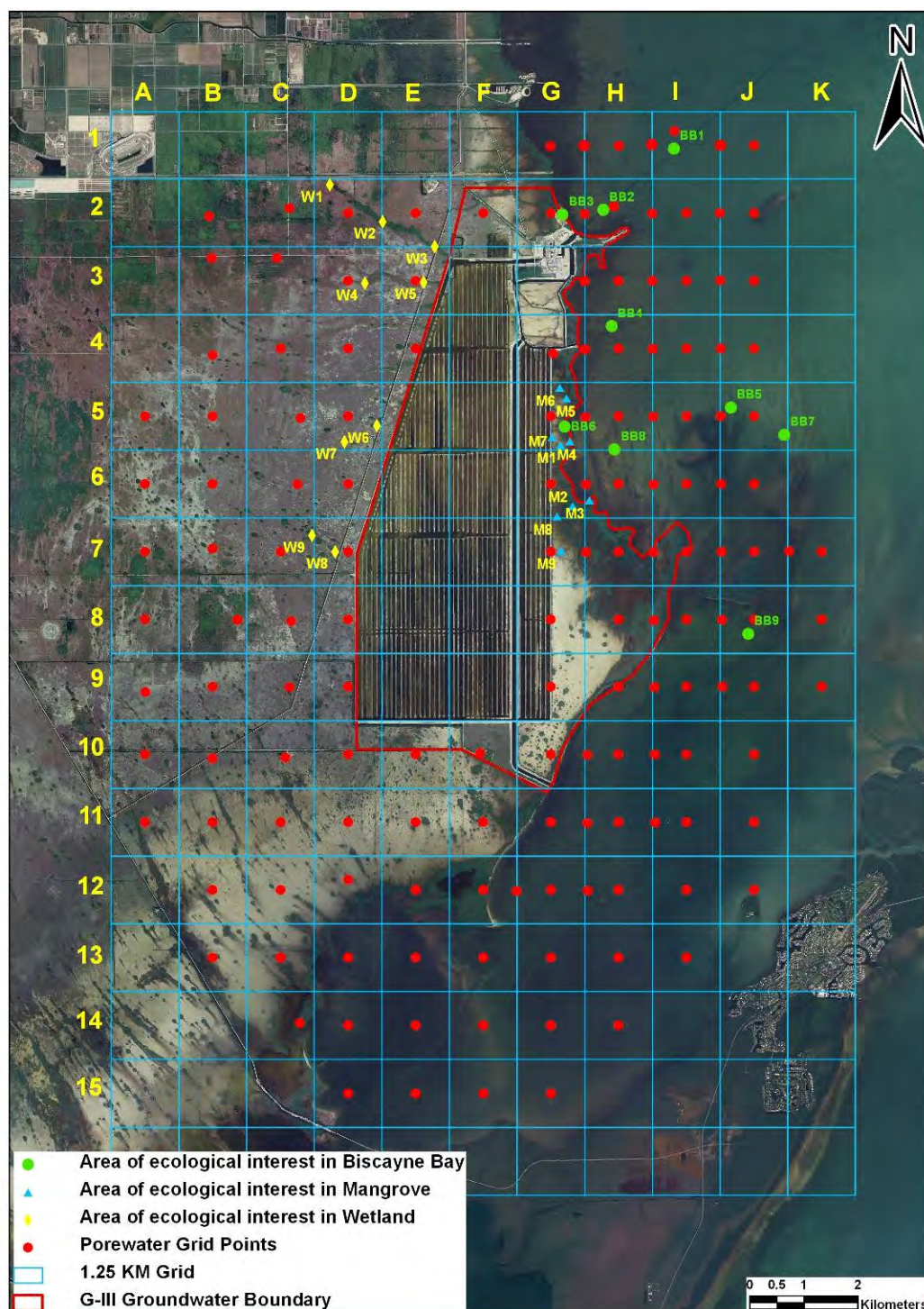
The porewater grid locations were selected based on property maps (i.e., locations had to be located on Florida Power and Light Company [FPL], South Florida Water Management District [SFWMD], or Miami-Dade County Department of Environmental Resources Management

[DERM] property) and where possible, were located in the center of the grid cells. The points will be labeled based on cell location (e.g., A2, B3, etc.); in Biscayne Bay where the density of sampling points is higher nearshore, points on the gridlines will be named with two grid cell letters (e.g., GH1, HI1, IJ3, etc.) (Figure 2). The areas of ecological interest are labeled based on their habitats, i.e., W = marsh, BB = Biscayne Bay, and M = mangrove (Figure 3).

**Table 1. Breakdown of the distribution of proposed survey points in the terrestrial (marsh and mangrove) and Biscayne Bay subtidal habitats.**

<b>Sampling Distribution</b>	<b>Marsh &amp; Mangrove</b>	<b>Biscayne Bay</b>
Grid points (1 site/point)	68	82
Areas of ecological interest (2 sites/point)	18 sites x 2	9 sites x 2
<b>Total</b>	<b>104</b>	<b>100</b>





**Figure 1. Proposed sampling sites for the porewater grid points and areas of ecological interest.**  
The red line surrounding the CCS is the FPL G-III boundary.

**Table 2. Coordinate locations of all porewater grid survey sites (in decimal degree units).** The letters correspond to the column headers in Figure 2 while the numbers correspond to the rows. Locations in *italics* are of low priority and may be substituted for features of interest if any are observed during sampling.

Location Name	Latitude	Longitude
A5	25.40817	-80.40585
A6	25.39688	-80.40591
A7	25.38560	-80.40596
A8	25.37431	-80.40602
A9	25.36214	-80.40605
A10	25.35175	-80.40613
A11	25.34046	-80.40618
B2	25.44144	-80.39396
B3	25.43445	-80.39348
B4	25.41827	-80.39339
B5	25.40811	-80.39343
B6	25.39683	-80.39349
B7	25.38610	-80.39357
B8	25.37419	-80.38905
B9	25.36298	-80.39365
B10	25.35102	-80.39371
B11	25.34041	-80.39377
B12	25.32913	-80.39382
B13	25.31784	-80.39388
C2	25.44270	-80.37914
C3	25.43442	-80.38147
C4	25.41935	-80.38095
C5	25.40775	-80.37728
C6	25.39667	-80.37795
C7	25.38550	-80.38112
C8	25.37392	-80.37918
C9	25.36283	-80.37953
C10	25.35112	-80.38033
C11	25.34036	-80.38135
C12	25.32908	-80.38141
C13	25.31779	-80.38146
C14	25.30687	-80.37800
D2	25.44186	-80.36841
D3	25.43058	-80.36846
D4	25.41929	-80.36852
D5	25.40801	-80.36858
D6	25.39673	-80.36864
D7	25.38544	-80.36870
D8	25.37416	-80.36876
D9	25.36288	-80.36882

Location Name	Latitude	Longitude
D10	25.35159	-80.36887
D11	25.34031	-80.36893
D12	25.33076	-80.36896
D13	25.31774	-80.36905
D14	25.30646	-80.36911
D15	25.29517	-80.36917
E2	25.44181	-80.35598
E3	25.43052	-80.35604
E4	25.41924	-80.35610
E10	25.35154	-80.35646
E11	25.34025	-80.35652
E12	25.32897	-80.35658
E13	25.31769	-80.35664
E14	25.30640	-80.35670
E15	25.29512	-80.35676
F2	25.44175	-80.34355
F10	25.35173	-80.34458
F11	25.34020	-80.34410
F12	25.32892	-80.34416
F13	25.31763	-80.34422
F14	25.30635	-80.34428
F15	25.29506	-80.34434
<i>FG12</i>	<i>25.32869</i>	<i>-80.33807</i>
G1	25.45278	-80.33113
G2	25.44170	-80.33112
G4	25.41827	-80.33087
G5	25.40785	-80.33131
G6	25.39656	-80.33137
G7	25.38528	-80.33144
G8	25.37399	-80.33150
G9	25.36271	-80.33156
G10	25.35143	-80.33162
G11	25.34014	-80.33168
G12	25.32886	-80.33175
G13	25.31758	-80.33181
G14	25.30629	-80.33187
G15	25.29501	-80.33193
GH1	25.45278	-80.32499
GH2	25.44152	-80.32497
GH3	25.43030	-80.32497

Table 2. Continued.

Location Name	Latitude	Longitude
GH4	25.41895	-80.32497
GH5	25.40767	-80.32497
GH6	25.39645	-80.32497
GH7	25.38516	-80.32497
GH10	25.35131	-80.32497
GH11	25.33997	-80.32497
GH12	25.32869	-80.32497
H1	25.45278	-80.31858
H2	25.44272	-80.31950
H3	25.43035	-80.31876
H4	25.41907	-80.31882
H5	25.40779	-80.31889
H6	25.39650	-80.31895
H7	25.38522	-80.31901
H8	25.37394	-80.31908
H9	25.36265	-80.31914
H10	25.35137	-80.31920
H11	25.34009	-80.31927
H12	25.32880	-80.31933
H13	25.31752	-80.31939
H14	25.30624	-80.31946
HI1	25.45278	-80.31253
HI2	25.44152	-80.31256
HI3	25.43030	-80.31256
HI4	25.41895	-80.31256
HI5	25.40767	-80.31256
HI6	25.39645	-80.31256
HI7	25.38516	-80.31256
HI8	25.37382	-80.31256
HI9	25.36254	-80.31256
HI10	25.35131	-80.31256
HI11	25.33997	-80.31256
I1	25.45523	-80.30835
I2	25.44158	-80.30627
I3	25.43030	-80.30634
I4	25.41901	-80.30640
I5	25.40773	-80.30646

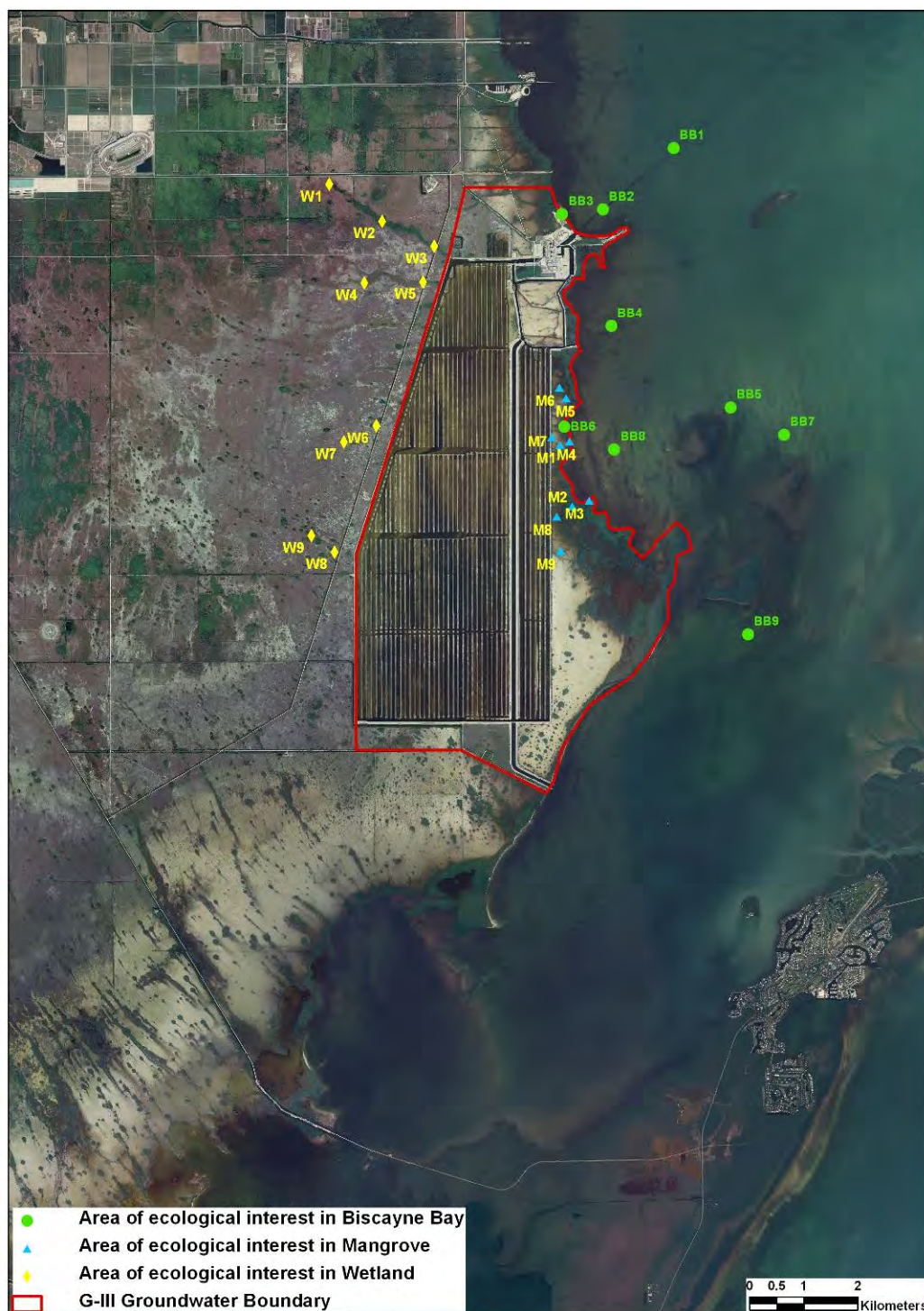
Location Name	Latitude	Longitude
I6	25.39645	-80.30653
I7	25.38516	-80.30659
I8	25.37388	-80.30666
I9	25.36260	-80.30672
I10	25.35131	-80.30679
I11	25.34003	-80.30685
I12	25.32875	-80.30692
I13	25.31746	-80.30698
IJ1	25.45278	-80.29988
IJ2	25.44152	-80.30011
IJ3	25.43030	-80.30011
IJ4	25.41895	-80.30011
IJ5	25.40767	-80.30011
IJ6	25.39645	-80.30011
IJ7	25.38516	-80.30011
IJ8	25.37382	-80.30011
IJ9	25.36254	-80.30011
J1	25.45278	-80.29375
J2	25.44152	-80.29384
J3	25.43024	-80.29391
J4	25.41895	-80.29398
J5	25.40767	-80.29404
J6	25.39639	-80.29411
J7	25.38510	-80.29417
J8	25.37382	-80.29424
J9	25.36254	-80.29430
J10	25.35125	-80.29437
J11	25.33997	-80.29443
J12	25.32869	-80.29450
JK7	25.38516	-80.28767
K7	25.38504	-80.28175
K8	25.37376	-80.28182
K9	25.36248	-80.28188





**Figure 2. Proposed porewater grid locations.** The sites are labeled based on their column and row (i.e. A5, IJ1, etc.) locations within the grid. The red line surrounding the CCS is the FPL G-III boundary.





**Figure 3. Areas of ecological interest selected for sampling.** Freshwater wetland sites (W) are shown in yellow diamonds, mangrove sites (M) are indicated in blue triangles and Biscayne Bay (BB) sites are shown in green circles. The red line surrounding the CCS is the FPL G-III boundary.

**Table 3. Coordinate locations of all proposed areas of ecological interest (in decimal degree units).** Location names are based on their locations i.e., W = marsh, M = mangrove, and BB = Biscayne Bay.

Location Name	Latitude	Longitude
W1	25.44659	-80.37166
W2	25.44041	-80.36199
W3	25.43618	-80.35248
W4	25.43013	-80.36531
W5	25.43030	-80.35452
W6	25.40639	-80.36326
W7	25.40377	-80.36923
W8	25.38549	-80.37101
W9	25.38821	-80.37526
M1	25.40305	-80.32953
M2	25.39281	-80.32744
M3	25.39378	-80.32433
M4	25.40358	-80.32788
M5	25.41080	-80.32842
M6	25.41260	-80.32965
M7	25.40436	-80.33107
M8	25.39112	-80.33028
M9	25.38541	-80.32960

Location Name	Latitude	Longitude
BB1	25.45225	-80.30847
BB2	25.44212	-80.32148
BB3	25.44138	-80.32900
BB4	25.42275	-80.32005
BB5	25.40912	-80.29824
BB6	25.40606	-80.32877
BB7	25.40453	-80.28849
BB8	25.40226	-80.31966
BB9	25.37144	-80.29527

## 2.2. Survey Procedures

Sampling sites in the terrestrial areas will be identified using a global positioning system (GPS) unit set to North American Datum 1983 (NAD83) datum with < 3 meters (m) accuracy, while the marine locations will be identified with a GPS of submeter accuracy (e.g., Trimble GeoXT). Data will be recorded in decimal degrees.

### 2.2.1 Sampling design

One site will be sampled at each grid location while two sites will be sampled in each area of ecological interest.

#### 2.2.1.1 Grid sampling locations

Each grid location site will be as close to the point shown in Table 2, allowing for safety and access constraints. Sediment depth to 60 centimeters (cm) will be probed with a stainless steel metal rod. In the event that initial sediment depth measurements are taken and the depth rod is

rejected at less than 60 cm depth, two additional attempts to find a location with a minimum depth of 60 cm will be made within a 5 m radius of the original survey coordinate location. If a new site is found, the coordinate locations will be recorded and porewater survey data will be collected as described in Figure 4.

If after three attempts, a depth of 60 cm cannot be reached, then readings at 20 cm and/or at 40 cm depths will be obtained if conditions allow. If the site conditions do not allow for readings of any depth of 20 cm, 40 cm, and 60 cm, and three attempts have been made to find a location, then site conditions and coordinate location will be recorded. The field team will then move on to the next site to continue the porewater survey. In the event that site conditions do not allow for readings of any depth of 20 cm, 40 cm, and 60 cm, but there are fractures/fissures present, samples shall be collected from these features at the specified depths to the degree physically possible. Field notes and the tables shall include notes of this sampling method when employed.

	Time: _____		Surveyor: _____ Date/Time: _____
Arrival	_____		
Departure	_____		
Site/Grid: _____	Original selected site: <u>Yes/No</u>	Equipment serial number: _____	
GPS cords: _____			
Water depth (m): _____	Tidal condition	Rising/falling; hours to high/low	
Air temp (°C): _____	Water temp (°C): _____		
For Bay Samples:	Bottom temp (°C): _____	Bottom spec. Cond. _____	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	_____	_____	_____
40	_____	_____	_____
60	_____	_____	_____
Notes: _____			
Ecological observations of note: _____			

**Figure 4. Proposed layout of datasheet for porewater survey at each site. Information to be added is underline/marked in red.** Standing surface water temperature will also be recorded where applicable. Daily information such as calibration information, probe type, probe serial number, problems encountered with instrumentation, and overall climate (i.e. rainfall, heat index, etc.) will be recorded separately prior to field sampling day.

### 2.2.1.2 Areas of Ecological Interest

At each area of ecological interest, two sites will be surveyed. The first site will be located at the coordinates identified (Table 3). If the sampling location has < 60 cm of sediment, a similar protocol as the grid sampling method described above will be implemented. The second site at the area of interest will be 2 m away from the first site measured, within the feature of interest.

In the area of ecological interest, if sediment depth of <60 cm is encountered at the second site, a similar methodology will be applied as in the protocol described for grid sampling, but away from the direction of the first sampling site.

At each survey site, porewater specific conductance and temperature will be measured at 20 cm, 40 cm and 60 cm (or until rejection). Specific conductance and temperature will be recorded with an In-Situ Aqua TROLL 100 (In-Situ Inc., Fort Collins, CO) while air temperature will be recorded with a National Institute of Standards & Technology (US) NIST-calibrated thermometer.

The three depths may be sampled using three probes if the sampling is within a one-meter radius. Otherwise, if sampling using a single rod/probe is used for one single insertion process (i.e., to form just one continuous hole for sampling of three depths), sampling should start from the 20 cm depth and progress downwards to minimize contamination. Porewater sampling will be conducted using one of the two methods outlined below.

### 2.2.2 Porewater Survey Instrumentation

Two sampling methodologies are proposed below. The first and primary method, is a porewater sipper approach that extracts porewater using a hollow rod attached to a syringe. This method would utilize either a PushPoint sampler (EPA SESDPROC-513-R0) or a conventional polyethylene Sipper. The second proposed method is the Porewater Sampler, a new method that allows for in-situ sampling of porewater conductivity and temperature using the Aqua TROLL 100. As the second method is still novel, this sampler will be field-tested for data repeatability. If the Porewater Sampler method yields repeatable data from the Aqua TROLL, and the sampler is found to be easy to use and clean, this method might be selected over the porewater sipper. However, once a sampling protocol has been selected, this method will be maintained for that regional habitat (marsh, mangrove, Biscayne Bay) during a survey event. For both options, an Aqua Troll 100 and associated Rugged Reader will be used to measure the specific conductance and temperature.

#### 2.2.2.1. Option 1/Primary Method: Pore water “Sipper” or PushPoint Sampler Method

##### Needed materials/equipment

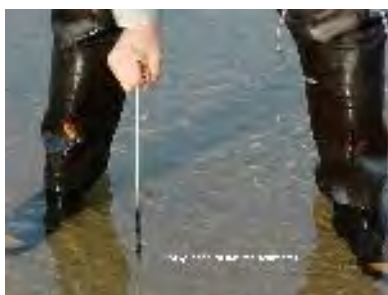
- PushPoint sampler with guard rod or stiff clear polyethylene porewater Sipper



- Flange/sampling platform (flat metal disk ~25 cm in diameter)
- Screen Sok or equivalent mesh filter
- Flexible tubing
- Plastic syringes (50 or 60 milliliters [ml])
- 50-100 ml open measurement container

Before obtaining a sample, the biologist is to carefully approach the sampling location to avoid disturbance of the sampling area. Porewater collection will be done in accordance with Lewis (2007).

1. Insert porewater PushPoint or Sipper sampler into the ground 20-30 cm from where the sampler is standing to reduce negative effects of the sampler on the integrity of the porewater to be obtained (Figure 6A).
2. In a highly turbid area, to avoid surface water intrusion, place the sampling platform on top of the soil/sediment to stabilize the location to be sampled (Figure 6B).
3. Insert the PushPoint/Sipper through the central hole in the sampling platform. Alternately, the PushPoint sampler can be attached to the sampling platform prior to this whole assembly being pushed into the ground.
4. Push the Pushpoint, guard rod or Sipper, carefully down to the appropriate depth (either 20, 40 or 60 cm) using the marked measurements or attached sampling platform as a guide. A Screen-Sok may be placed over the PushPoint to limit the amount of sediment being trapped within the sampler during the insertion process.
5. If using the PushPoint, after deployment, carefully remove the guard rod and attach the flexible tubing (Figure 6C). The Sipper can be pre-attached to the tubing prior to insertion to depth.



**Figure 6A. Inserting the porewater sampler into sediment (courtesy: MHE products).**



**Figure 6B. Sampling platform (courtesy: MHE products).**



**Figure 6C. Extracting porewater via syringe and tubing (courtesy: MHE products).**

6. Attach the other end of the flexible tubing to the syringe.

7. Before collecting a porewater sample, pull on syringe to withdraw enough porewater to purge all air and surface water from the Sipper or PushPoint. Purge at least one tubing and Sipper/Pushpoint volume of water and discard.
8. The second aliquot of water (~50 ml depending on tubing length) should be used to briefly wash the Aqua Troll sensor (~10 ml) and the remainder placed into the open measurement container (30 - 40 ml).
9. Insert the Aqua TROLL 100 into the container to obtain readings.
10. Log data into the Rugged Reader as well as in field notebook.



**2.2.1.2. Option 2: Porewater Sampler**

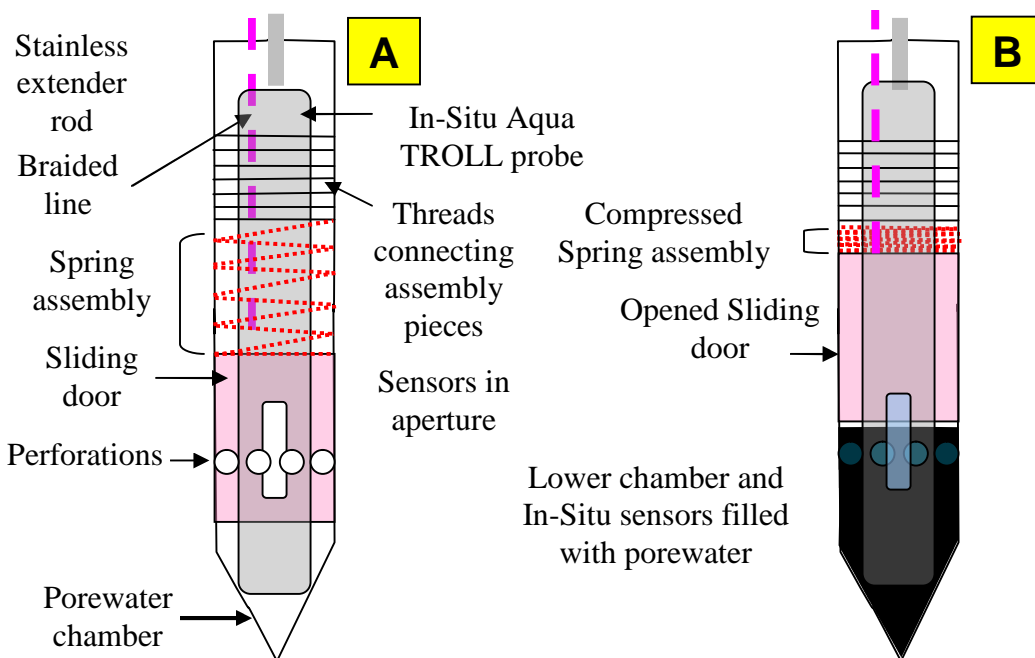
This method is proposed as a test methodology. If this method works effectively and reliably, this method might be selected over the porewater sipper. Otherwise, the primary method, the Porewater Sipper, will be used.

**Needed materials/equipment**

- Porewater sampler: porewater chamber and stainless steel extender rods (90 cm lengths), stainless 12 cm handle, braided fishing line (65 pounds [lbs])
- In-Situ Aqua TROLL with cables (two 5 m lengths) and Rugged Reader
- Non-reactive lubricant (e.g., Silicone or Teflon)
- Bottle of rinsate (analyte-free water)
- Paper towels

**Porewater Sampler Preparation:**

1. Assemble the porewater sampler as shown in Figure 7A.
2. Lubricate the interior surface of the porewater chamber sliding door with the non-reactive lubricant.
3. Ensure the O-rings around the door in contact with the rod and the O-rings inside in contact with the Aqua TROLL are not chipped/cracked. Replace chipped/cracked rings.



**Figure 7. Schematic cross-section of the Porewater Sampler showing the porewater**

chamber when the spring-loaded sliding door is closed (A) and when it is opened by pulling on the braided line attached to a stainless steel handle (B), allowing entry of porewater when the probe is placed at the appropriate depth.


4. Thread the braided line attached to the sliding door (via holes at top of piece) up the length of the rod and additional stainless pieces to length desired (i.e., sufficient to keep the exposed end of the sampler above water level.
5. Connect the In-Situ Aqua TROLL 100 to the data cable.
6. Thread the Aqua TROLL and data cable into the appropriate number of extender poles (connect the appropriate number of extender poles and Aqua TROLL cabling as needed).
7. Attach the end of the braided line to the stainless steel handle
8. Connect the end of the In-Situ cable to the Rugged Reader data logger and power on.
9. Holding the porewater sampler upright, and holding on to the PVC lengths to ensure the Aqua TROLL does not move, use the hand held handle with the braided line attached to pull upwards and open the pore space within the porewater chamber (Figure 7B).
10. Hold open for a minimum of one minute, wait for readings to stabilize, and record Aqua TROLL temperature and conductivity readings as provided on the Rugged Reader (record in fieldbook and save data in Rugged Reader).
11. After readings have been recorded and saved, release tension on the hand-held pull system and remove the porewater survey sampler.
12. Disconnect the bottom two pieces (the porewater chamber and porewater chamber connector).
13. Remove the Aqua TROLL and rinse thoroughly with rinsate (analyte-free water) and dry with paper towel.
14. Re-assemble for next measurement.

#### **2.2.2.3. Aqua TROLL 100 and Rugged Reader**

##### **Needed materials/equipment**

- Aqua TROLL 100
- In-Situ Rugged Reader
- RS-232 cable to Aqua TROLL attachment

The Aqua TROLL will be set up for 1-second readings that are averaged and reported at 10-second intervals. To set the system up and conduct daily checks, follow the procedures below:

1. Press and hold the Power button until the small green light to the right of the Enter key turns on.
2. To launch the software and connect to the Aqua TROLL, start Win-Situ Mobile by tapping the start menu at the top left corner of the touch screen and selecting Win-Situ Mobile from the pull down menu. Win-Situ Mobile launches and displays the Data area (“Data tab”), shown below (Figure 8A). If there is no shortcut for Win Situ Mobile in the drop down menu, go to Programs and tap Win Situ Mobile.
3. Assuming the Aqua TROLL is connected to the Rugged Reader, tap the “Connect” button (Figure 8A) on the bottom left side of the touch screen. The device is connected when the two plugs come together (e.g. ).

### *Adding a Data Site/File*

1. Add a data site by tapping File → Site, and then tapping the New button on the screen.
2. Type in a site name or File by touching the Keyboard icon (Figure 8B) in the center of the very bottom of the screen.
3. Enter the Filename for the habitat (i.e., BBay, Marsh, Mangrove) and day (in month-day-year format) e.g., “BBay\_022710” or “Mangrove\_030310”. Several filenames should be created in a day if working across habitats during that day.
4. When done typing, press the Keyboard icon again to remove the touch pad from the screen.
5. Set the update rate at 10 seconds and press the right “Next” arrow (Figure 8B) to move to the following screen.
6. If the Rugged Reader is not connected to the add-on GPS extension, choose to not include the coordinates and touch the Check mark icon.
7. On the next screen, make sure that the site you just created is highlighted and press the Check mark. Now that the site is established you must create a data log.

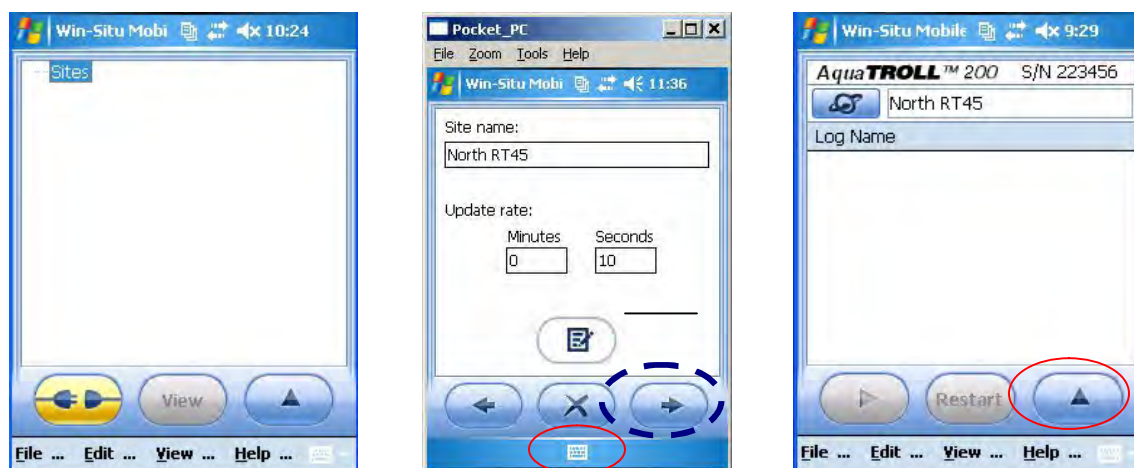


Figure 8A. Win-Situ Mobile with “Connect” button on left highlighted.

Figure 8B. Entering a filename. Hit the “Keyboard” icon (in red) to bring up a keypad for entry. Hit the “Next” arrow (blue dotted line) when done.

Figure 8C. After entering a “Log Name”, hit the “Expander” button (in red) to select “New”.

### *Creating a Data Log*

1. Tap the “View” menu at the bottom of the screen (Figure 8C) and select “Logging”.
2. Tap the “Expander” button (Figure 8C) and then select “New”.
3. Type in a data log name using the “Keyboard” icon. When done, click the “Next” arrow.  
Note: Only one log can be actively running at a time.
4. Select all parameters and click the “Next” arrow.
5. Accept default units and click the “Next” arrow.
6. Choose “Event Logging” and click the “Next” arrow.
7. Select “Specific Conductivity” as your primary parameter.
8. *Important:* Select to record primary values every 10 seconds, and secondary parameters every 10 measurements. Click the “Next” arrow.
9. Choose to log data when an event parameter is greater than zero.
10. Select Manual Start. Click the “Next” arrow.
11. Check over the summary page to ensure proper setup. Tap the check mark.

### *Data Logging*

1. When you are ready to take a reading, insert the probe into the sample, then press the “Play” button at the bottom left side of the screen.
2. After you have collected your reading (collected after at least a minute of stabilization), press the “Pause” button.
3. To download the log data, make sure the log is highlighted and: Tap the expander button → Download → Download All → and click the check mark.
4. To view the data at this point you can select “Yes” when asked.
5. Select the parameter that you would like to view from the top drop down menu.
6. To stop logging, go to View → Logging → Expander Key → Stop.

### *Exit Program*

1. To exit Win-Situ Mobile, go to the File Menu → Exit.
2. Turn unit off.

### 3. Calibration Procedures

#### 3.1 In-Situ Aqua TROLL 100

The Aqua TROLL 100 probe will be calibrated on a daily basis according to manufacturer's instructions as described below. Calibration accuracy will be checked once at noon and again in the evening. Values will be recorded and checked for drift. If at noon, it is found that calibration is needed, a field calibration for conductivity will be performed.

##### 3.1.1 Aqua TROLL Manual Conductivity Calibration (In-Situ Inc., 2008)

To perform a conductivity calibration of the Aqua TROLL 100, the equipment needed includes:

- In-Situ Cal Cup
- Calibration standard solution supplied, or other solution of known specific conductivity in the range 100 to 60,000  $\mu\text{S}/\text{cm}$

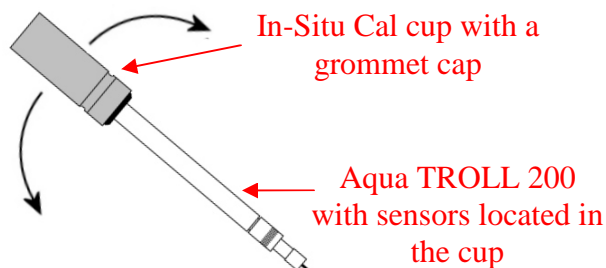
Three factors are essential to a successful conductivity calibration:

1. The calibration solution is not diluted or contaminated
2. The probe and the solution are at the same temperature
3. The sensing cell is completely filled with solution—no air bubbles on the sensor

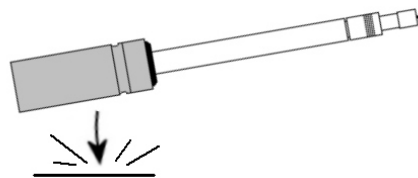
The following preparation steps can help to ensure a successful calibration and avoid erroneous field data. Below is the description for setting up the probe for calibration.

1. Remove the nose cone at the tip of the Aqua TROLL. Water trapped here can dilute the calibration solution. Air bubbles may also come from this area.
2. If the device is wet from previous use, dry the body and shake to clear any liquid inside the conductivity sensor.
3. Before opening the solution bottle, invert it a few times to redistribute any water condensation.
4. Remove the Cal Cup cap and fill the cup to the "Rinse" line with calibration solution.
5. Insert the Aqua TROLL through the grommet in the cap.
6. Attach the cap to the Cal Cup. The Aqua TROLL should rest on or near the bottom.
7. Shake vigorously to rinse the sensing cell (Figure 9A).
8. To allow for temperature equalization, invert the Cal Cup multiple times for at least 30 seconds—longer if the probe and solution are at different temperatures.
9. To dispel air bubbles from the sensor, hold the Aqua TROLL horizontally, and firmly tap the Cal Cup against a convenient surface (for example, your other hand) (Figure

9B). Rotate the Aqua TROLL on its axis about 45 degrees and tap again. If needed, rotate another quarter turn and tap again (Figure 9B).



**Figure 9A. Calibrating the AquaTroll. Ensure that the probe tip is near/on the bottom of the bottle and shake bottle vigorously.**



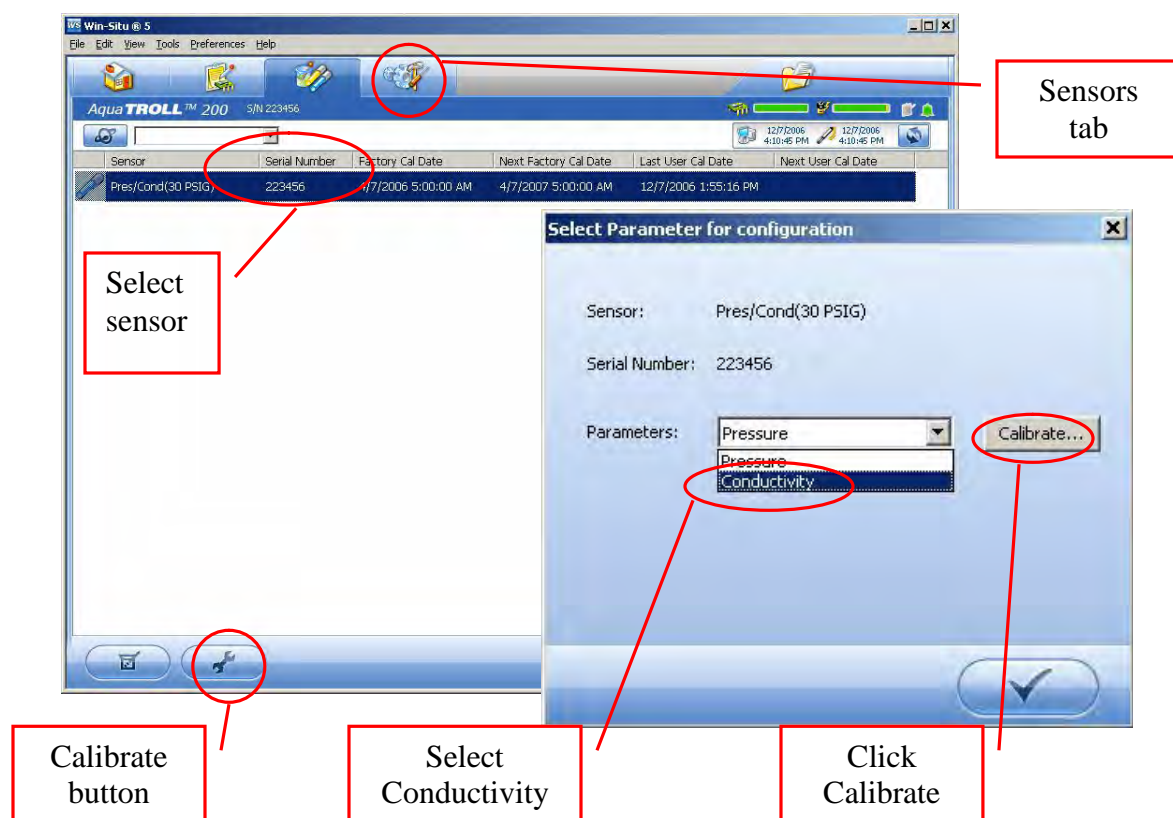
**Figure 9B. Dispelling air bubbles from the sensor head. Rotate 45 degrees and tap firmly against a convenient surface (e.g. one's hand).**

10. Loosen the cap, remove the Aqua TROLL (no need to pull it out of the cap), and discard the solution.
11. For best results, rinse again using the same procedure.
12. Proceed to initiating calibration.
13. In the event that saline water ( $>30,000$  uS/cm) is anticipated to be encountered in the sampling, the calibration described above will be augmented to include a high and low range calibration standard solution check.

The Aqua TROLL uses a single point calibration set-up

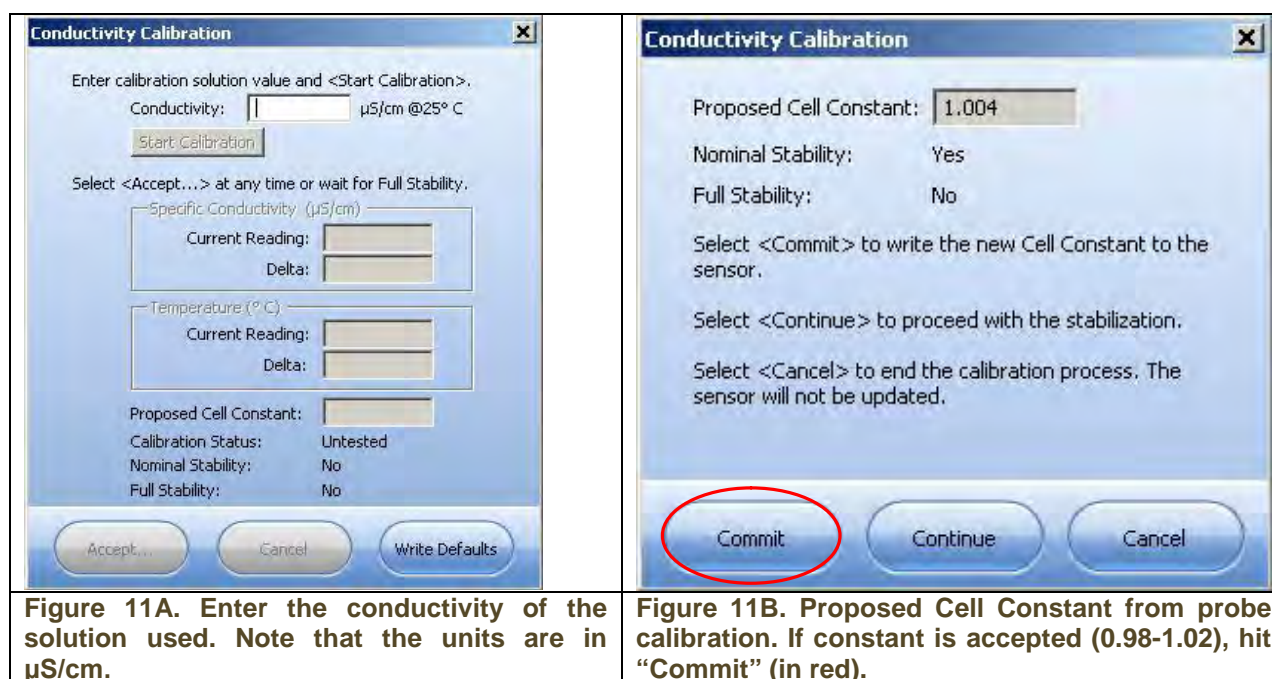
1. If you have not already done so, attach cable to the Aqua TROLL and to the computer, launch Win-Situ, and connect to the device.
2. Go to the "Sensors" tab and select the sensor (i.e., Aqua TROLL 100).
3. Click the "Calibrate" button (Figure 10).
4. In the next screen, select the Conductivity parameter and click "Calibrate" (Figure 10).
5. After a review of the preparation steps just performed, a screen like this will be shown:





**Figure 10. Conducting the single-point calibration setup.**

6. Enter the Specific Conductivity of the calibration solution in  $\mu\text{S}/\text{cm}$  (Figure 11A).
7. Click “Accept” followed by “Start Calibration”.
8. The software will monitor the conductivity and temperature readings, calculate the cell constant (sometimes called the “Kcell”), and inform you when the response meets the criteria for Nominal Stability.



9. You can click Accept at any time to continue. For best results, wait until Full Stability is reached. At that time, the next screen is displayed automatically.
10. Look at the Proposed Cell Constant before you commit it to the sensor. It should be in the range 0.98 to 1.02 (Figure 11B).
11. If the cell constant is suspect, the cause could be an air bubble, incomplete rinsing, sensor fouling, or other factors.
12. Repeat the preparation and calibration with fresh calibration solution.
13. When you are satisfied with the proposed cell constant, click "Commit" to write the calculated cell constant to the sensor.
14. If the Aqua TROLL will be deployed immediately, remove it from the Cal Cup, rinse it, discard the calibration solution, and reinstall the nose cone.

### 3.1.2 Care and Maintenance of Conductivity Sensor

Fouling from mineral and biological sources can alter the sensor's response.

- Always begin with a rinse under running water to remove loose material.
- Always finish with a rinse in clean water.
- After cleaning, always check the calibration before redeployment, and recalibrate the sensor when necessary.

Acceptable cleaning processes fall into the following categories:

**Process 1:** Light scrubbing with a soft swab (or pipe cleaner) and mild soap such as a dilute solution of dish detergent. Be careful not to damage the plastic material of the conductivity cell.

**Process 2:** Light scrubbing with a foam swab and an aggressive soap such as Alconox® detergent can be used for more stubborn deposits.

**Process 3:** Dilute (10:1) acetic acid, or consumer-packaged white vinegar, can be used to pre-soften calcium deposits. Follow this with Process 1 or Process 2, depending on the degree of residual contamination. The Aqua TROLL can soak for any length of time in dilute acetic acid. If this does not completely remove the material, try Process 4.

**Process 4:** Dilute phosphoric acid (< 27%) or the consumer product Lime-A-Way® can be topically applied with a soft swab to remove iron or calcium deposits that remain after using Process 3. Do not soak for more than 10 minutes. Rinse well with water. If contamination cannot be removed using the recommendations above, please contact In-Situ Inc. as described on page 10.

### **3.2. Temperature Calibration**

Temperature will be measured using a National Institute of Standards and Technology (NIST) traceable, certified, Celsius thermometer with a resolution of 0.1 degrees Celsius (°C) and a range of 0 – 100 °C. Temperature calibrations will be conducted once per day.

1. The In-Situ Aqua TROLL 100, and the NIST thermometer will be calibrated at three temperature points.
2. The Aqua TROLL 100 and the NIST thermometer will be placed in cold water at temperatures of < 5°C until the temperature stabilizes, and readings recorded.
3. The probe and the NIST thermometer will then be placed in water at room temperature between 20 - 25°C
4. When the temperature readings stabilize, the temperature will be recorded.
5. The probe and NIST thermometer will then be placed in warm water and >30°C until the temperature readings stabilize.
6. Temperature readings of both the NIST thermometer and Aqua TROLL will be recorded.

### 3.3 Verification of Calibration

The Aqua TROLL 100 will be checked for conductivity calibration at noon and at the end of the field day with a standard solution and the reading obtained will be recorded and compared to the morning calibrations recorded. If drift of readings is observed to be greater than 10%, the Aqua TROLL 100 will be field calibrated as described in Calibration Procedures described above.

## 4 Trouble-Shooting

Some of the more commonly encountered problems related to the instrumentation are listed below.

### 4.1 Porewater “Sipper” or PushPoint Sampler

Problem: No extraction possible

*Probable Cause*: Sampler/tubing is clogged along length.

*Suggested Remedy*: Remove syringe and raise barrel to 50 ml. Reconnect syringe to tubing and eject into sampler to purge blockage. If that fails, remove sampler and tubing setup and rinse. Clean blocked portions as needed with 18-gauge wire or pipe cleaner.

Problem: Highly turbid sample

*Probable Cause*: High silt/sediment content entering probe/sipper.

*Suggested Remedy*: Replace Screen-Sok or mesh filter and try to re-extract. Alternatively, after measuring temperature, collect the sample and store in a vial on a flat surface to allow settling of particles. Measure conductivity after at least an hour of sample settling.

### 4.2 Porewater Sampler

Problem: No reading

*Probable Cause*: Sampler/tubing is clogged with silt/sediment.

*Suggested Remedy*: Remove assembly and clean. Find a different location to conduct measurements.

Problem: Incorrect reading

*Probable Cause*: Air bubble within sensor chamber.

*Suggested Remedy*: Place a small amount of cotton (e.g. from cotton tips) in sensor chamber to create a wicking mechanism and create contact across all Aqua TROLL sensors.

### 4.3 Aqua TROLL 100 and Rugged Reader

In the event that the Aqua TROLL 100 is not providing readings or accuracy is in question the following steps will be conducted as suggested by the In-Situ Operating Manual (2008):

1. The data cable will be checked for secure connection from the probe to the data logger, and the ports will be checked for proper connection.
2. The communication settings in Win-Situ and in the Aqua TROLL will be checked to ensure they match. To reset the device communication settings to the serial defaults, click “Reset all Devices” in the Comm Settings dialog (Preferences menu > Comm Settings).
3. The internal battery will be checked to ensure it has voltage remaining. If not the battery will be replaced or external power supplied.
4. The Aqua TROLL 100 will be checked for air bubbles in the sensors and agitated to remove them if they are present.
5. If problematic readings are still noted, the Aqua TROLL 100 will be checked with a standard solution. If readings are found to have drifted greater than 10%, the probe will be recalibrated.
6. If after field calibration, the probe continues to produce problematic readings, the probe will be flagged and replaced with a second Aqua TROLL 100 unit.
7. The new Aqua TROLL 100 unit will be calibrated and used to continue porewater survey data collection.

Problem: Aqua TROLL 100 probe is in the wrong units

*Probable Cause:* Default units are being used.

*Suggested Remedy:* Click the Sensors tab, select the sensor, click the “Configure” button, and select the desired units for each parameter in the Sensor Setup window. Click OK. Be sure to stop “polling” in the Home screen before selecting units.

In the event the Rugged Reader is not recording data:

Problem: Cannot add a new log

*Probable Cause 1:* Only one “active” log can reside in the device at a time—an “active” log is a log that is Ready, Pending, Running, or Suspended as shown in the Status column of the Logging Tab

*Suggested Remedy:* Stop or delete the log if possible. Alternatively, configure the new log after the active log is completed.

*Probable Cause 2:* The device has its maximum number of logs already stored—although this is not a likely cause for the Aqua TROLL 100, which has a capacity of 50 logs.

*Suggested Remedy:* Download, and then delete a log you are through with. This will make room for an additional log on the device.

Problem: New log exceeds available memory (message from software).

*Probable Cause:* The log as configured would exceed the device memory.

*Suggested Remedy:* Edit the log and try the following procedures:

- Select a longer sampling interval.
- If available, select the “Wrap data” option (later data will overwrite earlier data when the memory is full).
- For a log with a scheduled start, select “None” as the stop condition, or select a stop time that is closer to the start time. You may intend to stop the log before the scheduled end date arrives, but the software doesn’t know that.

In the event that the In-Situ Rugged Reader fails or freezes (power failure):

1. Remove battery and turn the unit on again
2. Check the battery with a multimeter.
3. If the unit will not power on, a replacement battery will be installed.
4. If power does not return to the unit, the Rugged Reader will be replaced with a back up unit. If a back up unit is not available, the field day will be canceled until a replacement unit is provided.

## **5 Reporting**

Maps of the distribution of specific conductance and temperature from the all sampling locations will be provided within two weeks of completion of the survey. All data collected (field notes and information logged in the In-Situ Rugged Reader) will be provided in a MSExcel spreadsheet. General parameters such as start and end times for each day, tidal conditions during collection, and instrumentation calibration information will be included. Specific parameters reported will include instrument serial number, time of recording, specific conductance, temperature, total dissolved solids (TDS), surface water level, water and air temperature, as well as any ecological observations of note. A list of sites recommended for follow-up CCS tracer suite sampling will also be provided for agencies review and approval prior to initiating the follow-up CCS tracer suite sampling. The list of recommended sites will include those sites identified in the initial broad-scale survey as being influenced by the CCS and will also consider those sites where initial survey attempts were unsuccessful but adjacent sites indicate potential influence of the CCS. In these cases, proposals for successful sampling will be provided for approval including alternative sample collection methods such as coring/drilling or alternative representative sample locations.



**6 References:**

- In-Situ, Inc., 2008. Aqua TROLL Operator's Manual: Aqua TROLL 100 and Aqua TROLL 200.
- Lewis, B. 2007. Pore Water Sampling Operating Procedure, United States Environmental Protection Agency. SESDPROC-513-R0.
- Rohlf, F.J. and Sokal R.R. 1996. Statistical Tables: collection of tables to accompany Biometry (3<sup>rd</sup> ed.). 199 pp.

# **APPENDIX B:**

## **DESCRIPTION OF POREWATER SAMPLING LOCATIONS**

**April 2010**

## **B.1 Porewater Sampling in Marsh, Mangroves and Subtidal Habitats in Biscayne Bay and Card Sound**

Dates: March 18 - April 12, 2010

Participants: Sharon Ewe, Kristin Vaughan, Jennifer Vega, Mark Mohlmann, Helen Hammond

### **Sampling Design**

#### Sampling Setup

1. Points were sampled in a grid formation or in areas of ecological interest.
2. One point (3 porewater depths) was sampled at each grid location.
3. Two points (A and B, 2 m apart) were sampled at each area of ecological interest (defined jointly by FPL and the Agencies on 10/28/09).
4. Points were named based on the grid they were in i.e., G3, A5, or GH3, F1-2 for points on grid lines between the cells.
5. Areas of ecological interest were named based on their habitat types e.g. "W" for freshwater wetlands, "M" for mangroves, and "BB" for the Bay.
6. 102 Points were sampled in Biscayne Bay and 101 in the marsh and mangroves.

#### Sampling Depths

1. Three depths were sampled at each point (20, 40 and 60 cm) where possible.
2. In areas where bedrock was reached prior to 20 cm, various locations were probed (up to 30 other points) in the surrounding area in an attempt to reach 20 cm.
3. If bedrock depth was between 15 and 20 cm, a single depth was taken.
4. If bedrock was reached at depths between values, the deepest point would be measured where possible (e.g., at 30 cm at D10, or 55 cm at D6).

#### Instrumentation

1. Instruments used were from In-Situ Inc. Three sonde and Reader units were used.
2. The units were Aqua TROLL 100s (conductance, temp sensors) connected to Rugged Readers (Win-Situ Mobile v. 5.5.9.2).
3. Data output was in \*.csv files and \*.xls files. Miscellaneous notes from field sheets and data books are scanned pdfs (See Appendices D and E).



Explanation of B.1 Tables	
Raw Data	All data collected from the instruments, transposed into the following Excel sheet. Unit and date is identified.
Grid Points	<ol style="list-style-type: none"><li>1. Compiled data for each of the points, showing lat/long, air temp, surface and bottom (for deeper BBay sites) conductance and temperatures.</li><li>2. Where the sites were moved due to access difficulty, the new coordinates were noted.</li><li>3. Field notes were partially copied over where time permitted. All notes were scanned as pdfs.</li><li>4. Several sites were resampled to verify initial readings. All attempts are listed, but only the most recent measurement was used for analysis.</li></ol>
Area of Interest	<ol style="list-style-type: none"><li>1. Two points were recorded at each site. The layout remains similar to the Grid Points sheet.</li><li>2. Several sites were resampled to verify initial readings. All attempts are listed, but only the most recent measurement was used for analysis.</li></ol>

Table B.1-1. Porewater Sampling Grid Points Raw Data (April 2010 Dry Season)

Location Name	Depth	Actual Conductance (µS)	Temp (°C)	Salinity (in PSS78)	Specific Conductance (µS/cm)	Unit	Date
A10	S	712.49	25.0	0.4	712.71	3	3/22/10
A10	20	1217.21	22.7	0.6	1273.82	3	3/22/10
A10	40	1539.11	21.6	0.8	1644.56	3	3/22/10
A10	60	1763.51	21.0	1.0	1909.31	3	3/22/10
A11	20	21929.34	19.8	14.9	24337.82	1	3/24/10
A11	40	24386.73	20.2	16.7	26873.67	1	3/24/10
A11	60	25720.39	20.7	17.4	28012.33	1	3/24/10
A5	20	900.31	19.2	0.5	1012.08	1	3/24/10
A5	40	1083.63	19.5	0.6	1211.91	1	3/24/10
A5	60	1071.81	19.1	0.6	1209.04	1	3/24/10
A6	20	1205.59	21.6	0.7	1289.57	1	3/24/10
A6	40	1137.84	21.7	0.6	1214.20	1	3/24/10
A6	60	1103.58	21.5	0.6	1182.14	1	3/24/10
A7	20	1855.70	21.4	1.0	1992.45	1	3/24/10
A8	20	2032.33	20.4	1.2	2229.73	1	3/24/10
A9	S	1549.35	18.5	0.9	1770.02	1	3/24/10
A9	20	4265.62	20.7	2.5	4644.57	1	3/24/10
A9	40	4694.12	21.0	2.8	5086.75	1	3/24/10
A9	60	4607.86	20.9	2.7	5004.09	1	3/24/10
B10	S	1763.51	21.0	1.0	1909.31	3	3/22/10
B10	20	13272.96	21.9	8.3	14103.73	3	3/22/10
B10	40	17774.75	22.3	11.3	18728.64	3	3/22/10
B10	60	16056.47	22.3	10.1	16927.21	3	3/22/10
B12	20	35360.63	22.2	24.0	37330.64	1	3/24/10
B12	40	57702.30	22.3	41.4	60870.04	1	3/24/10
B12	60	76189.81	22.4	56.8	80188.00	1	3/24/10
B2	20	606.05	22.8	0.3	633.11	1	3/25/10
B2	40	596.95	22.3	0.3	629.63	1	3/25/10
B2	60	602.79	22.1	0.3	638.51	1	3/25/10
B3	20	773.76	22.4	0.4	814.48	3	3/23/10
B3	40	793.13	22.0	0.4	842.07	3	3/23/10
B3	60	800.26	21.8	0.4	852.52	3	3/23/10
B4	20	1526.60	23.5	0.8	1570.21	1	3/24/10
B4	40	1514.67	22.6	0.8	1587.18	1	3/24/10
B5	20	1071.98	23.0	0.6	1114.42	1	3/24/10
B5	40	1181.87	22.8	0.6	1234.02	1	3/24/10
B5	60	1142.94	22.7	0.6	1196.02	1	3/24/10
B6	20	1117.14	22.7	0.6	1169.38	1	3/24/10
B6	40	1315.38	22.4	0.7	1383.46	1	3/24/10
B7	20	1428.34	23.8	0.7	1461.03	1	3/24/10
B7	40	1549.38	23.9	0.8	1583.03	1	3/24/10
B8	20	6005.87	21.8	3.5	6394.21	1	3/24/10
B8	40	7394.03	21.5	4.4	7925.04	1	3/24/10
B8	60	7498.65	22.0	4.5	7960.26	1	3/24/10
B9	20	2552.77	21.4	1.4	2740.01	1	3/24/10
B9	40	2578.26	21.1	1.5	2783.07	1	3/24/10
C10	20	60944.06	20.7	45.6	66366.82	3	3/22/10
C10	40	63314.09	21.0	47.3	68522.81	3	3/22/10
C10	60	70806.13	20.9	53.9	76783.31	3	3/22/10
C14	40	51923.25	23.6	35.7	53340.52	1	4/1/10
C14	60	58393.20	23.8	40.7	59802.61	1	4/1/10
C2	20	2122.54	23.0	1.1	2207.60	3	3/23/10
C2	40	2446.83	21.8	1.4	2607.69	3	3/23/10
C2	60	2312.63	23.1	1.3	2401.55	3	3/23/10
C3	20	2397.52	24.3	1.3	2428.24	3	3/23/10
C3	40	2576.75	22.1	1.4	2727.41	3	3/23/10
C3	60	3159.27	22.3	1.8	3328.93	3	3/23/10
C4	20	2307.70	21.1	1.3	2492.34	2	3/24/10
C4	40	2309.22	20.4	1.3	2531.51	2	3/24/10
C4	60	2161.62	20.4	1.2	2369.91	2	3/24/10
C5	20	1375.86	21.2	0.8	1484.09	2	3/24/10





Table B.1-1. Porewater Sampling Grid Points Raw Data (April 2010 Dry Season)

Location Name	Depth	Actual Conductance (µS)	Temp (°C)	Salinity (in PSS78)	Specific Conductance (µS/cm)	Unit	Date
C5	40	1910.19	20.9	1.1	2073.58	2	3/24/10
C5	60	2715.10	21.1	1.5	2933.04	2	3/24/10
C6	20	844.44	22.6	0.4	884.85	2	3/24/10
C6	40	1121.32	22.2	0.6	1184.70	2	3/24/10
C6	60	1396.67	21.6	0.8	1494.12	2	3/24/10
C7	20	833.46	23.8	0.4	853.79	1	3/24/10
C7	40	983.94	22.9	0.5	1026.00	1	3/24/10
C8	20	1262.06	23.7	0.7	1293.18	1	3/24/10
C8	40	1105.58	23.4	0.6	1139.93	1	3/24/10
C8	60	1540.70	24.6	0.8	1552.37	1	3/24/10
C9	20	1241.55	24.4	0.6	1255.05	1	3/24/10
D10	20	52876.48	20.5	39.0	57798.35	3	3/22/10
D10	40	57135.39	24.2	39.3	57973.94	3	3/22/10
D13	S	41679.33	22.5	28.6	43746.68	1	4/1/10
D13	20	48900.11	23.5	33.5	50354.23	1	4/1/10
D13	40	49533.46	23.6	33.9	50928.72	1	4/1/10
D13	60	47698.44	23.6	32.5	49043.11	1	4/1/10
D14	S	40902.59	22.5	28.0	42941.25	1	4/1/10
D15	S	44041.41	23.3	29.9	45540.39	1	4/5/10
D15	20	42659.60	23.4	28.8	43983.10	1	4/5/10
D15	40	42760.63	23.5	28.8	44015.60	1	4/5/10
D15	60	44863.13	23.2	30.6	46447.16	1	4/5/10
D2	S	513.84	22.4	0.3	540.37	2	3/24/10
D2	20	660.57	21.0	0.4	714.48	2	3/24/10
D2	40	937.06	21.3	0.5	1007.83	2	3/24/10
D2	60	1074.45	21.6	0.6	1149.79	2	3/24/10
D3	S	992.23	20.7	0.5	1081.18	2	3/22/10
D3	20	2762.08	19.8	1.6	3064.86	2	3/22/10
D3	40	3138.97	20.2	1.8	3452.59	2	3/22/10
D3	60	3168.54	20.1	1.9	3496.42	2	3/22/10
D4	20	1477.34	21.8	0.8	1573.72	2	3/24/10
D4	40	2149.85	21.1	1.2	2322.96	2	3/24/10
D4	60	2519.75	21.0	1.4	2728.67	2	3/24/10
D5	20	980.32	21.2	0.5	1057.84	2	3/24/10
D5	40	1108.95	20.6	0.6	1209.47	2	3/24/10
D5	60	1365.50	20.4	0.8	1498.07	2	3/24/10
D6	40	1115.87	24.1	0.6	1135.39	1	3/25/10
D6	60	1561.09	23.4	0.8	1611.11	1	3/25/10
D7	20	2691.67	20.5	1.5	2944.97	3	3/22/10
D7	40	2894.58	20.3	1.7	3179.69	3	3/22/10
D7	60	2840.02	19.8	1.7	3151.37	3	3/22/10
D8	20	2513.84	21.5	1.4	2695.59	3	3/22/10
D8	40	2915.96	21.2	1.7	3145.80	3	3/22/10
D8	60	2911.22	21.6	1.6	3111.66	3	3/22/10
D9	20	2178.44	23.7	1.2	2235.27	1	3/25/10
D9	40	3878.70	23.1	2.2	4027.05	1	3/25/10
E10	20	48149.67	21.5	34.3	51547.08	3	3/22/10
E10	40	54549.00	20.7	40.2	59372.48	3	3/22/10
E10	60	59852.81	20.8	44.6	65063.02	3	3/22/10
E11	20	49832.60	26.7	32.0	48281.89	1	3/25/10
E11	40	58446.16	25.2	39.5	58232.27	1	3/25/10
E11	60	72565.50	24.8	51.0	72867.20	1	3/25/10
E12	S	44546.06	24.9	29.3	44596.16	1	4/1/10
E12	20	48115.11	25.1	31.8	47979.29	1	4/1/10
E12	40	51501.44	24.4	34.8	52136.53	1	4/1/10
E12	60	54612.02	24.0	37.5	55705.43	1	4/1/10
E1-2	S	395.96	22.0	0.2	419.65	3	4/12/10
E1-2	20	1355.27	23.0	0.7	1408.12	3	4/12/10
E1-2	40	1379.75	22.6	0.7	1445.81	3	4/12/10
E1-2	60	1281.98	22.6	0.7	1342.55	3	4/12/10
E13	S	45308.01	24.6	30.0	45665.78	1	3/26/10



Table B.1-1. Porewater Sampling Grid Points Raw Data (April 2010 Dry Season)

Location Name	Depth	Actual Conductance (µS)	Temp (°C)	Salinity (in PSS78)	Specific Conductance (µS/cm)	Unit	Date
E13	20	47829.07	24.7	31.8	48073.71	1	3/26/10
E13	40	51191.36	25.2	34.0	51006.71	1	3/26/10
E13	60	44635.14	24.8	29.4	44834.08	1	3/26/10
E14	S	42791.64	22.6	29.4	44811.20	1	4/1/10
E14	20	45114.95	25.2	29.5	44948.71	1	4/1/10
E14	40	47563.33	22.2	33.4	50240.66	1	4/1/10
E14	60	49580.53	23.7	33.8	50797.68	1	4/1/10
E15	S	45721.32	23.2	31.3	47378.40	1	4/5/10
E15	20	41612.28	23.4	28.0	42898.14	1	4/5/10
E15	40	46741.11	23.5	31.8	48146.16	1	4/5/10
E15	60	49030.59	23.3	33.7	50661.26	1	4/5/10
E2	20	1219.95	22.2	0.7	1288.71	2	3/24/10
E2	40	1560.34	21.4	0.9	1677.03	2	3/24/10
E2	60	1640.27	20.9	0.9	1778.91	2	3/24/10
E3	20	1233.65	21.0	0.7	1336.34	2	3/22/10
E3	40	1536.67	20.8	0.9	1670.43	2	3/22/10
E3	60	1871.44	21.7	1.0	1996.54	2	3/22/10
E4	20	4421.23	21.1	2.6	4778.35	2	3/22/10
E4	40	6464.03	21.2	3.9	6975.93	2	3/22/10
E4	60	6370.83	20.8	3.8	6926.85	2	3/22/10
F10	20	9221.19	21.1	5.7	9965.25	3	3/22/10
F10	40	12621.40	21.1	8.0	13638.51	3	3/22/10
F10	60	15372.02	21.3	9.8	16543.69	3	3/22/10
F11	20	47161.13	24.9	31.2	47254.91	1	3/25/10
F11	40	50012.76	24.9	33.4	50146.76	1	3/25/10
F11	60	56633.22	24.5	38.7	57215.28	1	3/25/10
F12	20	50619.02	25.2	33.6	50399.59	1	3/26/10
F12	40	53032.48	24.0	36.3	54111.43	1	3/26/10
F12	60	57343.37	24.1	39.6	58392.05	1	3/26/10
F1-2	S	9713.36	24.3	5.6	9848.71	3	4/12/10
F1-2	20	28973.36	24.4	18.4	29285.13	3	4/12/10
F1-2	40	27751.35	24.2	17.6	28182.04	3	4/12/10
F1-2	60	21341.00	23.7	13.4	21899.18	3	4/12/10
F13	S	48464.65	23.7	33.0	49729.34	3	4/4/10
F13	20	47509.25	23.6	32.3	48822.74	3	4/4/10
F14	S	45065.86	22.9	30.9	46931.16	1	4/1/10
F14	20	47341.37	25.2	31.2	47148.70	1	4/1/10
F14	40	41020.58	23.6	27.4	42113.12	1	4/1/10
F14	60	48197.70	23.9	32.6	49191.76	1	4/1/10
F15	S	46132.92	22.9	31.7	48034.93	3	4/6/10
F15	20	47265.32	23.6	32.2	48563.30	3	4/6/10
F15	40	48897.39	23.2	33.7	50653.90	3	4/6/10
F15	60	49749.60	23.6	34.0	51097.41	3	4/6/10
F2	S	2334.53	25.5	1.2	2312.22	3	3/23/10
F2	20	6448.06	23.2	3.7	6679.11	3	3/23/10
F2	40	7660.95	23.6	4.4	7874.90	3	3/23/10
F2	60	9960.55	24.0	5.8	10155.02	3	3/23/10
F2-3	S	2456.05	26.0	1.3	2410.94	3	4/12/10
F2-3	20	6997.26	23.8	4.0	7162.53	3	4/12/10
F2-3	40	8219.50	23.8	4.7	8408.46	3	4/12/10
F2-3	60	15768.90	24.1	9.5	16034.63	3	4/12/10
FG11	20	56769.26	26.8	37.0	54881.59	1	4/7/10
FG11	40	63205.73	26.2	42.3	61764.64	1	4/7/10
FG11	60	61620.75	24.6	42.4	62057.39	1	4/7/10
FG12	S	48963.26	23.6	33.5	50322.57	1	4/5/10
G1	S	44051.56	23.3	29.9	45572.61	3	4/2/10
G1	20	44840.94	23.5	30.4	46146.90	3	4/2/10
G1	40	47190.75	23.8	32.0	48281.93	3	4/2/10
G10	S	50154.22	23.7	34.3	51410.45	3	4/6/10
G10	20	45352.02	23.1	31.1	47103.29	1	3/25/10
G10	40	48393.36	23.1	33.4	50225.66	1	3/25/10



Table B.1-1. Porewater Sampling Grid Points Raw Data (April 2010 Dry Season)

Location Name	Depth	Actual Conductance (µS)	Temp (°C)	Salinity (in PSS78)	Specific Conductance (µS/cm)	Unit	Date
G10	60	49287.39	22.5	34.5	51779.00	1	3/25/10
G11	S	49555.21	23.8	33.8	50717.55	1	4/5/10
G12	S	49504.29	23.6	33.9	50860.81	1	4/5/10
G1-2	S	15741.27	24.5	9.4	15887.98	3	4/12/10
G1-2	20	50208.09	25.1	33.4	50134.58	3	4/12/10
G1-2	40	51762.96	24.4	35.0	52316.57	3	4/12/10
G1-2	60	53466.47	24.4	36.3	54099.55	3	4/12/10
G13	S	48100.61	23.3	33.0	49734.20	3	4/4/10
G14	S	44813.54	23.2	30.6	46448.97	1	4/1/10
G14	20	49148.46	26.5	31.7	47816.70	1	4/1/10
G14	40	47079.46	24.9	31.2	47196.75	1	4/1/10
G15	S	45521.62	23.2	31.1	47117.98	1	4/5/10
G15	20	43444.67	23.1	29.6	45046.18	1	4/5/10
G15	40	44367.12	22.9	30.4	46239.19	1	4/5/10
G15	60	48022.07	23.0	33.1	49924.49	1	4/5/10
G2	20	43869.32	22.9	30.0	45659.47	3	3/23/10
G2	40	41945.91	20.9	29.8	45485.33	3	3/23/10
G2	60	45827.53	20.3	33.3	50325.68	3	3/23/10
G2	Tidal Creek	41158.32	20.2	29.7	45350.14	3	3/23/10
G2-3	S	3869.85	24.1	2.1	3936.90	3	4/12/10
G2-3	20	19826.02	24.1	12.2	20187.13	3	4/12/10
G2-3	40	21251.41	24.0	13.2	21649.24	3	4/12/10
G2-3	60	22545.02	25.1	13.8	22502.54	3	4/12/10
G4	20	48137.01	25.8	31.4	47452.98	1	3/21/10
G4	40	46262.28	23.9	31.2	47209.11	1	3/21/10
G4	60	46547.70	23.2	31.8	48164.08	1	3/21/10
G5	S	55800.86	30.1	34.0	50840.11	2	3/21/10
G5	20	47582.92	26.9	30.3	45912.01	2	3/21/10
G5	40	44569.16	27.1	28.0	42825.98	2	3/21/10
G5	60	49186.29	26.2	31.9	48095.45	2	3/21/10
G6	S	50893.53	29.1	31.2	47172.07	1	3/21/10
G6	20	39816.62	25.7	25.4	39284.42	1	3/21/10
G6	40	54172.36	26.7	35.1	52433.01	1	3/21/10
G6	60	55282.21	28.3	34.8	51968.54	1	3/21/10
G7	20	48281.23	23.3	33.2	49945.02	2	3/18/10
G7	40	53928.15	23.8	37.1	55197.61	2	3/18/10
G7	60	58152.20	23.7	40.5	59635.43	2	3/18/10
G8	S	51359.63	25.1	34.2	51231.32	2	3/18/10
G8	20	46940.26	23.3	32.1	48486.51	2	3/18/10
G8	40	49511.49	23.9	33.6	50556.39	2	3/18/10
G8	60	48719.14	23.6	33.3	50103.91	2	3/18/10
G9	20	45870.11	22.6	31.8	48092.28	2	3/18/10
G9	40	46890.49	22.0	33.0	49766.61	2	3/18/10
G9	60	51931.57	22.5	36.6	54550.07	2	3/18/10
G9-10	20	58006.53	26.3	38.3	56557.91	1	4/7/10
G9-10	40	57295.79	24.1	39.5	58258.56	1	4/7/10
G9-10	60	58328.71	23.5	40.8	60002.29	1	4/7/10
GH1	S	45392.52	22.9	31.2	47330.42	3	4/2/10
GH1	20	46005.64	23.4	31.3	47421.56	3	4/2/10
GH10	S	50154.22	23.7	34.3	51410.45	3	4/6/10
GH11	S	50021.39	23.6	34.3	51400.09	1	4/5/10
GH12	S	49083.36	23.6	33.5	50391.66	3	4/4/10
GH2	S	41304.31	23.4	27.8	42573.04	1	3/26/10
GH2	20	46506.38	25.5	30.4	46059.07	1	3/26/10
GH3	S	48857.24	22.8	33.9	50957.87	1	3/27/10
GH3	20	45267.60	22.4	31.4	47622.24	1	3/27/10
GH3	40	42734.75	21.5	30.1	45803.79	1	3/27/10
GH3	60	46401.20	21.2	33.1	50010.20	1	3/27/10
GH4	S	49202.12	23.1	34.0	51086.09	1	3/27/10
GH4	20	46308.00	22.8	32.0	48331.04	1	3/27/10



Table B.1-1. Porewater Sampling Grid Points Raw Data (April 2010 Dry Season)

Location Name	Depth	Actual Conductance (µS)	Temp (°C)	Salinity (in PSS78)	Specific Conductance (µS/cm)	Unit	Date
GH4	40	47523.55	22.7	33.0	49701.75	1	3/27/10
GH4	60	47560.95	23.2	32.6	49235.16	1	3/27/10
GH5	S	49882.66	24.0	33.9	50874.02	1	3/27/10
GH5	20	50494.09	25.3	33.4	50225.07	1	3/27/10
GH5	40	49916.29	24.9	33.3	50052.59	1	3/27/10
GH5	60	47950.41	25.8	31.2	47219.39	1	3/27/10
GH6	S	50436.77	25.0	33.6	50475.02	1	3/27/10
GH6	20	51637.77	26.3	33.6	50394.48	1	3/27/10
GH6	40	52055.43	27.0	33.4	50128.95	1	3/27/10
GH6	60	51415.55	27.3	32.8	49255.06	1	3/27/10
GH8	S	50162.22	24.2	33.9	50919.40	3	4/12/10
GH8	20	48393.21	22.9	33.5	50456.73	3	4/12/10
GH8	40	50080.04	22.8	34.9	52298.93	3	4/12/10
GH8	60	53368.49	22.8	37.5	55663.37	3	4/12/10
H1	S	45936.03	22.5	31.9	48261.92	3	4/2/10
H10	S	50492.20	23.4	34.8	52134.05	3	4/6/10
H10	20	48465.00	23.0	33.5	50398.15	3	4/6/10
H11	S	49878.20	23.6	34.1	51217.29	1	4/5/10
H11	20	50172.87	24.9	33.5	50300.10	1	4/5/10
H12	S	48276.30	23.5	33.0	49674.91	3	4/4/10
H12	20	49278.90	23.8	33.6	50434.29	3	4/4/10
H13	S	46884.53	23.1	32.2	48616.61	3	4/4/10
H13	20	48346.82	23.8	32.8	49456.19	3	4/4/10
H13	40	48851.24	23.4	33.5	50360.06	3	4/4/10
H14	S	45738.92	23.0	31.4	47580.89	3	4/4/10
H14	20	45649.54	23.3	31.1	47156.38	3	4/4/10
H14	40	46962.24	23.2	32.2	48631.44	3	4/4/10
H2	S	47904.24	23.7	32.5	49089.65	1	3/26/10
H3	S	48784.31	22.7	34.0	51020.47	1	3/27/10
H4	S	49004.26	23.3	33.7	50636.63	1	3/27/10
H4	20	49403.49	24.3	33.3	50043.23	1	3/27/10
H5	S	49968.46	23.9	34.0	51037.58	1	3/27/10
H5	20	52029.20	24.9	34.8	52085.40	1	3/27/10
H6	S	50645.59	25.2	33.6	50495.17	1	3/27/10
H6	20	50890.07	25.8	33.4	50110.27	1	3/27/10
H6	40	51085.12	27.0	32.7	49204.61	1	3/27/10
H7	S	51825.21	24.9	34.7	51905.29	2	4/3/10
H7	20	51136.14	25.6	33.7	50565.13	2	4/3/10
H7	60	52528.38	23.3	36.4	54260.61	2	4/3/10
H9	40	82463.27	24.5	59.5	83228.75	1	3/26/10
H9	60	85513.25	24.1	62.6	86963.34	1	3/26/10
HI1	S	46177.59	22.4	32.1	48584.38	3	4/2/10
HI10	S	50473.02	23.3	34.8	52168.02	3	4/6/10
HI10	20	50063.50	22.6	35.0	52435.59	3	4/6/10
HI11	S	49911.75	23.8	34.0	51091.09	1	4/5/10
HI2	S	48594.34	23.3	33.4	50201.86	1	3/26/10
HI3	S	50107.07	25.1	33.3	49992.16	1	3/27/10
HI4	S	50580.73	24.8	33.9	50812.51	1	3/27/10
HI4	20	52011.45	26.7	33.6	50414.53	1	3/27/10
HI5	S	50666.80	25.1	33.7	50588.12	1	3/27/10
HI6	S	50829.27	25.0	33.9	50838.52	1	3/27/10
HI6	20	52519.39	26.6	34.0	50966.86	1	3/27/10
HI6	40	54032.56	25.6	35.8	53392.89	1	3/27/10
HI6	60	54953.40	25.3	36.8	54652.01	1	3/27/10
HI7	S	51080.73	24.7	34.3	51351.65	2	4/3/10
HI7	20	51136.14	25.6	33.7	50565.13	2	4/3/10
HI7	40	51609.34	25.1	34.4	51510.21	2	4/3/10
HI7	60	50442.68	24.6	33.9	50851.47	2	4/3/10
HI8	20	59702.45	26.1	39.7	58465.27	1	4/7/10
HI8	40	54512.22	24.3	37.2	55261.80	1	4/7/10
HI8	60	54152.46	23.5	37.6	55770.32	1	4/7/10



Table B.1-1. Porewater Sampling Grid Points Raw Data (April 2010 Dry Season)

Location Name	Depth	Actual Conductance (µS)	Temp (°C)	Salinity (in PSS78)	Specific Conductance (µS/cm)	Unit	Date
HI9	S	50793.61	23.9	34.6	51847.51	3	4/6/10
HI9	S	50793.61	23.9	34.6	51847.51	3	4/6/10
I1	S	46260.94	22.0	32.5	49092.42	3	4/2/10
I1	20	47373.94	23.4	32.3	48826.46	3	4/2/10
I1	40	45576.87	22.5	31.6	47820.60	3	4/2/10
I10	S	50664.70	23.3	35.0	52368.32	3	4/6/10
I10	20	49211.98	22.7	34.3	51444.46	3	4/6/10
I10	40	48701.24	22.6	34.0	51040.28	3	4/6/10
I11	S	49713.12	24.2	33.6	50461.79	1	4/5/10
I11	20	50718.11	24.3	34.3	51410.05	1	4/5/10
I11	40	49813.13	23.9	33.9	50859.36	1	4/5/10
I12	S	47679.50	23.5	32.6	49122.37	3	4/4/10
I13	S	46521.07	23.2	31.9	48171.07	3	4/4/10
I13	20	48081.77	23.6	32.8	49446.11	3	4/4/10
I13	40	47179.59	23.4	32.2	48675.73	3	4/4/10
I13	60	49403.68	23.2	34.1	51182.75	3	4/4/10
I2	S	47719.99	23.3	32.7	49302.45	1	3/26/10
I3	S	46032.01	20.2	33.6	50722.82	2	3/31/10
I4	S	45398.91	20.9	32.6	49265.18	2	3/31/10
I5	S	47313.09	22.0	33.3	50162.30	2	3/31/10
I5	20	48423.03	23.7	33.0	49681.39	2	3/31/10
I5	40	47048.27	22.8	32.5	49088.23	2	3/31/10
I6	S	50108.42	24.2	33.9	50846.99	3	4/2/10
I7	20	51057.55	24.1	34.7	51901.82	2	4/3/10
I7	40	49687.34	23.2	34.3	51437.34	2	4/3/10
I7	60	54856.86	25.0	36.9	54878.55	2	4/3/10
I8	S	49278.89	24.4	33.1	49843.52	1	3/26/10
I8	20	51740.39	26.6	33.4	50160.33	1	3/26/10
I9	S	51434.73	23.8	35.2	52594.80	3	4/6/10
I9	20	49845.16	23.6	34.2	51259.54	3	4/6/10
IJ-1	S	46666.45	21.8	33.0	49749.98	3	4/2/10
IJ-2	S	48151.87	23.3	33.1	49816.42	1	3/26/10
IJ-3	S	46256.60	20.2	33.8	50924.09	2	3/31/10
IJ-3	20	45508.56	19.7	33.5	50628.21	2	3/31/10
IJ-4	S	47803.88	21.0	34.4	51742.82	2	3/31/11
IJ-5	S	48410.84	22.4	33.9	50941.60	2	3/31/10
IJ-5	20	48410.84	22.4	33.9	50941.60	2	3/31/10
IJ-6	S	48422.89	22.2	34.1	51192.61	2	4/3/10
IJ-6	20	47192.50	22.2	33.1	49845.04	2	4/3/10
IJ-6	40	46561.38	22.1	32.6	49293.44	2	4/3/10
IJ-6	60	48086.16	22.1	33.8	50880.25	2	4/3/10
IJ-7	S	48579.35	23.1	33.5	50407.85	2	4/3/10
IJ-7	20	50068.97	23.4	34.5	51671.56	2	4/3/10
IJ-7	40	48538.11	23.5	33.2	49929.89	2	4/3/10
IJ-7	60	48450.04	23.7	33.0	49684.09	2	4/3/10
IJ-8	S	51686.69	24.0	35.3	52722.63	1	4/7/10
IJ-8	20	50472.15	23.8	34.5	51661.36	1	4/7/10
IJ-8	40	50141.73	23.8	34.2	51341.05	1	4/7/10
IJ-8	60	50247.60	23.7	34.4	51566.78	1	4/7/10
IJ-9	S	51332.04	24.1	34.9	52273.47	3	4/6/10
IJ-9	20	50347.34	23.8	34.4	51547.80	3	4/6/10
IJ-9	40	50127.36	23.5	34.4	51639.82	3	4/6/10
J1	S	47152.21	21.7	33.4	50280.41	3	4/2/10
J10	S	49668.50	23.1	34.4	51587.44	3	4/6/10
J10	20	49892.59	22.9	34.7	51995.82	3	4/6/10
J10	40	50346.73	22.8	35.1	52525.93	3	4/6/10
J11	S	50571.80	23.9	34.5	51671.29	1	4/5/10
J11	20	52018.43	25.2	34.7	51868.15	1	4/5/10
J11	40	51900.79	24.2	35.3	52694.25	1	4/5/10
J12	S	49665.31	23.9	33.8	50761.82	3	4/4/10
J12	20	50614.56	24.9	33.8	50716.25	3	4/4/10



Table B.1-1. Porewater Sampling Grid Points Raw Data (April 2010 Dry Season)

Location Name	Depth	Actual Conductance (µS)	Temp (°C)	Salinity (in PSS78)	Specific Conductance (µS/cm)	Unit	Date
J2	S	48495.26	23.3	33.3	50104.57	1	3/26/10
J2	20	43038.03	26.0	27.6	42243.54	1	3/26/10
J3	S	47387.49	20.2	34.7	52144.26	2	3/31/10
J3	20	46966.81	21.2	33.6	50614.94	2	3/31/11
J4	S	47864.88	20.4	34.9	52463.01	2	3/31/10
J4	20	45262.61	21.0	32.4	48969.22	2	3/31/10
J5	S	47771.77	21.9	33.8	50789.83	2	3/31/10
J5	20	48012.97	22.1	33.8	50826.50	2	3/31/10
J6	S	47487.44	21.9	33.5	50521.37	2	4/3/10
J6	20	48012.18	22.7	33.4	50258.32	2	4/3/10
J6	40	49642.68	22.8	34.6	51840.74	2	4/3/10
J6	60	49288.70	22.3	34.7	52009.88	2	4/3/10
J7	S	47757.63	22.6	33.2	50044.79	2	4/3/10
J7	20	48507.14	23.5	33.2	49909.20	2	4/3/10
J7	40	47993.77	23.1	33.1	49827.95	2	4/3/10
J7	60	48890.18	23.0	33.8	50802.25	2	4/3/10
J8	S	51759.66	24.0	35.3	52809.53	1	4/7/10
J9	S	51553.18	24.0	35.2	52602.34	3	4/6/10
J9	20	51407.17	24.3	34.9	52151.28	3	4/6/10
J9	40	50202.63	23.6	34.4	51627.50	3	4/6/10
J9	60	50475.02	23.0	35.1	52525.35	3	4/6/10
JK-7	S	47919.08	22.7	33.3	50143.24	2	4/3/10
JK-7	20	47365.48	23.7	32.1	48536.17	2	4/3/10
JK-7	40	48767.05	23.0	33.7	50715.13	2	4/3/10
JK-7	60	47518.61	22.9	32.8	49471.45	2	4/3/10
K7	S	52843.09	24.4	35.8	53442.81	3	4/6/10
K7	20	49967.50	23.7	34.2	51273.10	3	4/6/10
K7	40	49016.13	23.0	33.9	50988.73	3	4/6/10
K8	S	52710.96	24.7	35.5	52969.94	3	4/6/10
K8	20	51055.18	24.6	34.3	51422.00	3	4/6/10
K8	40	50749.63	24.1	34.5	51669.01	3	4/6/10
K8	60	50659.29	24.0	34.4	51598.25	3	4/6/10
K9	S	52946.82	24.2	36.1	53815.01	3	4/6/10





Table B.1-2. Porewater Sampling Areas of Ecological Interest Raw Data (April 2010 Dry Season)

Location Name	Site	Depth	Actual Conductance (µS)	Temp (°C)	Salinity (in PSS78)	Specific Conductance (µS/cm)	Unit	Date
BB1A	A	S	46059.20	21.9	32.4	48926.78	3	4/2/10
BB1A	A	20	46436.61	22.5	32.3	48791.55	3	4/2/10
BB1B	B	S	46142.36	22.0	32.4	48932.31	3	4/2/10
BB1B	B	20	46911.09	22.2	32.9	49603.49	3	4/2/10
BB2A	A	S	46816.66	23.3	32.0	48388.19	3	4/2/10
BB2A	A	20	47267.41	25.7	30.8	46643.08	3	4/2/10
BB2A	A	40	45964.42	27.3	28.9	44058.25	3	4/2/10
BB2A	A	60	49372.30	24.7	33.0	49620.28	3	4/2/10
BB2B	B	S	46779.91	23.3	32.0	48323.99	3	4/2/10
BB2B	B	20	42240.34	24.2	28.0	42887.29	3	4/2/10
BB2B	B	40	48768.52	23.5	33.4	50212.99	3	4/2/10
BB3A	A	S	45223.38	23.4	30.8	46685.14	3	3/23/10
BB3A	A	20	43031.32	23.4	29.1	44376.88	3	3/23/10
BB3A	A	40	41663.63	21.1	29.5	45059.33	3	3/23/10
BB3A	A	60	41946.83	20.9	29.8	45473.64	3	3/23/10
BB3B	B	S	45473.86	23.9	30.6	46420.74	3	3/23/10
BB3B	B	20	40228.14	21.4	28.2	43214.61	3	3/23/10
BB3B	B	40	42108.19	21.7	29.4	44956.89	3	3/23/10
BB3B	B	60	38893.95	21.4	27.1	41749.13	3	3/23/10
BB4A	A	S	50400.16	23.6	34.6	51800.08	1	4/7/10
BB4A	A	20	47971.15	23.4	32.8	49453.34	1	4/7/10
BB4A	A	40	47735.65	23.4	32.7	49255.64	1	4/7/10
BB4A	A	60	46049.39	23.4	31.4	47529.07	1	4/7/10
BB4B	B	S	50933.89	23.3	35.2	52632.45	1	4/7/10
BB4B	B	20	49434.33	23.4	34.0	51019.93	1	4/7/10
BB4B	B	40	46523.42	23.4	31.7	48018.66	1	4/7/10
BB4B	B	60	47430.42	23.2	32.6	49118.61	1	4/7/10
BB5A	A	S	47636.92	21.9	33.6	50624.73	2	3/31/10
BB5A	A	20	47656.25	22.8	33.0	49718.39	2	3/31/10
BB5A	A	40	46184.40	22.2	32.3	48807.05	2	3/31/10
BB5A	A	60	46939.71	22.6	32.6	49148.96	2	3/31/10
BB5B	B	S	47721.41	22.1	33.6	50557.58	2	3/31/10
BB5B	B	20	48047.51	22.4	33.6	50532.79	2	3/31/10
BB5B	B	40	47101.09	22.5	32.8	49486.52	2	3/31/10
BB5B	B	60	47583.73	22.6	33.1	49918.21	2	3/31/10
BB6A	A	S	46657.17	21.3	33.3	50217.08	2	3/31/10
BB6A	A	20	45736.21	22.6	31.7	47928.66	2	3/31/10
BB6A	A	40	46491.34	21.7	32.9	49650.85	2	3/31/10
BB6A	A	60	47143.42	21.6	33.4	50375.16	2	3/31/10
BB6B	B	S	47246.71	21.8	33.4	50308.44	2	3/31/10
BB6B	B	20	46143.41	22.5	32.0	48462.84	2	3/31/10
BB6B	B	40	46965.69	22.0	33.1	49864.91	2	3/31/10
BB6B	B	60	48809.42	21.9	34.6	51882.60	2	3/31/10
BB7A	A	S	48178.50	22.0	34.0	51062.41	2	3/31/10
BB7B	B	S	48156.58	22.0	34.0	51132.13	2	3/31/10
BB7B	B	20	47998.11	22.2	33.7	50699.42	2	3/31/10
BB8A	A	S	47267.30	21.8	33.4	50342.04	2	3/31/10
BB8A	A	20	47212.75	24.1	31.8	48069.21	2	3/31/10
BB8A	A	40	46132.81	23.2	31.6	47822.33	2	3/31/10
BB8A	A	60	47214.96	23.2	32.4	48941.80	2	3/31/10
BB8B	B	S	47435.03	22.6	33.0	49697.30	2	3/31/10
BB8B	B	20	50138.66	24.2	33.9	50904.60	2	3/31/10
BB8B	B	40	47480.45	22.9	32.8	49500.72	2	3/31/10
BB9A	A	S	51390.93	24.9	34.4	51534.06	1	4/5/10
BB9A	A	20	50644.09	25.1	33.7	50549.66	1	4/5/10
BB9B	B	S	51050.10	24.7	34.3	51388.93	1	4/5/10
BB9B	B	20	49933.81	24.1	33.8	50769.21	1	4/5/10
M1A	A	S	47491.86	23.8	32.2	48561.66	2	3/18/10
M1A	A	20	43622.05	22.2	30.3	46069.34	2	3/18/10



Table B.1-2. Porewater Sampling Areas of Ecological Interest Raw Data (April 2010 Dry Season)

Location Name	Site	Depth	Actual Conductance (µS)	Temp (°C)	Salinity (in PSS78)	Specific Conductance (µS/cm)	Unit	Date
M1A	A	40	43997.47	21.9	30.8	46784.64	2	3/18/10
M1A	A	60	45989.40	21.4	32.7	49372.52	2	3/18/10
M1B	B	S	46253.82	22.3	32.3	48757.42	2	3/18/10
M1B	B	20	43051.97	21.1	30.6	46553.85	2	3/18/10
M1B	B	40	43586.71	20.7	31.3	47486.45	2	3/18/10
M1B	B	60	43144.65	20.9	30.8	46788.88	2	3/18/10
M2A	A	S	48053.63	23.2	33.0	49734.75	3	4/12/10
M2A	A	20	50189.34	24.1	34.0	51053.79	3	4/12/10
M2A	A	40	48769.73	24.1	33.0	49660.34	3	4/12/10
M2A	A	60	51028.26	23.3	35.2	52705.41	3	4/12/10
M2B	B	S	48484.17	23.3	33.3	50126.06	3	4/12/10
M2B	B	20	48285.66	23.3	33.1	49881.43	3	4/12/10
M2B	B	40	45776.13	23.3	31.2	47303.52	3	4/12/10
M2B	B	60	45942.18	23.1	31.5	47643.60	3	4/12/10
M3A	A	S	52372.65	24.9	35.1	52451.52	2	4/3/10
M3A	A	20	51477.34	24.4	34.8	52032.44	2	4/3/10
M3A	A	40	54356.07	24.3	37.1	55081.02	2	4/3/10
M3A	A	60	52547.52	24.1	35.8	53438.74	2	4/3/10
M3B	B	S	52339.20	25.1	35.0	52282.71	2	4/3/10
M3B	B	20	49354.71	23.9	33.5	50380.10	2	4/3/10
M3B	B	40	52372.12	23.0	36.5	54440.22	2	4/3/10
M3B	B	60	52363.88	23.0	36.6	54470.77	2	4/3/10
M4A	A	40	44323.08	20.5	32.0	48447.00	2	3/18/10
M4A	A	60	44916.32	21.8	31.6	47837.59	2	3/18/10
M4B	B	40	45721.87	22.4	31.8	48133.30	2	3/18/10
M4B	B	60	43041.71	19.9	31.3	47652.93	2	3/18/10
M5A	A	20	50464.70	26.7	32.4	48832.60	2	3/21/10
M5A	A	40	49071.99	27.4	31.0	46941.94	2	3/21/10
M5A	A	60	46760.45	25.5	30.5	46294.07	2	3/21/10
M5B	B	S	54750.29	29.0	34.0	50830.79	1	3/21/10
M5B	B	20	47506.30	24.3	31.9	48170.04	1	3/21/10
M5B	B	40	45445.52	25.2	29.8	45297.71	1	3/21/10
M5B	B	60	46059.35	25.2	30.2	45894.77	1	3/21/10
M6A	A	20	48010.77	27.1	30.5	46168.06	1	3/21/10
M6A	A	40	45779.46	25.0	30.1	45757.93	1	3/21/10
M6A	A	60	46019.77	24.7	30.5	46305.13	1	3/21/10
M6B	B	S	46245.52	25.1	30.4	46128.28	1	3/21/10
M6B	B	20	50671.25	26.5	32.7	49250.41	1	3/21/10
M6B	B	40	45956.84	25.6	29.9	45441.59	1	3/21/10
M6B	B	60	45153.26	24.9	29.7	45249.50	1	3/21/10
M7A	A	20	44206.95	21.6	31.1	47240.77	2	3/18/10
M7A	A	40	49085.05	22.4	34.4	51620.89	2	3/18/10
M7A	A	60	53997.94	22.0	38.7	57317.26	2	3/18/10
M7B	B	20	45823.22	20.1	33.5	50583.54	2	3/18/10
M7B	B	40	49575.41	20.3	36.5	54520.54	2	3/18/10
M7B	B	60	53278.61	20.1	39.7	58785.55	2	3/18/10
M8A	A	S	53719.06	28.3	33.7	50515.43	1	3/21/10
M8A	A	20	49171.15	26.2	31.8	48030.09	1	3/21/10
M8A	A	40	49243.35	25.5	32.4	48776.07	1	3/21/10
M8A	A	60	49072.66	24.9	32.6	49132.77	1	3/21/10
M8B	B	S	48532.38	28.7	29.8	45292.61	2	3/21/10
M8B	B	20	50611.80	26.9	32.4	48811.02	2	3/21/10
M8B	B	40	51977.50	26.7	33.6	50351.17	2	3/21/10
M8B	B	60	53932.45	26.3	35.3	52625.57	2	3/21/10
M9A	A	S	50178.10	25.0	33.4	50221.25	2	3/18/10
M9A	A	20	46566.21	24.4	31.1	47068.66	2	3/18/10
M9A	A	40	47984.64	23.2	33.0	49702.74	2	3/18/10
M9A	A	60	52264.70	23.6	36.0	53662.72	2	3/18/10
M9B	B	S	50281.20	25.1	33.4	50178.81	2	3/18/10
M9B	B	20	44943.21	23.2	30.7	46545.67	2	3/18/10



Table B.1-2. Porewater Sampling Areas of Ecological Interest Raw Data (April 2010 Dry Season)

Location Name	Site	Depth	Actual Conductance (µS)	Temp (°C)	Salinity (in PSS78)	Specific Conductance (µS/cm)	Unit	Date
M9B	B	40	47734.39	24.6	31.8	48094.92	2	3/18/10
M9B	B	60	51191.51	24.6	34.4	51563.18	2	3/18/10
W1A	A	20	830.28	23.8	0.4	849.59	3	3/23/10
W1A	A	40	856.75	22.2	0.5	905.67	3	3/23/10
W1A	A	60	898.31	21.1	0.5	971.28	3	3/23/10
W1B	B	20	764.87	24.2	0.4	776.63	3	3/23/10
W1B	B	40	745.81	22.3	0.4	785.92	3	3/23/10
W1B	B	60	846.55	21.9	0.4	900.55	3	3/23/10
W2A	A	20	1024.76	20.4	0.6	1123.62	2	3/22/10
W2A	A	40	2028.54	20.9	1.1	2201.37	2	3/22/10
W2A	A	60	3777.67	21.4	2.2	4053.09	2	3/22/10
W2B	B	20	683.85	20.5	0.4	748.31	2	3/22/10
W2B	B	40	2126.07	20.7	1.2	2318.12	2	3/22/10
W2B	B	60	2484.28	20.4	1.4	2721.12	2	3/22/10
W3A	A	40	530.66	19.8	0.3	589.26	2	3/22/10
W3A	A	60	528.38	19.3	0.3	593.52	2	3/22/10
W3B	B	20	489.49	19.8	0.3	543.28	2	3/22/10
W3B	B	40	499.18	18.9	0.3	565.10	2	3/22/10
W3B	B	60	502.52	19.6	0.3	559.83	2	3/22/10
W4A	A	20	1738.69	20.2	1.0	1914.11	2	3/22/10
W4A	A	40	5855.68	20.3	3.6	6435.39	2	3/22/10
W4A	A	60	9845.94	20.2	6.2	10839.49	2	3/22/10
W4B	B	20	2939.78	21.5	1.7	3152.66	2	3/22/10
W4B	B	40	5812.27	20.5	3.5	6352.46	2	3/22/10
W4B	B	60	7609.19	20.8	4.7	8269.58	2	3/22/10
W5A	A	20	676.86	21.8	0.4	720.58	2	3/22/10
W5A	A	40	596.12	21.3	0.3	640.82	2	3/22/10
W5A	A	60	596.93	21.4	0.3	641.26	2	3/22/10
W5B	B	20	588.11	21.6	0.3	628.84	2	3/22/10
W5B	B	40	548.31	20.9	0.3	595.09	2	3/22/10
W5B	B	60	556.00	21.3	0.3	597.88	2	3/22/10
W6A	A	20	597.65	23.8	0.3	611.78	1	3/25/10
W6A	A	40	710.67	22.6	0.4	744.77	1	3/25/10
W6A	A	60	936.11	22.2	0.5	988.48	1	3/25/10
W6B	B	40	893.46	22.4	0.5	940.76	1	3/25/10
W6B	B	60	1510.39	22.5	0.8	1586.56	1	3/25/10
W7A	A	40	542.95	22.1	0.3	575.33	1	3/25/10
W7A	A	60	522.99	21.6	0.3	558.81	1	3/25/10
W7B	B	40	481.17	22.0	0.2	509.98	1	3/25/10
W7B	B	60	484.09	21.9	0.3	515.06	1	3/25/10
W8A	A	20	717.06	25.1	0.4	715.23	2	3/24/10
W8A	A	40	576.11	23.8	0.3	589.29	2	3/24/10
W8A	A	60	608.51	22.5	0.3	638.63	2	3/24/10
W8B	B	20	729.75	24.3	0.4	739.01	2	3/24/10
W8B	B	40	569.85	22.0	0.3	604.75	2	3/24/10
W8B	B	60	646.29	22.2	0.3	683.17	2	3/24/10
W9A	A	40	607.63	24.2	0.3	616.87	2	3/24/10
W9A	A	60	330.96	22.8	0.2	345.15	2	3/24/10
W9B	B	20	454.44	25.1	0.2	453.89	2	3/24/10
W9B	B	40	567.14	24.4	0.3	573.49	2	3/24/10
W9B	B	60	548.85	24.2	0.3	557.23	2	3/24/10



Table B.1-3. Porewater Sampling Grid Points (April 2010 Dry Season)

Location Name	Latitude (decimal degrees)	Longitude (decimal degrees)	Original Site	New Coordinates (decimal degrees)		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
				Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
A5	25.40817	-80.40585	Yes	25.40831	-80.40573	20.1			1012.08	1211.91	1209.04		19.2	19.5	19.1			Open sawgrass marsh w/periphyton as part of ground cover. Sparse <i>Ilex</i> noted throughout landscape.
A6	25.39688	-80.40591	No	25.39698	-80.40523	25.7			1289.57	1214.20	1182.14		21.6	21.7	21.5			<i>Eleocharis</i> , periphyton and sawgrass in open marsh. Soil is moist. Buttonwood dominant island to West. 40 cm Porewater sample has muck; no H <sub>2</sub> S odor noted.
A7	25.3856	-80.40596	No	25.38544	-80.40668	23.5			1992.45				21.4					<i>Eleocharis sp.</i> Periphyton and sawgrass dominant at the site. Eleo & sawgrass ~30 cm hgt. Buttonwood tree island to South. Off-road trail noted going E/W. Soil is moist.
A8	25.37431	-80.40602	No	25.37411	-80.4054	24.2			2229.73				20.4					Open sawgrass marsh, Buttonwood, <i>Casuarina</i> and cabbage palms noted in landscape. Periphyton noted on ground cover.
A9	25.36214	-80.40605	Yes	25.36222	-80.40604	21.3		1770	4644.57	5086.75	5004.09	18.5	20.7	21.0	20.9			Open sawgrass marsh at 0.75 m hgt. w/periphyton in ground cover. Love vine noted on sawgrass.
A10	25.35175	-80.40613	No	25.35291	-80.40684	22.9	25	713	1273.82	1644.56	1909.31	25.0	22.6	21.6	21.0			Sawgrass marsh (1.0 m) periphyton layer on surface of ground. Scattered dead trunks of <i>Casuarina</i> . Sabal palmetto to NE (~20m NE) & E (15 m). Sawgrass (1 m) marsh, flowering on E of site. Trees to E of flowering sawgrass (tree sp: <i>Myrica</i> , <i>Myrsine</i> , <i>Salix</i> , <i>Persea</i> ). Periphyton (healthy) in shallow water.
A11	25.34046	-80.40618	No	25.34072	-80.4065	21.3			24337.00	26873.67	28012.33		19.8	20.2	20.7			Soil is saturated but no standing water noted. Periphyton is thick and dominant w/ <i>Juncus sp.</i> Scrub red mangrove at 0.5 m avg. hgt. surrounding the site. <i>Conocarpus</i> stumps observed at site. H <sub>2</sub> S odor noted from 40&60cm depth porewater sample.
B2	25.44144	-80.39396	No	25.44774	-80.39375	23.7			633.11	629.63	638.51		22.8	22.3	22.1			Canopy dominated by <i>Salix</i> , <i>Ardesia</i> , <i>Ilex cassine</i> , and <i>Casuarina</i> . Understory dominated by <i>Ardesia</i> saplings & an unknown cane grass (~4 m tall)
B3	25.43445	-80.39348	Yes	25.43442	-80.39346	25.2			814.48	842.00	852.52		22.3	22.0	21.8			Site located ~30 m south of road in sawgrass prairie that has burned recently (last 1-2 months). 40&60 cm Samples had mild H <sub>2</sub> S odor, but are mostly organic. Chrynum lily resprouting at site. Some sabal palmettos & Cassurina around the site (very sparse). Layer of moist periphyton coating the ground. Sawgrass resprouting at site.



Table B.1-3. Porewater Sampling Grid Points (April 2010 Dry Season)

Location Name	Latitude (decimal degrees)	Longitude (decimal degrees)	Original Site	New Coordinates (decimal degrees)		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
				Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
B4	25.41827	-80.39339	No	25.41893	-80.39362	26.5			1570.21	1587.18			23.5	22.6			Site is open sawgrass w/periphyton as ground cover. Area recently burned estimated to have occurred 2 months ago. H <sub>2</sub> S odor in 40 cm porewater sample w/marl.	
B5	25.40811	-80.39343	No	25.40915	-80.39368	26.0			1114.42	1234.02	1196.02		23.0	22.8	22.7		Open sawgrass marsh w/thick periphyton on ground. Soil is moist. Sparse <i>Eleocharis</i> and sawgrass throughout landscape. Periphyton is dry and caked.	
B6	25.39683	-80.39349	No	25.39656	-80.39333	25.4			1169.38	1383.46			22.7	22.4			Periphyton is dry and caked. Open <i>Juncus sp.</i> marsh w/periphyton & love vine. <i>Conocarpus</i> scattered throughout landscape at 1.25 m avg. hgt.	
B7	25.3861	-80.39357	Yes	25.38614	-80.39362	27.3			1461.03	1583.03			23.8	23.9			Periphyton, sawgrass and <i>Eleocharis sp.</i> dominant. Open sawgrass marsh. Periphyton is dry and caked.	
B8	25.37419	-80.38905	No	25.37498	-80.39034	26.2			6394.21	7925.04	7960.26		21.8	21.5	22.0		Open sawgrass marsh w/scattered cattail and <i>Conocarpus</i> throughout landscape. Tree island noted to West. Strong H <sub>2</sub> S odor at 40 cm & 52 cm depths.	
B9	25.36298	-80.39365	No	25.36304	-80.39402	24.7			2740.01	2783.07			21.4	21.1			Soil is moist, but no surface water. Open marsh dominated by periphyton, sawgrass and mixed with love vine.	
B10	25.35102	-80.39371	Yes	25.35098	-80.39372	21.9	21.6	1544	14103.00	18728.00	16927.21	21.6	21.9	22.3	22.3		<i>Eleocharis</i> marsh w/some sawgrass (<10%) and scattered red mangroves. Dense Eleo (~1.0m on tail), a lot of dead standing biomass. Scattered scrub sawgrass in Eleo marsh. A lot of dead <i>Eleocharis</i> biomass (due to deciduous nature of this species).	
B11	25.34041	-80.39377															Difficult to access; site changed.	
B12	25.32913	-80.39382	No	25.33294	-80.39471	23.0			37330.00	60870.04	80188.00		22.2	22.3	22.4		Site is scrub red mangrove area w/mangroves at avg. 0.5 m hgt. Moist soil found. Mangrove water snake noted at site (2 photos). 40 cm Porewater sample has strong H <sub>2</sub> S odor.	
B13	25.31784	-80.39388															Difficult to access; site changed.	
C2	25.4427	-80.37914	Yes	25.44273	-80.37917	28.8			2207.60	2607.69	2401.55		23.0	21.8	23.1		Herbaceous dominated by dense sawgrass. Canopy does not exceed 2.5 m, but <i>Salix</i> & Brazilian Pepper are present. Soil moist but not saturated. Some tall perseas East of the site. <i>Ardesia</i> & <i>Baccharis</i> also present around the site.	





Table B.1-3. Porewater Sampling Grid Points (April 2010 Dry Season)

Location Name	Latitude (decimal degrees)	Longitude (decimal degrees)	Original Site	New Coordinates (decimal degrees)		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
				Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
C3	25.43442	-80.38147	Yes	25.43442	-80.38146	24.5			2428.24	2727.41	3328.93		24.3	22.1	22.3			Site located ~50 m south of the road. Located in sawgrass prairie that has been burned in the last 1-2 months. Dead tree snags and some sparse Cassurina surround the site. Moist layer of periphyton covering the ground. Sawgrass resprouting at site.
C4	25.41935	-80.38095	No	25.41934	-80.38079	22.7			2492.34	2531.51	2369.91		21.1	20.4	20.4			Site is sawgrass marsh w/periphyton on ground surface. Fire recently burned through ~1-2 months ago. Burned tree islands noted throughout the landscape. Strong H <sub>2</sub> S odor at 60.0 cm.
C5	25.40775	-80.37728	Yes	25.40774	-80.37735	23.0			1484.09	2073.58	2933.04		21.2	20.9	21.1			Sawgrass marsh composed mostly of periphyton and love vine. Periphyton is dry. Scattered scrub <i>Conocarpus</i> and scrub red mangrove noted throughout the landscape. Area is less dense w/more dead vegetation than other sites.
C6	25.39667	-80.37795	No	25.39666	-80.37778	24.8			884.85	1184.70	1494.12		22.6	22.2	21.6			Site is sawgrass marsh w/dry periphyton on ground. Site has love vine growing over sawgrass. Dead tree stumps noted in landscape. Sawgrass at 0.25 m tall. Cattail patch noted to the N 25 m away. Tree island noted to South.
C7	25.3855	-80.38112	No	25.38549	-80.38023	26.0			853.79	1026.00			23.8	22.9				Sawgrass marsh w/periphyton on the ground. Tree islands dot the surrounding area.
C8	25.37392	-80.37918	No	25.3748	-80.37942	27.2			1293.18	1139.93	1552.37		23.7	23.4	24.6			Sawgrass marsh w/periphyton as ground cover. Soil is moist. Love vine growing in sawgrass. PVC pole installed in ground 10 m to E. Periphyton dry and caked.
C9	25.36283	-80.37953	No	25.36273	-80.3794	27.1			1255.05				24.4					Soil is moist. Sawgrass marsh w/periphyton. Tree island to South.
C10	25.35112	-80.38033	No	25.35088	-80.38035	19.5			66366.82	68522.81	76783.31		20.7	21.0	20.9			No surface water. Scrub black mangrove (0.3 m) sparse. Two airboat trails N of site. Meteorological station ~50 m N of site. Sediment depth ~60 cm. Sparse black mangroves 30-60 cm tall. <i>Eleocharis</i> sp. w/in 30 m off the pad.
C11	25.34036	-80.38135																Difficult to access; site changed.
C12	25.32908	-80.38141																Difficult to access; site changed.
C13	25.31779	-80.38146																Difficult to access; site changed.





Table B.1-3. Porewater Sampling Grid Points (April 2010 Dry Season)

Location Name	Latitude (decimal degrees)	Longitude (decimal degrees)	Original Site	New Coordinates (decimal degrees)		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
				Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
C14	25.30687	-80.378	No	25.30668	-80.37738	24.8				53340.52	59802.61				23.6	23.8	Site adjacent to large black mangrove in an otherwise homogenous red mangrove forest (8 m tall on average). Fungus growing on many of the red mangroves. Samples smelled of H <sub>2</sub> S. 60 cm Sample distinct reddish tint; 40 cm sample was light- yellow/amber color. No water at 20 cm.	
D2	25.44186	-80.36841	No	25.44202	-80.3683	26.9	22.4	540	714.48	1007.83	1149.79	22.4	21.0	21.3	21.6			Site is cattail sp. & sawgrass marsh. <i>Conocarpus</i> and <i>Myrica</i> trees noted sparsely throughout landscape. Cattail & tree height ~2 m avg. hgt.
D3	25.43058	-80.36846	Yes	25.43057	-80.36845	20.9		1081	3064.86	3452.59	3496.42	20.7	19.8	20.2	20.1			Dead buttonwood snags surround the site. Sawgrass dominates understory. Periphyton covering the ground. Site located in a sawgrass prairie that was burned fairly recently.
D4	25.41929	-80.36852	Yes	25.4194	-80.36849	24.3			1573.72	2322.96	2728.67		21.8	21.1	21.0			Site is sawgrass marsh w/scrub red mangrove scattered throughout the landscape. Periphyton on the ground surface is dry and caked.
D5	25.40801	-80.36858	No	25.40821	-80.36852	23.4			1057.84	1209.47	1498.07		21.2	20.6	20.4			Sawgrass marsh w/burned tree islands throughout landscape. Area recently burned (1-2 months past). Sawgrass at 0.25 m avg. hgt. Periphyton noted on ground surface.
D6	25.39673	-80.36864	Yes	25.39669	-80.36867	26.0				1135.39	1611.11			24.1	23.4			Site is sawgrass marsh with dry periphyton and love vine. Soil is moist. Cabbage palm, Cocoplum and Buttonwood scattered throughout landscape at 1.25 m. Sawgrass hgt. avg. of 1.0m. Love vine growing over shrubs as well. Porewater samples have marl.
D7	25.38544	-80.3687	No	25.38577	-80.36903	21.5			2944.97	3179.69	3151.37		20.5	20.3	19.8			No surface standing water but soil still moist. Covered by periphyton. Tree islands in vicinity of this sawgrass marsh in all directions. Rabbit scat observed on trail to site. <i>Cassytha</i> observed on sawgrass (~1m tall). Periphyton still moist.



Table B.1-3. Porewater Sampling Grid Points (April 2010 Dry Season)

Location Name	Latitude (decimal degrees)	Longitude (decimal degrees)	Original Site	New Coordinates (decimal degrees)		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
				Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
D8	25.37416	-80.36876	No	25.37411	-80.37009	23.7			2695.00	3145.80	3111.00		21.5	21.1	21.6			No surface water but soil is moist. 0.75 m Sawgrass marsh. Tree island located around. Nearest location is island SE ~80 m (dead <i>Casuarina</i> stumps, <i>Rhizophora</i> , <i>Myrica</i> , Sabal palmetto). Sawgrass marsh w/scattered <i>Rhizophora</i> (~0.75 m) & <i>Conocarpus</i> (~.75 m). Marsh (~0.75 m) has no standing water w/periphyton on surface (still moist). <i>Cassytha</i> observed on vegetation (sometimes quite dense).
D9	25.36288	-80.36882	Yes	25.36285	-80.36874	24.3			2235.27	4027.05			23.7	23.1				Site is an open patch of sawgrass marsh. Soil is moist w/periphyton dry and cracked. Strong H <sub>2</sub> S odor in 40 cm sample.
D10	25.35159	-80.36887	Yes	25.35162	-80.3689	19.4			57798.35	57973.94			20.5	24.2				No surface water. Reddish inorganic sediment. Scrub red & black mangroves ~0.5 m tall. Sediment is marl w/crust over surface. Indication of hypersaline forest. Scrub red & black mangroves ~0.5 m tall. Some <i>Distichlis</i> . Few 3-4 m tall black mangroves in distance.
D11	25.34031	-80.36893																Difficult to access; site changed.
D12	25.33076	-80.36896																Difficult to access; site changed.
D13	25.31774	-80.36905	Yes	25.31795	-80.36915	25.5	22.5	43747	50354.23	50928.72	49043.11	22.5	23.5	23.6	23.6	22.3	43879.00	Samples had H <sub>2</sub> S odor. Dense <i>Thalassia</i> bed. One large fish or mammal was predating near the site. Jellyfish observed near the site.
D14	25.30646	-80.36911	Yes	25.30653	-80.36921	25.7	22.5	42941				22.5				22.4	43007.00	Immediate sampling area has moderate <i>Dasycladus</i> and drift algae coverage, w/some <i>Acetabularia</i> . Gorgonian scattered throughout the area. Coarse sand and shell hash substrate.
D15	25.29517	-80.36917	Yes	25.29539	-80.36945	24.9	23.3	45540	43983.10	44015.60	46447.16	23.3	23.4	23.5	23.2	23.2	45591.00	Samples smell of H <sub>2</sub> S. Dense <i>Thalassia</i> bed. Silty/sandy substrate.
E1-2	25.44795	-80.35599	No	25.44765	-80.35655	23.1	22.0	420	1408.12	1445.81	1342.55	22.0	23.0	22.6	22.6			Sawgrass prairie w/ <i>Casuarina</i> trees scattered in it. <i>Casuarina</i> - 4 m tall; sawgrass - 1.5 m tall.
E2	25.44181	-80.35598	No	25.44152	-80.35609	22.5			1288.71	1677.03	1778.91		22.7	21.4	20.9			Site is sawgrass marsh w/dry periphyton. Cocoplum saplings. Cattail and <i>Casuarina</i> dotted throughout the landscape. Marl noted in 20-40-60 cm samples.
E3	25.43052	-80.35604	Yes	25.43055	-80.35611	22.6			1336.34	1670.43	1996.54		21.0	20.8	21.7			No canopy. Understory composed exclusively of sawgrass. A few scattered scrub red mangroves located E of site. Porewater is cloudy.



Table B.1-3. Porewater Sampling Grid Points (April 2010 Dry Season)

Location Name	Latitude (decimal degrees)	Longitude (decimal degrees)	Original Site	New Coordinates (decimal degrees)		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
				Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
E4	25.41924	-80.3561	No	25.41999	-80.35673	21.6			4778.35	6975.00	6926.00		21.0	21.1	20.8			No surface water. Scattered scrub red mangroves (~1 m) to E. Sawgrass (1m) marsh w/ <i>Cassyth</i> a growing on plants near levee.
E10	25.35154	-80.35646	Yes	25.35155	-80.35648	20.1			51547.08	59372.48	65063.02		21.5	20.7	20.8			Minimal litter, substrate is marl. Low canopy (0.5m) of sparse red mangroves. 3 Tree islands of taller mangroves w/in 100 m radius. Scrub red mangroves, some <i>Distichlis spicata</i> . Scattered black mangroves. 4 H <sub>2</sub> S 0&60 cm samples smell strongly of H <sub>2</sub> S.
E11	25.34025	-80.35652	Yes	25.34029	-80.35651	26.6			48281.89	58232.27	72867.20		26.7	25.2	24.8			Site located in area of scrub red mangroves w/sparse black mangroves intermixed. Substrate is very soft, moist marl. Several small tree islands surround the site w/in a 40 ft radius; predominantly composed of red mangroves.
E12	25.32897	-80.35658	No	25.32907	-80.35668	26.3	24.9	44596	47979.29	52136.53	55705.43	24.9	25.2	24.4	24.0			Semi-open area within a red mangrove stand ~ 4 m canopy. Samples smelled of H <sub>2</sub> S. Red mangroves, very small fishes, and silty bottom with sparse leaf litter.
E13	25.31769	-80.35664	Yes	25.31777	-80.35654	26.9		45666	48073.71	51006.71	44834.08	24.6	24.7	25.2	24.8	24.5	45678.00	Substrate silt/sand w/thick <i>Thalassia</i> bed.
E14	25.3064	-80.3567	Yes	25.30646	-80.35646	26.4	22.6	44811	44948.71	50240.66	50797.68	22.6	25.2	22.2	23.7	23.1	44616.00	Samples smell of H <sub>2</sub> S. Moderate <i>Thalassia</i> coverage. 2 jellyfish ( <i>Ctenaphor</i> ) drifting in the water column.
E15	25.29512	-80.35676	Yes	25.29509	-80.35673	24.6	23.2	47378	42898.14	48146.16	50661.26	23.2	23.4	23.5	23.3	23.2	47995.00	All samples smell of H <sub>2</sub> S. Sparse <i>Thalassia</i> and <i>Syringodium</i> . Silty substrate. Brown algae and drift algae present.
F1-2	25.44794	-80.34612	No	25.4478	-80.34634	23.6		9849	29285.13	28182.04	21899.18	24.3	24.4	24.2	23.7			Scrub red mangrove ~ 1 m tall. Several dead white mangrove snags ~ 2 m tall. Marl substrate.
F2	25.44175	-80.34355	Yes	25.44176	-80.34356	26.8	25.5	2312	6679.11	7874.90	10155.02	25.5	23.2	23.6	24.0			Ground covered w/periphyton (1cm thick). Site located in patch of <i>Juncus</i> w/intermixed sawgrass and sparse scrub red mangroves. Samples have distinct H <sub>2</sub> S odor. Patch of <i>Chara</i> near the site.
F2-3	25.43586	-80.34329	No	25.43587	-80.34402	24.8	26.0	2411	7162.53	8409.00	16034.00	26.0	23.8	23.8	24.1			Samples smelled organic and looked like chocolate milk. Scrub red mangroves ~ 1.5 m tall. Small bunches of sawgrass present ~ 0.5 m tall scattered between. mangroves. Several dead snags noted. Marl substrate that has been dry in recent past (exhibiting cracks).



Table B.1-3. Porewater Sampling Grid Points (April 2010 Dry Season)

Location Name	Latitude (decimal degrees)	Longitude (decimal degrees)	Original Site	New Coordinates (decimal degrees)		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
				Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
F10	25.35173	-80.34458	Yes	25.35174	-80.3446	18.4			9965.25	13638.00	16543.69		21.1	21.1	21.3			Canopy dominants on tree island is Black mangroves ( <i>Avicennia germinans</i> ). Water level was higher recently (~1 mo. ago). Soil saturated. Red mangrove-sawgrass mix (~1.25 m avg. hgt.). <i>Cassytha filiformis</i> (on mangroves). Periphyton (brown w/green lower layer) layer 2 cm thick.
F11	25.3402	-80.3441	No	25.34045	-80.3459	24.1			47254.91	50146.00	57215.28		24.9	24.9	24.5			Located in a scrub red mangrove surrounded by tree islands. Substrate is very soft. Tree islands are w/in a 150 m radius of the site.
F12	25.32892	-80.34416	No	25.32921	-80.34426	25.4			50431.00	54111.43	58392.05		25.2	23.9	24.1			Soil saturated, mangrove peat. Red mangrove forest approximately 8m tall. 20m from fringe. Nonspecific canopy. 40 and 60 cm samples have strong H <sub>2</sub> S odor.
F13	25.31763	-80.34422	Yes	25.31779	-80.34412	25.2	23.7	49729	48822.74			23.7	23.6			23.5	49931.00	Sample smelled of H <sub>2</sub> S. Moderate to dense <i>Thalassia</i> w/ some <i>Syringodium</i> mixed in. Sparse <i>Dasycladus</i> , <i>Penicillis</i> , and green algae that looks like a lily pad ( <i>Acetabularia</i> ). Substrate sandy/silty.
F14	25.30635	-80.34428	Yes	25.30638	-80.34386	27.1		46931	47148.70	42113.12	49191.76	22.9	25.2	23.6	23.9	22.9	46960.00	Samples smell of H <sub>2</sub> S. 40 cm Sample contained sediment. Moderate <i>Thalassia</i> coverage w/heavy drift algae. Some <i>Dasycladus</i> present. Sandy shell hash substrate.
F15	25.29506	-80.34434	Yes	25.29508	-80.34409	23.3	22.9	48035	41314.93	42436.04	46911.98	22.9	23.3	22.7	22.8	22.9	48074.00	Sampled 4/6/10 (In the field). Second visit to site to confirm readings from first attempt. A lot of sediment in samples (photos taken and samples collected for measurement later). Sparse to moderate <i>Thalassia</i> . Some brown algae and calcareous algae. Silty substrate.
F15	25.29506	-80.34434	Yes	25.29508	-80.34409	23.3	22.9		48563.30	50653.90	51097.41		23.6	23.2	23.6			Sampled 4/6/10 after settling
F15	25.29506	-80.34434	Yes	25.29507	80.34411	25.1	23.0	47759	44043.00	40790.00	42858.00	23.0	23.1	23.1	22.4	22.9	47781.00	Sampled 4/5/10 (In the field). All samples had a lot of very fine sediment and smelled of H <sub>2</sub> S. Sparse <i>Thalassia</i> . Coarse sand shell hash substrate. Some brown algae and drift algae.
FG11	25.33866	-80.33828	No	25.33909	-80.33791	26.9			54882.00	61765.00	62057.00		26.8	26.2	24.6			Samples were amber-colored w/some red peat in the 20 cm sample. Smelled of H <sub>2</sub> S and organic matter. Thick scrub red mangrove (~1-1.5 m tall) stand. Some Australian Pines ~60 m SE of point (8 m tall). Rabbit poop near sampling area.



Table B.1-3. Porewater Sampling Grid Points (April 2010 Dry Season)

Location Name	Latitude (decimal degrees)	Longitude (decimal degrees)	Original Site	New Coordinates (decimal degrees)		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
				Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
FG12	25.32869	-80.33807	Yes	25.32886	-80.33829	24.7	23.6	50323				23.6				23.5	50399.00	<i>Porites</i> noted in the area (one large specimen bigger than a basketball). Open sandy patch. Sparse brown algae, <i>Penicillus</i> , calcareous algae. Several Gorgonians noted.
G1	25. 45278	-80.33113	Yes	25.45279	-80.33071	25.7	23.3	45573	46146.90	48281.00		23.3	23.5	23.8		23.3	45651.00	Samples smell of H <sub>2</sub> S. Moderate <i>Thalassia</i> w/extensive drift algae coverage. Some red algae noted.
G1-2	25.44777	-80.813	No	25.44763	-80.33798	24.9	24.5	15888	50134.58	52316.57	54099.55	24.5	25.1	24.4	24.4			All samples smelled of H <sub>2</sub> S. Chunks of peat in 40 cm sample. Scrub red mangrove ~ 1 m tall (thick). Several dead white mangrove snags. Dark veination on underside of some red mangrove leaves.
G2	25.4417	-80.33112	Yes	25.44175	-80.33123	18.9			45659.47	45485.33	50325.00		22.9	20.9	20.3			Site located along a tidal creek in a tall patch of red mangroves ~6 cm tall. Site located ~2 cm East of tidal creek. Ground is covered in crab holes.
G2-3	25.43531	-80.33552	Yes	25.43531	-80.33552	23.7	24.1	3937	20187.13	21649.24	22502.54	24.1	24.1	24.0	25.1			Scrub red mangroves. Marl substrate. Some minor frost damage on mangroves. <i>Distichles spicata</i> sparse btwn. Scrub mangroves. Sparse white mangroves also present.
G4	25.41827	-80.33087	No	25.4184	-80.33075	27.4			47452.00	47209.11	48164.08		25.8	23.9	23.2			Mangrove area is thick w/red and white mangroves of 2 m tall avg. Soil is saturated and algae growing around prop roots. Leaf litter noted on the ground.
G5	25.40785	-80.33131	No	25.40792	-80.33076		30.1	50840	45912.01	42825.98	48095.45	30.1	26.9	27.1	26.2			Located just south of a tidal creek. Located in scrub red mangroves ~1 m tall. To immediate N the red mangroves are ~4 m tall & very thick.
G6	25.39656	-80.33137	Yes	25.39639	-80.33089	26.1	29.1	47172	39284.42	52433.01	51968.00	29.1	25.7	26.7	28.3			Site is on small raised ridge of scrub red mangroves possibly part of an old tidal system. On path to site, encountered an orange/red snake floating in the water. Strong H <sub>2</sub> S odor noted in sample. Peat observed in sample at 40cm depth.
G7	25.38528	-80.33144	No	25.38529	-80.33089	22.5			49945.02	55197.00	59635.43		23.3	23.8	23.7			Dense scrub red mangrove at apporoximately 0.70 m height.
G8	25.37399	-80.3315	No	25.37397	-80.33097	20.2	25.2	51231	48486.00	50556.39	50103.00	25.1	23.3	23.9	23.6			Scrub red mangroves have 10% chlorosis.
G9	25.36271	-80.33156	No	25.36279	-80.33158	24.3			48092.00	49766.00	54550.07		22.6	22.0	22.5			Sparse scrub red mangrove in site approximately 60 cm tall.



Table B.1-3. Porewater Sampling Grid Points (April 2010 Dry Season)

Location Name	Latitude (decimal degrees)	Longitude (decimal degrees)	Original Site	New Coordinates (decimal degrees)		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
				Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
G9-10			No	25.35637	-80.32761	25.5			56558.00	58259.00	60002.00		26.3	24.1	23.5			Samples smelled organic but very stinky - not H <sub>2</sub> S. Samples amber-colored. Red and black mangrove stand 2/several old large black mangroves. Fungus growing on many red mangroves. Black mangrove pneumataphores cover the ground. Change in canopy height NW of poing (trees get shorter).
G10	25.35143	-80.33162	No	25.35511	-80.33216	25.7			47103.29	50225.66	51779.00		23.1	23.1	22.5			Site is scrub red mangrove basin w/red mangroves ~0.5 m. Sparse throughout landscape. Tree island noted ~100 m to West. Strong H <sub>2</sub> S odor in all porewater samples.
G11	25.34014	-80.33168	Yes	25.34005	-80.33163	24.9	23.8	50718				23.8				23.7	50812.00	Coarse sandy substrate. Several Gorgonians noted. Sparse <i>Thalassia</i> . Some brown algae, <i>Acetabularia</i> , <i>Penicillus</i> .
G12	25.32886	-80.33175	Yes	25.32882	-80.33176	24.3	23.6	50861				23.6				23.5	51045.00	Several small <i>Porites</i> , w/one large one outside of the sampling area. Coarse sand substrate. Some <i>Acetabularia</i> , brown algae, <i>Penicillus</i> .
G13	25.31758	-80.33181	Yes	25.31773	-80.3316	25.3	23.3	49734				23.3				23.2	49757.00	Sparse <i>Thalassia</i> - mostly bare bottom. Coarse sand substrate.
G14	25.30629	-80.33187	Yes	25.30618	-80.3319	27.1	23.2	46449	47816.00	47196.75		23.2	26.5	24.9		23.0	44918.00	Healthy piece of <i>Porites</i> observed at site (approx. basketball sized). Sparse <i>Thalassia</i> ; sparse to moderate drift algae. <i>Porites</i> located in open sandy areas.
G15	25.29501	-80.33193	Yes	25.29517	-80.33185	23.4	23.2	47118	45046.18	46239.19	49924.49	23.2	23.1	22.9	23.0	23.0	46991.00	Samples smelled of H <sub>2</sub> S. Moderate <i>Thalassia</i> and <i>Syringodium</i> . Some brown algae and drift algae. Several <i>Ctenaphors</i> noted around the site. Silty substrate.
GH1	25.45278	-80.32499	Yes	25.45267	-80.325	24.7	22.9	47330	47421.56			22.9	23.4			22.7	47604.00	Smells of H <sub>2</sub> S. Sparse drift and green algae. Coarse sand shell hash.
GH2	25.44152	-80.32497	Yes	25.4415	-80.32481	26.9	23.4	42573	46059.07			23.4	25.5			23.9	48666.00	Bare rock substrate is visible from boat w/scattered patches of seagrass ( <i>Thalassia</i> ).
GH3	25.4303	-80.32497	Yes	25.43029	-80.32495	20.5	22.8	50958	47622.24	45803.79	50010.20	22.8	22.4	21.5	21.2	22.9	50843.00	All three samples had strong H <sub>2</sub> S odor. <i>Thalassia</i> & drift algae present at site. Sediment was mostly silt w/some sand.
GH4 (3/27/10)	25.41895	-80.32497	Yes	25.41899	-80.32485	22.7	23.1	51086	48331.04	49701.75	49235.16	23.1	22.8	22.7	23.2	23.3	50972.00	Samples had H <sub>2</sub> S odor. Sparse <i>Thalassia</i> & brown algae on Sandy, silty substrate w/some shell hash.





Table B.1-3. Porewater Sampling Grid Points (April 2010 Dry Season)

Location Name	Latitude (decimal degrees)	Longitude (decimal degrees)	Original Site	New Coordinates (decimal degrees)		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
				Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
GH5	25.40767	-80.32497	Yes	25.40776	-80.32504	25.4	24.0	50874	50225.07	50052.59	47219.39	24.0	25.3	24.9	25.8	23.8	51050.00	Samples were difficult to retrieve b/c of very fine sediment. Samples had H <sub>2</sub> S odor. Sparse <i>Thalassia</i> w/some brown algae & drift algae (mostly dead). Sandy/silty substrate w/some shell hash.
GH6	25.39645	-80.32497	Yes	25.39646	-80.32489	28.4	25.0	50475	50394.48	50195.00	49255.06	25.0	26.3	27.0	27.3	24.9	50675.00	Samples smelled of H <sub>2</sub> S. Moderate <i>Thalassia</i> coverage w/some brown algae. Substrate sandy/silty w/shell hash.
GH7	25.38516	-80.32497																Difficult to access; site changed.
GH8			Yes	25.3739	-80.32498	20.3	24.2	50919	50456.73	52298.93	55663.37	24.2	22.9	22.8	22.8			Samples smell of H <sub>2</sub> S. Scrub red mangrove area ~ 1.5 m tall. Numerous crab holes around site. Sparse <i>Dasycladus</i> . Marl substrate.
GH10	25.35131	-80.32497	Yes	25.35136	-80.325	24.2	23.7	51410				23.7				23.7	51492.00	Coarse sand substrate. Drift algae, <i>Penicillus</i> , and <i>Dasycladus</i> noted. Two Gorgonians observed.
GH11	25.33997	-80.32497	Yes	25.33983	-80.32497	25.9	23.6	51400				23.6				23.5	51501.00	Coarse sand w/shell hash substrate. Several small Gorgonians. Some <i>Acetabullaria</i> , <i>Penicillus</i> .
GH12	25.32869	-80.32497	Yes	25.32858	-80.3249	24.9	23.6	50392				23.6				23.4	50606.00	Sparse <i>Thalassia</i> w/brown algae. Several <i>Porites</i> noted. Sparse <i>Syringodium</i> . Some <i>Caulerpa</i> .
H1	25.45278	-80.31858	Yes	25.45261	-80.31851	24.9	22.5	48262				22.5				22.4	48420.00	Sparse drift algae and green algae. Mostly open bottom - coarse sand shell hash.
H2	25.44272	-80.3195	Yes	25.44266	-80.3195	27.7		49090				23.7				23.5	49331.00	No vegetation. Algae (brown) & some Calcareous algae observed. Sparse coverage.
H3	25.43035	-80.31876	Yes	25.43029	80.31888	22.3		51020				22.7				22.7	51976.00	Substrate is sandy w/shell hash. Some algae ( <i>Dasycladis</i> spp) is present at the site but is very sparse.
H4	25.41907	-80.31882	Yes	25.41909	-80.31868	24.3	23.3	50637	50043.23			23.3	24.3			23.1	50808.00	Very sparse <i>Thalassia</i> & brown algae. Sand/silt substrate w/some shell hash. H <sub>2</sub> S odor in sample.
H5	25.40779	-80.31889	Yes	25.40778	-80.31901	25.9	23.9	51038	52085.40			23.9	24.9			24.2	50740.00	Sample smelled of H <sub>2</sub> S. Sparse <i>Thalassia</i> , brown algae, mermaid's hairbrush observed. Substrate sandy w/shell hash.
H6	25.3965	-80.31895	Yes	25.39652	-80.31899	29.1	25.2	50495	50110.27	49204.61		25.2	25.8	27.0		25.1	50786.00	Samples had H <sup>2</sup> S odor. Moderate <i>Thalassia</i> on silty substrate.



Table B.1-3. Porewater Sampling Grid Points (April 2010 Dry Season)

Location Name	Latitude (decimal degrees)	Longitude (decimal degrees)	Original Site	New Coordinates (decimal degrees)		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
				Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
H7	25.38522	-80.31901	No	25.38804	-80.31693	23.3	24.9	51905	51411.00		54260.00	24.9	24.2		23.3			Nuse shark spotted near site while anchoring the boat (4-5 ft long). Red and black mangroves dominant in canopy (~3 m tall). Garbage scattered around site. Soil very compacted.
H8	25.37394	-80.31908	No-replaced by GH8															Difficult to access; site changed.
H9	25.36265	-80.31914	No	25.36946	-80.31925	27.8				84145.00	86963.34				24.5	24.1		Basin mangrove forest ~12 m tall. Forest dominated by black mangroves w/a few red mangroves & scattered white mangroves. Open understory. A lot of garbage scattered around.
H10	25.35137	-80.3192	Yes	25.35147	-80.31927	24.4	23.4	52134	50398.15			23.4	23.0			23.3	52191.00	Sample smelled of H <sub>2</sub> S. Sparse <i>Thalassia</i> . Some brown algae, <i>Penicillus</i> , <i>Acetabularia</i> , calcareous algae. Coarse sand substrate.
H11	25.34009	-80.31927	Yes	25.34013	-80.3194	25.0	23.6	51217	50300.10			23.6	24.9			23.5	51441.00	Samples smell faintly of H <sub>2</sub> S. Sparse to moderate <i>Thalassia</i> . Coarse sandy substrate. Some <i>Penicillus</i> and brown algae.
H12	25.3288	-80.31933	Yes	25.32902	-80.31972	23.8	23.5	49675	50434.29			23.5	23.8			24.2	49458.00	Sample smelled faintly of H <sub>2</sub> S. Coarse sand substrate. Sparse <i>Thalassia</i> w/some brown algae. Scattered <i>Penicillus</i> and sponges.
H13	25.31752	-80.31939	Yes	25.31767	-80.31955	25.0	23.1	48617	49456.19	50360.06		23.1	23.8	23.4		23.0	49671.00	Samples smell of H <sub>2</sub> S. Sparse <i>Thalassia</i> w/moderate brown algae. Silty/sand substrate.
H14	25.30624	-80.31946	Yes	25.30644	-80.31927	23.5	23.0	47581	47156.38	48631.44		23.0	23.3	23.2		23.0	48062.00	Samples smelled faintly of H <sub>2</sub> S. Sparse <i>Thalassia</i> , mostly bare bottom. Some <i>Syringodium</i> , <i>Penicillus</i> (green algae), and <i>Caulerpa</i> . Silty substrate, especially in top 20 cm. Several pinfish noted.
HI1	25.45278	-80.31253	Yes	25.45271	-80.31268	23.9	22.4	48584				22.4				22.1	48960.00	Coarse sand and shell hash substrate. Drift algae present, as well as a few Gorgonian.
HI2	25.44152	-80.31256	Yes	25.44141	-80.31226	26.7	23.3	50202				23.3				23.2	50173.00	No seagrass. Sparse brown algae.
HI3	25.4303	-80.31256	Yes	25.43035	-80.31245	28.3	25.1	49992				25.1				24.8	50281.00	Sparse <i>Thalassia</i> & various green algae. Substrate sandy w/shell hash. Some sponges also observed at site. Drift algae also noted.
HI4	25.41895	-80.31256	Yes	25.41883	-80.31248	31.0	24.8	50813	50414.53			24.8	26.7			24.6	51015.00	Sparse <i>Thalassia</i> & various green algae. Substrate sandy w/shell hash.
HI5	25.40767	-80.31256	Yes	25.40765	-80.31246	29.3	25.1	50588				25.1				25.1	50621.00	Sand & shell hash substrate. <i>Dasycladus</i> & <i>Thalassia</i> both sparse observed at site. Fan corals observed between HI6 & HI5 as well as a possible baby hammerhead shark.



Table B.1-3. Porewater Sampling Grid Points (April 2010 Dry Season)

Location Name	Latitude (decimal degrees)	Longitude (decimal degrees)	Original Site	New Coordinates (decimal degrees)		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
				Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
HI6	25.39645	-80.31256	Yes	25.39643	-80.31249	30.8	25.0	50839	50966.86	53392.89	54652.01	25.0	26.6	25.6	25.3	25.0	50850.00	Samples had H <sub>2</sub> S odor. <i>Thalassia</i> (moderate), unknown algae observed at site. Substrate silty w/some shell hash.
HI7	25.38516	-80.31256	No	25.38605	-80.31245	25.0	24.7	51352	50565.13	51510.21	50852.00	24.7	25.6	25.1	24.6	24.7	51106.00	Moderate to dense <i>Thalassia</i> . Silty substrate. 20 m north of established red mangrove stand. Several propagules around the site.
HI8	25.37382	-80.31256	No	25.37202	-80.31137	25.6			58465.27	55261.80	55770.32		26.1	24.3	23.5			Samples were amber-colored . Smelled organic, but very stinky - not H <sub>2</sub> S. In an open red mangrove-dominated area, with black mangroves mixed in. Most black mangroves are larger than the red mangroves. Black mangrove pneumatophores cover the ground. Scattered garbage. Shoreline covered w/dead coral (coral rubble) and some <i>Salicornia</i> .
HI9	25.36254	-80.31256	Yes	25.36262	-80.31252	24.6	23.9	51848				23.9				23.8	50828.00	Round metal structure w/corals and <i>Condylactis</i> (anemone) growing on it (looks like a hub cap). Coarse sand and shell hash w/coral rubble. Several sponges and Gorgonians present.
HI10	25.35131	-80.31256	Yes	25.35138	-80.3126	23.9	23.3	52168	52435.59			23.3	22.6			23.3	52556.00	Sample smelled of H <sub>2</sub> S. Sparse <i>Thalassia</i> . Some brown algae, <i>Acetabularia</i> . Several open sandy areas noted.
HI11	25.33997	-80.31256	Yes	25.33997	-80.31252	25.5	23.8	51091				23.8				23.7	51208.00	Several Gorgonians. Some drift algae, <i>Penicillus</i> , <i>Acetabularia</i> . Coarse sand substrate. Several sponges.
I1	25.45523	-80.30835	Yes	25.45527	-80.30839	23.9	22.0	49092	48827.00	47820.60		22.0	23.4	22.5		21.9	49233.00	Smell of H <sub>2</sub> S. Very sparse <i>Thalassia</i> , drift algae, calcareous algae. A few scattered sponges. Mostly open bottom - coarse sand substrate.
I2	25.44158	-80.30627	Yes	25.44160	80.30638	27.8	23.3	49303				23.3				23.3	49475.00	Soft coral (Gorgonian) and algae on bottom. Sand/silt substrate.
I3	25.4303	-80.30634	Yes	25.43034	-80.3063	17.7	20.2	50723				20.2				20.3	50471.00	Moderate drift algae. Gorgonian soft coral observed at site. Very sparse <i>Thalassia</i> . Sandy shell hash substrate.
I4	25.41901	-80.3064	Yes	25.41915	80.30628	20.9	20.9	49265				20.9				20.9	49541.00	Several large patches of drift algae. Moderate <i>Dasycladus</i> coverage. Several small Gorgonians observed. Very sparse <i>Thalassia</i> .
I5	25.40773	-80.30646	Yes	25.40781	-80.30645	25.5	22.0	50162	49681.39	49088.23		22.0	23.7	22.8		21.8	50396.00	Sparse <i>Thalassia</i> , <i>Dasycladus</i> , and other green algae. Sandy shell hash substrate.



Table B.1-3. Porewater Sampling Grid Points (April 2010 Dry Season)

Location Name	Latitude (decimal degrees)	Longitude (decimal degrees)	Original Site	New Coordinates (decimal degrees)		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
				Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
I6	25.39645	-80.30653	Yes	25.39635	-80.3065	28.1	24.4	50847								24.2	50976.00	Coarse sand and shell hash. A few sponges present. Sparse <i>Dasycladis</i> and <i>Thalassia</i> . Mostly bare bottom.
I7	25.38516	-80.30659	No	25.3852	-80.30656	25.3			51901.82	51437.34	54878.55		24.1	23.2	25.0			Samples smell of H <sub>2</sub> S. Scattered garbage around the site (including 50 gallong barrel). Mostly red mangrove stand w/intermixed black mangroves. Tide is noticeably rising. A lot of dead old mangroves in the area.
I8	25.37388	-80.30666	Yes	25.37393	-80.30669	26.5	24.4	49844	50160.33			24.4	26.6			24.3	49994.00	Sandy/silt substrate w/some shell. Sparse Halodule, some Calcareous algae; scattered sponges & Acropora corals.
I9	25.3626	-80.30672	Yes	25.36247	-80.30673	24.0	23.8	52595	51259.54			23.8	23.6			23.7	52807.00	20 cm sample smelled of H <sub>2</sub> S. Right next to a crab pot (Site is ~ 1 m to the west of the crab pot). Sparse <i>Thalassia</i> . Some <i>Acetabularia</i> , brown algae, and <i>Penicillus</i> . Coarse sand substrate.
I10	25.35131	-80.30679	Yes	25.35128	-80.30691	24.1		52368	51445.00	51040.00		23.3	22.7	22.6		23.3	52828.00	Samples smelled faintly of H <sub>2</sub> S. Sparse <i>Thalassia</i> . Some brown algae and <i>Acetabularia</i> . Coarse sand substrate.
I11	25.34003	-80.30685	Yes	25.33997	-80.30685	26.4	24.2	50462	51410.05	50859.36		24.2	24.3	23.9		24.0	50776.00	Samples smell of H <sub>2</sub> S. Sparse <i>Thalassia</i> . Some <i>Acetabularia</i> , <i>Penicillus</i> . Sandy/silty substrate. Several sponges.
I12	25.32875	-80.30692	Yes	25.32885	-80.30695	25.3	23.5	49122				23.5				23.3	47805.00	Coarse sand substrate. Some brown algae and <i>Penicillus</i> . Several sponges. Site located in a large sandy patch; surrounding areas have some seagrass.
I13	25.31746	-80.30698	Yes	25.3178	-80.30694	23.7	23.2	48171	49446.11	48675.73	51182.75	23.2	23.6	23.3	23.2	22.9	49027.00	Samples smell faintly of H <sub>2</sub> S. Moderate <i>Thalassia</i> , w/ some <i>Syringodium</i> mixed in. A brown algae is also present. Silty substrate, especially in top 20 cm. Several pinfish noted.
IJ1	25.45278	-80.29988	Yes	25.45273	-80.29981	22.9	21.8	49750				21.8				22.0	49636.00	Very sparse <i>Thalassia</i> , calcareous algae, green algae, and <i>Dasycladus</i> . Coarse sand and shell hash substrate.
IJ2	25.44152	-80.30011	Yes	25.44158	-80.30018	28.2	23.3	49816				23.3				23.3	49784.00	Sandy/silty bottom. Sparse drift algae. Single small Gorgonian (~25 cm)
IJ3	25.4303	-80.30011	Yes	25.43037	-80.30016	20.3	20.2	50924	50628.21			20.2	19.7			20.3	50688.00	Several Gorgonian soft corals (some dead, most alive) observed. Also several small <i>Acropora</i> hard stoney corals observed (some dead, most alive). Numerous crab holes in the area. Drift algae also noted at site (sparse). Sandy shell hash substrate.



Table B.1-3. Porewater Sampling Grid Points (April 2010 Dry Season)

Location Name	Latitude (decimal degrees)	Longitude (decimal degrees)	Original Site	New Coordinates (decimal degrees)		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
				Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
IJ4	25.41895	-80.30011	Yes	25.41893	-80.30004	20.4	21.0	51743				21.0				20.8	52141.00	Moderate <i>Dasycladus</i> coverage. Very sparse <i>Halodule</i> & <i>Thalassia</i> . Sparse patches of drift algae observed. One healthy piece of unidentified stoney coral noted (small).
IJ5	25.40767	-80.30011	Yes	25.4077	-80.30013	25.8	22.4	50942	50696.00			22.4	23.0			22.6	50744.00	Moderate <i>Thalassia</i> and drift algae coverage. Some green algae ( <i>Acetabularia</i> ). Substrate very coarse shell hash.
IJ6	25.39645	-80.30011	Yes	25.39645	-80.30012	23.5	22.2	51193	49845.04	49293.44	50880.25	22.2	22.2	22.1	22.1	22.0	51449.00	Samples smelled of H <sub>2</sub> S (20 cm sample odor was more faint). Located on a dense <i>Thalassia</i> bed. Site is near 3 different small islands.
IJ7	25.38516	-80.30011	Yes	25.38518	-80.3001	25.1	23.1	50408	51671.56	49929.89	49684.09	23.1	23.4	23.5	23.7	23.2	50786.00	Samples smelled of H <sub>2</sub> S. Sparse <i>Thalassia</i> (mostly dead) w/some clumps of <i>Dasycladus</i> . Sandy shell hash substrate.
IJ8	25.37382	-80.30011	Yes	25.37386	-80.3001	25.5	24.0	52723	51661.36	51341.05	51566.78	24.0	23.8	23.8	23.7	23.9	53027.00	
IJ9	25.36254	-80.30011	Yes	25.36249	-80.29988	25.7	24.1	52273	51547.80	51639.82		24.1	23.8	23.5		23.9	53221.00	Samples smelled of H <sub>2</sub> S. Sparse <i>Thalassia</i> and drift algae. Coarse sand shell hash substrate.
J1	25.45278	-80.29375	Yes	25.45275	-80.29372	22.4	21.7	50280				21.7				21.6	50474.00	Sparse <i>Thalassia</i> , green algae, calcareous algae. Mostly open bottom - sandy shell hash substrate. One <i>Porites</i> noted. A few sponges and a Gorgonian near site.
J2	25.44152	-80.29384	Yes	25.44162	-80.29401	27.5	23.3	50105	42243.54			23.3	26.0			23.2	50271.00	Ground covered w/ <i>Thalassia</i> . Sandy/silty substrate.
J3	25.43024	-80.29391	Yes	25.43047	-80.29402	21.2	20.2	52144	50615.00			20.2	21.2			20.5	51832.00	Both dead and live Gorgonian soft corals observed. Dead <i>Acropora</i> stoney corals present. Sparse drift algae. Sandy shell hash substrate.
J4	25.41895	-80.29398	Yes	25.41906	-80.29398	21.2	20.4	52463	48969.22			20.4	21.0			20.5	52308.00	Very sparse <i>Thalassia</i> observed. Sparse drift algae and Gorgonians. Dead pieces of <i>Acropora</i> noted. Sediment composed mainly of very coarse sand.
J5	25.40767	-80.29404	Yes	25.40758	-80.29398	24.6	21.9	50790	50826.50			21.9	22.1			21.8	50819.00	Samples smelled of H <sub>2</sub> S. Several Gorgonian observed at and around site (more prevalent than other areas; approx. 1 every 4 m <sup>2</sup> or so). Sparse <i>Thalassia</i> . Moderate drift algae and <i>Dasycladus</i> .
J6	25.39639	-80.29411	Yes	25.39644	-80.29416	23.0	21.9	50521	50258.32	51840.74	52009.88	21.9	22.7	22.8	22.3	21.8	50776.00	Samples smelled of H <sub>2</sub> S. Located on a dense <i>Thalassia</i> bed. Site is located between 5 different small islands.
J7	25.3851	-80.29417	No	25.38616	-80.29465	23.8	22.6	50045	49909.20	49827.95	50802.25	22.6	23.5	23.1	23.0	22.4	50257.00	Dense <i>Thalassia</i> .



Table B.1-3. Porewater Sampling Grid Points (April 2010 Dry Season)

Location Name	Latitude (decimal degrees)	Longitude (decimal degrees)	Original Site	New Coordinates (decimal degrees)		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
				Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
J8	25.37382	-80.29424	Yes	25.37382	-80.29423	25.4	24.0	52810				24.0				23.8	52925.00	Several Gorgonians noted. Some <i>Thalassia</i> and drift algae. Coarse sand substrate.
J9	25.36254	-80.2943	Yes	25.36259	-80.2943	24.3	24.0	52602	52151.28	51627.50	52525.00	24.0	24.3	23.6	23.0	24.0	52677.00	All samples smelled of H <sub>2</sub> S. Sparse <i>Thalassia</i> and <i>Dasycladus</i> . Moderately coarse sand substrate. Some <i>Penicillus</i> present.
J10	25.35125	-80.29437	Yes	25.35146	-80.2944	23.9	23.1	51587	51995.82	52525.93		23.1	22.9	22.8		23.2	52071.00	Samples smell of H <sub>2</sub> S. Several large sponges noted. Sparse <i>Thalassia</i> and calcareous algae. Coarse sandy bottom.
J11	25.33997	-80.29443	Yes	25.33989	-80.29442	26.9	23.9	51671	51868.15	52694.25		23.9	25.2	24.2		23.9	51690.00	Samples smelled faintly of H <sub>2</sub> S. Dense <i>Thalassia</i> and brown algae. Sandy/silty substrate.
J12	25.32869	-80.2945	Yes	25.32896	-80.29469	24.7	23.9	50762	50716.25			23.9	24.9			23.9	51923.00	Sample smelled faintly of H <sub>2</sub> S. Sparse to moderate <i>Thalassia</i> w/some brown algae. Two large sponges outside of sampling area.
JK7	25.38516	-80.28767	Yes	25.38525	-80.28761	24.3	22.7	50143	48536.17	50715.13	49472.00	22.7	23.7	23.0	22.9	22.7	50190.00	Samples smelled of H <sub>2</sub> S. Moderate to dense <i>Thalassia</i> bed. Point ~ 150 m east of a mangrove island.
K7	25.38504	-80.28175	Yes	25.38527	-80.28174	24.3	24.4	53443	51273.10	50988.73		24.4	23.7	23.0		24.4	53485.00	Samples smelled of H <sub>2</sub> S. Moderate to dense <i>Thalassia</i> . Several sand mounds (2 ft diameter; 8-12 in tall) observed - not sure what causes them. Some drift algae and sponges present.
K8	25.37376	-80.28182	Yes	25.37362	-80.28174	25.3	24.7	52970	51422.00	51669.01	51598.25	24.7	24.6	24.1	24.0	24.6	53104.00	All samples smelled of H <sub>2</sub> S. Sparse to moderate <i>Thalassia</i> covered in drift algae. Several small open sandy patches. Sandy substrate w/shell hash.
K9	25.36248	-80.28188	Yes	25.36228	-80.28191	25.6	24.2	53815				24.2				24.0	52984.00	Coarse sand substrate. Several Gorgonians and very large sponges (basketball size and larger).

Key:  
°C = Degrees Celcius.  
cm = Centimeter.  
H<sub>2</sub>S = Hydrogen sulfide.

m = Meter.  
m<sup>2</sup> = Square meter.  
µS = Micro Siemens.





Table B.1-4. Porewater Sampling Areas of Ecological Interest (April 2010 Dry Season)

Location Name	Latitude	Longitude	Original Site	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
				Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
BB1A	25.4523	-80.30847	Yes	25.4522	-80.30854	23.4	21.9	48927	48791.55			21.9	22.5			21.7	49285.00	Very mild H <sub>2</sub> S odor. Located in a barge channel. Very silty w/some rubble. Sparse drift algae and dead seagrass.
BB1B			Yes	25.4523	-80.30851	22.8	22.0	48932	49604.00			22.0	22.2			21.7	49254.00	Very mild H <sub>2</sub> S odor. Located in a barge channel. Very silty w/some rubble. Sparse drift algae and dead seagrass.
BB2A	25.4421	-80.32148	Yes	25.4424	-80.32148	27.2	23.3	48388	46643.08	44058.25	49620.28	23.3	25.7	27.3	24.7	23.1	41464.00	Samples smell of H <sub>2</sub> S. No vegetation - bar silty substrate. Located in a barge channel.
BB2A	25.4423	-80.32157	Yes	25.4423	-80.32157	23.5	23.0	49761				23.0				23.1	51636.00	Resampled to verify bottom values (4/7/10). Sludge substrated. Some sparse drift algae; otherwise bare bottom.
BB2B			Yes	25.4424	-80.32159	28.2	23.3	48324	42887.29	50212.99		23.3	24.2	23.5		25.5	38729.00	Saw a dolphin when leaving the site. Bare silt - no vegetation, silty substrate. Located in a barge channel.
BB2B	25.4423	-80.32154	Yes	25.4423	-80.32154	24.0	22.8	51453				22.8				22.7	51566.00	Resampled to verify bottom values (4/7/10). Sludge substrated. Some sparse drift algae; otherwise bare bottom.
BB3A	25.4414	-80.329	Yes	25.4414	-80.32897	21.2	23.4	46685	44376.00	45059.33	45473.00	23.4	23.4	21.1	20.9			Limestone marl substrate. Mermaid's hairbrush, <i>Thalassia</i> seagrass, and green algae growing sparsely. <i>Thalassia</i> is stunted and short. Several horseshoe crab are walking around the site.
BB3B			Yes	25.4414	-80.32894	21.3	23.9	46421	43214.61	44956.00	41749.13	23.9	21.4	21.7	21.4			All samples have a lot of sediment. Excavated crab holes w/ piles of limestone marl observed ~ 10 m NE of site. Similar to BB3a - limestone marl w/sparse <i>Thalassia</i> , mermaid's hairbrush, and green algae. Located in an area of sparse seagrass surrounded by areas of denser seagrass w/brown algae attached - probably an edge effect.
BB4A	25.4228	-80.32005	Yes	25.4227	-80.32013	25.4	23.8	50028	48375.55	46955.00		23.8	24.8	25.6		24.4	49823.00	Samples smell of H <sub>2</sub> S. Dense <i>Thalassia</i> bed w/extensive drift algae.
BB4A	25.4228	-80.32004	Yes	25.4228	-80.32004	24.4	23.6	51800	49453.00	49256.00	47529.00	23.6	23.4	23.4	23.4	23.2	52335.00	Resampled to verify values (4/7/10). Samples smell of H <sub>2</sub> S. Sparse to moderate <i>Thalassia</i> and drift algae. Some <i>Dasycladus</i> present. Silty/sandy substrate w/some shell hash.
BB4B			Yes	25.4227	-80.32012	27.0	23.9	50238	47192.76	46708.32	48287.00	23.9	25.5	25.2	25.7	24.2	50098.00	Samples smell of H <sub>2</sub> S. Thick <i>Thalassia</i> bed w/extensive drift algae.
BB4B			Yes	25.4228	-80.32001	24.8	23.3	52632	51020.00	48019.00	49119.00	23.3	23.4	23.4	23.2	23.4	52619.00	Resampled to verify values (4/7/10)



Table B.1-4. Porewater Sampling Areas of Ecological Interest (April 2010 Dry Season)

Location Name	Latitude	Longitude	Original Site	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
				Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
BB5A	25.4091	-80.29824	Yes	25.4092	-80.29819	25.5	21.9	50625	49718.39	48807.05	49148.96	21.9	22.8	22.2	22.6	21.9	50632.00	Samples smell of H <sub>2</sub> S. Site located in a patch of dense <i>Thalassia</i> ~ 300 m NE of West Arsinecker Island. Dense <i>Thalassia</i> with sparse drift algae. A cup sponge present ~ 2 m S of sample point.
BB5B			Yes	25.4093	-80.29826	23.6	22.1	50552	50532.79	49486.52	49918.21	22.1	22.4	22.5	22.6	22.1	50596.00	Samples smell of H <sub>2</sub> S. Dense <i>Thalassia</i> w/sparse drift algae.
BB6A	25.4061	-80.32877	Yes	25.4061	-80.32894	23.2	21.3	50217	47928.66	49650.85	50375.16	21.3	22.6	21.7	21.6	21.2	50320.00	Sediment very silty. Very sparse <i>Thalassia</i> observed. Line of red mangroves adjacent to the point. Samples smelled of H <sub>2</sub> S.
BB6B			Yes	25.406	-80.32898	22.8	21.3	50308	48462.84	49864.91	51882.60	21.8	22.5	22.0	21.9	21.8	50358.00	Sediment very silty. Very sparse <i>Thalassia</i> observed. Line of red mangroves adjacent to the point (including several juveniles). Samples smelled of H <sub>2</sub> S.
BB7A	25.4045	-80.28849	Yes	25.4046	-80.28829	25.8	22.0	51062				22.0						Extensive Gorgonian observed all around site. Some orange sponges growing on and around Gorgonian. Moderate drift algae. Coarse sand/shell hash substrate. Sparse small <i>Porites</i> hard corals scattered around the site.
BB7B			Yes	25.4046	-80.28829	24.1	22.0	51132	50699.42			22.0	22.2			22.1	51007.00	Similar to BB7A - extensive Gorgonian all around site. Sparse small <i>Porites</i> hard coral scattered around site. Orange sponges growing on and around Gorgonian. Moderate drift algae coverage. Substrate sand/shell hash.
BB8A	25.4023	-80.31966	Yes	25.4024	-80.31955	22.1	21.8	50342	48069.21	47822.33	48941.80	21.8	24.1	23.2	23.2	21.9	50211.00	Site located in a very dense patch of seagrass in an otherwise barren landscape. Located in a very dense patch of <i>Thalassia</i> w/sparse to moderate <i>Halodule</i> mixed in. Site is located close to the middle of the patch of grass. Samples smell of H <sub>2</sub> S.
BB8B			Yes	25.4024	-80.31961	24.1	22.6	49697	50904.60	49500.72		22.6	24.2	22.9		22.3	50068.00	Site located in a bald spot w/in the dense patch of seagrass. Coarse sandy substrate. Green algae, <i>Mojarra</i> fish observed in bald spot. Samples smell of H <sub>2</sub> S.
BB9A	25.3714	-80.29527	Yes	25.3715	-80.29531	26.1	24.9	51534	50549.66			24.9	25.1			24.8	51551.00	Sample smelled of H <sub>2</sub> S. Sparse <i>Thalassia</i> . Mostly bare bottom - coarse sandy shell hash. Some <i>Dasycladus</i> . Several small Gorgonians.
BB9B			Yes	25.3715	-80.29535	26.1	24.7	51389	50769.00			24.7	24.1			24.7	51343.00	Sample smelled of H <sub>2</sub> S. Several small Gorgonians and several sponges noted. Mostly bare bottom - coarse sandy shell hash. Sparse <i>Thalassia</i> . Some <i>Dasycladus</i> .



Table B.1-4. Porewater Sampling Areas of Ecological Interest (April 2010 Dry Season)

Location Name	Latitude	Longitude	Original Site	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
				Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
M1A	25.4031	-80.32953	Yes	25.4031	-80.32949	20.5	23.8	48561	46069.34	46784.00	49372.00	23.8	22.2	21.9	21.4			Site is relatively open with brown and green algae ( <i>Batophora</i> ) on sediment. Area is submerged. Sparse scrub red mangroves ( <i>Rhizophora mangle</i> ) at ~0.5 m height.
M1B			Yes	25.4031	-80.32946	20.5	22.3	48757	46553.00	47486.45	46788.00	22.3	21.0	20.7	20.9			Flat bladed seagrass ( <i>Thalassia</i> ?) noted at M1b.
M2A	25.3928	-80.32744	No	25.3929	-80.32739	21.0	23.2	49735	51053.79	49660.34	52705.41	23.2	24.1	24.1	23.3			Samples smelled of H <sub>2</sub> S. 60 cm Sample had marl; 20 and 40 had peat. Site located in red mangrove stand ~ 4 m tall on avg. Site adjacent to tidal creek. Fungus growing aon several red mangroves. Several small white starfish noted.
M2B			Yes	25.3928	-80.32745	21.5	23.3	50126	49881.43	47303.52	47643.60	23.3	23.3	23.3	23.1			Samples smelled of H <sub>2</sub> S. Site located in red mangrove stand ~ 4 m tall on avg. Site adjacent to tidal creek. Fungus growing on several red mangroves. Several small white starfish noted.
M3A	25.3938	-80.32433	Yes	25.3938	-80.32435	24.4	24.9	52452	52032.44	55081.02	53480.00	24.9	24.4	24.3	24.1			Samples smell of H <sub>2</sub> S. Both red and black mangroves intermixed, avg. ~4 m tall.
M3B			Yes	25.3937	-80.3243	23.8	25.1	52282	50380.10	54440.22	54470.77	25.1	23.9	23.0	23.0			20 cm sample has peat particles. 40 cm sample is orange-red in color. All samples smell of H <sub>2</sub> S. Similar habitat to M3A. Intermixed red and black mangroves ~4 m tall.
M4A	25.4036	-80.32788	No	25.4035	-80.32827	21.9				48446.00	47837.00			20.5	21.8			Located in back edge of mangrove fringe. Area is thick w/white, black & red mangroves. Litter-plastic, glass & Styrofoam very prevalent. Located on a mangrove fringe; high point. At 20 cm, soil is moist but not saturated.
M4B			Yes	25.4036	-80.32825	21.0				48133.30	47652.00			22.4	19.9			Located east of M4a with mangrove fringe.
M5A	25.4108	-80.32842	No	25.41	-80.32976	27.7			48832.60	46941.94	46294.07		26.7	27.4	25.5			No standing water. Remnant creek. Sampled in atypical mangrove areas. Area elevated, no standing water at arrival. Almost continuous tree cover. Red mangroves ~1-1.5 m tall. Atypical mangrove observed (red only). One black mangrove (1 m tall) 1 m E of sampling point.
M5B			Yes	25.41	-80.32977	27.6	29.0	50830	48170.04	45297.00	45894.00	29.0	24.3	25.2	25.2			N edge of creek. <i>Avicennia germinans</i> is on SE ~1.5 m away. Open area sampled. Red mangrove patchy, 0.2-1 m tall.



Table B.1-4. Porewater Sampling Areas of Ecological Interest (April 2010 Dry Season)

Location Name	Latitude	Longitude	Original Site	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
				Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
M6A	25.4126	-80.32965	Yes	25.4126	-80.32965	25.1			46168.06	45757.00	46305.13		27.1	25.0	24.7			Site open w/higher ground to N, NE & E. Black mangroves ( <i>Avicennia germinans</i> ) dominate open area at >1 m tall. Short scrub mangroves at 0.25 m tall sparsely scattered in open patch. Open patch surrounded by 0.5 m tall red scrub mangrove in higher density surrounding open patch. Sample obtained in SW corner of open patch. Evidence of dead red mangroves noted throughout patch.
M6B			Yes	25.4125	-80.32964	25.7	26.5	49250	46128.28	45441.00	45249.00	26.5	25.1	25.6	24.9			Site just outside area of interest; in standing water and sparse scrub red mangroves in patches. S of area of interest. Scrub red mangroves in patches ~0.75 m avg. height. Brown algae in water.
M7A	25.4044	-80.33107	No	25.4054	-80.33043	20.5			47240.00	51620.00	57317.26		21.6	22.4	22.0			A number of whole mangroves observed w/in the taller 1.5 m height fringe. Mangrove trees outside of fringe have avg. height of 0.5 m. Atypical red mangrove growth observed. Stand of taller mangroves than avg. run east-west at avg. 1.5 m height.
M7B			No	25.4055	-80.3304	20.3			50583.00	54520.00	58785.00		20.1	20.3	20.1			Peat observed in the porewater. Porewater samples have a distinctively strong H <sub>2</sub> S smell than other sites. M7b obtained east of M7a.
M8A	25.3911	-80.33028	Yes	25.3912	-80.33031	27.1	28.3	50515	48030.09	48776.07	49132.77	28.3	26.2	25.5	24.9			Site is in NE corner of open space. Scrub red mangrove are at 0.5 m avg. height. Nudibranchs observed feeding w/in the sediment.
M8B			Yes	25.3911	-80.33028	27.4	28.7	45292	48811.02	50351.17	52625.00	28.7	26.9	26.7	26.3			Site is inside area of open space, no mangroves but <i>Halodule wrightii</i> noted sparsely growing on sediment.
M9A	25.3854	-80.3296	No	25.3855	-80.32973	22.5	25.0	50221	47068.00	49702.00	53662.00	25.0	24.4	23.2	23.6			Open pond noted with <i>Ruppia</i> growing as submerged vegetation. Taller red mangrove noted in small island and along west edge of pond. East mangrove is at 2.5 m; mangroves on west side 2.25 m.
M9B			Yes	25.3855	-80.32969	22.9		50178	46545.00	48094.00	51563.18	25.1	23.2	24.6	24.6			M9b is located further northeast of M9a inside pond



Table B.1-4. Porewater Sampling Areas of Ecological Interest (April 2010 Dry Season)

Location Name	Latitude	Longitude	Original Site	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
				Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
W1A	25.4466	-80.37166	No	25.4468	-80.3718	25.2			849.59	905.67	971.28		23.8	22.2	21.1			Site located in old riverine system. Thick layer of litter fall on the ground. Canopy dominated by Brazilian Pepper ( <i>Schinus terebinthifolius</i> ), <i>Salix caroliniana</i> , <i>Conocarpus erectus</i> (buttonwood) & <i>Myrica cerifera</i> (Myrica). Herbaceous layer dominated by sawgrass and <i>Thelypteris</i> spp.
W1B			No	25.4467	-80.37182	21.5			776.63	785.92	900.55		24.2	22.3	21.9			Signs of animal use (deer lay). Mix of freshwater ( <i>Chrysobalanus icaco</i> (Cocoplum), <i>Persea borbonia</i> (Bay), Myrica, buttonwood) & mangrove species. Several large red mangroves ~6-8 m tall. <i>Lygodium microphyllum</i> ~1 m SW of site. South fork of river begins ~4m SW of site. Crinum lily ( <i>Crinum americanum</i> ) patches & dense sawgrass prairie between Palm Dr & the site. Water on avg. ~5 cm deep.
W2A	25.4404	-80.36199	No	25.4396	-80.36063	18.2			1123.62	2201.37	4053.09		20.4	20.9	21.4			Area is w/old river/stream system. Site is thick w/red mangrove and cocoplum trees. Herbaceous layer is mostly cocoplum saplings and <i>Blechnum serrulatum</i> ferns. Lots of leaf litter noted. <i>Lygodium microphyllum</i> observed along path to reach site. Unable to continue to original point, underbrush & trees too thick to continue w/o machete.
W2B			No	25.4395	-80.3606	18.0			748.31	2318.12	2721.12		20.5	20.7	20.4			Site is 2 m SE of W2a. Also located in area of thick tree vegetation. <i>Blechnum serrulatum</i> (Blechnum) fern. Samples all have distinct organic odor. Site similar to W2a.
W3A	25.4362	-80.35248	No	25.4362	-80.35294	18.7				589.26	593.52			19.8	19.3			Water has distinct H <sub>2</sub> S odor w/organic particles floating in the samples. Dense dead fern stems in herbaceous layer; cocoplum, Brazilian Pepper, <i>Myrica</i> dominant in the overstory. Virginia creeper also present. <i>Blechnum</i> fern & cocoplum saplings in herbaceous layer.
W3B			No	25.4363	-80.35294	18.2			543.28	565.10	559.83		19.8	18.9	19.6			Samples from 40 & 60 cm depth had distinct H <sub>2</sub> S odor. Site very similar to W3a. Dense dead ferns in herbaceous layer; cocoplum, Brazilian pepper, & <i>Myrica</i> dominant in overstory. 1 small <i>Persea</i> present.



Table B.1-4. Porewater Sampling Areas of Ecological Interest (April 2010 Dry Season)

Location Name	Latitude	Longitude	Original Site	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
				Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
W4A	25.4301	-80.36531	No	25.4302	-80.36545	21.7			1914.11	6435.39	10839.49		20.2	20.3	20.2			Dominant canopy composed of Brazilian Pepper & Casurina ( <i>Casuarina spp.</i> ). Understory dominated by <i>Blechnum</i> fern. 40&60 cm Sample light yellow in color & has H <sub>2</sub> S odor. Area adjacent to site has been burned recently.
W4B			No	25.4301	-80.36546	21.6			3152.66	6352.46	8269.58		21.5	20.5	20.8			Site located in ~3 m S of W4a. All samples have light yellow coloring & H <sub>2</sub> S odor. Area recently burned. Canopy dominated by Brazilian pepper & <i>Casuarina</i> . No living understory vegetation. Ground covered w/ <i>Casuarina</i> leaves.
W5A	25.4303	-80.35452	No	25.4303	-80.35482	25.3			721.00	640.82	641.26		21.8	21.3	21.4			Site located w/stand of tall vegetation; looks like old river/stream system. Canopy dominated by <i>Casuarina</i> and <i>Myrica cerifera</i> . Understory dominated by sawgrass and <i>Blechnum</i> fern. Several dead tree stumps surround survey point. Peat noted in 40 cm porewater sample. H <sub>2</sub> S odor in 20 cm porewater sample.
W5B			No	25.4303	-80.35478	22.3			628.84	595.09	597.88		21.6	20.8	21.3			Site inside remnant of river/stream. <i>Casuarina</i> , <i>Myrica</i> & <i>Persea</i> are dominant trees. Sawgrass & sparse <i>Blechnum</i> ferns in herbaceous layer. Site is in dense sawgrass.
W6A	25.4064	-80.36326	No	25.4064	-80.36423	21.1			611.78	744.77	988.48		23.8	22.6	22.2			Site is inside a tree island dominated by Buttonwood canopy at 5 m avg. hgt. Understory is <i>Blechnum serrulatum</i> fern, <i>Acrostichum danaeifolium</i> ( <i>Acrostichum</i> ) and <i>Cephalanthus occidentalis</i> (buttonbush). <i>Lygodium microphyllum</i> is very prevalent at site; >5 individuals noted surrounding the point w/ reproductive leaves. Heavy leaf litter on ground surface.
W6B			No	25.4064	-80.3642	21.4				940.76	1586.56			22.4	22.5			Site is under a red mangrove in the head of the tree island w/a dead Brazilian pepper adjacent to the site. Heavy leaf litter. Same dominant canopy & understory as W6a. Strong H <sub>2</sub> S odor noted in 60cm porewater sample.
W7A	25.4038	-80.36923	No	25.4035	-80.36907	23.5				575.33	558.81			22.1	21.6			Site is inside a tree island w/in neartail portion. Dominant canopy is <i>Cocoplum.</i> , <i>Persea</i> and <i>Magnolia</i> at 3.0 m avg. hgt. Understory is <i>Blechnum</i> fern and <i>Cocoplum</i> saplings. Heavy leaf litter noted. Deer tracks noted outside the island.





Table B.1-4. Porewater Sampling Areas of Ecological Interest (April 2010 Dry Season)

Location Name	Latitude	Longitude	Original Site	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
				Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
W7B			No	25.4035	-80.36911	23.3				509.98	515.06			22.0	21.9			Dominant canopy is <i>Myrica cerifera</i> and <i>Persea</i> . Herbaceous layer is <i>Blechnum serralatum</i> and <i>Cephalanthus occid.</i> Heavy leaf litter on ground.
W8A	25.3855	-80.37101	No	25.3873	-80.37111	24.1	NA		715.23	589.29	638.63		25.1	23.8	22.5			Deer tracks observed outside of island. Canopy dominated by <i>Myrica</i> , <i>Ilex</i> , <i>Ficus</i> , & <i>Magnolia virginiana</i> . Dead Cassurina snags visible around the site. Understory dominated by Blechnum fern, Virginia creeper & poison ivy. <i>Lygodium microphyllum</i> observed along path to site w/in 45 m of site.
W8B			No	25.3873	-80.37113	25.4			739.01	604.75	683.17		24.3	22.0	22.2			Area has prevalent poison ivy. Site is under a Cocoplum tree. <i>Blechnum serrulatum</i> & cocoplum saplings & poison ivy dominant in herbaceous layer. Magnolia, Myrica & <i>Ilex cassine</i> (holly) dominant in canopy. A number of dead <i>Casuarina</i> noted in area. Leaf litter on the ground.
W9A	25.3882	-80.37526	Yes	25.3882	-80.37524	24.9				616.87	345.15			24.2	22.9			Located on tree island; canopy dominated by <i>Myrica</i> & <i>Ilex cassine</i> . <i>Lygodium</i> and poison ivy are present. Herbaceous dominated by Blechnum fern & sawgrass. Heavy litter fall. <i>Ilex</i> trees are ~4.5 m tall. Several dead <i>Casuarina</i> snags around the site. <i>Cephalanthus</i> also present.
W9B			Yes	25.3883	-80.3753	30.8			453.89	573.49	557.23		25.1	24.4	24.2			Located in area of open canopy caused by dead <i>Casuarina</i> trunk falling b/c of heavy <i>Lygodium</i> infestation. <i>Lygodium</i> & poison ivy located at site. Scattered Myrica & Ilex cassine in canopy. <i>Cephalanthus</i> & <i>Blechnum</i> dominate understory. Site is 5 m NW of W9a.

Key:  
°C = Degrees Celcius.  
cm = Centimeter.  
H<sub>2</sub>S = Hydrogen sulfide.

m = Meter.  
m<sup>2</sup> = Square meter.  
µS = Micro Siemens.



**August 2010**

## **B.2 Porewater Sampling in Biscayne Bay**

Dates: August 17-26, 2010

Participants: Jennifer Vega, Mark Mohlmann, Helen Hammond, Stephen Hodges, K. Cuniff  
(SFWMD, 8/26)

### **Sampling Design**

#### Sampling Setup

1. Points were sampled in a grid formation or in areas of ecological interest (see attached map).
2. One point (3 porewater depths) was sampled at each grid location. Surface water (if water depth >5 feet) and water at the bottom of the water column (0 cm) were also measured.
3. Two points (A and B, 2 m apart) were sampled at each area of ecological interest (defined jointly by FPL and the Agencies on 10/28/09).
4. Points were named based on the grid they were in i.e., G1, J10, or GH3, F1-2 for points on grid lines between the cells.
5. Areas of ecological interest were named "BB".
6. All 102 Points were sampled in Biscayne Bay.
7. For all sites, sampling was conducted using the PushPoint sampler (EPA SESDPROC-513-R0).

#### Sampling Depths

1. Three depths were sampled at each point (20, 40 and 60 cm) where possible.
2. In areas where bedrock was reached prior to 20 cm, various locations were probed (up to 200 other points) in the surrounding area in an attempt to reach 20 cm.
3. Where no bedrock depth of 20 cm was reached, a single depth were taken (if depth was >15 cm).
4. If bedrock was reached at depths between values, the deepest point would be measured where possible.
5. Several areas of Biscayne Bay had little/no sediment in the dry season (Mar-Apr 2010) sampling; these sites were not revisited. A reconnaissance trip by DERM on 8/16 and 8/17, and K. Cuniff (SFWMD, 8/26/10) provided the alternate sites and locations to subsequently complete the sampling.

#### Instrumentation

1. Instruments used were from In-Situ Inc.; one sonde and reader unit was used during this event.
2. The unit was an Aqua TROLL 100 (conductance, temp sensors) connected to a Rugged Reader (Win-Situ Mobile v. 5.5.9.2).
3. Data output was in \*.csv files and \*.xls files. Miscellaneous notes from field sheets and data books are scanned pdfs (See Appendices D and E).



Log Files

1. In the "Raw Data" worksheet, "S" Depth is the surface water reading and "0" Depth is the bottom water reading.

Explanation of B.2 Tables	
Raw Data	All data collected from the instruments, transposed into the following Excel sheet. Sensor serial number and date are identified.
Grid Points	<ol style="list-style-type: none"> <li>1. Compiled data for each point, showing lat/long, air temp, surface and bottom (for deeper Bay sites) conductance and temperatures.</li> <li>2. Where the sites were moved due to access difficulty, the new coordinates were noted.</li> <li>3. Field notes were copied over from the field books and log sheets. All notes were scanned as pdfs.</li> <li>4. Several sites were resampled to verify initial readings and are labeled with an "R" (i.e., R-FG12). All attempts are listed, but only the most recent measurement was used for analysis.</li> </ol>
Area of Interest	<ol style="list-style-type: none"> <li>1. Two points were recorded at each site. The layout remains similar to the Grid Points sheet.</li> </ol>



Table B.2-1. Porewater Sampline Grid Points Raw Data (August 2010 Dry Season)

Location Name	Depth	Actual Conductance (µS)	Temp (°C)	Salinity (in PSS78)	Specific Conductance (µS/cm)	Probe Serial No.	Date
D13	0	53515.59	33.0	30.7	46384.99	154841	8/18/10
D13	20	56145.55	32.5	32.7	49144.42	154841	8/18/10
D13	40	55551.09	32.5	32.3	48595.81	154841	8/18/10
D13	60	58522.63	33.2	33.8	50580.69	154841	8/18/10
D13	S		33.1	31.0	46868.33	154841	8/18/10
D14	0	54498.23	33.0	31.3	47253.99	154841	8/17/10
D14	S		32.8	31.5	47424.15	154841	8/17/10
D15	0	54708.13	32.6	31.7	47748.18	154841	8/17/10
D15	20	55793.41	32.0	32.8	49250.06	154841	8/17/10
D15	40	55083.64	32.7	31.9	47983.93	154841	8/17/10
D15	60	53168.95	32.7	30.6	46330.11	154841	8/17/10
D15	S		32.6	31.6	47633.84	154841	8/17/10
E13	0	56387.30	33.1	32.5	48863.50	154841	8/18/10
E13	20	60457.29	32.2	35.8	53174.48	154841	8/18/10
E13	40	60682.31	31.8	36.2	53731.36	154841	8/18/10
E13	60	60802.75	32.0	36.1	53632.54	154841	8/18/10
E13	S		32.7	31.3	47267.02	154841	8/18/10
E14	0	57097.30	33.1	33.0	49477.50	154841	8/17/10
E14	20	59130.66	32.2	34.9	52010.16	154841	8/17/10
E14	40	58325.65	32.0	34.5	51448.46	154841	8/17/10
E14	60	58245.30	32.2	34.3	51166.60	154841	8/17/10
E14	S		32.8	32.1	48278.51	154841	8/17/10
E15	0	56321.32	32.2	33.0	49482.25	154841	8/17/10
E15	20	56690.53	32.8	32.9	49301.79	154841	8/17/10
E15	40	56569.16	32.0	33.3	49884.02	154841	8/17/10
E15	60	55432.04	32.5	32.2	48468.67	154841	8/17/10
E15	S		32.2	33.0	49449.43	154841	8/17/10
F13	0	56652.43	32.1	33.3	49884.21	154841	8/18/10
F13	20	59230.50	31.9	35.2	52367.10	154841	8/18/10
F13	S		32.2	33.3	49831.21	154841	8/18/10
F14	0	52323.73	30.2	31.6	47586.86	154841	8/24/10
F14	20	54249.25	30.8	32.5	48860.72	154841	8/24/10
F14	40	55551.02	31.7	32.8	49289.79	154841	8/24/10
F14	60	56011.64	31.3	33.4	50019.18	154841	8/24/10
F14	S		30.2	31.6	47694.43	154841	8/24/10
F15	0	53743.65	30.5	32.4	48656.92	154841	8/24/10
F15	20	56245.63	31.8	33.2	49780.55	154841	8/24/10
F15	40	56278.02	32.1	33.1	49567.73	154841	8/24/10
F15	60	56338.19	31.8	33.3	49903.20	154841	8/24/10
F15	S		30.5	32.3	48642.65	154841	8/24/10
R-FG12	0	53422.43	30.5	32.1	48314.42	154841	8/24/10
R-FG12	20	55395.03	30.6	33.4	50058.32	154841	8/24/10
R-FG12	40	57444.09	31.1	34.5	51468.97	154841	8/24/10
R-FG12	60	56446.82	31.2	33.7	50488.20	154841	8/24/10
R-FG12	S		30.6	32.1	48286.20	154841	8/24/10
G1	0	53185.41	31.2	31.5	47563.32	154841	8/23/10
G1	20	56914.17	32.3	33.4	49989.15	154841	8/23/10
G1	40	55134.96	32.1	32.3	48569.77	154841	8/23/10
G1	S		31.3	31.5	47454.43	154841	8/23/10
G3	0	59083.31	30.5	36.0	53462.73	154841	8/26/10
G3	20	61698.95	32.7	36.2	53754.68	154841	8/26/10
G3	40	61356.05	32.6	36.1	53578.93	154841	8/26/10
G3	60	60308.76	31.8	35.9	53394.15	154841	8/26/10
G3	S		30.3	35.9	53385.72	154841	8/26/10
R-GH10	0	55712.64	31.2	33.2	49776.55	154841	8/24/10
R-GH10	20	56048.98	31.6	33.2	49810.57	154841	8/24/10
R-GH10	40	59686.06	32.0	35.4	52650.17	154841	8/24/10
R-GH10	60	56275.26	31.9	33.1	49696.32	154841	8/24/10
R-GH10	S		31.3	32.9	49361.89	154841	8/24/10
G10_Bay	0	56207.94	32.0	33.1	49593.19	154841	8/24/10
G10_Bay	20	59037.92	31.9	35.0	52125.95	154841	8/24/10
G10_Bay	40	58972.71	32.2	34.8	51850.76	154841	8/24/10
G10_Bay	60	58588.82	32.5	34.3	51236.04	154841	8/24/10
G10_Bay	S		32.0	33.1	49669.30	154841	8/24/10
R-G11	0	55081.65	31.2	32.8	49246.02	154841	8/24/10
R-G11	20	57420.58	31.6	34.1	50974.37	154841	8/24/10
R-G11	S		31.1	32.6	49007.32	154841	8/24/10
G11_Bay	0	54002.10	31.0	32.2	48436.30	154841	8/24/10
G11_Bay	20	55632.18	31.2	33.2	49705.61	154841	8/24/10



Table B.2-1. Porewater Sampline Grid Points Raw Data (August 2010 Dry Season)

Location Name	Depth	Actual Conductance (µS)	Temp (°C)	Salinity (in PSS78)	Specific Conductance (µS/cm)	Probe Serial No.	Date
G11_Bay	40	58595.35	31.5	35.0	52162.92	154841	8/24/10
G11_Bay	60	58568.50	31.7	34.8	51888.77	154841	8/24/10
G11_Bay	S		31.0	32.3	54212.00	154841	8/24/10
R-G12	0	54392.88	30.8	32.6	48946.82	154841	8/24/10
R-G12	20	59128.84	31.2	35.6	52905.00	154841	8/24/10
R-G12	40	58951.41	31.1	35.5	52823.09	154841	8/24/10
R-G12	60	55622.90	30.8	33.4	50052.55	154841	8/24/10
R-G12	S		30.8	32.6	48945.75	154841	8/24/10
G13	0	54244.04	30.7	32.6	48918.02	154841	8/26/10
G13	20	57023.48	30.0	34.9	52082.95	154841	8/26/10
G13	S		30.7	32.6	48911.75	154841	8/26/10
G14	0	59812.46	32.8	34.9	52041.48	154841	8/17/10
G14	20	59384.37	32.3	35.0	52088.82	154841	8/17/10
G14	40	60343.38	32.5	35.5	52758.98	154841	8/17/10
G14	60	58962.54	32.6	34.5	51463.24	154841	8/17/10
G14	S		32.7	32.7	49030.21	154841	8/17/10
G15	0	57520.27	32.3	33.8	50494.12	154841	8/17/10
G15	20	58649.41	32.7	34.2	51149.37	154841	8/17/10
G15	40	58164.72	32.0	34.4	51329.42	154841	8/17/10
G15	60	57046.25	32.1	33.6	50247.67	154841	8/17/10
G15	S		31.9	33.0	49497.61	154841	8/17/10
GH1	0	53708.13	30.6	32.2	48477.09	154841	8/23/10
GH1	20	56221.30	31.7	33.2	49822.88	154841	8/23/10
GH1	40	56857.44	32.3	33.3	49871.13	154841	8/23/10
GH1	S		30.7	32.2	48447.02	154841	8/23/10
GH2	0	54304.76	30.3	32.8	49279.23	154841	8/23/10
GH2	20	54605.42	30.4	33.0	49463.53	154841	8/23/10
GH2	S		30.4	32.8	49211.01	154841	8/23/10
GH2_B	0	58132.06	30.3	35.5	52789.18	154841	8/25/10
GH2_B	20	60153.00	31.7	35.9	53352.06	154841	8/25/10
GH2_B	S		31.6	35.2	52447.10	154841	8/25/10
GH3	20	59519.61	30.7	36.2	53688.27	154841	8/22/10
GH3	40	58223.64	30.1	35.7	53087.32	154841	8/22/10
GH3	60	57832.68	30.1	35.4	52680.44	154841	8/22/10
GH3	S		30.9	35.0	52202.42	154841	8/22/10
GH4	0	59594.09	30.8	36.2	53684.37	154841	8/22/10
GH4	20	58104.18	29.8	35.8	53214.27	154841	8/22/10
GH4	40	59168.91	30.2	36.3	53852.56	154841	8/22/10
GH4	S		30.7	36.2	53721.25	154841	8/22/10
GH5	0	58832.63	31.3	35.3	52553.69	154841	8/23/10
GH5	20	57890.92	30.8	35.0	52121.89	154841	8/23/10
GH5	40	58985.00	31.2	35.4	52737.10	154841	8/23/10
GH5	60	58792.29	31.0	35.4	52753.71	154841	8/23/10
GH5	S		31.3	35.3	52505.75	154841	8/23/10
GH6	0	60612.36	32.2	35.9	53279.05	154841	8/21/10
GH6	20	60370.70	32.4	35.6	52929.02	154841	8/21/10
GH6	40	58729.63	32.4	34.5	51473.40	154841	8/21/10
GH6	60	59131.48	32.1	34.9	52074.19	154841	8/21/10
GH11	0	55181.63	30.9	33.1	49631.11	154841	8/26/10
GH11	20	58970.11	30.4	36.0	53473.01	154841	8/26/10
GH11	40	57112.90	30.3	34.8	51858.98	154841	8/26/10
GH11	60	57197.36	30.4	34.8	51884.07	154841	8/26/10
GH11	S		30.9	33.2	49815.01	154841	8/26/10
GH12	0	56233.43	31.2	33.6	50253.50	154841	8/26/10
GH12	20	57108.22	29.9	35.0	52207.35	154841	8/26/10
GH12	40	56948.29	29.7	35.0	52236.89	154841	8/26/10
GH12	60	56627.24	29.9	34.7	51740.51	154841	8/26/10
GH12	S		30.8	33.1	49685.07	154841	8/26/10
R-H1	0	57761.63	29.9	35.5	52775.64	154841	8/25/10
R-H1	20	56427.88	30.2	34.4	51332.27	154841	8/25/10
R-H1	40	59053.07	30.3	36.1	53630.05	154841	8/25/10
R-H1	60	56588.98	30.3	34.4	51347.66	154841	8/25/10
R-H1	S		30.0	35.5	52786.96	154841	8/25/10
R-H2	0	58822.68	30.9	35.5	52861.35	154841	8/25/10
R-H2	20	59982.51	32.4	35.3	52546.80	154841	8/25/10
R-H2	40	59680.36	31.9	35.5	52773.73	154841	8/25/10
R-H2	60	57680.96	31.9	34.1	50983.43	154841	8/25/10
R-H2	S		30.9	35.5	52808.21	154841	8/25/10





Table B.2-1. Porewater Sampline Grid Points Raw Data (August 2010 Dry Season)

Location Name	Depth	Actual Conductance (µS)	Temp (°C)	Salinity (in PSS78)	Specific Conductance (µS/cm)	Probe Serial No.	Date
H2_B	0	59197.12	31.2	35.6	52903.04	154841	8/25/10
H2_B	20	59473.20	31.6	35.5	52839.12	154841	8/25/10
H2_B	40	60322.73	31.9	35.8	53261.20	154841	8/25/10
H2_B	60	61451.93	32.0	36.6	54203.17	154841	8/25/10
H2_B	S		31.4	35.6	52930.79	154841	8/25/10
H3	0	58604.42	30.2	35.9	53336.98	154841	8/26/10
H3	20	59643.26	31.4	35.8	53172.01	154841	8/26/10
H3	40	60104.03	31.4	36.0	53513.21	154841	8/26/10
H3	60	61199.34	32.2	36.3	53806.68	154841	8/26/10
H3	S		30.1	35.9	53361.38	154841	8/26/10
H4	0	60036.92	31.3	36.1	53592.82	154841	8/22/10
H4	20	59081.61	30.7	35.8	53279.75	154841	8/22/10
H4	40	59266.55	30.6	36.1	53560.16	154841	8/22/10
H4	60	60820.47	30.4	37.3	55144.80	154841	8/22/10
H4	S		31.0	34.6	51637.44	154841	8/22/10
H5	0	61175.79	33.0	35.7	53079.00	154841	8/21/10
H5	20	61511.97	33.0	35.9	53352.84	154841	8/21/10
H6	0	62881.95	34.9	35.5	52843.18	154841	8/20/10
H6	20	63838.93	34.1	36.7	54361.38	154841	8/20/10
H6	40	63081.21	33.7	36.5	54079.64	154841	8/20/10
H6	60	62904.21	33.5	36.5	54154.96	154841	8/20/10
H6	S		35.0	35.6	52876.07	154841	8/20/10
H7	0	58716.50	31.1	35.3	52604.11	154841	8/21/10
H7	20	60056.29	32.1	35.6	52879.54	154841	8/21/10
H7	40	58814.18	31.2	35.3	52543.46	154841	8/21/10
H7	60	58207.64	30.5	35.4	52698.14	154841	8/21/10
H9_Bay	0	54093.57	31.4	32.0	48186.28	154841	8/24/10
H9_Bay	20	57500.43	31.7	34.1	50944.81	154841	8/24/10
H9_Bay	40	60107.30	31.9	35.7	53139.30	154841	8/24/10
H9_Bay	60	57735.16	32.4	33.8	50547.32	154841	8/24/10
H9_Bay	S		31.6	31.9	48004.43	154841	8/24/10
H10	0	58313.51	32.9	33.9	50644.95	154841	8/18/10
H10	20	60994.12	32.5	35.9	53316.83	154841	8/18/10
H11	0	58590.13	33.1	33.9	50747.73	154841	8/18/10
H11	20	61812.52	32.5	36.5	54052.39	154841	8/18/10
H11	S		33.2	33.9	50737.56	154841	8/18/10
H12	0	57938.98	32.6	33.8	50563.71	154841	8/18/10
H12	S		33.2	33.9	50737.56	154841	8/18/10
H13	S	48864.61	31.8	33.7	50406.43	154841	8/18/10
H13	20	59276.48	31.8	35.2	52464.38	154841	8/18/10
H13	40	59982.42	31.6	35.8	53226.00	154841	8/18/10
H13	60	58498.99	31.6	34.9	51987.96	154841	8/18/10
H13	0		32.4	28.0	42783.25	154841	8/18/10
H14	0	59387.42	32.6	34.8	51901.55	154841	8/18/10
H14	20	59207.13	31.7	35.3	52530.69	154841	8/18/10
H14	40	59931.38	32.0	35.5	52874.54	154841	8/18/10
H14	S		32.1	34.5	51491.34	154841	8/18/10
R-HI1	0	57375.70	30.0	35.1	52343.81	154841	8/25/10
R-HI1	20	57065.27	30.5	34.6	51629.73	154841	8/25/10
R-HI1	40	56396.89	30.5	34.1	51006.38	154841	8/25/10
R-HI1	60	57786.61	30.3	35.2	52439.20	154841	8/25/10
R-HI1	S		30.1	35.1	52330.70	154841	8/25/10
R-HI2	0	58157.88	30.5	35.3	52591.05	154841	8/25/10
R-HI2	20	60427.74	31.5	36.2	53786.19	154841	8/25/10
R-HI2	40	59799.86	31.5	35.8	53164.32	154841	8/25/10
R-HI2	60	60328.11	31.7	36.0	53443.23	154841	8/25/10
R-HI2	S		30.7	35.4	52680.45	154841	8/25/10
HI3N	0	58887.54	31.7	35.1	52223.70	154841	8/25/10
HI3N	20	58875.13	31.3	35.3	52593.85	154841	8/25/10
HI3N	40	59115.19	31.2	35.5	52816.88	154841	8/25/10
HI3N	60	58431.55	31.2	35.0	52209.20	154841	8/25/10
HI3N	S		31.8	35.0	52182.21	154841	8/25/10
HI4	0	59493.90	31.4	35.7	53014.94	154841	8/22/10
HI4	20	59432.76	31.2	35.8	53175.38	154841	8/22/10
HI4	40	60353.58	30.7	36.7	54419.60	154841	8/22/10
HI4	S		31.2	35.0	52222.83	154841	8/22/10
HI6	0	60612.81	33.2	35.2	52445.38	154841	8/21/10
HI6	20	60595.27	32.7	35.5	52826.84	154841	8/21/10



Table B.2-1. Porewater Sampline Grid Points Raw Data (August 2010 Dry Season)

Location Name	Depth	Actual Conductance (µS)	Temp (°C)	Salinity (in PSS78)	Specific Conductance (µS/cm)	Probe Serial No.	Date
HI6	40	61168.70	32.2	36.2	53756.70	154841	8/21/10
HI6	60	61531.03	32.7	36.1	53620.06	154841	8/21/10
R-HI9	0	54650.45	31.4	32.4	48724.29	154841	8/24/10
R-HI9	20	58124.41	31.8	34.4	51413.30	154841	8/24/10
R-HI9	40	59945.55	31.7	35.8	53154.21	154841	8/24/10
R-HI9	60	58029.38	31.7	34.4	51405.11	154841	8/24/10
R-HI9	S		31.4	32.4	48701.75	154841	8/24/10
HI10	0	56991.62	32.1	33.5	50193.34	154841	8/19/10
HI10	20	59439.64	31.7	35.4	52733.85	154841	8/19/10
HI10	40	58191.73	31.8	34.5	51519.51	154841	8/19/10
HI10	S		32.0	33.5	50174.67	154841	8/19/10
HI11	0	56442.07	30.8	34.0	50851.99	154841	8/26/10
HI11	20	57383.95	30.4	34.9	52006.32	154841	8/26/10
HI11	40	57965.93	30.6	35.1	52336.77	154841	8/26/10
HI11	60	58926.53	30.6	35.8	53269.84	154841	8/26/10
HI11	S		30.7	34.0	50813.79	154841	8/26/10
HI7	0	62969.27	34.6	35.8	53201.83	154841	8/20/10
HI7	20	62721.15	34.1	36.0	53451.12	154841	8/20/10
HI7	40	61395.07	33.1	35.8	53145.59	154841	8/20/10
HI7	60	61305.85	32.7	36.0	53433.83	154841	8/20/10
I1	0	56161.55	30.6	33.9	50702.62	154841	8/23/10
I1	20	57040.97	31.6	33.9	50642.51	154841	8/23/10
I1	S		30.8	33.8	50598.98	154841	8/23/10
R-I2	0	56512.62	30.3	34.4	51360.40	154841	8/25/10
R-I2	20	59998.61	30.8	36.4	53992.07	154841	8/25/10
R-I2	40	58524.68	31.0	35.3	52499.79	154841	8/25/10
R-I2	60	59600.20	31.2	35.9	53315.65	154841	8/25/10
R-I2	S		30.4	34.4	51408.40	154841	8/25/10
I3N	0	57488.40	31.5	34.2	51119.86	154841	8/25/10
I3N	20	61069.88	32.0	36.3	53910.23	154841	8/25/10
I3N	40	62378.22	31.9	37.3	55142.72	154841	8/25/10
I3N	60	62180.35	32.0	37.0	54819.52	154841	8/25/10
I3N	S		31.5	34.2	51031.92	154841	8/25/10
I4	0	55998.91	30.2	34.1	50977.87	154841	8/26/10
I4	20	57976.62	30.8	35.0	52211.61	154841	8/26/10
I4	40	57112.29	31.0	34.3	51234.70	154841	8/26/10
I4	S		30.1	34.2	51068.75	154841	8/26/10
I5	0	59199.23	31.2	35.6	52925.91	154841	8/22/10
I5	20	59499.95	31.0	35.9	53392.83	154841	8/22/10
I5	40	60097.41	30.8	36.4	54059.50	154841	8/22/10
I5	S		31.1	35.6	52963.07	154841	8/22/10
R-I6	0	56359.18	31.2	33.7	50416.30	154841	8/24/10
R-I6	20	57175.11	31.8	33.8	50608.88	154841	8/24/10
R-I6	40	58248.32	31.1	35.0	52176.43	154841	8/24/10
R-I6	S		31.3	33.6	50355.85	154841	8/24/10
I8	0	57629.42	33.1	33.3	49907.79	154841	8/19/10
I8	20	58505.00	33.0	34.0	50767.79	154841	8/19/10
I8	40	60168.72	32.5	35.4	52629.30	154841	8/19/10
I8	60	57836.78	32.7	33.7	50417.80	154841	8/19/10
I8	S		33.0	33.2	49786.08	154841	8/19/10
I9	0	57461.29	32.3	33.7	50403.94	154841	8/19/10
I9	20	59334.54	32.7	34.7	51748.95	154841	8/19/10
I9	S		32.3	33.7	50427.56	154841	8/19/10
I10	0	56984.47	32.0	33.6	50238.72	154841	8/19/10
I10	20	57682.82	31.7	34.2	51124.32	154841	8/19/10
I10	40	59574.46	31.5	35.6	52969.20	154841	8/19/10
I10	S		32.1	33.5	50191.00	154841	8/19/10
I11	20	63523.13	33.2	37.1	54889.52	154841	8/18/10
I11	40	60383.27	32.0	35.8	53245.44	154841	8/18/10
I11	S		33.0	34.2	51028.87	154841	8/18/10
I13	0	59063.74	32.6	34.6	51562.31	154841	8/18/10
I13	20	58714.41	31.9	34.8	51838.57	154841	8/18/10
I13	40	60019.61	31.6	35.9	53345.52	154841	8/18/10
I13	60	59697.93	31.6	35.6	52980.80	154841	8/18/10
I13	S		31.9	33.9	50694.77	154841	8/18/10
R-IJ1	0	56769.30	30.2	34.6	51598.78	154841	8/25/10
R-IJ1	20	57684.83	30.6	34.9	52068.57	154841	8/25/10
R-IJ1	40	58860.95	30.8	35.6	53013.05	154841	8/25/10



Table B.2-1. Porewater Sampline Grid Points Raw Data (August 2010 Dry Season)

Location Name	Depth	Actual Conductance (µS)	Temp (°C)	Salinity (in PSS78)	Specific Conductance (µS/cm)	Probe Serial No.	Date
R-IJ1	60	59342.90	30.8	35.9	53391.57	154841	8/25/10
R-IJ1	S		30.2	34.7	51730.70	154841	8/25/10
IJ-3	0	59233.10	31.4	35.5	52812.98	154841	8/22/10
IJ-3	20	60915.76	33.3	35.3	52574.55	154841	8/22/10
IJ-3	S		31.3	35.5	52773.00	154841	8/22/10
IJ-4	0	56264.32	30.0	34.4	51325.98	154841	8/26/10
IJ-4	20	57186.85	30.6	34.6	51667.16	154841	8/26/10
IJ-4	40	58034.21	30.9	35.0	52154.91	154841	8/26/10
IJ-4	60	60713.73	30.6	37.0	54824.19	154841	8/26/10
IJ-4	S		30.1	34.3	51295.81	154841	8/26/10
IJ-6	0	55109.13	31.0	32.9	49412.50	154841	8/23/10
IJ-6	20	57862.26	30.7	35.0	52202.31	154841	8/23/10
IJ-6	40	56957.87	30.8	34.3	51290.02	154841	8/23/10
IJ-6	60	55700.25	30.9	33.4	50065.71	154841	8/23/10
IJ-6	S		31.0	32.9	49393.26	154841	8/23/10
IJ-7	0	59467.04	33.2	34.5	51445.93	154841	8/20/10
IJ-7	20	59843.71	32.9	34.9	51992.31	154841	8/20/10
IJ-7	40	60646.43	32.8	35.5	52796.07	154841	8/20/10
IJ-7	60	60121.59	32.8	35.2	52347.63	154841	8/20/10
IJ-7	S		33.2	34.5	51412.54	154841	8/20/10
IJ-8	0	57943.14	33.0	33.6	50281.75	154841	8/19/10
IJ-8	20	60181.19	32.4	35.4	52723.30	154841	8/19/10
IJ-8	40	60667.56	32.3	35.8	53221.54	154841	8/19/10
IJ-8	60	60027.82	32.4	35.3	52561.70	154841	8/19/10
IJ-8	S		33.0	33.6	50281.75	154841	8/19/10
IJ-9	0	57468.54	32.1	33.8	50564.42	154841	8/19/10
IJ-9	20	58504.93	32.0	34.6	51595.58	154841	8/19/10
IJ-9	S		32.2	33.8	50544.47	154841	8/19/10
J2	0	57104.89	31.0	34.3	51207.98	154841	8/23/10
J2	20	58537.85	32.1	34.5	51515.84	154841	8/23/10
J2	S		31.1	34.2	51126.71	154841	8/23/10
J4	0	58224.05	31.2	34.9	52069.26	154841	8/22/10
J4	20	57806.43	30.5	35.1	52301.23	154841	8/22/10
J4	40	58276.23	30.4	35.5	52828.16	154841	8/22/10
J4	S		31.1	34.9	52079.71	154841	8/22/10
J5	0	58454.31	31.3	35.0	52204.39	154841	8/22/10
J5	20	56668.67	29.4	35.1	52306.13	154841	8/22/10
J5	40	57996.77	29.6	35.8	53298.29	154841	8/22/10
J5	60	58458.26	29.9	35.9	53413.43	154841	8/22/10
J5	S		31.1	35.1	52317.65	154841	8/22/10
J6	0	60791.07	34.3	34.6	51641.12	154841	8/21/10
J6	20	60373.27	32.8	35.3	52560.13	154841	8/21/10
J6	40	60917.00	33.1	35.5	52748.63	154841	8/21/10
J6	60	60229.22	33.6	34.7	51725.89	154841	8/21/10
J7	0	58393.86	32.8	34.0	50806.77	154841	8/20/10
J7	20	61642.85	32.6	36.3	53820.41	154841	8/20/10
J7	40	60497.39	32.2	35.8	53191.64	154841	8/20/10
J7	60	58710.11	32.2	34.6	51644.57	154841	8/20/10
J7	S		32.9	34.1	50903.19	154841	8/20/10
J8	0	58248.15	32.9	33.8	50572.88	154841	8/19/10
J8	20	60323.50	32.4	35.6	52880.01	154841	8/19/10
J8	40	59503.32	32.6	34.9	51968.87	154841	8/19/10
J8	S		33.0	33.9	50618.35	154841	8/19/10
J9	0	57319.20	32.0	33.8	50552.24	154841	8/19/10
J9	20	59150.17	31.8	35.1	52320.79	154841	8/19/10
J9	40	59917.53	31.8	35.6	53001.00	154841	8/19/10
J9	60	60738.60	31.9	36.1	53625.27	154841	8/19/10
J9	S		32.1	33.8	50551.43	154841	8/19/10
J10	0	57648.34	32.1	34.0	50791.86	154841	8/19/10
J10	20	60037.99	31.8	35.8	53159.30	154841	8/19/10
J10	40	60834.51	31.5	36.5	54074.84	154841	8/19/10
J10	S		32.0	33.9	50674.36	154841	8/19/10
J11	0	58764.59	32.8	34.2	51120.26	154841	8/18/10
J11	20	62754.73	33.0	36.8	54472.47	154841	8/18/10
J11	40	60957.37	33.1	35.5	52795.91	154841	8/18/10
J11	60	60310.93	33.0	35.2	52357.57	154841	8/18/10
J11	S		32.8	34.2	51040.40	154841	8/18/10
J12	0	59041.61	33.1	34.2	51099.12	154841	8/18/10



Table B.2-1. Porewater Sampline Grid Points Raw Data (August 2010 Dry Season)

Location Name	Depth	Actual Conductance (µS)	Temp (°C)	Salinity (in PSS78)	Specific Conductance (µS/cm)	Probe Serial No.	Date
J12	20	63434.91	34.4	36.3	53810.45	154841	8/18/10
J12	40	62211.66	33.7	35.9	53324.39	154841	8/18/10
J12	S		33.1	34.4	51295.30	154841	8/18/10
JK-7	0	58619.16	32.3	34.5	51461.34	154841	8/20/10
JK-7	20	60340.66	32.5	35.5	52751.62	154841	8/20/10
JK-7	40	61698.68	32.6	36.3	53890.80	154841	8/20/10
JK-7	60	60078.52	32.4	35.4	52645.92	154841	8/20/10
JK-7	S		32.2	34.4	51327.78	154841	8/20/10
K7	0	58199.59	32.3	34.2	51070.15	154841	8/20/10
K7	20	58219.80	31.5	34.7	51778.32	154841	8/20/10
K7	40	60493.17	31.4	36.3	53865.75	154841	8/20/10
K7	60	58579.80	31.5	34.9	52082.91	154841	8/20/10
K7	S		32.3	34.2	51152.55	154841	8/20/10
K8	0	58386.77	33.0	33.8	50616.50	154841	8/19/10
K8	20	61408.62	32.8	36.0	53410.26	154841	8/19/10
K8	40	59454.13	32.7	34.8	51855.34	154841	8/19/10
K8	60	59388.83	32.7	34.7	51768.03	154841	8/19/10
K8	S		33.1	33.9	50709.67	154841	8/19/10
BF	S		31.9	36.0	53477.61	154841	8/24/10
BF	20	59068.92	30.7	35.8	53276.83	154841	8/24/10
BF	40	58470.50	30.9	35.3	52553.19	154841	8/24/10
BF	60	58019.89	31.1	34.9	52004.34	154841	8/24/10



Table B.2-2. Porewater Sampling Areas of Ecological Interst Raw Data (August 2010 Dry Season)

Location Name	Site	Depth	Actual Conductance (µS)	Temp (°C)	Salinity (in PSS78)	Specific Conductance (µS/cm)	Probe Serial No.	Date
BB1	A	0	45069.45	30.4	26.6	40862.20	154841	8/23/10
BB1	A	20	57515.30	30.6	34.8	51958.95	154841	8/23/10
BB1	A	S	56043.20	30.5	33.9	50754.75	154841	8/23/10
BB1	B	0	56546.39	30.5	34.2	51144.23	154841	8/23/10
BB1	B	20	58102.30	30.5	35.3	52575.30	154841	8/23/10
BB1	B	40	57752.50	31.1	34.7	51757.82	154841	8/23/10
BB1	B	S	56257.62	30.4	34.1	50981.59	154841	8/23/10
BB2	A	0	56067.56	30.2	34.1	51001.68	154841	8/23/10
BB2	A	20	57040.80	30.4	34.7	51725.30	154841	8/23/10
BB2	A	S	55147.94	30.1	33.5	50249.70	154841	8/23/10
BB2	B	0	56148.55	30.3	34.1	51011.01	154841	8/23/10
BB2	B	20	56765.09	30.5	34.4	51338.38	154841	8/23/10
BB2	B	40	56217.88	30.4	34.1	50931.72	154841	8/23/10
BB2	B	S	55145.52	30.3	33.4	50083.69	154841	8/23/10
BB3	A	S	51890.22	29.9	31.5	47479.21	154841	8/23/10
BB3	A	20	54157.75	30.3	32.7	49178.39	154841	8/23/10
BB3	A	40	53361.84	30.1	32.3	48608.45	154841	8/23/10
BB3	A	60	53271.05	30.7	31.9	48040.95	154841	8/23/10
BB3	B	S	52189.76	30.1	31.6	47588.98	154841	8/23/10
BB3	B	20	55802.40	30.7	33.6	50345.25	154841	8/23/10
BB3	B	40	54268.71	30.9	32.4	48735.47	154841	8/23/10
BB3	B	60	52596.55	30.2	31.8	47882.84	154841	8/23/10
BB4	A	0	59647.67	31.1	36.0	53463.68	154841	8/22/10
BB4	A	20	57849.17	30.9	34.9	51980.39	154841	8/22/10
BB4	A	40	54600.59	31.2	32.5	48798.23	154841	8/22/10
BB4	A	60	54531.02	30.6	32.8	49222.94	154841	8/22/10
BB4	A	S	58708.86	30.8	35.5	52838.61	154841	8/22/10
BB4	B	0	59804.36	31.1	36.0	53526.32	154841	8/22/10
BB4	B	20	58058.72	30.7	35.1	52321.96	154841	8/22/10
BB4	B	40	54375.42	30.4	32.9	49329.22	154841	8/22/10
BB4	B	60	53650.32	30.5	32.3	48590.34	154841	8/22/10
BB4	B	S	57191.77	30.9	34.4	51417.72	154841	8/22/10
BB5	A	0	59034.19	31.3	35.4	52664.12	154841	8/22/10
BB5	A	20	59157.50	30.7	35.9	53367.16	154841	8/22/10
BB5	A	40	58376.53	30.6	35.4	52690.72	154841	8/22/10
BB5	A	60	58871.92	30.7	35.7	53132.79	154841	8/22/10
BB5	A	S	58976.12	31.3	35.3	52612.48	154841	8/22/10
BB5	B	0	58940.78	31.3	35.3	52581.64	154841	8/22/10
BB5	B	20	57443.60	29.6	35.4	52772.08	154841	8/22/10
BB5	B	40	58649.45	29.5	36.4	53970.99	154841	8/22/10
BB5	B	60	58976.58	29.8	36.4	54046.51	154841	8/22/10
BB5	B	S	58899.09	31.1	35.4	52735.29	154841	8/22/10
BB6	A	0	59963.10	31.7	35.7	53139.70	154841	8/21/10
BB6	A	20	62158.89	32.3	36.8	54564.38	154841	8/21/10
BB6	A	40	58723.95	31.7	34.9	52042.05	154841	8/21/10
BB6	A	60	58619.71	31.8	34.8	51905.85	154841	8/21/10
BB6	B	0	61068.54	31.5	36.6	54316.68	154841	8/21/10
BB6	B	20	60658.66	31.3	36.5	54159.43	154841	8/21/10
BB6	B	40	57092.27	31.0	34.3	51258.65	154841	8/21/10
BB6	B	60	56947.30	30.9	34.2	51168.27	154841	8/21/10
BB7	A	0	59564.80	33.3	34.5	51420.73	154841	8/21/10
BB7	B	0	59447.89	33.2	34.4	51374.22	154841	8/21/10
BB7	B	20	60781.73	33.1	35.4	52628.56	154841	8/21/10
BB7	B	40	61150.38	32.6	36.0	53393.77	154841	8/21/10
BB7	B	60	62653.34	32.9	36.7	54420.42	154841	8/21/10
BB9	A	0	58507.65	32.9	34.0	50820.63	154841	8/19/10
BB9	A	20	59477.70	32.4	35.0	52145.01	154841	8/19/10
BB9	A	S	58542.39	32.9	34.0	50876.04	154841	8/19/10
BB9	B	0	58549.41	32.9	34.0	50853.98	154841	8/19/10
BB9	B	20	58650.34	32.5	34.4	51320.59	154841	8/19/10



Table B.2-2. Porewater Sampling Areas of Ecological Interst Raw Data (August 2010 Dry Season)

Location Name	Site	Depth	Actual Conductance (μS)	Temp (°C)	Salinity (in PSS78)	Specific Conductance (μS/cm)	Probe Serial No.	Date
BB9	B	40	60832.07	32.9	35.6	52891.27	154841	8/19/10
BB9	B	S	58540.97	32.9	34.0	50854.78	154841	8/19/10
BB8	A	20	57859.16	30.7	35.0	52185.69	154841	8/23/10
BB8	A	40	58334.18	30.9	35.2	52436.93	154841	8/23/10
BB8	A	60	57518.71	31.0	34.6	51589.73	154841	8/23/10
BB8	A	S	56370.98	31.1	33.8	50528.91	154841	8/23/10
BB8	B	20	57878.78	31.0	34.8	51883.72	154841	8/23/10
BB8	B	40	59010.33	30.9	35.7	53042.32	154841	8/23/10
BB8	B	60	59053.12	30.9	35.7	53059.97	154841	8/23/10
BB8	B	S	56507.11	31.1	33.8	50629.29	154841	8/23/10



Table B.2-3. Porewater Sampling Grid Points (August 2010 Dry Season)

Location Name	Latitude	Longitude	Original Site	Habitat	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
					Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
D13	25.31795	-80.36915	Yes	Biscayne Bay	25.31799	-80.36914	32.8	33.1	46868.33	49144.42	48595.81	50580.69	33.1	32.5	32.5	33.2	33.0	46384.99	20 cm - Moderate H2S odor, moderate turbidity. 40 cm - Mild H2S odor, fine gray sediment. 5 refusals before success. 60 cm - 20 refusals, moved 2 m and had success. Light brown fine sediment, mild H2S odor. Silty bottom. Dense to moderate <i>Thalassia</i> .
D14	25.30653	-80.36921	Yes	Biscayne Bay	25.30658	-80.3692	33.7	32.8	47424.15				32.8				33.0	47253.99	Made many attempts, but porewater sipper was always rejected. No porewater sampling done. Hard bottom 5-10 cm beneath sand surface. Sandier than previous sites to the south. Sandy shell hash substrate. Primarily <i>Batophora</i> . <i>Penicillus</i> , small stony corals, Gorgonian, sponges, brown drift algae
D15	25.29539	-80.36945	Yes	Biscayne Bay	25.29542	-80.36929	33.7	32.6	47633.84	49250.06	47983.93	46330.11	32.6	32.0	32.7	32.7	32.6	47748.18	20 cm - Mild H2S odor. Slightly turbid. 40 cm - Moderate H2S odor, slightly turbid. 60 cm - Mild H2S, moderately turbid. Dense <i>Thalassia</i> .
E13	25.31777	-80.35654	Yes	Biscayne Bay	25.31777	-80.35654	32.6	32.7	47267.02	53174.48	53731.36	53632.54	32.7	32.2	31.8	32.0	33.1	48863.50	20 cm - Mild H2S odor. Rust colored deposits that are fine and sparse. 40 cm - First sample had too much sediment and not enough water. Added about 15 mL of another sample from same depth to make a composite sample, mild H2S odor. 60 cm - Very mild H2S odor; moderate turbidity. Dense <i>Thalassia</i> .
E14	25.30646	-80.35646	Yes	Biscayne Bay	25.30646	-80.35646	33.0	32.8	48278.51	52010.16	51448.46	51166.60	32.8	32.2	32.0	32.2	33.1	49477.50	20 cm - Mild H2S odor, not much fine sediment. 40 cm - Moderate H2S odor. Moderate turbidity, gray sediment. 60 cm - Strong H2S odor, moderate turbidity, fine sediment. Dense <i>Thalassia</i> , silty substrate, live scallop.
E15	25.29509	-80.35673	Yes	Biscayne Bay	25.29508	-80.35673	33.2	32.2	49449.43	49301.79	49884.02	48468.67	32.2	32.8	32.0	32.5	32.2	49482.25	20 cm - Mild H2S odor, fine sediment, turbid sample. 40 cm - Moderate H2S odor. Less turbid than 20 cm, some fine sediment. 60 cm - Mild H2S odor, turbidity same as 40 cm. Moderate <i>Thalassia</i> , a few <i>Penicillus</i> .
F13	25.31779	-80.34412	Yes	Biscayne Bay	25.31783	-80.34415	32.0	32.2	49831.21	52367.10			32.2	31.9			32.1	49884.21	20 cm - Moderate H2S odor, moderate turbidity. 40 cm - 20 Rejections, no success. No attempt at 60 cm. Sparse <i>Thalassia</i> , numerous <i>Penicillus</i> , solitary <i>Udotea</i> , sponges, <i>Halimeda</i> .
F14	25.30638	-80.34386	Yes	Biscayne Bay	25.30639	-80.34382	33.9	32.8	48100.34	43276.75	50450.03	49120.87	32.8	32.7	32.8	32.7	32.9	48081.02	20 cm - Mild H2S odor, fine sediment. 40 cm - Mild H2S odor, fine sediment. 60 cm - Mild H2S odor, fine sediment. Several purple sponges present. Sponges, stony coral, <i>Halimeda</i> , <i>Udotea</i> , blue sponge, moderate <i>Thalassia</i> . Sandy silt bottom. More sand than E14.
F14	25.30638	-80.34386	Yes	Biscayne Bay	25.30637	-80.34389	32.3	30.2	47694.43	48860.72	49289.79	50019.18	30.2	30.8	31.7	31.3	30.2	47586.86	20 cm -gray, turbidity high, sediment high silt. Odor strong H2S. 40 cm - gray color, turbidity high, sediment high silt, odor moderate H2S. 60 cm - light gray, turbidity low, sediment moderate fine. Sparse to moderate <i>Thalassia</i> , several sponges, numerous <i>Penicillus</i> , a few <i>Halimeda</i> ; sandy shell hash substrate.

Table B.2-3. Porewater Sampling Grid Points (August 2010 Dry Season)

Location Name	Latitude	Longitude	Original Site	Habitat	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
					Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
F15	25.29508	-80.34409	Yes	Biscayne Bay	25.29508	-80.34409	32.6	31.8	49115.83	48992.29	42029.73	48448.43	31.8	31.6	31.7	32.1	31.8	43405.68	Water is about 5 feet deep at site. 20 cm, H <sub>2</sub> S odor, turbid with fine sediment. 40 cm, mild H <sub>2</sub> S smell, a lot of fine sediment. 60 cm, mild H <sub>2</sub> S odor, turbid with fine sediment. Moderate <i>Thalassia</i> . Individuals of <i>Penicillus</i> , <i>Halimeda</i> (calcareous algae), <i>Batophora</i> .
F15	25.29508	-80.34409	Yes	Biscayne Bay	25.2951	-80.34409	32.4	30.5	48642.65	49780.55	49567.73	49903.20	30.5	31.8	32.1	31.8	30.5	48656.92	20 cm - gray color, high turbidity, moderate silt sediment, moderate H <sub>2</sub> S odor. 40 cm - gray color, high turbidity, high silt sediment, moderate H <sub>2</sub> S odor. 60 cm- gray color, high turbidity, moderate silt sediment, moderate H <sub>2</sub> S odor. Samples had to be pulled several times to clear sediment in order to obtain enough water to test. Sparse <i>Thalassia</i> , a few <i>Penicillus</i> ; silty sandy bottom.
R_FG12	25.32886	-80.33829	Yes	Biscayne Bay	25.3288	-80.33816	32.2	30.6	48286.20	50058.32	51468.97	50488.20	30.6	30.6	31.1	31.2	30.5	48314.42	20 refusals at 20 cm before success. Had to move a few meters south. 20 cm - no color, no turbidity, low coarse sand sediment, mild H <sub>2</sub> S odor. 40 cm - tan-gray color, low turbidity, low fine brown sediment, moderate H <sub>2</sub> S odor. 60 cm - tan-gray color, moderate turbidity, moderate silt sediment, moderate H <sub>2</sub> S odor. Moderate <i>Batophora</i> , sparse <i>Thalassia</i> , brown drift algae, some <i>Halimeda</i> , stony corals.
G1	25.45279	-80.33071	Yes	Biscayne Bay	25.45278	-80.33113	33.9	31.3	47454.43	49989.15	48569.77		31.3	32.3	32.1		31.2	47563.32	20 cm - no color, no particulate, low sediment, moderate H <sub>2</sub> S odor. 12 refusals at 40 cm before success. 40 cm - tan brown color, low particulate, low sediment, mild H <sub>2</sub> S odor. 24 refusals before 60 cm deep. No sample at 60 cm. Dense <i>Thalassia</i> and brown drift algae, a few <i>Penicillus</i> . Sandy shell hash substrate.
G3			Yes	Biscayne Bay	25.42772	-80.32536	31.7	30.3	53385.72	53754.68	53578.93	53394.15	30.3	32.7	32.6	31.8	30.5	53462.73	Turbid samples at 20 - 60 cm, moderate H <sub>2</sub> S odor. Dense <i>Thalassia</i> , brown drift algae and <i>Penicillus</i> and a few <i>Halimeda</i> . Sandy bottom.
G10-Bay	25.35511	-80.33216	Yes	Biscayne Bay	25.34837	-80.33105	32.7	32.0	49669.30	52125.95	51850.76	51236.04	32.0	31.9	32.2	32.5	32.0	49593.19	20 cm - no color, no turbidity, low fine brown sediment, moderate H <sub>2</sub> S odor. 40 cm - brown-gray color, low turbidity, moderate sediment, moderate H <sub>2</sub> S odor. 60 cm - brown color, low turbidity, low sediment. Moderate to dense <i>Thalassia</i> with a heavy epiphyte load. Isolated sponges, <i>Halimeda</i> and <i>Acetabularia</i> . Sandy shell hash bottom.
R-G11	25.34005	-80.33163	Yes	Biscayne Bay	25.33996	-80.33168	33.4	31.1	49007.32	50974.37			31.1	31.6			31.2	49246.02	20 cm - no color, no turbidity, low silt sediment, moderate H <sub>2</sub> S odor. 20 refusals at 25 cm. No samples at 40 cm or 60 cm. Sparse <i>Thalassia</i> , moderate to dense brown drift algae, some <i>Acetabularia</i> , <i>Halimeda</i> , <i>Penicillus</i> .



Table B.2-3. Porewater Sampling Grid Points (August 2010 Dry Season)

Location Name	Latitude	Longitude	Original Site	Habitat	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
					Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
G11-Bay			Yes	Biscayne Bay	25.34485	-80.33264	32.9	31.0	54212.48	49705.61	52162.92	51888.77	31.0	31.2	31.5	31.7	31.0	48436.30	20 cm - tan color, no turbidity, low fine brown sediment, mild H <sub>2</sub> S odor. 40 cm - tan color, no turbidity, low sediment, moderate H <sub>2</sub> S odor. 60 cm - brown color, no turbidity, low sediment, strong H <sub>2</sub> S odor. Moderate <i>Thalassia</i> with heavy epiphyte growth, sparse <i>Syringodium</i> , a few <i>Penicillus</i> , <i>Udotea</i> , <i>Acetabularia</i> . Sandy shell hash bottom.
R-G12	25.32882	-80.33176	Yes	Biscayne Bay	25.32862	-80.33173	32.7	30.8	48945.75	52905.00	52823.09	50052.55	30.8	31.2	31.1	30.8	30.8	48946.82	20 cm - no color, no turbidity, low sand sediment, moderate H <sub>2</sub> S odor. 40 cm - no color, no turbidity, low gray sand sediment, mild H <sub>2</sub> S odor. 60 cm - no color, no turbidity, low sand sediment, mild H <sub>2</sub> S odor. Moderate <i>Thalassia</i> , some <i>Acetabularia</i> and <i>Penicillus</i> . Sandy shell hash bottom.
G13	25.31773	-80.3316	Yes	Biscayne Bay	25.31777	-80.33173	29.2	30.7	48911.75	52082.95			30.7	30.0			30.7	48918.02	Very low turbidity at 20 cm, 20 plus refusals at 40 cm (M. Mohlmann), 20 plus refusals at 40 cm (K. Cuniff). Sparse to moderate <i>Thalassia</i> , with a few <i>Penicillus</i> , sandy shell hash bottom.
G14	25.30618	-80.3319	Yes	Biscayne Bay	25.30619	-80.33185	33.5	32.7	49030.21	52088.82	52758.98	51463.24	32.7	32.3	32.5	32.6	32.8	52041.48	20 cm - Mild H <sub>2</sub> S odor, low turbidity. 40 cm - Mild H <sub>2</sub> S odor, low turbidity. 60 cm - Moderate H <sub>2</sub> S odor, very low turbidity. Tiny Seahorse, <i>Penicillus</i> , <i>Syringodium</i> (sparse), <i>Caulerpa</i> , <i>Acetabularia</i> ; silty bottom.
G15	25.29517	-80.33185	Yes	Biscayne Bay	25.29512	-80.33178	33.3	31.9	49497.00	51149.37	51329.42	50247.67	31.9	32.7	32.0	32.1	32.3	50494.12	Fine sediment is clogging tube. 20 cm - Strong H <sub>2</sub> S odor, fine gray sediment. 40 cm - Strong H <sub>2</sub> S odor, not as turbid as 20 cm. 60 cm - Strong H <sub>2</sub> S odor, fine sediment like in 20 cm and 40 cm. Dense <i>Thalassia</i> , moderate <i>Syringodium</i> . Individuals of <i>Penicillus</i> and <i>Caulerpa</i> . Silty bottom.
GH1	25.45267	-80.325	Yes	Biscayne Bay	25.45268	-80.32503	32.6	30.7	48447.02	49822.88	49871.13		30.7	31.7	32.3		30.6	48477.09	12 refusals at 20 cm before success. 20 cm - no color, no particulate, low sediment, moderate H <sub>2</sub> S odor. 6 refusals at 40 cm before success. 40 cm - brown-gray color, moderate particulates, moderate sediment, moderate H <sub>2</sub> S odor. 24 refusals before 60 cm. No sample at 60 cm. Sparse <i>Thalassia</i> and <i>Batophora</i> , numerous <i>Penicillus</i> , some <i>Halimeda</i> . Sandy shell hash substrate, mostly open.
GH2B			Yes	Biscayne Bay	25.43996	-80.32449	33.3	31.6	52447.10	53352.06			31.6	31.7			30.3	52789.18	Point is inside barge canal. 13 refusals at 20 cm before success. 24 refusals at 40 cm, no sample taken. Silty bottom with moderate <i>Caulerpa</i> .
GH2	25.4415	-80.32481	Yes	Biscayne Bay	25.44158	-80.3247	32.5	30.4	49211.01	49463.53			30.4	30.4			30.3	49279.23	10 refusals at 20 cm before success. 20 cm - no color, low particulate, moderate sediment, mild H <sub>2</sub> S odor. 25 refusals at 20 cm. No sample for 40 or 60 cm. Sparse <i>Thalassia</i> , sparse <i>Batophora</i> , numerous <i>Penicillus</i> , a few <i>Halimeda</i> . Sandy shell hash substrate.



Table B.2-3. Porewater Sampling Grid Points (August 2010 Dry Season)

Location Name	Latitude	Longitude	Original Site	Habitat	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
					Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
GH3	25.43029	-80.32495	Yes	Biscayne Bay	25.43032	-80.32497	31.0	30.9	52202.42	53688.27	53087.32	52680.44	30.9	30.7	30.1	30.1			20 cm - tan color, no particulate, low sediment, brown, mild H <sub>2</sub> S odor. 40 cm - brown color, moderate particulate, low sediment, brown; moderate H <sub>2</sub> S. 60 cm - no color, no particulate, low sediment, moderate H <sub>2</sub> S; 4 refusals at 60 cm before success. Dense <i>Thalassia</i> and brown drift algae. Silty substrate.
GH-4	25.41899	-80.32485	Yes	Biscayne Bay	25.41899	-80.32472	29.6	30.7	53721.25	53214.27	53852.56		30.7	29.8	30.2		30.8	53684.37	20 cm - moderate H <sub>2</sub> S odor, brownish gray water color, low particulates. 40 cm - 19 refusals. Move 4 m north to get sample. Brown gray color. Mild particulates moderate H <sub>2</sub> S odor. 60 cm - 25 refusals as deep at 50 cm. No sample. Sparse <i>Thalassia</i> , moderate to dense brown drift algae, sparse <i>Batophora</i> .
GH5			Yes	Biscayne Bay	25.40776	-80.32502	32.7	32.9		53079.80	51369.62	53165.83		32.6	32.5	32.7	32.7	53524.90	At 20 cm mild H <sub>2</sub> S odor and turbid. At 40 cm, no odor, brown and turbid, 4 refusals at 40 cm. At 60 cm, brown and turbid, 16 refusals before succes. No surface water conductance recorded because of depth. Sparse <i>Thalassia</i> , moderate <i>Batophora</i> , solitary sponges, few <i>Halimeda</i> , silty sandy bottom.
GH5	25.40776	-80.32504	Yes	Biscayne Bay	25.40777	-80.32496	30.4	31.3	52505.75	52121.89	52737.10	52753.71	31.3	30.8	31.2	31.0	31.3	52553.69	20 cm - Brown-gray color, low particulate, fine brown moderate sediment, moderate H <sub>2</sub> S odor. 5 refusals at 40 cm before success. 40 cm - brown-gray color, low particulate, low fine brown sediment. 60 cm - no color, no particulate, low sediment, mild H <sub>2</sub> S odor. Moderate <i>Thalassia</i> , some <i>Batophora</i> , <i>Penicillus</i> , <i>Halimeda</i> . Sandy silty substrate.
GH6	25.39646	-80.32489	Yes	Biscayne Bay	25.39647	-80.3249	33.3	32.2		52929.02	51473.40	52074.19		32.4	32.4	32.1	32.2	53279.05	20 cm - Mild H <sub>2</sub> S odor. 40 cm - Sample is turbid. 60 cm - Moderate H <sub>2</sub> S odor, fine sediment. Dense <i>Thalassia</i> , silty bottom.
R-GH10			Yes	Biscayne Bay	25.35131	-80.32491	32.9	31.3	49361.89	49810.57	52650.17	49696.32	31.3	31.6	32.0	31.9	31.2	49776.55	4 Refusals at 20 cm before success. 20 cm - no color, no turbidity, low gray sand sediment, mild H <sub>2</sub> S. 40 cm - no color, no turbidity, low sediment, moderate H <sub>2</sub> S odor. 60 cm - no color, no turbidity, low sediment, mild H <sub>2</sub> S odor. Moderate <i>Thalassia</i> , moderate brown drift algae, a few <i>Penicillus</i> , a solitary sponge; sandy shell hash.
GH11	25.33983	-80.32497	Yes	Biscayne Bay	25.33994	-80.32513	29.8	30.9	49815.01	53473.01	51858.98	51884.07	30.9	30.4	30.3	30.4	30.9	49631.11	Moderate H <sub>2</sub> S odor at 20 cm, very low turbidity. Mild H <sub>2</sub> S odor and low turbidity at 40 and 60 cm. Spiny lobsters and stone crab observed. Sparse to moderate <i>Thalassia</i> , some <i>Penicillus</i> , <i>Halimeda</i> and little <i>Acetabularia</i> . Sandy shell hash bottom.
GH12	25.32858	-80.3249	Yes	Biscayne Bay	25.3286	-80.32491	29.5	30.8	49685.07	52207.35	52236.89	51740.51	30.8	29.9	29.7	29.9	31.2	50253.00	Turbid sample at 20 cm, strong H <sub>2</sub> S odor. Turbid sample at 40 cm, moderate H <sub>2</sub> S odor. Turbid sample at 60 cm, mild H <sub>2</sub> S odor. Sparse to moderate <i>Thalassia</i> , some <i>Penicillus</i> . Sandy shell hash bottom with a little bit of silt on top.



Table B.2-3. Porewater Sampling Grid Points (August 2010 Dry Season)

Location Name	Latitude	Longitude	Original Site	Habitat	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
					Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
R-H1			Yes	Biscayne Bay	25.45317	-80.31831	31.5	30.0	52786.96	51332.27	53630.05	51347.66	30.0	30.2	30.3	30.3	29.9	52775.64	Moderate to mild H <sub>2</sub> S odor in 20, 40 , 60 cm. 20 and 40 cm samples moderately turbid. 60 cm sample is very turbid, white in color. Sparse <i>Thalassia</i> , few <i>Penicillus</i> and <i>Halimeda</i> . Sandy shell hash substrate.
R-H2			Yes	Biscayne Bay	25.4427	-80.31983	32.4	30.9	52808.21	52546.80	52773.73	50983.43	30.9	32.4	31.9	31.9	30.9	52861.35	Turbid gray sample at 20 - 60 cm. Moderate H <sub>2</sub> S odor. Sparse <i>Thalassia</i> with a few <i>Batophora</i> , <i>Halimeda</i> and <i>Penicillus</i> . Sandy shell hash bottom.
H2B			Yes	Biscayne Bay	25.44592	-80.31617	32.6	31.4	52930.00	52839.12	53261.20	54203.17	31.4	31.6	31.9	32.0	31.2	52903.04	Site inside barge canal, samples taken just off the edge. Dense <i>Thalassia</i> , a few <i>Penicillus</i> , sandy bottom.
H3	25.43029	80.31888	Yes	Biscayne Bay	25.43025	-80.31873	31.5	30.1	53361.38	53172.01	53513.21	53806.68	30.1	31.4	31.4	32.2	30.2	53336.98	Moderate turbidity and H <sub>2</sub> S odor at 20 to 60 cm. Sparse <i>Thalassia</i> , few <i>Batophora</i> , <i>Penicillus</i> and <i>Halimeda</i> . Sandy shell hash bottom.
H4	25.41909	-80.31868	Yes	Biscayne Bay	25.41909	-80.31873	32.3	31.0	51637.44	53279.75	53560.16	55144.80	31.0	30.7	30.6	30.4	31.3	53592.82	20 cm - No color, low particulates, mild H <sub>2</sub> S odor. 4 refusals at 20 cm before success. 40 cm - no color, low particulates, mild H <sub>2</sub> S odor, 4 refusals at 40 cm before success. 60 cm - no color, low particulates, mild H <sub>2</sub> S; 8 refusals at 60 cm before success. Sandy silty with a little shell hash. Sparse <i>Thalassia</i> , sparse to moderate <i>Batophora</i> , numerous <i>Penicillus</i> , a few <i>Halimeda</i> .
H5	25.40778	-80.31901	Yes	Biscayne Bay	25.40783	-80.31897	33.4	33.0		53352.84				33.0			33.0	53079.00	Specific conductance not taken for surface water because of depth. 20 cm - Low turbidity, very mild H <sub>2</sub> S odor. Sparse <i>Thalassia</i> , moderate <i>Batophora</i> , numerous <i>Penicillus</i> , few <i>Halimeda</i> , solitary sponges and stony corals. Sandy shell to hash bottom.
H6	25.39652	-80.31899	Yes	Biscayne Bay	25.39652	-80.31898	36.9	35.0	52876.07	54361.38	54079.64	54154.96	35.0	34.1	33.7	33.5	34.9	52843.18	Mild H <sub>2</sub> S odor. 10 refusals before success at 60 cm. Sparse to moderate <i>Thalassia</i> . Silty bottom.
H7	25.38804	-80.31693	Yes	Biscayne Bay	25.38807	-80.31691	33.2	31.8		52879.54	52543.46	52698.14		32.1	31.2	30.5	31.1	52604.11	20 cm - Mild H <sub>2</sub> S odor. 40 & 60 cm - Moderate H <sub>2</sub> S odor. Low turbidity in all samples. Did not take a surface conductance reading as water is too shallow. Sparse <i>Halodule</i> , moderate <i>Batophora</i> . A lot of dead vegetative matter and shell hash peat bottom.
H9-Bay			Yes	Biscayne Bay	25.36153	-80.32168	32.8	31.6	48004.43	50944.81	53139.30	50547.32	31.6	31.7	31.9	32.4	31.4	48186.28	20 cm - no color, no turbidity, low fine sand sediment, mild H <sub>2</sub> S odor. 40 cm - no color, no turbidity, low sediment, moderate H <sub>2</sub> S odor. 60 cm - dark brown color, low turbidity, low fine brown sediment, mild H <sub>2</sub> S odor. Dense <i>Thalassia</i> , sand shell hash substrate.
H10	25.35147	-80.31927	Yes	Biscayne Bay	25.35145	-80.31931	32.2	33.0	58338.00	53316.83			33.0	32.5			32.9	50644.95	Unable to save as a log surface readings as Rugged Reader is full. Moderate H <sub>2</sub> S odor, very low turbidity. 40 cm - 12 refusals. Maximum depth at 40cm. Sandy shell hash substrate. Numerous <i>Penicillus</i> , sparse <i>Thalassia</i> , sponges, Gorgonian and stony corals present but solitary.





Table B.2-3. Porewater Sampling Grid Points (August 2010 Dry Season)

Location Name	Latitude	Longitude	Original Site	Habitat	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
					Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
H11	25.34013	-80.3194	Yes	Biscayne Bay	25.34013	-80.3194	32.3	33.2	50737.56	54052.39			33.2	32.5			33.1	50747.73	20 cm - Moderate H <sub>2</sub> S odor, low turbidity, some gray sediment. 20 cm - 20 refusals. No readings taken at 40 cm or 60 cm. Sparse <i>Thalassia</i> , numerous <i>Penicillus</i> , <i>Halimeda</i> . Few sponges. Sandy shell hash bottom.
H12	25.32902	-80.31972	Yes	Biscayne Bay	25.32904	-80.31976	31.8	32.9	50296.60				32.9				32.6	50563.71	35 Attempts to reach 20 cm - rejected; unable to take readings. Average refusal between 5-10 cm. Very sparse <i>Thalassia</i> , numerous <i>Penicillus</i> , <i>Udotea</i> present, some large sponges noted. Sandy shell hash bottom.
H13	25.31767	-80.31955	Yes	Biscayne Bay	25.3177	-80.31966	31.7	31.8	50406.43	52464.38	53226.00	51987.96	31.8	31.8	31.6	31.6	32.4	42783.25	20 cm - Moderate H <sub>2</sub> S odor, very low turbidity. 40 cm - Mild H <sub>2</sub> S odor, mild turbidity. 60 cm - Mild H <sub>2</sub> S odor, mild turbidity. Numerous <i>Penicillus</i> , sparse <i>Thalassia</i> , isolated sponge, some <i>Halimeda</i> . Silty sand with some shell hash.
H14	25.30644	-80.31927	Yes	Biscayne Bay	25.30644	-80.31927	31.5	32.1	51491.34	52530.69	52874.54		32.1	31.7	32.0		32.6	51901.55	20 cm - Moderate H <sub>2</sub> S odor, some fine sediment. 40 cm - Low turbidity, fine sediment, no odor. 60 cm - No sample taken; 15 refusals. Dense <i>Thalassia</i> , moderate <i>Syringodium</i> . Some <i>Penicillus</i> . Sea anemones.
R-HI1			Yes	Biscayne Bay	25.45266	-80.31274	31.7	30.1	52330.70	51629.73	51006.38	52439.20	30.1	30.5	30.5	30.3	30.0	52343.81	Mild H <sub>2</sub> S odor, very little turbidity. Sparse <i>Thalassia</i> , some <i>Penicillus</i> and <i>Halimeda</i> and brown drift algae and sandy shell hash substrate.
R-HI2			Yes	Biscayne Bay	25.44151	-80.31216	34.7	30.7	52680.45	53786.19	53164.32	53443.23	30.7	31.5	31.5	31.7	30.5	52591.05	Moderate H <sub>2</sub> S odor. 20 and 40 cm samples very little turbidity. Moderate to dense <i>Thalassia</i> , sparse <i>Batophora</i> , few <i>Penicillus</i> and <i>Halimeda</i> ; sandy shell hash bottom.
HI3N			Yes	Biscayne Bay	25.43077	-80.31309	33.3	31.8	52182.21	52593.85	52816.88	52209.20	31.8	31.3	31.2	31.2	31.7	52223.70	Turbid samples 20 - 60 cm. Moderate H <sub>2</sub> S odor at 20 and 40 cm, strong H <sub>2</sub> S odor at 60 cm. Dense <i>Thalassia</i> , a few <i>Acetabularia</i> and <i>Batophora</i> . Sandy shell hash bottom.
HI4	25.41883	-80.31248	Yes	Biscayne Bay	25.4189	-80.31251	31.0	31.2	52222.83	53175.38	54419.60		31.2	31.2	30.7		31.4	53014.94	20 cm - no color, low particulate, mild H <sub>2</sub> S odor. 13 refusals at 40 cm before success. 40 cm - no color, no particulate, low sediment, mild H <sub>2</sub> S odor. 24 refusals, deepest around 30 cm. No sample at 60 cm. Sparse <i>Thalassia</i> , moderate <i>Batophora</i> , a few <i>Halimeda</i> and <i>Penicillus</i> ; sandy shell hash substrate.
HI6	25.39643	-80.31249	Yes	Biscayne Bay	25.39664	-80.31255	33.0	33.5		52826.84	53756.70	53620.06		32.7	32.2	32.7	33.2	52445.38	20 cm - Low odor. 13 refusals before success at 40 cm, mild H <sub>2</sub> S odor, white color. No surface water conductance taken - too shallow. Sparse <i>Thalassia</i> , dense <i>Batophora</i> , few <i>Udotea</i> , few <i>Penicillus</i> , few <i>Halimeda</i> . Solitary stony corals, sandy shell hash.
HI7	25.38605	-80.31245	Yes	Biscayne Bay	25.38606	-80.31243	35.6	34.6		53451.12	53145.59	53433.83		34.1	33.1	32.7	34.6	53201.83	Slight red sediment in 40 cm and 60 cm samples. Low turbidity, moderate H <sub>2</sub> S odor. Sparse to moderate <i>Thalassia</i> . Silty bottom.





Table B.2-3. Porewater Sampling Grid Points (August 2010 Dry Season)

Location Name	Latitude	Longitude	Original Site	Habitat	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
					Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
R-HI9			Yes	Biscayne Bay	25.36246	-80.31226	33.1	31.4	48701.75	51413.30	53154.21	51405.11	31.4	31.8	31.7	31.7	31.4	48724.29	Moved site 10 m east because refusal at original location. 20 cm - no color, no turbidity, low sand sediment, mild H <sub>2</sub> S odor. 40 cm - no color, no turbidity, low sediment, moderate H <sub>2</sub> S odor. 2m x 2m patch of moderate <i>Thalassia</i> bordered by brown drift algae. A few sponges, Gorgonian, stony coral.
HI10	25.35138	-80.3126	Yes	Biscayne Bay	25.35138	-80.31255	32.3	32.0	50174.67	52733.85	51519.51		32.0	31.7	31.8		32.1	50193.34	2 Refusals before success at 40 cm. 60 cm - 20 refusals. Mild H <sub>2</sub> S odor, turbid samples. Sparse <i>Thalassia</i> , numerous <i>Penicillus</i> , sparse <i>Batophora</i> and <i>Halimeda</i> . Isolated sponges, sandy silty bottom.
HI11	25.33997	-80.31252	Yes	Biscayne Bay	25.33994	-80.31255	30.8	30.7	50813.79	52006.32	52336.77	53269.84	30.7	30.4	30.6	30.6	30.8	50851.99	8 Spiny lobsters observed around a sponge. Low turbidity, 30 rejections before success at 20 cm. 50 plus rejections at 40 cm before success. Moderate <i>Thalassia</i> with a few <i>Penicillus</i> , sandy shell hash bottom.
I1	25.45527	-80.30839	Yes	Biscayne Bay	25.45529	-80.30837	32.1	30.8	50598.98	50642.51			30.8	31.6			30.6	50702.62	20 Refusals before success. 20 cm - no color, no particulate, low sediment, moderate H <sub>2</sub> S odor. 25 refusals at around 20 cm. No sample taken at 40 cm or 60 cm. Sparse <i>Thalassia</i> , numerous <i>Penicillus</i> , several Gorgonian; sandy shell hash bottom.
R-I2			Yes	Biscayne Bay	25.44106	-80.30684	32.1	30.4	51408.40	53992.07	52499.79	53315.65	30.4	30.8	31.0	31.2	30.3	51360.40	Moderate H <sub>2</sub> S odor, very low turbidity in 20 cm and 40 cm samples. High turbidity in 60 cm sample. Dense <i>Thalassia</i> , a few <i>Penicillus</i> , sandy shell hash substrate.
I3N			Yes	Biscayne Bay	25.4302	-80.30621	33.1	31.5	51031.92	53910.23	55142.72	54819.52	31.5	32.0	31.9	32.0	31.5	51119.86	Mild H <sub>2</sub> S odor, low turbidity. Dense <i>Thalassia</i> , a few <i>Batophora</i> , <i>Penicillus</i> and <i>Halimeda</i> . Sandy shell hash bottom.
I4	25.41915	-80.30628	Yes	Biscayne Bay	25.41914	-80.30635	31.5	30.1	51068.75	52211.61	51234.70		30.1	30.8	31.0		30.2	50977.87	Low turbidity, mild H <sub>2</sub> S odor and 20 cm and 40 cm. 50 plus rejections at 60 cm, no sample taken. Sparse <i>Thalassia</i> and <i>Batophora</i> , a few <i>Penicillus</i> , sandy shell hash bottom.
I5	25.40781	-80.30645	Yes	Biscayne Bay	25.40779	-80.30643	31.4	31.1	52963.07	53392.83	54059.50		31.1	31.0	30.8		31.2	52925.91	20 cm - No color, no particulate, low sediment, moderate H <sub>2</sub> S odor. 40 cm - no color, no particulate, low sediment, moderate H <sub>2</sub> S odor. 24 refusals at 50 cm. No sample at 60 cm. Sparse <i>Thalassia</i> , dense <i>Batophora</i> . A few <i>Halimeda</i> and <i>Penicillus</i> , sandy shell hash substrate.
R-I6	25.39635	-80.3065	Yes	Biscayne Bay	25.39633	-80.30639	32.6	31.3	50355.85	50608.88	52176.43		31.3	31.8	31.1		31.2	50416.30	20 cm - No color, no turbidity, low sediment, moderate H <sub>2</sub> S odor. 40 cm - no color, no turbidity, no sediment, mild H <sub>2</sub> S odor. 30 refusals around 15 cm. No sample taken at 60 cm. Sparse <i>Thalassia</i> , dense <i>Batophora</i> , individual <i>Halimeda</i> .
I8	25.37393	-80.30669	Yes	Biscayne Bay	25.37411	-80.30657	33.4	33.0	49786.08	50767.79	52629.30	50417.80	33.0	33.0	32.5	32.7	33.1	49907.79	8 Refusals before success at 20 cm. 15 refusals at 40 cm before success. 4 refusals at 60 cm before success. Sandy shelly substrate, barren. Sparse <i>Thalassia</i> and <i>Halodule</i> , <i>Batophora</i> , <i>Penicillus</i> , <i>Acetabularia</i> , stony corals, sponges and Gorgonians.



Table B.2-3. Porewater Sampling Grid Points (August 2010 Dry Season)

Location Name	Latitude	Longitude	Original Site	Habitat	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
					Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
I9	25.36247	-80.30673	Yes	Biscayne Bay	25.3624	-80.30677	33.2	32.3	50427.56	51748.95			32.3	32.7			32.3	50403.94	6 Refusals at 20 cm before success. 22 refusals at 40 cm, no sample taken. No sample taken at 60 cm. Sandy shell hash bottom. Sparse <i>Thalassia</i> , isolated sponges and corals. More open sand than IJ9. Several <i>Penicillus</i> & <i>Batophora</i> & <i>Acetabularia</i> .
I10	25.35128	-80.30691	Yes	Biscayne Bay	25.35148	-80.30698	32.3	32.1	50191.00	51124.32	52969.20		32.1	31.7	31.5		32.0	50238.72	2 Refusals before success at 20 cm. 40 cm - 15 refusals before success at 40 cm. 20 refusals before success at 60 cm. Sparse <i>Thalassia</i> , numerous <i>Penicillus</i> , <i>Batophora</i> , <i>Acetabularia</i> present. Solitary sponges and stony coral. Sandy shell hash bottom.
I11	25.33997	-80.30685	Yes	Biscayne Bay	25.33984	-80.30692	33.4	33.0	51028.87	54889.52	53245.44		33.0	33.2	32.0		33.0	50825.00	20 cm - Strong H <sub>2</sub> S odor. 40 cm - Moderate H <sub>2</sub> S odor. Moderate <i>Thalassia</i> , <i>Penicillus</i> , <i>Halimeda</i> . Sandy silty substrate with a little shell hash.
I13	25.3178	-80.30694	Yes	Biscayne Bay	25.31775	-80.30687	31.6	31.9	50694.77	51838.57	53345.52	52980.80	31.9	31.9	31.6	31.6	32.6	51562.31	20 cm - No odor; low turbidity. 40 cm - Mild H <sub>2</sub> S odor; low turbidity. 60 cm - Mild H <sub>2</sub> S odor; moderate turbidity. <i>Acetabularia</i> , moderate to dense <i>Thalassia</i> , moderate <i>Syringodium</i> <i>Penicillus</i> , <i>Caulerpa</i> , <i>Halimeda</i>
R-IJ1			Yes	Biscayne Bay	25.45278	-80.30032	32.5	30.2	51730.70	52068.57	53013.05	53391.57	30.2	30.6	30.8	30.8	30.2	51598.78	Moderate H <sub>2</sub> S odor, very low turbidity in all samples. Moderate <i>Thalassia</i> , a few <i>Batophora</i> , <i>Acetabularia</i> , <i>Halimeda</i> , <i>Penicillus</i> and a solitary sponge with sand shell hash bottom.
IJ3	25.43037	-80.30016	Yes	Biscayne Bay	25.43038	-80.30022	32.0	31.3	52773.00	52574.55			31.3	33.3			31.4	52812.98	20 cm - No color, no particulates, low sediment, H <sub>2</sub> S odor; 25 refusals before success at 20 cm. No sample at 40 cm or 60 cm. Moderate <i>Batophora</i> and brown drift algae, a few <i>Penicillus</i> and Gorgonian. Sandy shell hash substrate.
IJ4	25.41893	-80.30004	Yes	Biscayne Bay	25.41884	-80.29997	31.3	30.1	51295.81	51667.16	52154.91	54824.19	30.1	30.6	30.9	30.6	30.0	51325.98	Low turbidity, mild H <sub>2</sub> S odor at 20 cm. Moderate turbidity and moderate H <sub>2</sub> S odor at 40 and 60 cm. Sparse <i>Thalassia</i> , <i>Penicillus</i> , <i>Batophora</i> , and <i>Halimeda</i> with sandy shell hash bottom.
IJ6	25.39645	-80.30012	Yes	Biscayne Bay	25.3965	-80.30009	33.1	33.4	52273.41	52485.60	54036.84	52245.98	33.4	32.7	32.8	32.7	33.3	52149.81	20 cm - Very minor H <sub>2</sub> S odor. 40 cm - High turbidity. 60 cm - Strong H <sub>2</sub> S odor, low turbidity. Dense <i>Thalassia</i> , few <i>Halimeda</i> , few <i>Penicillus</i> . Sandy shell hash bottom.
IJ6	25.39645	-80.30012	Yes	Biscayne Bay	25.39654	-80.30006	31.8	31.0	49393.26	52202.31	51290.02	50065.71	31.0	30.7	30.8	30.9	31.0	49412.50	20 cm - No color, no particulate, low sediment, moderate H <sub>2</sub> S odor. 40 cm - no color, no particulate, low sediment, moderate H <sub>2</sub> S odor. 60 cm - gray color, moderate particulate, low sediment/ fine brown and sand, moderate H <sub>2</sub> S odor. Dense <i>Thalassia</i> , several <i>Halimeda</i> ; silty sandy bottom.
IJ7	25.38518	-80.3001	Yes	Biscayne Bay	25.38528	-80.29998	34.0	33.2	51412.54	51992.31	52796.07	52347.63	33.2	32.9	32.8	32.8	33.2	51445.93	Very mild H <sub>2</sub> S odor, very low turbidity. Sparse to moderate <i>Thalassia</i> and dense <i>Batophora</i> . Sandy shell hash bottom.
IJ8	25.37386	-80.3001	Yes	Biscayne Bay	25.37393	-80.30018	33.4	33.0	50281.75	52723.30	53221.54	52561.70	33.0	32.4	32.3	32.4	33.0	50281.75	Moderate H <sub>2</sub> S odor, low turbidity. Dense <i>Thalassia</i> , silty bottom.



Table B.2-3. Porewater Sampling Grid Points (August 2010 Dry Season)

Location Name	Latitude	Longitude	Original Site	Habitat	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
					Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
IJ9	25.36249	-80.29988	Yes	Biscayne Bay	25.36255	-80.29974	33.1	32.2	50544.47	51595.58			32.2	32.0			32.1	50564.42	19 Refusals at 20 cm before success. 20 refusals at 40 cm. No additional samples taken. Sparse <i>Thalassia</i> , several <i>Penicillus</i> & <i>Batophora</i> , several <i>Acetabularia</i> , solitary stony corals and sponges. Sandy shell hash substrate.
J2	25.44162	-80.29401	Yes	Biscayne Bay	25.44162	-80.29401	31.6	31.1	51126.71	51515.84			31.1	32.1			31.0	51207.98	9 Refusals at 20 cm before success. 20 cm - no color, no particulate, low sediment, mild H <sub>2</sub> S odor. 24 refusals at 40 cm. No sample at 40 cm or 60 cm. Sparse <i>Thalassia</i> , brown drift algae, some <i>Penicillus</i> , <i>Halimeda</i> , sandy shell hash substrate.
J4	25.41906	-80.29398	Yes	Biscayne Bay	25.41899	-80.29398	31.0	31.1	52079.71	52301.23	52828.16		31.1	30.5	30.4		31.2	52069.26	4 Refusals at 20 cm before success; no color, no particulate, low sediment, mild H <sub>2</sub> S odor. 4 refusals at 40 cm before success; no color, no particulate, low sediment, mild H <sub>2</sub> S odor. 24 refusals at around 45 cm. No sample taken. Sparse <i>Thalassia</i> , sparse <i>Batophora</i> , individuals of <i>Penicillus</i> and <i>Halimeda</i> , some brown drift algae.
J5	25.40758	-80.29398	Yes	Biscayne Bay	25.4076	-80.294	28.5	31.1	52317.65	52306.13	53298.29	53413.43	31.1	29.4	29.6	29.9	31.3	52204.39	20 cm - No color, no particulate, low sediment, mild H <sub>2</sub> S odor. 40 cm - no color, no particulate, low sediment, mild H <sub>2</sub> S odor. 60 cm - no color, no particulate, low sediment. Many Gorgonian and sponges.
J6	25.39644	-80.29416	Yes	Biscayne Bay	25.39651	-80.29404	33.3	34.3		52560.13	52748.63	51725.89		32.8	33.1	33.6	34.3	51641.12	20 cm - Low turbidity, mild H <sub>2</sub> S odor. 40 cm - Moderately turbid. 60 cm - Very mild H <sub>2</sub> S odor, turbid, cloudy. No surface water readings because water too shallow. Dense <i>Thalassia</i> , sparse <i>Batophora</i> , few <i>Penicillus</i> , a few <i>Acetabularia</i> , few <i>Halimeda</i> . Sandy shell hash.
J7	25.38616	-80.29465	Yes	Biscayne Bay	25.38618	-80.29462	33.7	32.9	50903.19	53820.41	53191.64	51644.57	32.9	32.6	32.2	32.2	32.8	50806.77	Mild H <sub>2</sub> S odor, no turbidity. 11 refusals before success at 60 cm. Dense <i>Thalassia</i> with several <i>Halimeda</i> and silty bottom.
J8	25.37382	-80.29423	Yes	Biscayne Bay	25.37379	-80.29417	33.4	33.0	50618.35	52880.01	51968.87		33.0	32.4	32.6		32.9	50572.88	Moderate H <sub>2</sub> S odor, low turbidity at 20 cm. 19 refusals at 40 cm before success. 24 refusals at 60 cm, no sample taken. Sparse to moderate <i>Thalassia</i> , <i>Batophora</i> , brown drift algae, some stony corals, fair number of Gorgonian and sponges. Very sparse <i>Halodule</i> , <i>Batophora</i> and <i>Acetabularia</i> present.
J9	25.36259	-80.2943	Yes	Biscayne Bay	25.36266	-80.29427	32.5	32.1	50551.43	52320.79	53001.00	53625.27	32.1	31.8	31.8	31.9	32.0	50552.24	Mild H <sub>2</sub> S odor, low turbidity. Moderate <i>Thalassia</i> , several <i>Penicillus</i> , <i>Batophora</i> , several <i>Acetabularia</i> , several brown drift algae present. Sandy silty bottom.
J10	25.35146	-80.2944	Yes	Biscayne Bay	25.35164	-80.2943	32.4	32.0	50674.36	53159.30	54074.84		32.0	31.8	31.5		32.1	50791.86	2 Refusals before success at 20 cm. 5 refusals before success at 40 cm. 20 refusals before success at 60 cm. Low turbidity samples. Sparse <i>Thalassia</i> and several <i>Penicillus</i> , sparse <i>Batophora</i> , <i>Halimeda</i> . Solitary stony corals and sponges and sand shell hash bottom.
J11	25.33989	-80.29442	Yes	Biscayne Bay	25.33992	-80.2944	32.4	32.8	51040.40	54472.47	52795.91	52357.57	32.8	33.0	33.1	33.0	32.8	51120.26	40 cm - One refusal. Mild H <sub>2</sub> S odor. 60 cm - 16 refusals. Dense <i>Thalassia</i> and a few <i>Penicillus</i> with silty bottom.



Table B.2-3. Porewater Sampling Grid Points (August 2010 Dry Season)

Location Name	Latitude	Longitude	Original Site	Habitat	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
					Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS /cm)	
J12	25.32896	-80.29469	Yes	Biscayne Bay	25.32895	-80.29478	32.4	33.1	51295.30	53810.45	53324.39		33.1	34.4	33.7		33.1	51099.12	Mild H <sub>2</sub> S odor, moderate turbidity with fine gray sediment. Site is approximately 200 m from mangrove island located to the south. Moderate <i>Thalassia</i> , multiple <i>Penicillus</i> and <i>Halimeda</i> . 25 attempts at 60 cm, refusal average at 40-45 cm.
JK7	25.38525	-80.28761	Yes	Biscayne Bay	25.38522	-80.28754	34.7	32.3	51327.78	52751.62	53890.80	52645.92	32.2	32.5	32.6	32.4	32.3	51461.34	Mild turbidity, moderate H <sub>2</sub> S odor. Moderate to dense <i>Thalassia</i> . Silty bottom.
K7	25.38527	-80.28174	Yes	Biscayne Bay	25.38529	-80.28199	31.4	32.3	51152.55	51778.32	53865.75	52082.91	32.3	31.5	31.4	31.5	32.3	51070.15	2 Refusals at 60 cm before success. Very low turbidity and mild H <sub>2</sub> S odor. Moderate to dense <i>Thalassia</i> , numerous <i>Penicillus</i> and <i>Halimeda</i> . Several <i>Batophora</i> and <i>Acetabularia</i> . Solitary sponge, silty bottom.
K8	25.37362	-80.28174	Yes	Biscayne Bay	25.3738	-80.28176	33.6	33.1	50709.67	53410.26	51855.34	51768.03	33.1	32.8	32.7	32.7	33.0	50616.50	Dense <i>Thalassia</i> , intermittent solitary sponges and brown drift algae. Silty sand bottom.
BF			Yes	Biscayne Bay	25.40722	-80.32729	31.3	31.9	53477.61	53276.83	52553.19	52004.34	31.9	30.7	30.9	31.1			20 cm - Tan gray color, moderate turbidity, moderate fine brown and sand sediment, mild H <sub>2</sub> S odor. 40 cm - dark gray-brown color, high turbidity, moderate sediment, mild H <sub>2</sub> S odor. 60 cm - tan color, moderate turbidity, low silt sediment, moderate H <sub>2</sub> S odor. Too shallow for bottom readings. Sparse <i>Thalassia</i> , <i>Batophora</i> , brown drift algae; sandy shell hash substrate.

Key:  
µS = Micro Siemens.  
°C = Degrees Celcius.  
cm = Centimeter.



Table B.2-4. Porewater Sampling Grid Points (August 2010 Dry Season)

Location Name	Latitude	Longitude	Original Site	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
				Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Spec Cond (µS/cm)	
BB1A	25.45224	-80.30854	Yes	25.45224	-80.30843	32.4	30.5	50754.75	51958.95			30.5	30.6			30.4	40862.20	11 Refusals at 20 cm before success. 20 cm - no color, no particulate, low sediment, mild H <sub>2</sub> S odor. 23 refusals shallower than 40 cm. No sample taken at 40 cm or 60 cm. Numerous <i>Penicillus</i> , <i>Halimeda</i> , <i>Udotea</i> . Rubble bottom.
BB1B	25.45225	-80.30851	Yes	25.45225	-80.30842	32.7	30.4	50981.59	52575.30	51757.82		30.4	30.5	31.1		30.5	51144.23	8 Refusals at 20 cm before success. 20 cm - no color, no particulate, low gray sediment, mild H <sub>2</sub> S odor. 16 refusals at 40 cm before success. 40 cm - no color, no particulate, low sediment, moderate H <sub>2</sub> S odor. 24 refusals at around 30 cm. No sample at 60 cm. Numerous <i>Penicillus</i> and <i>Halimeda</i> ; rubble bottom.
BB2A	25.44238	-80.32148	Yes	25.44242	-80.32127	32.1	30.1	50249.70	51725.30			30.1	30.4			30.2	51001.68	17 Refusals at 20 cm before success. 20 cm - no color, no particulate, low sediment, mild H <sub>2</sub> S odor. 24 refusals at 20 cm, no sample at 40 or 60 cm. Some brown drift algae and <i>Caulerpa</i> . Sandy shell hash substrate.
BB2B	25.44236	-80.32159	Yes	25.44242	-80.32128	32.6	30.3	50083.69	51338.38	50931.72		30.3	30.5	30.4		30.3	51011.01	8 Refusals at 20 cm. 20 cm - no color, low particulates, low sediment, mild H <sub>2</sub> S odor. 16 refusals at 40 cm before success. 40 cm - no color, no particulate, low sediment, mild H <sub>2</sub> S odor. 22 refusals at 60 cm, no sample at 60 cm. Some brown drift algae and <i>Caulerpa</i> . Sandy shell hash substrate.
BB3A	25.4414	-80.32897	Yes	25.44142	-80.32892	30.7	29.9	47479.21	49178.39	48608.45	48040.95	29.9	30.3	30.1	30.7			20 cm - White color, high particulates, low sediment, mild H <sub>2</sub> S odor. 40 cm - light gray-tan color, high particulates, moderate sediment, mild H <sub>2</sub> S odor. 60 cm - light gray-tan color, high particulates, low sediment, mild H <sub>2</sub> S odor. Too shallow for bottom reading. Sparse <i>Thalassia</i> , a few <i>Acetabularia</i> , <i>Batophora</i> , <i>Penicillus</i> . Sandy shell hash substrate.
BB3B	25.44144	-80.32894	Yes	25.44145	-80.32895	30.8	30.1	47588.98	50345.25	48735.47	47882.84	30.1	30.7	30.9	30.2			20 cm - No color, low particulates, moderate sediment, mild H <sub>2</sub> S odor. 40 cm - white color, high particulates, moderate sediment, mild H <sub>2</sub> S odor. 60 cm - gray color, high particulates, low sediment, mild H <sub>2</sub> S odor. Too shallow for bottom readings. Sparse <i>Thalassia</i> , a few <i>Batophora</i> ; sandy shell hash substrate.
BB4A	25.42272	-80.32013	Yes	25.42277	-80.32011	31.7	30.8	52838.61	51980.39	48798.23	49222.94	30.8	30.9	31.2	30.6	31.1	53463.68	20 cm - Gray color, moderate particulate, moderate H <sub>2</sub> S. 40 cm - gray color, moderate particulate, mild H <sub>2</sub> S odor. 60 cm, brownish gray color, low particulate, mild H <sub>2</sub> S odor. Dense <i>Thalassia</i> , individuals of <i>Halimeda</i> .





Table B.2-4. Porewater Sampling Grid Points (August 2010 Dry Season)

Location Name	Latitude	Longitude	Original Site	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
BB4B	25.42271	-80.32012	Yes	25.42277	-80.32021	32.6	30.9	51417.72	52321.96	49329.22	48590.34	30.9	30.7	30.4	30.5	31.1	53526.32	20 cm - Gray color, moderate particulate, mild H <sub>2</sub> S odor. 40 cm - gray color, moderate particulate, mild H <sub>2</sub> S odor. 60 cm - brownish color, moderate particulate, mild H <sub>2</sub> S odor. Silty sandy bottom, moderate to dense <i>Thalassia</i> . A few <i>Penicillus</i> .
BB5A	25.40916	-80.29819	Yes	25.40922	-80.29819	32.2	31.3	52612.48	53367.16	52690.72	53132.79	31.3	30.7	30.6	30.7	31.3	52664.12	5 Refusals at 20 cm before success; no color, no particulate, no sediment, mild H <sub>2</sub> S odor. 12 refusals at 40 cm before success; no color, no particulate, low sediment, mild H <sub>2</sub> S odor. 7 refusals at 60 cm before success; no color, no particulate, low sediment. Sparse <i>Thalassia</i> , moderate <i>Batophora</i> , a few <i>Penicillus</i> ; sandy shell hash bottom.
BB5B	25.40932	-80.29826	Yes	25.40927	-80.29821	28.9	31.1	52735.29	52772.08	53970.99	54046.51	31.1	29.6	29.5	29.8	31.3	52581.64	20 cm - No color, no particulate, low sediment, mild H <sub>2</sub> S odor. 40 cm - no color, no particulate, low sediment, mild H <sub>2</sub> S odor. 60 cm - no color, no particulate, low sediment, mild H <sub>2</sub> S odor. Dense <i>Thalassia</i> , silty sandy bottom.
BB6A	25.40605	-80.32894	Yes	25.40607	-80.32889	33.1	31.7		54564.38	52042.05	51905.85		32.3	31.7	31.8	31.7	53139.70	20 cm - Mild H <sub>2</sub> S odor, turbid. 40 cm - Slightly turbid, moderate H <sub>2</sub> S odor. 60 cm - Turbid, brown color. No specific conductance taken for surface water because too shallow. Moderate <i>Thalassia</i> with a silty bottom, a little shell hash.
BB6B	25.40601	-80.32898	Yes	25.40604	-80.32897	33.1	31.5		54159.43	51258.65	51168.27		31.3	31.0	30.9	31.5	54316.68	20 cm - Turbid sample, mild H <sub>2</sub> S odor. 40 cm - Silty brown, moderate H <sub>2</sub> S odor. 60 cm - Very mild H <sub>2</sub> S odor, low turbidity. No surface water conductance taken because water was too shallow. Soft bottom, moderate <i>Thalassia</i> with a silty bottom and a little shell hash.
BB7A	25.40462	-80.28829	Yes	25.40462	-80.28829	35.0	34.8									33.3	51420.73	Open sand with moderate <i>Batophora</i> , numerous <i>Gogonian</i> , numerous sponges, numerous small stony corals, brown drift algae, some <i>Acetabularia</i> , some <i>Penicillus</i> .
BB7B	25.40463	-80.28829	Yes	25.40463	-80.28829	35.0	33.2		52628.56	53393.77	54420.42		33.1	32.6	32.9	33.2	51374.22	Not taking surface water readings because it's too shallow. 20 cm - Moderate odor; very low turbidity. 40 cm - Low turbidity, mild H <sub>2</sub> S odor. 60 cm - Very low turbidity, moderate H <sub>2</sub> S odor. Sparse <i>Thalassia</i> , dense <i>Batophora</i> , Gorgonian sponges, some <i>Acetabularia</i> , clean white sand and shell hash.
BB8A	25.40236	-80.31955	Yes	25.4024	-80.31952	34.2	35.5		53817.71	54000.11	54013.05		34.2	33.1	33.2	35.5	53114.82	Dense <i>Thalassia</i> , sparse to moderate <i>Syringodium</i> . Tall <i>Thalassia</i> that is bending at the water surface. Silty bottom, mild H <sub>2</sub> S odor in samples. Surface readings not taken as water is shallow. Water in area feels much cooler at the root base while in dense tall <i>Thalassia</i> compared to area outside of dense patch. Schools of snapper are abundant.





Table B.2-4. Porewater Sampling Grid Points (August 2010 Dry Season)

Location Name	Latitude	Longitude	Original Site	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
BB8A	25.40236	-80.31955	Yes	25.40238	-80.31957	31.6	31.1	50528.91	52185.69	52436.93	51589.73	31.1	30.7	30.9	31.0			20 cm - No color, no particulate, moderate fine brown sediment, strong H <sub>2</sub> S odor. 40 cm - no color, no particulate, low sediment, strong H <sub>2</sub> S odor. 60 cm - no color, no particulate, low sediment, moderate H <sub>2</sub> S odor. Too shallow for bottom reading. Dense <i>Thalassia</i> , some <i>Syringodium</i> .
BB8B	25.40237	-80.31961	Yes	25.40243	-80.3196	34.2	35.6		54257.71	54037.27	55082.27		34.2	34.2	34.3	35.6	53005.06	Dense <i>Thalassia</i> with sparse to moderate <i>Syringodium</i> . Site has cooler water temperature at root base. Silt bottom. Mild H <sub>2</sub> S odor in samples. Sediment surface is soft, attempts to walk/wade is difficult as there are numerous holes that are created when you step.
BB8B	25.40237	-80.31961	Yes	25.40238	-80.31956	31.7	31.1	50629.29	51883.72	53042.32	53059.97	31.1	31.0	30.9	30.9			20 cm - No color, no particulate, moderate fine brown sediment, moderate H <sub>2</sub> S odor. 40 cm - no color, no particulate, low sediment, moderate H <sub>2</sub> S odor. 60 cm - no color, no particulate, low sediment, moderate H <sub>2</sub> S odor. Too shallow for bottom reading. Dense <i>Thalassia</i> , sparse <i>Syringodium</i> .
BB9A	25.37148	-80.29531	Yes	25.37153	-80.29523	33.6	32.9	50876.04	52145.01			32.9	32.4			32.9	50820.63	14 Refusals at 20 cm before success. 22 refusals at 40 cm, no sample taken. Sparse to moderate <i>Thalassia</i> , some <i>Batophora</i> and <i>Penicillus</i> . Multiple Gorgonian, some sponges and solitary stony corals with sandy shell hash bottom.
BB9B	25.37149	-80.29535	Yes	25.37152	-80.29521	33.4	32.9	50854.78	51320.59	52891.27		32.9	32.5	32.9		32.9	50853.98	24 Refusals at 60 cm, no sample taken. Moderate <i>Thalassia</i> with <i>Batophora</i> and <i>Penicillus</i> , Gorgonian, sponges and solitary stony corals with sandy shell hash bottom.

Key:  
µS = Micro Siemens.  
°C = Degrees Celcius.  
cm = Centimeter.



**September 2010**

## **B.3 Porewater Tracer Suite Sampling in Biscayne Bay**

Dates: September 22-28, 2010

Participants: Jennifer Vega, Mark Mohlmann, Stephen Hodges, Jessica Jacobs and Sharon Ewe

### **Sampling Design**

#### Sampling Setup

1. A subsample of points were sampled in Biscayne Bay for tracer suite analysis. The locations of these points were determined jointly by FPL and the Agencies.
2. One porewater depth was sampled at each grid location. Surface water (if water depth >5 feet) and water at the bottom of the water column (0 cm) were also measured.
3. Points were named based on the grid they were in i.e., G1, J10, or GH3, F1-2 for points on grid lines between the cells.
4. Areas of ecological interest were labeled "BB".
5. 30 Points were sampled in Biscayne Bay only.
6. For all sites, sampling was conducted using the PushPoint sampler (EPA SESDPROC-513-R0).

#### Sampling Depths

1. One porewater depth was sampled for tracer suite analysis at each point.
2. Samples were collected from 60 cm depth where attainable. If the sampling depth could not be reached after >5 attempts, samples were collected from the greatest depth found.
3. In areas where bedrock was reached prior to 20 cm, various locations were probed (up to 30 other points) in the surrounding area in attempt to reach 20 cm.

#### Instrumentation

1. Readings were obtained using an Aqua TROLL 100 (In-Situ, Inc.; specific conductance sensor) connected to a Rugged Reader (In-Situ, Inc.; Win-Situ Mobile v. 5.5.9.2).
2. Porewater temperature was collected using a separate temperature probe data logger (Thermoworks TCTEMCP 1000).
3. Data was recorded into field sheets and data books that contain miscellaneous notes; currently both records are available as scanned pdfs (See Appendices D and E).



Explanation of B.3 Tables	
Raw Data	Surface water and 60 cm depth data collected using the instruments, transposed into the following Excel sheet. Unit and date is identified.
Grid Points	<ol style="list-style-type: none"><li>1. Compiled data for each point, showing lat/long, air temp, surface and bottom conductance and temperatures.</li><li>2. Where the sites were moved due to access difficulty, the new coordinates are noted.</li><li>3. All field notes taken while sampling.</li><li>4. Several sites were resampled to verify initial readings and are labeled as “-redo” (i.e., HI1-redo). All attempts are listed, but only the most recent measurement was used for analysis.</li></ol>
Area of Interest	<ol style="list-style-type: none"><li>1. BB5B was the only AEI sampled during this event. Only one location was sampled for tracer suite analysis.</li></ol>



**Table B.3-1. Porewater Sampling Grid Points Raw Data (September 2010 Wet Season)**

Location Name	Depth (cm)	Temp (°C)	Specific Conductance (µS/cm)	Probe Serial No.	Date
BF	S	28.9	25427	154841	9/25/10
BF	55		38528	154841	9/25/10
F14	S	27.6	42468	154841	9/26/10
F14	60		48101	154841	9/26/10
G11-Bay	S	29.3	43671	154841	9/26/10
G11-Bay	60		49709	154841	9/26/10
G3	S	29.6	19114	154841	9/22/10
G3	25		40306	154841	9/22/10
G3-redo	S	28.3	33311	154841	9/28/10
G3-redo	35		41936	154841	9/28/10
GH2B	S	29.0	37603	154841	9/27/10
GH2B	20		45321	154841	9/27/10
GH5	S	29.0	25405	154841	9/25/10
GH5	25		41851	154841	9/25/10
GH6	S	28.4	29059	154841	9/25/10
GH6	50		47700	154841	9/25/10
H2B	S	28.5	23823	154841	9/22/10
H2B	30		0	154841	9/22/10
H2B-redo	S	29.0	43420	154841	9/28/10
H2B-redo	20		47100	154841	9/28/10
H3	S	27.9	25654	154841	9/24/10
H3	24		29461	154841	9/24/10
H4	S	28.6	41982	154841	9/27/10
H4	40		42478	154841	9/27/10
H5	S	28.7	29861	154841	9/25/10
H5	45		51909	154841	9/25/10
H10	S	28.8	46771	154841	9/26/10



**Table B.3-1. Porewater Sampling Grid Points Raw Data (September 2010 Wet Season)**

Location Name	Depth (cm)	Temp (°C)	Specific Conductance (µS/cm)	Probe Serial No.	Date
H10	35		50771	154841	9/26/10
H9-Bay	S	29.6	44511	154841	9/26/10
H9-Bay	60		52196	154841	9/26/10
HI1	S	28.4	40906	154841	9/22/10
HI1	30		47324	154841	9/22/10
HI1-redo	S	28.9	42537	154841	9/28/10
HI1-redo	60		45762	154841	9/28/10
HI10	S	28.4	47309	154841	9/26/10
HI10	35		53333	154841	9/26/10
HI11	S	27.9	45552	154841	9/26/10
HI11	30		47762	154841	9/26/10
HI6	S	28.5	34691	154841	9/25/10
HI6	52		51030	154841	9/25/10
HI7	S	28.9	35179	154841	9/27/10
HI7	60		53421	154841	9/27/10
I3	S	27.8	36462	154841	9/24/10
I3	43		45626	154841	9/24/10
IJ1	S	29.5	44858	154841	9/22/10
IJ1	60		52359	154841	9/22/10
IJ1-redo	S	28.6	48364	154841	9/28/10
IJ1-redo	60		50658	154841	9/28/10
IJ3	S	27.7	45198	154841	9/25/10
IJ3	45		45457	154841	9/25/10
IJ4	S	27.6	44080	154841	9/25/10
IJ4	33		46845	154841	9/25/10
IJ7	S	28.1	46440	154841	9/27/10
IJ7	35		47243	154841	9/27/10
IJ8	S	29.3	46312	154841	9/26/10





**Table B.3-1. Porewater Sampling Grid Points Raw Data (September 2010 Wet Season)**

Location Name	Depth (cm)	Temp (°C)	Specific Conductance (µS/cm)	Probe Serial No.	Date
IJ8	60		51967	154841	9/26/10
J12	S	28.0	47633	154841	9/26/10
J12	30		46303	154841	9/26/10
J5	S	29.1	49096	154841	9/25/10
J5	40		49199	154841	9/25/10
J6	S	30.5	46211	154841	9/23/10
J6	60		51454	154841	9/23/10
J9	S	28.6	48707	154841	9/26/10
J9	40		48971	154841	9/26/10
JK7	S	29.1	47876	154841	9/26/10
JK7	60		50431	154841	9/26/10

Key:

µS/cm = Micro Siemens per centimeter.

AT = AquaTROLL® probe.

°C = Degrees Celcius.

cm = Centimeter.

**Table B.3-2. Porewater Sampling Areas of Ecological Interest Raw Data (September 2010 Wet Season)**

Location Name	Site	Depth (cm)	Temp (°C)	Spec. Conductance (µS/cm)	Probe Serial No.	Date
BB5B	B	S	28.8	52154	154841	9/25/10
BB5B	B	50		47744	154841	9/25/10

Key:

µS/cm = Micro Siemens per centimeter.

AT = AquaTROLL® probe.

°C = Degrees Celcius.

cm = Centimeter.



Table B.3-3. Porewater Sampling Grid Points (September 2010 Wet Season)

Location Name	Latitude	Longitude	Original Site	Habitat	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
					Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS/cm)	
BB5B	25.40932	-80.29826	Yes	Biscayne Bay	25.40929	-80.29823	28.3	28.8	52154			47744	28.8			28.7	27.8	49336	Sample collected at 50 cm depth. Temp probe in at 10:53. Visibility at approximately 1.5 m. Dense <i>Thalassia</i> bed.
BF			Yes	Biscayne Bay	25.40720	-80.32733	31.3	28.9	25427			38528	28.9			29.0	28.8	25524	Sample collected at 55 cm depth. Temperature probe inserted at 14:34. Peaty porewater w/silt and sediment. Extreme turbidity might affect reading. Initially inserted at 60 cm but encountered significant difficulty in extracting sample. Probe was able to finally collect at 55cm after 15 min. Anomaly spot: Sparse <i>Thalassia</i> , drift algae. Cloudy, wind at approximately 5 knots.
F14	25.30638	-80.34386	Yes	Biscayne Bay	25.30646	-80.34383	24.7	27.6	42468			48101	27.6			28.7	27.6	42240	Drizzling while obtaining samples. Pumping started at 10:22. No sample obtained from the second probe, tried a third time. Restarted pumping at 10:38. Samples collected at 10:53. Sample collected from 60 cm, marl limestone inside the sample, strong smell of H <sub>2</sub> S. Many air bubbles in tubing. Moderate <i>Thalassia</i> with <i>Halimeda</i> , <i>Penicillus</i> , sponges in the area. Sandy shell hash bottom.
G11-Bay			Yes	Biscayne Bay	25.34461	-80.33256	34.1	29.3	43671			49709	29.3			29.0	28.3	48291	Temperature probe in at 14:42. Pumping started at 14:45. Samples collected at 15:05 at 60 cm. Moderate to dense <i>Thalassia</i> , some <i>Syringodium</i> , brown drift algae, <i>Caulerpa</i> , <i>Halimeda</i> , <i>Penicillus</i> . Sandy silty shell hash bottom.
G3	25.42772	-80.32536	Yes	Biscayne Bay	25.42757	-80.32539	37.0	29.6	19114			40306	29.6			28.6	29.8	19085	3 ft (0.91 m) of water; sample collected at 25 cm depth. Moderate <i>Thalassia</i> w/ some <i>Halimeda</i> and <i>Penicillus</i> . Sandy silty bottom.
G3-redo	25.42772	-80.32536	Yes	Biscayne Bay	25.42761	-80.32525	30.2	28.3	33311			41936	28.3			28.8	28.2	33511	Temperature probe in at 9:33. Pumping started at 9:34. Sample collected at 35 cm, at 9:45. Dense <i>Thalassia</i> , <i>Penicillus</i> and <i>Halimeda</i> present. Sandy silty bottom.
GH2B	25.43996	-80.32449	Yes	Biscayne Bay	25.44009	-80.32442	32.3	29.0	37603			45321	29.0			29.0	29.3	42940	Temperature probe in at 12:17. Pumping started at 12:19. Sample collected at 20 cm at 12:34. Sparse <i>Caulerpa</i> . Rocky and very silty bottom. Visibility at 1.0 m.
GH5	25.40776	-80.32504	Yes	Biscayne Bay	25.40770	-80.32517	33.0	29.0	25405			41851	29.0			28.6	28.8	25674	Visibility at approximately 1.0 m, wind less than 5 knots. Sample collected at 25 cm depth. Temperature probe in at 15:30. 500 mL of sample obtained from hole 1, 100 mL obtained from hole 2, 400 mL obtained from hole 3 with a small sipper. Sediment fine and silty, clogging up hole. A lot of air getting in. Silt and sediment clogging hole. Used smaller sipper w/ sock screen to allow uptake. Sandy shell hash; sparse <i>Thalassia</i> , few <i>Batophora</i> and <i>Halimeda</i> .



Table B.3-3. Porewater Sampling Grid Points (September 2010 Wet Season)

Location Name	Latitude	Longitude	Original Site	Habitat	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
					Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS/cm)	
GH6	25.39646	-80.32489	Yes	Biscayne Bay	25.39653	-80.32487	29.2	28.4	29059			47700	28.4			28.8	28.3	29328	Cloudy, wind less than 5 knots. Sample collected at 50 cm detph. A lot of air in 2nd hole. Fill rate approximately 1 mL/5 sec. Temperature probe inserted at 13:38. Moderate <i>Thalassia</i> . Sandy silty bottom.
H2B	25.44592	-80.31617	Yes	Biscayne Bay	25.44592	-80.31674		28.5	23823			30306	28.5			29.6	28.9	41135	Sample collected at 30 cm depth. Site located in barge canal. Moved once to new site due to heavy, fine silt on bottom causing tube to clog. Bottom of entire area covered in fine mud/silt making filtering of samples extremely difficult. Silty bottom.
H2B-redo	25.44592	-80.31617	Yes	Biscayne Bay	25.44601	-80.31630	32.9	29.0	43420			47100	29.0			28.9	28.9	45180	Temperature probe in at 12:53. Pumping started at 12:56. Sample collected at 20 cm at 13:07. Sample collected inside canal. Mild H <sub>2</sub> S odor in sample. Barren silty bottom with rocks. <i>Penicillus</i> noted present.
H3	25.43029	80.31888	Yes	Biscayne Bay	25.43008	-80.31902	30.8	27.9	25654			29461	27.9			27.6	27.7	25840	Thermoworks TC 1000 temperature collected at 5-second intervals between 9:48 and 9:58 am. 12 to 15 knot wind, low visibility, choppy. Peristaltic pump not charged. Hand syringe extaction. Sample collected at 24 cm depth. Poor visibility. Sample collected from small (<1 m <sup>2</sup> ) patch. All hard bottom (sandy shell hash). <i>Penicillus</i> , <i>Batophora</i> present.
H4	25.41909	-80.31868	Yes	Biscayne Bay	25.41903	-80.31883	30.5	28.6	41982			42478	28.6			28.7	28.6	42105	Temperature probe in at 11:09. Pump started at 11:10. Samples collected at 40 cm at 11:20. Moderate H <sub>2</sub> S odor present in sample, sample is turbid. Sparse <i>Thalassia</i> , <i>Batophora</i> , <i>Halimeda</i> , <i>Penicillus</i> present. Sandy shell hash bottom.
H5	25.40778	-80.31901	Yes	Biscayne Bay	25.40787	-80.31901	29.3	28.7	29861			51909	28.7			28.2	28.6	30852	Visibility is less than 1.0 m, wind at approximately 5 knots. Sample collected at 45 cm depth. Bedrock close to surface. Tried to find sediment. Probed several dozen times. Temperature probe inserted at 17:00. Sparse <i>Thalassia</i> w/ <i>Batophora</i> and <i>Halimeda</i> . Sandy shell hash bottom. Sampled in <i>Thalassia</i> patch (small at 50 cm diameter).
H10	25.35137	-80.3192	Yes	Biscayne Bay	25.35142	-80.31932	33.1	28.8	46771			50771	28.8			28.4	28.3	48030	Temperature probe placed at 13:55. Samples collected at 14:08 at 35 cm. Very low turbidity in samples. Sparse <i>Thalassia</i> , <i>Penicillus</i> , <i>Halimeda</i> , and <i>Caulerpa</i> . Sandy shell hash bottom.
H9-Bay			Yes	Biscayne Bay	25.36151	-80.32159	32.7	29.6	44511			52196	29.6			29.1	28.8	47405	Temperature probe in at 15:52. Pumping started at 15:53. Sample collected at 60 cm at 16:05. Strong H <sub>2</sub> S odor and peat sediment in sample. Dense <i>Thalassia</i> .



Table B.3-3. Porewater Sampling Grid Points (September 2010 Wet Season)

Location Name	Latitude	Longitude	Original Site	Habitat	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
					Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS/cm)	
HI1	25.45266	-80.31274	Yes	Biscayne Bay	25.45272	-80.31283	30.7	28.4	40906			47324	28.4			29.2	27.7	31394	Sample taken at 10:35. Sample collected at 30-35 cm depth. 50 m radius swam looking for acceptable depth of 60 cm, but none found. Temperature at 30-35 cm will be collected by Thermal Work 2000 probe at 5 second intervals from 10:45 to 10:47.
HI1-redo	25.45266	-80.31274	Yes	Biscayne Bay	25.45299	-80.31242	32.0	28.9	42537			45762	28.9			28.9	28.7	42771	Temperature probe in at 11:27. Pumping started at 11:32. Sample collected at 60 cm at 11:35. Wind change to south, southeast. Moderate <i>Thalassia</i> 10 m x 25 m patch. <i>Penicillus</i> and <i>Halimeda</i> present. Sandy shell hash bottom.
HI10	25.35138	-80.3126	Yes	Biscayne Bay	25.35130	-80.31265	30.7	28.4	47309			53333	28.4			28.5	28.2	48799	Temperature probe inserted at 13:03. Pumping started at 13:05. Sample taken at 35 cm, collected at 13:17. Moderate <i>Thalassia</i> , <i>Penicillus</i> , <i>Halimeda</i> , and <i>Caulerpa</i> . Sandy shell hash bottom.
HI11	25.33997	-80.31252	Yes	Biscayne Bay	25.33996	-80.31244	29.9	27.9	45552			47762	27.9			28.4	28.1	48820	Temperature probe placed at 12:23. Pumping started at 12:27. Sample collected at 12:42. Sample taken at 30 cm = strong H <sub>2</sub> S odor. Sparse to moderate <i>Thalassia</i> . <i>Penicillus</i> , <i>Halimeda</i> present with scattered sponges; sandy shell hash bottom.
HI6	25.40767	-80.31256	Yes	Biscayne Bay	25.39632	-80.31250	29.1	28.5	34691			51030	28.5			28.5	28.3	34969	Windy at approximately 5 knots, visibility at approximately 2.0 m, 12:51 temperature probe inserted. Moderate to dense <i>Thalassia</i> . Dense <i>Batophora</i> , some <i>Halimeda</i> and <i>Penicillus</i> .
HI7	25.38605	-80.31245	Yes	Biscayne Bay	25.38610	-80.31248	30.9	28.9	35179			53421	28.9			29.6	28.9	35179	Temperature probe in at 10:04, out at 10:10. Pumping started at 10:05. Sample collected at 60 cm depth at 10:10. Dense <i>Thalassia</i> . Sandy silty bottom.
I3	25.4302	-80.30621	Yes	Biscayne Bay	25.42976	-80.30699	31.7	27.8	36462			45626	27.8			28.8	27.9	38571	Thermoworks TC 1000 temperature collected at 5-second intervals between 10:50 and 11:22 am. Slightly deeper water; better visibility. Wind greater than 12 knots, waves are more than 3 feet. Sample collected at 43 cm depth. Sparse <i>Thalassia</i> . Sandy shell hash. <i>Halimeda</i> , <i>Batophora</i> , and <i>Penicillus</i> .
IJ1	25.45278	-80.30032	Yes	Biscayne Bay	25.45289	-80.30017	31.4	29.5	44858			52359	29.5			29.1	28.5	43284	Temperature collected with TC 1000 at 5 second intervals from 12:08 to 12:11. Sample collected at 12:04. Sample collected at 60 cm depth. Moderate to dense <i>Thalassia</i> , a few <i>Penicillus</i> and <i>Halimeda</i> . Overall area sparse, open sand with small stony corals and Gorgonians.



Table B.3-3. Porewater Sampling Grid Points (September 2010 Wet Season)

Location Name	Latitude	Longitude	Original Site	Habitat	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
					Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS/cm)	
IJ1-redo	25.45278	-80.30032	Yes	Biscayne Bay	25.45311	-80.30052	30.3	28.6	48364			50658	28.6			28.9	28.5	48411	Temperature probe in 10:20. Pumping started at 10:23. Sample collected at 60 cm at 10:28. Strong H <sub>2</sub> S odor in sample. 15 x 50 m patch of moderate <i>Thalassia</i> . <i>Halimeda</i> , <i>Penicillus</i> , several sponges. Sandy shell hash bottom. <i>Udotea</i> present.
IJ3	25.43037	-80.30016	Yes	Biscayne Bay	25.43043	-80.30023		27.7	45198			45457	27.7				27.7	45197	Sample collected at 45 cm depth. Sparse <i>Thalassia</i> . Some <i>Halimeda</i> , <i>Batophora</i> , and <i>Penicillus</i> . Sandy shell hash. Temperature probe was not activated until after the readings were taken at this site.
IJ4	25.41893	-80.30004	Yes	Biscayne Bay	25.41892	-80.30003	28.3	27.6	44080			46845	27.6			28.4	27.6	47632	Turbid with visibility at less than 1.0 m, windy. Sample collected at 33 cm depth. Temp probe in at 10:07. Small patches of <i>Thalassia</i> (<1 m diameter). Refusal in 3 - 5 top cm. Gorgonians, open shell hash.
IJ7	25.38518	-80.3001	Yes	Biscayne Bay	25.38516	-80.30024	28.6	28.1	46440			47243	28.1			28.7	28.1	46462	Temperature probe in at 8:48. Pumping started at 8:50. Sample collected at 35 cm depth at 9:07. Sparse <i>Thalassia</i> , <i>Penicillus</i> , <i>Batophora</i> , and <i>Halimeda</i> present. Sandy shell hash bottom.
IJ8	25.37386	-80.3001	Yes	Biscayne Bay	25.37379	-80.30002	30.8	29.3	46312			51967	29.3			28.6	28.9	48440	Temperature probe in at 17:21. Pumping started at 17:21. Sample collected at 60 cm at 17:29. 60 cm = mild H <sub>2</sub> S odor in sample. Dense <i>Thalassia</i> with a few sponges, brown drift algae, <i>Penicillus</i> , with a sandy shell hash bottom.
J12	25.32896	-80.29469	Yes	Biscayne Bay	25.32879	-80.29476	28.6	28.0	47633			46303	28.0			28.9	28.3	50650	Flat bay water. No rain at site. Temp probe in the water at 11:30. Pumping started at 11:32. Sample collected at 30 cm = strong H <sub>2</sub> S smell, marl limestone in sample. Sample collected at 11:52. Moderate to dense <i>Thalassia</i> w/ <i>Halimeda</i> , <i>Caulerpa</i> , <i>Penicillus</i> with sandy silty bottom.
J5	25.40758	-80.29398	Yes	Biscayne Bay	25.40750	-80.29392	28.3	29.1	49096			49199	29.1			28.4	28.2	49747	Windy, 5 - 10 knots. Clearer, visibility at 2.0-3.0 m. Sample collected at 40 cm depth. Water has strong H <sub>2</sub> S smell. Patchy distribution of moderate <i>Thalassia</i> . <i>Gorgonians</i> , sponges, <i>Halimeda</i> , <i>Batophora</i> present. Sandy shell hash.
J6	25.39644	-80.29416	Yes	Biscayne Bay	25.39647	-80.29420	31.3	30.5	46211			51454	30.5			29.2	30.5	46212	Thermoworks TC 100 temperature collected at 5-second intervals from 10:37 to 11:20. 10 - 12 knot wind. Sample collected at 60 cm by hand b/c the pump gets clogged. Dense <i>Thalassia</i> ; Seagrass, <i>Acetabularia</i> , <i>Halimeda</i> , <i>Penicillus</i> . Silty sandy bottom.



Table B.3-3. Porewater Sampling Grid Points (September 2010 Wet Season)

Location Name	Latitude	Longitude	Original Site	Habitat	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)				Temperature (°C)				Bay Samples		Notes
					Latitude	Longitude	Air	Water	Surface	20 cm	40 cm	60 cm	Surface	20 cm	40 cm	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS/cm)	
J9	25.36259	-80.2943	Yes	Biscayne Bay	25.36254	-80.29424	29.7	28.6	48707			48971	28.6			28.4	28.5	49012	Temperature probe in at 16:30. Pumping started at 16:32. Samples collected at 40 cm at 16:39. Moderate to dense <i>Thalassia</i> , brown drift algae, <i>Acetabularia</i> , <i>Halimeda</i> & <i>Penicillus</i> present. Sandy shell hash bottom.
JK7	25.38525	-80.28761	Yes	Biscayne Bay	25.38527	-80.28759	29.8	29.1	47876			50431	29.1			28.7	29.0	47902	Temperature probe in at 18:13. Pumping started at 18:14. Sample collected at 60 cm depth at 18:34. Strong H <sub>2</sub> S odor in samples. Moderate to dense <i>Thalassia</i> , <i>Penicillus</i> , and <i>Halimeda</i> present. Sandy shell hash bottom.

Key:  
µS/cm = Micro Siemens per centimeter.  
°C = Degrees Celcius.  
cm = Centimeter.

H<sub>2</sub>S = Hydrogen Sulfide.  
m = Meter.  
mL = Milliliter(s).





**April 2011**

## B.4 Porewater Sampling in Marsh, Mangroves and Subtidal Habitats in Biscayne Bay and Card Sound

Dates: April 4-22, 2011

Participants: Sharon Ewe, Kristin Vaughan, Jennifer Vega, Mark Mohlmann, Helen Hammond, Stephen Hodges, and Jessica Jacobs

### Sampling Design

#### Sampling Setup

1. Points were sampled in a grid formation or in areas of ecological interest (see attached map).
2. One point (up to two porewater depths) was sampled at each grid location.
3. At locations where in previous sampling events two locations were sampled (two points A and B, 2 m apart) only one location was sampled.
4. Points were named based on the grid they were in i.e., G3, A5, GH3 (for points on grid lines, between the cells).
5. Areas of ecological interest were named based on their habitat types e.g. "W" for freshwater wetlands, "M" for mangroves, and "BB" for the Bay.
6. 32 Points were sampled in Biscayne Bay, and 61 in the marsh and mangroves; however, samples for lab analysis were collected at 31 locations in the Bay and 57 locations in the marsh and mangroves.

#### Sampling Depths

1. Up to two depths were sampled at each point; down to 60 cm or until rejection. If no surface water was present, porewater was obtained at 5 cm below the ground surface where possible.
2. In areas where bedrock was reached prior to 20 cm, various locations were probed (up to 30 other points) in the surrounding area.
3. Where no bedrock depth of 20 cm was reached, a single depth was taken (if depth was >15 cm).
4. If a point was selected, and depth to bedrock was < 60 cm, the depth was measured to the deepest point possible.
5. If bedrock was reached at depths between values, the deepest point would be measured where possible (e.g., at 30 cm at F13 or 50 cm at J12).

#### Instrumentation

1. Instruments used were from In-Situ Inc. Two sonde and Reader units were used.
2. The units were Aqua TROLL 100 or 200 (conductance, temp sensors) connected to Rugged Readers (Win-Situ Mobile v. 5.5.9.2).
3. Data was recorded into field sheets and data books that contain miscellaneous notes; currently both records are available as scanned pdfs.



Explanation of B.4 Tables	
Raw Data	1. All data collected from the instruments, transposed into the following Excel sheet. Unit and date is identified.
Grid Points	<ol style="list-style-type: none"> <li>1. Compiled data for each of the points, showing lat/long, air temp, surface and bottom (for deeper BBay sites) conductance and temperatures.</li> <li>2. Where the sites were moved due to access difficulty, the new coordinates were noted.</li> <li>3. Field notes were partially copied over where time permitted. All notes were scanned as pdfs.</li> </ol>
Area of Interest	1. One point was recorded at each site. Where two sites were obtained, only one porewater sample was sent for analysis. The layout remains similar to the Grid Points sheet.

**Table B.4-1. Porewater Sampling Grid Points Raw Data (April 2011 Dry Season)**

Location Name	Depth (cm)	Temperature (°C)	Specific Conductance (µS/cm)	Probe Serial No.	Date
A9	60	27.1	4151.9	177108	4/20/11
B7	60	27.4	1502.0	177108	4/20/11
B8	50	27.4	5484.0	155883	4/20/11
B12	S	32.5	70851.8	155883	4/20/11
B12	60	29.7	58763.7	155883	4/20/11
C2	S	28.4	1407.1	177108	4/14/11
C2	60	26.2	1973.3	177108	4/14/11
C3	S	25.1	3868.1	177108	4/14/11
C3	60	25.6	3882.7	177108	4/14/11
C5	60	27.1	5866.9	155883	4/20/11
C6	60	30.0	2783.0	155883	4/20/11
C8				155883	4/20/11
C10	60	28.3	57559.7	154841	4/13/11
D2	S	31.3	660.2	177108	4/14/11
D2	60	30.9	843.8	177108	4/14/11
D3	60	28.4	2773.2	177108	4/21/11
D4	60	26.2	2471.1	155883	4/20/11
D6	60	26.9	706.4	177108	4/20/11
D7	60	26.2	2386.0	155883	4/20/11
D8	S	29.7	2875.3	155883	4/20/11
D8	60	31.7	3008.3	155883	4/20/11
D9	S	27.9	1230.0	177108	4/20/11
D9	60	29.0	1446.3	177108	4/20/11
D10	60	29.1	60751.8	154841	4/13/11
E1-2	S	32.1	914.0	177108	4/15/11
E1-2	60	32.8	1308.5	177108	4/15/11
E2	S	27.7	1007.9	177108, 155883	4/20/11



**Table B.4-1. Porewater Sampling Grid Points Raw Data (April 2011 Dry Season)**

Location Name	Depth (cm)	Temperature (°C)	Specific Conductance (µS/cm)	Probe Serial No.	Date
E2	60	26.5	1095.2	177108, 155883	4/20/11
E3	S	27.1	1437.9	177108	4/21/11
E3	60	27.7	1322.9	177108	4/21/11
E4	60	26.8	7020.3	155883	4/20/11
E10				154841	4/13/11
E11	S	33.4	88049.0	154841	4/13/11
E11	60	28.5	50477.6	154841	4/13/11
E12	S	27.1	54459.3	154841	4/7/11
E12	60	27.7	49863.2	154841	4/7/11
F1-2	S	29.1	26598.1	177108	4/18/11
F1-2	60	30.4	21038.6	177108	4/18/11
F1	S	27.3	28765.2	177108	4/19/11
F1	60	26.1	26816.5	177108	4/19/11
F2	S	27.1	4227.9	177108	4/15/11
F2	60	31.5	8688.3	177108	4/15/11
F2-3	S	32.3	3898.8	177108	4/15/11
F10	60	27.2	10291.2	154841	4/13/11
F11	S	26.6	68394.8	154841	4/13/11
F11	60	26.2	48756.6	154841	4/13/11
F12	S	29.0	55465.9	154841	4/7/11
F12	60	27.0	59971.7	154841	4/7/11
F13	S	27.1	54634.5	154841	4/7/11
F13	30	29.6	52805.6	154841	4/7/11
F14	S	26.6	54454.8	154841	4/7/11
F14	60	30.4	51586.9	154841	4/7/11
FG11	S	30.4	61011.5	154841	4/8/11
FG11	60	29.5	54185.5	154841	4/8/11
FG12	S	26.6	52327.4	154841	4/8/11



**Table B.4-1. Porewater Sampling Grid Points Raw Data (April 2011 Dry Season)**

Location Name	Depth (cm)	Temperature (°C)	Specific Conductance (µS/cm)	Probe Serial No.	Date
FG12	20	27.6	53291.5	154841	4/8/11
G1on	S	31.0	61114.8	154841	4/12/11
G1on	60	31.6	46516.1	154841	4/12/11
G1off	S	26.6	56086.9	154841	4/4/11
G1off	40	25.8	50078.8	154841	4/4/11
G1-2	S	31.9	61094.0	177108	4/18/11
G1-2	60	30.9	48665.9	177108	4/18/11
G2	S	30.8	59685.8	177108	4/15/11
G2	60	28.8	58991.8	177108	4/15/11
G6	S	35.8	62640.4	154841	4/12/11
G6	60	29.7	50551.2	154841	4/12/11
G7	S	30.2	62078.3	177108	4/18/11
G7	60	27.3	56784.3	177108	4/18/11
G8	S	33.6	65790.3	177108	4/19/11
G8	60	29.8	59002.2	177108	4/19/11
G9	S	31.9	67551.1	177108	4/19/11
G9	60	29.5	49970.3	177108	4/19/11
G9-10	60	30.3	56844.6	154841	4/11/11
G10	S	32.0	68850.5	177108	4/19/11
G10	60	29.3	50060.5	177108	4/19/11
G11on	S	33.1	63714.1	154841	4/8/11
G11on	60	28.2	52805.3	154841	4/8/11
G11off	S	27.3	54379.2	154841	4/8/11
G11off	30	28.8	52998.8	154841	4/8/11
GH8	S	24.7	63454.1	177108	4/21/11
GH8	60	25.6	51657.2	177108	4/21/11
GH10	S	28.2	56725.6	154841	4/11/11
GH10	20	28.2	56383.7	154841	4/11/11





**Table B.4-1. Porewater Sampling Grid Points Raw Data (April 2011 Dry Season)**

Location Name	Depth (cm)	Temperature (°C)	Specific Conductance (µS/cm)	Probe Serial No.	Date
H5	S	27.7	56529.8	154841	4/5/11
H5	30	30.5	56785.9	154841	4/5/11
H6	S	28.3	56233.3	154841	4/5/11
H6	40	30.2	54269.0	154841	4/5/11
H7	S	27.3	58174.8	154841	4/6/11
H7	60	27.0	50724.1	154841	4/6/11
H9on	60	26.7	70225.9	154841	4/11/11
H9off	S	27.9	57019.8	154841	4/11/11
H9off	30	29.8	56280.4	154841	4/11/11
H11	S	27.4	56081.8	154841	4/7/11
H11	30	29.8	52717.5	154841	4/7/11
H12	S	27.3	55710.2	154841	4/7/11
H12	60	32.3	52906.5	154841	4/7/11
HI1	S	26.9	56965.6	154841	4/4/11
HI1	60	28.2	49810.0	154841	4/4/11
HI2	S	27.1	56469.5	154841	4/4/11
HI2	60	27.3	54323.4	154841	4/4/11
HI7	S	27.2	56973.3	154841	4/6/11
HI7	60	25.6	51000.5	154841	4/6/11
HI8	60	26.6	49076.1	154841	4/11/11
HI10	S	27.9	56306.7	154841	4/11/11
HI10	30	28.8	55245.6	154841	4/11/11
I3	S	27.2	56061.3	154841	4/4/11
I3	60	29.7	52535.0	154841	4/4/11
I7	S	27.4	56114.7	154841	4/6/11
I7	60	26.1	54804.3	154841	4/6/11
IJ-3	S	27.1	55836.9	154841	4/4/11
IJ-3	60	28.6	51864.8	154841	4/4/11

**Table B.4-1. Porewater Sampling Grid Points Raw Data (April 2011 Dry Season)**

Location Name	Depth (cm)	Temperature (°C)	Specific Conductance (μS/cm)	Probe Serial No.	Date
IJ-4	S	26.7	55793.5	154841	4/5/11
IJ-4	30	27.9	56200.2	154841	4/5/11
IJ-7	S	26.7	55518.5	154841	4/6/11
IJ-7	60	32.4	51740.6	154841	4/6/11
IJ-8	S	26.4	56255.7	154841	4/6/11
IJ-8	40	27.9	51571.9	154841	4/6/11
J9	S	27.9	55994.1	154841	4/11/11
J9	40	27.5	55570.6	154841	4/11/11
J11	S	26.1	55833.7	154841	4/7/11
J11	40	26.6	53110.5	154841	4/7/11
J12	S	26.2	55276.4	154841	4/7/11
J12	50	28.5	52767.6	154841	4/7/11
JK-7	S	25.0	56335.2	154841	4/6/11
JK-7	45	23.7	54247.5	154841	4/6/11
K1-Porewater	S	27.0	57140.6	154841	4/4/11
K1-Porewater	40	27.7	56089.0	154841	4/4/11
K1-Surface	S	28.9	56316.5	154841	4/11/11
K1-Surface	125	28.8	56303.7	154841	4/11/11
K8	S	25.8	56260.7	154841	4/6/11
K8	60	27.0	52341.9	154841	4/6/11

**Key:**

μS/cm = Micro Siemens per centimeter.

°C = Degrees Celcius.

cm = Centimeter.

**Notes:**

Porewater sampling data for the dry season.

Where several data points are taken in a file, the last point is recorded here.

C8 - No samples obtained as no porewater present (4/20/11).

E1 -No samples obtained as no porewater present (4/13/11)



**Table B.4-2. Porewater Sampling Areas of Ecological Interest (April 2011 Dry Season)**

Location Name	Site	Depth (cm)	Temperature (°C)	Specific Conductance (µS/cm)	Probe Serial No.	Date
BB1	A	S	26.7	56263.2	154841	4/4/11
BB1	A	60	28.0	51786.1	154841	4/4/11
BB1	B	S	26.7	56484.4	154841	4/4/11
BB1	B	40	27.5	50387.2	154841	4/4/11
BB2	A	S	26.0	58658.0	154841	4/5/11
BB2	A	30	27.0	56596.0	154841	4/5/11
BB2	B	S	26.1	58751.7	154841	4/5/11
BB2	B	30	28.2	59097.3	154841	4/5/11
BB4	A	S	26.8	55979.7	154841	4/5/11
BB4	A	55	26.8	48096.5	154841	4/5/11
BB4	B	S	26.5	56550.7	154841	4/5/11
BB4	B	60	26.7	45941.7	154841	4/5/11
BB5	A	S	27.3	55666.2	154841	4/5/11
BB5	A	60	28.7	54118.9	154841	4/5/11
BB5	B	S	27.4	55561.4	154841	4/5/11
BB5	B	60	27.7	54736.6	154841	4/5/11
M2	A/B	S	27.4	56850.8	177108	4/19/11
M2	A/B	60	27.2	55744.8	177108	4/19/11
M3	A/B	60	24.9	54281.6	177108	4/22/11
M5	A/B	S	34.8	62189.6	154841	4/12/11
M5	A/B	60	30.7	52000.8	154841	4/12/11
M7	A/B	S	35.6	65308.1	154841	4/12/11
M7	A/B	60	31.0	50984.0	154841	4/12/11
M8	A/B	S	33.3	57369.9	177108	4/18/11
M8	A/B	60	30.1	56830.5	177108	4/18/11
M9	A/B	S	34.3	72628.8	177108	4/18/11
M9	A/B	60	30.0	63777.8	177108	4/18/11
W1	A/B	S	25.6	664.6	177108	4/15/11



**Table B.4-2. Porewater Sampling Areas of Ecological Interest (April 2011 Dry Season)**

Location Name	Site	Depth (cm)	Temperature (°C)	Specific Conductance (µS/cm)	Probe Serial No.	Date
W1	A/B	60	26.5	933.6	177108	4/15/11
W2	A/B	S	26.8	986.0	177108	4/14/11
W2	A/B	60	28.2	1609.7	177108	4/14/11
W3	A/B	S	26.8	653.2	177108	4/14/11
W3	A/B	60	28.8	553.1	177108	4/14/11
W4	A/B	60	27.9	3834.1	177108	4/21/11
W5	A/B	S	26.4	906.9	177108	4/21/11
W5	A/B	60	26.9	842.3	177108	4/21/11
W6	A/B	60	27.5	541.5	177108	4/20/11
W9	A/B	60	27.1	810.9	177108	4/20/11

**Key:**

µS/cm = Micro Siemens per centimeter.  
°C = Degrees Celcius.  
cm = Centimeter.

**Notes:**

Porewater sampling data for the dry season.  
Where several data points are taken in a file, the last point is recorded here.  
C8 - No samples obtained as no porewater present (4/20/11).  
E1 -No samples obtained as no porewater present (4/13/11)

Table B.4-3. Porewater Sampling Grid Points (April 2011 Dry Season)

							Temperature (°C)		Specific Conductance (µS/cm)						
Location Name	Latitude	Longitude	Original Site	Habitat	New Coordinates						Temperature (°C)		Bay Samples		Notes
					Latitude	Longitude	Air	Water	Surface	60 cm	Surface	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS/cm)	
A9	25.36214	-80.40605	Yes	Freshwater Wetland	25.36217	-80.40620	33.0			4151.9		27.1			5 cm Below sediment - no water. 60 cm - High turbidity, mild H <sub>2</sub> S odor. <i>Cladium jamaicense</i> 0.8 m tall.
B12	25.33294	-80.39471	Yes	Mangrove Area	25.33297	-80.39467	36.1	32.5	70851.8	58763.7	32.5	29.7			60 cm - Moderate turbidity, moderate H <sub>2</sub> S odor. Scrub <i>R. mangle</i> approximately 0.25 m tall average; marl substrate.
B7	25.3861	-80.39357	Yes	Freshwater Wetland	25.38647	-80.39362	35.0			1502.0		27.4			5 cm Below sediment - no water. 60 cm - low turbidity, mild H <sub>2</sub> S odor. <i>C. jamaicense</i> 0.75 m tall.
B8	25.37498	-80.39034	Yes	Freshwater Wetland	25.37601	-80.39024	36.1			5484.0		27.4			5 cm Below sediment - no water. 50 cm - Moderate turbidity, strong H <sub>2</sub> S odor. Bedrock at 50.0 cm. Cladium approximately 0.5 m tall; open area surrounded by scattered trees, mostly <i>Casuarina</i> and <i>C. erectus</i> .
B9					25.33297	-80.39467	36.1		70841.8	58763.7		29.7			
C10	25.35088	-80.38035	Yes	Saline Wetland	25.35089	-80.38044	29.0			57559.7		28.3			5 cm Below sediment - no water available. 60 cm - Low turbidity, moderate H <sub>2</sub> S. Sparse <i>A. germinans</i> 0.5 m tall and <i>R. mangle</i> 0.25 m tall.
C2	25.4427	-80.37914	Yes	Freshwater Wetland	25.44271	-80.37913	30.6		1407.1	1973.3	28.4	26.2			60 cm - Moderate turbidity, mild H <sub>2</sub> S odor. Dominant herbaceous: <i>Cladium</i> approximately 2.0 m tall average; dominant canopy: <i>Salix</i> and <i>Myrica</i> approximately 2.5 m tall average.
C3	25.43442	-80.38147	Yes	Freshwater Wetland	25.43441	-80.38152	28.5		3868.1	3882.7	25.1	25.6			60 cm - High turbidity, mild H <sub>2</sub> S odor. <i>Cladium</i> with scattered <i>Casuarina</i> and sparse <i>Typha</i> . <i>Cladium</i> approximately 0.75 m tall.
C5	25.40744	-80.37735	Yes	Freshwater Wetland	25.40755	-80.37691	32.8			5866.9		27.1			5 cm Below sediment - no water. Probe inserted to 91.0 cm without hitting bedrock. <i>Cladium</i> approximately 0.25 m tall on average with <i>C. erectus</i> scattered throughout, approximately 1.0 m tall on average.
C6	25.39666	-80.37778	No	Freshwater Wetland	25.39676	-80.37731	35.0			2783.0		30.0			60 cm - Low turbidity, mild H <sub>2</sub> S odor. Bedrock approximately 45.0 cm on average. Open area with <i>Cladium</i> approximately 0.5 m tall on average. Very sparse <i>Typha</i> , <i>Conocarpus</i> also present.
C8	25.3748	-80.37942	Yes	Freshwater Wetland	25.37444	-80.37906	36.1								5 cm Below sediment - no water. After ten attempts no water could be collected at any depth. <i>Cladium</i> with moderate <i>Cassytha</i> . <i>Cladium</i> approximately 0.5 m tall average (moderate).
D10	25.35159	-80.36887	Yes	Saline Wetland	25.35155	-80.36880	32.9			60751.8		29.1			5 cm Below sediment - no water. 60 cm - low turbidity, moderate H <sub>2</sub> S odor. Sparse <i>R. mangle</i> and <i>A. germinans</i> 0.25 m to 1.0 m tall.
D2	25.44202	-80.3683	Yes	Freshwater Wetland	25.44202	-80.36827	35.7	31.3	660.2	843.8	31.3	30.9			Surface water - chunks of peat in sample. 60 cm - Moderate turbidity, mild H <sub>2</sub> S odor with chunks of peat in sample. Large area of mostly <i>Typha</i> with some <i>Cladium</i> intermixed.
D3	25.43058	-80.36846	Yes	Freshwater Wetland	25.43062	-80.36847	35.0			2773.2		28.4			5 cm Below sediment - no water. 60 cm - Moderate turbidity, moderate H <sub>2</sub> S odor. Probe inserted 91.0 cm without hitting bedrock. <i>Cladium</i> approximately 1.0 m tall average with scattered <i>C. erectus</i> snags (dead) and <i>Casuarina</i> .
D4	25.41929	-80.36852	Yes	Freshwater Wetland	25.41925	-80.36832	32.2			2471.1		26.2			5 cm Below sediment - no water. Cladium prairie approximately 0.25 m tall on average. Scattered <i>R. mangle</i> (scrub) and <i>C. erectus</i> snags (dead) present.



Table B.4-3. Porewater Sampling Grid Points (April 2011 Dry Season)

							Temperature (°C)		Specific Conductance (µS/cm)						
Location Name	Latitude	Longitude	Original Site	Habitat	New Coordinates						Temperature (°C)		Bay Samples		Notes
					Latitude	Longitude	Air	Water	Surface	60 cm	Surface	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS/cm)	
D6	25.39673	-80.36864	Yes	Freshwater Wetland	25.39682	-80.36829	33.0			706.4		26.9			5 cm Below sediment - no water. 60 cm - Low turbidity, mild H <sub>2</sub> S odor. Sparse <i>Cladium jamaicense</i> 0.75 m tall. A few <i>Typha</i> 1.3 m tall, moderate to sparse <i>Eleocharis cellulosa</i> .
D7	25.38577	-80.36903	Yes	Freshwater Wetland	25.38576	-80.36906	29.7			2386.0		26.2			5 cm Below sediment - no water. 60 cm - low turbidity, mild H <sub>2</sub> S odor. Depth to bedrock approximately 45.0 cm on average. Cladium with scattered <i>Cassytha</i> cover; point is adjacent to a small tree island to the southeast. <i>Cladium</i> approximately 1.0 m tall on average.
D8	25.37411	-80.37009	Yes	Freshwater Wetland	25.37409	-80.37009	32.8		2875.3	3008.3	29.7	31.7			5 cm Below sediment - very turbid. 60 cm - Low turbidity, mild H <sub>2</sub> S odor. Bedrock at 46.0 cm on average. First pumping site was very slow. Sparse <i>Cladium</i> approximatley 0.25 m tall on average. Scattered <i>R. mangle</i> and <i>C. erectus</i> across the landscape.
D9	25.36288	-80.36882	Yes	Freshwater Wetland	25.36235	-80.36912	33.0		1230.0	1446.3	27.9	29.0			5 cm Below sediment - moderate turbidity, low H <sub>2</sub> S odor. 60 cm - Low turbidity, moderate H2S odor. <i>C. jamaicense</i> 0.8 m tall.
E10	25.35154	-80.35646	Yes	Saline Wetland	25.35155	-80.35645	31.0								No water at 5 cm or 60 cm. Tried 12 times, no successful water pull. Sparse <i>R. mangle</i> 0.25 m to 0.5 m tall. A few <i>A. germinans</i> 1.0 m tall.
E11	25.34025	-80.35652	No	Mangrove Area	25.33850	-80.35261	33.9		88049.0	50477.6	33.4	28.5			Surface water reading checked twice, similar values. 60 cm - Moderate turbidity, mild H <sub>2</sub> S odor. <i>R. mangle</i> 1.0 m tall, 20% cover.
E12	25.32907	-80.35668	Yes	Mangrove Area	25.32898	-80.35667	30.6		54459.3	49863.2	27.1	27.7			5 cm Below sediment - Sample taken in place of surface water. 60 cm - Low turbidity, moderate H <sub>2</sub> S odor. Red mangrove stand approximately 3 m tall on average. Monoculture.
E1-2	25.44765	-80.35655	Yes	Freshwater Wetland	25.44764	-80.35654	38.0		914.0	1308.5	32.1	32.8			5 cm Below sediment - very high turbidity, fine marl sediment, low H <sub>2</sub> S odor. 60 cm - Moderate turbidity, mild H2S odor, fine peat sediment. Noted lots of air in tubing. Dense Sawgrass at 50% cover at 1.70 m height; sparse <i>Casuarina equisetifolia</i> trees in area.
E2	25.44152	-80.35609	No	Freshwater Wetland	25.44143	-80.35645	32.2		1007.9	1095.2	27.7	26.5			60 cm - Moderate turbidity, mild H <sub>2</sub> S odor. Collected surface reading with AquaTroll 200 and collected 60 cm reading with AquaTroll 100. Thick <i>Cladium</i> approximately 1.0 m tall average. Scattered <i>C. erectus</i> across landscape.
E3	25.43052	-80.35604	Yes	Freshwater Wetland	25.43054	-80.35606	37.2		1437.9	1322.9	27.1	27.7			60 cm - High turbidity, mild H <sub>2</sub> S odor. Probe inserted 91.0 cm without hitting bedrock. <i>Cladium</i> approximately 1.0 m tall with scattered scrub <i>R. mangle</i> intermixed approximately 0.4 m tall. Point adjacent to a small tree island.
E4	25.41999	-80.35673	Yes	Freshwater Wetland	25.41999	-80.35674	29.6			7020.3		26.8			5 cm Below sediment - no water. 60 cm - moderate turbidity, moderate H <sub>2</sub> S odor. Probe inserted 91.0 cm without hitting bedrock. <i>Cladium</i> with sparse scrub <i>R. mangle</i> intermixed. Located adjacent to a powerline and a small canal.





Table B.4-3. Porewater Sampling Grid Points (April 2011 Dry Season)

							Temperature (°C)		Specific Conductance (µS/cm)						
Location Name	Latitude	Longitude	Original Site	Habitat	New Coordinates						Temperature (°C)		Bay Samples		Notes
					Latitude	Longitude	Air	Water	Surface	60 cm	Surface	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS/cm)	
F1				Mangrove Area	25.44886	-80.34098	28.4		28765.2	26816.5	27.3	26.1			5 cm Below sediment - tannic water; hard to obtain sample. 60 cm - Low turbidity, moderate H <sub>2</sub> S odor. Probe reached 91.0 cm without hitting bedrock. <i>R. mangle</i> forest approximately 3.0 m tall on average. Leaf litter layer approximately 1.0 inch thick.
F10	25.35173	-80.34458	Yes	Saline Wetland	25.35180	-80.34456	33.9			10291.2		27.2			5 cm Below sediment - no water available. 60 cm - Low turbidity, strong H <sub>2</sub> S odor and yellow color. Sparse <i>Cladium jamaicense</i> 1.0 m tall. Sparse <i>R. mangle</i> 1.25 m tall.
F11	25.34045	-80.3459	Yes	Mangrove Area	25.34043	-80.34595	27.1		68394.8	48756.6	26.6	26.2			60 cm - Low turbidity, strong H <sub>2</sub> S odor. <i>R. mangle</i> 30% cover, 1.0 m tall.
F12	25.32921	-80.34426	Yes	Mangrove Area	25.32887	-80.34420	27.7	29.0	55465.9	59971.7	29.0	27.0			60 cm - Low turbidity, moderate H <sub>2</sub> S odor. Red mangrove monoculture approximately 4 m tall on average.
F1-2	25.4478	-80.34634	Yes	Freshwater Wetland	25.44778	-80.34634	31.5		26598.1	21038.6	29.1	30.4			60 cm - Low turbidity, mild H <sub>2</sub> S odor. Scrub <i>R. mangle</i> with scattered <i>Conocarpus</i> snags. <i>J. romerianus</i> also sparsely present.
F13	25.31783	-80.34415	Yes	Biscayne Bay	25.31781	-80.34410	30.0	27.1	54634.5	52805.6	27.1	29.6	27.0	54763.7	30 cm - Low turbidity, moderate H <sub>2</sub> S odor. 12 refusals before sample taken at 30 cm. Sparse to moderate <i>Thalassia</i> , moderate <i>Bataphora</i> , sandy shell-hash substrate.
F14	25.30638	-80.34386	Yes	Biscayne Bay	25.30635	-80.34383	29.4	26.6	54454.8	51586.9	26.6	30.4	26.6	54590.0	60 cm - High turbidity, moderate H <sub>2</sub> S odor. Sparse to moderate <i>Thalassia</i> . Drift algae, <i>Penicillus</i> , <i>Halameda</i> , <i>Bataphora</i> .
F2	25.44175	-80.34355	Yes	Saline Wetland	25.44174	-80.34361	37.5		4227.9	8688.3	27.1	31.5			5 cm Below sediment - very turbid, fine marl sediment, no odor. Attempted five times no water. Moved location, very little water coming up. 60 cm - High turbidity, strong H <sub>2</sub> S odor, with fine marl sediment. Moderately dense Sawgrass with scrub <i>R. mangle</i> at 1.0 m height average; sparse <i>Conocarpus erectus</i> .
F2-3	25.43587	-80.34402	Yes	Saline Wetland	25.43589	-80.34332	33.4		3898.8		32.3				5 cm Below sediment - very turbid, fine marl sediment, no odor. Site is approximately 25.0 m away from test canal system. Move sipper ten times-no water at 60 cm. Attempted with hand syringe no water at 60 cm. Used hand syringe to collect at 5.0 cm. Short <i>R. mangle</i> and <i>Cladium jamaicense</i> with dried Periphyton on ground surface, average height at 1.5 m.
FG11	25.32869	-80.33807	Yes	Mangrove Area	25.33870	-80.33831	31.1		61011.5	54185.5	30.4	29.5			60 cm - Moderate turbidity, strong H <sub>2</sub> S odor. <i>Rhizophora mangle</i> 1.5 to 2.0 m tall, dense. Note: Sample was contaminated by surface water and had to be recollected in the afternoon. The second sample was collected at N 25.33868 and W-80.33829, with an air temperature of 32.7.
FG11-redo	25.33868	-80.33829	Yes	Mangrove Area	25.33868	-80.33829	32.7								60 cm - Low turbidity. <i>R. mangle</i> 1.25 m to 2.0 m tall, dense.
FG12	25.32886	-80.33829	Yes	Biscayne Bay	25.32885	-80.33823	30.7	26.6	52327.4	53291.5	26.6	27.6	26.7	54147.3	20 cm - Low turbidity, moderate H <sub>2</sub> S odor. Very sparse <i>Thalassia</i> in small patches, coral, sponges, Gorgonian, <i>Aetabularia</i> , <i>Bataphora</i> , <i>Penicillus</i> ; sandy shell-hash bottom.



Table B.4-3. Porewater Sampling Grid Points (April 2011 Dry Season)

Location Name	Latitude	Longitude	Original Site	Habitat	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)		Temperature (°C)		Bay Samples		Notes
					Latitude	Longitude	Air	Water	Surface	60 cm	Surface	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS/cm)	
G10	25.35511	-80.33216	Yes	Mangrove Area	25.35515	-80.33212	28.5	32.0	68850.5	50060.5	32.0	29.3			60 cm - Moderate turbidity, moderate H <sub>2</sub> S odor. Probe inserted to 91.0 cm without hitting bedrock. Sparse scrub <i>R. mangle</i> with very sparse White mangrove present. All species approximately 0.5 m tall. Marl substrate.
G11 OFF				Biscayne Bay	25.34311	-80.33280	29.5	27.3	54379.2	52998.8	27.3	28.8	27.1	54589.4	30 cm - Moderate turbidity, strong H <sub>2</sub> S odor. Sparse <i>Thalassia</i> , brown drift algae, scattered sponges, coral and few <i>Penicillus</i> ; sandy shell-hash bottom.
G11 ON				Mangrove Area	25.34395	-80.33539	33.6		63714.1	52805.3	33.1	28.2			10 cm - Checked values twice and got similar reading. 60 cm - Moderate turbidity, strong H <sub>2</sub> S odor. Moderate <i>R. mangle</i> 1.25 m tall. Depth to rock at least 1.25 m below surface of land.
G1-2	25.44763	-80.33798	Yes	Mangrove Area	25.44760	-80.33795	32.0	31.9	61094.0	48665.9	31.9	30.9			60 cm - High turbidity, strong H <sub>2</sub> S odor. There is a lot of air in the tubing. Scrub <i>R. mangle</i> with scattered <i>C. erectus</i> snags (dead) throughout.
G1-OFF				Biscayne Bay	25.45268	-80.33080	26.7	26.6	56086.9	50078.8	26.6	25.8	25.9	58616.2	40 cm - Low turbidity, moderate H <sub>2</sub> S odor, sample with yellowish tint. <i>Halodule</i> and <i>Thalassia</i> present. Sandy shell-hash substrate; 10 attempts made to reach 60 cm depth.
G1-ON				Mangrove Area	25.45175	-80.33427	32.0		61114.8	46516.1	31.0	31.6			5 cm Below sediment - low odor, moderate turbidity. 60 cm - low turbidity, strong H <sub>2</sub> S odor. North of point, <i>R. mangle</i> 1.25 m tall. South of point, <i>R. mangle</i> 1.5 m tall and <i>L. racemosa</i> 3.0 - 4.0 m tall.
G2	25.4417	-80.33112	Yes	Mangrove Area	25.44174	-80.33099	30.9		59685.8	58991.8	30.8	28.8			5 cm Below sediment - low turbidity, no odor. 60 cm - Moderate turbidity, strong H <sub>2</sub> S odor. Tall <i>R. mangle</i> forest at 4.5 m tall along north side of creek. Creek has Snappers and Snook in creek.
G6	25.39656	-80.33137	Yes	Mangrove Area	25.39654	-80.33058	31.8	35.8	62640.4	50551.2	35.8	29.7			60 cm - Moderate turbidity, strong H <sub>2</sub> S odor. Sparse <i>R. mangle</i> , 1.0 - 1.5 m tall.
G7	25.38529	-80.33089	Yes	Mangrove Area	25.38528	-80.33092	28.0	30.2	62078.3	56784.3	30.2	27.3			60 cm - Moderate turbidity, strong H <sub>2</sub> S odor. Probe inserted 91.0 cm without hitting bedrock. Scrub <i>R. mangle</i> with taller black mangrove intermixed, scrub <i>R. mangle</i> approximately 0.75m tall, Black mangrove approximately 1.5 m tall.
G8	25.37397	-80.33097	Yes	Mangrove Area	25.37401	-80.33097	29.5	33.6	65790.3	59002.2	33.6	29.8			60 cm - High turbidity, mild H <sub>2</sub> S odor. Probe inserted to 91.0 cm without hitting bedrock. Scrub <i>R. mangle</i> and Black mangrove, both sparse; substrate is stickly marl.
G9	25.36279	-80.33158	Yes	Mangrove Area	25.36279	-80.33096	32.2	31.9	67551.1	49970.3	31.9	29.5			60 cm - Moderate turbidity, moderate H <sub>2</sub> S odor. Probe inserted to 91.0 cm without hitting bedrock. Mostly scrub <i>R. mangle</i> with sparse scrub Black mangrove intermixed; marl substrate.
G9-10	25.35637	-80.32761	Yes	Mangrove Area	25.35673	-80.32763	32.8			56844.6		30.3			5 cm Below sediment - no water at 5 cm. 60 cm - Low turbidity, strong H <sub>2</sub> S odor. Mostly <i>A. germinans</i> 2.5 m tall, some <i>R. mangle</i> 1.0 - 2.0 m tall.
GH10	25.35131	-80.32491	Yes	Biscayne Bay	25.35138	-80.32491	30.5	28.2	56725.6	56383.7	28.2	28.2	28.2	56809.1	20 cm - Moderate turbidity, moderate H <sub>2</sub> S odor. Sparse <i>Thalassia</i> , moderate <i>Bataphora</i> ; fairly open bottom, <i>Penicillus</i> , <i>Gorgonian</i> , sponges; sandy shell-hash bottom.
GH6															



Table B.4-3. Porewater Sampling Grid Points (April 2011 Dry Season)

							Temperature (°C)		Specific Conductance (µS/cm)						
Location Name	Latitude	Longitude	Original Site	Habitat	New Coordinates						Temperature (°C)		Bay Samples		
					Latitude	Longitude	Air	Water	Surface	60 cm	Surface	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS/cm)	
GH8	25.3739	-80.32498	Yes	Mangrove Area	25.37388	-80.32500	31.1		63454.1	51657.2	24.7	25.6			60 cm - Low turbidity, strong H <sub>2</sub> S odor. Probe inserted 91.0 cm without hitting bedrock. Scrub <i>R. mangle</i> approximately 1.25 m tall; marl substrate.
H11	25.34013	-80.3194	Yes	Biscayne Bay	25.34010	-80.31939	28.1	27.4	56081.8	52717.5	27.4	29.8	27.3	56216.8	30 cm - Low turbidity, mild H <sub>2</sub> S odor. Sparse <i>Thalassia</i> , moderate <i>Bataphora</i> , scattered sponges, a few <i>Penicillus</i> ; sandy shell-hash bottom, fairly open.
H12	25.32902	-80.31972	Yes	Biscayne Bay	25.32898	-80.31970	29.8	27.3	55710.2	52906.5	27.3	32.3	27.2	55780.7	60 cm - Low turbidity, mild H <sub>2</sub> S odor. Sparse <i>Thalassia</i> , moderate <i>Bataphora</i> , some <i>Udotea</i> , some <i>Penicillus</i> , sandy shell-hash; bottom fairly open.
H5	25.40778	-80.31901	Yes	Biscayne Bay	25.40785	-80.31890	32.8	27.7	56529.8	56785.9	27.7	30.5	27.4	56984.3	30 cm - Low turbidity, moderate H <sub>2</sub> S odor. Sparse <i>Thalassia</i> , moderate to dense <i>Bataphora</i> ; sandy shell-hash substrate.
H6	25.39652	-80.31899	Yes	Biscayne Bay	25.39648	-80.31888	32.2	28.3	56233.3	54269.0	28.3	30.2	27.9	56696.8	40 cm - Low turbidity, moderate H <sub>2</sub> S odor. Sparse to moderate <i>Thalassia</i> ; sandy/silty shell-hash.
H7	25.38804	-80.31693	Yes	Biscayne Bay	25.38519	-80.31889	27.8	27.3	58174.8	50724.1	27.3	27.0			60 cm - Moderate turbidity, moderate H <sub>2</sub> S odor. Scrub red mangrove with small patches of large red mangroves intermixed.
H9 OFF				Biscayne Bay	25.36259	-80.31863	30.8	27.9	57019.8	56280.4	27.9	29.8	27.9	57021.8	30 cm - Low turbidity, mild H <sub>2</sub> S. Some Gorgonians,, <i>Halemeda</i> , small patch of <i>Thalassia</i> , a lot of brown drift algae; sandy shell-hash bottom.
H9 ON				Mangrove Area	25.36372	-80.31930	30.1			70225.9		26.7			5 cm Below sediment - no water available. 60 cm - Low turbidity, Strong H <sub>2</sub> S odor. <i>R. mangle</i> and <i>A. germinanas</i> each 30% cover, 6.0 m tall. No surface water. Rock at least 90 cm down.
HI1	25.45266	-80.31274	No	Biscayne Bay	25.45246	-80.31332	29.4	26.9	56965.6	49810.0	26.9	28.2	26.8	57072.1	60 cm - Low turbidity, moderate H <sub>2</sub> S odor; moderate <i>Thalassia</i> , sparse <i>Penicillus</i> ; two types of calcareous algae, <i>Caulerpa Udodea</i> and <i>Penicillus</i> also present.
HI10	25.35138	-80.3126	Yes	Biscayne Bay	25.35152	-80.31242	30.3	27.9	56306.7	55245.6	27.9	28.8	27.8	56245.1	30 cm - Low turbidity, mild H <sub>2</sub> S odor. Sparse <i>Thalassia</i> -drift algae, <i>Gorgonian</i> , sponges, <i>Bataphora</i> . Fairly open; sandy shell-hash bottom.
HI2	25.44151	-80.31216	Yes	Biscayne Bay	25.44150	-80.31201	30.7	27.1	56469.5	54323.4	27.1	27.3	27.1	56540.1	60 cm - Low turbidity, mild H <sub>2</sub> S odor. Moderate <i>Thalassia</i> , sandy shell-hash bottom.
HI7	25.38605	-80.31245	Yes	Biscayne Bay	25.38610	-80.31247	24.0	27.2	56973.3	51000.5	27.2	25.6			60 cm - Low turbidity, moderate H <sub>2</sub> S odor. Sparse <i>Thalassia</i> ; sandy/silty bottom.
HI8	25.37202	-80.31137	Yes	Mangrove Area	25.37227	-80.31123	27.8			49076.1		26.6			5 cm - Below sediment - no water available. 60 cm - Low turbidity, Strong H <sub>2</sub> S odor. Dense <i>Rhizophora mangle</i> 4.0 m tall, sparse <i>Avicennia germinans</i> 4.0 m tall.
I3	25.4302	-80.30621	Yes	Biscayne Bay	25.43019	-80.30614	31.4	27.2	56061.3	52535.0	27.2	29.7	27.1	56055.2	60 cm - Low turbidity, strong H <sub>2</sub> S odor. Sparse to moderate <i>Thalassia</i> , <i>Bataphora</i> and <i>Penicillus</i> present. Sandy shell-hash substrate.
I7	25.3852	-80.30656	Yes	Mangrove Area	25.38516	-80.30656	25.1	27.4	56114.7	54804.3	27.4	26.1			60 cm - Low turbidity, moderate H <sub>2</sub> S odor, strong organic/manure smell. Probed down to 103 cm which was as far as we could go. Red mangrove forest approximately 4 m tall on average. Black mangrove pneumatophores also present but no trees visible.



Table B.4-3. Porewater Sampling Grid Points (April 2011 Dry Season)

Location Name	Latitude	Longitude	Original Site	Habitat	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)		Temperature (°C)		Bay Samples		Notes
					Latitude	Longitude	Air	Water	Surface	60 cm	Surface	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS/cm)	
IJ3	25.43037	-80.30016	Yes	Biscayne Bay	25.43039	-80.29943	32.2	27.1	55836.9	51864.8	27.1	28.6	27.1	55876.1	60 cm - Low turbidity, strong H <sub>2</sub> S odor. Moderate <i>Thalassia</i> , <i>Bataphora</i> ; sandy shell-hash bottom.
IJ4	25.41893	-80.30004	Yes	Biscayne Bay	25.41928	-80.29994	32.2	26.7	55793.5	56200.2	26.7	27.9	26.5	56071.6	30 cm - Low turbidity, mild H <sub>2</sub> S odor. Sparse <i>Thalassia</i> , drift algae, Gorgonian, sponges and corals present; <i>Bataphora</i> also present. Sandy shell-hash substrate-fairly open bottom.
IJ7	25.38518	-80.30001	Yes	Biscayne Bay	25.38506	-80.30009	28.8	26.7	55518.5	51740.6	26.7	32.4	26.3	55940.4	60 cm - Low turbidity, moderate H <sub>2</sub> S odor. Sparse <i>Thalassia</i> and sparse to moderate <i>Bataphora</i> ; a lot of dead <i>Thalassia</i> leaves; sandy shell-hash bottom with soft sediment.
IJ8	25.37386	-80.30001	Yes	Biscayne Bay	25.37392	-80.30010	28.5	26.4	56255.7	51571.9	26.4	27.9	26.2	56542.5	40 cm - Low turbidity, moderate H <sub>2</sub> S odor. Reached 40 cm after 10 + attempts. Sparse <i>Thalassia</i> with sparse to moderate <i>Bataphora</i> ; fairly open bottom with sandy shell-hash.
J11	25.33989	-80.29442	Yes	Biscayne Bay	25.33998	-80.29451	27.2	26.1	55833.7	53110.5	26.1	26.6	26.0	55829.3	40 cm - Low turbidity, moderate H <sub>2</sub> S odor. Moderate to Dense <i>Thalassia</i> ,some <i>Penicillus</i> , drift algae, sandy shell-hash bottom.
J12	25.32896	-80.29469	Yes	Biscayne Bay	25.32911	-80.29475	29.0	26.2	55276.4	52767.6	26.2	28.5	26.2	55472.0	50 cm - Moderate turbidity, moderate H <sub>2</sub> S odor. Moderate to dense <i>Thalassia</i> , sparse <i>Syringodium</i> ; silty sandy shell-hash.
J9	25.36259	-80.2943	Yes	Biscayne Bay	25.36263	-80.29424	30.2	27.9	55994.1	55570.6	27.9	27.5	27.8	56187.9	40 cm - Low turbidity, mild H <sub>2</sub> S odor. Sparse to moderate <i>Thalassia</i> , <i>Bataphora</i> , <i>Acetabularia</i> , sponges, drift algae; sandy shell-hash bottom.
JK7	25.38525	-80.28761	Yes	Biscayne Bay	25.38509	-80.28744	23.7	25.0	56335.2	54247.5	25.0	23.7	25.3	56270.8	45 cm - Low turbidity, moderate H <sub>2</sub> S odor. Reached 45 cm after several attempts. Moderate to dense <i>Thalassia</i> ; some <i>Penicillus</i> and <i>Udotea</i> ; sandy shell-hash substrate with silt layer on top.
K1-porewater				Biscayne Bay	25.45213	-80.28055	31.0	27.0	57140.6	56089.0	27.0	27.7	26.9	57523.9	40 cm - Low turbidity, mild H <sub>2</sub> S odor; sparse <i>Thalassia</i> , <i>Penicillus</i> and Gorgonian present. Sandy shell-hash bottom.
K1-surface				Biscayne Bay	25.45212	-80.28064	32.2	28.9	56316.5	56303.7	28.9	28.8	28.8	56352.1	125 cm - Low turbidity, mild H <sub>2</sub> S odor. Fairly open bottom; sandy shell-hash.
K8	25.37376	-80.28182		Biscayne Bay	25.37360	-80.28175	25.6	25.8	56260.7	52341.9	25.8	27.0	26.0	56119.8	60 cm - Low turbidity, moderate H <sub>2</sub> S odor. Had to move the probe several times before a second sample could be obtained. Moderate <i>Thalassia</i> with sponges and <i>Penicillus</i> present. Sandy/silty substrate.

Key:  
°C = Degrees Celcius.  
cm = Centimeter.  
H<sub>2</sub>S = Hydrogen sulfide.

m = Meter.  
m<sup>2</sup> = Square meter.  
µS = micro Siemens.



Table B.4-4. Porewater Sampling Areas of Ecological Interest (April 2011 Dry Season)

Location Name	Latitude	Longitude	Original Site	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)		Temperature (°C)		Bay Samples		Notes
				Latitude	Longitude	Air	Water	Surface	60 cm	Surface	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS/cm)	
BB1A	25.45224	-80.30854	Yes	25.45211	-80.30849	27.5	26.7	56263.2	51786.1	26.7	28.0	26.3	56870.8	60 cm - Low turbidity and mild H <sub>2</sub> S odor; Rubble and sandy shell-hash; several refusals between 10 - 20 cm, but found one spot to reach 60; <i>Penicillus</i> present.
BB1B	25.45225	-80.30851	Yes	25.45202	-80.30850	28.4	26.7	56484.4	50387.2	26.7	27.5	26.5	56694.8	40 cm - Low turbidity, moderate H <sub>2</sub> S odor; substrate is silty with rubble; calcareous algae present.
BB2A	25.44238	-80.32148	Yes	25.44229	-80.32150	27.2	26.0	58658.0	56596.0	26.0	27.0	25.7	59125.3	30 cm - Low turbidity, moderate H <sub>2</sub> S odor. Reached 30 cm depth after 25+ refusals at 25-30 cm. Barren silty bottom with very sparse <i>Caulerpa</i> .
BB2B	25.44236	-80.32159	Yes	25.44231	-80.32149	27.2	26.1	58751.7	59097.3	26.1	28.2	27.8	59129.4	30 cm - Moderate turbidity, mild H <sub>2</sub> S odor. Reached 30 cm depth after several shallow refusals. Barren silty bottom with very sparse <i>Caulerpa</i> .
BB4A	25.42272	-80.32013	Yes	25.42271	-80.32022	30.0	26.8	55979.7	48096.5	26.8	26.8	26.3	56675.2	55 cm - low turbidity, moderate H <sub>2</sub> S. Moderate to dense <i>Thalassia</i> ; <i>Penicillus</i> present. Sandy/silty substrate.
BB4B	25.42271	-80.32012	Yes	25.42266	-80.32021	30.0	26.5	56550.7	45941.7	26.5	26.7	26.3	56752.6	60 cm - Moderate H <sub>2</sub> S odor, low turbidity. Moderate to dense <i>Thalassia</i> ; <i>Penicillus</i> present. Sandy/silty substrate.
BB5A	25.40916	-80.29819	Yes	25.40923	-80.29832	32.2	27.3	55666.2	54118.9	27.3	28.7	26.9	56093.4	60 cm - Low turbidity, moderate H <sub>2</sub> S odor. Moderate to dense <i>Thalassia</i> ; sandy/silty substrate.
BB5B	25.40932	-80.29826	Yes	25.40932	-80.29831	32.2	27.4	55561.4	54736.6	27.4	27.7	27.0	55971.6	60 cm - Low turbidity, moderate H <sub>2</sub> S odor. Moderate to dense <i>Thalassia</i> ; sandy/silty substrate.
M2A/B			Yes	25.39280	-80.32748	29.5	27.4	56850.8	55744.8	27.4	27.2			60 cm - High turbidity, moderate H <sub>2</sub> S odor. Probe was inserted 91.0 cm without hitting bedrock. R. mangle forest, approximately 4.0 m tall on average. Point is located adjacent to a creek that is approximately 5.0 m across and 3.0 feet deep (0.9 m).
M3A/B			Yes	25.39377	-80.32431	25.7			54281.6		24.9			5 cm Below sediment - no water. 60 cm - Low turbidity, strong H <sub>2</sub> S odor. Red mangrove with sparse individuals of White mangrove and Black mangrove at average height of 2.10 m; moderately dense.
M5A/B			Yes	25.41079	-80.32840	35.2		62189.6	52000.8	34.8	30.7			60 cm - Low turbidity, strong H <sub>2</sub> S odor. In and old creek? Mostly 1.0 m <i>R. mangle</i> but west-east line of 2.0 m tall <i>R. mangle</i> .
M7A/B			Yes	25.40427	-80.33075	31.9	35.6	65308.1	50984.0	35.6	31.0			60 cm - Low turbidity, strong H <sub>2</sub> S odor. Sparse <i>R. mangle</i> 0.75 m tall.
M8A/B			Yes	25.39110	-80.33028	30.2	33.3	57369.9	56830.5	33.3	30.1			60 cm - Low turbidity, strong H <sub>2</sub> S odor. Probe inserted to 91 cm without hitting bedrock. Point located a hole approximately 8.0 m across that is deeper than the surrounding habitat. Substrate is soft. Scrub <i>R. mangle</i> present around the hole.
M9A/B			Yes	25.38548	-80.32974	32.6		72628.8	63777.8	34.3	30.0			60 cm - High turbidity, moderate H <sub>2</sub> S odor, with unusual odor-metallic and organic smelling. Probe went 91.0 cm without hitting bedrock. Second sample had a lot of air in it. Scrub <i>R. mangle</i> dominant with some taller <i>R. mangle</i> and Black mangrove approximately 1.75 m tall. Also scattered, <i>C. erectus</i> snags present (dead). Look like there is groundwater influx because there is a line of tall trees.





Table B.4-4. Porewater Sampling Areas of Ecological Interest (April 2011 Dry Season)

Location Name	Latitude	Longitude	Original Site	New Coordinates		Temperature (°C)		Specific Conductance (µS/cm)		Temperature (°C)		Bay Samples		Notes
				Latitude	Longitude	Air	Water	Surface	60 cm	Surface	60 cm	Bottom Temp (°C)	Bottom Specific Cond (µS/cm)	
W1A/B			Yes	25.44674	-80.37179	31.3		664.6	933.6	25.6	26.4			5 cm Below sediment - no surface water; very turbid, no odor, dark brown color. 60 cm - moderate turbidity, mild H <sub>2</sub> S odor. <i>Lygodium microphyllum</i> at site. Inside a tree island; <i>Conocarpus erectus</i> , <i>Salix caroliniana</i> , <i>Myrica cerifera</i> , <i>Annona glabra</i> trees at 4.5 m average. Sawrass, <i>Thelypteris interrupta</i> , <i>Cephalanthus occidentalis</i> at 50% cover, 1.25 m height.
W2A/B			Yes	25.43960	-80.36055	28.7		986.0	1609.7	26.8	28.2			7 cm Below sediment - had to go a little deeper to get sample. 60 cm - Low turbidity, mild H <sub>2</sub> S odor, with light brown color/tannic with organic smell. Herbaceous cover is sparse, mostly consisting of <i>Blechnum</i> , Buttonbush saplings and Cocoplum saplings. Average height 0.5 m. Canopy consists of Cocoplum and <i>R. mangle</i> average height 3.75 m. Heavy leaf litter.
W3A/B			Yes	25.43627	-80.35295	27.1		653.2	553.1	26.8	28.8			60 cm - Low turbidity, moderate H <sub>2</sub> S odor, tannic. Understory dominated by <i>Blechnum</i> and <i>Thelypteris</i> approximately 0.25 m tall. Canopy dominated by <i>Salix</i> , <i>Myrica</i> , and <i>Casuarina</i> approximately 3.25 m tall; heavy leaf litter.
W4A/B			Yes	25.43018	-80.36566	37.2			3834.1		27.9			5 cm Below sediment - no water. 60 cm - Low turbidity, mild H <sub>2</sub> S odor with yellow tint. Probe inserted 91.0 cm without hitting bedrock. Located in a tree island infested with <i>Lygodium</i> and Poison Ivy. Understory dominated by <i>Cladium</i> , <i>Blechnum</i> , and <i>Lygodium</i> . Canopy dominated by dead <i>Casuarina</i> and Brazilian Pepper. Canopy approximately 5.0 m average height. Understory approximately 2.0 m average height.
W5A/B			Yes	25.43026	-80.35488	36.1		906.9	842.3	26.4	26.9			60 cm - Low turbidity, mild H <sub>2</sub> S odor. Probe inserted 91.0 cm without hitting bedrock. Located in a tree island. Understory dominated by <i>Cladium</i> with scattered <i>Blechnum</i> . <i>Cladium</i> is 1.75 m tall. Canopy dominated by <i>C. erectus</i> , <i>M. cerifera</i> , and <i>Salix</i> approximately 4.0 m on average. <i>Casuarina</i> also present.
W6A/B			Yes	25.40640	-80.36438	34.0			541.5		27.5			5 cm Below sediment - no water. 60 cm - Moderate turbidity, mild H <sub>2</sub> S odor. Tree island, 10.0 m east of western edge. Moderate <i>Lygodium</i> . <i>Magnolia virginiana</i> 4.0 m tall. <i>Cephalanthus</i> 1.0 m tall. <i>Cladium</i> 2.0 m tall. <i>Myrica cerifera</i> 3.5 m tall.
W9A/B			Yes	25.38823	-80.37489	34.0			810.9		27.1			5 cm Below sediment - no water. 60 cm - low turbidity, mild H <sub>2</sub> S odor. <i>C. jamaicense</i> 1.2 m tall.

Key:  
°C = Degrees Celcius.  
cm = Centimeter.  
H<sub>2</sub>S = Hydrogen sulfide.

m = Meter.  
m<sup>2</sup> = Square meter.  
µS = Micro Siemens.



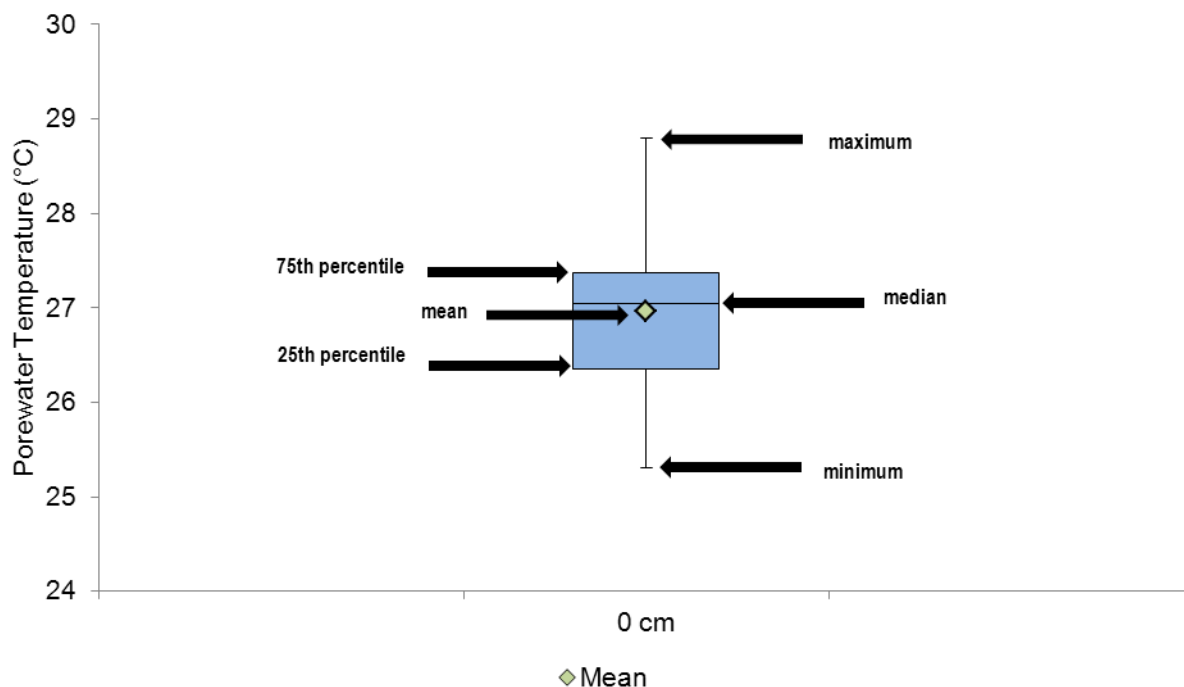


# **APPENDIX C:**

## **BOX AND WHISKER PLOTS**

# **APPENDIX C-1:**

## **Box and Whisker Plot Explanatory Diagram**



**Figure C-1. Box and Whisker Plot Explanatory Diagram.** The following explanation and the above diagram apply to all of the box and Whisker Plots in Appendix C. The box shows the range from the first to third quartiles: the lower edge of the box represents the 25<sup>th</sup> percentile and the upper edge of the box gives the 75<sup>th</sup> percentile. The line drawn in the box is the median (50<sup>th</sup> percentile). The mean value is represented by the green diamond. The upper whisker is drawn to the maximum observed value and the lower whisker drawn to the minimum observed value.

## **APPENDIX C-2:**

### **Box and Whisker Plots**

**April 2010**

### **Water Temperatures Comparing Grid and Areas of Ecological Interest (AEI) Points by Depth**

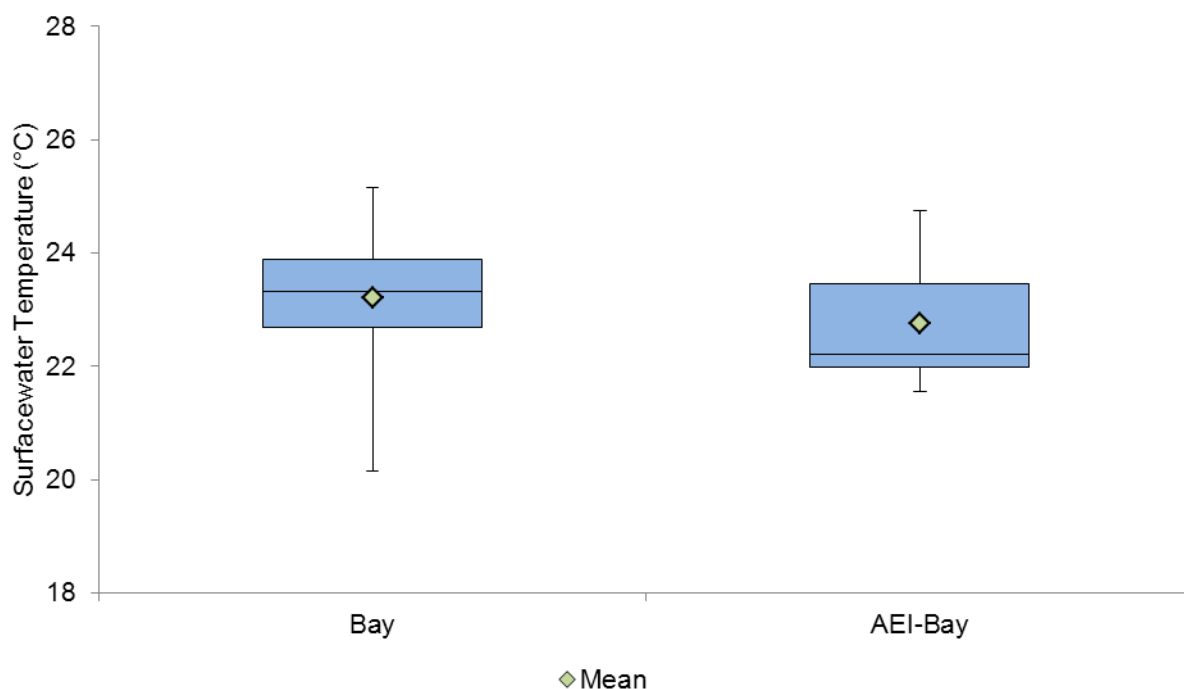


Figure C-2. Box and Whisker Plot for April 2010 Grid Points (Bay) and AEI-Bay Surface Water Temperatures.

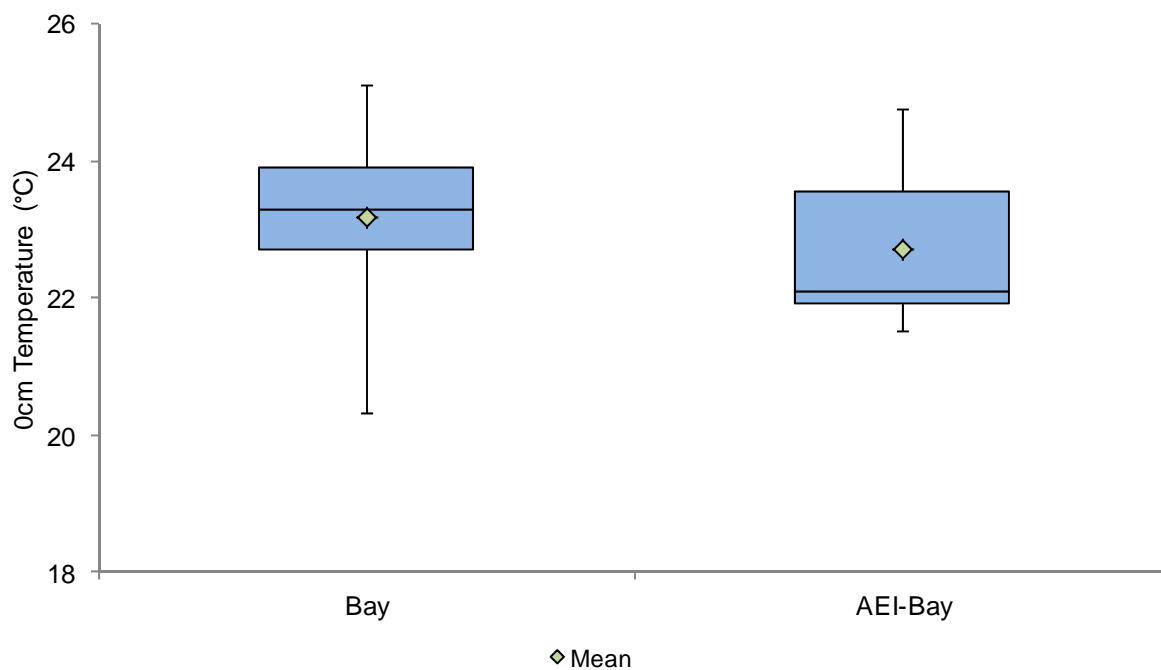


Figure C-3. Box and Whisker Plot for April 2010 Grid Points (Bay) and AEI-Bay Bottom Water (0 cm) Temperatures.



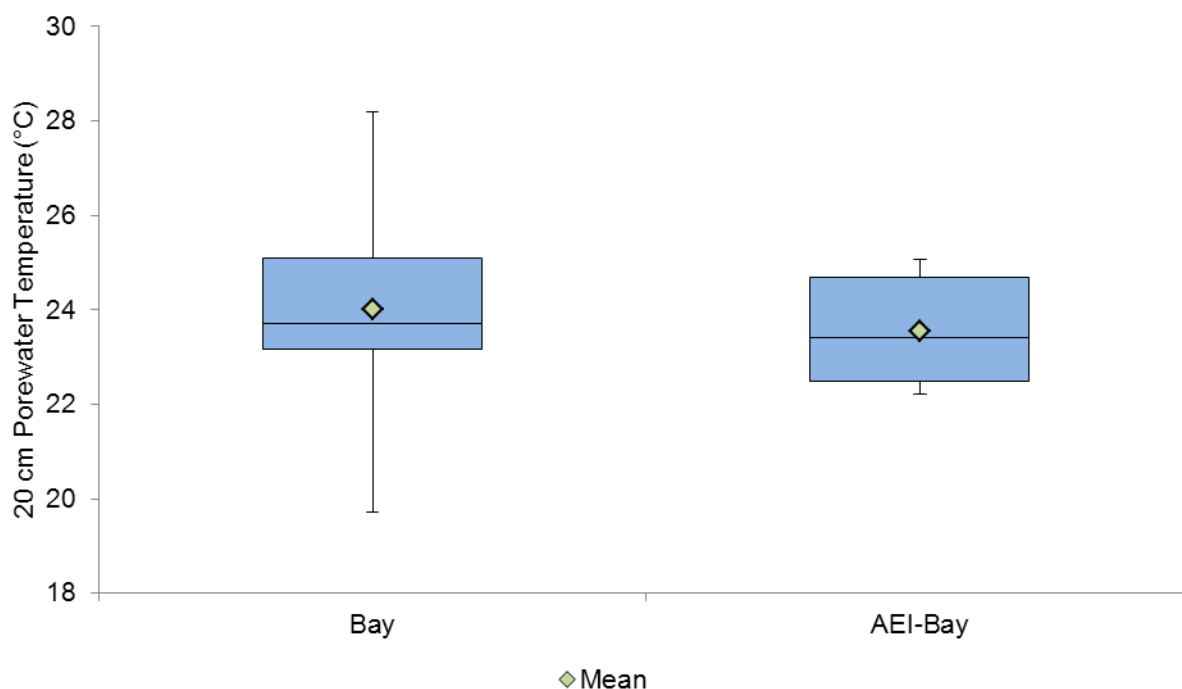


Figure C-4. Box and Whisker Plot for April 2010 Grid Points (Bay) and AEI-Bay 20 cm Porewater Temperatures.

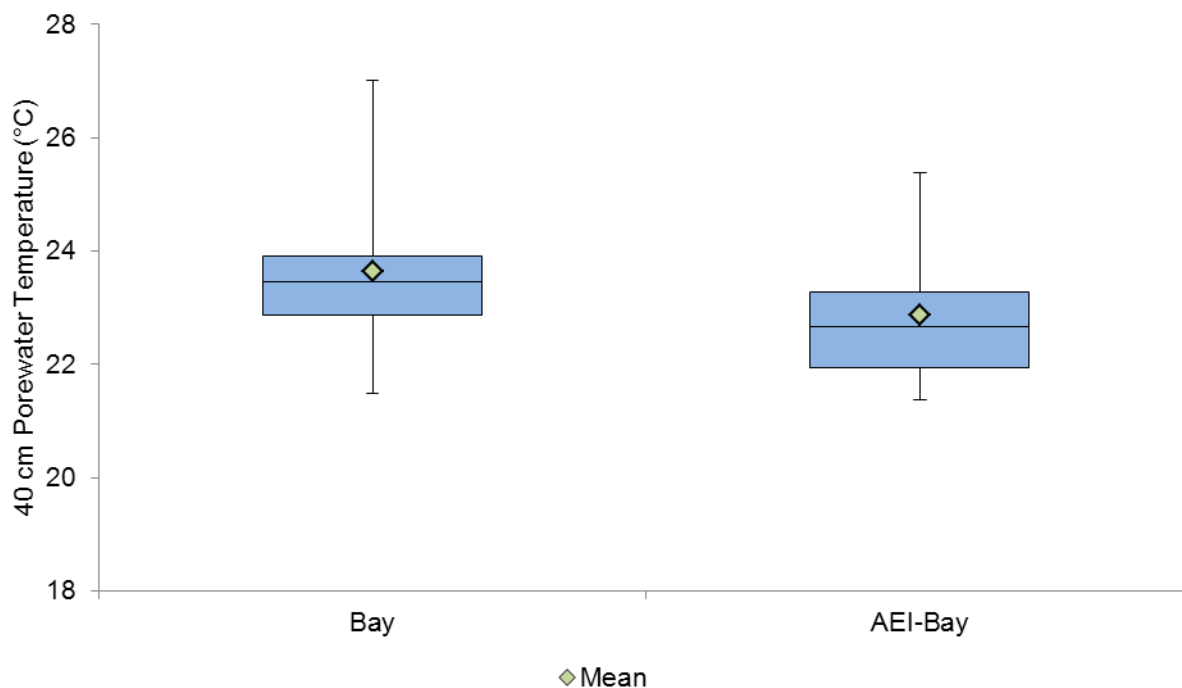


Figure C-5. Box and Whisker Plot for April 2010 Grid Points (Bay) and AEI-Bay 40 cm Porewater Temperatures.





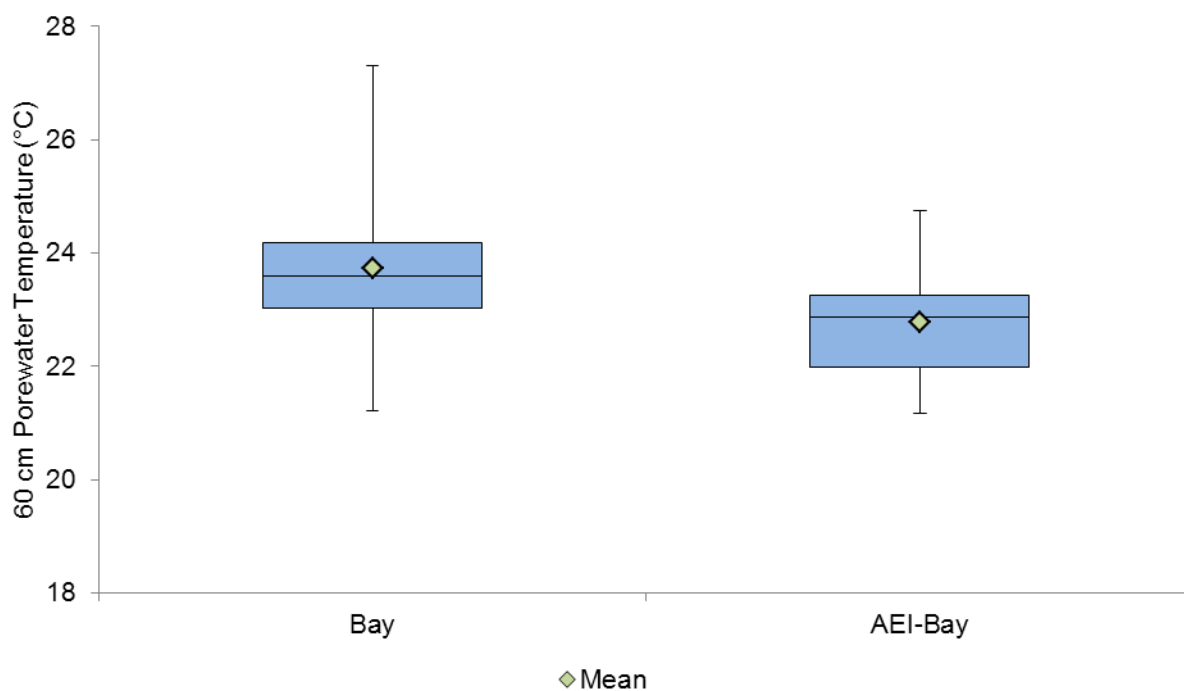
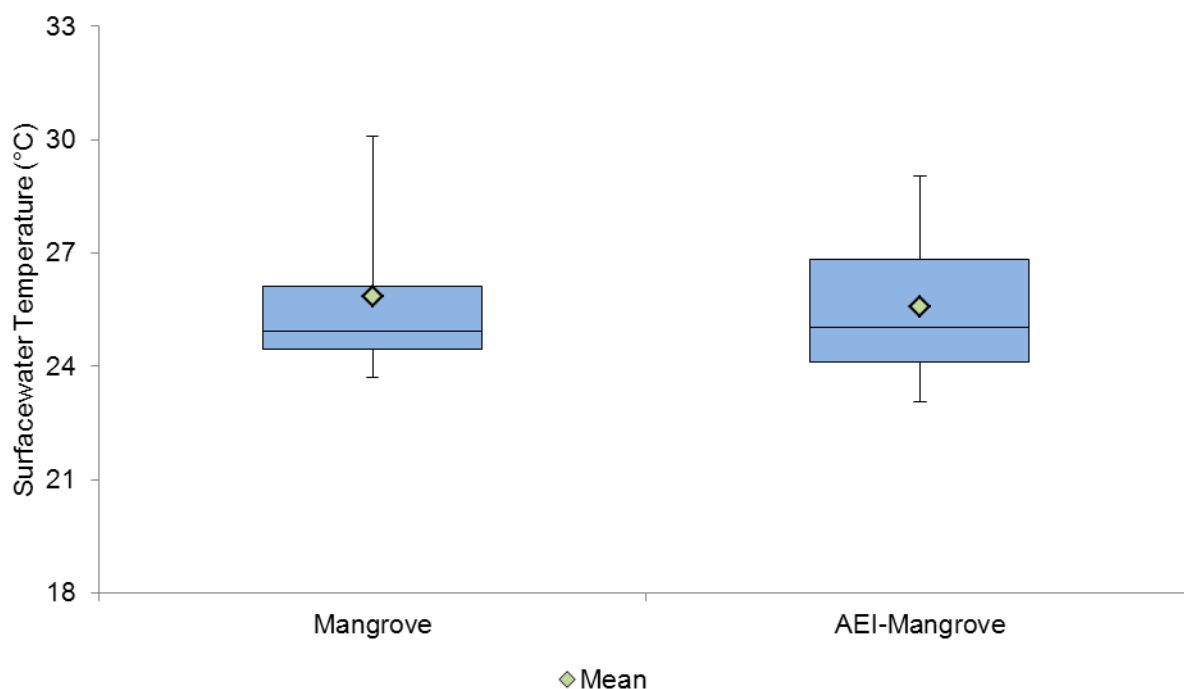
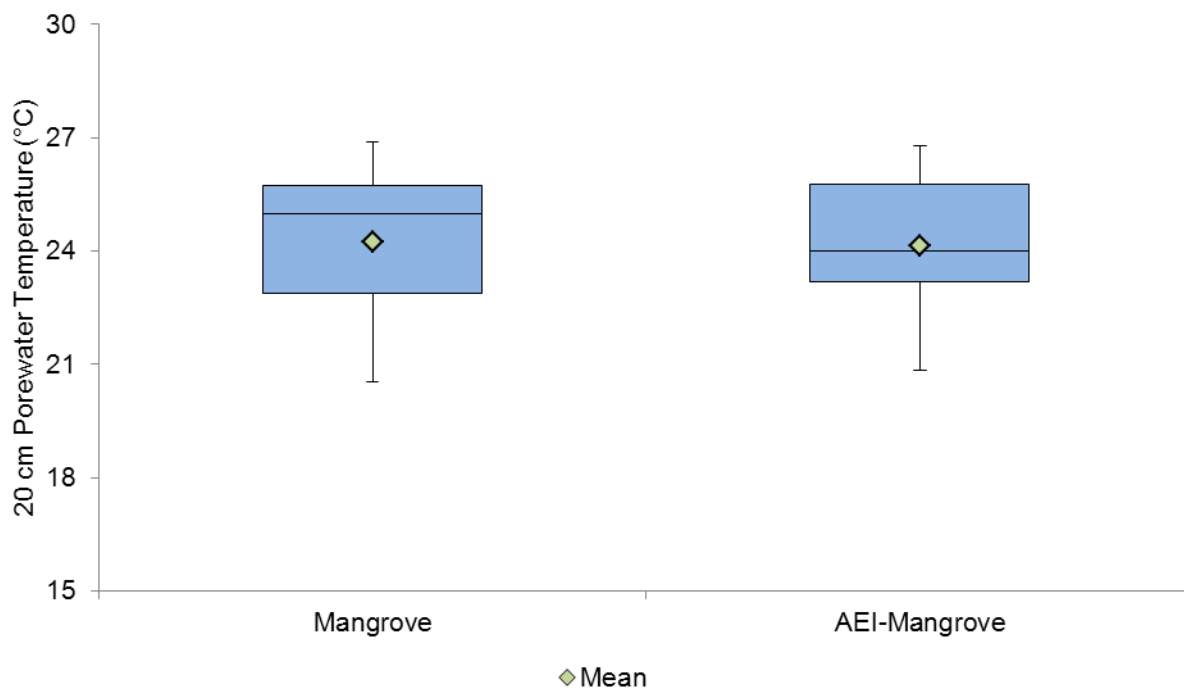


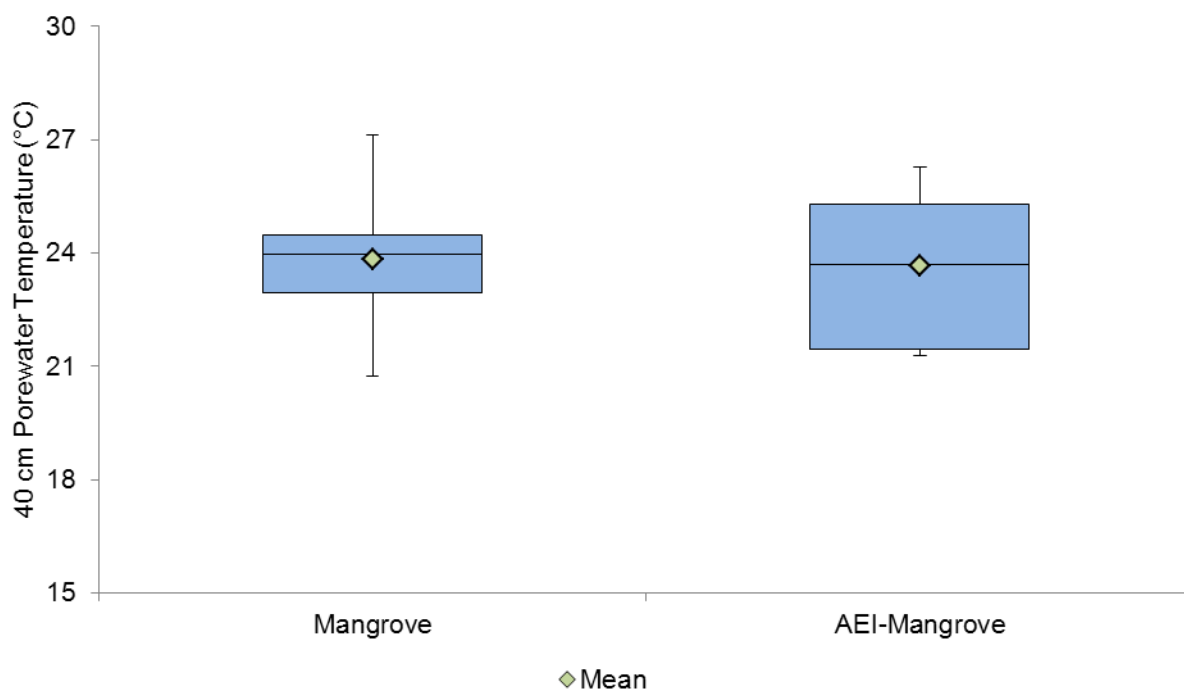
Figure C-6. Box and Whisker Plot for April 2010 Grid Points (Bay) and AEI-Bay 60 cm Porewater Temperatures.



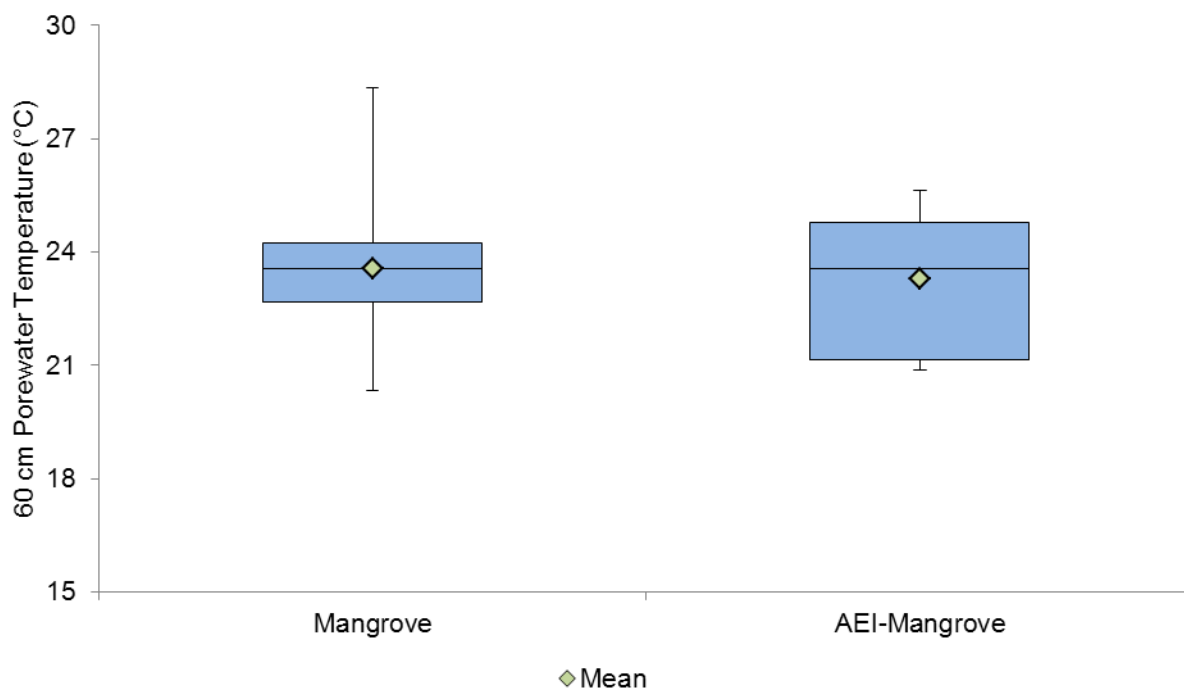
**Figure C-7. Box and Whisker Plot for April 2010 Grid Points (Mangrove) and AEI-Mangrove Surface Water Temperatures.**



**Figure C-8. Box and Whisker Plot for April 2010 Grid Points (Mangrove) and AEI-Mangrove 20 cm Porewater Temperatures.**

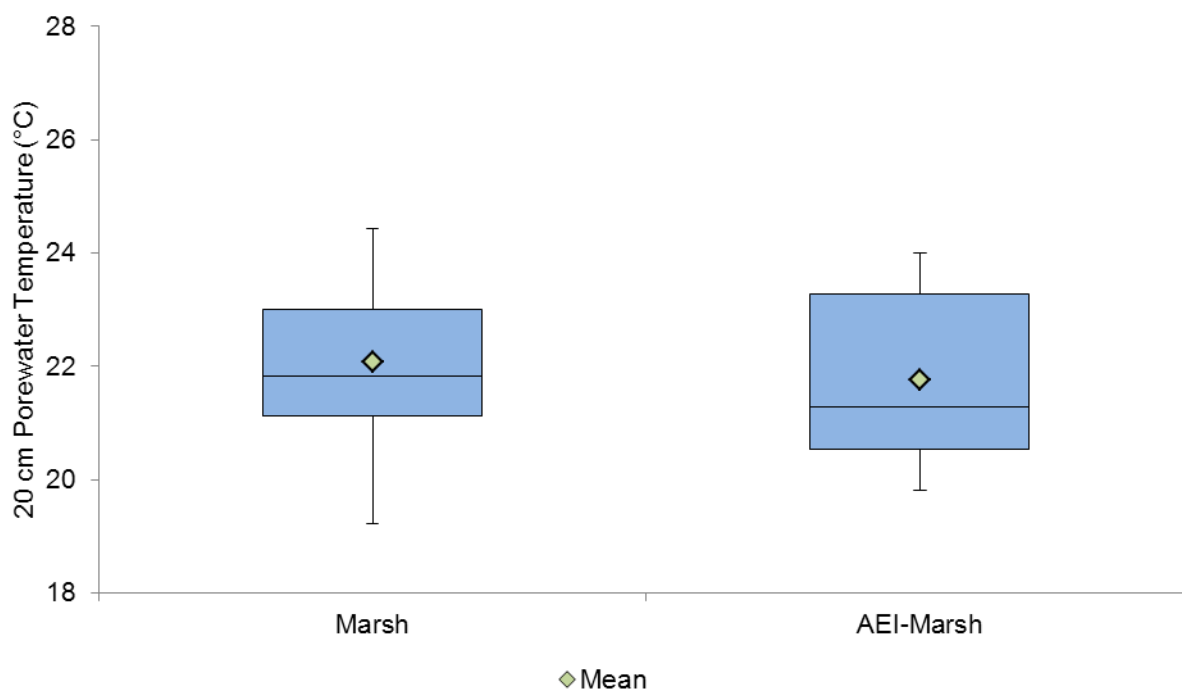


**Figure C-9. Box and Whisker Plot for April 2010 Grid Points (Mangrove) and AEI-Mangrove 40 cm Porewater Temperatures.**

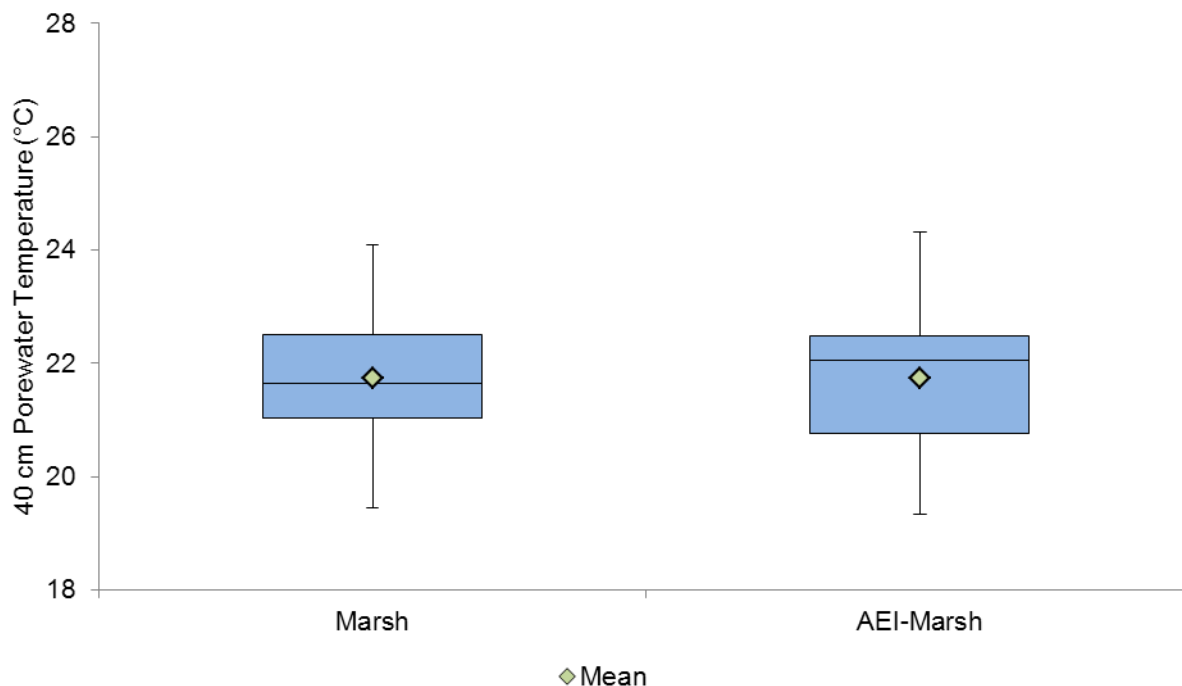


**Figure C-10. Box and Whisker Plot for April 2010 Grid Points (Mangrove) and AEI-Mangrove 60 cm Porewater Temperatures.**





**Figure C-11. Box and Whisker Plot for April 2010 Grid Points (Marsh) and AEI- Marsh 20 cm Porewater Temperatures.**



**Figure C-12 Box and Whisker Plot for April 2010 Grid Points (Marsh) and AEI- Marsh 40 cm Porewater Temperatures.**



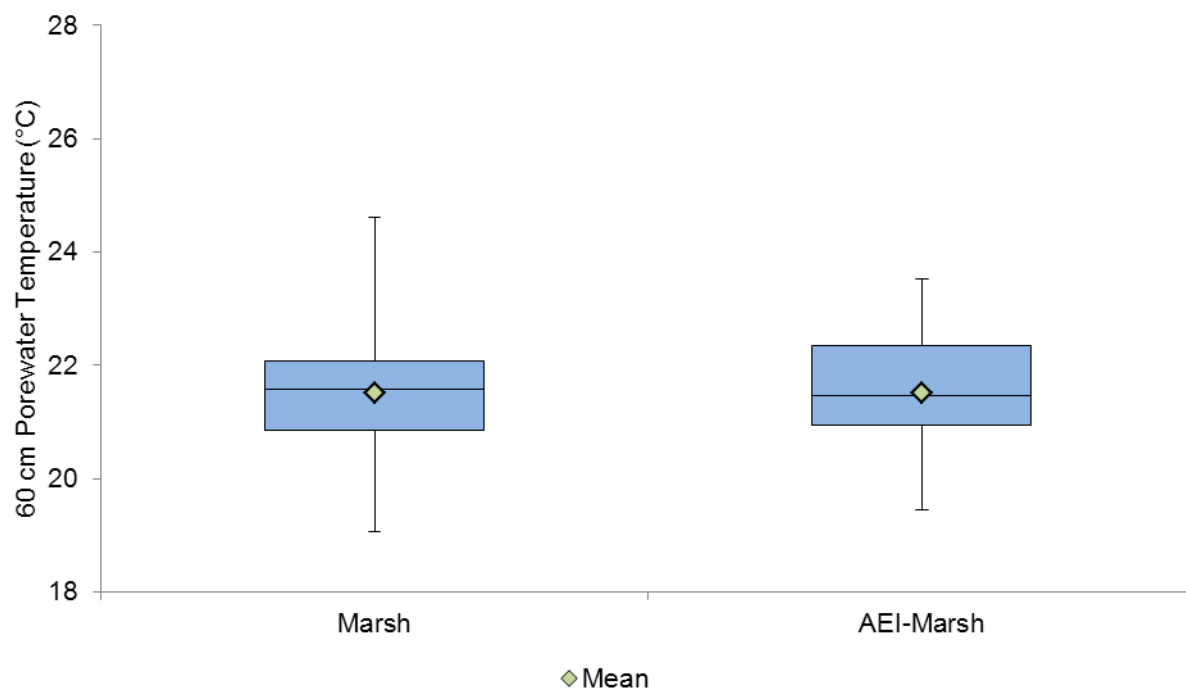


Figure C-13. Box and Whisker Plot for April 2010 Grid Points (Marsh) and AEI- Marsh 60 cm Porewater Temperatures.

**APPENDIX C-3:**

**Box and Whisker Plots**

**August 2010**

**Water Temperatures Comparing**

**Grid and AEI Points by Depth**



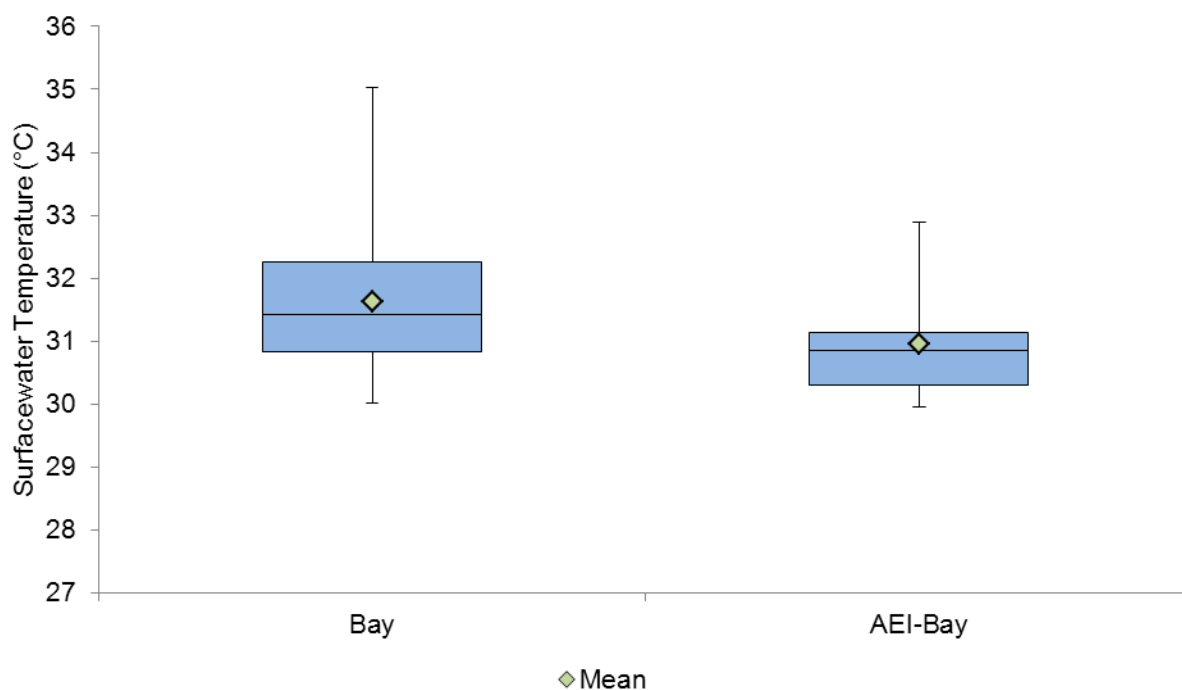


Figure C-14. Box and Whisker Plot for August 2010 Grid Points (Bay) and AEI-Bay Surface Water Temperatures.

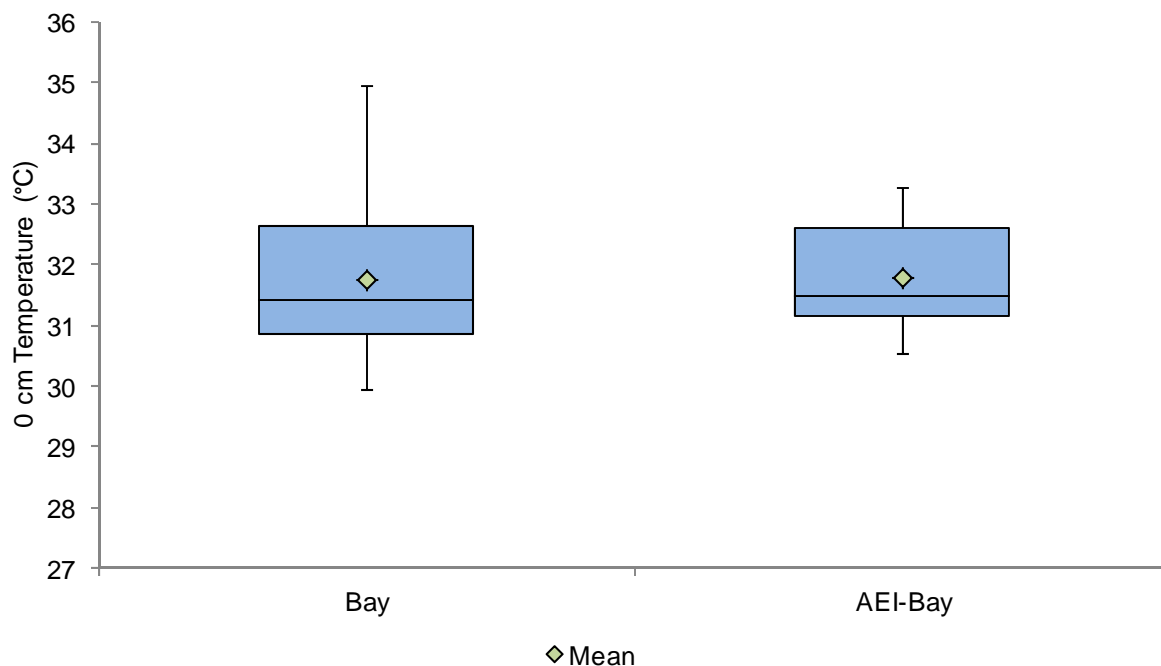


Figure C-15. Box and Whisker Plot for August 2010 Grid Points (Bay) and AEI-Bay Bottom Water (0 cm) Temperatures.



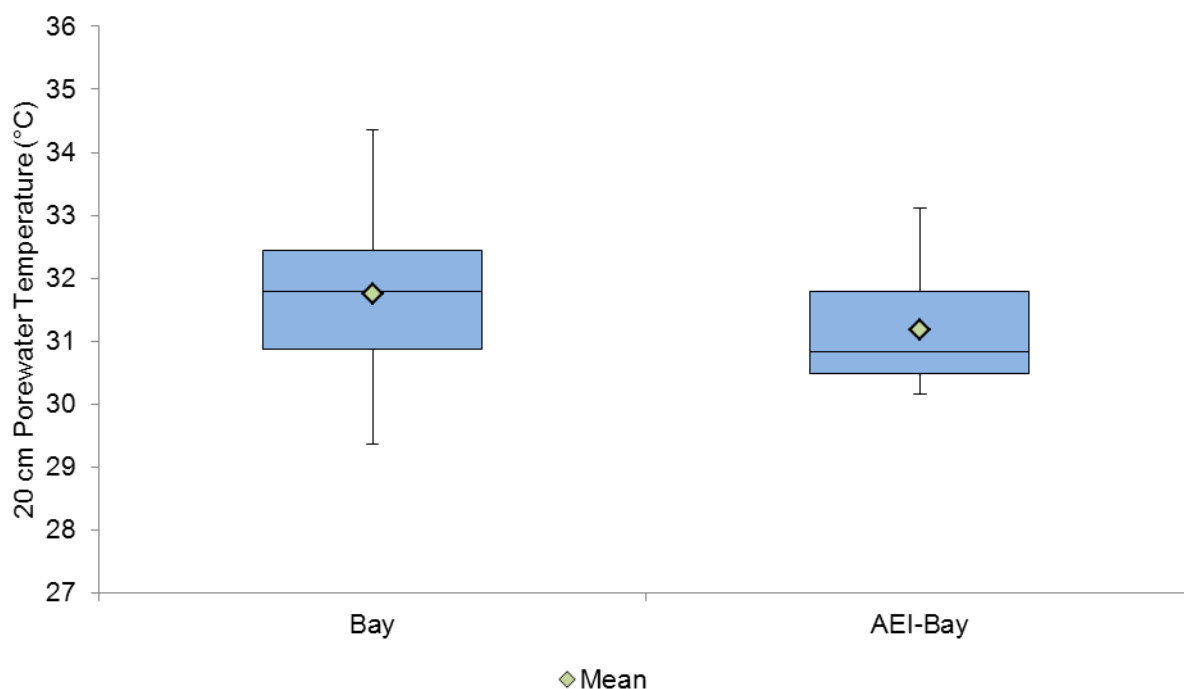


Figure C-16. Box and Whisker Plot for August 2010 Grid Points (Bay) and AEI-Bay 20cm Porewater Temperatures.

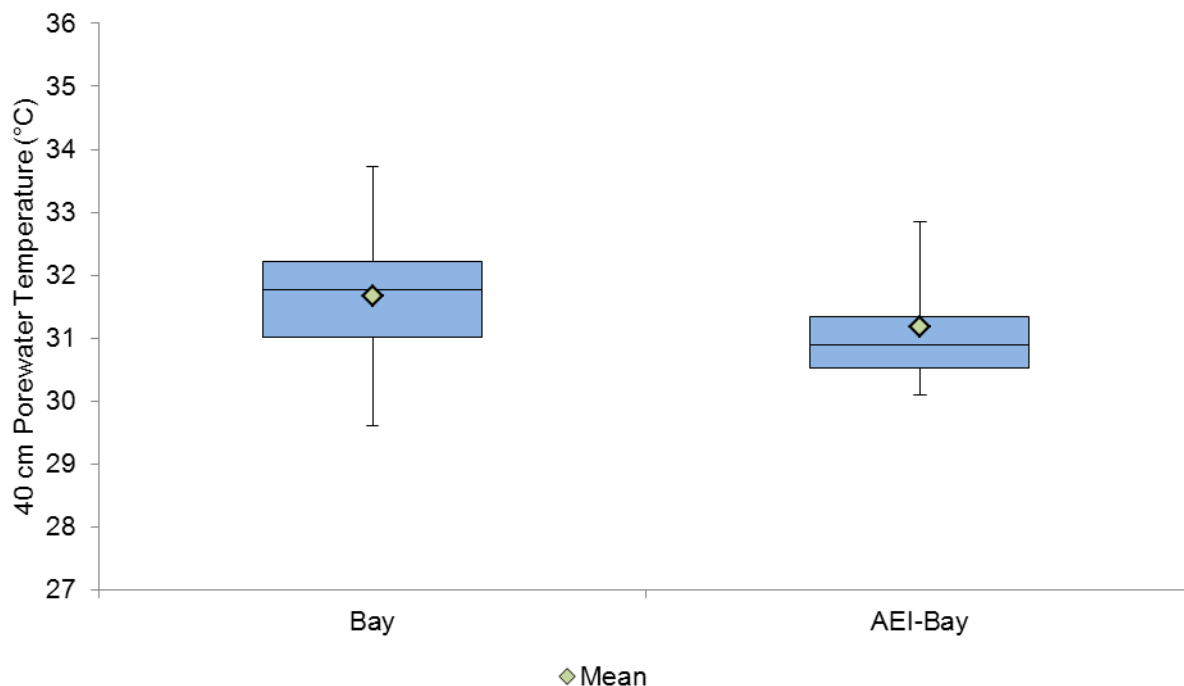


Figure C-17. Box and Whisker Plot for August 2010 Grid Points (Bay) and AEI-Bay 40 cm Porewater Temperatures.



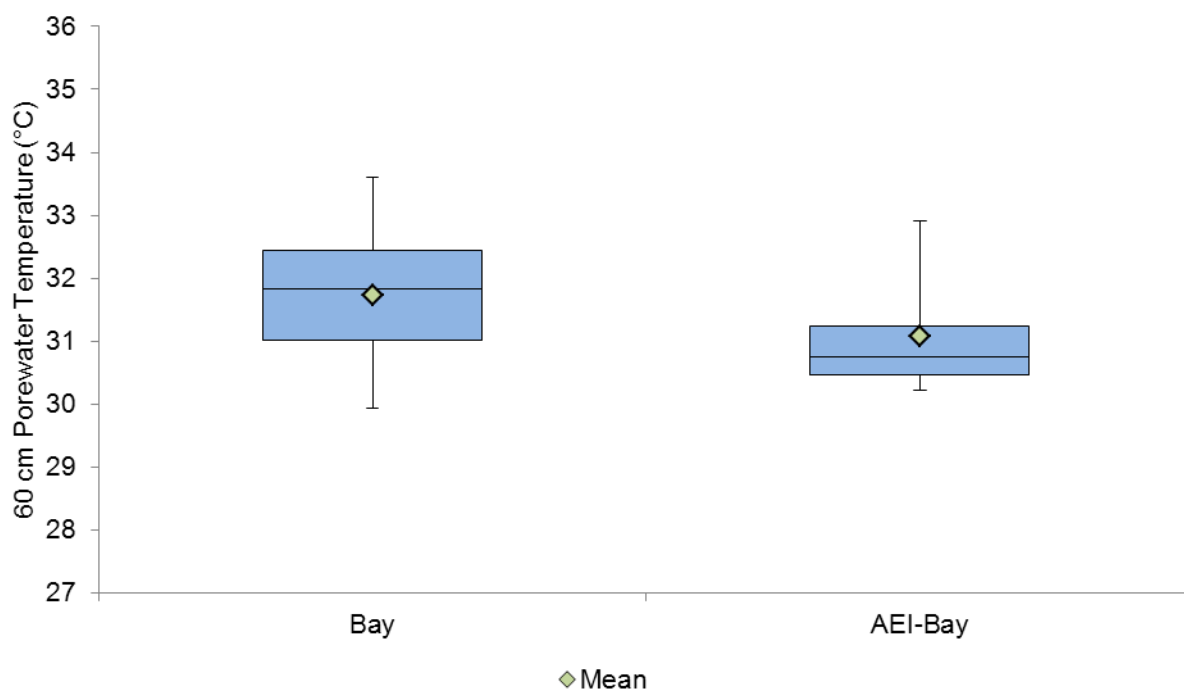


Figure C-18. Box and Whisker Plot for August 2010 Grid Points (Bay) and AEI-Bay 60 cm Porewater Temperatures.

**APPENDIX C-4:**

**Box and Whisker Plots**

**April 2011**

**Water Temperatures Comparing  
Grid and AEI Points by Depth**

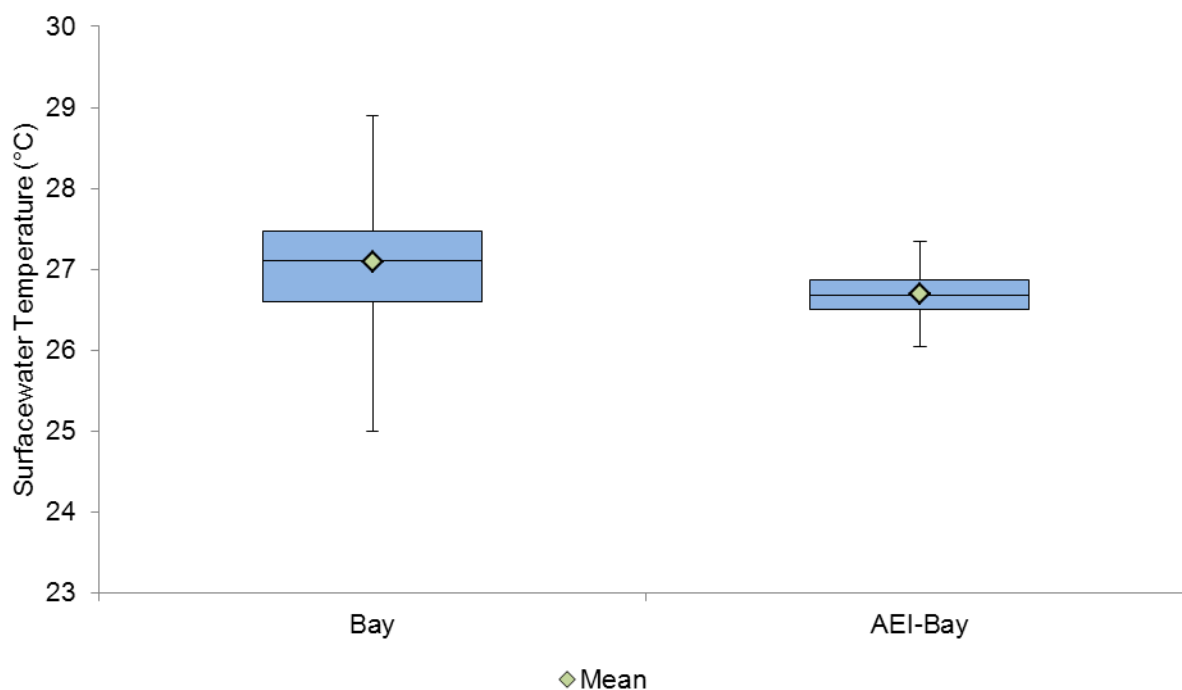


Figure C-19. Box and Whisker Plot for April 2011 Grid Points (Bay) and AEI-Bay Surface Water Temperatures.

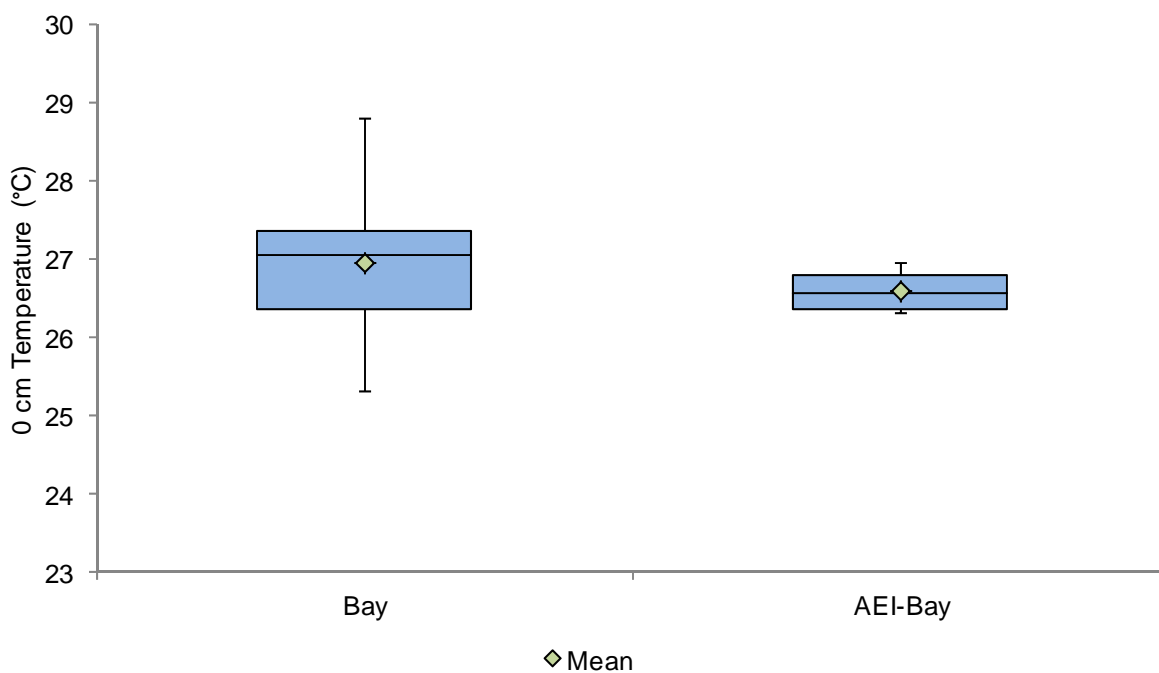


Figure C-20. Box and Whisker Plot for April 2011 Grid Points (Bay) and AEI-Bay Bottom Water (0 cm) Temperatures.

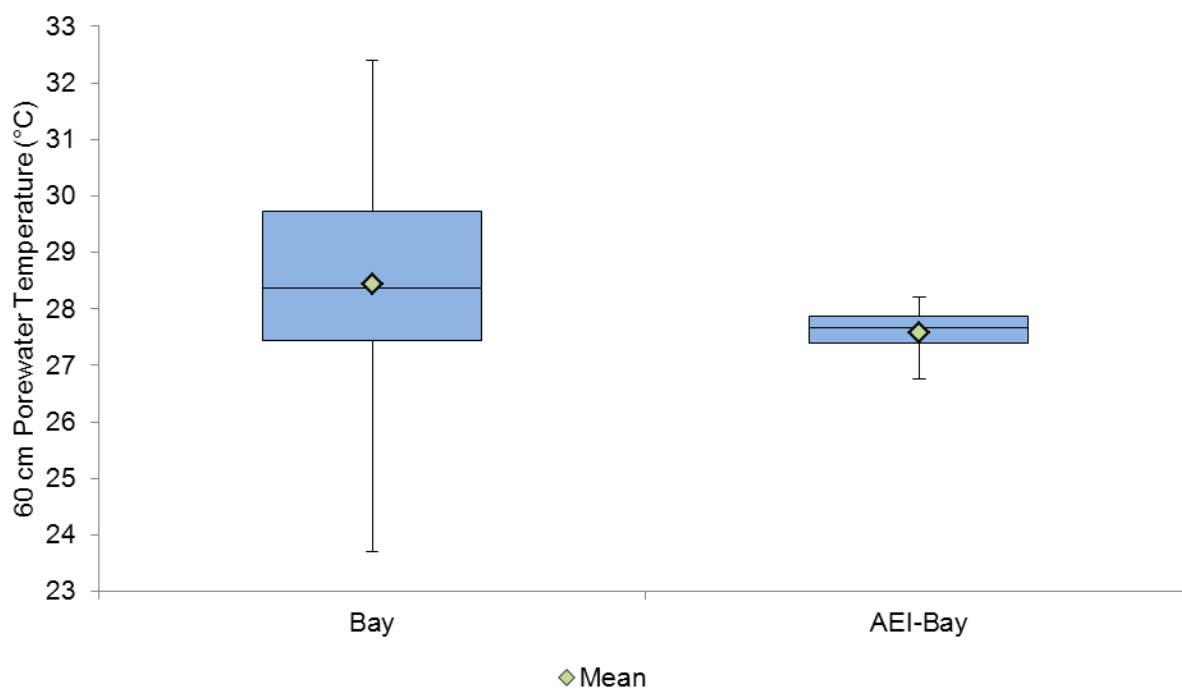


Figure C-21. Box and Whisker Plot for April 2011 Grid Points (Bay) and AEI-Bay 60 cm Porewater Temperatures.



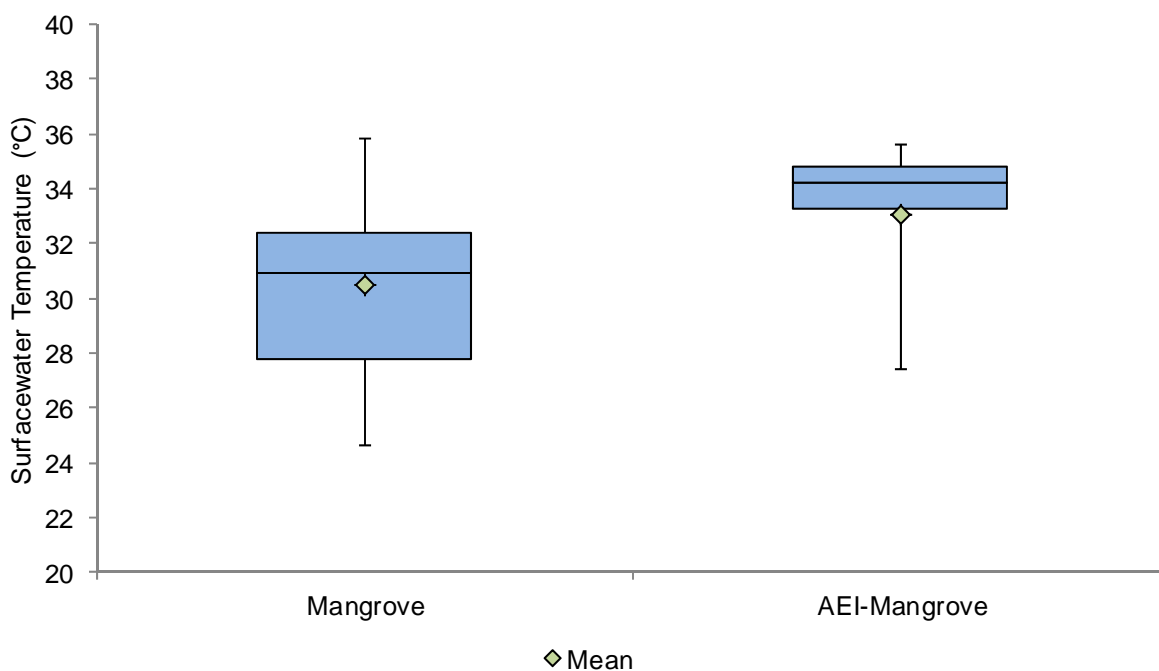


Figure C-22. Box and Whisker Plot for April 2011 Grid Points (Mangrove) and AEI-Mangrove Surface Water Temperatures.

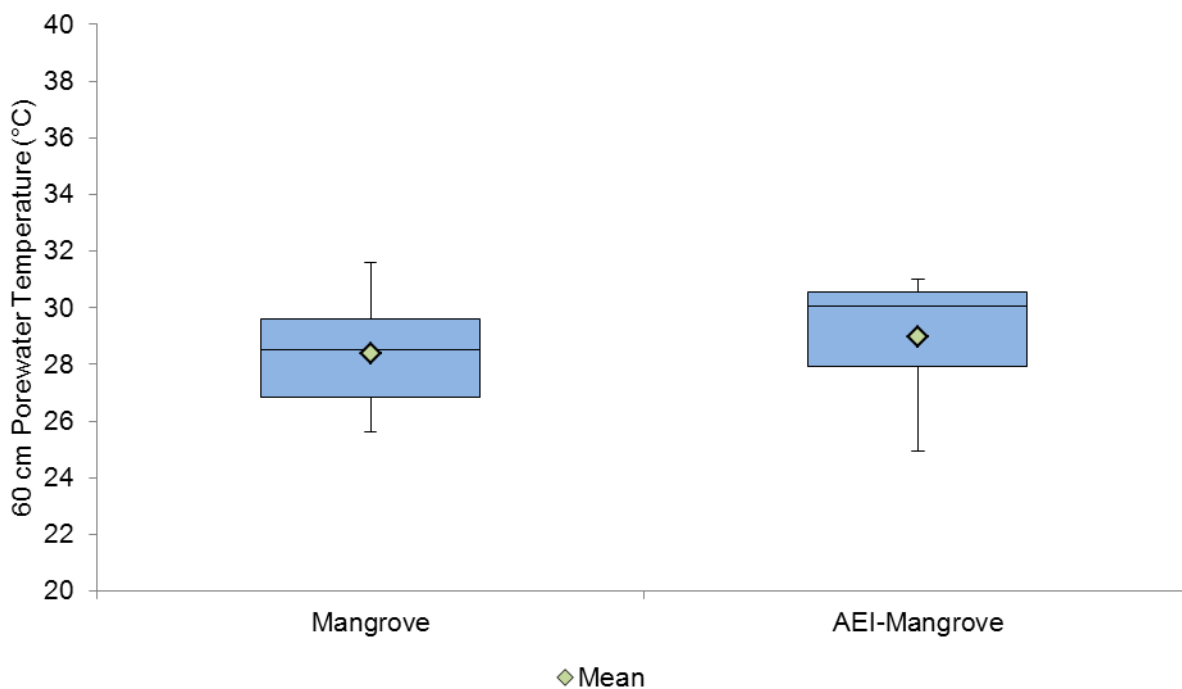


Figure C-23. Box and Whisker Plot for April 2011 Grid Points (Mangrove) and AEI-Mangrove 60 cm Porewater Temperatures.



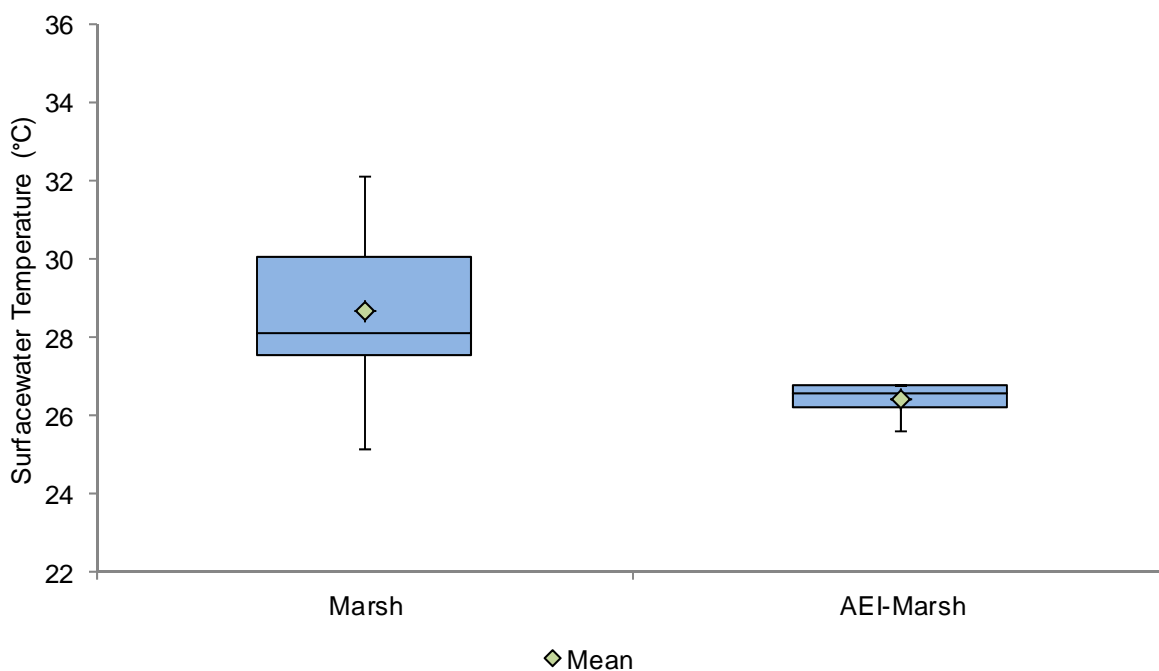


Figure C-24. Box and Whisker Plot for April 2011 Grid Points (Marsh) and AEI- Marsh Surface Water Temperatures.

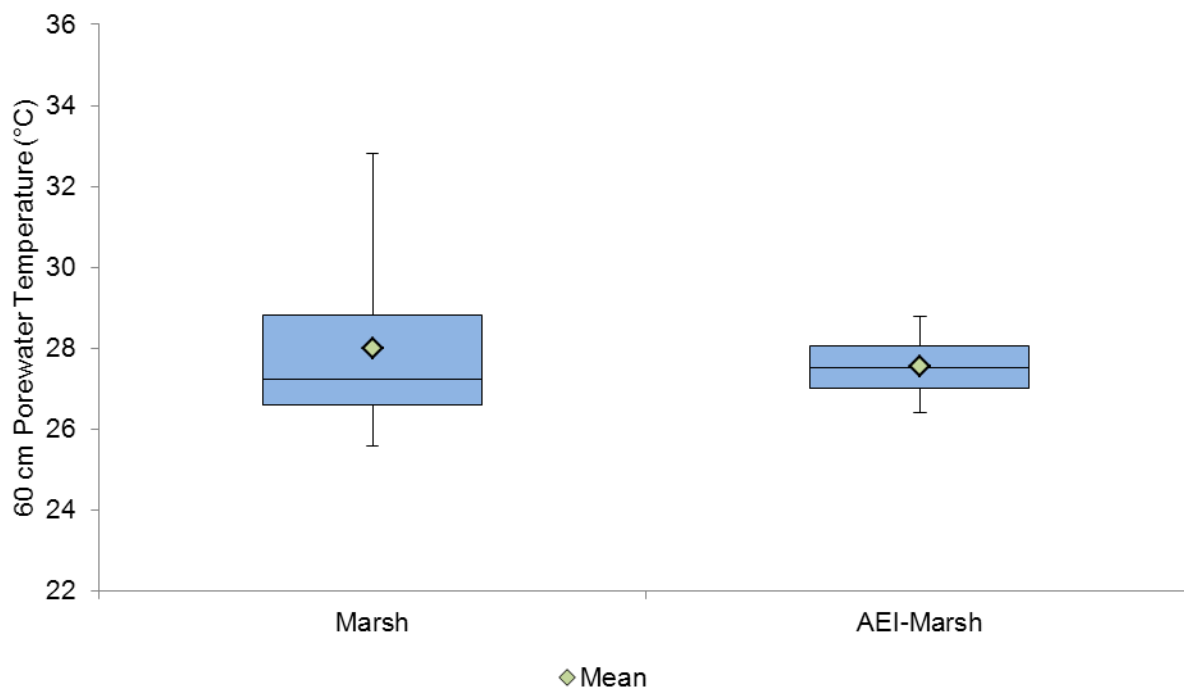


Figure C-25. Box and Whisker Plot for April 2011 Grid Points (Marsh) and AEI- Marsh 60 cm Porewater Temperatures.

**APPENDIX C-5:**

**Box and Whisker Plots**  
**April 2010**  
**Salinities Comparing**  
**Grid and AEI Points by Depth**

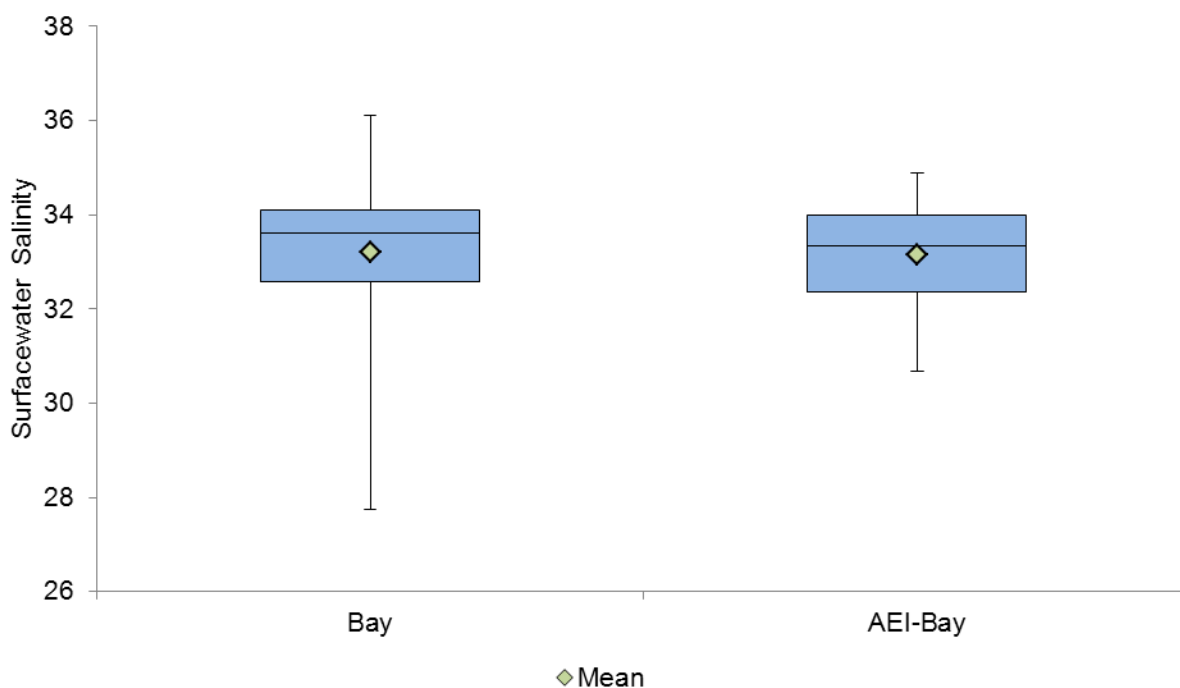


Figure C-26. Box and Whisker Plot for April 2010 Grid Points (Bay) and AEI-Bay Surface Water Salinities.

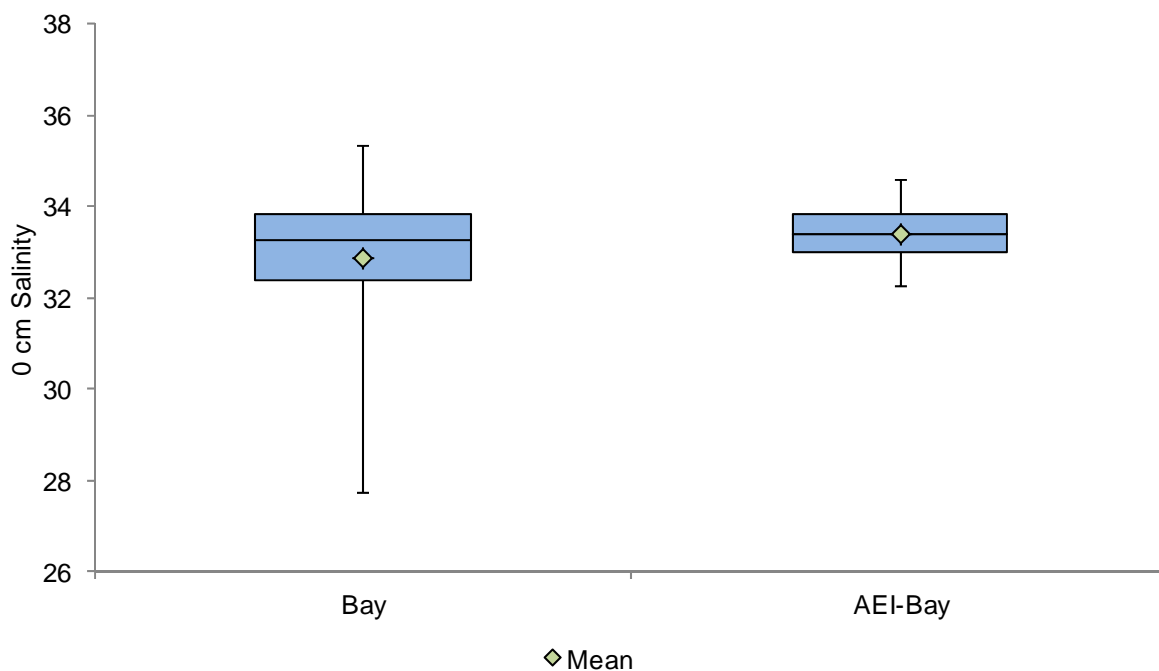


Figure C-27. Box and Whisker Plot for April 2010 Grid Points (Bay) and AEI-Bay Bottom Water (0 cm) Salinities.



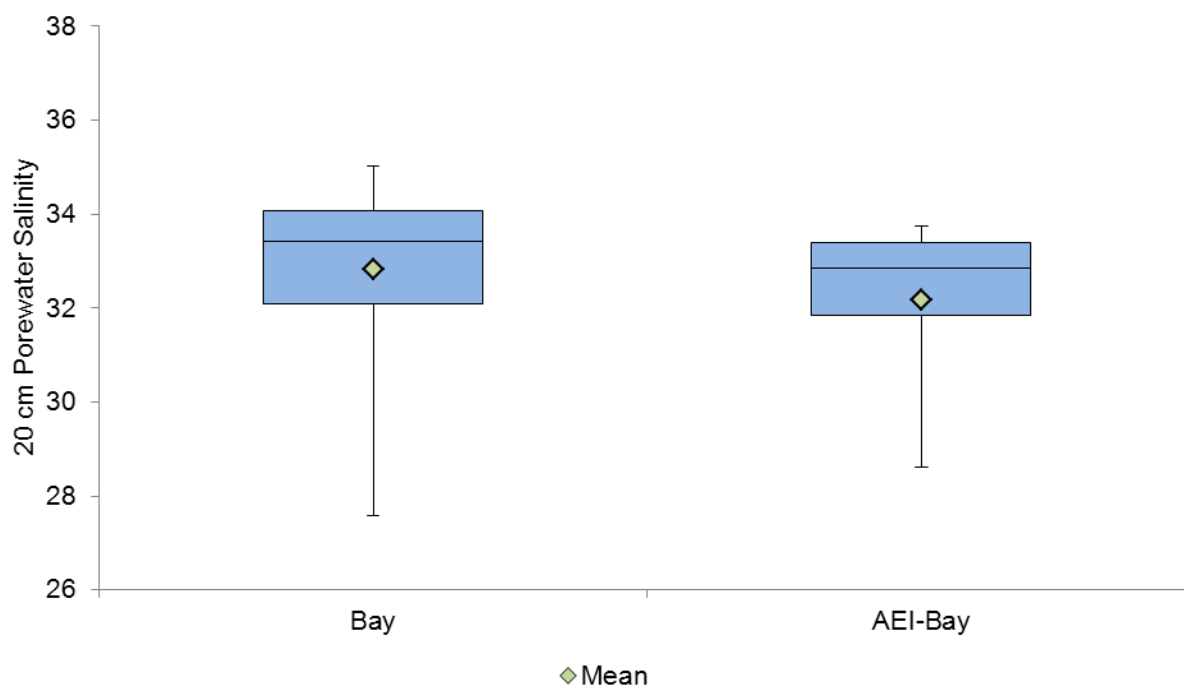


Figure C-28. Box and Whisker Plot for April 2010 Grid Points (Bay) and AEI-Bay 20 cm Porewater Salinities.

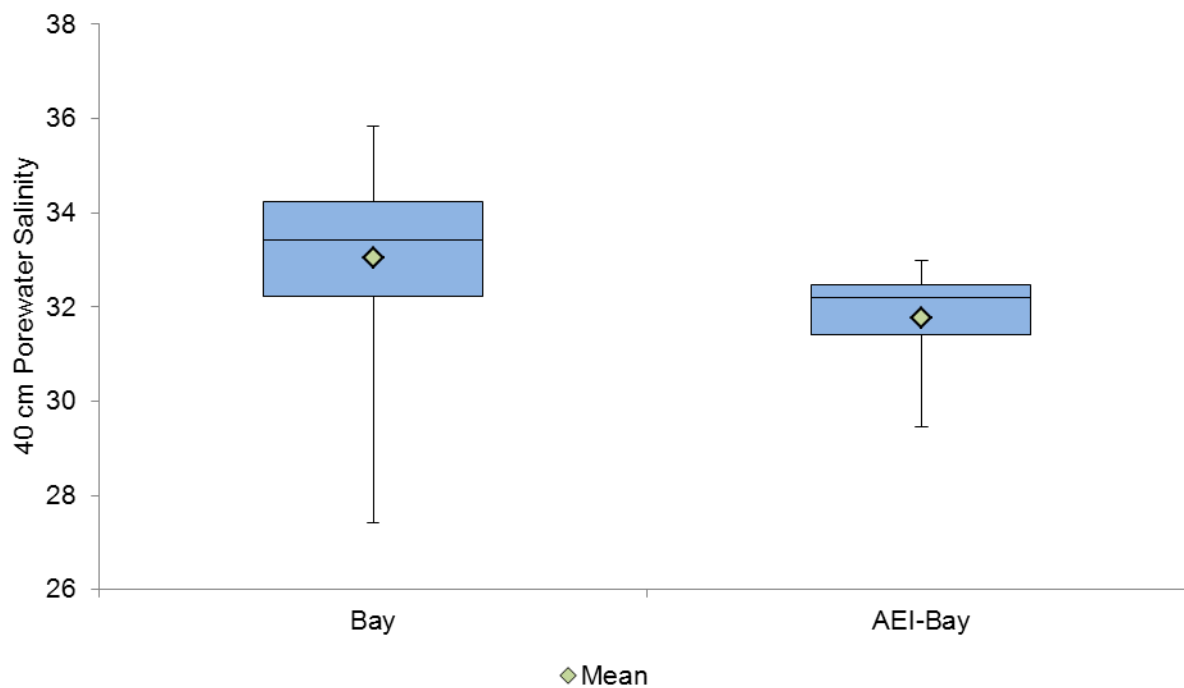


Figure C-29. Box and Whisker Plot for April 2010 Grid Points (Bay) and AEI-Bay 40 cm Porewater Salinities.

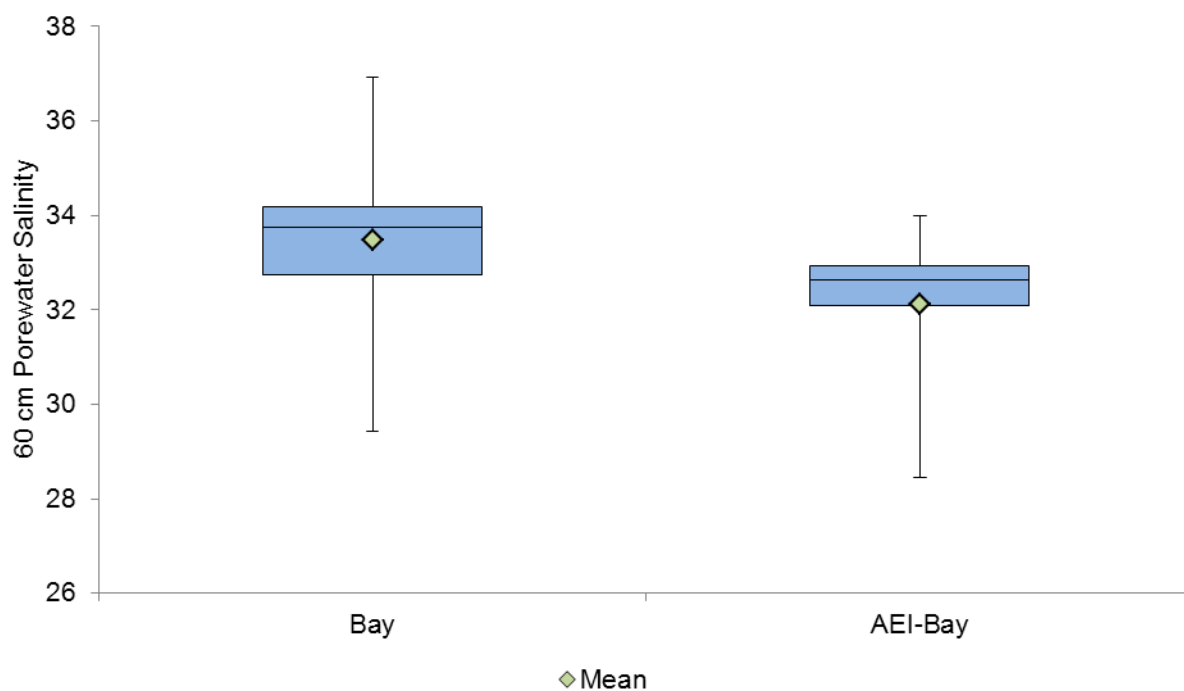


Figure C-30. Box and Whisker Plot for April 2010 Grid Points (Bay) and AEI-Bay 60 cm Porewater Salinities.



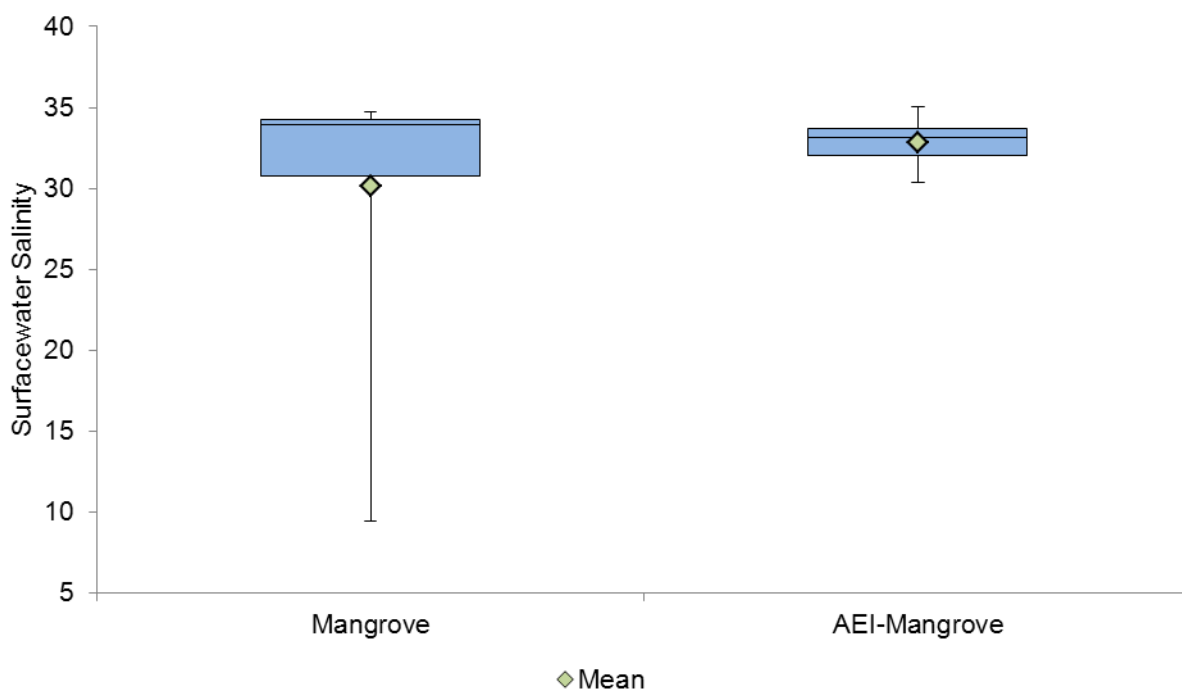


Figure C-31. Box and Whisker Plot for April 2010 Grid Points (Mangrove) and AEI-Mangrove Surface Water Salinities.

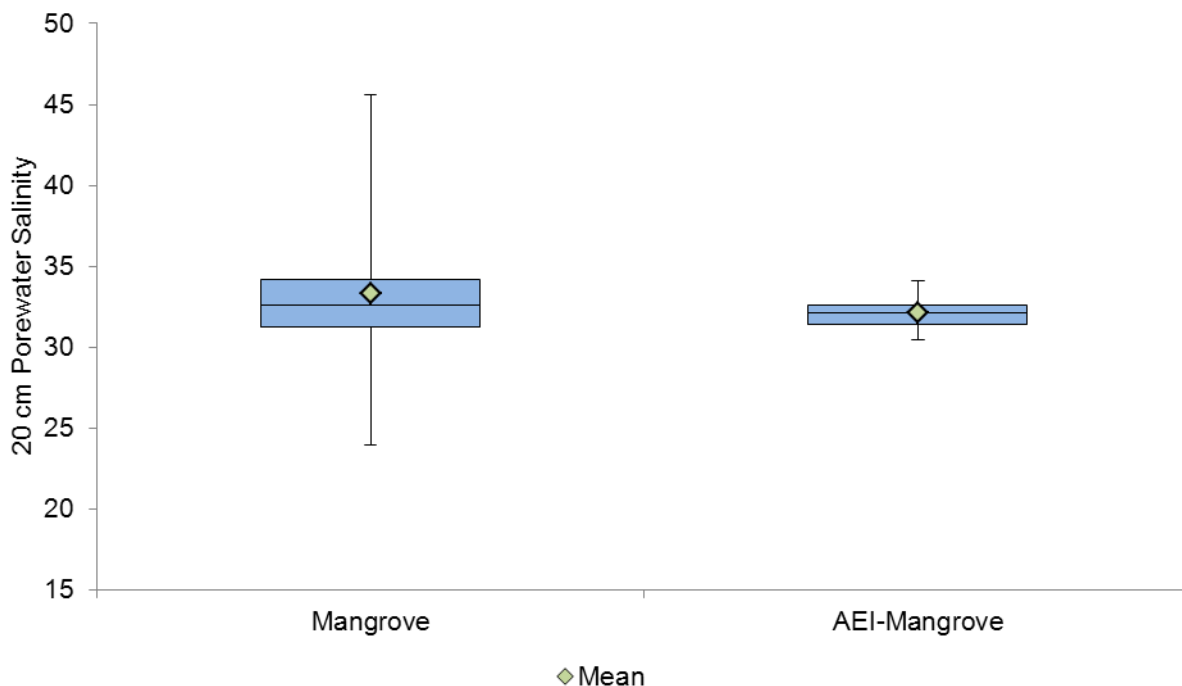
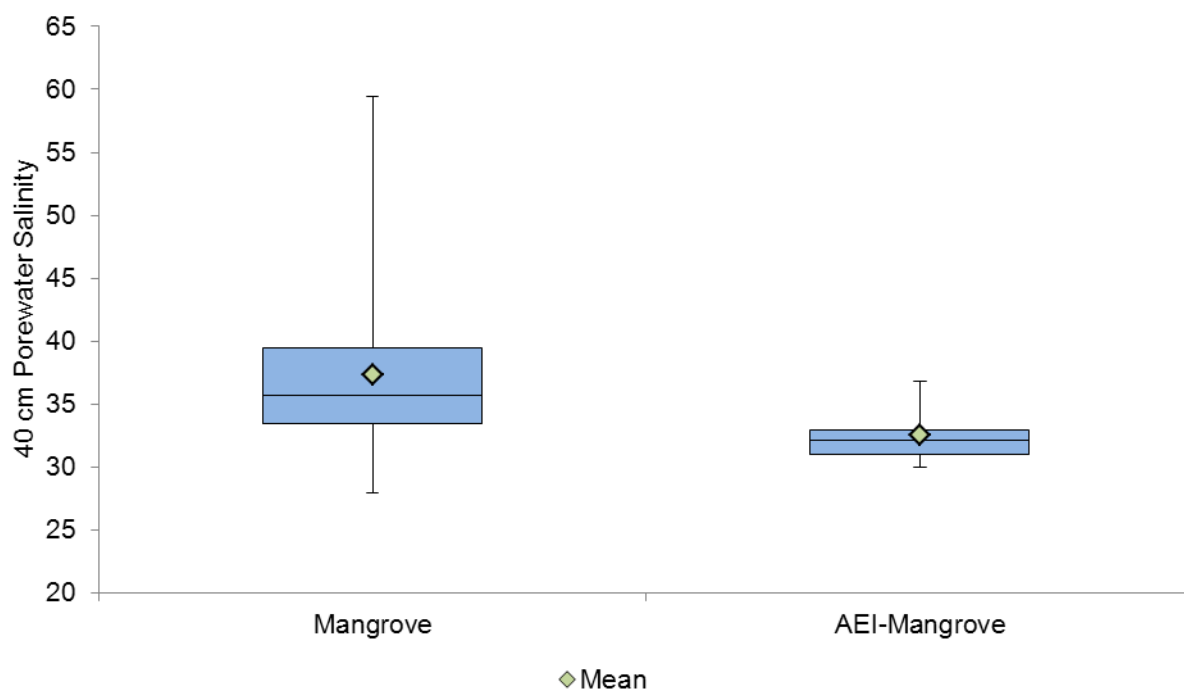
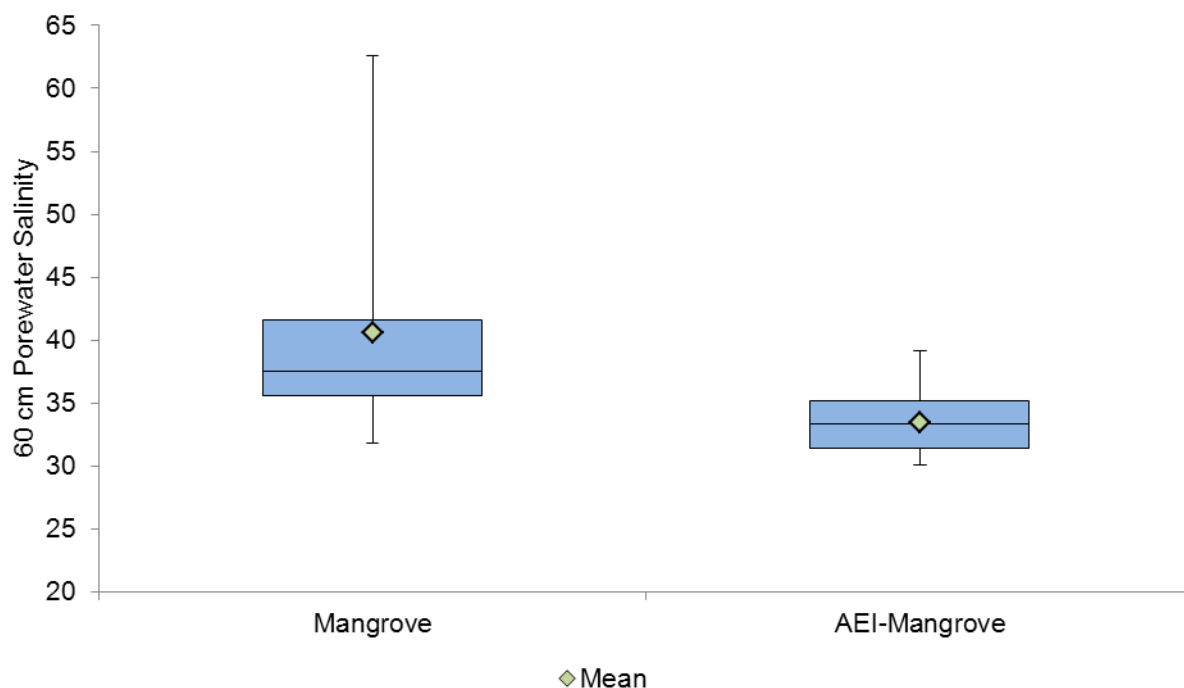


Figure C-32. Box and Whisker Plot for April 2010 Grid Points (Mangrove) and AEI-Mangrove 20 cm Porewater Salinities.



**Figure C-33. Box and Whisker Plot for April 2010 Grid Points (Mangrove) and AEI-Mangrove 40 cm Porewater Salinities.**



**Figure C-34. Box and Whisker Plot for April 2010 Grid Points (Mangrove) and AEI-Mangrove 60 cm Porewater Salinities.**

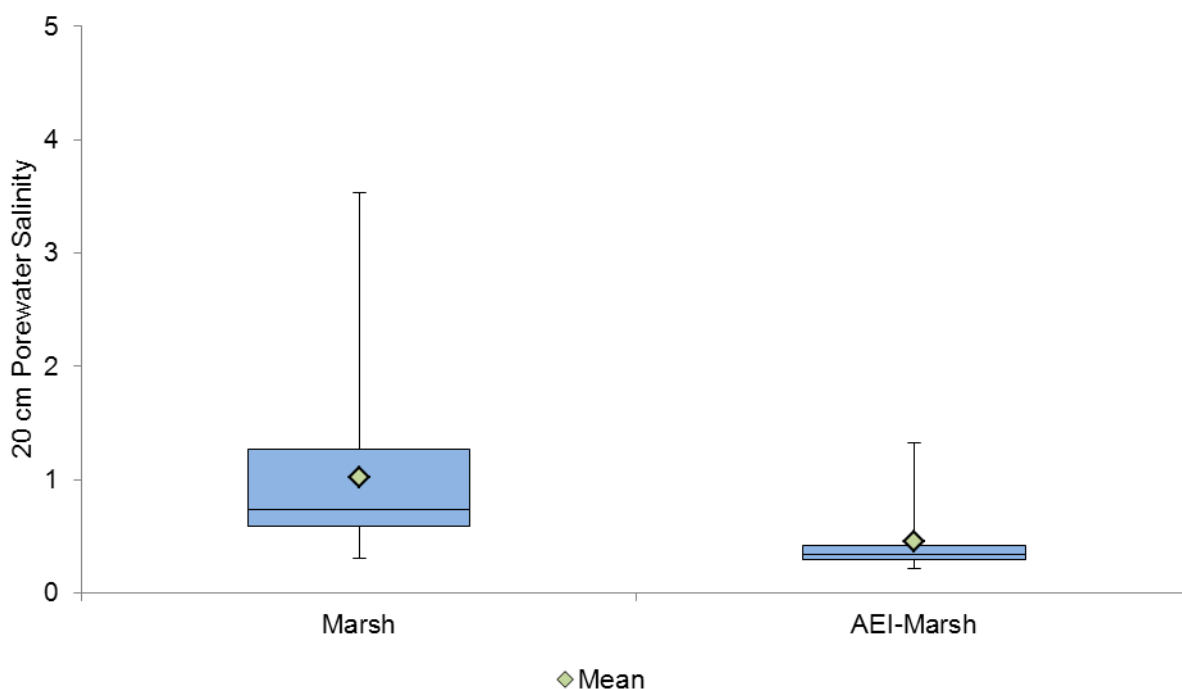


Figure C-35. Box and Whisker Plot for April 2010 Grid Points (Marsh) and AEI- Marsh 20 cm Porewater Salinities.

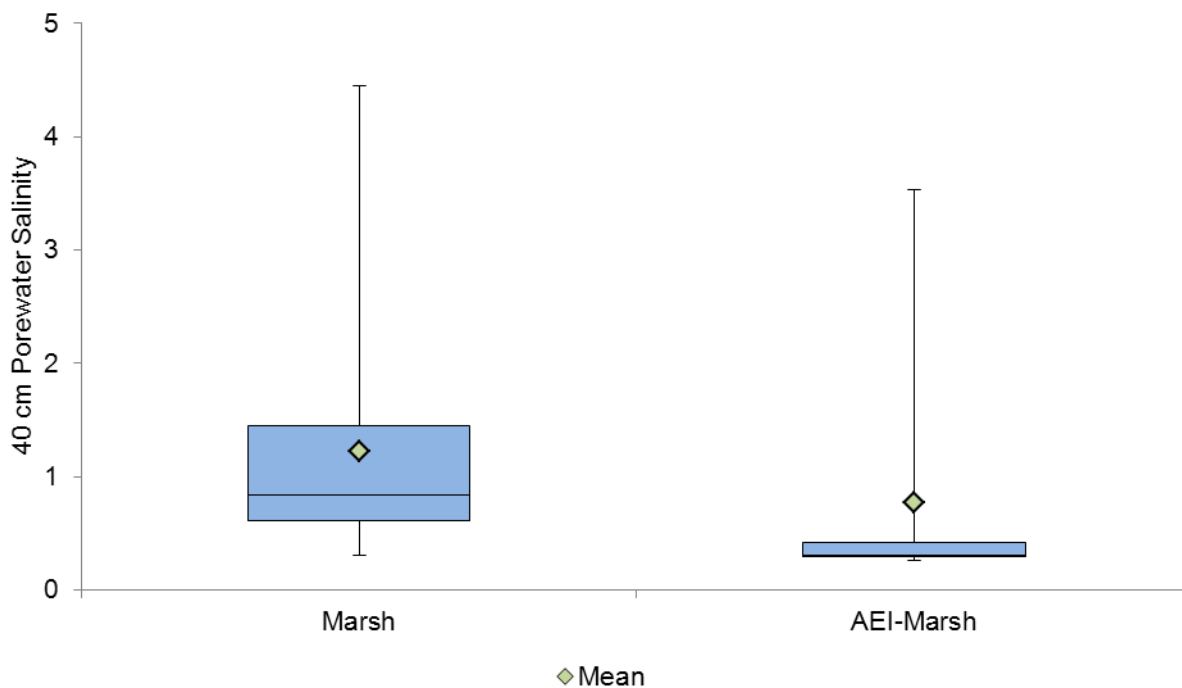


Figure C-36. Box and Whisker Plot for April 2010 Grid Points (Marsh) and AEI- Marsh 40 cm Porewater Salinities.

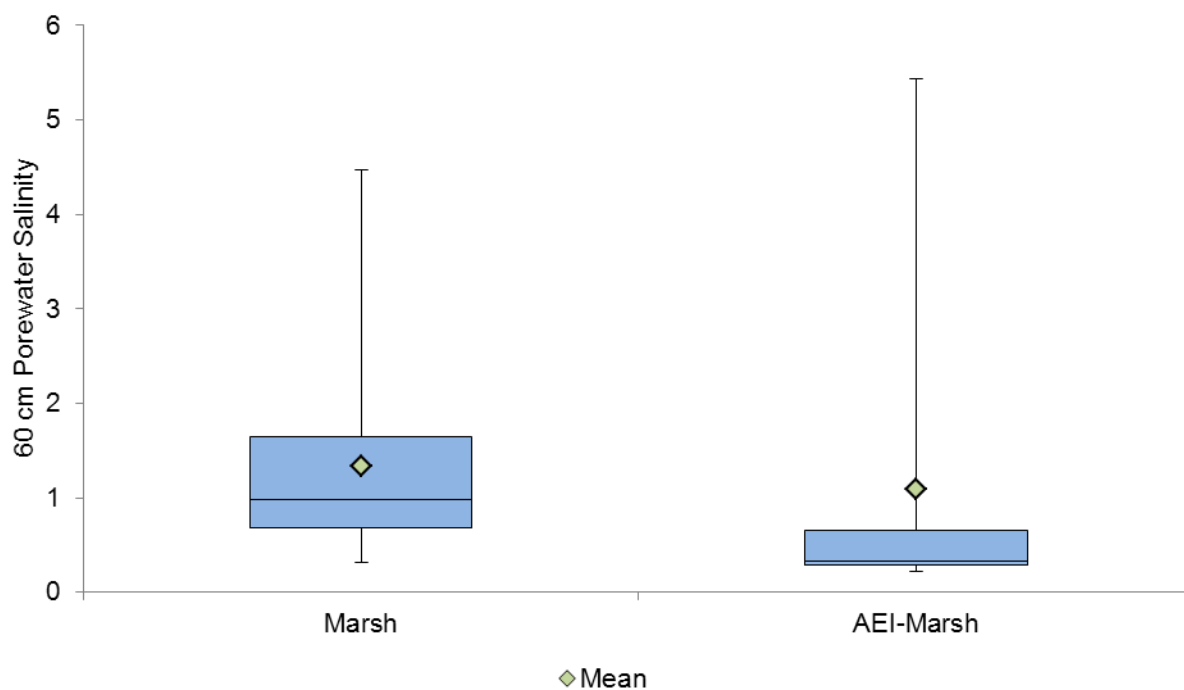


Figure C-37. Box and Whisker Plot for April 2010 Grid Points (Marsh) and AEI- Marsh 60 cm Porewater Salinities.

**APPENDIX C-6:**

**Box and Whisker Plots**  
**August 2010**  
**Salinities Comparing**  
**Grid and AEI Points by Depth**

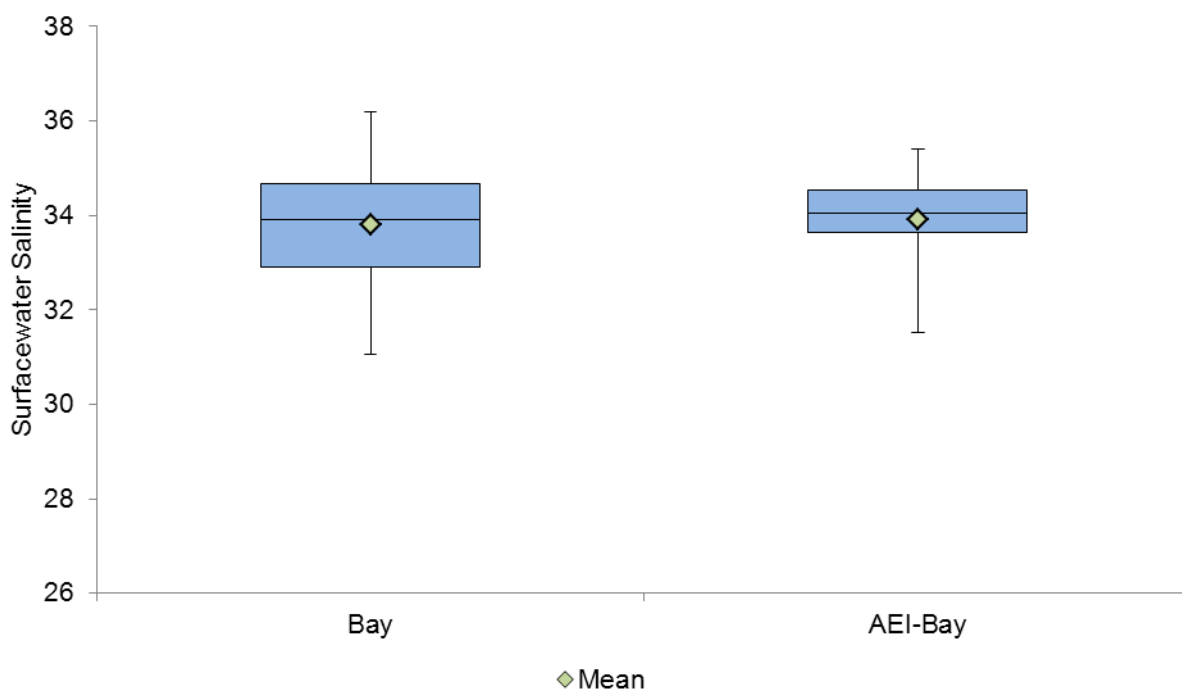


Figure C-38. Box and Whisker Plot for August 2010 Grid Points (Bay) and AEI-Bay Surface Water Salinities.

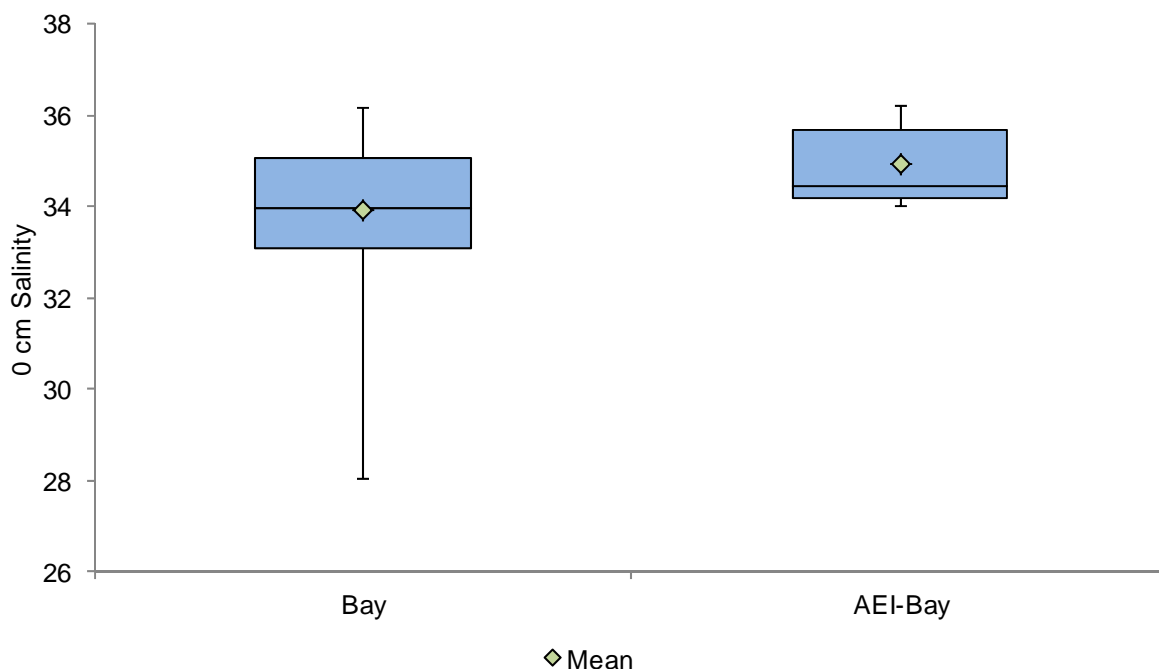


Figure C-39. Box and Whisker Plot for August 2010 Grid Points (Bay) and AEI-Bay Bottom Water (0 cm) Salinities.

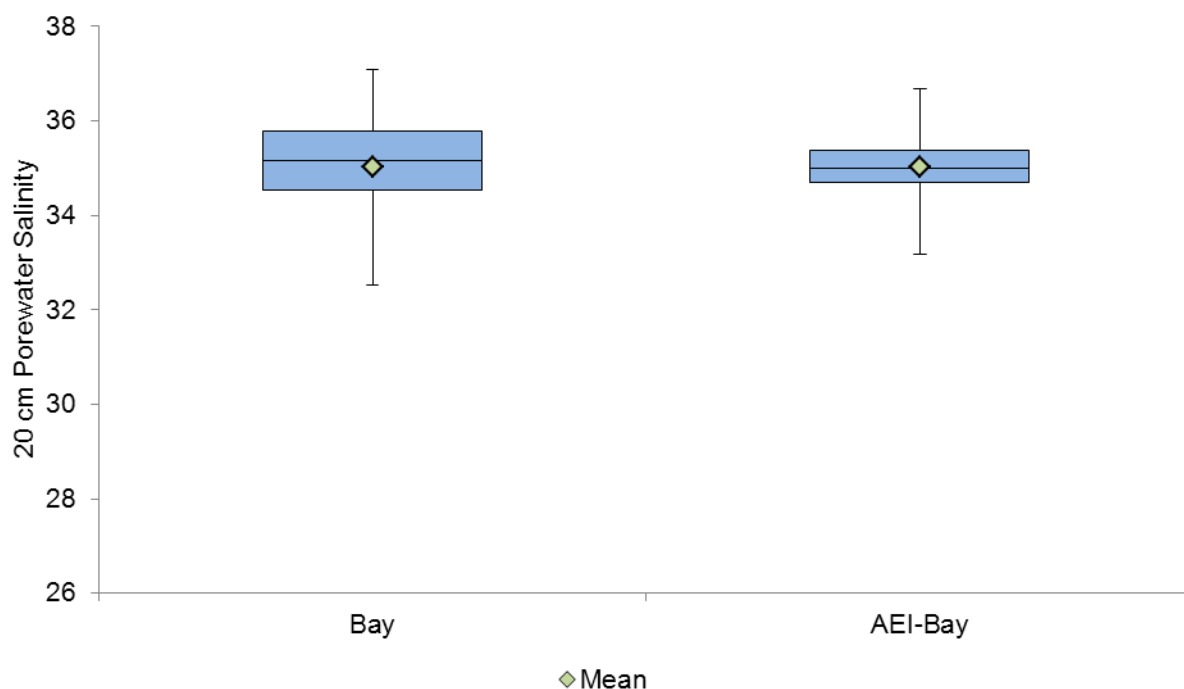


Figure C-40. Box and Whisker Plot for August 2010 Grid Points (Bay) and AEI-Bay 20 cm Porewater Salinities.

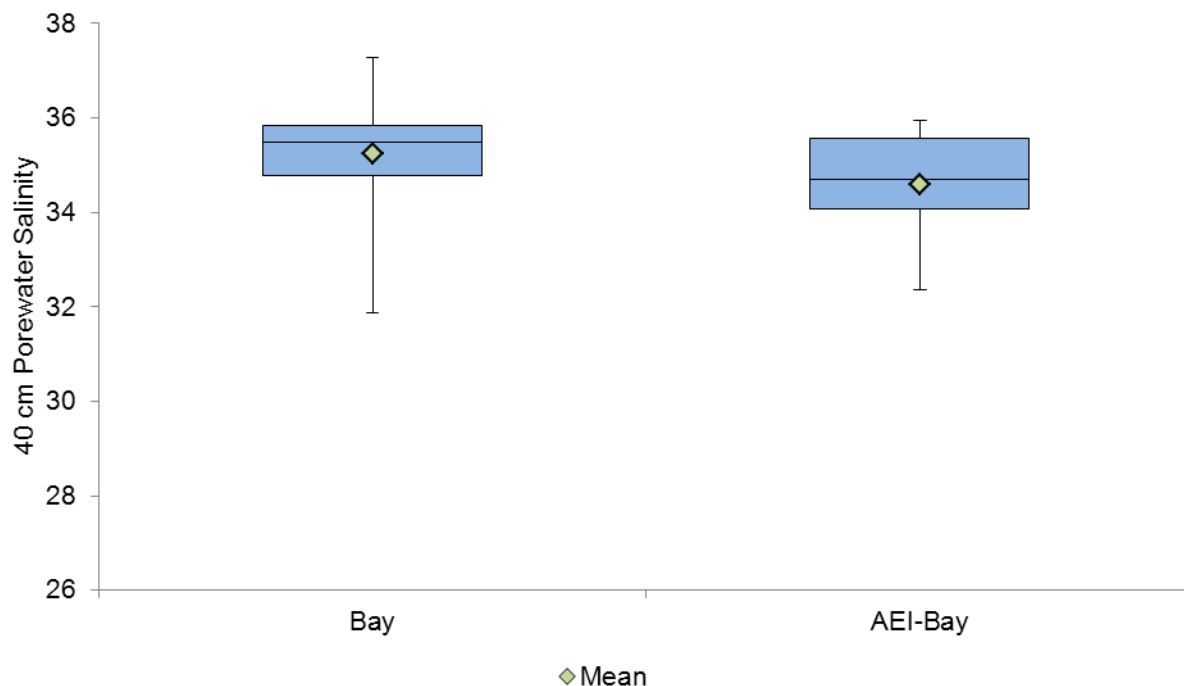


Figure C-41. Box and Whisker Plot for August 2010 Grid Points (Bay) and AEI-Bay 40 cm Porewater Salinities.





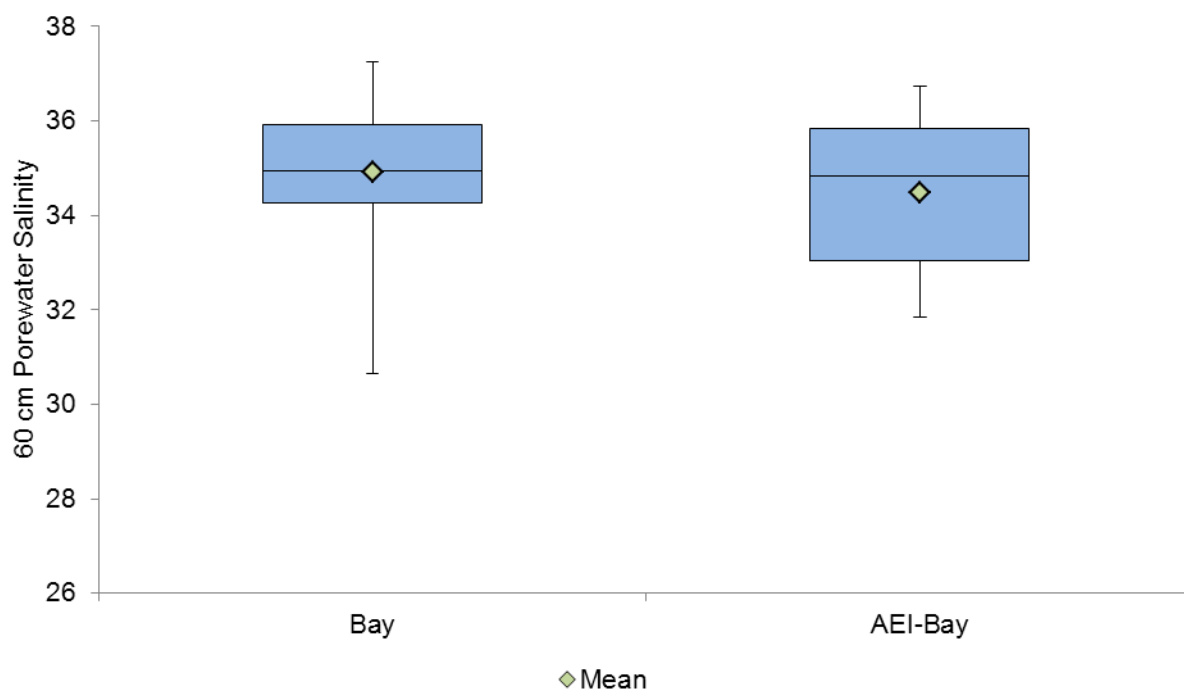


Figure C-42. Box and Whisker Plot for August 2010 Grid Points (Bay) and AEI-Bay 60 cm Porewater Salinities.

**APPENDIX C-7:**

**Box and Whisker Plots**  
**April 2011**  
**Salinities Comparing Grid**  
**and AEI Points by Depth**

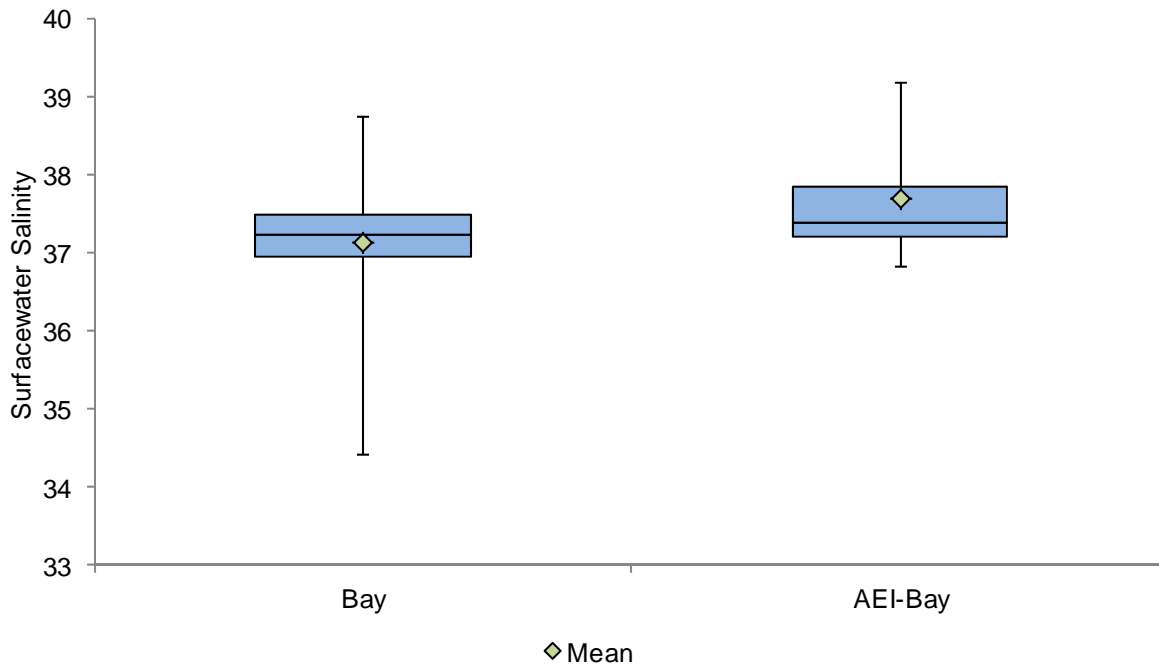


Figure C-43. Box and Whisker Plot for April 2011 Grid Points (Bay) and AEI-Bay Surface Water Salinities.

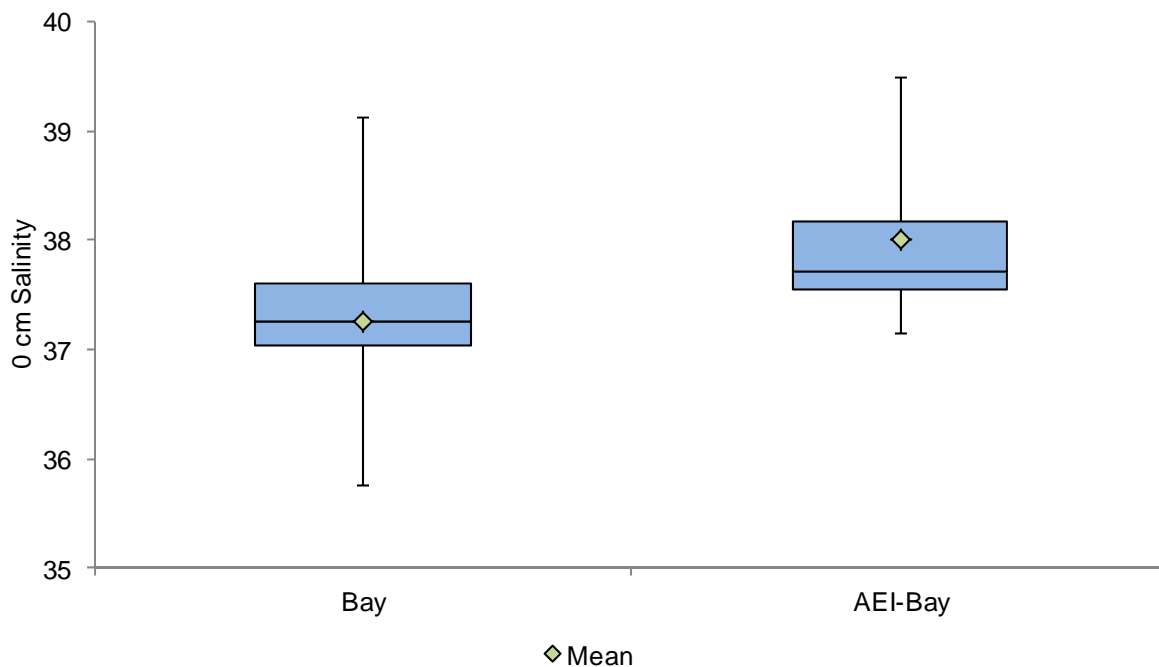


Figure C-44. Box and Whisker Plot for April 2011 Grid Points (Bay) and AEI-Bay Bottom Water (0 cm) Salinities.



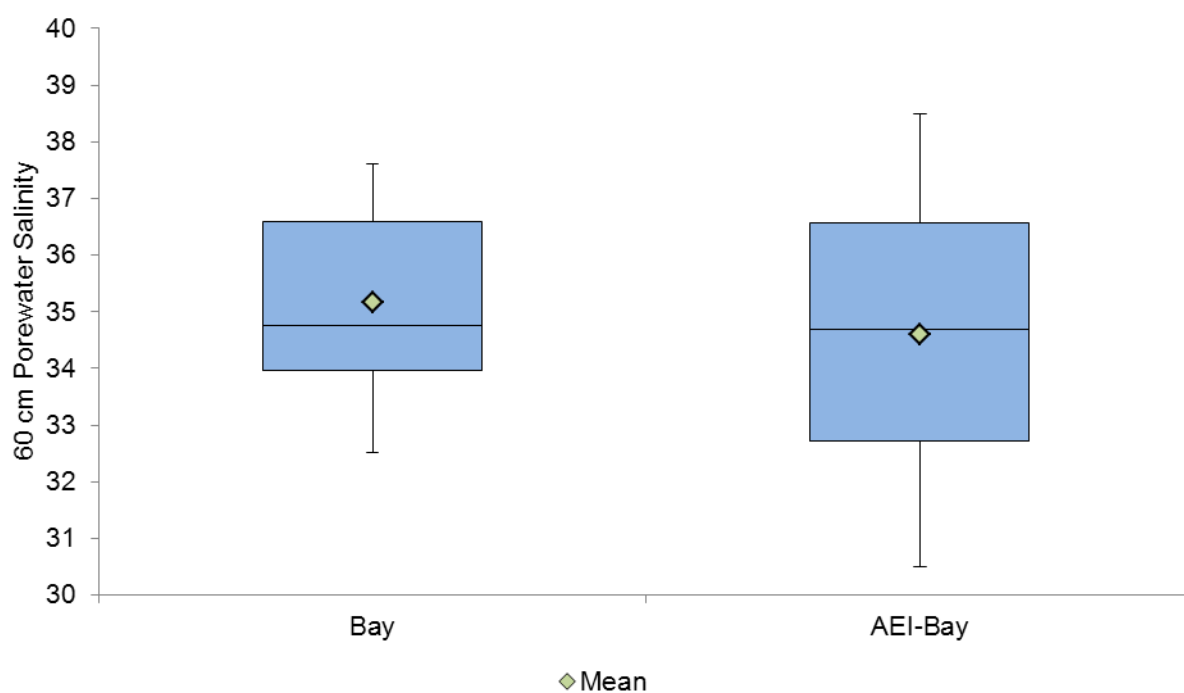


Figure C-45. Box and Whisker Plot for April 2011 Grid Points (Bay) and AEI-Bay 60 cm Porewater Salinities.

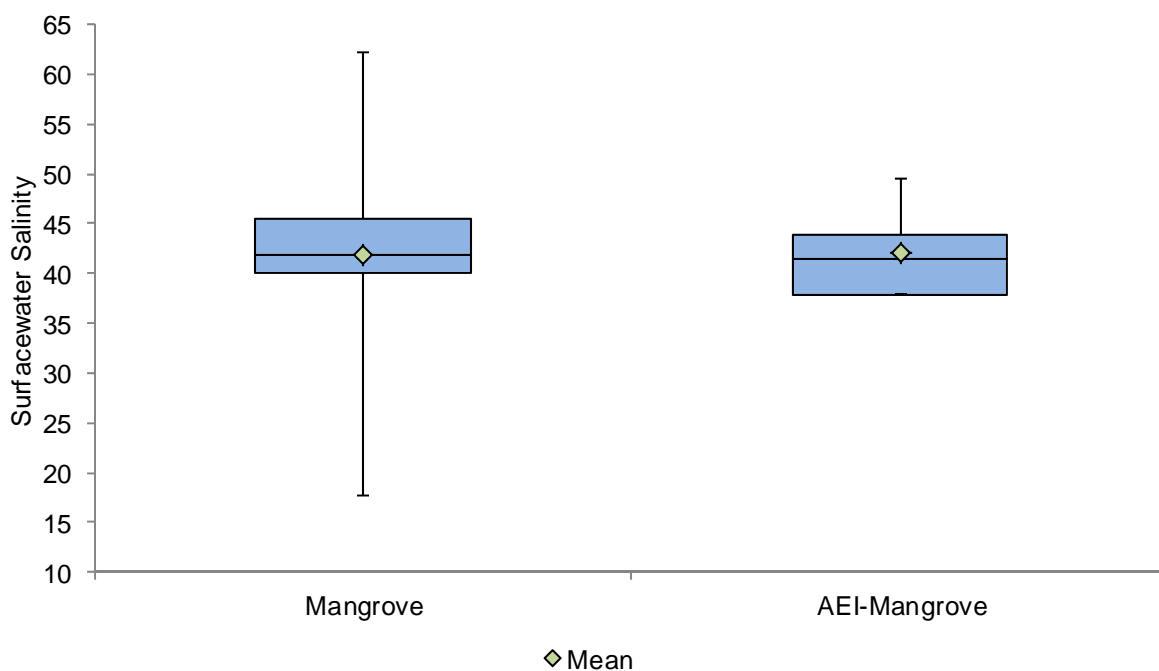


Figure C-46. Box and Whisker Plot for April 2011 Grid Points (Mangrove) and AEI-Mangrove Surface Water Salinities.

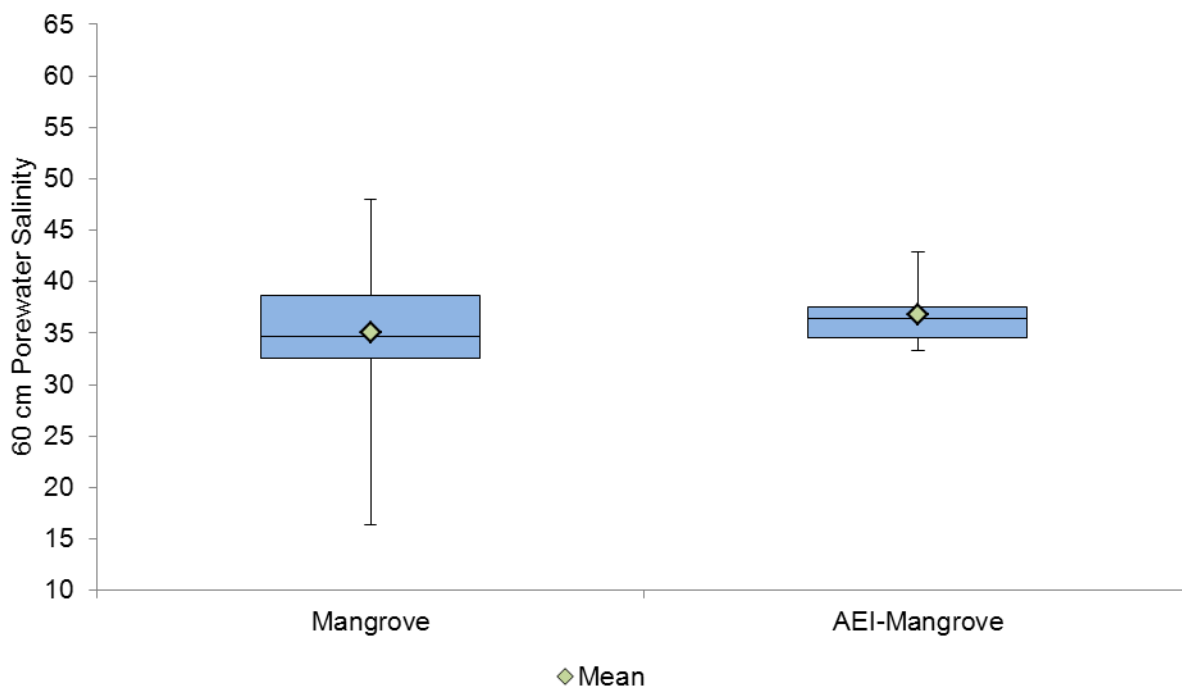


Figure C-47. Box and Whisker Plot for April 2011 Grid Points (Mangrove) and AEI-Mangrove 60 cm Porewater Salinities.



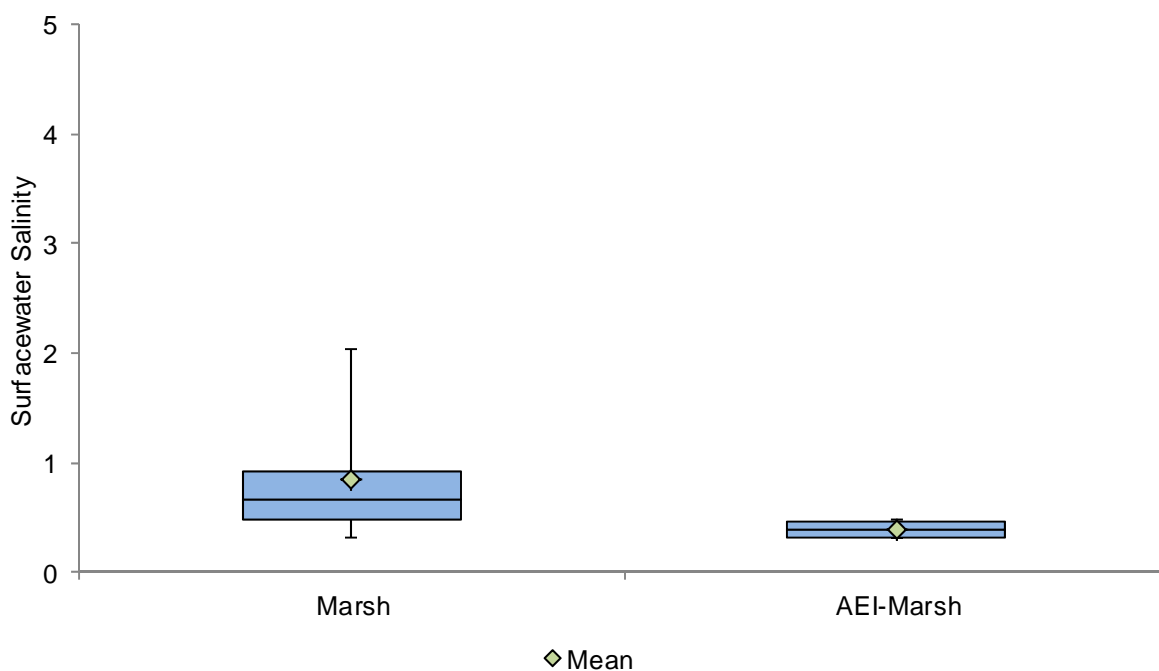


Figure C-48. Box and Whisker Plot for April 2011 Grid Points (Marsh) and AEI- Marsh Surface Water Salinities.

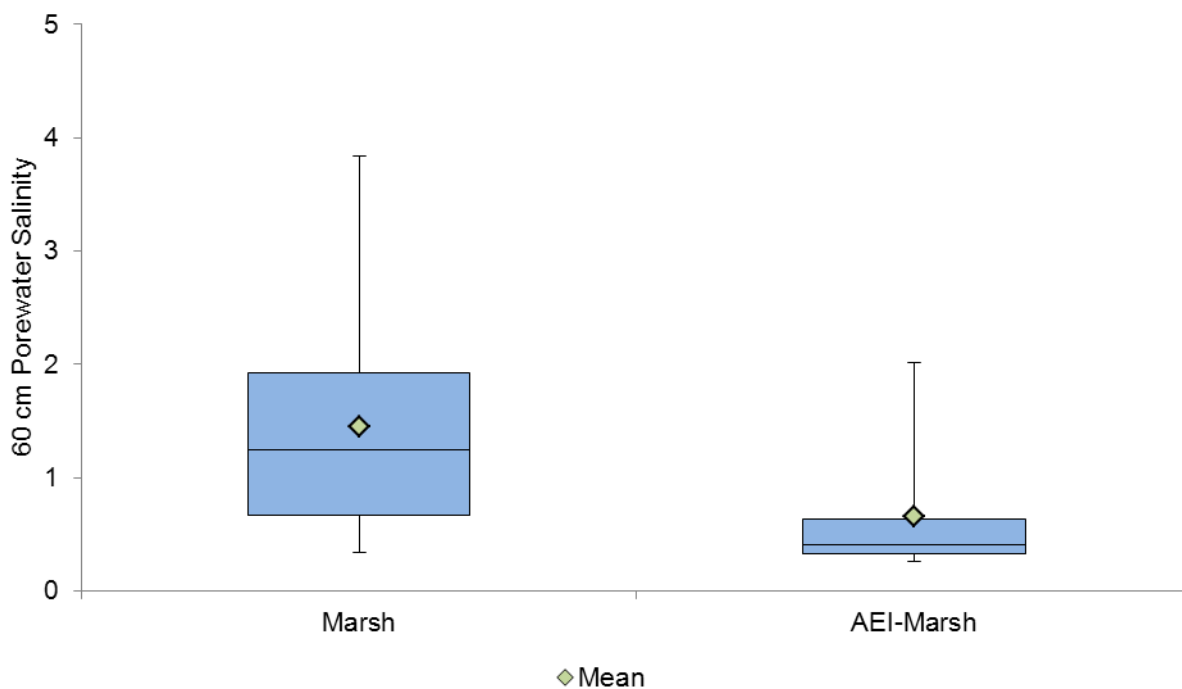


Figure C-49. Box and Whisker Plot for April 2011 Grid Points (Marsh) and AEI- Marsh 60 cm Porewater Salinities.

**APPENDIX C-8:**

**Box and Whisker Plots**

**April 2010**

**Within-Habitat Water Depth  
Temperature Comparisons**



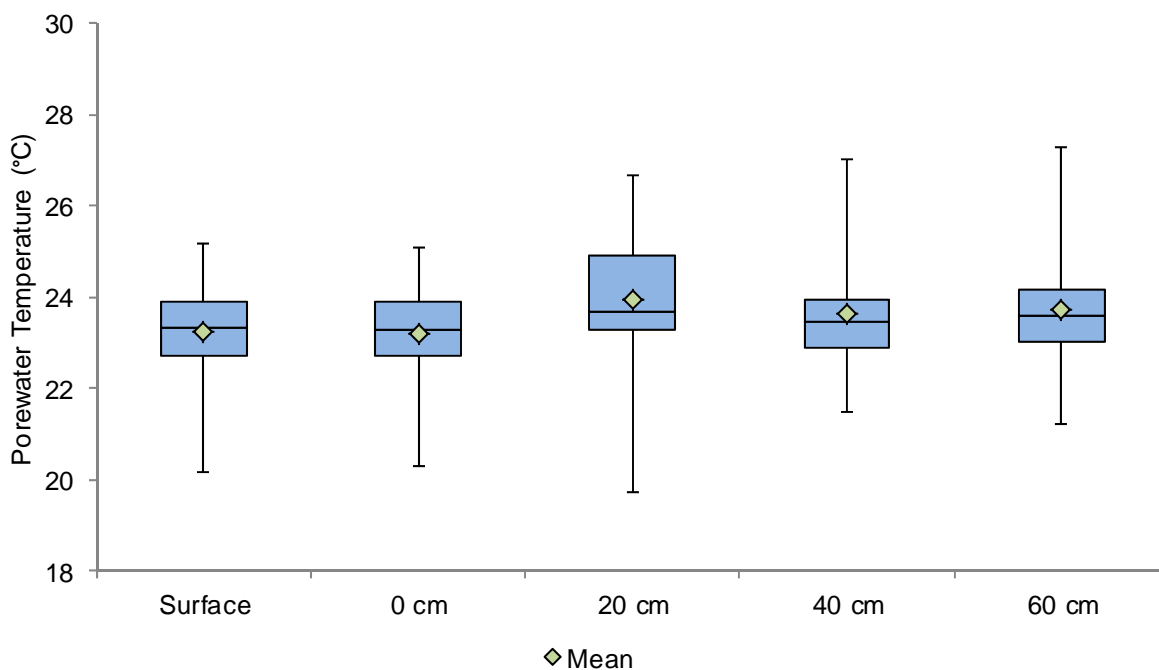


Figure C-50. Box and Whisker Plot for April 2010 Grid Point Bay Porewater Temperatures.

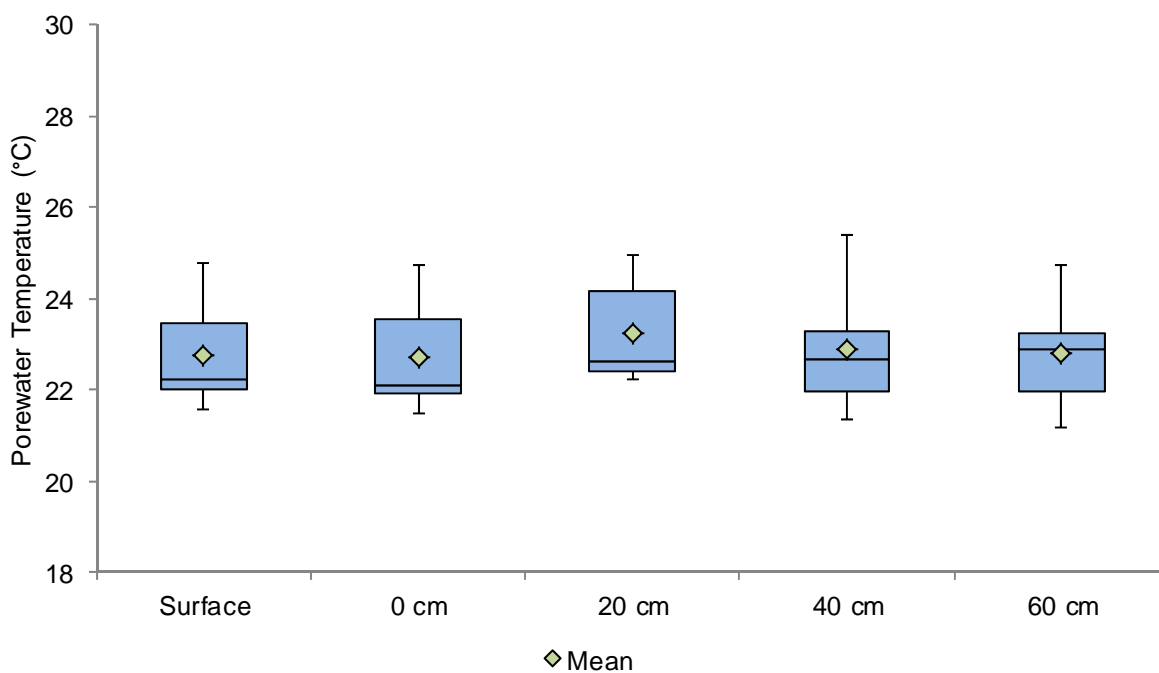


Figure C-51. Box and Whisker Plot for April 2010 AEI- Bay Porewater Temperatures.



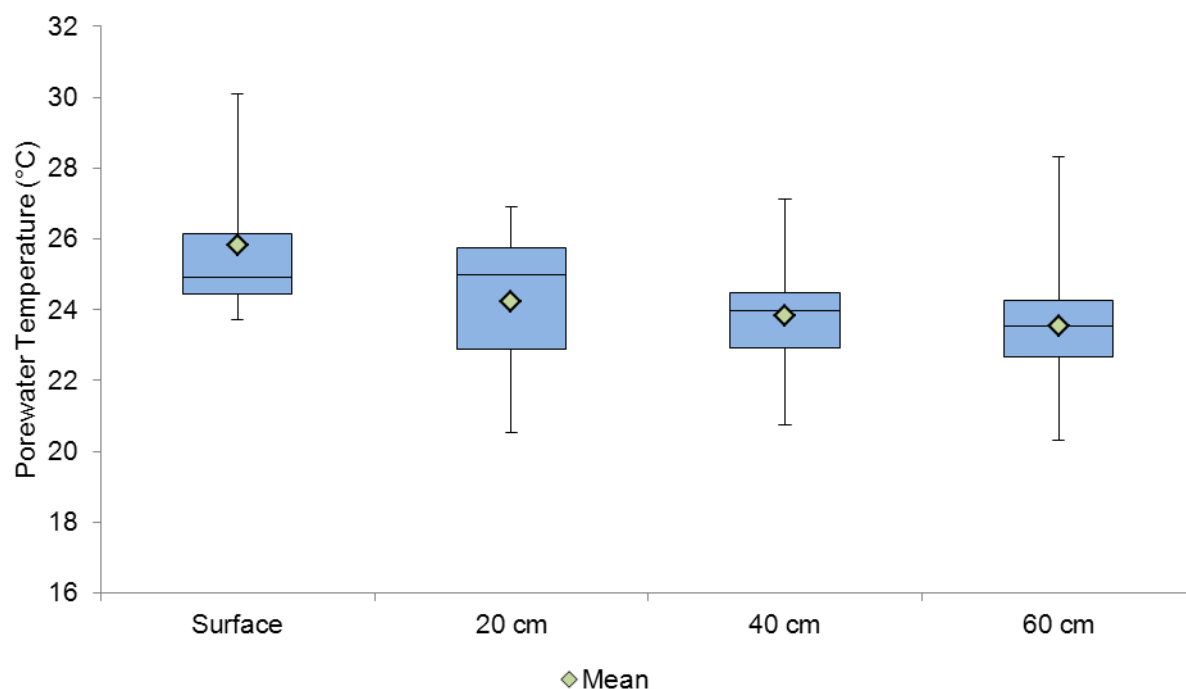


Figure C-52. Box and Whisker Plot for April 2010 Grid Point Mangrove Porewater Temperatures.

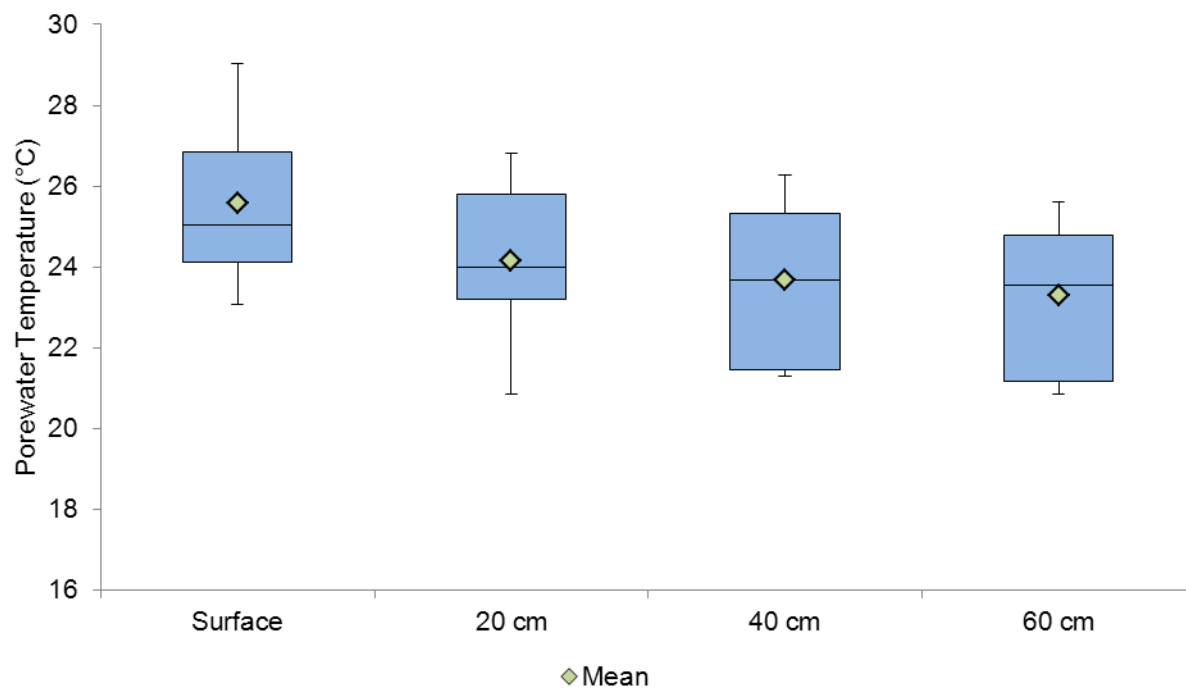


Figure C-53. Box and Whisker Plot for April 2010 AEI-Mangrove Porewater Temperatures.

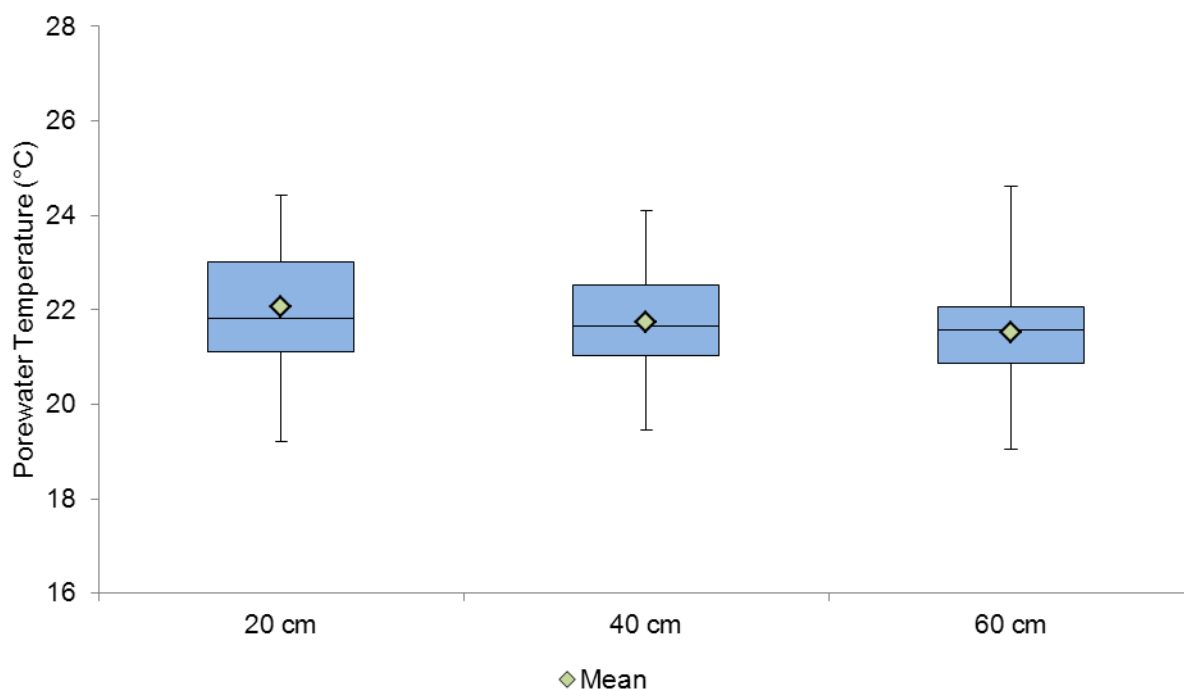


Figure C-54. Box and Whisker Plot for April 2010 Grid Point Marsh Porewater Temperatures.

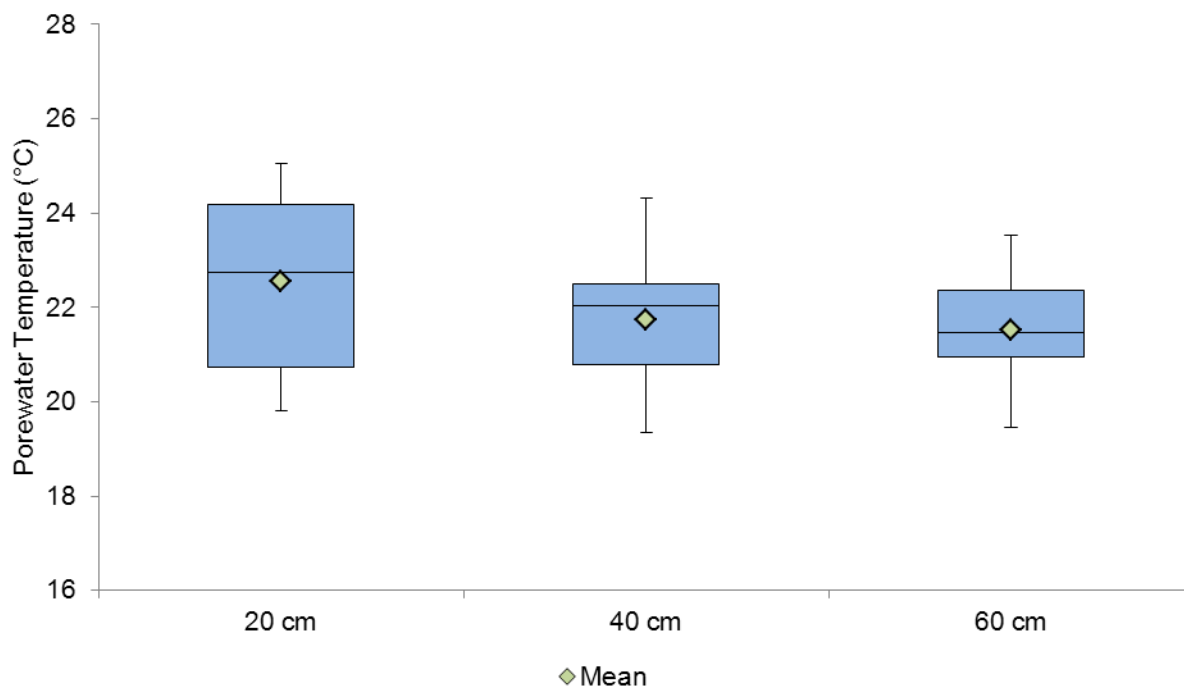
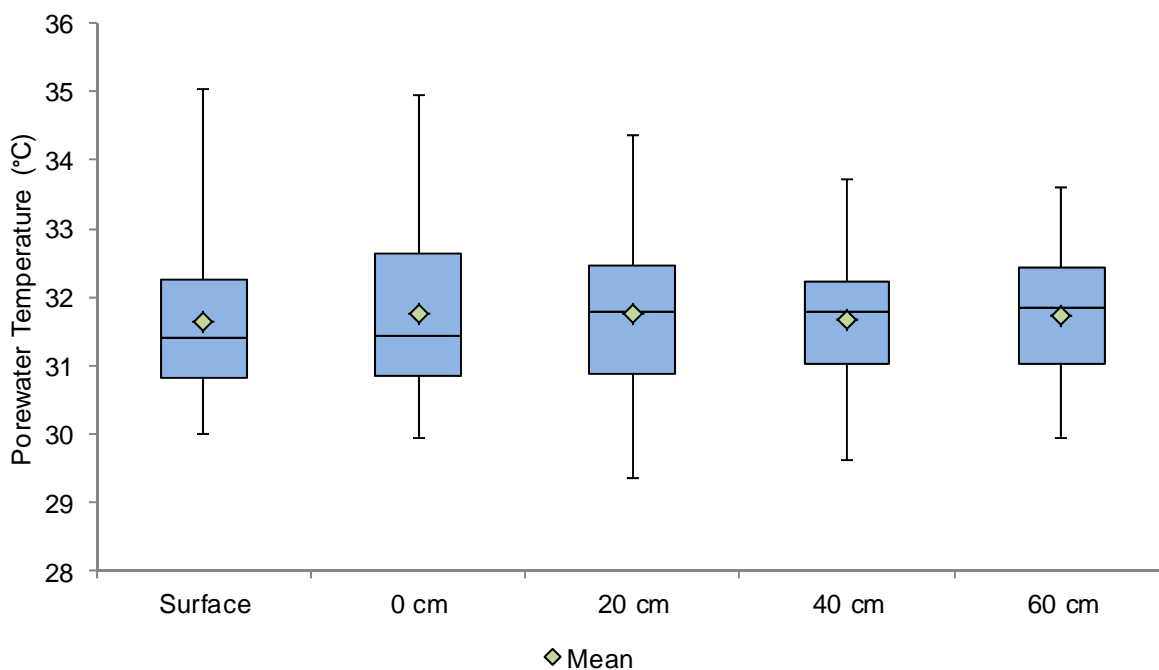


Figure C-55. Box and Whisker Plot for April 2010 AEI-Marsh Porewater Temperatures.

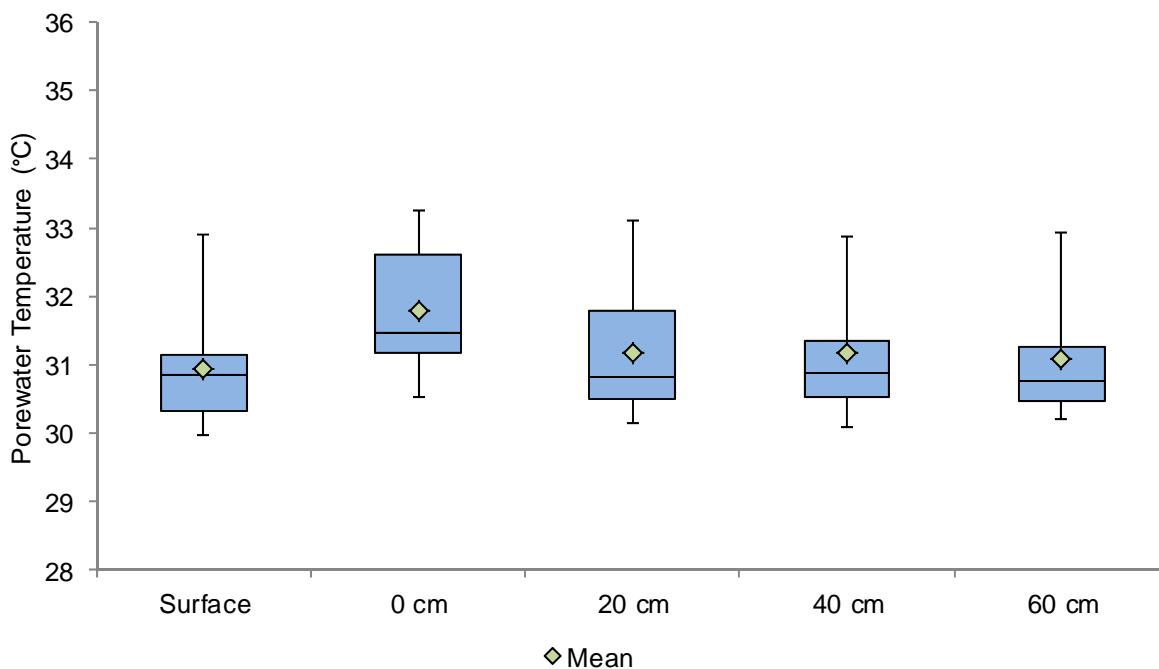


**APPENDIX C-9:**

**Box and Whisker Plots**  
**August 2010**  
**Within-Habitat Water Depth**  
**Temperature Comparisons**



**Figure C-56. Box and Whisker Plot for August 2010 Grid Point Bay Porewater Temperatures.**



**Figure C-57. Box and Whisker Plot for August 2010 AEI-Bay Porewater Temperatures.**

**APPENDIX C-10:**

**Box and Whisker Plots**  
**September 2010**  
**Within-Habitat Water Depth**  
**Temperature Comparisons**

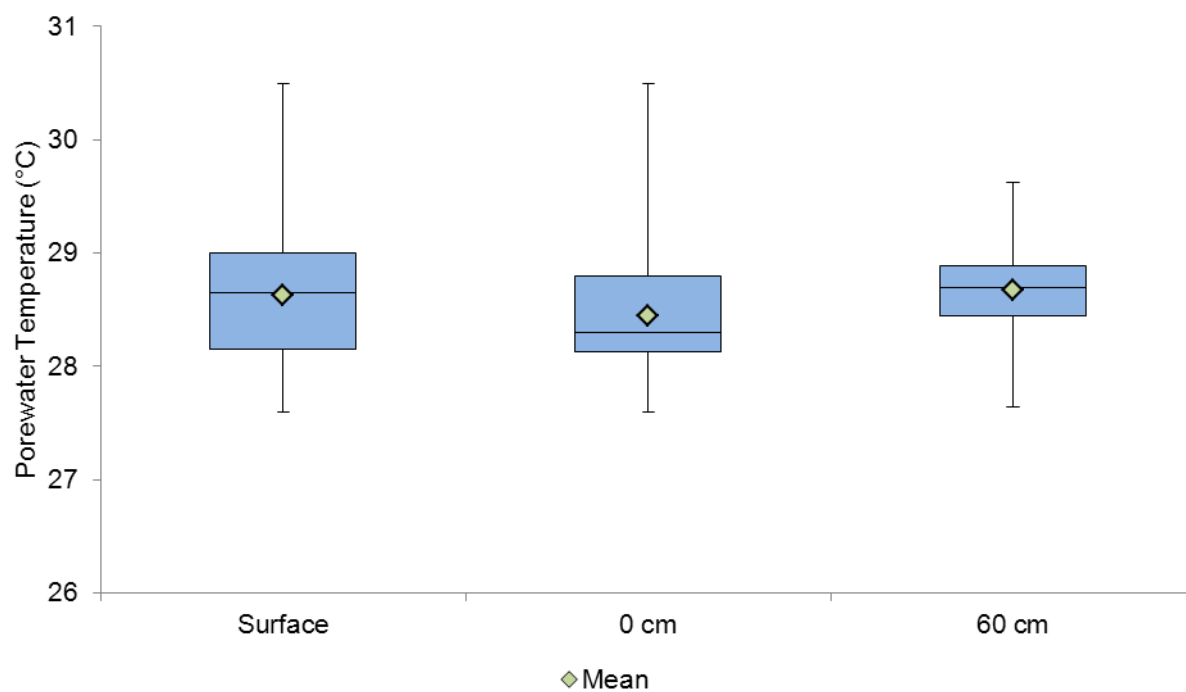


Figure C-58. Box and Whisker Plot for September 2010 Grid Point Bay Porewater Temperatures.



**APPENDIX C-11:**

**Box and Whisker Plots**

**April 2011**

**Within-Habitat Water Depth  
Temperature Comparisons**

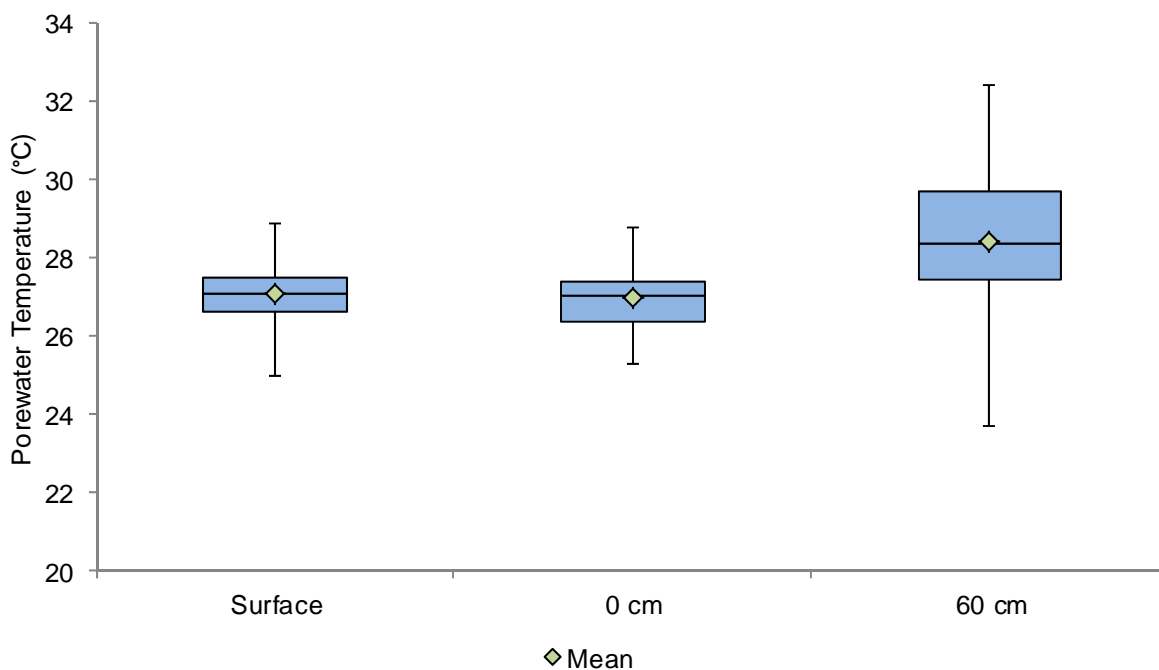


Figure C-59. Box and Whisker Plot for April 2011 Grid Point Bay Porewater Temperatures.

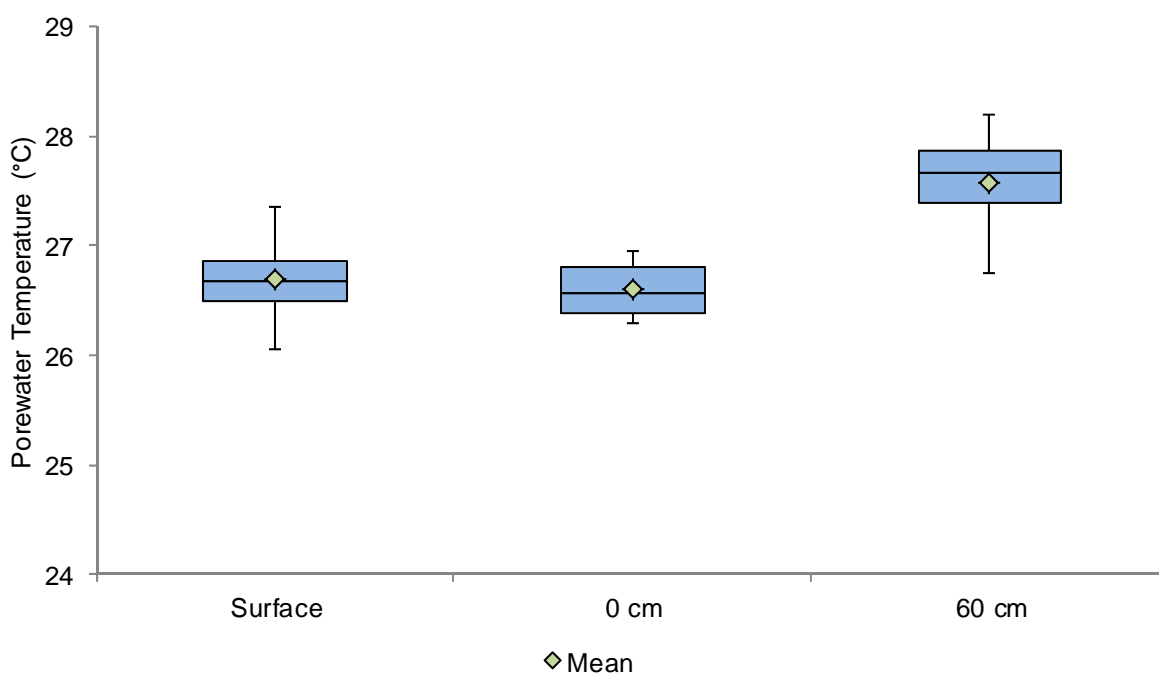


Figure C-60. Box and Whisker Plot for April 2011 AEI-Bay Porewater Temperatures.



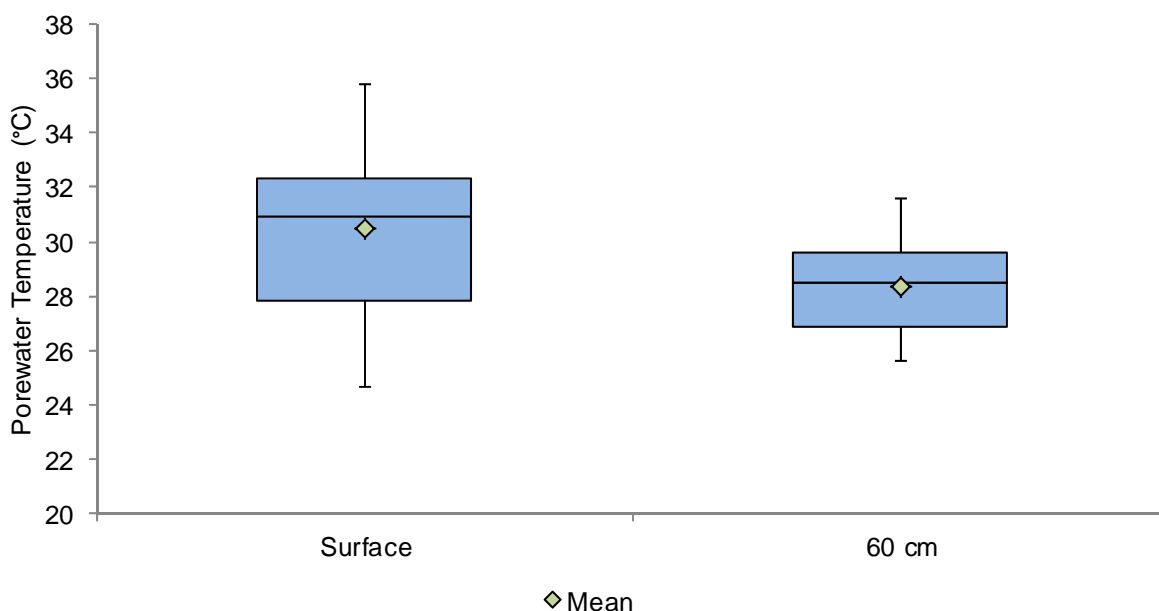


Figure C-61. Box and Whisker Plot for April 2011 Grid Point Mangrove Porewater Temperatures.

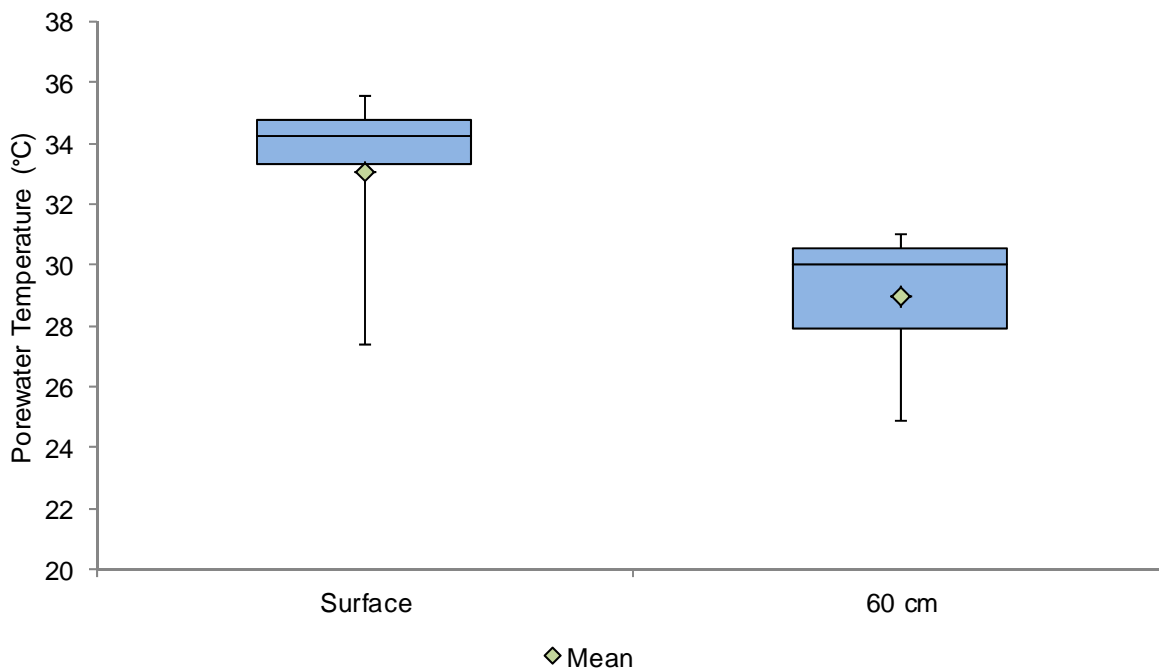


Figure C-62. Box and Whisker Plot for April 2011 AEI-Mangrove Porewater Temperatures.

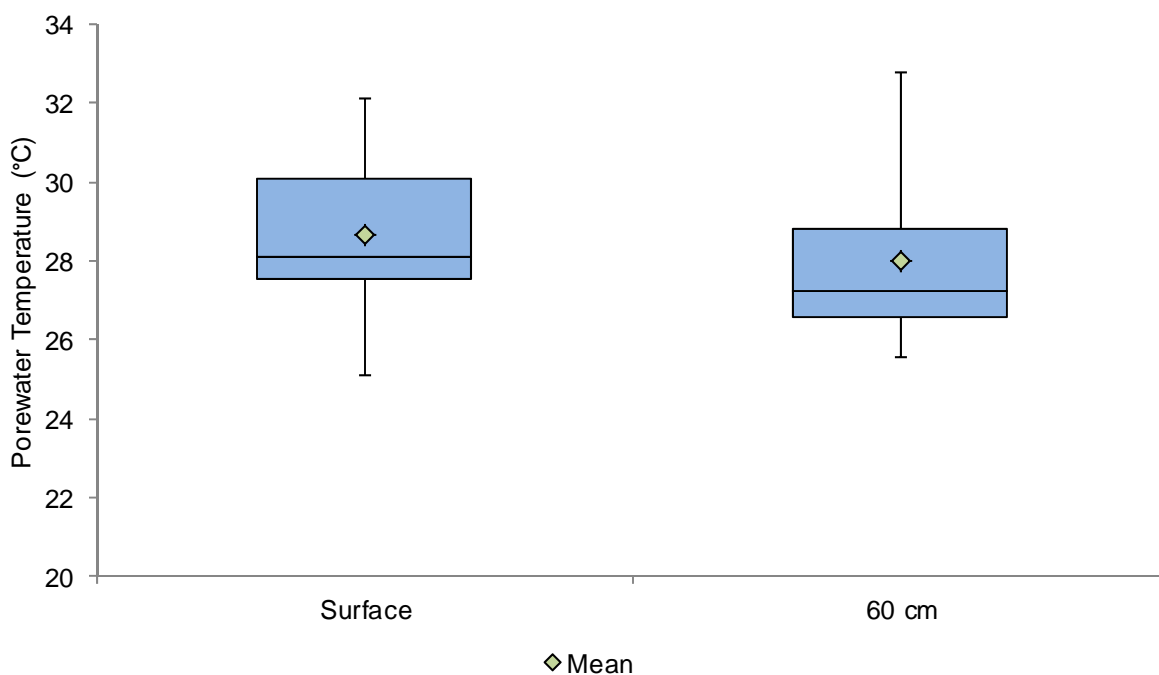


Figure C-63. Box and Whisker Plot for April 2011 Grid Point Marsh Porewater Temperatures.

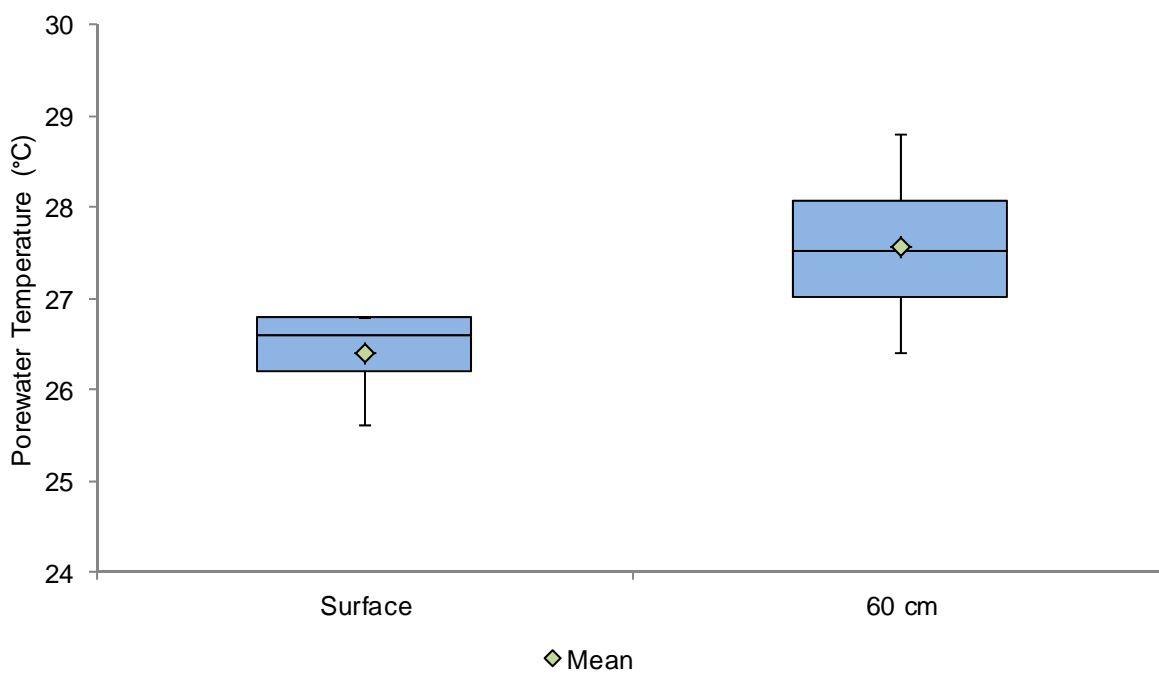


Figure C-64. Box and Whisker Plot for April 2011 AEI-Marsh Porewater Temperatures.

**APPENDIX C-12:**

**Box and Whisker Plots**  
**April 2010**  
**Within-Habitat Water Depth**  
**Salinity Comparisons**

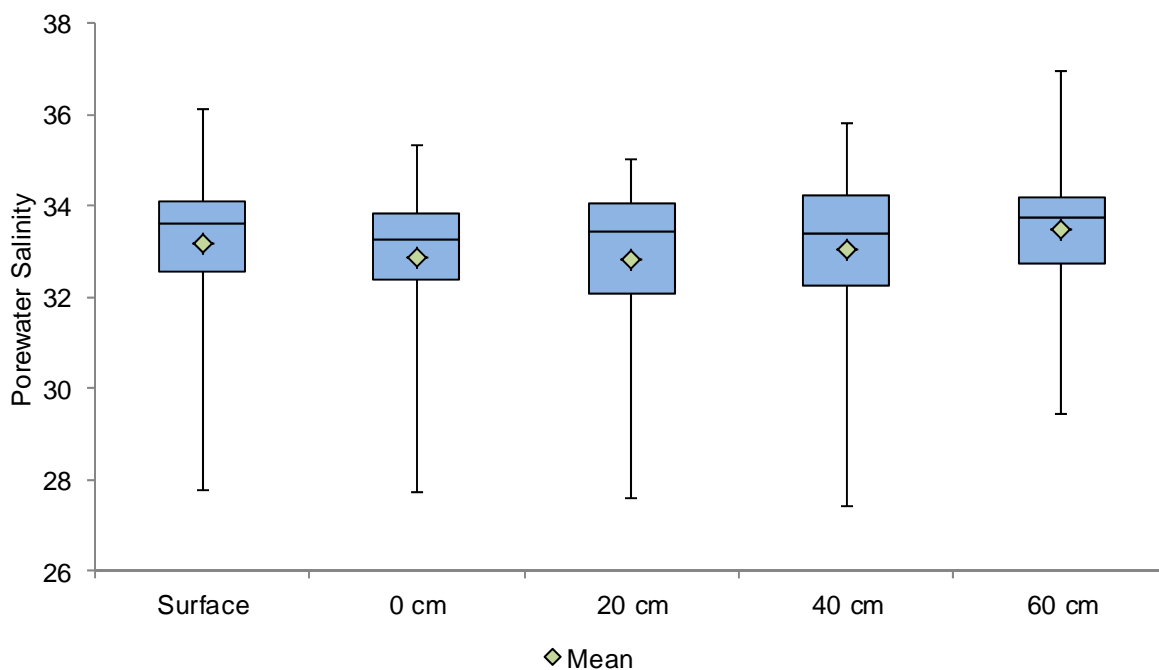


Figure C-65. Box and Whisker Plot for April 2010 Grid Point Bay Porewater Salinities.

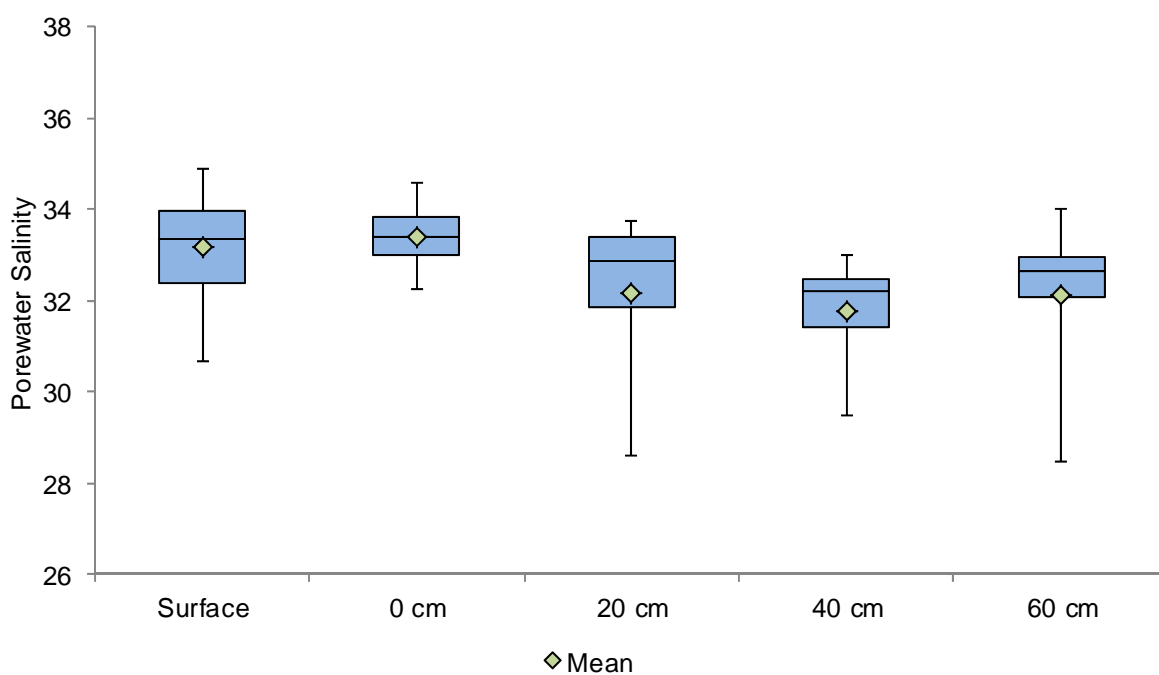
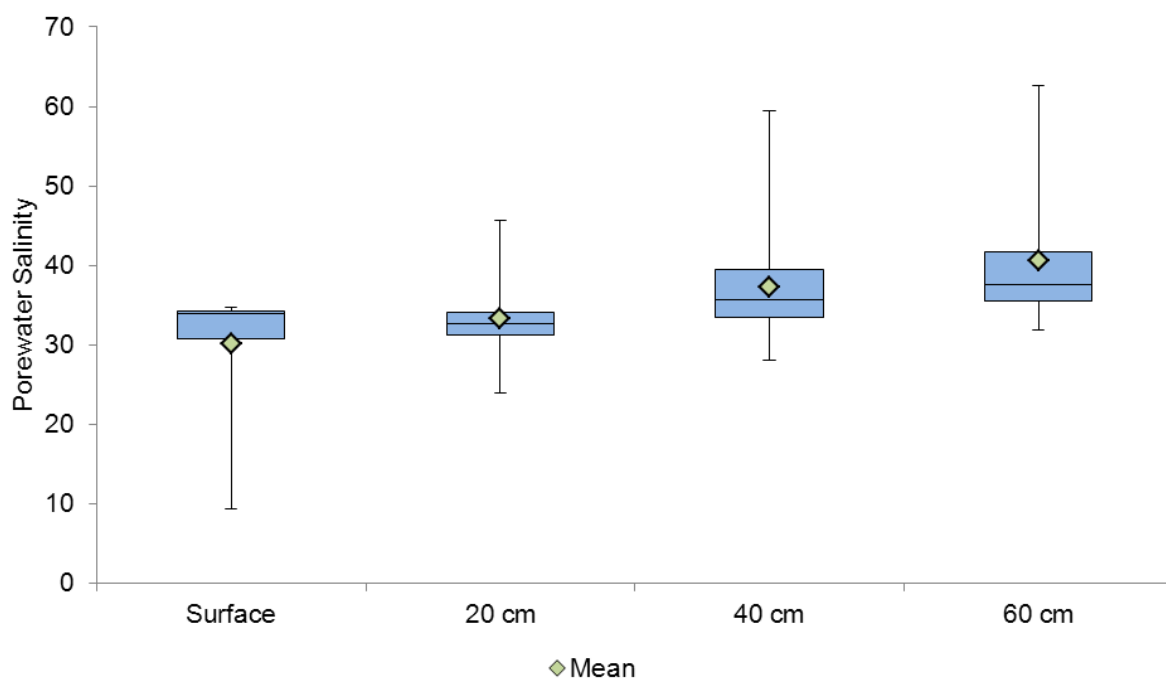
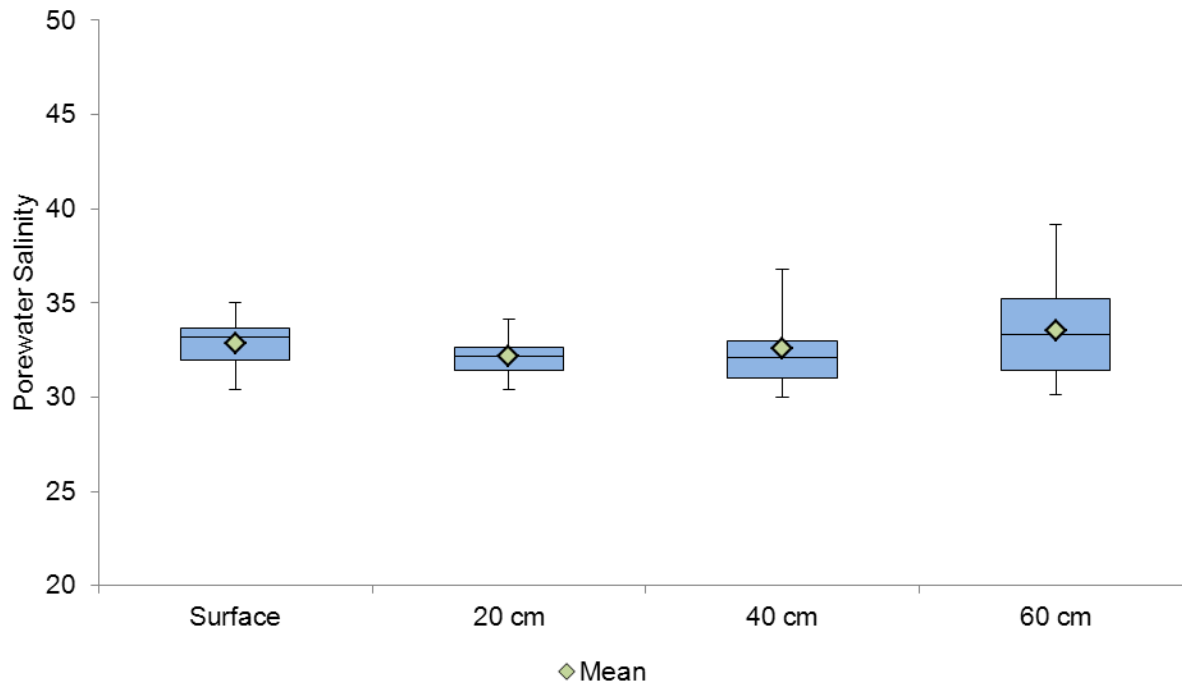


Figure C-66. Box and Whisker Plot for April 2010 AEI-Bay Porewater Salinities.



**Figure C-67. Box and Whisker Plot for April 2010 Grid Point Mangrove Porewater Salinities.**



**Figure C-68. Box and Whisker Plot for April 2010 AEI-Mangrove Porewater Salinities.**



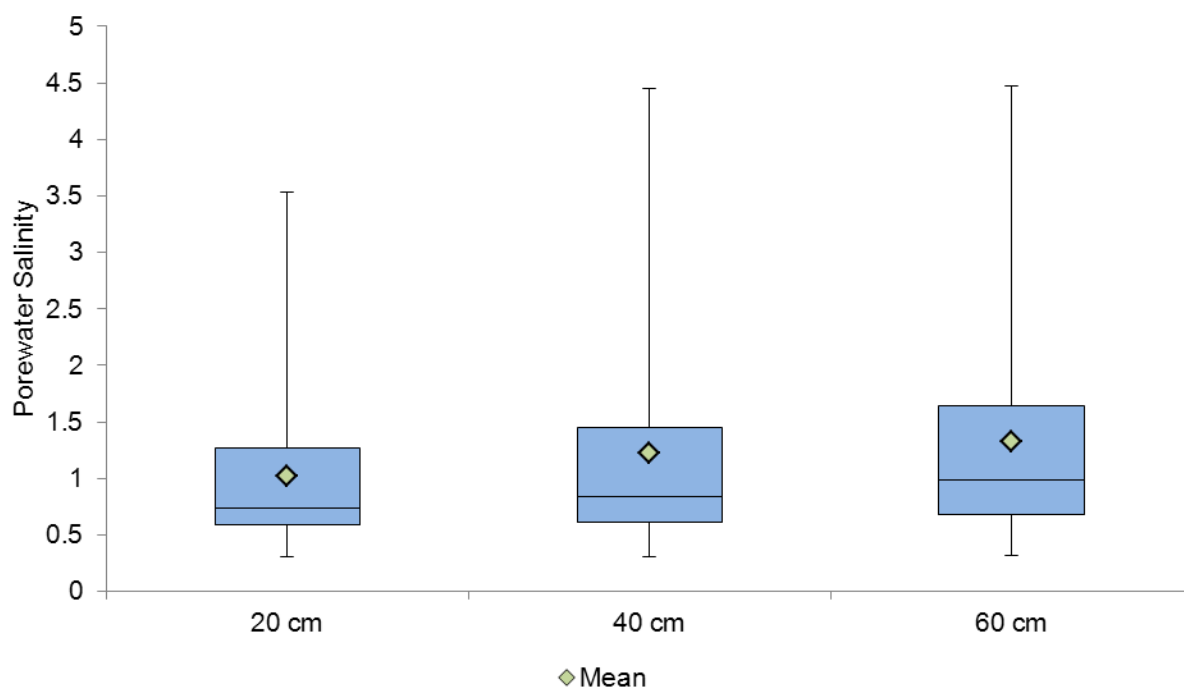


Figure C-69. Box and Whisker Plot for April 2010 Grid Point Marsh Porewater Salinities.

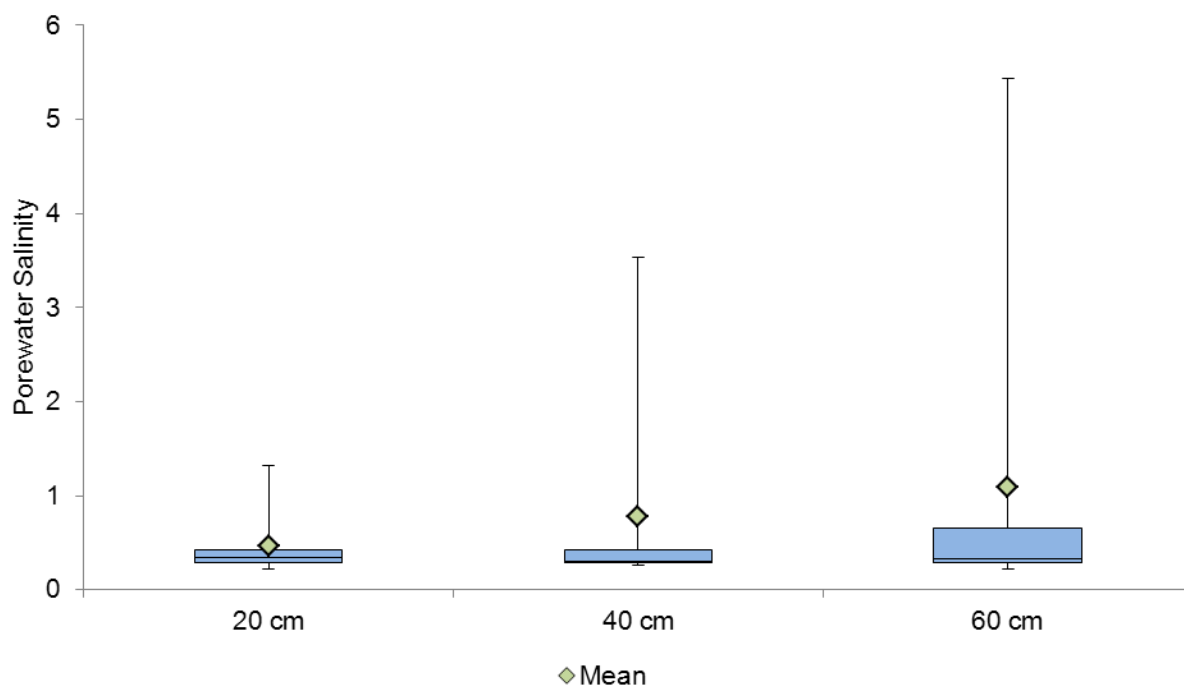


Figure C-70. Box and Whisker Plot for April 2010 AEI-Marsh Porewater Salinities.

**APPENDIX C-13:**

**Box and Whisker Plots**  
**August 2010**  
**Within-Habitat Water Depth**  
**Salinity Comparisons**

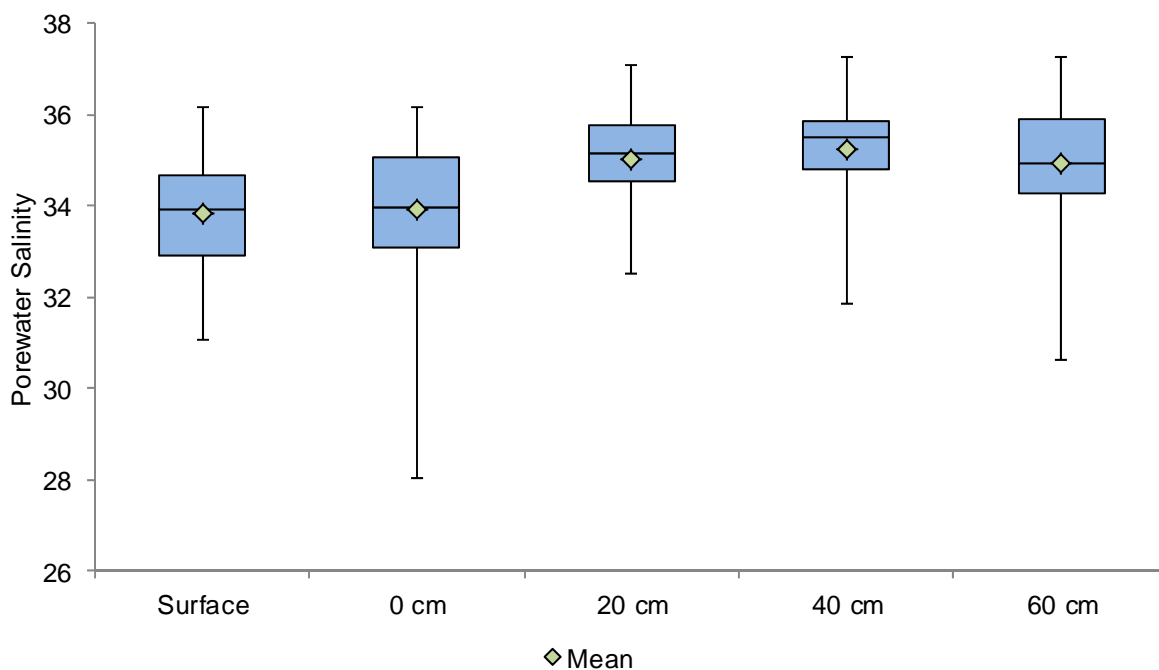


Figure C-71. Box and Whisker Plot for August 2010 Grid Point Bay Porewater Salinities.

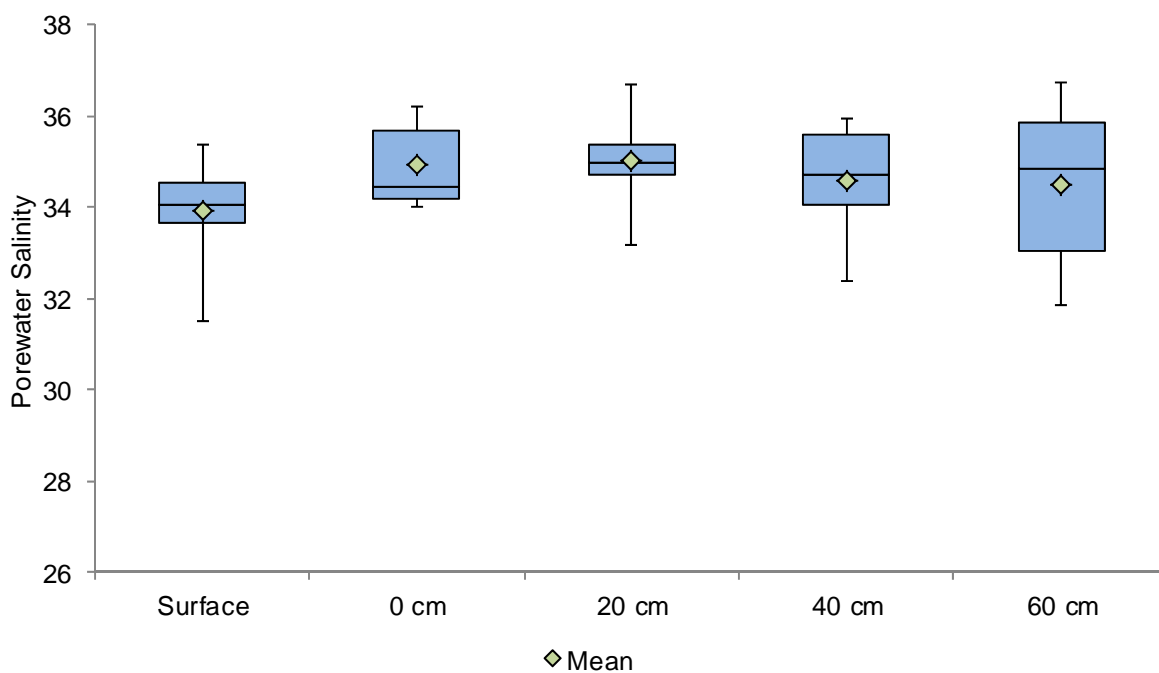


Figure C-72. Box and Whisker Plot for August 2010 AEI-Bay Porewater Salinities.



**APPENDIX C-14:**

**Box and Whisker Plots**  
**September 2010**  
**Within-Habitat Water Depth**  
**Salinity Comparisons**

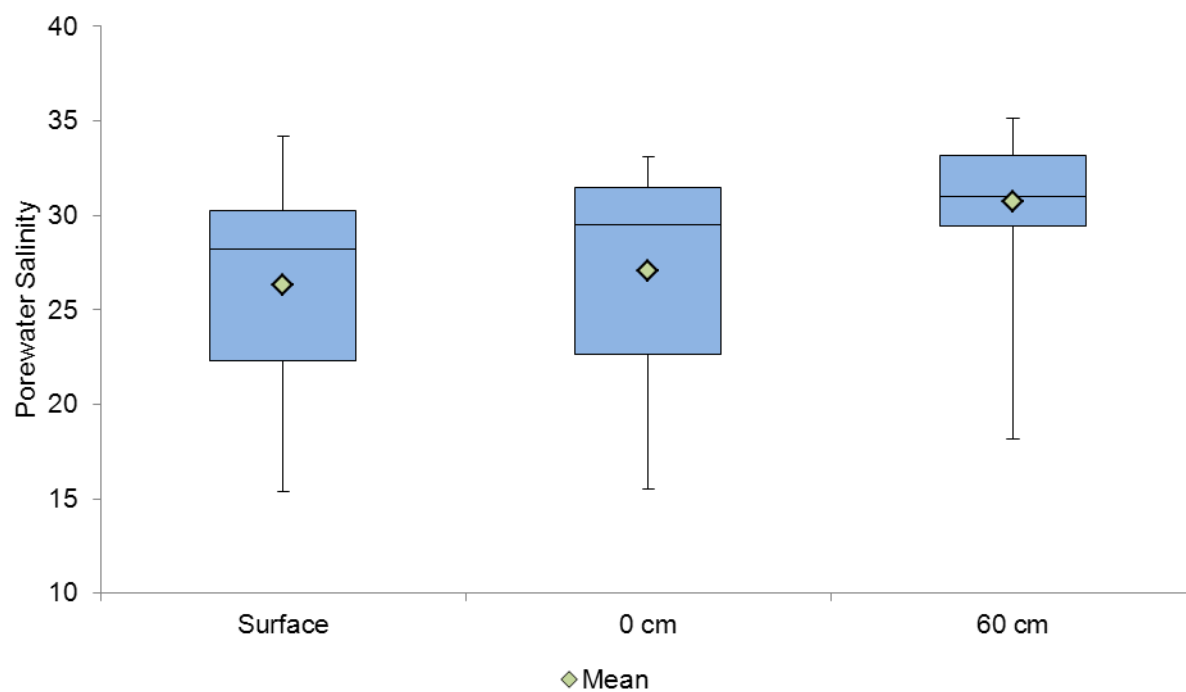


Figure C-73. Box and Whisker Plot for September 2010 Grid Point Bay Porewater Salinities.

**APPENDIX C-15:**

**Box and Whisker Plots**  
**April 2011**  
**Within-Habitat Water Depth**  
**Salinity Comparisons**

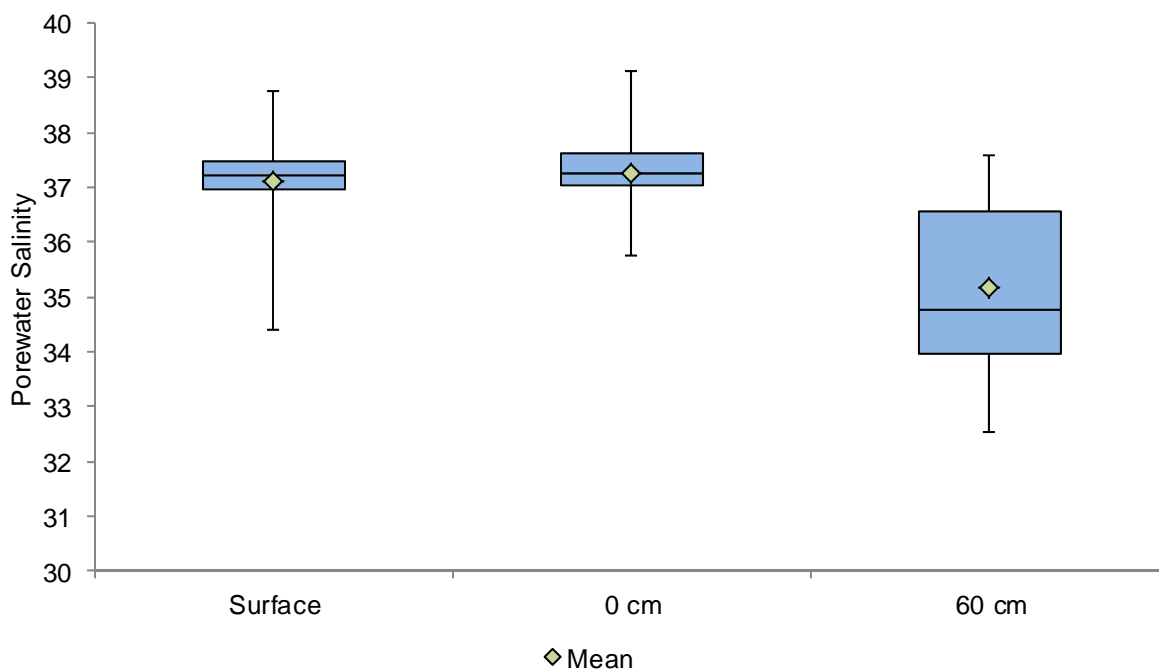


Figure C-74. Box and Whisker Plot for April 2011 Grid Point Bay Porewater Salinities.

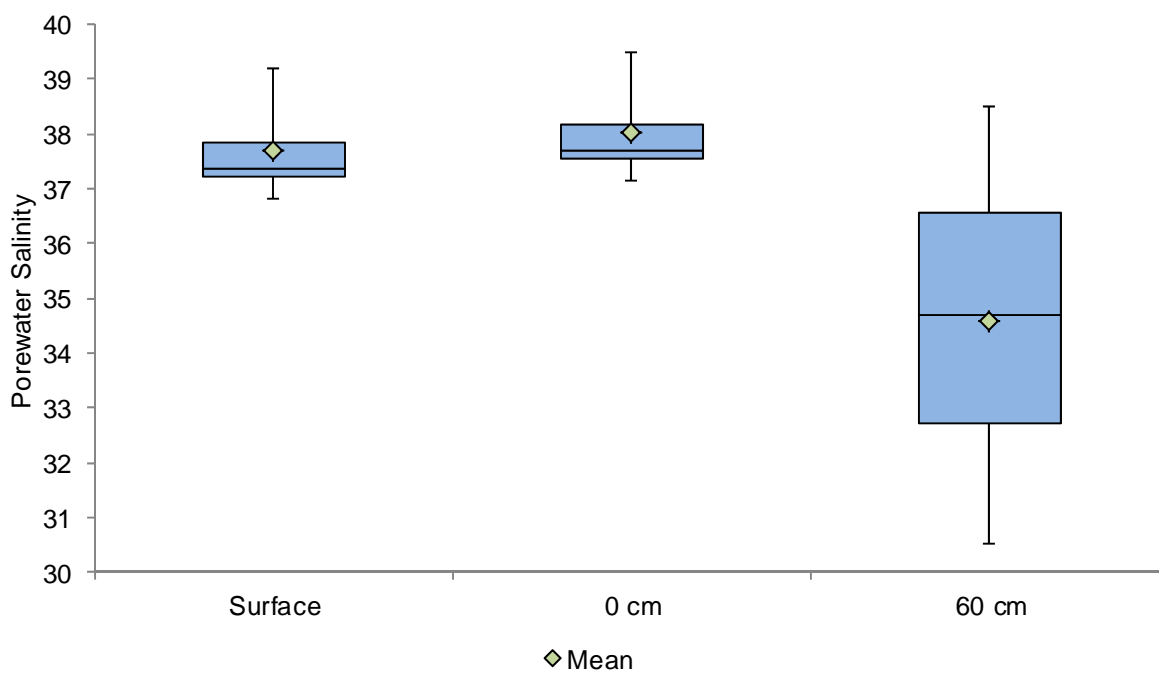


Figure C-75. Box and Whisker Plot for April 2011 AEI-Bay Porewater Salinities.





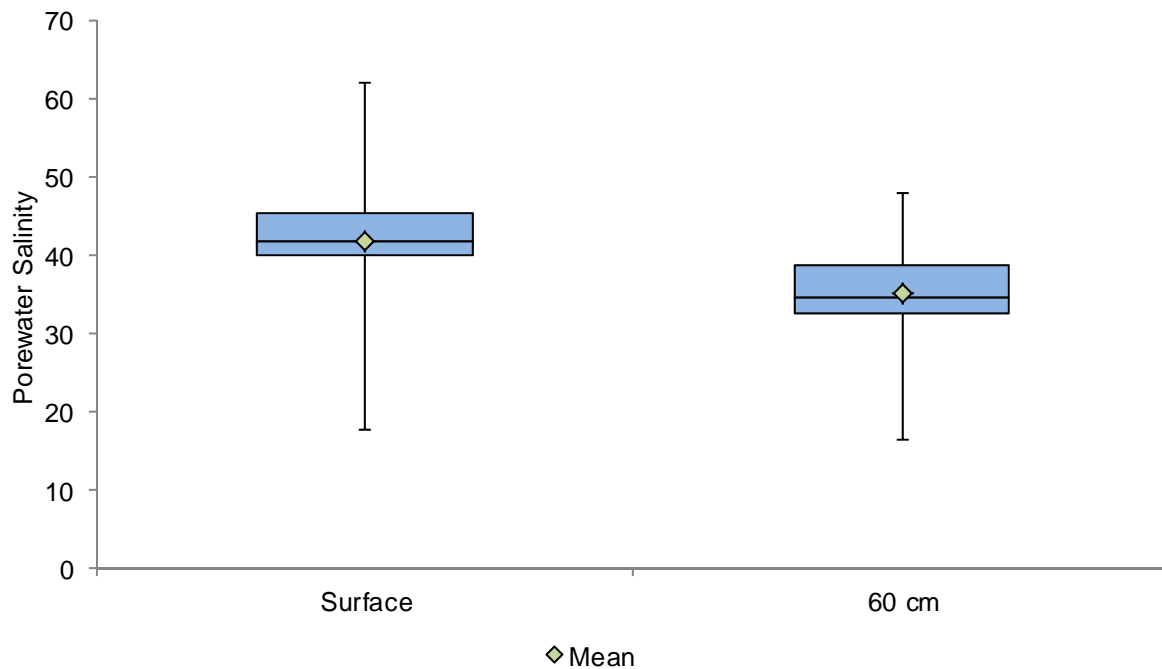


Figure C-76. Box and Whisker Plot for April 2011 Grid Point Mangrove Porewater Salinities.

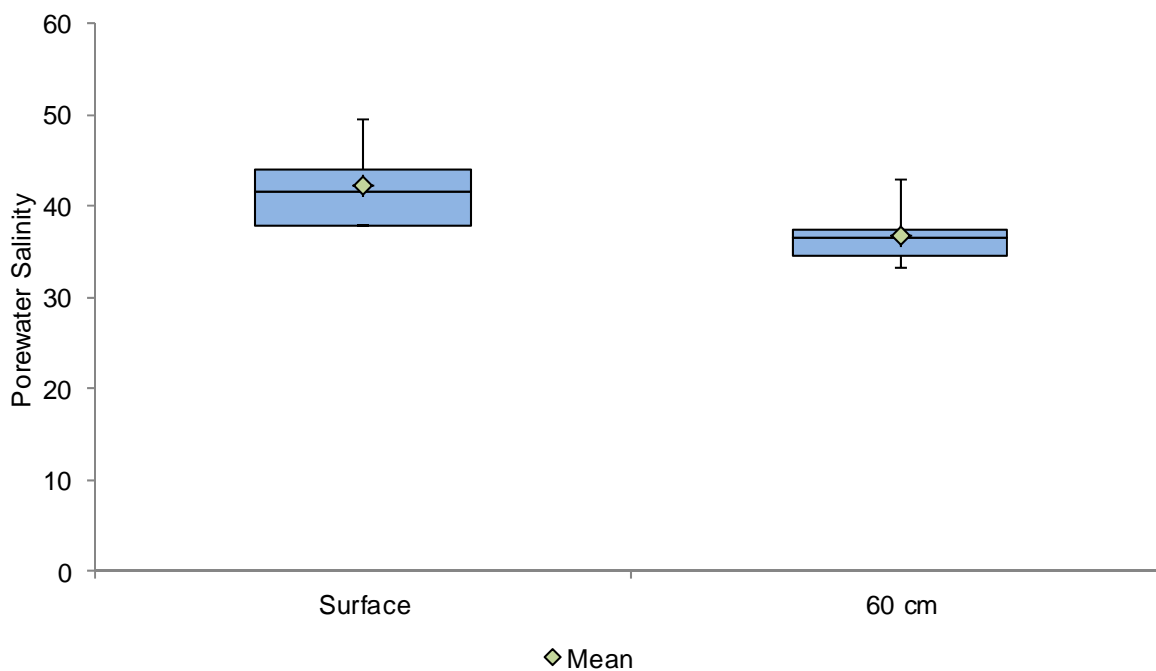


Figure C-77. Box and Whisker Plot for April 2011 AEI-Mangrove Porewater Salinities.

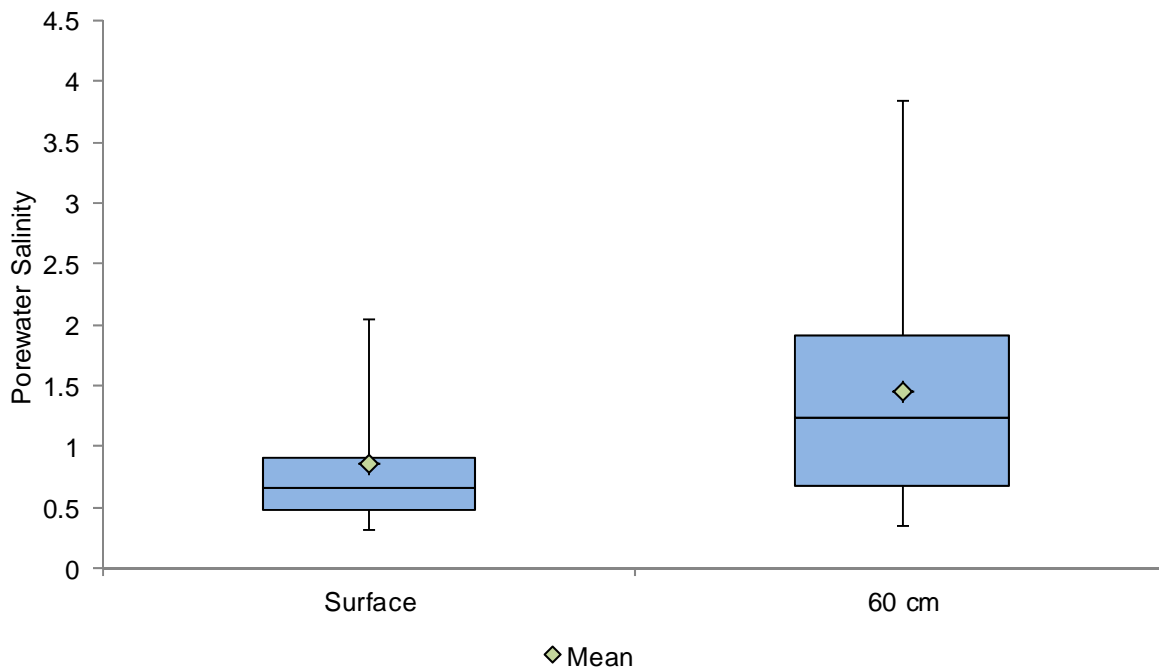


Figure C-78. Box and Whisker Plot for April 2011 Grid Point Marsh Porewater Salinities.

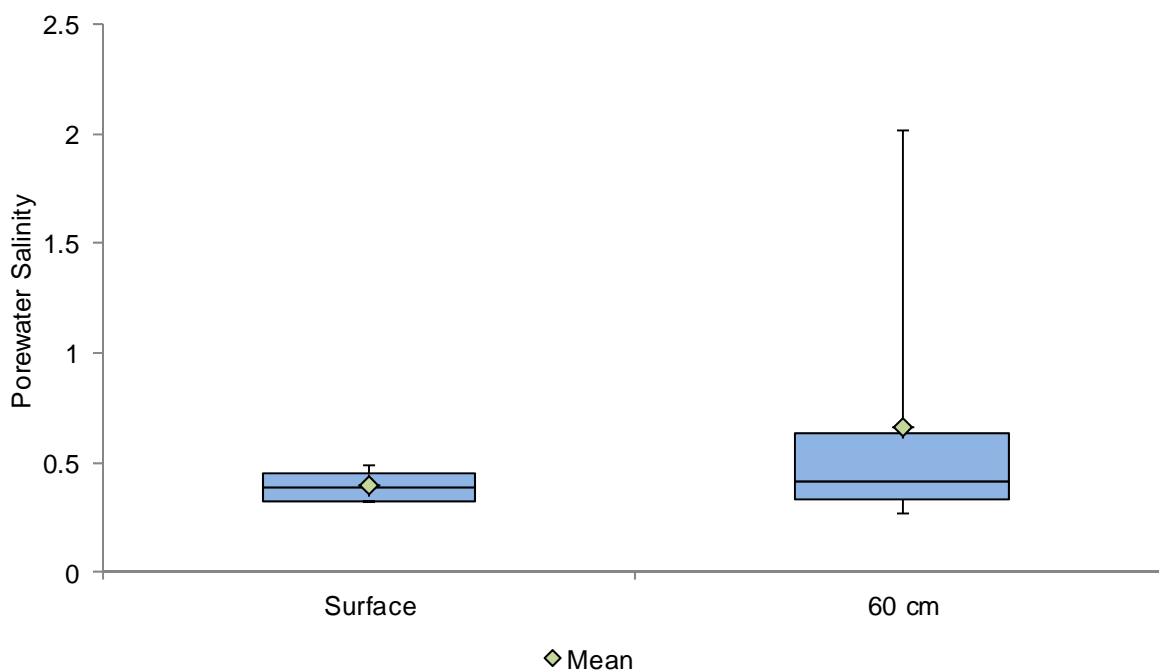


Figure C-79. Box and Whisker Plot for April 2011 AEI-Marsh Porewater Salinities.

# **APPENDIX D: FIELD DATA SHEETS**

**March 2010**

Time: 11:10 AM		Surveyor: KV, SE	
Arrival 11:09		Date: 3/18/10	
Departure 11:42			
Push Point <del>Base</del> <sup>KV</sup> method			
Site/Grid: 69	Original selected site: Yes <input checked="" type="radio"/> No	Equipment Serial # 81640 and 155883	
GPS coords: N 25.36279 W -80.33158 ✓			
Water depth (m): 0			
Air temp (°C): 24.3 ✓		Water temp (°C): <del>0</del> Surface	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C): (Thermistor)
20	48097.098 48077.438 48092.277	22.6 22.6 22.6	File 69
40	49825 49830 49766	21.9 21.9 22.0	File 6940
60	54487 54481 54550	<del>22.5</del> 22.5 <input checked="" type="radio"/> 22.5 22.5 <del>22.5</del> 22.5	File 6960
Notes: Moved 69 location, because original pt is too close to levee.			
Ecological observations of note: Sparse scrub red mangrove in site approximately 60cm tall.			

Time:		Surveyor: KV, SE	
Arrival 12:11		Date: 3/18/10	
Departure 12:44			
Site/Grid: 68			
Original selected site: Yes <input checked="" type="radio"/> No		Equipment Serial # 81640 and 155883	
GPS coords: N 25.37397 W -80.33097 ✓			
Water depth (m): 4.0 cm			
Air temp (°C): 20.2 ✓		Water temp (°C): 25.2 ✓	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	48497 48513 48486	23.3° 23.3° 23.3°	
40	50618 50591 50556	23.9 23.9 23.9	
60	49909 50055 50103	23.6 23.6 23.6	
Notes: Surface water spec cond temp 51128 25.3 12:27:00 51222 25.2 51231 25.1			
Ecological observations of note: Scrub <sup>red</sup> mangroves have 10% chlorosis ✓			

	Time: 1:39	Surveyor: KV SE Date: 3/18/10	
Arrival	1:39 pm		
Departure	2:00 pm		
Site/Grid:	G7	Original selected site: Yes/No	Equipment serial # 81640 and 155883
GPS coords: N 25.38529 W -80.33089 ✓			
Water depth (m): 0			
Air temp (°C): 22.5°C		Water temp (°C): 0	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	49935 49953 49945	23.2 23.2 23.3	/
40	55140 55166 55197	23.8 23.8 23.8	
60	59657 59612 59635	23.6 23.7 23.7	
Notes:			
None from original G7 as it was too close to levee.			
Ecological observations of note:			
Dense scrub red mangrove at approximately 0.70 m height ✓			

	Time: 2:10	Surveyor: KV SE Date: 3/18/10													
Arrival	2:10 PM														
Departure	2:31 PM														
Site/Grid:	M9a	Original selected site: Yes/No	Equipment serial # 81640 and 155883												
GPS coords: N 25.38548 W -80.32973 ✓															
Water depth (m): 15 cm															
Air temp (°C): 22.5		Water temp (°C): 25.0													
Aqua TROLL 100															
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):												
20	47156 47071 47068	24.9 24.4 24.4	/												
40	55140 49785 55166 49756 55197 49702	23.8 23.1 23.8 23.2 23.8 23.2													
60	53619 53689 53662	23.6 23.4 23.4													
Notes:															
<table border="0"> <tr> <td></td> <td>Sp Cond</td> <td>Temp</td> </tr> <tr> <td>surface</td> <td>- 50 253</td> <td>25.0</td> </tr> <tr> <td></td> <td>- 50 144</td> <td>25.0</td> </tr> <tr> <td></td> <td>- 50 221</td> <td>25.0</td> </tr> </table>					Sp Cond	Temp	surface	- 50 253	25.0		- 50 144	25.0		- 50 221	25.0
	Sp Cond	Temp													
surface	- 50 253	25.0													
	- 50 144	25.0													
	- 50 221	25.0													
Ecological observations of note:															
Open pond noted with Ruppia growing as submerged vegetation. Taller red Mangrove noted in small island and along west edge of pond. East Mangrove is at 2.5 m Mangrove on west side 2.25m															

	Time: 2:32 pm	Surveyor: KV SE	Date: 3/18/10	
Arrival	2:32 pm			
Departure	2:54 pm			
Site/Grid:	M96	Original selected site: <input checked="" type="checkbox"/> Yes/No	Equipment Serial # 81640 and 155883	
GPS coords: N25.38548 W-80.32969 ✓				
Water depth (m): 31.0		Air temp (°C): 22.9 ✓		
		Water temp (°C):		
Aqua TROLL 100				
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):	
20	46497 46541 46545	23.2 23.2 23.2	/	
40	48081 48033 48094	24.4 24.5 24.6		
60	51632 51604 51563	24.6 24.6 24.6		
Notes:				
	Sp Cond	Temp		
surface	50199	25.2		
water	50194	25.1		
	50178	25.1		
Ecological observations of note:				
M96 is located further northeast of M9a inside pond. ✓				

	Time: 3:42	Surveyor: SE KV	Date: 3/18/10
Arrival	3:42 PM		
Departure	3:58 PM		
Site/Grid:	M18a (W)	Original selected site: <input checked="" type="checkbox"/> Yes/No	Equipment Serial # 81640 and 155883
GPS coords: N25.40305 W-80.32949 ✓			
Water depth (m): 26.0		Air temp (°C): 20.5°C ✓	
		Water temp (°C): 23.8° ✓	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	46101 46030 46069	22.1 22.2 22.2	/
40	46746 46754 46754	21.8 21.8 21.9	
60	49421 49342 49372	21.5 21.5 21.4	
Notes:			
	Sp Cond	Temp	
Surface	48536	23.8	
water	48542	23.8	
	48561	23.8	
Ecological observations of note:			
Site is relatively open with Brown and green algae (Batophora) on sediment, area is submerged; sparse scrub red mangroves at ~0.5m heights ✓			



		Surveyor: KV SE	
Time: 3:58		Date: 3/18/2010	
Arrival	3:58 PM		
Departure	4:21 PM		
Site/Grid:		Original selected site:	Equipment serial #
M1b		Yes/No	81640 and 155883
GPS coords: <del>N 25.38549 W 80.32966</del> (KV)			
J. 25.40306 W 80.32946			
Water depth (m): 22.0			
Air temp (°C): 20.5 ✓		Water temp (°C): 22.3 ✓	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	46543 46551 46553	21.0 21.0 21.0	/
40	47486 47487 47488	20.6 20.7 20.7	
60	46739 46743 46788	20.8 20.9 20.9	
Notes:			
surface Sp Cond Temp water 48747 22.3 48759 22.3 48757 22.3			
Ecological observations of note:			
flat biadial seagrass noted at M1b ✓			

		Surveyor: KV SE	
Time: 4:36		Date: 3/18/10	
Arrival	4:36 PM		
Departure	4:48 PM		
Site/Grid:		Original selected site:	Equipment serial #
M4a M4b (KV)		Yes/No	81640 and 155883
GPS coords: N 25.40354 W 80.32827 ✓			
Water depth (m): 0			
Air temp (°C): 21.9°C ✓		Water temp (°C): 0	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			No water at this depth
40	48463 48485 48446	20.5 20.5 20.5	/
60	47867 47837 47837	21.7 21.8 21.8	
Notes:			
Located in back edge of Mangrove fringe. Area is thick with white, black & red mangroves. Litter - plastic, glass & styrofoam very prevalent.			
Ecological observations of note:			
We are located on a mangrove fringe - high point. At 20cm - soil is moist but not saturated (KV) ✓			

	Time: 4:50 pm	Surveyor: SE KV Date: 3/18/10
Arrival	4:50 pm	
Departure	5:02 pm	

Site/Grid:	M4b	Original selected site: Yes/No	Equipment Serial # 81640 and 155883
GPS coords: N25.40355 W80.32825 ✓			

Water depth (m):	Ø	
Air temp (°C):	21.0 ✓	Water temp (°C): Ø

Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	No porewater available		/
40	48251	22.2	
	48119	22.3	
	48133	22.4	
60	47624	21.8	
	47625	19.9	
	47652	19.9	

Notes:

- located east of M4a - with mangrove fringe

Ecological observations of note:

No porewater available at 20 cm depth, after 3 attempts made

	Time: 5:36 pm	Surveyor: KV SE Date: 3/18/10
Arrival	5:36 pm	
Departure	5:54 pm	

Site/Grid:	M7a	Original selected site: Yes/No	Equipment Serial # 81640 and 155883
GPS coords: N25.40541° W-80.33043° ✓			

Water depth (m):	Ø	
Air temp (°C):	20.5° ✓	Water temp (°C): Ø

Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	47162	21.4	/
	47191	21.6	
	47240	21.6	
40	51651	22.4	
	51601	22.4	
	51620	22.4	
60	57319	21.9	
	57311	22.0	
	57317	22.0	

Notes:

~~Atypical~~ Atypical red mangrove growth observed.  
Stand of taller mangroves than run east west at avg 1.5m height

Ecological observations of note:

A number of whole mangroves observed within the taller 1.5m ht fringe.  
Mangrove trees outside of fringe have avg ht of 0.5m

	Time: 5:55 pm	Surveyor: KV SE Date: 3/18/10		
Arrival	5:55 pm			
Departure	6:13 pm			
Site/Grid:	M7b	Original selected site: Yes/No	Equipment Serial #: 81640 and 195883	
GPS coords: N25.40546 W-80.33040 ✓				
Water depth (m): 0				
Air temp (°C): 20.3 /		Water temp (°C): 0		
Aqua TROLL 100				
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):	
20	50547 50589 50583	20.0 20.0 20.1	/	
40	54518 54507 54520	20.2 20.2 20.3		
60	58908 58824 58485	20.0 20.1 20.1		
Notes:				
Peat observed in the porewater				
Ecological observations of note:				
Porewater samples have a distinctly strong H <sub>2</sub> S smell than other sites - M7b obtained coral at M7a				

	Time:	Surveyor:	
	Date:		
Arrival			
Departure			
Site/Grid:		Original selected site: Yes/No	L
GPS coords:			
Water depth (m):			
Air temp (°C):		Water temp (°C):	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20		20	
40		20	
60		20	
Notes:			
Ecological observations of note:			

		Surveyor: KV SE	
Time: 11:17am		Date: 3/21/10	
Arrival	11:17am		
Departure	11:28am		
Site/Grid:	64	Original selected site: Yes (No)	Equipment serial no.: RR 1 sensor #4 SN 83587/154841
GPS coords: N 25.41840° W - 80.33075°			
Water depth (m): 0		Tidal Condition:	
Air temp (°C): 27.4		Water temp (°C): 0	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	47452	25.8	/
40	47204	24.0	
60	48164	23.2	
Notes:			
Mangrove area is thick with red and white mangroves of avg 20m tall			
Soil is saturated and algae growing around prop roots - leaf litter noted on the ground			
Ecological observations of note:			

		Surveyor: KV SE	
Time: 11:59am		Date: 3/21/10	
Arrival	11:59am		
Departure	12:14 pm		
Site/Grid:	M 6a	Original selected site: Yes (No)	Equipment serial no.: RR 1 insitu #4 SN 83587/154841
GPS coords: N 25.41259 W - 80.32965			
Water depth (m): 0		Tidal Condition: outgoing tide	
Air temp (°C): 25.1		Water temp (°C): 0	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond. MS	Temperature (°C)	Temp measured in-situ (°C):
20	46168	27.1	/
40	45757	25.0	
60	46305	24.7	
Notes:			
Site is open with higher ground to the north, north east and east. Black mangroves dominate open area at > 1m tall. Short scrub mangroves at 0.25m tall sparsely scattered in open patch.			
5 photos taken of area of interest			
Ecological observations of note:			
Open patch is surrounded by 0.5m tall red scrub mangrove in higher density surrounding open patch. Sample obtain in southwest corner of open patch. Evidence of dead red mangroves noted throughout patch			

		Time: 12:16		Surveyor: KV, JV Date: 3/21/10	
Arrival		12:16 pm.			
Departure		12:32 pm		No sun, cloudy	
Site/Grid:		M6b		Original selected site: Yes/No	
				Equipment serial no.: SN 83587/154841 RR1, sensor 4	
GPS coords: N 25.41053, W 80.32964 ✓					
Water depth (m):		0.11		Tidal Condition: <del>incoming</del> (high tide 4 pm)	
Air temp (°C):		25.7 °C ✓		Water temp (°C): 26.5 ✓	
For Bay Samples:		Bottom temp (°C):		Bottom spec. cond.	
Aqua TROLL 100					
Depth (cm)	Spec. Cond. (µS/cm)	Temperature (°C)	Temp measured in-situ (°C):		
20	46128	25.1 °	/		
40	45441	25.6			
60	45249	24.9			
Notes:					
0 cm 49250 µS/cm 26.5 °C. Site is just outside area of interest, in standing H <sub>2</sub> O and sparse scrub red mangroves. South of (in patches) area of interest.					
Ecological observations of note:					
Scrub red mangroves in patches x 0.75 m ang ht. Brown algae in H <sub>2</sub> O. S. plant (KV)					

		Time: 104 pm		Surveyor: KV, JV Date: 3/21/10	
Arrival		1:04 pm			
Departure		1:47 pm			
Site/Grid:		M5a		Original selected site: Yes/No	
				Equipment serial no.: SN 81640/155883 2, #5	
GPS coords: 25.40996° N 80.32976 ✓					
Water depth (m):		0		Tidal Condition: incoming	
Air temp (°C):		27.7 ✓		Water temp (°C): N/A	
For Bay Samples:		Bottom temp (°C):		Bottom spec. cond.	
Aqua TROLL 100					
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):		
20	48833	26.8	/		
40	46763 46942	26.7 27.4			
60	46294	25.5			
Notes:					
No standing H <sub>2</sub> O. Remnant creek. Sampled in atypical mangrove area. Area elevated, no standing H <sub>2</sub> O at arrival. Almost continuous tree cover.					
Ecological observations of note:					
Red mangroves - 1 to 1.5 m tall. Atypical mangrove observed (red only). One black mangrove 1 m E of sampling pt. (1 m tall).					

	Time: 1:04 pm	Surveyor: KV, JU	
Arrival	1:04 pm	Date: 3/21/10	
Departure	1:44 pm		
Site/Grid:	M-5B	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: SN 83587/154841 RR1 #4 Sensor
GPS coords: 25.40997°N, 80.32977°W			
Water depth (m): 0.04 m		Tidal Condition: incoming	
Air temp (°C): 27.60		Water temp (°C): 29.0	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	48170	24.3	
40	45297	25.2	
60	45894	25.2	
Notes: 0cm 50830 µS/cm 29.0°C North edge of creek, Avic. is on SE ~ 1.5 m away Open area sampled Avicennia germinans (black mangrove)			
Ecological observations of note: Red mangrove - patchy 0.5 to 1 m tall.			

	Time:	Surveyor:	
Arrival		Date:	
Departure			
Site/Grid:		Original selected site: Yes/No	Equipment serial no.:
GPS coords:			
Water depth (m):		Tidal Condition:	
Air temp (°C):		Water temp (°C):	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes:			
Ecological observations of note:			

Time: <del>2:48 PM</del>		Surveyor: SE, KY Date: 3/21/10	
Arrival	2:48 PM		
Departure	3:17 PM		
Site/Grid:	G5	Original selected site: Yes/No	Equipment serial no.: Unit 2 + 5 SN 81640/155883
GPS coords: N: 25.40792 W: 80.33076			
Water depth (m): 16 cm		Tidal Condition: incoming tide	
Air temp (°C):		Water temp (°C): 30.1	
For Bay Samples:		Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	45912	26.9	
40	42826	27.1	
60	48095	26.2	
Notes: Surface: <del>50840</del> Sp. Conductance: 50840 uS (60) Temp: 30.1°C located ~ 50m East of original point			
Ecological observations of note: Located just south of a tidal creek Point located in scrub red mangroves ~ 1m tall; to the immediate north the red mangroves are 24m tall & very thick.			

Time: 3:52 pm		Surveyor: JV SE Date: 3/21/10	
Arrival	3:52 pm		
Departure	4:24 pm		
Site/Grid:	G6	Original selected site: Yes/No	Equipment serial no.: RPL 1, Probe # 4 SN 83587/154841
GPS coords: N 25.39639 W - 80.33087			
Water depth (m): <del>46.8 cm</del> 10.8 cm		Tidal Condition: Incoming tide	
Air temp (°C): 26.1		Water temp (°C): 29.1	
For Bay Samples:		Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	39284 $\mu$ S	25.7	
40	52433	26.7	
60	51968	28.3	
Notes: Site is on a small <sup>(60)</sup> raised ridge of scrub red mangroves possibly part of an old tidal system. Surface <sup>sp</sup> temp Water 47172 $\mu$ S 29.1°C			
Ecological observations of note: On path to site, encountered a orange/red snake floating in the water. strong H <sub>2</sub> S <sup>(60)</sup> odor noted in sample, peak observed in sample at 40 cm depth			

	Time: 4:55pm	Surveyor: KD Date: 3/21/10
Arrival	4:55pm	
Departure	5:33pm	
Site/Grid:	H8b	Original selected site: <input checked="" type="radio"/> Yes/ <input type="radio"/> No Equipment serial no.: RR 2, Probe 5 SN 81640/155883
GPS coords: <del>N25.3825</del> N 25.39111 W -80.33028		
Water depth (m): 46.50m	Tidal Condition: High tide	
Air temp (°C): 27.4°C	Water temp (°C): 28.7°C	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100		
Depth (cm)	Spec. Cond.	Temperature (°C)
20	48811	26.9°C
40	<del>48746</del> 50351 <input checked="" type="radio"/>	<del>25.5°C</del> 26.7°C
60	52625	26.3°C
Notes: Surface water <u>Sp Cond</u> <u>Temp</u> 45292 µS 28.7°C		
Ecological observations of note: Site is inside area of open space, no mangroves but <i>Hypodile wrightii</i> noted sparsely growing on sediment		

	Time: 4:55pm	Surveyor: SE Date: 3/21/10
Arrival	4:55pm	
Departure	5:33pm	
Site/Grid:	H8a	Original selected site: <input checked="" type="radio"/> Yes/ <input type="radio"/> No Equipment serial no.: RR 1, Probe 4 SN 83587/154841
GPS coords: N25.39115 W -80.33031		
Water depth (m): 10.0 cm	Tidal Condition: High tide	
Air temp (°C): 27.1°C	Water temp (°C): 28.3°C	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100		
Depth (cm)	Spec. Cond.	Temperature (°C)
20	48030 µS	26.2°C
40	48776	25.5°C
60	49133	<del>25</del> 24.9°C <input checked="" type="radio"/>
Notes: Site is in northeast corner of open space. Scribbled mangrove are at 0.5m tall avg. Nudibranchs observed feeding within the sediment.		
Ecological observations of note: Surface water <u>Sp Cond</u> <u>Temp</u> 50515 28.3		



	Time: 10:52am	Surveyor: KV, JV Date: 3/22/10	
Arrival	10:52am		
Departure	11:26		
Site/Grid:	W2a	Original selected site: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Equipment serial no.: PR2, In situ probe #5 SN 81640/155883
GPS coords: N25.43957 W-80.36063			
Water depth (m): <input checked="" type="checkbox"/>		Tidal Condition: <input checked="" type="checkbox"/>	
Air temp (°C): 18.2		Water temp (°C): <input checked="" type="checkbox"/>	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	

Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	1123.6	<del>18.2</del> 20.4 <input checked="" type="checkbox"/>	/
40	2201.4	20.9	
60	4053.1	21.4	

Notes:

Area is with an old river/stream system.  
Site is thick with Red Mangrove and Cocoplum trees. Herbaceous layer is mostly Cocoplum saplings and Blechnum serrulatum ferns.

Ecological observations of note:

Lots of leaf litter noted. Lygodium microphyllum observed along path to reach site.  
Unable to continue to original point, underbrush & trees too thick to continue w/o machete.

	Time: 11:29	Surveyor: KV, JFV Date: 3/22/10	
Arrival	11:29 AM		
Departure	11:54 AM		
Site/Grid:	W2b	Original selected site: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Equipment serial no.: PR2, Probe #5 SN 81640/155883
GPS coords: N25.43950° W-80.36060°			
Water depth (m): <input checked="" type="checkbox"/>		Tidal Condition: <input checked="" type="checkbox"/>	
Air temp (°C): 18.0		Water temp (°C): <input checked="" type="checkbox"/>	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	

Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	748.31	20.5	/
40	2318.1	20.7	
60	2721.1	20.4	

Notes:

Site is 2m south east of W2a  
also located in area of thick tree vegetation  
Blechnum serrulatum  
Samples all have distinct organic smell

Ecological observations of note:

Site similar to W-2a

		Surveyor: KV, JV Date: 3/22/10	
Arrival	Time: 1:06 PM		
Departure	1:33 PM		
Site/Grid:	(K) <del>W3a</del> W3a	Original selected site: Yes <input checked="" type="radio"/> No <input type="radio"/>	Equipment serial no.: RR 2 Troll 5 81640/155883
GPS coords: N 25.43621 W 80.35294			
Water depth (m): N/A		Tidal Condition:	
Air temp (°C): 18.7°C		Water temp (°C):	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	/	/	/
40	589.26	19.8	/
60	593.52	19.3	/
Notes: Site located ~60m east of original point in order to stay 50m away from levees. (K) No water No sample collected @ 20cm - soil is moist but could not obtain enough water for a sample. Tried 3 different locations - water has distinct H <sub>2</sub> S smell w/ organic particles floating in the samples			
Ecological observations of note: Dense dead fern stems in the herbaceous layer; Cocoplum, brazilian pepper, myrica dominant in the overstory Virginia creeper also present, Blechnum fern + cocoplum saplings in herbaceous layer			

\* M-2B + M3A in RR are actually W-2B + W3A

		Surveyor: KV, JV Date: 3/22/10	
Arrival	Time: 1:34 PM		
Departure	1:58 PM		
Site/Grid:	W3b	Original selected site: Yes <input checked="" type="radio"/> No <input type="radio"/>	Equipment serial no.: 81640 and 155883 RR 2, Troll 5
GPS coords: N 25.43626 W 80.35294			
Water depth (m): N/A		Tidal Condition:	
Air temp (°C): 18.2		Water temp (°C):	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	543.28	19.8	/
40	565.10	18.9	/
60	559.83	19.6	/
Notes: Site located 2m north of W-3a. 3 samples obtained. Samples from 40 + 60 depth had distinct H <sub>2</sub> S smell.			
Ecological observations of note: Site very similar to W3a - Dense dead ferns in herbaceous layer; Cocoplum, brazilian pepper, + myrica dominant in overstory 1 persia small persia present. (KV)			

	Time:	Surveyor: KV, JV Date: 3/22/10	
Arrival	2:53 PM		
Departure	3:18 PM		
Site/Grid:	W5a	Original selected site: Yes <input checked="" type="radio"/> No <input type="radio"/>	Equipment serial no.: RR 2 + Troll 5 SN 81640/155883
GPS coords: N. 25.43027 W 80.35482			
Water depth (m): 0		Tidal Condition: 0	
Air temp (°C): 25.3		Water temp (°C): 0	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	721 $\mu$ S	21.8°	/
40	641 $\mu$ S	21.3	
60	641 $\mu$ S	21.4	
Notes: Site located with stand of tall vegetation looks like an old river/stream system. Canopy dominated by Casuarina, Myrica aspera Understory dominated by sawgrass and Blechnum fer. - Several dead tree stumps surround survey point.			
Ecological observations of note: <div style="display: flex; justify-content: space-between;"> <div> <p>part noted in 40cm porewater sample</p> <p>Site not original Site as original pt is too close to levee</p> </div> <div> <p>H<sub>2</sub>S odor in 20cm porewater sample</p> <p>WSA file 5 WSA reading at 20cm depth</p> </div> </div>			

	Time: 3:19	Surveyor: KV, JV Date: 3/22/09	
Arrival	3:19 PM		
Departure	3:43 PM		
Site/Grid:	W5b	Original selected site: Yes <input checked="" type="radio"/> No <input type="radio"/>	Equipment serial no.: RR 2, Troll 5 SN 81640/155883
GPS coords: N 25.43030 W 80.35478			
Water depth (m): 0		Tidal Condition: 0	
Air temp (°C): 22.3		Water temp (°C): 0	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	629	21.6	/
40	595	20.8	
60	598	21.3	
Notes: Site inside remnant river/stream - Casuarina, Myrica, + Peasea are dominant trees - Sawgrass + sparse Blechnum ferns in herbaceous layer - Site is in dense sawgrass.			
Ecological observations of note:			

		Time: 4:13 pm		Surveyor: KV, JV Date: 3/22/10	
Arrival		4:13 PM			
Departure		4:39 pm			
Site/Grid:		E3		Original selected site: Yes/No	
				Equipment serial no.: RR 2 + Troll 5 SN 81640/155883	
GPS coords: N 25.43055 W. 80.35611					
Water depth (m):		N/A		Tidal Condition: 0	
Air temp (°C):		22.6°C		Water temp (°C): 0	
For Bay Samples:		Bottom temp (°C):		Bottom spec. cond.	
Aqua TROLL 100					
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):		
20	1336 µS	22.21.0°			
40	1670 µS	20.8 °C			
60	1997 µS	21.7 °C			
Notes: No canopy; understory composed exclusively of sawgrass A few scattered scrub red mangroves located East of site  Some water is cloudy.					
Ecological observations of note:					

		Time:		Surveyor: KV, JV Date: 3/22/10	
Arrival		4:58 PM			
Departure		5:18 PM			
Site/Grid:		W4a		Original selected site: Yes/No	
				Equipment serial no.: RR 2 + Troll 5 SN 81640/155883	
GPS coords: N 25.43023 W 80.36545					
Water depth (m):		N/A		Tidal Condition:	
Air temp (°C):		21.7		Water temp (°C):	
For Bay Samples:		Bottom temp (°C):		Bottom spec. cond.	
Aqua TROLL 100					
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):		
20	1914.1	20.2			
40	6435.4	20.3			
60	10839.	20.2			
Notes: site located ~20m SE of original point Dominant canopy composed of Brazilian Pepper & Cassipouira Understory dominated by Blechnum fern 60+40cm sample light yellow in color & smells like H <sub>2</sub> S First site unsuccessful @ 20cm. 2nd site successful.					
Ecological observations of note:  Area adjacent to site has been burned recently.					

		Surveyor: KV, JV	
Time:		Date: 3/22/10	
Arrival	5:20 PM		
Departure	5:39 PM		
Site/Grid:	W46	Original selected site: Yes/No	Equipment serial no.: RR 2 + Troll 5 SN 81640 / 155883
GPS coords: <del>N 25.4309</del> N 25.43014 W 80.36546 ✓			
Water depth (m): N/A		Tidal Condition:	
Air temp (°C): 21.6		Water temp (°C):	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	3152.7	21.5	
40	6352.5	20.5	
60	8269.6	20.8	
Notes:			
Site located ~ 3m South of W4a All samples have light yellow coloring & smell like H <sub>2</sub> S ✓			
Ecological observations of note:			
Area recently burned. Canopy dominated by brazilia pepper + Cassipourea No living understory vegetation Ground covered w/ Cassipourea leaves			

		Surveyor: KV, JV	
Time:		Date: 3/22/10	
Arrival	5:51 PM		
Departure	6:20 PM		
Site/Grid:	D3	Original selected site: Yes/No	Equipment serial no.: 81640 and 155883 RR 2 + Troll 5
GPS coords: N 25.43057 W 80.36845 ✓			
Water depth (m): 3cm		Tidal Condition:	
Air temp (°C): 20.9		Water temp (°C):	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	3064.9	19.8	
40	3452.6	20.2	
60	3496.4	20.1	
Notes:			
Surface Sp Cond: 1081.2 Temp: 20.7 °C			
Ecological observations of note:			
- Dead buttonwood snags surround the site - Sawgrass dominates understory - Periphyton covering the ground - Site located in a sawgrass prairie that was burned fairly recently.			

	Time: 10:18	Surveyor: DC, SE Date: 3/22/10	
Arrival	10:18		
Departure	10:42		
Site/Grid:	F10	Original selected site: <input checked="" type="radio"/> Yes / <input type="radio"/> No	Equipment serial no.: SN 83595/155900 RR #3, Sensor #6
GPS coords: N 25.35174, W 80.34460			
Water depth (m):	Ø	Tidal Condition:	—
Air temp (°C):	18.4	Water temp (°C):	Ø
For Bay Samples:	—	Bottom temp (°C):	—
Bottom spec. cond. —			
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	9965	21.1	/
40	13638	21.1	
60	16544	21.3	
Notes: No surface H <sub>2</sub> O. N of Tree Island. Canopy dominates on tree isl. is black mangroves ( <i>Avic. germinans</i> ). H <sub>2</sub> O level was higher recently (~1 mo ago). Soil saturated.			
Ecological observations of note: Red mangrove - Sawgrass mix (~1.25 m avg ht) <i>Cassipoupa filiformis</i> (rare on mangroves). Periphyton (brown w/ green lower layer) layer 2 cm thick.			

	Time: 11:12 am	Surveyor: DC, SE Date: 3/22/10	
Arrival	11:14 am		
Departure	11:34 am		
Site/Grid:	F10	Original selected site: <input checked="" type="radio"/> Yes / <input type="radio"/> No	Equipment serial no.: SN 83595/155900 RR #3, Sensor #6
GPS coords: N 25.35155, W 80.35648			
Water depth (m):	Ø	Tidal Condition:	Ø
Air temp (°C):	20.1	Water temp (°C):	Ø
For Bay Samples:	—	Bottom temp (°C):	—
Bottom spec. cond. —			
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	51547	21.5	/
40	59372	20.7	
60	65063	20.8	
Notes: No surface water. Minimal litter, substrate is mud. Low canopy (0.5 m) of sparse red mangrove. 3 tree islands of taller mangroves w/in 100 m radius.			
Ecological observations of note: Scrub red mangroves, some <i>Distichlis spicata</i> . Scattered black mangroves. 40 cm + 60 cm smells strongly of H <sub>2</sub> O.			

Time: 12:20		Surveyor: SE, DC	
Arrival 12:25 pm		Date: 3/22/10	
Departure 12:45			
Site/Grid: D-10	Original selected site: (Yes/No)	Equipment serial no.: SN 83595/155900 RR #3, Sensor #6	
GPS coords: 25.35162°N, 80.36890°W			
Water depth (m): 0	Tidal Condition: NA		
Air temp (°C): 19.4	Water temp (°C): 0		
For Bay Samples: -	Bottom temp (°C): -	Bottom spec. cond. -	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	57798	20.5	/
35	57994	24.2	
60	57974	24.2	
Notes:			
No surface H <sub>2</sub> O. Reddish inorganic sediment. Scrub red + black mangroves ~0.5m tall. Sediment is matted w/ a crust over surface. Indication of hypersaline forest. 30cm to bedrock - probed 6x.			
Ecological observations of note:			
Scrub red + black mangroves ~0.5m tall. Some Distichlis few 3-4 m tall black mangroves in distance.			

Time: 1:24 pm		Surveyor: SEwe, DC	
Arrival 1:24 pm		Date: 3/22/10	
Departure 1:57 pm			
Site/Grid: C-10	Original selected site: (Yes/No)	Equipment serial no.: RR #3, Sensor #6 SN 83595/155900	
GPS coords: N 25.35088 W 80.38035			
Water depth (m): 0	Tidal Condition: NA		
Air temp (°C): 19.5	Water temp (°C): 0		
For Bay Samples: -	Bottom temp (°C): -	Bottom spec. cond. -	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	66366, 66369	20.7, 20.7	/
40	68523	21.0	
60	76857, 76283	20.9, 20.9	
Notes:			
No surface H <sub>2</sub> O. Scrub black mangrove (~0.3m) sparse. Two airboat trails N of site. Meteorological station ~50m N of site. Sediment depth ~60cm. In-situ Reader failed to be able to log @ 60cm. Sample coll. + temp. measured using Fluke multimeter + thermometer. Hit bedrock at 60cm			
Ecological observations of note:			
Sparse black mangroves 30-60 cm tall. Eleocharis sp. w/in 30m off the pad.			

	Time: 2:54 pm	Surveyor: SE, DC Date: 3/22/10	
Arrival	2:54 pm		
Departure	3:25 pm		
Site/Grid:	B-10	Original selected site: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Equipment serial no.: SN 83595/155900 RR #3, sensor #6
GPS coords: N 25.35098, W 80.39372			
Water depth (m): 0.02m		Tidal Condition: NA	
Air temp (°C): 21.9		Water temp (°C): 21.6	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	14083 14103	21.8 21.9	/
40	18728	22.3	
60	16931 16927	22.2 22.3	
Notes: 0cm: 1544 NS/cm 21.6°C Eleocharis marsh w/ some <i>Saggrass</i> (<10%) and scattered dead mangroves. Dense <i>Eleo</i> (~1.0m tall), a lot of dead standing biomass			
Ecological observations of note: Scattered scrub <i>saggrass</i> in <i>Eleocharis</i> marsh. A lot of dead <i>Eleocharis</i> biomass (due to the deciduous nature of this species).			

	Time: 3:52 pm	Surveyor: DC, SE Date: 3/22/10	
Arrival	3:52 pm		
Departure	4:16 pm		
Site/Grid:	A-10	Original selected site: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Equipment serial no.: RR #3, sensor #6 SN 83595/155900
GPS coords: 25.35291°N, 80.40684°W			
Water depth (m): 0.03m avg		Tidal Condition: NA	
Air temp (°C): 22.9		Water temp (°C): 25.0	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	712, 713 1273.8 1273.8	25.0, 25.0 22.6 22.6	/
40	1645 1644	21.6 21.6	
60	1906, 1909	20.9, 21.0	
Notes: 0cm 712, 713 25.0, 25.0 ~3cm standing H <sub>2</sub> O; range: 2-5cm range in H <sub>2</sub> O depth Eleocharis <i>Saggrass</i> marsh (1.0m). periphyton layer on surface of ground. Scattered dead trunks of <i>Casuarina</i> . <i>Sabal palmetto</i> to NE (~20m NE) & E (15m).			
Ecological observations of note: <i>Saggrass</i> (1m) marsh, flowering on E of site. Trees to E of flowering <i>saggrass</i> (tree sp.: <i>Myrica</i> , <i>Myrsine</i> , <i>Salix</i> , <i>Persea</i> ) Periphyton (healthy) in shallow H <sub>2</sub> O.			



Time: 4:55 pm		Surveyor: SE, DC Date: 3/22/10	
Arrival	4:55 pm		
Departure	5:15 pm		
Site/Grid:	D-8	Original selected site: Yes <input checked="" type="radio"/> No <input type="radio"/>	Equipment serial no.: SN 83595/155900 RR #3, Sensor #6
GPS coords: 25.37411°N, 80.37009°W ✓			
Water depth (m): 0 (saturated)		Tidal Condition: NA	
Air temp (°C): 23.7 ✓		Water temp (°C): ∅	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	2695	21.5	/
40	3146	21.1	
60	3109, 3111	21.5, 21.6	
Notes:			
100m W of original site. No surface H <sub>2</sub> O but soil is moist. 0.75m Sawgrass marsh, tree islands located around. Nearest loc is island Southeast ~80m (dead Casuarina stumps, Rhiz, Myr., Sabal palmetto). Bedrock @ 57cm			
Ecological observations of note:			
Sawgrass marsh w/ scattered Rhiz + Conocarpus (~0.75m) Marsh (~0.75m) has no standing H <sub>2</sub> O w/ periphyton on surface (still moist). Cassytha observed on vegetation (sometimes quite dense)			

Time: 5:39 pm		Surveyor: SE, DC Date: 3/22/10	
Arrival	5:39 pm		
Departure	5:59 pm		
Site/Grid:	D-7	Original selected site: Yes <input checked="" type="radio"/> No <input type="radio"/>	Equipment serial no.: SN 83595/155900 RR #3, Sensor #6
GPS coords: 25.38577°N, 80.36903°W ✓			
Water depth (m): 0 m		Tidal Condition: NA	
Air temp (°C): 21.5 ✓		Water temp (°C): ∅	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	2945	20.5	/
40	3180	20.3	
60	3151	19.8	
Notes:			
~80m W of orig site. No surf standing H <sub>2</sub> O but soil still moist. Covered by periphyton. Bedrock @ 55cm			
Ecological observations of note:			
Tree islands in vicinity of this sawgrass marsh, in all directions. Rabbit scat observed on trail to site. <del>Also</del> Cassytha observed on sawgrass (~1m tall). Periphyton still moist.			

Time: 6:21 pm		Surveyor: DC, SE Date: 3/22/10	
Arrival	6:21 pm		
Departure	6:40 pm		
Site/Grid:	E-4	Original selected site: Yes/No	Equipment serial no.: SN 83595/155900 RR 3, Sensor 6
GPS coords: N 25.41999, W 80.35673			
Water depth (m): 0 m		Tidal Condition: 0	
Air temp (°C): 21.6		Water temp (°C): 0	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	4780 4778	21.0 21.0	
40	6939 6975	21.1 21.1	
60	6930 6926	20.7 20.8	
Notes:			
100 m W of original site. No surface H <sub>2</sub> O. 10 m N of a E-W transmission line post. 30 m NE of tree island.			
Ecological observations of note:			
Scattered Scrub red Mangroves (~1m) to East. Sawgrass (1m) marsh w/ <i>Cassipou</i> growing on plants near <del>beach</del> levee. <del>Ross alligator hole</del> <del>hole</del> <del>North of island</del> <del>Shannon</del> ↑ <del>had eyes</del> <del>Envoy</del>			

Time:		Surveyor:	
Date:		Date:	
Arrival			
Departure			
Site/Grid:		Original selected site: Yes/No	Equipment serial no.:
GPS coords:			
Water depth (m):		Tidal Condition:	
Air temp (°C):		Water temp (°C):	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20		(7.0)	
40			
60			
Notes:			
Ecological observations of note:			

	Time: <u>9:59 AM</u>	Surveyor: <u>KV SE</u> Date: <u>3/23/10</u>
Arrival	<u>9:59 AM</u>	
Departure	<u>Not recorded</u>	

Site/Grid:	<u>G2</u>	Original selected site: <u>Yes/No</u>	<u>RR 3 + T 1/1</u> <u>SV 83595 / 155900</u>
GPS coords: <u>N 25.44175 W 80.33123</u>			

Water depth (m): <u>N/A</u>	Water temp (°C):
Air temp (°C): <u>18.9</u>	

Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<u>45659</u>	<u>22.9</u>	
40	<u>45485</u>	<u>20.9</u>	
60	<u>50325</u>	<u>20.3</u>	

Notes:

- Site located along a tidal creek in a tall patch of red mangroves ~ 6m tall (KV)
- ~~Successful sample taken @ 20cm on 4th try~~ KV Sampler became clogged & had to be cleaned
- ~~Smk pulled from attempts 7, 8, & 9 + composited to obtain a reading~~

Ecological observations of note:

- ground is covered in crab holes
- site located ~ 2m East of tidal creek
- (KV)
- clocks on RR + Troll synchronized after 20cm sample
- (KV) ~~taken~~ but before 40 cm was recorded
- recorded

	Time:	Surveyor: <u>SE, KV</u> Date: <u>3/23/10</u>
Arrival	<u>11:09 AM</u>	
Departure		

Site/Grid:	<u>BB3</u>	Original selected site: <u>Yes/No</u>
GPS coords: <u>N</u>		

Water depth (m):	Water temp (°C):
Air temp (°C):	

Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			

Notes:

KV

Ecological observations of note:

Can't use sheet b/c it's in incorrect format for Bay samples

	Time:		Surveyor: KV, SE Date: 3/23/10
Arrival	11:09 AM		
Departure	11:39 AM		


Site/Grid:	BB3a	Original selected site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Equipment serial no.: RR3 + Troll 6 SN 83595/155900
------------	------	---	---

GPS coords: N 25.44140 W 80.32897

Water depth (m): 14 cm	Tidal Condition: <sup>KV</sup> low tide outgoing	
Air temp (°C): 21.2 ✓	Water temp (°C): 23.4 ✓ tide	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.
← water too shallow →		

Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	44376	23.4	
40 <sup>KV</sup>	4505A	21.1	
60	45473	20.9	

Notes:

- Surface water sp cond: 46685 <sup>(KV)</sup>  
Temp: 23.4  
- 20 cm recording incorrectly labeled "BB-3 Surface" in RR.  
Surface reading is labeled "BB-3 Actual Surface"  
- BB-3A sites are labeled as BB-3  depth

Ecological observations of note:

- Limestone marl substrate
- Mermaid's hairbrush Thalassia seagrass, and green algae growing sparsely. Thalassia is stunted + short
- several horseshoe crab are walking around the site.

	Time:		Surveyor: KV, SE Date: 3/23/10
Arrival	11:41 AM		
Departure	12:02 PM		

Site/Grid:	BB3b	Original selected site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Equipment serial no.: RR3 + Troll 6 SN 83595/155900
------------	------	---	---

GPS coords: N 25.44144 W 80.32894

Water depth (m): 13cm	Tidal Condition: tide outgoing	
Air temp (°C): 21.3 ✓	Water temp (°C): 23.9 ✓	
For Bay Samples: ←	Bottom temp (°C):	Bottom spec. cond.
Water too shallow →		

Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20 <sup>(KV)</sup>	443215	21.4	
40	44956	21.7	
60	41749	21.4	

Notes:

- Surface sp. cond: 46421  
Temp: 23.9  
- 20 cm sample has a lot of sediment  
- all samples have a lot of sediment

Ecological observations of note:

- excavated crab holes w/ piles of limestone marl observed ~10m <sup>(KV)</sup> NE of site
- similar to BB3a - limestone marl w/ sparse Thalassia, Mermaid's hairbrush, + green algae
- located in an area of sparse seagrass surrounded by areas of denser seagrass w/ brown algae attached - probably an edge effect

		Surveyor: SE KV Date: 3/23/10	
Arrival	1:26 PM		
Departure	1:45 PM		
Site/Grid:	E2 F2 (KV)	Original selected site: Yes/No	Equipment serial no.: SN 83595/155900 RR 3 + Troll 6
GPS coords: N 25.44176 W 80.34356 ✓			
Water depth (m): 1 cm		Tidal Condition:	
Air temp (°C): 26.8 ✓		Water temp (°C): 25.5 ✓	
For Bay Samples:		Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100			
Depth (cm)	Spec. Cond. (KV)	Temperature (°C)	Temp measured in-situ (°C):
20	<del>2312.3</del>	25.5 (KV)	/
40	<del>6679.1</del>	23.2 (KV)	
60	10155	24.0	
Notes:			
Surface water sp conductance - 2312.3 temp - 25.5°C S.p. Cond temp <del>23.2</del> 20 cm 6679.1 23.2 40 cm 7674.9 23.6			
Ecological observations of note:			
- ground covered w/ periphyton (1 cm thick) - site located in a patch of Juncus w/ intermixed Sawgrass and sparse scrub red mangroves - samples have distinct H <sub>2</sub> S odor - patch of Chara near the site			

		Surveyor: SE KV Date: 3/23/10	
Arrival	2:21 PM		
Departure	2:38 PM		
Site/Grid:	W1A	Original selected site: Yes/No	Equipment serial no.: SN 83595/155900 RR 3 + Troll 6
GPS coords: N 25.44676 W 80.37180			
Water depth (m): N/A		Tidal Condition:	
Air temp (°C): 25.2 ✓		Water temp (°C):	
For Bay Samples:		Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	849.59	23.8	/
40	905.67	22.2	
60	971.28	21.1	
Notes:			
- Site located in old riverine system			
Ecological observations of note:			
- thick layer of litter fall on the ground ✓ - canopy dominated by Brazilian Pepper, Salix, Lonicarpus, + Myrica - herbaceous layer dominated by sawgrass + Thelypteris SPA			

		Surveyor: SE, KV Date: 3/23/10	
Arrival	Time: 2:47 PM		
Departure	3:03 PM		
Site/Grid: <sup>W 3/23/10</sup> W1 <del>AB</del>		Original selected site: Yes <input checked="" type="radio"/> No <input type="radio"/>	Equipment serial no.: RR3 + Troll 6 SN 83595/155900
GPS coords: N 25.44674 W 80.37182			
Water depth (m): N/A		Tidal Condition:	
Air temp (°C): 21.5		Water temp (°C):	
For Bay Samples:		Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	776.63	24.2	
40	785.92	22.3	
60	900.55	21.9	
Notes:			
- Site located ~5m SE of W-1B in the middle of a river basin			
Ecological observations of note:			
<ul style="list-style-type: none"> <li>- Signs of animal use (Deer lay)</li> <li>- mix of freshwater (Cocoplum, Bay, Myrica, Conocarpus) + mangrove species</li> <li>- Several large <sup>Red</sup> mangroves ~6-8m tall</li> </ul>			

- Saw Lygodium ~1m SW of site
- South fork of river begins ~4m SW of site
- Chrysomelid patches + dense sawgrass prairie btwn palm drive + the site. Water on avg ~5cm deep

		Surveyor: KV, SE Date: 3/23/10	
Arrival	Time: 3:50 PM		
Departure	4:10 PM		
Site/Grid: C2		Original selected site: Yes <input checked="" type="radio"/> No <input type="radio"/>	Equipment serial no.: RR3 + Troll 6 SN 83595/155900
GPS coords: N 25.44273 W 80.37917			
Water depth (m): N/A		Tidal Condition:	
Air temp (°C): 28.8		Water temp (°C): N/A	
For Bay Samples:		Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	2208.6	23.0	
40	2607.7	21.8	
60	2401.5	23.1	
Notes:			
<ul style="list-style-type: none"> <li>- Hit bedrock @ 58cm depth</li> <li>- 20 + 40 cm samples were dark colored + smelled organic</li> <li>- 60 cm sample was cloudy w/ marl white</li> </ul>			
Ecological observations of note:			
<ul style="list-style-type: none"> <li>- herbaceous dominated by dense sawgrass</li> <li>- canopy does not exceed 2.5m, but Salix + Brazilian Pepper are present</li> <li>- Soil moist but not saturated</li> </ul>			

- Some tall persea east of the site
- Ardesia + Baccharis also present around the site

	Time:		Surveyor: <i>KN, SE</i> Date: <i>3/23/10</i>
Arrival	<i>4:43 PM</i>		
Departure	<i>4:57 PM</i>		
Site/Grid:	<i>C3</i>	Original selected site: <i>Yes/No</i>	Equipment serial no.: <i>RR 3 + Troll</i> <i>SN 83595/155900</i>
GPS coords: <i>N. 25.43442 W 80.38146</i>			
Water depth (m): <i>N/A</i>		Tidal Condition:	
Air temp (°C): <i>25.1</i> <i>24.5</i>		Water temp (°C): <i>N/A</i>	
For Bay Samples:		Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<i>2428.2</i>	<i>24.3</i>	
40	<i>2727.4</i>	<i>22.1</i>	
60	<i>3328.9</i>	<i>22.3</i>	
Notes:			
<i>Site located ~ 50 m south of the road</i>			
Ecological observations of note:			
<ul style="list-style-type: none"> <li>- located in a sawgrass prairie that has been burned in the last 1-2 months</li> <li>- Dead tree snags and some <sup>sparse</sup> <i>Cassia</i> <del>surround</del> surround the site</li> <li>- moist layer of periphyton covering the ground</li> <li>- sawgrass resprouting at site</li> </ul>			

		Surveyor: KN, SE	
Time:		Date: 3/23/10	
Arrival	5:03 PM		
Departure	5:20 PM		
Site/Grid:	B3	Original selected site: Yes/No	Equipment serial no.: RR3 + Troll 6 SN 83595/155900
GPS coords: N 25.43492 W 80.39346 /			
Water depth (m): N/A		Tidal Condition:	
Air temp (°C): 25.2 /		Water temp (°C): N/A	
For Bay Samples:		Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	814.49	22.3	
40	842.08	21.8	
60	852.52	21.8	
Notes:			
- Site located ~30m south of road in a sawgrass prairie that has burned recently (last 1-2 months) - 40 + 60 cm samples had mild H <sub>2</sub> S scent, but are mostly organic			
Ecological observations of note:			
- Chrynum lily resprouting at site - some Sabal palmettos + Cassia around the site (very sparse) - layer of moist periphyton coating the ground - sawgrass resprouting at site			

	Time: 9:26 am	Surveyor: KV, SE Date: 3/24/10	
Arrival	9:26 am		
Departure	9:42 am		
Site/Grid:	A5	Original selected site: Yes/No	Equipment serial no.: RR1 Probe #4 SN 83587/154841
GPS coords: N25.40831 W-80.40573			
Water depth (m): 0		Tidal Condition: 0	
Air temp (°C): 20.1		Water temp (°C): 0	
For Bay Samples:		Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100			
Depth (cm)	Spec. Cond. $\mu$ S	Temperature (°C)	Temp measured in-situ (°C):
20	1012.1	19.2	/
40	1211.9	19.5	
50/60	1209.0	19.1	
Notes: Site is open Sawgrass marsh w/ periphyton as part of the ground cover. Sparse <i>Peltandra</i> throughout landscape. Pushpoint did not reach 60 cm, but 58 cm $\rightarrow$ hit bedrock.			
Ecological observations of note:			

	Time: 9:50 am	Surveyor: KV SE Date: 3/24/10	
Arrival	9:50 am		
Departure	10:00 am		
Site/Grid:	A11	Original selected site: Yes/No	Equipment serial no.: RR1, Probe #4 SN 83587/154841
GPS coords: N 25.34072 W-80.40650			
Water depth (m): 0		Tidal Condition: 0	
Air temp (°C): 21.3		Water temp (°C): 0	
For Bay Samples:		Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100			
Depth (cm)	Spec. Cond. $\mu$ S	Temperature (°C)	Temp measured in-situ (°C):
20	24337	19.8	/
40	26874	20.2	
60	28012	20.7	
Notes: Soil is saturated but no standing water noted. Periphyton is thick and dominant with <i>Juncus</i> sp. Sunk red mangrove at 0.5m height average surrounding the site. <i>Conocarpus</i> stumps observed at site.			
Ecological observations of note: H <sub>2</sub> S odor is noted from 40 cm depth porewater sample. Site is ~20m from original pond			



Time: 10:05 am		Surveyor: SE, KV Date: 3/24/10	
Arrival	10:05 am		
Departure	10:16 am		
Site/Grid:	A9	Original selected site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Equipment serial no.: PR1 Probe #4 SN 83587/154841
GPS coords: N 25.36222 W 80.40604			
Water depth (m): 2.0 cm		Tidal Condition: <input checked="" type="checkbox"/>	
Air temp (°C): 21.3		Water temp (°C): <input checked="" type="checkbox"/>	
For Bay Samples:		Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100			
Depth (cm)	Spec. Cond. $\mu$ S	Temperature (°C)	Temp measured in-situ (°C):
20	4644.6	20.7	/
40	5086.8	20.2/0	
60	5004.1	20.9	
Notes:			
Surface water <sup>Sp cond</sup> <del>Spec</del> <input checked="" type="checkbox"/> SE 1770.0 $\mu$ S      Temp 18.5 °C			
Ecological observations of note:			
Open sawgrass marsh at 0.75m height with periphyton in groundcover. Love vine noted on sawgrass.			

Time: 10:21 am		Surveyor: KV, SE Date: 3/24/10	
Arrival	10:21 am		
Departure	10:29 am		
Site/Grid:	A8	Original selected site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Equipment serial no.: PR1 Probe #4 SN 83587/154841
GPS coords: <del>N 25.34 N 35</del> <sup>25.374110</sup> <del>N 25.34110</del> W 80.40540			
Water depth (m): <input checked="" type="checkbox"/>		Tidal Condition: <input checked="" type="checkbox"/>	
Air temp (°C): 24.2		Water temp (°C): <input checked="" type="checkbox"/>	
For Bay Samples:		Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100			
Depth (cm)	Spec. Cond. $\mu$ S	Temperature (°C)	Temp measured in-situ (°C):
20	2229.7	20.4	/
40	_____	_____	
60	_____	_____	
Notes:			
Bedrock hit at 20 <sup>SE</sup> cm 7 attempts made to find lower depths, other sites at 15 cm hit bedrock.			
Ecological observations of note:			
Open sawgrass marsh, Bottomwood, Casuarina and cabbage palms noted in landscape Periphyton noted on ground cover.			

	Time: 10:31am	Surveyor: SE, KV, JV Date: 3/24/10	
Arrival	10:31am		
Departure	10:40am		
Site/Grid:	A7	Original selected site: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Equipment serial no.: RR1 probe #4 SN 83587/154841
GPS coords: N 25.38544 W -80.40665 ✓			
Water depth (m): 0		Tidal Condition: N/A	
Air temp (°C): 23.5° ✓		Water temp (°C): 0	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	1992.5	21.4	/
40			
60			
Notes: Eleocharis sp. Periphyton and Sawgrass dominant at the site. Buttonwood free island to the south. Offroad trail noted going east/west. Soil is moist. Hit bedrock at 20cm. Attempted 5 other sites.			
Ecological observations of note: Eleocharis and sawgrass ~ 30 cm high. ✓			

	Time: 10:44am	Surveyor: 3/24/10 Date: SE KV JV	
Arrival	10:44am		
Departure	10:58am		
Site/Grid:	A6	Original selected site: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Equipment serial no.: RR1, Probe #4 SN 83587/154841
GPS coords: N 25.39698 W -80.40523 ✓			
Water depth (m): 0		Tidal Condition: N/A	
Air temp (°C): 25.7 ✓		Water temp (°C): 0	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	1289.6	21.6	/
40	1214.2	21.7	
60	1182.1	21.5	
Notes: Eleocharis sp. Periphyton and Sawgrass in open marsh. Soil is moist. Buttonwood dominant island to the west. ✓			
Ecological observations of note: 40 cm porewater sample has no H <sub>2</sub> S odor noted. ✓			

		Surveyor: KV JV SE Date: 3/24/10	
Arrival	11:09 am		
Departure	11:24 am		
Site/Grid:	B12	Original selected site: Yes <input checked="" type="radio"/> No <input type="radio"/>	Equipment serial no.: RR1 Probe #4 SN 83587/154841
GPS coords: N25.33294 W-80.39471			
Water depth (m): 0		Tidal Condition: N/A	
Air temp (°C): 23.0°		Water temp (°C): 0	
For Bay Samples:		Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100			
Depth (cm)	Spec. Cond. $\mu$ S	Temperature (°C)	Temp measured in-situ (°C):
20	37330	22.2°	/
40	60870	22.3°	
60	80188	22.4°	
Notes:			
Site is scrub red mangrove area, w/ mangroves at avg 0.5m height Moist soil found. Mangrove water snake noted at site 2 photos 40 cm porewater has strong H <sub>2</sub> S odor			
Ecological observations of note:			

		Surveyor: KV, SE, JFV Date: 3/24/10	
Arrival	11:36 am		
Departure	11:49 am		
Site/Grid:	B9	Original selected site: Yes <input checked="" type="radio"/> No <input type="radio"/>	Equipment serial no.: RR1 Probe #4 SN 83587/154841
GPS coords: N25.36304 W-80.39402			
Water depth (m): 0		Tidal Condition: N/A	
Air temp (°C): 24.7°		Water temp (°C): 0	
For Bay Samples:		Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	2740.0	21.4°	/
40	2783.1	21.1°	
60			
Notes:			
Soil is moist, but no surface water Site is open marsh dominated by Periphyton, seagrass and mixed with low vegetation Unable to reach 60 cm after 7 attempts made			
Ecological observations of note:			
Depth to bedrock is 28 cm			

		Surveyor: KV, JV, SE	
Time: 11:52am		Date: 3/24/10	
Arrival	11:52am		
Departure	12:08pm		
Site/Grid:	B8	Original selected site: Yes/No	Equipment serial no.: RR1, Probe #4 SN 83587/154841
GPS coords: N 25.37498 W 80.39034			
Water depth (m): $\checkmark$ 26.2		Tidal Condition: N/A	
Air temp (°C): <del>26.2</del> 26.2		Water temp (°C): $\checkmark$	
For Bay Samples:		Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	6394.2	21.8°	/
40	7925.0	21.5°	
<del>60</del> 52	7966.3	22.0	
Notes:			
Open sawgrass marsh w/scattered Cattail and Conocarpus throughout landscape. Tree island noted to the west.			
Helicopter unable to land on original site due to fuel trees.			
Ecological observations of note:			
Strong H <sub>2</sub> S odor at 40cm and 52cm depths			
Unable to reach 60cm after 5 attempts made			
B8 60 at actually 52cm depth			

		Surveyor: JFV, SE, KV	
Time: 12:11pm		Date: 3/24/10	
Arrival	12:11pm		
Departure	12:20pm		
Site/Grid:	B7	Original selected site: Yes/No	Equipment serial no.: RR1, Probe #4 SN 83587/154841
GPS coords: N 25.38614 W 80.39362			
Water depth (m): $\checkmark$		Tidal Condition: N/A	
Air temp (°C): 27.3°		Water temp (°C): $\checkmark$	
For Bay Samples:		Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	1461.0	23.8°	/
<del>30</del> 40	1583.0	23.9°	
<del>60</del>			
Notes:			
Depth to bedrock @ 30.0cm			
Penphyton, <sup>(KV)</sup> <del>and</del> sawgrass and Eleocharis sp. dominant open sawgrass marsh.			
Penphyton is dry and caked.			
Ecological observations of note:			
Unable to reach 60cm after 7 attempts			
File is B-7 30 in RR1 probe #4.			

		Surveyor: SE, KV, SEV	
Time: 12:23 pm		Date: 3/24/10	
Arrival	12:23 pm		
Departure	12:34 pm		
Site/Grid:	B6	Original selected site: Yes <input checked="" type="radio"/> No <input type="radio"/>	Equipment serial no.: RR1, Probe 4 SN 83587/154841
GPS coords: N 25.39656° W -80.39333°			
Water depth (m): 0		Tidal Condition: N/A	
Air temp (°C): 25.4		Water temp (°C): 0	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond. $\mu$ S	Temperature (°C)	Temp measured in-situ (°C):
20	1169.4	22.7°	/
40	1383.5	22.4°	
60			
Notes:			
<p>Depth to Bedrock @ <del>80.0cm</del> 45.0cm</p> <p>Only two porewater samples collected at 20cm + 40cm</p> <p>Periphyton is dry and caked.</p> <p>Site is 30 m south, southwest of original point.</p>			
Ecological observations of note:			
<p>Open Juncus marsh with periphyton + love vine.</p> <p>Conocarpus scattered throughout landscape at 1.25 m avg height</p>			

		Surveyor: SE, KV, JV	
Time: 12:36 pm		Date: 3/24/10	
Arrival	12:36 pm		
Departure	12:49 pm		
Site/Grid:	B5	Original selected site: Yes <input checked="" type="radio"/> No <input type="radio"/>	Equipment serial no.: RR1, Probe 4 SN 83587/154841
GPS coords: N 25.40915° W -80.39368°			
Water depth (m): 0		Tidal Condition: N/A	
Air temp (°C): 26.0		Water temp (°C): 0	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond. $\mu$ S	Temperature (°C)	Temp measured in-situ (°C):
20	1114.4	23.0°	/
40	1234.0	22.8°	
60	1196.0	22.7°	
Notes:			
<p>Open sawgrass marsh with thick periphyton on ground. Soil is moist.</p> <p>Sparse Eleocharis and sawgrass throughout landscape</p> <p>Periphyton is dry and caked.</p>			
Ecological observations of note:			

		Time: 12:51 pm		Surveyor: KV, SE, JV Date: 3/24/10	
Arrival		12:51 pm			
Departure		1:02 pm			
Site/Grid:		B4		Original selected site: Yes/No	
				Equipment serial no.: RIL 1 Probe #4 BN 83587/154841	
GPS coords: 25.41893 N -80.39362					
Water depth (m):		Ø		Tidal Condition: N/A	
Air temp (°C):		26.5°		Water temp (°C): Ø	
For Bay Samples:		Bottom temp (°C):		Bottom spec. cond.	
Aqua TROLL 100					
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):		
20	1570.2	23.5°			
40	1587.2	22.6°			
60					
Notes:					
Depth to bedrock is 40.0cm Made 7 attempts to reach 60.0cm Site is open sawgrass w/ periphyton as ground cover					
Ecological observations of note:					
Area recently burned estimated to have occurred 2 months past. H <sub>2</sub> S odor in 40 cm pore water sample with mar/					

		Time: 1:18 pm		Surveyor: KV, SE, JFV Date: 3/24/10	
Arrival		1:18 pm			
Departure		1:32 pm			
Site/Grid:		C9		Original selected site: Yes/No	
				Equipment serial no.: RIL 1 Probe #4 BN 83587/154841	
GPS coords: N 25.36273 W -80.37940					
Water depth (m):		Ø		Tidal Condition: N/A	
Air temp (°C):		27.1		Water temp (°C): Ø	
For Bay Samples:		Bottom temp (°C):		Bottom spec. cond.	
Aqua TROLL 100					
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):		
20	1255.1	24.4			
40					
60					
Notes:					
Soil is moist Depth to Bedrock is 25.0cm Open Sawgrass marsh w/ periphyton. Tree Island to the south.					
Ecological observations of note:					

		Time: 1:34 pm		Surveyor: KV, SE, JFV Date: 3/24/10	
Arrival		1:34 pm			
Departure		1:47 pm			
Site/Grid:		Original selected site: Yes <input checked="" type="radio"/> No <input type="radio"/>		Equipment serial no.: PRL1 Probe #4 SN 83587/154841	
C8					
GPS coords: N 25.37480° W-80.37942					
Water depth (m): <input checked="" type="checkbox"/>			Tidal Condition: N/A		
Air temp (°C): 27.2			Water temp (°C): <input checked="" type="checkbox"/>		
For Bay Samples:		Bottom temp (°C):		Bottom spec. cond.	
Aqua TROLL 100					
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):		
20	1293.2	23.7°	/		
40	1139.9	23.4°			
60	1852.4	24.6°			
Notes:					
Sawgrass marsh w/ periphyton as groundcover. Soil is moist. Love vine growing in Sawgrass. PVC pole installed in ground 10m to the east. Periphyton dry and caked.					
Ecological observations of note:					
Depth to bedrock is 60.0 cm.					

		Time: 1:50 pm		Surveyor: SE, JV, KV Date: 3/24/10	
Arrival		1:50 pm			
Departure		2:03 pm			
Site/Grid:		Original selected site: Yes <input checked="" type="radio"/> No <input type="radio"/>		Equipment serial no.: PRL1 - Probe #4 SN 83587/154841	
C7					
GPS coords: N 25.38549° W-80.38023					
Water depth (m): <input checked="" type="checkbox"/>			Tidal Condition: N/A		
Air temp (°C): 27.8 / 26.0°			Water temp (°C): <input checked="" type="checkbox"/>		
For Bay Samples: <input checked="" type="checkbox"/>		Bottom temp (°C):		Bottom spec. cond.	
Aqua TROLL 100					
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):		
20	853.79	23.8	/		
40	1026.0	22.9			
60	2				
Notes:					
Sawgrass marsh w/ periphyton on the ground. Site is 80m. Original site is 80m to the west. Tree Islands dot the surrounding area. Depth to bedrock is 40.0 cm.					
Ecological observations of note:					
Six attempts made to reach 60 cm. 2 pore water samples surveyed.					

		Surveyor: FV, SE, JFV	
Time: 2:09 pm		Date: 3/24/10	
Arrival	2:17 PM		
Departure	2:29 PM		
Site/Grid:	W9a	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: RR2, Probe #5 SN 81640/155883
GPS coords: N 25.38822 W 80.37524			
Water depth (m): N/A		Tidal Condition:	
Air temp (°C): 24.9		Water temp (°C): N/A	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	✓	✓	/
40	616.87	24.2	
60	345.15	22.9	
Notes:			
<ul style="list-style-type: none"> <li>- Site located in a tree island</li> <li>- Canopy dominated by Myrica + Ilex cassine</li> <li>- Lygodium and poison ivy are present</li> <li>- herbaceous dominated by Blechnum fern and sawgrass</li> <li>- could not obtain reading @ 20 cm depth</li> </ul>			
Ecological observations of note:			
<ul style="list-style-type: none"> <li>- heavy litter fall <sup>(KV)</sup></li> <li>- Ilex trees are ~4.5m tall</li> <li>- several dead Cassurina snags around the site</li> <li>- Cephalanthus also present</li> </ul>			

		Surveyor: KV, SE	
Time:		Date: 3/24/10	
Arrival	2:31 PM		
Departure	2:44 PM		
Site/Grid:	W9b	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: RR2, Probe #5 SN 81640/155883
GPS coords: N 25.38828 W 80.37530			
Water depth (m): N/A		Tidal Condition:	
Air temp (°C): 30.8		Water temp (°C): N/A	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	453.89	25.1	/
40	573.49	24.4	
60	557.24	24.2	
Notes:			
<ul style="list-style-type: none"> <li>- Located in an area of open canopy caused by dead Cassurina trunk falling b/c of heavy Lygodium infestation</li> </ul>			
Ecological observations of note:			
<ul style="list-style-type: none"> <li>- Lygodium + poison ivy located at site</li> <li>- Scattered Myrica + Ilex cassine in canopy</li> <li>- Cephalanthus + Blechnum dominate understory</li> <li>- Site is 5m northwest of <sup>(KV)</sup> W9a</li> </ul>			



		Surveyor: KV, SE, JFV	
Time:		Date: 3/24/2010	
Arrival	3:08 PM		
Departure	3:25 pm		
Site/Grid:	W8a	Original selected site: Yes <input checked="" type="radio"/> No <input type="radio"/>	Equipment serial no.: RR2 Troll 5 SN 81640/155883
GPS coords: N 25.38730 W 80.37113 ✓ W80.371134V 4/19/10			
Water depth (m): N/A		Tidal Condition:	
Air temp (°C): 24.1 ✓		Water temp (°C): N/A	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond. $\mu S$	Temperature (°C)	Temp measured in-situ (°C):
20	715.23	25.1°	/
40	584.29	23.8°	
60	638.63	22.5°	
Notes:			
- Site located ~ 120 km North of original site - Deer tracks observed outside of island.			
Ecological observations of note:			
- canopy dominated by Myrica, Ilex cassine, Ficus, & Magnolia virginiana - Dead Cassinina snags visible around the site - understory dominated by Blechnum fern, Virginia creepers, & poison ivy - Ligodum microphyllum observed along path to site w/in 4' of site.			

		Surveyor: KV, SE, JFV	
Time: 3:25 pm		Date: 3/24/10	
Arrival	3:25 pm		
Departure	3:35 pm		
Site/Grid:	W8b	Original selected site: Yes <input checked="" type="radio"/> No <input type="radio"/>	Equipment serial no.: RR2 Troll 5 SN 81640/155883
GPS coords: N 25.38733 W 80.37113 ✓			
Water depth (m): 0		Tidal Condition: N/A	
Air temp (°C): 25.4°C ✓		Water temp (°C): 2	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond. $\mu S$	Temperature (°C)	Temp measured in-situ (°C):
20	739.02	24.3°	/
40	604.75 <del>604.75</del>	21.9 22.0°	
60	683.17	22.2°	
Notes:			
Site is 5m west of W8a. Area has prevalent poison ivy. Site is under a Coccoloba tree. Blechnum scr. v. latifolium, coccoloba saplings & poison ivy dominant in herbaceous layer. Magnolia virginiana, & Ilex cassine dominant canopy. A number of dead casuarina noted in area.			
Ecological observations of note:			
Leaf litter on the ground W8b 20 is in RR#2 W8 20			

	Time: 3:49 pm	Surveyor: KV, SE, JFV Date: 3/24/10	
Arrival	3:49 pm		
Departure	4:04 pm		
Site/Grid:	U6	Original selected site: Yes/No	Equipment serial no.: K12 Probe #5 SN 81640/155883
GPS coords: N 25.39666° W 80.37778°			
Water depth (m): 0		Tidal Condition: N/A	
Air temp (°C): 29.8°		Water temp (°C): 0	
For Bay Samples:		Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	884.85	22.6°	/
40	1184.70	22.2°	
60	1494.12	21.6	
Notes: Site is Sawgrass marsh w/ dry Periphyton on ground. Site has Cove vine growing over sawgrass. Site is 15m from original point. Dead tree stumps noted in landscape. Sawgrass at 0.25m tall. Cattail patch noted to the north, 25m away.			
Ecological observations of note: Tree Island noted to the South.			

	Time: 4:07 pm	Surveyor: KV, JFV, SE Date: 3/24/10	
Arrival	4:07 pm		
Departure	4:24 pm		
Site/Grid:	C5	Original selected site: Yes/No	Equipment serial no.: RP2, Probe #5 SN 81640/155883
GPS coords: N 25.40774° W 80.37735°			
Water depth (m): 0		Tidal Condition: N/A	
Air temp (°C): 23.0		Water temp (°C): 0	
For Bay Samples:		Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	1484.1	21.2	/
40	2073.6	20.9	
60	2933.1	21.1	
Notes: Sawgrass marsh composed mostly of Periphyton and Cove vine. Periphyton is dry. Scattered scrub conocarpus and scrub red mangrove noted throughout the landscape.			
Ecological observations of note: Area is less dense with more dead than vegetation site than other sites. Site is ± 10m away from original point.			

		Surveyor: Ju, SE, KV Date: 3/29/10	
Time: 4:29 pm			
Arrival	4:29 pm		
Departure	4:38 pm		
Site/Grid:	C4	Original selected site: Yes <input checked="" type="radio"/> No <input type="radio"/>	Equipment serial no.: RR 2, Probe #5 SN 81640/155883
GPS coords: N 25.41934 W -80.38079			
Water depth (m): 0		Tidal Condition: N/A	
Air temp (°C): 22.7°		Water temp (°C): 0	
For Bay Samples:		Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	2492.3	21.1°	/
40	2531.5	20.4°	
60	2369.9	20.4°	
Notes: Site is 15m from original point. Site is Sawgrass marsh w/ periphyton on ground surface. Fire recently burned through ~ 1-2 months past. Burned tree islands noted throughout the landscape			
Ecological observations of note: Depth to bedrock is 60.0cm, strong H <sub>2</sub> S odor at 60.0cm.			

		Surveyor: KV, SE, JEV Date: 3/29/10	
Time: 4:42 pm			
Arrival	4:42 pm		
Departure	4:56 pm		
Site/Grid:	D2	Original selected site: Yes <input checked="" type="radio"/> No <input type="radio"/>	Equipment serial no.: RR 2, Probe #5 SN 81640/155883
GPS coords: N 25.44202 W -80.36830			
Water depth (m): 6.0 cm		Tidal Condition: N/A	
Air temp (°C): 26.9°		Water temp (°C): 22.4°	
For Bay Samples:		Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	714.48 <del>540.37</del> (KV)	21.0° <del>22.4°</del> (EV)	/
40	1007.8	21.3°	
60	1149.8	21.6°	
Notes: Site is 20m north of original point. Site is Cattail sp. + sawgrass marsh. Conocarpus and Myr trees noted sparsely throughout landscape. Cattail + tree height ~ 2m avg ht.			
Ecological observations of note: <div style="display: flex; justify-content: space-around;"> <span>surface water</span> <span>spec cond 540.37 µS</span> <span>Temp 22.4°C</span> </div>			

	Time: 4:58pm	Surveyor: KV, SE, JFV
Arrival	4:58pm	Date: 3/24/10
Departure	5:13pm	

Site/Grid:	E2	Original selected site: Yes/No	RR2 Probe #5 SN 81640/155883
GPS coords:	N25.44152 W-80.35609		

Water depth (m):	Ø
Air temp (°C): 22.5°	Water temp (°C): Ø

Aqua TROLL 100			
Depth (cm)	Spec. Cond. µS	Temperature (°C)	Temp measured in-situ (°C):
20	1288.7	22.7°	/
40	1677.0	21.4°	
60	1778.4	20.9°	

Notes: Site is 12 m west of original site. Site is Sawgrass marsh w/dry periphyton, Cocoplum saplings, Callail and Casuarina dotted throughout the landscape. Hal noted in 20 cm, 40 cm + 60 cm samples.

Ecological observations of note:

	Time: 5:16pm	Surveyor: KV, SE, JFV
Arrival	5:16pm	Date: 3/24/10
Departure	5:30pm	

Site/Grid:	D4	Original selected site: Yes/No	RR2 Probe #5 SN 81640/155883
GPS coords:	N25.41940 W-80.36849		

Water depth (m):	Ø
Air temp (°C): 24.3°	Water temp (°C): Ø

Aqua TROLL 100			
Depth (cm)	Spec. Cond. µS	Temperature (°C)	Temp measured in-situ (°C):
20	1513.7	21.8°	/
40	2323.0	21.1°	
60	2728.7	20.0°	

Notes: Site is 12m north of original pt. Site is sawgrass marsh with sub real mangrove ~~the~~ scattered throughout the landscape. Peniphyton on the ground surface is dry and caked.

Ecological observations of note:  
D4 20 is labeled as E-4 20

	Time: 5:34 pm	Surveyor: KV, SE, JFV	
Arrival	5:34 pm	Date: 3/24/10	
Departure	5:48 pm		
Site/Grid: D5			
Original selected site: Yes (No)		Equipment serial # 81640 and 155883	
GPS coords: N25.40821 W-80.36852			
Water depth (m): 0		Water temp (°C): 0	
Air temp (°C): 23.4°			
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	21057.8	21.2°	
40	1209.5	20.6°	
60	1498.1	20.4°	
Notes: Site is 20m northeast of original point. Sawgrass marsh with burned tree islands throughout landscape. Area recently burned (1-2 months past). Sawgrass at 0.25m aught. Penphytin noted on ground surface			
Ecological observations of note:			

	Time:	Surveyor:	
Arrival		Date:	
Departure			
Site/Grid:			
Original selected site: Yes/No			
GPS coords:			
Water depth (m):		Water temp (°C):	
Air temp (°C):			
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			(KV)
40			
60			
Notes:			
Ecological observations of note:			

	Time: 8:47am	Surveyor: KV, JFV, SE Date: 3/25/10
Arrival	8:47am	
Departure	9:10am	

Site/Grid:	W6a	Original selected site: Yes/No	RR1, Probe #4 SN 83587/154841
GPS coords:	N25.40639	W-80.36423	

Water depth (m):	Ø	
Air temp (°C):	21.1°	Water temp (°C): Ø

Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	611.78	23.8°	
40	744.72	22.6°	
60	988.48	22.2°	

Notes: site is 80m west of the original point.  
Site is inside a tree island dominated by *Butternut* canopy at 5m avg ht.  
Understory is *Blechnum scriblatum* fern, *Acrostichum* and *Cephalanthus*.

Ecological observations of note:  
*Lygodium microphyllum* is very prevalent at site.  
15 individuals noted surrounding the point of reproductive leaves.  
Heavy leaf litter on ground surface.

	Time: 9:11am	Surveyor: KV, SE, JFV Date: 3/25/10
Arrival	9:11am	
Departure	9:21am	

Site/Grid:	W6b	Original selected site: Yes/No	RR1, Probe #4 SN 83587/154841
GPS coords:	N25.40639	W-80.36420	

Water depth (m):	Ø	
Air temp (°C):	21.4°	Water temp (°C): Ø

Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40	940.76	22.4°	
60	1586.6	22.5°	

Notes: Site is located 3m east of W6a.  
Site is under a Red mangrove in the head of the tree island w/ a dead Brazilian pepper adjacent to the site. Heavy leaf litter. Unable to obtain porewater at 20cm after 5 attempts.

Ecological observations of note:  
Same dominant canopy + understory as W6a. Strong H<sub>2</sub>S odor noted in 60cm porewater sample.  
Obtained only 2 porewater samples for survey.

	Time: 9:39am	Surveyor: KV, SE, JFV
Arrival	9:39am	Date: 3/25/10
Departure	9:51 AM	

Site/Grid:	W7a	Original selected site: Yes/No	RR 1, Proj #4 SN 83587/15484
GPS coords:	N 25.40350°	W 80.36907	✓

Water depth (m):	0	
Air temp (°C):	23.5°	✓
Water temp (°C):	0	

Aqua TROLL 100			
Depth (cm)	Spec. Cond. $\mu S$	Temperature (°C)	Temp measured in-situ (°C):
20			/
40	575.33	22.1°	
60	558.81	21.6°	

Notes: Site is 30m southeast of original site.  
Site is inside a tree island within near tail portion.  
Dominant canopy is cocoplum, Persca and Hagnolia at 3.0m avg ht. Understory is Blechnum fern and Cocoplum saplings.

Ecological observations of note:  
Heavy leaf litter noted.  
No porewater obtained at 20 cm after 8 attempts.  
Deer tracks noted outside the island.

	Time: 9:52am	Surveyor: KV, SE, JFV
Arrival	9:52am	Date: 3/25/10
Departure	10:01am	

Site/Grid:	W7b	Original selected site: Yes/No	RR 1, Proj #4 SN 83587/15484
GPS coords:	N 25.40350	W 80.36911	✓

Water depth (m):	0	
Air temp (°C):	23.3°	✓
Water temp (°C):	0	

Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			/
40	509.98	22.0°	
60	515.06	21.9°	

Notes: Dominant canopy is Myrica caribea and Persca. Herbaceous layer is Blechnum spp. and Cephalanthus occ.d.  
Heavy leaf litter on ground.

Ecological observations of note:  
No porewater obtained at 20.0cm after seven attempts.  
2 porewater samples surveyed.

	Time: 10:13am	Surveyor: KV, SE, JFV
Arrival	10:13am	Date: 3/25/10
Departure	10:27am	

Site/Grid:	D6	Original selected site: Yes/No	Equipment serial no.: RR1 Probe #4 SN 83587/154841
------------	----	--------------------------------	--

GPS coords: N25.39669° W-80.36867°

Water depth (m):	✓	Tidal Condition: N/A
Air temp (°C):	26.0°	Water temp (°C):
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.

Aqua TROLL 100			
Depth (cm)	Spec. Cond. $\mu S$	Temperature (°C)	Temp measured in-situ (°C):
20			
40	1135.4	24.1°	
52-60	1011.1	23.4°	

Notes:  
Depth to bedrock is 55.0cm  
Site is sawgrass marsh with dry periphyton and Love vine.  
Soil is moist.  
Cabbage palm, Coccolupum and Buttonwood scattered throughout landscape at 1.25m.

Ecological observations of note:  
Sawgrass ht avg of 1.0m ht.  
Unable to obtain porewater at 20.0cm after 6 attempts  
Love vine growing over shrubs as well.  
Porewater samples have marl.

	Time: 10:33am	Surveyor: KV, SE, JFV
Arrival	10:33am	Date: 3/25/10
Departure	10:47am	

Site/Grid:	D9	Original selected site: Yes/No	Equipment serial no.: RR1 Probe 4 SN 83587/154841
------------	----	--------------------------------	---

GPS coords: N25.36285° W-80.36874°

Water depth (m):	✓	Tidal Condition: N/A
Air temp (°C):	24.3°	Water temp (°C):
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.

Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	2235.3	23.7°	
40	4027.1	23.1°	
60			

Notes:  
Site is an open patch of sawgrass marsh. Soil is moist w/ periphyton dry and cracked.  
Depth to bedrock at 40.0cm.  
Unable to obtain 60cm sample for survey

Ecological observations of note:  
Strong H<sub>2</sub>S odor in 40.0cm sample.



	Time: 10:53 am	Surveyor: SE, KV, JFV Date: 3/25/10	
Arrival	10:53 am		
Departure	11:09 am		
Site/Grid:	G10	Original selected site: Yes/No	Equipment serial no.: RR1 33587 / 154841
GPS coords: N 25.35511° W 80.33216°			
Water depth (m): 0		Tidal Condition: N/A	
Air temp (°C): 25.9°		Water temp (°C): 0	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond. $\checkmark$	Temperature (°C)	Temp measured in-situ (°C):
20	47103	23.1	
40	50226	23.1	
60	51779	22.5	
Notes: Site is ~300m north of original point. Site is scrub red mangrove basin w/ red mangroves ~0.5m sparse throughout landscape. Tree Island noted ~100m to west. Strong H <sub>2</sub> S odor in all porewater samples.			
Ecological observations of note:			

	Time:	Surveyor: SE, KV Date: 3/23/10	
Arrival	1:01 PM		
Departure	1:17 PM		
Site/Grid:	F11	Original selected site: Yes/No	Equipment serial no.: RR1 + Tolly SU 33587 / 154841
GPS coords: N. 25.34045 / W. 80.34590			
Water depth (m): N/A		Tidal Condition:	
Air temp (°C): 24.1		Water temp (°C): N/A	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	47255	24.9	
40	50146	24.9	
60	57215	24.5	
Notes: - located in a scrub <sup>red</sup> mangrove surrounded by tree islands. - Substrate is very soft - tree islands are w/in a 150 m radius of the site			
Ecological observations of note: - Site is located ~180m West of original site			

	Time:	Surveyor: KV, SE Date: 3/25/10	
Arrival	2:09 PM		
Departure	2:23 PM		
Site/Grid:	E11	Original selected site: <input checked="" type="checkbox"/> Yes/ <input type="checkbox"/> No	Equipment serial no.: RR1 Troll 4 SN 83587/154841
GPS coords: N 29.34021 W 80.35651 ✓			
Water depth (m): N/A		Tidal Condition:	
Air temp (°C): 26.6 ✓		Water temp (°C): N/A	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	48282	26.7	/
40	58232	25.2	
60	72867	24.8	
Notes:			
<ul style="list-style-type: none"> <li>- site located in an area of scrub red mangroves, with sparse black mangroves intermixed. ✓</li> <li>- substrate is very soft, moist marl</li> </ul>			
Ecological observations of note:			
<ul style="list-style-type: none"> <li>- several small tree islands surround the site w/in a 40 ft radius - predominantly composed of red mangroves</li> </ul>			

5

	Time:	Surveyor: KV, SE Date: 3/25/10	
Arrival	5:35 PM		
Departure	5:57 PM		
Site/Grid:	B2	Original selected site: <input checked="" type="checkbox"/> Yes/ <input type="checkbox"/> No	Equipment serial no.: RR1 + Troll 4 SN 83587/154841
GPS coords: N 25.44774 W 80.39375 ✓			
Water depth (m): N/A		Tidal Condition:	
Air temp (°C): 23.7 ✓		Water temp (°C): N/A	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	633.11	22.8	/
40	629.63	22.3	
60	638.51	22.1	
Notes:			
<ul style="list-style-type: none"> <li>- site had to be relocated due to access problems and private property concerns</li> <li>- site located ~20m south of palm drive on <del>Nor</del> Dade county property</li> </ul>			
Ecological observations of note:			
<ul style="list-style-type: none"> <li>- canopy dominated by Salix, Ardesia, <sup>(a)</sup> Ilex cassine, and Cassurina</li> <li>- understory dominated by Ardesia seedlings + an unknown cane grass (~4m tall)</li> </ul>			
<ul style="list-style-type: none"> <li>- 5 attempts made to reach 60 cm depth, but bedrock was hit at 52 cm.</li> </ul>			

	Time:	Surveyor: KV, SE, MM Date: 3/26/10	
Arrival	9:57 AM		
Departure	10:21 AM		
Site/Grid:	G-H <sup>(2)</sup> 2	Original selected site: <input checked="" type="radio"/> Yes / <input type="radio"/> No	Equipment serial no.: RR1 TROLL 4 83587/154841
GPS coords: N. 25.44150 W 80.32481			
Water depth (m): 1.48		Tidal Condition: Ebb	
Air temp (°C): 26.9°C		Water temp (°C): 23.4°C	
For Bay Samples:	Bottom temp (°C): 23.9	Bottom spec. cond. 48666	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	46059	25.5	
40			
60			
Notes:			
Surface water: Sp cond <sup>(KV)</sup> <del>46059</del> 42573 $\mu$ S Temp <sup>(KV)</sup> <del>25.5°C</del> 23.4°C - Hit bedrock @ 18cm after more than 20 tries; some spots were only 2-3 cm to bedrock.			
Ecological observations of note:			
- bare rock substrate is visible from boat, w/ scattered patches of <del>sand</del> seagrass (Thalassia) - Note: Bottom measurements will <u>not</u> be logged. These two parameters will only be read.			

	Time:	Surveyor: KV, SE, MM Date: 3/26/10	
Arrival	10:35 AM		
Departure	10:45 AM		
Site/Grid:	H2	Original selected site: <input checked="" type="radio"/> Yes / <input type="radio"/> No	Equipment serial no.: RR1 TROLL 4 83587/154841
GPS coords: N 25.44266 W. 80.31950			
Water depth (m): 1.52		Tidal Condition: Ebb	
Air temp (°C): 27.7°C		Water temp (°C):	
For Bay Samples:	Bottom temp (°C): 23.5°C	Bottom spec. cond. 49331	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	—	—	—
40	—	—	—
60	—	—	—
Notes:			
Depth to refusal from 3-15 cm. Avg = 10 cm. - No samples collected as any substrate (sand, shell) depth was 10 cm. Tried about 20 times. Surface spec cond: 49090 @ 23.7°C			
Ecological observations of note:			
No veg. Algae (brown) + some calcareous algae observed: sparse coverage.			

	Time:	Surveyor: SE, KV, MM Date: 3/26/10	
Arrival	10:58 AM		
Departure	11:09 AM		
Site/Grid:	HI 2	Original selected site: <input checked="" type="radio"/> Yes / <input type="radio"/> No	Equipment serial no.: SN 83587/154841 RR1 Troll 4
GPS coords: N 25.44141 W 80.31226 /			
Water depth (m): 1.73 m		Tidal Condition: Ebb	
Air temp (°C): 26.7°C /		Water temp (°C): 23.3	
For Bay Samples:	Bottom temp (°C): 23.2	Bottom spec. cond. 50173	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes:			
Surface : <u>Spec cond</u> <u>Temp</u> 50202 23.3°C - Almost immediate refusal. Bedrock hit within the first 1-2cm. No samples could be measured.			
Ecological observations of note:			
No seagrass. Sparse brown algae			

2

	Time:	Surveyor: KV, SE, MM Date: 3/26/10	
Arrival	11:26 AM		
Departure	11:37 AM		
Site/Grid:	I 2	Original selected site: <input checked="" type="radio"/> Yes / <input type="radio"/> No	Equipment serial no.: SN 83587/154841 RR1 Troll 4
GPS coords: <del>N 25.44141 W 80.31226</del> (KV) N 25.44160 W 80.30638			
Water depth (m): 1.80		Tidal Condition: Ebb	
Air temp (°C): 27.8 /		Water temp (°C): 23.3	
For Bay Samples:	Bottom temp (°C): 23.3	Bottom spec. cond. 49475	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes:			
Surface <u>Sp cond</u> <u>temp</u> 49303us 23.3°C - Bedrock ranged from 3cm - 12cm Avg ≈ 5cm - could not obtain any readings.			
Ecological observations of note:			
- soft coral (Gorgonia) and algae on bottom - Sand/silt substrate			

High tide @ T. Point @ 12:17 pm  
Low tide @ T. Point @ 3:15 pm

		Surveyor: KV, SE, MM	
Time:		Date: 3/26/10	
Arrival	11:49 AM		
Departure	11:58 AM		
Site/Grid:	IJ2	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: RR1 TROLL 4 SN 83587/154841
GPS coords: N. 25.44158 W. 80.30018			
Water depth (m): 1.70		Tidal Condition: Ebb	
Air temp (°C): 28.2		Water temp (°C): 23.3	
For Bay Samples:	Bottom temp (°C): 23.3	Bottom spec. cond. 49784	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes:			
Surface <u>Sp Cond</u> <u>Temp</u> 49816 23.3 - Bedrock ranged from 0-10cm Avg = 3cm - Sandy/silty Bottom			
Ecological observations of note:			
SPARSE DRIFT ALGAE single <i>Borsonia</i> (small) ~ 25cm			

		Surveyor: KV, SE, MM	
Time:		Date: 3/26/10	
Arrival	12:10 PM		
Departure	12:53 PM		
Site/Grid:	J2	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: RR1 TROLL 4 SN 83587/154841
GPS coords: N. 25.44162 W. 80.29.401			
Water depth (m): 1.65		Tidal Condition: Ebb	
Air temp (°C): 27.5		Water temp (°C): 23.3	
For Bay Samples:	Bottom temp (°C): 23.2	Bottom spec. cond. 50271	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	42244	26.0	
40			
60			
Notes:			
- Site is located ~ 50 m NE of <del>area</del> "DANGER Shoal" sig <u>Sp Cond</u> <u>Temp</u> Surface 50105 $\mu$ S 23.3°C			
Ecological observations of note:			
- ground covered w/ <i>Thalassia</i> - hit bedrock at 25-30 cm depth on greater than 20 attempts - sandy/silty Substrate			

		Surveyor: <u>KV, SE, MM</u> Date: <u>3/26/10</u>	
Arrival	Time: <u>1:26 PM</u>		
Departure	<u>1:53 PM</u>		
Site/Grid:	<u>I8</u>	Original selected site: <u>Yes/No</u>	Equipment serial no.: <u>RR1 Toll 4</u> <u>SN 83587/154841</u>
GPS coords: <u>N. 25.37393 W. 80.30669</u>			
Water depth (m): <u>1.43</u>		Tidal Condition: <u>Ebb</u>	
Air temp (°C): <u>26.5</u>		Water temp (°C): <u>24.4°C</u>	
For Bay Samples:	Bottom temp (°C): <u>24.3</u>	Bottom spec. cond.: <u>49994</u>	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<u>50160</u>	<u>26.6</u>	
40	<u>-</u>	<u>-</u>	<u>-</u>
60			
Notes:			
<u>Sp and Temp</u> <u>surface 49844 us 24.4°C</u> - sandy-silt substrate w/ some shell. - depth to refusal: 15-20 cm, avg: 18 cm. - probed ~ 20 times.			
Ecological observations of note:			
<u>Sparse Halodule, some calcareous bryalgae;</u> <u>scattered sponges &amp; Acropora corals.</u>			

4

		Surveyor: <u>SE, MM, KV</u> Date: <u>3/26/10</u>	
Arrival	Time: <u>2:19 PM</u>		
Departure	<u>2:43 PM</u>		
Site/Grid:	<u>H9</u>	Original selected site: <u>Yes/No</u>	Equipment serial no.: <u>RR1 Toll 4</u> <u>SN 83587/154841</u>
GPS coords: <u>N. 25.36946 W 80.31925</u>			
Water depth (m): <u>N/A</u>		Tidal Condition: <u>Ebb</u>	
Air temp (°C): <u>27.8</u>		Water temp (°C): <u>N/A</u>	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.:	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<u>84495</u>		
40	<u>86963</u>	<u>25.3</u>	
60		<u>24.1</u>	
Notes:			
<del>- Not located at the mouth of a <u>that creek</u> <u>swamp</u></del> <del><u>swamp</u></del> - No <del>water</del> <u>water</u> at 20 cm - South of creek (~50m) and ~50m from shore.			
Ecological observations of note:			
- Basin mangrove forest ~12m tall - a lot of garbage scattered around - forest dominated by black mangroves w/a few red mangroves + scattered white mangroves - open understory - Sample collected beneath a large black mangrove tree			

	Time:	Surveyor: KV, SE, MM	
Arrival	3:46 pm	Date: 3/26/10	
Departure	3:55 pm		
Site/Grid:	<del>001</del> (K) F12	Original selected site: Yes (K) No	Equipment serial no.: RR1 Troll 4 SN 83587/154841
GPS coords: N. 25° 32' 21" W. 080° 34' 26"			
Water depth (m): N/A		Tidal Condition: Low	
Air temp (°C): 25.4°		Water temp (°C):	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50431	25.2	/
40	54111	23.9	
60	58392	24.1	
Notes: SOIL SATURATED MANGROVE PEAT RED MANGROVE FOREST APPROXIMATELY 8m tall 20m FROM FRINGE 40cm samples have strong Hydrogen Sulfide odor + brown			
Ecological observations of note: MANGROVE FOREST APPROXIMATELY 8m tall monospecific canopy			

	Time:	Surveyor: KV, SE, MM	
Arrival	4:50 PM	Date: 3/26/10	
Departure	5:15 PM		
Site/Grid:	E13	Original selected site: Yes (K) No	Equipment serial no.: RR1 Troll 4 SN 83587/154841
GPS coords: N. 25.31777 W. 80.35654			
Water depth (m): 1.65		Tidal Condition:	
Air temp (°C): 26.1		Water temp (°C):	
For Bay Samples:	Bottom temp (°C): 24.5	Bottom spec. cond. 45678	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	48074	24.7	/
40	51007	25.2	
60	44834	24.8	
Notes: <del>Site located ~300m Northeast of original point</del> <del>Point</del> Sp. cond Temp (K) Surface 45666us 24.6°C - substrate silt/sand w/ thick Thalassia bed			
Ecological observations of note:			

	Time:	Surveyor: KV, MM	
Arrival	9:10AM	Date: 3/27/10	
Departure	9:37AM		
Site/Grid:	GH3	Original selected site: <input checked="" type="radio"/> Yes/No	Equipment serial no.: RR1 Troll 4 SN 83587/154841
GPS coords: N 25.43029 W 80.32495			
Water depth (m): 1.15		Tidal Condition: High	
Air temp (°C): 20.5		Water temp (°C): 22.8	
For Bay Samples:	Bottom temp (°C): 22.9	Bottom spec. cond. 50843	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	47622	22.4	/
40	45804	21.5	
60	50010	21.2	
Notes: Surface <u>Sp cond</u> <u>temp</u> 50958 22.8			
- All 3 samples smelled strongly of H <sub>2</sub> S			
Ecological observations of note:			
- Thalassia + Drift algae present at site - Sediment was mostly silt w/ some sand			

	Time:	Surveyor: KV, MM	
Arrival	9:45AM	Date: 3/27/10	
Departure	10:03AM		
Site/Grid:	H3	Original selected site: <input checked="" type="radio"/> Yes/No	Equipment serial no.: RR1 Troll 4 SN 83587/154841
GPS coords: N 25.43029 W 80.31888			
Water depth (m): 1.58		Tidal Condition:	
Air temp (°C): 22.3		Water temp (°C):	
For Bay Samples:	Bottom temp (°C): 22.7	Bottom spec. cond. 51976	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			/
40			
60			
Notes: Surface <u>Sp cond</u> <u>Temp</u> Surface <input checked="" type="radio"/> Hit bedrock <del>at</del> at btwn 2 - 12 cm on 20 attempts Avg depth to bedrock ~ 3.4 cm <input checked="" type="radio"/> KV			
Ecological observations of note:			
- Substrate is sandy w/ shell hash - Some algae ( <i>Dasycladia</i> spp) is present at the site, but is very sparse.			



		Surveyor: KV, MM	
Time:		Date: 3/27/10	
Arrival	10:09 AM		
Departure	10:36 AM		
Site/Grid:	GH4	Original selected site: <input checked="" type="checkbox"/> Yes/No	Equipment serial no.: RR1 Troll 4 SN 83587/154841
GPS coords: N. 25.41899 W. 80.32485			
Water depth (m): 1.40		Tidal Condition: High	
Air temp (°C): 22.7		Water temp (°C): 23.1	
For Bay Samples:	Bottom temp (°C): 23.3	Bottom spec. cond.: 50972	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	48331	22.8	/
40	49702	22.7	
53.60	49235	23.2	
Notes: Surface <u>Sp cond</u> 51086 <u>Temp</u> 23.1°C			
<del>Depth to bedrock 53 cm sample taken at 20</del>			
<ul style="list-style-type: none"> <li>- Depth to bedrock 53 cm</li> <li>- Samples had H<sub>2</sub>S odor</li> </ul>			
Ecological observations of note:			
<ul style="list-style-type: none"> <li>- Sparse Thalassia &amp; brown algae on sandy silty substrate w/ some shell hash</li> </ul>			

		Surveyor: KV, MM	
Time:		Date: 3/27/10	
Arrival	10:45 AM		
Departure	11:17 AM		
Site/Grid:	H4	Original selected site: <input checked="" type="checkbox"/> Yes/No	Equipment serial no.: RR1 Troll 4 SN 83587/154841
GPS coords: N. 25.41909 W. 80.31868			
Water depth (m): 1.77		Tidal Condition: Ebb	
Air temp (°C): 24.3		Water temp (°C): 23.3	
For Bay Samples:	Bottom temp (°C): 23.1	Bottom spec. cond.: 50808	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50043	24.3	/
40			
60			
Notes: <u>Sp cond</u> <u>Temp</u>			
Surface 50637 <u>us</u> 23.3°C			
<ul style="list-style-type: none"> <li>- Depth to bedrock ~20 cm</li> <li>- 10 attempts were made to reach 40 cm, but could not be achieved.</li> </ul>			
Ecological observations of note:			
<ul style="list-style-type: none"> <li>- very sparse Thalassia &amp; brown algae</li> <li>- Sand/silt substrate w/ some shell hash</li> <li>- H<sub>2</sub>S odor in sample</li> </ul>			

	Time:	Surveyor: KV MM Date: 3/27/10	
Arrival	11:22 AM		
Departure	12:03 PM		
Site/Grid:	GHS	Original selected site: <u>Yes</u> /No	Equipment serial no.: RR1 Troll 4 SN 83587/154841
GPS coords: N. 25.40776 W. 80.32504			
Water depth (m): 1.22		Tidal Condition: <u>Ebb</u>	
Air temp (°C): 25.4		Water temp (°C): 24.0	
For Bay Samples:	Bottom temp (°C): 23.8	Bottom spec. cond. 51050	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50225	25.3	
40	50053	24.9	
57-60	47219	25.8	
Notes:			
<p>Surface <u>Sp Cond</u> <u>Temp</u>  <u>50874</u> <u>24.0</u></p> <p>- samples <u>(ED)</u> were difficult to retrieve b/c of very fine sediment</p> <p>- depth to bedrock 57cm</p> <p>- Samples had H<sub>2</sub>S odor</p>			
Ecological observations of note:			
<p>- Sparse Thalassia w/ some brown algae + drift algae (mostly dead)</p> <p>- Sandy/silty substrate w/ some shell hash.</p>			

	Time:	Surveyor: KV MM Date: 3/27/10	
Arrival	12:21 PM		
Departure	<del>12:32 PM</del> (KV)		
Site/Grid:	H5	Original selected site: <u>Yes</u> /No	Equipment serial no.: RR1 Troll 4 SN 83587/154841
GPS coords: N. 25.40778 W. 80.31901			
Water depth (m): 1.35		Tidal Condition: <u>Ebb</u>	
Air temp (°C): 25.9		Water temp (°C): 23.9	
For Bay Samples:	Bottom temp (°C): 24.2	Bottom spec. cond. 50740	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52085	24.9	
40			
60			
Notes:			
<p>Surface <u>Sp Cond</u> <u>Temp</u>  <u>51038</u> <u>23.9</u></p> <p>- Depth to bedrock ~ 20 cm</p> <p>- Sample <u>(ED)</u> smelled of H<sub>2</sub>S</p> <p>- midday verification performed after this point</p>			
Ecological observations of note:			
<p>- Sparse Thalassia, brown algae, mermaid's hairbrush observed</p> <p>- Substrate sandy w/ shell hash</p> <p><u>(KV)</u></p>			

		Surveyor: KV, MM Date: 3/27/10	
Arrival	Time: 12:51 PM		
Departure	1:17 PM		
Site/Grid:	G46	Original selected site: <input checked="" type="checkbox"/> Yes/No	Equipment serial no.: RR1 + Troll 4 SN 83587/154841
GPS coords: N 25.39646 W. 80.32489			
Water depth (m): 0.94		Tidal Condition: Ebb	
Air temp (°C): 28.4		Water temp (°C): 25.0	
For Bay Samples:	Bottom temp (°C): 24.9	Bottom spec. cond.: 50675	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50394	26.3	
40	50195	27.0	
60	49255	27.3	
Notes: <u>Sp Cond</u> <u>Temp</u> Surface 50475 25.0			
- samples smelled of H <sub>2</sub> S			
Ecological observations of note:			
- moderate Thalassia coverage w/ some brown algae - Substrate sandy/silty w/ shell hash			

		Surveyor: KV, MM Date: 3/27/10	
Arrival	Time: 1:28 PM		
Departure	1:47 PM		
Site/Grid:	H6	Original selected site: <input checked="" type="checkbox"/> Yes/No	Equipment serial no.: RR1 + Troll 4 SN 83587/154841
GPS coords: N. 25.39652 W. 80.31899			
Water depth (m): 1.03		Tidal Condition: Ebb	
Air temp (°C): 29.1		Water temp (°C): 25.2	
For Bay Samples:	Bottom temp (°C): 25.06	Bottom spec. cond.: 50786	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50110	25.8	
40	49205	27.0	
60			
Notes: <u>Sp Cond</u> <u>Temp</u> Surface 50495 25.2			
- Depth to bedrock ~48cm after >10 attempts - samples had H <sub>2</sub> S odor			
Ecological observations of note:			
- Moderate Thalassia on silty substrate			

		Surveyor: KV/MM	
Time:		Date: 3/27/10	
Arrival	1:57 PM		
Departure	2:22 PM		
Site/Grid:	H16	Original selected site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Equipment serial no.: RR1 + Troll 4 SN 83587/154841
GPS coords: N 25.39643 W. 80.31249			
Water depth (m): 0.95		Tidal Condition: Ebb	
Air temp (°C): 30.8		Water temp (°C): 25.0	
For Bay Samples:	Bottom temp (°C): 25.0	Bottom spec. cond. 50850	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50967	26.6	
40	53393	25.6	
56 60	54652	25.3	
Notes:			
Surface $\frac{Sp\ cond}{50839}$ $\frac{Temp}{25.0}$ - Depth to bedrock ~56cm - Sample had hrs odor			
Ecological observations of note:			
- Thalassia (moderate), unknown algae observed at site - Substrate silty w/ some shell hash			

		Surveyor: KV/MM	
Time:		Date: 3/27/10	
Arrival	2:40 PM		
Departure	2:53 PM		
Site/Grid:	H15	Original selected site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Equipment serial no.: RR1 + Troll 4 SN 83587/154841
GPS coords: N 25.40765 W. 80.31246			
Water depth (m): 1.00		Tidal Condition: Ebb	
Air temp (°C): 29.3		Water temp (°C): 25.1	
For Bay Samples:	Bottom temp (°C): 25.1	Bottom spec. cond. 50621	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes:			
- Depth to bedrock < 5cm after > 10 <del>attempts</del> <sup>attempts</sup> (K) Surface $\frac{Sp\ cond}{50588}$ $\frac{Temp}{25.1}$			
Ecological observations of note:			
- Sand & shell hash substrate (K) - Dasyatis + Thalassia (S) both sparse observed at site (K) - For corals observed between H16 & H15 as well as a possible baby hammerhead			

		Surveyor: KV/MM	
Time:		Date: 3/27/10	
Arrival	3:02 PM		
Departure	3:23 PM		
Site/Grid:	HI 4	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: RR1 Troll 4
GPS coords: N. 25.41883 W. 80.31248 ✓			
Water depth (m): 1.47		Tidal Condition: Ebb	
Air temp (°C): 31.0		Water temp (°C): 24.8 ✓	
For Bay Samples:	Bottom temp (°C): 24.6	Bottom spec. cond. 51015	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
18 <del>20</del>	50415	26.7	/
40			
60			
Notes:			
Depth to bedrock 18cm			
Surface $\frac{sp. cond}{50813 \mu s}$ $\frac{temp}{24.8^\circ C}$			
Ecological observations of note:			
<ul style="list-style-type: none"> <li>- Sparse Thalassia + various green algae</li> <li>- Substrate sandy w/ shell hash</li> </ul>			

		Surveyor: KV/MM	
Time:		Date: 3/27/10	
Arrival	3:30 PM		
Departure	3:45 PM		
Site/Grid:	HI 3	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: RR1 Troll 4
GPS coords: N. 25.43035 W. 80.31245 ✓			
Water depth (m): 1.48		Tidal Condition: Low	
Air temp (°C): 28.3		Water temp (°C): 25.1 ✓	
For Bay Samples:	Bottom temp (°C): 24.8	Bottom spec. cond. 50281	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			/
40			
60			
Notes:			
Depth to bedrock ~5cm on > 10 attempts			
Surface $\frac{sp. cond}{49992 \mu s}$ $\frac{Temp}{25.1^\circ C}$			
Ecological observations of note:			
<ul style="list-style-type: none"> <li>- Sparse Thalassia + various green algae</li> <li>- Substrate sandy w/ shell hash</li> <li>- some sponges also observed at site</li> <li>- Drift algae also noted</li> </ul>			

		Surveyor: KV, MM	
Time:		Date: 3/31/10	
Arrival	8:53 AM		
Departure	9:24 AM		
Site/Grid:	I3	Original selected site: <input checked="" type="radio"/> Yes / <input type="radio"/> No	Equipment serial no.: SN 81640/155883 RR2 Toll 5
GPS coords: N. 25.43034 / W. 80.30630			
Water depth (m): 1.85		Tidal Condition: Flood	
Air temp (°C): 17.7°C		Water temp (°C): 20.2°C	
For Bay Samples:	Bottom temp (°C): 20.3	Bottom spec. cond. 50471	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20		<del>20.13</del> (20)	
40			
60			
Notes:			
Surface <u>Sp. Cond</u> <u>Temp</u> 50723 us 20.2°C			
- Could not obtain any porewater samples - Depth to bedrock between 2 and 15 cm on >10 attempts.			
Ecological observations of note:			
<ul style="list-style-type: none"> <li>- <del>Drift algae</del> Moderate drift algae</li> <li>- Gorgonian soft coral observed at site</li> <li>- Very sparse Thalassia</li> <li>- Sandy shell hash substrate</li> </ul>			

		Surveyor: KV, MM	
Time:		Date: 3/31/10	
Arrival	9:27 AM		
Departure	10:05 AM		
Site/Grid:	I33	Original selected site: <input checked="" type="radio"/> Yes / <input type="radio"/> No	Equipment serial no.: SN 81640/155883 RR2 Toll 5
GPS coords: N. 25.43037 / W. 80.30016			
Water depth (m): 1.81		Tidal Condition: Flood	
Air temp (°C): 20.3°C		Water temp (°C): 20.2°C	
For Bay Samples:	Bottom temp (°C): 20.3	Bottom spec. cond. 50688	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50628	19.7°C	
40			
60			
Notes:			
Surface <u>Sp. Cond</u> <u>Temp</u> 50924 us 20.2°C			
<ul style="list-style-type: none"> <li>- Most 20cm attempts resulted in immediate refusal</li> <li>- When we did get 20cm, the sampler kept <del>was</del> (20) floating up.</li> </ul>			
Ecological observations of note:			
<ul style="list-style-type: none"> <li>- Several Gorgonian soft corals (some dead, most alive) observed</li> <li>- Also several small <del>Acropora</del> Acropora hard stony corals observed (some dead, most alive)</li> <li>- Numerous crab holes in the area. Most attempts for 20cm resulted in immediate refusal. It is possible that we only reached 20cm b/c it was a crab hole.</li> <li>- Note: This was the first site where Mark had to get into the water to sample.</li> <li>- Drift algae also noted at site (sparse)</li> <li>- Sandy shell hash substrate</li> </ul>			

	Time:	Surveyor: KN, MM Date: 3/31/10	
Arrival	10:13AM		
Departure	10:36AM		
Site/Grid:	J3	Original selected site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Equipment serial no.: RR2, Troll S SN 81640/155883
GPS coords: N. 25.43047 W. 80.29402			
Water depth (m): 1.95		Tidal Condition: Flood	
Air temp (°C): 21.2		Water temp (°C): 20.2	
For Bay Samples:	Bottom temp (°C): 20.5	Bottom spec. cond.: 51832	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50615	21.2	
40			
60			
Notes: Surface <u>Sp. Cond</u> <u>Temp</u> 52144 is 20.2°C			
<ul style="list-style-type: none"> <li>- Mark was in the water; depth to bedrock was 20cm</li> <li>- &gt;10 attempts made to reach 40 cm - unsuccessful</li> </ul>			
Ecological observations of note:			
<ul style="list-style-type: none"> <li>- Both dead + live Gorgonian soft corals observed</li> <li>- Dead Acropora stony corals present</li> <li>- <del>Abundant</del> Sparse Drift algae</li> <li>- Sandy shell hash substrate</li> </ul>			

	Time:	Surveyor: KV, MM Date: 3/31/10	
Arrival	10:41AM		
Departure	11:03AM		
Site/Grid:	J4	Original selected site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Equipment serial no.: SN 81640/155883 RR2, Troll S
GPS coords: N. 25.41906 W 80.29398			
Water depth (m): 1.66		Tidal Condition: Flood	
Air temp (°C): 21.2		Water temp (°C): 20.4	
For Bay Samples:	Bottom temp (°C): 20.5	Bottom spec. cond.: 52308	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
48969 → 40		21.0	
40			
60			
Notes: Surface <u>Sp. Cond</u> <u>Temp</u> 52463 20.4			
<ul style="list-style-type: none"> <li>- Bedrock ~ 28 cm on &gt;10 attempts to reach 40cm</li> <li>- very soft layer of sediment - easy to penetrate</li> </ul>			
Ecological observations of note:			
<ul style="list-style-type: none"> <li>- Very sparse Thalassia observed</li> <li>- Sparse drift algae + Gorgonians</li> <li>- Dead pieces of Acropora noted</li> <li>- Sediment composed mainly of very coarse sand</li> </ul>			

	Time:	Surveyor: KV, MM Date: 3/31/10	
Arrival	11:11 AM		
Departure	11:36 AM		
Site/Grid:	I54	Original selected site: <input checked="" type="radio"/> Yes / <input type="radio"/> No	Equipment serial no.: RR2 + Troll 5 SN 81640/155883
GPS coords: N. 25.41893 / W. 80.30004			
Water depth (m): 1.78		Tidal Condition: High	
Air temp (°C): 20.4		Water temp (°C):	
For Bay Samples:	Bottom temp (°C): 20.8	Bottom spec. cond.: 52141	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes:			
- Bedrock at ~5cm on >10 attempts (almost immediate refusal) Surface <u>second</u> <u>Temp</u> 51743 $\mu$ S      21.0°C			
Ecological observations of note:			
- Moderate Dasycladis coverage observed - very sparse Halodule + Thalassia - sparse patches of drift algae observed - one healthy piece of un-ID'd stoney coral noted (small)			

	Time:	Surveyor: KV, MM Date: 3/31/10	
Arrival	11:42 AM		
Departure	12:00 PM		
Site/Grid:	I4	Original selected site: <input checked="" type="radio"/> Yes / <input type="radio"/> No	Equipment serial no.: RR2 + Troll 5 SN 81640/155883
GPS coords: N. 25.41915 / W. 80.30628			
Water depth (m): 1.78		Tidal Condition: High	
Air temp (°C): 20.9		Water temp (°C): 20.9	
For Bay Samples:	Bottom temp (°C): 20.9	Bottom spec. cond.: 49541	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes:			
Surface <u>second</u> <u>Temp</u> 49265 $\mu$ S      20.9°C - Bedrock btwn 5-10 cm on >10 attempts			
Ecological observations of note:			
- several large patches of drift algae - moderate Dasycladis coverage - several small Gorgonians observed - very sparse Thalassia			



		Surveyor: KV, MM	
Time:		Date: 3/31/10	
Arrival	12:33 PM		
Departure	12:48 PM		
Site/Grid:	BB 6A	Original selected site: Yes/No	Equipment serial no.: RP2 Troll 5 SN 81640/155883
GPS coords: N. 40605, 40605 W 80.32894			
Water depth (m): 0.47		Tidal Condition: High	
Air temp (°C): 23.2		Water temp (°C): 21.3	
For Bay Samples:	Bottom temp (°C): 21.2	Bottom spec. cond. 50320	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	47929	22.6	
40	49651	21.7	
60	50375	21.6	
Notes:			
<p>- Area of turbidity noted ~ 830 m NE of BB 6A entered into "Swampy" GPS. Probe was inserted into turbid water (Not logged, read only) &amp; readings were normal (~50000 uS @ 20.8°C)</p> <p>- BB 6A located in a small inward cut in the land - sample taken near the <del>accretion</del> a line of red mangroves that extends out into the inlet. (w) surface 50217 uS 21.3°C</p>			
Ecological observations of note:			
<p>- Sediment very silty</p> <p>- very sparse Thalassia observed</p> <p>- line of red mangroves adjacent to the point</p> <p>- samples smelled of H<sub>2</sub>S</p>			

Note: BB-6A labeled as "BB-6" in RR

		Surveyor: KV, MM	
Time:		Date: 3/31/10	
Arrival	1:09 PM		
Departure	1:23 PM		
Site/Grid:	BB 6B	Original selected site: Yes/No	Equipment serial no.: RP2 Troll 5 SN 81640/155883
GPS coords: N. 25, 40601 W. 80.32898			
Water depth (m): 0.43		Tidal Condition: High	
Air temp (°C): 22.8		Water temp (°C): 21.3	
For Bay Samples:	Bottom temp (°C): 21.8	Bottom spec. cond. 50358	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	48463	22.5	
40	49865	22.0	
60	51883	21.9	
Notes:			
<p>- site located ~ 3m SE of BB-6A</p> <p>surface <u>sp cond</u> <u>temp</u> 50308 uS 21.8°C</p>			
Ecological observations of note:			
<p>- Sediment very silty</p> <p>- very sparse Thalassia observed</p> <p>- line of red mangroves near the point (including several juveniles)</p> <p>- samples smelled of H<sub>2</sub>S</p>			

		Surveyor: KJ/MM	
Time:		Date: 3/31/10	
Arrival	1:46 PM		
Departure	2:13 PM		
Site/Grid:	BB8A	Original selected site: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Equipment serial no.: SN 81640/155883 RR2, Troll 5
GPS coords: N. 25.40236 / W. 80.31955			
Water depth (m): 0.87		Tidal Condition: Ebb	
Air temp (°C): 22.1		Water temp (°C): 21.8	
For Bay Samples:	Bottom temp (°C): 21.9	Bottom spec. cond. 50211	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	48069	24.1	
40	47822	23.2	
60	48942	23.2	
Notes:			
- Site located in a very <del>barren</del> dense patch of seagrass in an otherwise barren landscape (KJ) Surface <u>sp. cond</u> <u>temp</u> 50342      21.8			
Ecological observations of note:			
- Located in a very dense patch of Thalassia w/ sparse to moderate Halodule mixed in - Site is located close to the middle of the patch of grass. - Samples smell of H <sub>2</sub> S			

Note: ~~BB8A~~ + 40 incorrectly labeled as BB8B 20 + 40  
BB8A

		Surveyor: KJ/MM	
Time:		Date: 3/31/10	
Arrival	2:14 PM		
Departure	2:41 PM		
Site/Grid:	BB8B	Original selected site: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Equipment serial no.: SN 81640/155883 RR2 Troll 5
GPS coords: N. 25.40237 / W. 80.31961			
Water depth (m): 1.30		Tidal Condition: Ebb	
Air temp (°C): 24.1		Water temp (°C): 22.6	
For Bay Samples:	Bottom temp (°C): 22.3	Bottom spec. cond. 50068	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50905	24.2	
40	49501	22.9	
60			
Notes:			
- site located ~ 3 m NW of BB-8A in a bald spot w/in the dense patch of seagrass - Depth to bedrock ~ 48 cm surface <u>sp. cond</u> <u>temp</u> (KJ) <del>48</del> 49697 w 22.6°C			
Ecological observations of note:			
- Coarse sandy substrate - Green algae, Mojara fish observed in bald spot - Samples smell of H <sub>2</sub> S			

Note BB-6B 20 + 40 labeled BB-6B actual 20 + 40

	Time:	Surveyor: KV, MM Date: 3/31/10	
Arrival	3:04 PM		
Departure	3:26 PM		
Site/Grid:	IS	Original selected site: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Equipment serial no.: SN 81640/155883 RR2 Troll 5
GPS coords: N. 25.40781 / W. 80.30645			
Water depth (m): 1.20		Tidal Condition: Ebb	
Air temp (°C): 25.5		Water temp (°C): 22.0	
For Bay Samples:	Bottom temp (°C): 21.8	Bottom spec. cond. 50396	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	49681	23.7	
37 <del>40</del>	49088	22.8	
60			
Notes:			
- Point located NW of West Arsenicker Island - Depth to bedrock 37 cm Surface $\frac{sp\ cond}{50162}$ $\frac{temp}{22.0}$			
Ecological observations of note:			
- Sparse Thalassia <del>sp</del> , Dasycladus, + other green algae - sandy shell hash substrate			

	Time:	Surveyor: KV, MM Date: 3/31/10	
Arrival	3:41 PM		
Departure	3:56 PM		
Site/Grid:	ISS	Original selected site: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Equipment serial no.: RR2 Troll 5 SN 81640/155883
GPS coords: N. 25.40770 / W. 80.30013			
Water depth (m): 1.17		Tidal Condition: Ebb <input checked="" type="checkbox"/>	
Air temp (°C): 25.8		Water temp (°C): <del>22.0</del> 22.4	
For Bay Samples:	Bottom temp (°C): 22.6	Bottom spec. cond. 50744	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50696	23.0	
40			
60			
Notes:			
- site located ~ 150m NE of West Arsenicker Island - Depth to bedrock ~ 25 cm Surface $\frac{sp\ cond}{50942}$ $\frac{temp}{22.4}$			
Ecological observations of note:			
- Moderate Thalassia + Drift algae coverage - Some green algae (looks like a lily pad w/ very thin stalk) - Substrate very coarse shell hash			

		Surveyor: KV, MM Date: 3/31/10	
Arrival	Time: 4:08 PM		
Departure	4:27 PM		
Site/Grid:	BBS-A	Original selected site: <input checked="" type="radio"/> Yes / <input type="radio"/> No	Equipment serial no.: RR2 Troll 5 SN 81640/155883
GPS coords: N. 25.40916 / W. 80.29819			
Water depth (m): 1.37		Tidal Condition: Ebb	
Air temp (°C): 25.5		Water temp (°C): 21.9	
For Bay Samples:	Bottom temp (°C): 21.9	Bottom spec. cond.: 50632	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	49718	22.8	/
40	48807	22.2	
60	49149	22.6	
Notes: - site located in a <sup>patch</sup> of dense Thalassia ~ 300m NE of West Atsinecker Island surface <sup>sp cond</sup> 50625 <sup>temp</sup> 21.9°C - Samples smell of H <sub>2</sub> S			
Ecological observations of note: - Dense Thalassia w/ sparse drift algae - a cup sponge present ~ 2m S of sample point point			

		Surveyor: KV, MM Date: 3/31/10	
Arrival	Time: 4:28 PM		
Departure	4:47 PM		
Site/Grid:	BBS B	Original selected site: <input checked="" type="radio"/> Yes / <input type="radio"/> No	Equipment serial no.: RR2 Troll 5 SN 81640/155883
GPS coords: N. 25.40932 / W. 80.29826			
Water depth (m): 1.37		Tidal Condition: Ebb	
Air temp (°C): 23.6		Water temp (°C): 22.1	
For Bay Samples:	Bottom temp (°C): 22.1	Bottom spec. cond.: 50596	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50533	22.4	/
40	49487	22.5	
60	49918	22.6	
Notes: - Site located ~ 3 m E of BB-5A - Samples smell of H <sub>2</sub> S surface <sup>sp cond</sup> 50552 <sup>temp</sup> 22.1			
Ecological observations of note: - Dense Thalassia w/ sparse drift algae			

	Time:	Surveyor: KV, MM Date: 3/31/10	
Arrival	4:53 PM		
Departure	5:15 PM		
Site/Grid:	J5	Original selected site: Yes/No	Equipment serial no.: RR2 Troll 5 SN 81640/155883
GPS coords: N. 25.40758 / W. 80.29398			
Water depth (m): 134		Tidal Condition: Ebb	
Air temp (°C): 24.6		Water temp (°C): 21.9	
For Bay Samples:	Bottom temp (°C): 21.8	Bottom spec. cond. 50819	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50827	22.1	
40			
60			
Notes:			
Surface <u>Sp. cond</u> <u>Temp</u> <del>50790</del> 50790a5 21.9°C - Depth to bedrock ~25cm - Samples smelled of H <sub>2</sub> S			
Ecological observations of note:			
- <del>several</del> <sup>several</sup> Gorgonians observed at & around site (more prevalent than other areas; approx 1 every 4 m <sup>2</sup> or so) - sparse Thalassia - some moderate drift algae & Dasycladus			

	Time:	Surveyor: KV, MM Date: 3/31/10	
Arrival	5:35 PM		
Departure	5:47 PM		
Site/Grid:	BB7A	Original selected site: Yes/No	Equipment serial no.: RR2 Troll 5 SN 81640/155883
GPS coords: N 25.40462 / W. 80.28829			
Water depth (m): 1.11		Tidal Condition: Ebb	
Air temp (°C): 25.8		Water temp (°C): 22.0	
For Bay Samples:	Bottom temp (°C): 22.1	Bottom spec. cond. 51089	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes:			
- Immediate refusal; Depth to bedrock 2-10cm on > 10 attempts Surface <u>Sp. cond</u> <u>Temp</u> 51062us 22.0°C			
Ecological observations of note:			
- <del>extensive</del> <sup>extensive</sup> Gorgonians observed all around site - <del>orange sponges</del> <sup>orange sponges</sup> some orange sponges growing on and around Gorgonians - moderate drift algae - coarse sand/shell hash substrate - Sparse small Porites hard corals scattered around the site Note: BB7 surface = BB7A surface			

		Surveyor: KV, MM	
Time:		Date: 3/31/10	
Arrival	5:48 PM		
Departure	6:04 PM		
Site/Grid:	BB-7B	Original selected site: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Equipment serial no.: R22 Troll 5 SN 81640/155883
GPS coords: N. 25.40463 / W. 80.28829			
Water depth (m): 1.10		Tidal Condition: Ebb	
Air temp (°C): 24.1 /		Water temp (°C): 22.0 /	
For Bay Samples:	Bottom temp (°C): 22.1 /	Bottom spec. cond. 51007 /	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
1820	50699	22.2	
40			
60			
Notes:			
<del>Immediate refusal</del> Depth to bedrock ~18cm on > 10 attempts Surface $\frac{\text{sp. cond}}{51132 \mu\text{S}}$ $\frac{\text{temp}}{22.0^\circ\text{C}}$ - located ~3m East of BB-7A			
Ecological observations of note:			
- Similar to BB-7A - extensive Gorgonians all around site - sparse small Porites hard coral scattered around site - orange sponges growing on & around Gorgonians - moderate drift algae coverage - substrate sand/shell hash			

		Surveyor:	
Time:		Date:	
Arrival			
Departure			
Site/Grid:		Original selected site: Yes/No	Equipment serial no.:
GPS coords:			
Water depth (m):		Tidal Condition:	
Air temp (°C):		Water temp (°C):	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20		(KV)	
40			
60			
Notes:			
Ecological observations of note:			

**April 2010**

		Surveyor: KV, MM	
Time:		Date: 4/1/10	
Arrival	10:02 AM		
Departure	10:33 AM		
Site/Grid:	D13	Original selected site: <input checked="" type="checkbox"/> Yes/No	Equipment serial no.: SN 83587/15484/ RR1 Troll 4
GPS coords: N. 25.31795 ✓ W. 80.36915 ✓			
Water depth (m): 1.93		Tidal Condition: Flood	
Air temp (°C): 25.5°C ✓		Water temp (°C): 22.5 ✓	
For Bay Samples:		Bottom temp (°C): 22.3 ✓	Bottom spec. cond.: 43879 ✓
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50354	23.5	/
40	50929	23.6	
60	49043	23.6	
Notes:			
surface $\frac{\text{sp. cond.}}{43747_{\mu\text{S}}} \frac{\text{temp}}{22.5^{\circ}\text{C}}$ - samples had H <sub>2</sub> S odor			
Ecological observations of note:			
- Dense Thalassia Bed - One large fish or mammal was <del>near the site</del> <sup>predating near the site</sup> <del>predating</del> <sup>(W)</sup> - jellyfish observed near the site			

		Surveyor: KV, MM	
Time:		Date: 4/1/10	
Arrival	10:39 AM		
Departure	10:56 AM		
Site/Grid:	D14	Original selected site: <input checked="" type="checkbox"/> Yes/No	Equipment serial no.: SN 83587/15484/ RR1 Troll 4
GPS coords: N. 25.30653 ✓ W. 80.36921 ✓			
Water depth (m): 1.91		Tidal Condition: Flood	
Air temp (°C): 25.7 ✓		Water temp (°C): 22.5 ✓	
For Bay Samples:		Bottom temp (°C): 22.4 ✓	Bottom spec. cond.: 43007 ✓
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			/
40			
60			
Notes:			
surface $\frac{\text{sp. cond.}}{42941_{\mu\text{S}}} \frac{\text{temp}}{22.5^{\circ}\text{C}}$ - Depth to bedrock ~ 4cm on >10 attempts			
Ecological observations of note:			
- Immediate sampling area has moderate Dasycladus + drift algae coverage, w/ some of the MID green algae that looks like a lilly pad - Gorgonians scattered throughout the area <sup>Acetabularia</sup> - coarse sand & shell hash substrate			



	Time:	Surveyor: KJ, MM Date: 4/1/10	
Arrival	11:26 AM		
Departure	11:45 AM		
Site/Grid:	C14	Original selected site: Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>	Equipment serial no.: RR1 Troll 4 SN 83587/154841
GPS coords: N. 25.30668 - W. 80.37738			
Water depth (m): N/A		Tidal Condition: Flood	
Air temp (°C): 25.8 / 24.8		Water temp (°C): N/A	
For Bay Samples: <input checked="" type="radio"/>	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40	53341	23.6	
60	59803	23.8	
Notes:			
<ul style="list-style-type: none"> <li>- site located ~ 50m from original point</li> <li>- site adjacent to large black mangrove in an otherwise homogeneous red mangrove forest (8m tall, <del>otherwise</del> <sup>otherwise</sup>)</li> <li>- fungus growing on many of red mangroves</li> </ul>			
Ecological observations of note:			
<ul style="list-style-type: none"> <li>- Samples smelled of H<sub>2</sub>S</li> <li>- 60 cm sample distinct reddish tint; 40 cm sample was light-yellow/amber color</li> <li>- No water @ 20cm</li> </ul>			

	Time:	Surveyor: KJ, MM Date: 4/1/10	
Arrival	12:03 PM		
Departure	12:53 PM		
Site/Grid:	E14	Original selected site: Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>	Equipment serial no.: SN 83587/154841 RR1 Troll 4
GPS coords: N. 25.30646 - W. 80.35646			
Water depth (m): 2.51		Tidal Condition: Flood	
Air temp (°C): 26.4		Water temp (°C): 22.6	
For Bay Samples:	Bottom temp (°C): 23.1	Bottom spec. cond.: 44616	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	44949	25.2	
40	50241	22.2	
60	50798	23.7	
Notes:			
<ul style="list-style-type: none"> <li>- difficult to retrieve samples below 20cm - substrate becomes a thick clay at 40+ cm</li> <li>- samples smell of H<sub>2</sub>S</li> </ul> <p style="text-align: right;">surface <math>\frac{sp\ cond}{44811\ \mu S}</math> <math>\frac{temp}{22.6^{\circ}C}</math></p>			
Ecological observations of note:			
<ul style="list-style-type: none"> <li>- moderate Thalassia coverage</li> <li>- 2 jellyfish (Ctenophore) drifting in the water column</li> </ul>			

		Surveyor: KJ, MM	
Time:		Date: 4/1/10	
Arrival	1:02 PM		
Departure	1:43 PM		
Site/Grid: F14		Original selected site: Yes/No <input checked="" type="checkbox"/>	Equipment serial no.: SN 83587/154841 RR1 Troll 4
GPS coords: N. 25.30638 - W. 80.34386			
Water depth (m): 1.55		Tidal Condition: High	
Air temp (°C): 27.1		Water temp (°C):	
For Bay Samples:	Bottom temp (°C): 22.1	Bottom spec. cond. 46960	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	47149	25.2	
40	42113	23.6	
60	49192	23.9	
Notes: Surface Spec. Cond. 46931 us Temp 22.9°C			
- Samples smell of H <sub>2</sub> S - 40cm sample contained sediment			
Ecological observations of note:			
- Moderate Thalassia coverage w/ heavy drift algae - Some Dasyatis present - Sandy shell hash substrate			

		Surveyor: KJ, MM	
Time:		Date: 4/1/10	
Arrival	2:00 PM		
Departure	2:59 PM		
Site/Grid: G14		Original selected site: Yes/No <input checked="" type="checkbox"/>	Equipment serial no.: SN 83587/154841 RR1 Troll 4
GPS coords: N. 25.30618 - W. 80.33190			
Water depth (m): 3.77		Tidal Condition: High	
Air temp (°C): 27.1		Water temp (°C): 23.2	
For Bay Samples:	Bottom temp (°C): 23.0	Bottom spec. cond. 44918	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	47816	26.5	
40	47197	24.9	
60			
Notes:			
- Deep site - RR cable could not get probe to very bottom. Bottom reading is very close to bottom but not quite there. Surface Spec. Cond. 46449 us Temp 23.2°C - Depth to bedrock ~ 46cm after > 10 attempts			
Ecological observations of note: 46cm			
- healthy piece of Porites observed at site (approx. basketball size) - sparse Thalassia; sparse to moderate drift algae - Porites located in open sandy areas			

	Time:	Surveyor: KV/mm	
Arrival	3:55pm	Date: 4/1/10	
Departure	4:05pm		
Site/Grid:	E12	Original selected site: Yes/No	Equipment serial no.: SN 83587/154841 RR1-TROLL4
GPS coords: N 25° 32' 07" / W 80° 35' 66"			
Water depth (m): 0.33		Tidal Condition: EBB	
Air temp (°C): 26.3		Water temp (°C): 24.9	
For Bay Samples:	Bottom temp (°C): N/A	Bottom spec. cond. N/A	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	47979	25.2	
40	52137	24.4	
60	55705	24.0	
Notes: (W) Semi open area within a Red Mangrove stand ~4m Canyon - samples smelled of H <sub>2</sub> S - site ~30m NW of original point Surface sp cond temp 44596.05 24.9°C			
Ecological observations of note: RED MANGROVES several small fishes Silty Bottom with SPARSIS LEAF LITTER			

	Time:	Surveyor:	
Arrival		Date:	
Departure			
Site/Grid:		Original selected site: Yes/No	Equipment serial no.:
GPS coords:			
Water depth (m):		Tidal Condition:	
Air temp (°C):		Water temp (°C):	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes:			
Ecological observations of note:			

		Surveyor: KV, MM	
Time:		Date: 4/2/10	
Arrival	9:24 AM		
Departure	9:38 AM		
Site/Grid:	(K) #5-1	Original selected site: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Equipment serial no.: RR3 Troll 6 3183595/155900
GPS coords: N. 25.45275 W. 80.29372			
Water depth (m): 1.95		Tidal Condition: Low	
Air temp (°C): 22.4°C		Water temp (°C): 21.7°C	
For Bay Samples:		Bottom temp (°C): 21.6°C	Bottom spec. cond.: 50474
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes: Surface <u>sp. cond</u> <u>temp</u> 50280us 21.7°C			
- No samples - Depth to bedrock avg. 4cm			
Ecological observations of note:			
- Sparse Thalassia, green algae, calcareous algae - mostly open bottom - sandy shell hash substrate - one perites noted (K) - a few sponges + a gorgonian near site			

		Surveyor: KV, MM	
Time:		Date: 4/2/10	
Arrival	9:44 AM		
Departure	9:54 AM		
Site/Grid:	IS1	Original selected site: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Equipment serial no.: RR3 Troll 6 3183595/155900
GPS coords: N. 25.45273 W. 80.29981			
Water depth (m): 1.85		Tidal Condition: Low	
Air temp (°C): 22.9°C		Water temp (°C): 21.8°C	
For Bay Samples:		Bottom temp (°C): 22.0	Bottom spec. cond.: 49636
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes: Surface <u>sp. cond</u> <u>temp</u> 49750us 21.8°C			
- No samples - Depth to bedrock avg 5cm			
Ecological observations of note:			
- very sparse Thalassia, calcareous algae, green algae, and Dasycladia - coarse sand + shell hash substrate			

Time:		Surveyor: KV, MA	
Arrival 10:05AM		Date: 4/2/10	
Departure 10:34AM			
Site/Grid:	Original selected site:	Equipment serial no.:	
BB1-A	Yes/No <input checked="" type="checkbox"/>	RR3 Troll 16 SN 83595/155900	
GPS coords: N. 25.45224 - W. 80.30854			
Water depth (m): 3.20		Tidal Condition: Flood	
Air temp (°C): 23.4		Water temp (°C): 21.9	
For Bay Samples:	Bottom temp (°C): 21.7	Bottom spec. cond. 49285	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	48792	22.5	
40			
60			
Notes: - bed depth to <sup>(w)</sup> bedrock ~ 36cm at deepest surface <sup>(w)</sup> $\frac{spec\ cond}{48927\ \mu S}$ $\frac{temp}{21.9^\circ C}$ - very mild H <sub>2</sub> S odor			
Ecological observations of note: - located in a large <sup>(w)</sup> channel - very silty w/ some rubble - sparse drift algae + dead seagrass			

Time:		Surveyor: KV, MA	
Arrival 10:35AM		Date: 4/2/10	
Departure 11:10AM			
Site/Grid:	Original selected site:	Equipment serial no.:	
BB1-B	Yes/No <input checked="" type="checkbox"/>	RR3 + Troll 16 SN 83595/155900	
GPS coords: N. 25.45225 - W. 80.30851			
Water depth (m): 3.70		Tidal Condition: Flood	
Air temp (°C): 22.8		Water temp (°C): 22.0°C	
For Bay Samples:	Bottom temp (°C): 21.7	Bottom spec. cond. 49254	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	49604	22.2	
40			
60			
Notes: Surface $\frac{spec\ cond}{48932\ \mu S}$ $\frac{temp}{22.0^\circ C}$ - ~ 3m NE of BB1A - very mild <sup>(w)</sup> H <sub>2</sub> S odor			
Ecological observations of note: - located in a large canal - very silty w/ some rubble - sparse drift algae + dead seagrass			

1.70 +

2

		Surveyor: KV, MM	
Time:		Date: 4/2/10	
Arrival	11:17 AM		
Departure	11:46 AM		
Site/Grid:	I1	Original selected site: <input checked="" type="radio"/> Yes / <input type="radio"/> No	Equipment serial no.: RR3 + Troll 6 SN 83595/155900
GPS coords: N. 25.45527 - W. 80.30839			
Water depth (m): 1.95		Tidal Condition: Flood	
Air temp (°C): 23.9		Water temp (°C): 22.0	
For Bay Samples:	Bottom temp (°C): 21.7	Bottom spec. cond.: 49233	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	48827	23.4	
40	47821	22.5	
60			
Notes:			
<p>Surface <u>sp. cond</u> <u>temp</u> 49092 22.00 (20)</p> <ul style="list-style-type: none"> <li>- Depth to bedrock on avg was ~10cm,</li> <li>- samples taken in either depressions or mounds</li> <li>- smell of H<sub>2</sub>S</li> </ul>			
Ecological observations of note:			
<ul style="list-style-type: none"> <li>- very sparse rhizalia, drift algae, calcareous algae</li> <li>- a few scattered sponges</li> <li>- mostly open bottom - coarse sand substrate</li> </ul>			

		Surveyor: KV, MM	
Time:		Date: 4/2/10	
Arrival	12:00 PM		
Departure	12:12 PM		
Site/Grid:	HI1	Original selected site: <input checked="" type="radio"/> Yes / <input type="radio"/> No	Equipment serial no.: SN 83595/155900 RR3 + Troll 6
GPS coords: N. 25.45271 - W. 80.31268			
Water depth (m): 1.80		Tidal Condition: Flood	
Air temp (°C): 23.9		Water temp (°C): 22.4	
For Bay Samples:	Bottom temp (°C): 22.1	Bottom spec. cond.: 48960	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes:			
<p>Surface <u>sp. cond</u> <u>temp</u> 48584ms 22.4°C</p> <ul style="list-style-type: none"> <li>- Depth to bedrock 5-10cm on &gt;10 attempts</li> </ul>			
Ecological observations of note:			
<ul style="list-style-type: none"> <li>- coarse sand &amp; shell hash substrate</li> <li>- drift algae present, as well as a few gorgonians</li> </ul>			

	Time:	Surveyor: KV, MM Date: 4/2/10	
Arrival	12:21 PM		
Departure	12:32 PM		
Site/Grid:	H1 ✓	Original selected site: Yes/No ✓	Equipment serial no.: RR3 Troll 6 SN 83595/155900
GPS coords: N. 25.4526 ✓ W 80.31851 ✓			
Water depth (m): 1.70		Tidal Condition: Flood	
Air temp (°C): 24.9 ✓		Water temp (°C): 22.5 ✓	
For Bay Samples:	Bottom temp (°C): 22.4 ✓	Bottom spec. cond. 48420 ✓	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes: Surface <u>Sp cond</u> 48262 <u>temp</u> 22.5°C - Depth to bedrock avg. 5cm on >10 attempts			
Ecological observations of note: - sparse drift algae & green algae - mostly open bottom - coarse sand shell hash			

	Time:	Surveyor: KV, MM Date: 4/2/10	
Arrival	12:50 PM		
Departure	1:06 PM		
Site/Grid:	GH1	Original selected site: Yes/No ✓	Equipment serial no.: RR3 Troll 6 SN 83595/155900
GPS coords: N. 25.45267 ✓ W 80.32500 ✓			
Water depth (m): 1.85		Tidal Condition: High	
Air temp (°C): 24.7 ✓		Water temp (°C): 22.9 ✓	
For Bay Samples:	Bottom temp (°C): 22.7 ✓	Bottom spec. cond. 47604 ✓	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	47422	23.4	
40			
60			
Notes: Surface <u>sp cond</u> 47330 <u>temp</u> 22.9°C - Depth to bedrock avg ~ 5-8cm - smells of H <sub>2</sub> S			
Ecological observations of note: - sparse drift + green algae - coarse sand shell hash			

		Surveyor: KV, M/M	
Time:		Date: 4/2/10	
Arrival	1:15 PM		
Departure	1:37 PM		
Site/Grid:	G1	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: R.R.3 Troll 6 SN 83595/155900
GPS coords: N. 25. 45279 / W 80. 33071			
Water depth (m): 1.36		Tidal Condition: High	
Air temp (°C): 25.7		Water temp (°C): 23.3	
For Bay Samples:		Bottom temp (°C): 23.3	Bottom spec. cond. 45651
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	46147	23.5	/
40	48281	23.8	
60			
Notes: (K)			
- Depth to bedrock <del>15-25 cm</del> any 15-25 cm			
surface <del>45573</del> <sup>sp cond</sup> 45573 <sup>temp</sup> 23.3°C			
- Samples smell of H <sub>2</sub> S			
Ecological observations of note:			
- <del>Moderate</del> Moderate Thalassia w/ extensive drift algae coverage			
- some red algae noted			
<del>Located in a large channel</del>			

5

		Surveyor: KV, M/M	
Time:		Date: 4/2/10	
Arrival	2:15 PM		
Departure	2:51 PM		
Site/Grid:	BB2A	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: R.R.3 Troll 6 SN 83595/155900
GPS coords: N 25. 44239 / W 80. 32148			
Water depth (m): 4.20		Tidal Condition: High	
Air temp (°C): 27.2		Water temp (°C): 23.3	
For Bay Samples:		Bottom temp (°C): 23.1	Bottom spec. cond. 41464
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	46643	25.7	
40	44058	27.3	
60	49620	24.7	
Notes:			
Surface <sup>sp cond</sup> 48388 <sup>temp</sup> 23.3			
- Samples smell of H <sub>2</sub> S			
Ecological observations of note:			
- no veg - bare silty substrate			
- Located in a large channel			

12.7



		Surveyor: <u>KJ MM</u>	
Time: <u>2:52 PM</u>		Date: <u>4/2/10</u>	
Arrival	<u>2:52 PM</u>		
Departure	<u>3:25 PM</u>		
Site/Grid:	<u>BB2B</u>	Original selected site: <u>Yes</u> /No	Equipment serial no.: <u>RR3 Troll</u> <u>SN 83595/155900</u>
GPS coords: <u>N 25.44236</u> <u>W 80.32159</u>			
Water depth (m): <u>4.20</u>		Tidal Condition: <u>Ebb</u>	
Air temp (°C): <u>28.2</u>		Water temp (°C): <u>23.3</u>	
For Bay Samples:	Bottom temp (°C): <u>23.5</u>	Bottom spec. cond. <u>38729</u>	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<u>42887</u>	<u>24.2</u>	
40	<u>50213</u>	<u>23.5</u>	
60			
Notes:			
<u>Surface</u> <u>sp cond</u> <u>temp</u> <u>48324us</u> <u>23.3</u> - depth to bedrock <u>30-50cm</u> - site located in a barge channel			
Ecological observations of note:			
- saw a dolphin when leaving the site - bare silt - no veg, silty substrate			

12.7

		Surveyor: <u>KJ MM</u>	
Time: <u>3:40 PM</u>		Date: <u>4/2/10</u>	
Arrival	<u>3:40 PM</u>		
Departure	<u>4:02 PM</u>		
Site/Grid:	<u>BB4A</u>	Original selected site: <u>Yes</u> /No	Equipment serial no.: <u>RR3 Troll</u> <u>SN 83595/155900</u>
GPS coords: <u>N 25.42272</u> <u>W 80.32013</u>			
Water depth (m): <u>1.65</u>		Tidal Condition: <u>Ebb</u>	
Air temp (°C): <u>25.4</u>		Water temp (°C): <u>23.8</u>	
For Bay Samples:	Bottom temp (°C): <u>24.4</u>	Bottom spec. cond. <u>49823</u>	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<u>48376</u>	<u>24.8</u>	
40	<u>46955</u>	<u>25.6</u>	
60			
Notes:			
- Depth to bedrock <u>35-52cm</u> <u>Surface</u> <u>sp cond</u> <u>temp</u> <u>50028us</u> <u>23.8°C</u> - samples small of H <sub>2</sub> S			
Ecological observations of note:			
- Dense Thalassia bed w/ extensive drift algae			

Time:		Surveyor: KV, MM Date: 4/2/10	
Arrival	4:04 PM		
Departure	4:37 PM		
Site/Grid:	BB4B	Original selected site: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Equipment serial no.: RR3 Troll 6 SN 83595/155900
GPS coords: N 25.42271, W 80.32012			
Water depth (m): 1.55		Tidal Condition: Ebb	
Air temp (°C): 27.0		Water temp (°C): 23.9	
For Bay Samples:	Bottom temp (°C): 24.2	Bottom spec. cond. 50098	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	47193	25.5	
40	46708	25.2	
60	48287	25.7	
Notes: Surface $\frac{SP\ cond}{50238\ \mu S}$ $\frac{temp}{23.9^\circ C}$ - site located 3m west of BB4A - samples smell of H <sub>2</sub> S			
Ecological observations of note: - Thick Thalassia bed w/ extensive drift + algae			

Time:		Surveyor: KV, MM Date: 4/2/10	
Arrival	4:58 PM		
Departure	5:11 PM		
Site/Grid:	I6	Original selected site: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Equipment serial no.: RR3 Troll 6 SN 83595/155900
GPS coords: N 25.39635, W 80.30650			
Water depth (m): 1.20		Tidal Condition: Ebb	
Air temp (°C): 28.1		Water temp (°C): 24.4	
For Bay Samples: <input checked="" type="checkbox"/>	Bottom temp (°C): 24.2	Bottom spec. cond. 50976	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes: <input checked="" type="checkbox"/> surface $\frac{SP\ cond}{50847\ \mu S}$ $\frac{temp}{24.4^\circ C}$ - <del>hit</del> hit bedrock w/in the first beam on > 10 attempts			
Ecological observations of note: - coarse sand + shell hash - a few sponges present - sparse Dasychelis + Thalassia - mostly bare bottom			

		Surveyor: KJ, MM	
Time:		Date: 4/3/10	
Arrival	9:06 AM		
Departure	9:42 AM		
Site/Grid:	J6	Original selected site: <input checked="" type="radio"/> Yes / <input type="radio"/> No	Equipment serial no.: RR2 Troll 5 SN 81640/155883
GPS coords: N. 25.39644 / W. 80.29416			
Water depth (m): 0.88		Tidal Condition: Low	
Air temp (°C): 23.0		Water temp (°C): 21.9	
For Bay Samples:	Bottom temp (°C): 21.8°C	Bottom spec. cond.: 50776	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50258	22.7	/
40	51841	22.8	
60	52010	22.3	
Notes:			
- samples smelled of H <sub>2</sub> S Surface $\frac{\text{Spec. Cond.}}{50521 \mu\text{S}}$ $\frac{\text{Temp}}{21.9^\circ\text{C}}$			
Ecological observations of note:			
- Located on a dense Thalassia bed - site is located between 5 different small islands			

		Surveyor: KJ, MM	
Time:		Date: 4/3/10	
Arrival	9:53 AM		
Departure	10:25 AM		
Site/Grid:	IJ6	Original selected site: <input checked="" type="radio"/> Yes / <input type="radio"/> No	Equipment serial no.: RR2 Troll 5 SN 81640/155883
GPS coords: N. 25.39645 / W. 80.30012			
Water depth (m): 1.57		Tidal Condition: Low	
Air temp (°C): 23.5		Water temp (°C): 22.2	
For Bay Samples:	Bottom temp (°C): 22.0	Bottom spec. cond.: 51449	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	49845	22.2	/
40	49293	22.1	
60	50880	22.1	
Notes:			
- samples smelled of H <sub>2</sub> S Surface $\frac{\text{Spec. Cond.}}{51193 \mu\text{S}}$ $\frac{\text{Temp}}{22.2^\circ\text{C}}$ (20cm sample odor was more faint)			
Ecological observations of note:			
- Located on a dense Thalassia bed - site is near 3 different small islands			

	Time:	Surveyor: KV/MM	
Arrival	10:40 AM	Date: 4/3/10	
Departure	11:01 AM		
Site/Grid:	J7	Original selected site: Yes/No	Equipment serial no.: RR2 Troll 5 SN 81640/155883
GPS coords: N. 25.38616 W. 80.29465			
Water depth (m): 0.74		Tidal Condition: Flood	
Air temp (°C): 23.8		Water temp (°C): 22.6	
For Bay Samples:	Bottom temp (°C): 22.4	Bottom spec. cond. 50257	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	49909	23.5	/
40	49828	23.1	
60	50802	23.0	
Notes:			
<p>original site location is in the middle of a large mangrove island in the middle of the Bay. <del>But</del></p> <p>- Sampling site moved ~130m North of original point.</p> <p>surface <u>second</u> temp <u>temp</u> 50045 <math>\mu</math>S 22.6°C</p>			
Ecological observations of note:			
- Dense Thalassia			

	Time:	Surveyor: KV/MM	
Arrival	11:10 AM	Date: 4/3/10	
Departure	11:40 AM		
Site/Grid:	JK7	Original selected site: Yes/No	Equipment serial no.: RR2 Troll 5 SN 81640/155883
GPS coords: N. 25.38525 W. 80.28761			
Water depth (m): 1.56		Tidal Condition: Flood	
Air temp (°C): 24.3		Water temp (°C): 22.7	
For Bay Samples:	Bottom temp (°C): 22.7	Bottom spec. cond. 50190	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	48536	23.7	/
40	50715	23.0	
60	49472	22.9	
Notes:			
<p>surface <u>second</u> temp <u>temp</u> 50143 <math>\mu</math>S 22.7°C</p> <p>- Samples smelled of H<sub>2</sub>S</p>			
Ecological observations of note:			
<p>- Moderate to dense Thalassia bed</p> <p>- point ~ 150m East of a mangrove island</p> <p>(KV)</p>			

		Surveyor: KV, MM	
Time:		Date: 4/3/10 (W)	
Arrival	11:57 AM		
Departure	12:22 PM		
Site/Grid:	I57	Original selected site: Yes/No	Equipment serial no.: RR2 & Troll 5 SN 81640 / 155883
GPS coords: N 25.38518 ✓ W 80.30010 ✓			
Water depth (m): 1.10		Tidal Condition: Flood	
Air temp (°C): 25.1 ✓		Water temp (°C): 23.1 ✓	
For Bay Samples:	Bottom temp (°C): 23.2 ✓	Bottom spec. cond.: 50786 ✓	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	51672	23.4	
40	49930	23.5	
60	49684	23.7	
Notes:			
Surface <sup>Spec. Cond.</sup> 50408 <sup>Temp</sup> 23.1°C - samples smelled of H <sub>2</sub> S			
Ecological observations of note:			
- sparse Thalassia (mostly dead) w/ some clumps of Dasycladus - sandy shell hash substrate			

		Surveyor: KV, MM	
Time:		Date: 4/3/10	
Arrival	12:56 PM		
Departure	1:13 PM		
Site/Grid:	I7	Original selected site: Yes/No	Equipment serial no.: RR2 Troll 5 SN 81640 / 155883
GPS coords: N 25.38520 ✓ W 80.30656 ✓			
Water depth (m): N/A		Tidal Condition: <del>the</del> Flood	
Air temp (°C): 25.3 ✓		Water temp (°C): N/A ✓	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.:	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	51902	24.1	
40	51437	23.2	
60	54879	25.0	
Notes:			
- Samples smell of H <sub>2</sub> S - Scattered garbage around the site (including 50 gallon barrel) - site is 215 m <del>SW</del> NE of original point <del>SW</del> (W)			
Ecological observations of note:			
- Mostly red mangrove stand w/ intermixed black mangroves noticeably - tide is rapidly rising - a lot of dead old mangroves in the area			

Time:		Surveyor: KV, MM	
Arrival <input checked="" type="checkbox"/> 1:57 PM		Date: 4/3/10	
Departure 2:23 PM			
Site/Grid:	Original selected site: Yes <input checked="" type="checkbox"/> No	Equipment serial no.: RR2 Troll 15 SI 81640/155883	
GPS coords: N. 25.38605 W. 80.31245			
Water depth (m): 0.66		Tidal Condition: High	
Air temp (°C): 25.0		Water temp (°C): 24.7	
For Bay Samples:	Bottom temp (°C): 24.7	Bottom spec. cond. 51106	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50565	25.6	/
40	51510	25.1	
60	50852	24.6	
Notes: -			
- site located ~70m N of original point			
- surface <sup>sp cond</sup> 51352 <sup>temp</sup> 24.7			
- NIST thermometer is no longer working - took <sup>air</sup> temp from thermometer on boat			
Ecological observations of note:			
- moderate to dense Thalassia			
- Silty substrate			
- 20m N of <sup>established</sup> red mangrove stand			
- several propagules around the site			

Time:		Surveyor: KV, MM	
Arrival 2:52 PM		Date: 4/3/10	
Departure 3:20 PM			
Site/Grid:	Original selected site: Yes <input checked="" type="checkbox"/> No	Equipment serial no.: RR2 Troll 15 SI 81640/155883	
GPS coords: N. 25.38804 W. 80.31693			
Water depth (m): 0.27		Tidal Condition: High	
Air temp (°C): 23.3		Water temp (°C): 24.9	
For Bay Samples:	Bottom temp (°C): N/A	Bottom spec. cond. N/A	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	51411	24.2	/
40			
60	54260	23.3	
Notes:			
- Thermistor used for air temp reading			
- site ~200 m NE of original site on the edge of the mangroves			
- could not retrieve sample @ 40cm after 7 attempts <del>due to broken propeller</del> (EV)			
Ecological observations of note:			
- Nurse shark spotted near site while anchoring the boat (4-5 ft long)			
- Red and black mangroves dominant in canopy (~3m tall)			
- Garbage scattered around site			
- soil very compacted			

2nd HI7 surface is actually H-7 surface  
HI-60 is H-7-60

Surface <sup>sp cond</sup> 51905  
24.9°C

		Surveyor: <i>KMM</i>	
Time:		Date: <i>4/3/10</i>	
Arrival	<i>4:15 PM</i>		
Departure	<i>4:32 PM</i>		
Site/Grid:	<i>(W) M3-A</i>	Original selected site: <i>(Yes/No)</i>	Equipment serial no.: <i>RP2 TROLLS SN 81640/155883</i>
GPS coords: <i>N 25.39377 / W 80.32435</i>			
Water depth (m): <i>4m</i>		Tidal Condition: <i>Ebb</i>	
Air temp (°C): <i>24.4</i>		Water temp (°C): <i>24.9</i>	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
<i>Too shallow</i>	<i>N/A</i>	<i>N/A</i>	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<i>52032</i>	<i>24.4</i>	
40	<i>55081</i>	<i>24.3</i>	
60	<i>53480</i>	<i>24.1</i>	
Notes:			
<i>- site near the edge of the mangroves</i> <i>- Air temp measured w/ a thermometer</i> <i>- Samples smell of H<sub>2</sub>S</i> <i>Surface Sp cond Temp 52452us 24.9°C</i>			
Ecological observations of note:			
<i>- both red &amp; black mangroves intermixed avg. ~4m tall</i>			

		Surveyor: <i>KMM</i>	
Time:		Date: <i>4/3/10</i>	
Arrival	<i>4:34 PM</i>		
Departure	<i>4:48 PM</i>		
Site/Grid:	<i>(W) M3-B</i>	Original selected site: <i>(Yes/No)</i>	Equipment serial no.: <i>RP2 TROLLS SN 81640/155883</i>
GPS coords: <i>N 25.39374 / W 80.32430</i>			
Water depth (m): <i>0.16</i>		Tidal Condition: <i>Ebb</i>	
Air temp (°C): <i>23.8</i>		Water temp (°C): <i>25.1</i>	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
<i>Too shallow</i>			
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<i>50380</i>	<i>23.9</i>	
40	<i>54440</i>	<i>23.0</i>	
60	<i>54471</i>	<i>23.0</i>	
Notes:			
<i>- 20 cm sample has peat particles</i> <i>- site is ~3m NE of M3A</i> <i>- 40 cm sample is orange-red in color</i> <i>- All samples smell of H<sub>2</sub>S</i> <i>Surface Sp cond Temp 52282us 25.1°C</i>			
Ecological observations of note:			
<i>Similar habitat to M-3A</i> <i>- Intermixed red &amp; black mangroves ~4m tall</i>			

*both points labeled as M3-A & M3-B in files*

		Surveyor: KV, MM	
Time:		Date: 4/4/10	
Arrival	9:22 AM		
Departure	10:17 AM		
Site/Grid:	H14	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: RR3 Troll 6 SN 83595/155900
GPS coords: N. 25.30644 / W. 80.31927			
Water depth (m): 4.2		Tidal Condition: <input checked="" type="radio"/> Flood	
Air temp (°C): 23.5		Water temp (°C): 23.0	
For Bay Samples:	Bottom temp (°C): 23.0	Bottom spec. cond.: 48062	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	47156	23.3	
40	48631	23.2	
60			
Notes:			
surface <u>sp cond</u> <u>temp</u> 47581 <u>us</u> 23.0°C - Samples smelled faintly of H <sub>2</sub> S - deep site - could not reach 60m after >10 attempts			
Ecological observations of note:			
- sparse Thalassia, mostly bare bottom - Some Syringodium, Penicillium (green algae), and Caulerpa - silty substrate, especially in top 20cm - Several pinkish noted			

		Surveyor: KV, MM	
Time:		Date: 4/4/10	
Arrival	10:33 AM		
Departure	11:20 AM		
Site/Grid:	I13	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: RR3 Troll 6 SN 83595/155900
GPS coords: N. 25.31780 / W. 80.30694			
Water depth (m): 3.8		Tidal Condition: <input checked="" type="radio"/> Low	
Air temp (°C): 23.7		Water temp (°C): 23.2	
For Bay Samples:	Bottom temp (°C): 22.9	Bottom spec. cond.: 49027	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	49446	23.6	
40	48676	23.3	
60	51183	23.2	
Notes:			
surface <u>sp cond</u> <u>temp</u> 48171 <u>us</u> 23.2°C - Samples smell faintly of H <sub>2</sub> S			
Ecological observations of note:			
- Moderate Thalassia, w/ some Syringodium mixed in - A brown algae is also present - silty substrate, especially in top 20cm - <del>pinkish noted</del> Several pinkish noted			

check spelling on  
the names

1



	Time:		Surveyor: KN, MM Date: 4/4/10
Arrival	11:27AM		
Departure	11:57AM		
Site/Grid:	H13	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: RR3 Troll 6
GPS coords: N. 25.31767 W. 80.31955			
Water depth (m): 3.8		Tidal Condition: <input checked="" type="radio"/> Low	
Air temp (°C): 25.0		Water temp (°C): 23.1	
For Bay Samples:	Bottom temp (°C): 23.0	Bottom spec. cond. 49671	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	49456	23.8	
40	50360	23.4	
60			
Notes:			
surface <u>sp cond</u> 48617 <u>temp</u> 23.1°C - Samples smell of H <sub>2</sub> S - could not achieve 60 after >10 attempts - Depth to bedrock ~ 48cm			
Ecological observations of note:			
- Sparse Thalassia w/ moderate brown algae - <del>silty substrate</del> Silty/sand substrate (W)			

	Time:		Surveyor: KN, MM Date: 4/4/10
Arrival	12:06PM		
Departure	12:35PM		
Site/Grid:	G13	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: RR3 Troll 6
GPS coords: N. 25.31773 W. 80.33160			
Water depth (m): 3.6		Tidal Condition: <input checked="" type="radio"/> Flood	
Air temp (°C): 25.3		Water temp (°C): 23.3	
For Bay Samples:	Bottom temp (°C): 23.2	Bottom spec. cond. 49757	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes:			
surface <u>sp cond</u> 49734 <u>temp</u> 23.3°C - could not achieve 20cm after 12 attempts - Depth to bedrock ~ 5cm (W)			
Ecological observations of note:			
- Sparse Thalassia - mostly bare bottom - coarse sand substrate			

		Surveyor: KV, MM	
Time:		Date: 4/4/10	
Arrival	12:30 PM		
Departure	12:53 PM		
Site/Grid: F13		Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: RR3 Troll 6 SN 83595/155900
GPS coords: N. 25.31779 - W. 80.34412			
Water depth (m): 3.0		Tidal Condition: <input checked="" type="radio"/> Flood	
Air temp (°C): 25.2		Water temp (°C): 23.7	
For Bay Samples:	Bottom temp (°C): 23.5	Bottom spec. cond. 49931	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	48823	23.6	
40			
60			
Notes:			
Surface <u>sp cond</u> <u>temp</u> 49729 w. 23.7°C - could not reach 40cm after >10 attempts, most refusals w/in upper 10cm - Sample smelled of H <sub>2</sub> S			
Ecological observations of note:			
Moderate to dense Thalassia w/ some Sargassum mixed in - Sparse Daigochia, Pericallia, green algae that looks like a lily pad. (Acetabularia) - substrate sandy/silty			

		Surveyor: KV, MM	
Time:		Date: 4/4/10	
Arrival	1:15 PM		
Departure	1:28 PM		
Site/Grid: I12		Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: RR3 Troll 6 SN 83595/155900
GPS coords: N. 25.32885 - W. 80.30695			
Water depth (m): 3.6		Tidal Condition: <input checked="" type="radio"/> Flood	
Air temp (°C): 25.3		Water temp (°C): 23.5	
For Bay Samples:	Bottom temp (°C): 23.3	Bottom spec. cond. 47805	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes:			
Surface <u>sp cond</u> <u>temp</u> 49122 <u>23.5</u> - could not reach 20cm after >10 attempts - Depth to bedrock ~ 5cm			
Ecological observations of note:			
- coarse sand substrate - Some brown algae & pericallia - Several sponges - site located in a large sandy patch; surrounding areas have some seagrasses			

	Time:	Surveyor: KV, MM Date: 4/4/10	
Arrival	1:36 PM		
Departure	1:58 PM		
Site/Grid:	J12	Original selected site: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Equipment serial no.: RR3 Troll 16
GPS coords: N. 25.32896 / W 80.29469			
Water depth (m): 3.6		Tidal Condition: <input checked="" type="checkbox"/> Flood	
Air temp (°C): 24.7		Water temp (°C): 23.9	
For Bay Samples:	Bottom temp (°C): 23.9	Bottom spec. cond. 51923	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50716	24.9	
40			
60			
Notes:			
surface <u>sp cond</u> <u>temp</u> 50762us 23.9°C - could not reach 40cm after <del>20</del> >10 attempts - Depth to bedrock 48cm on avg - sample smelled faintly of H <sub>2</sub> S			
Ecological observations of note:			
- sparse to moderate Thalassia w/ some brown algae - two large sponges outside of sampling area			

	Time:	Surveyor: KV, MM Date: 4/4/10	
Arrival	2:09 PM		
Departure	<del>2:09 PM</del> 2:36 PM		
Site/Grid:	H12	Original selected site: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Equipment serial no.: RR3 Troll 6
GPS coords: N. 25.32902 / W. 80.31972			
Water depth (m): 3.8		Tidal Condition: Flood	
Air temp (°C): 23.8		Water temp (°C): 23.5°C	
For Bay Samples:	Bottom temp (°C): 24.2	Bottom spec. cond. 49458	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50434	23.8	
40			
60			
Notes:			
surface <u>sp cond</u> <u>temp</u> 49675us 23.5°C - could not reach 40cm after >10 attempts - Depth to bedrock ~20cm - Sample smelled faintly of H <sub>2</sub> S			
Ecological observations of note:			
- coarse sand substrate - sparse Thalassia w/ some brown algae - scattered pericillius + sponges			

		Surveyor: KV, MM	
Time:		Date: 4/4/10	
Arrival	2:40 PM		
Departure	2:54 PM		
Site/Grid:	GH12	Original selected site: Yes/No	Equipment serial no.: RR 3 Troll 6 SN 83595/155900
GPS coords: N. 25.32858 / W 80.32490			
Water depth (m): 4.0		Tidal Condition: Flood	
Air temp (°C): 24.9		Water temp (°C): 23.6	
For Bay Samples:	Bottom temp (°C): 23.4	Bottom spec. cond. 50606	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes:			
<p>(KV)</p> <p>- Depth to bedrock ~ 15cm on avg.</p> <p>- <del>RR</del> Could not attain sample @ 20cm after &gt;10 attempts</p> <p>(KV) surface <u>second temp</u> 50392 uS 23.6°C</p>			
Ecological observations of note:			
<p>- sparse Thalassia w/ Brown algae</p> <p>- several porites noted</p> <p>- sparse Syringodium</p> <p>- some Caulerpra</p>			

GH12 readings mistyped as GH1

		Surveyor:	
Time:		Date:	
Arrival			
Departure			
Site/Grid:		Original selected site: Yes/No	Equipment serial no.:
GPS coords:			
Water depth (m):		Tidal Condition:	
Air temp (°C):		Water temp (°C):	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes:			
Ecological observations of note:			

		Surveyor: KV, MM Date: 4/5/10	
Arrival	Time: 9:49 AM		
Departure	10:34 AM		
Site/Grid:	G15	Original selected site: <input checked="" type="radio"/> Yes / <input type="radio"/> No	Equipment serial no.: RR1 Troll 4 SN 83587/154841
GPS coords: N 25.29517 / W 80.33185			
Water depth (m): 3.3		Tidal Condition: Ebb	
Air temp (°C): 23.4		Water temp (°C): 23.2	
For Bay Samples:	Bottom temp (°C): 23.0	Bottom spec. cond.: 46991	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	45046	23.1	/
40	46239	22.9	
60	49925	23.0	
Notes: surface <u>sp cond</u> <u>temp</u> 47118 $\mu$ S 23.2°C - Samples smelled of H <sub>2</sub> S			
Ecological observations of note: - moderate Thalassia + Syngnathus - some brown algae + drift algae - several Ctenophors noted around the site - silty substrate			

		Surveyor: KV, MM Date: 4/5/10	
Arrival	Time: 10:37 AM		
Departure	11:10 AM		
Site/Grid:	F15	Original selected site: <input checked="" type="radio"/> Yes / <input type="radio"/> No	Equipment serial no.: RR1 Troll 4 SN 83587/154841
GPS coords: N 25.29507 / W 80.34411			
Water depth (m): 1.65		Tidal Condition: Ebb	
Air temp (°C): 25.1		Water temp (°C): 23.0	
For Bay Samples:	Bottom temp (°C): 22.9	Bottom spec. cond.: 47781	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	44043	23.1	/
40	40790	23.1	
60	42858	22.4	
Notes: surface <u>sp cond</u> <u>temp</u> 47759 $\mu$ S 23.0°C - All <sup>(KV)</sup> samples had a lot of very fine sediment - All <del>the</del> samples smelled of H <sub>2</sub> S			
Ecological observations of note: - sparse Thalassia - coarse sand shell hash substrate - some brown algae + drift algae			

Note: All ~~the~~ air temperature readings done w/thermistor  
(KV) /

	Time:		Surveyor: KV, MM Date: 4/5/10
Arrival	11:19 AM		
Departure	11:56 AM		
Site/Grid:	E15	Original selected site: Yes/No	Equipment serial no.: SN 83587/154841 RR1 Troll 14
GPS coords: N. 25.29509 / W 80.35673			
Water depth (m): 2.80		Tidal Condition: Low	
Air temp (°C): 24.6		Water temp (°C): 23.2	
For Bay Samples:	Bottom temp (°C): 23.2	Bottom spec. cond. 47995	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	42898	23.4	/
40	48146	23.5	
60	50661	23.3	
Notes: Surface <u>second temp</u> 47378us 23.2°C - All samples smell of H <sub>2</sub> S			
Ecological observations of note: - Sparse Thalassia + Syringodium - silty substrate - Brown algae & drift algae <sup>(K)</sup> present			

	Time:		Surveyor: KV, MM Date: 4/5/10
Arrival	12:00 PM		
Departure	12:34 PM		
Site/Grid:	D15	Original selected site: Yes/No	Equipment serial no.: SN 83587/154841 RR1 Troll 14
GPS coords: N. 25.29539 / W 80.36945			
Water depth (m): 2.64		Tidal Condition: Low	
Air temp (°C): 24.9		Water temp (°C): 23.3	
For Bay Samples:	Bottom temp (°C): 23.2	Bottom spec. cond. 45591	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	43983	23.4	/
40	44816 → 44817 (K)	23.5	
60	46447	23.2	
Notes: Surface <u>second temp</u> 45540us 23.3°C - samples smell of H <sub>2</sub> S			
Ecological observations of note: - Dense Thalassia bed - silty/sandy substrate			

	Time:	Surveyor: KV, MM Date: 4/5/10	
Arrival	12:41 PM		
Departure	12:57 PM		
Site/Grid:	FG12	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: RR1 Troll 4 SN 83587/154841
GPS coords: N. 25.32886 / W. 80.33829			
Water depth (m): 2.64		Tidal Condition: Low	
Air temp (°C): 24.7		Water temp (°C): 23.6°C	
For Bay Samples:	Bottom temp (°C): 23.52	Bottom spec. cond.: (KV) 450399	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes:			
Surface <sup>spec</sup> cond temp 50323us 23.6°C - could not achieve 20m after 10 attempts - Depth to bedrock ~5cm			
Ecological observations of note:			
- porites noted in the area (KV) one large specimen bigger than a basketball - open sandy patch <del>Some algae</del> - sparse brown algae, pericillus, calcareous algae. - <del>Some</del> Several gorgonians noted (KV)			

	Time:	Surveyor: KV, MM Date: 4/5/10	
Arrival	1:05 PM		
Departure	1:19 PM		
Site/Grid:	G12	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: RR1 Troll 4 SN 83587/154841
GPS coords: N. 25.32882 / W. 80.33176			
Water depth (m): 3.40		Tidal Condition: Flood	
Air temp (°C): 24.3		Water temp (°C): 23.6	
For Bay Samples:	Bottom temp (°C): 23.5	Bottom spec. cond.: 51045	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes:			
surface <sup>spec</sup> cond temp 50861us 23.6°C - could not achieve 20m after 10 attempts - refusal at 8cm on avg			
Ecological observations of note:			
- several small porites, w/ one large one outside of the sampling area - coarse sand substrate - <del>Some</del> Acetabularia, brown algae, pericillus (KV)			

	Time:	Surveyor: KV, MM	
Arrival	1:28 PM	Date: 4/5/10	
Departure	1:46 PM		
Site/Grid:	G11	Original selected site: Yes/No	Equipment serial no.: RR1 T0114 SN 83587/15484
GPS coords: N 25.34005 / W 80.33163			
Water depth (m): 3.03		Tidal Condition: Flood	
Air temp (°C): 24.9		Water temp (°C): 23.8	
For Bay Samples:	Bottom temp (°C): 23.7	Bottom spec. cond. 50812	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes: surface <u>sp cond</u> <u>temp</u> 50718 $\mu$ S 23.8°C - could not achieve 20cm after 10 attempts - depth to bedrock ~ 8cm			
Ecological observations of note: (KV) coarse sandy substrate - several Gorgonians noted - sparse Thalassia - some brown algae; Acetabularia, Penicillus			

	Time:	Surveyor: KV, MM	
Arrival	1:48 PM	Date: 4/5/10	
Departure	2:06 PM		
Site/Grid:	G11	Original selected site: Yes/No	Equipment serial no.: RR1 T0114 SN 83587/15484
GPS coords: N 25.33983 / W 80.32497			
Water depth (m): 3.37		Tidal Condition: Flood	
Air temp (°C): 25.9		Water temp (°C): 23.6	
For Bay Samples:	Bottom temp (°C): 23.5	Bottom spec. cond. 51501	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes: surface <u>sp cond</u> <u>temp</u> 51400 $\mu$ S 23.6°C - could not achieve 20cm after 10 attempts - depth to bedrock ~ 8cm			
Ecological observations of note: (KV) coarse sand w/ shell hash substrate - several small Gorgonians - some <del>Acetabularia</del> Acetabularia, Penicillus (KV) (KV) (KV)			



		Surveyor: KV, MM Date: 4/5/10	
Arrival	2:17 PM		
Departure	2:42 PM		
Site/Grid:	H11	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: SN 83587/15484/ RRI Troll 4
GPS coords: N: 25.34013 / W: 80.31940			
Water depth (m): 3.63		Tidal Condition: Flood	
Air temp (°C): 25.0		Water temp (°C): 23.6	
For Bay Samples:	Bottom temp (°C): 23.5	Bottom spec. cond.: 51441	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50300	24.9	
40			
60			
Notes:			
surface <u>sp cond</u> <u>temp</u> 51217 $\mu$ S 23.5°C - samples smell faintly of H <sub>2</sub> S - could not reach 40cm after 10 attempts - Depth to bedrock ~ 2.3m on avg			
Ecological observations of note:			
Sparse to moderate <i>Thalassia</i> Coarse sandy substrate - some <i>Pericillius</i> + brown algae			

		Surveyor: KV, MM Date: 4/5/10	
Arrival	2:48 PM		
Departure	3:02 PM		
Site/Grid:	H11	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: SN 83587/15484/ RRI Troll 4
GPS coords: N: 25.33997 / W: 80.31252			
Water depth (m): 3.80		Tidal Condition: Flood	
Air temp (°C): 25.5		Water temp (°C): 23.8	
For Bay Samples:	Bottom temp (°C): 23.7	Bottom spec. cond.: 51208	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes:			
surface <u>sp cond</u> <u>temp</u> 51091 $\mu$ S 23.8°C - could not achieve 20cm after 10 attempts - Depth to bedrock ~ 8cm			
Ecological observations of note:			
- Several <i>Gorgonians</i> - some drift algae, <i>Pericillius</i> , <i>Acetabularia</i> - coarse sand substrate - several Sponges			

	Time:	Surveyor: KY, MM Date: 4/5/10	
Arrival	3:05 PM		
Departure	3:25 PM		
Site/Grid:	II	Original selected site: Yes/No	Equipment serial no.: RR1 Troll 4 SN 83587/154841
GPS coords: N 25.33997 W 80.306885			
Water depth (m): 3.63		Tidal Condition: Flood	
Air temp (°C): 26.4		Water temp (°C): 24.2	
For Bay Samples:	Bottom temp (°C): 24.0	Bottom spec. cond. 507761	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	51410	24.3	
40	50859	23.9	
60			
Notes: Surface <u>Sp cond</u> 50462us <u>temp</u> 24.2°C - could not achieve 60 cm after 10 attempts - avg depth to bedrock ~ 30 cm - samples smell of H <sub>2</sub> S			
Ecological observations of note: ② Sparse Thalassia ② Some Acetabularia, Penicillium - sandy/silty substrate - <del>some</del> Several sponges			

	Time:	Surveyor: KY, MM Date: 4/5/10	
Arrival	3:29 PM		
Departure	3:58 PM		
Site/Grid:	JII	Original selected site: Yes/No	Equipment serial no.: RR1 Troll 4 SN 83587/154841
GPS coords: N 25.33989 W 80.29442			
Water depth (m): 3.80		Tidal Condition: Flood	
Air temp (°C): 26.9		Water temp (°C): 23.9	
For Bay Samples:	Bottom temp (°C): 23.9	Bottom spec. cond. ② 51671us 51690	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	51868	25.2	
40	52694	24.2	
60			
Notes: Surface <u>Sp cond</u> 51671us <u>temp</u> 23.9°C - Samples smelled faintly of H <sub>2</sub> S - Could not <del>achieve</del> achieve 60 cm after 10 attempts - Depth to bedrock 20-30 cm on avg.			
Ecological observations of note: - Dense Thalassia & Brown algae - sandy/silty substrate			

		Surveyor: KV/MM	
Time:		Date: 4/5/10	
Arrival	4:15 PM		
Departure	4:25 PM		
Site/Grid:	BB9A	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: RR1 Troll 14 SN 83587/154841
GPS coords: N. 25.37148 W. 80.29531			
Water depth (m): <del>2.24</del> 2.24		Tidal Condition: High	
Air temp (°C): 26.1		Water temp (°C): 24.9°C	
For Bay Samples:		Bottom temp (°C): 24.8	Bottom spec. cond. 51551
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50550	25.1	/
40			
60			
Notes:			
<p>Surface <math>\frac{sp\ cond}{51534\ \mu S} \frac{temp}{24.9^\circ C}</math></p> <p>sample smelled of H<sub>2</sub>S</p> <p>unable to achieve 40cm after 10 attempts</p> <p>- avg depth to bedrock ~15cm</p>			
Ecological observations of note:			
<p>- Sparse Thalassia</p> <p>- mostly bare bottom - coarse sandy shell hash</p> <p>- Some Dasyatis</p> <p>- several small Gorgonians</p>			

		Surveyor: KV/MM	
Time:		Date: 4/5/10	
Arrival	4:26 PM		
Departure	<del>4:27 PM</del> 4:47 PM		
Site/Grid:	BB9B	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: RR1 Troll 14 SN 83587/154841
GPS coords: <del>N. 25.37148</del> N. 25.37149 W. 80.29535			
Water depth (m): <del>2.24</del> 2.24		Tidal Condition: High	
Air temp (°C): 26.1		Water temp (°C): 24.7	
For Bay Samples:		Bottom temp (°C): 24.7	Bottom spec. cond. 51343
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50769	24.1	/
40			
60			
Notes:			
<p>Surface <math>\frac{sp\ cond}{51389\ \mu S} \frac{temp}{24.7^\circ C}</math></p> <p>- sample smelled of H<sub>2</sub>S</p> <p>- unable to achieve 40cm after 10 attempts</p> <p>- avg depth to bedrock ~15cm</p>			
Ecological observations of note:			
<p>- <del>some Thalassia</del> and several sponges noted</p> <p>- several small Gorgonians</p> <p>- mostly bare bottom - coarse sandy shell hash</p> <p>- Sparse Thalassia</p> <p>- Some Dasyatis</p>			

		Surveyor: MM, KV Date: 4/6/10	
Arrival	Time: 9:45 AM		
Departure			
Site/Grid:	FIS second attempt	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: RR3 Troll b
GPS coords: N. 25.29508		W. 80.34409	
Water depth (m): 3.03		Tidal Condition: <del>High</del> Ebb	
Air temp (°C): 23.3		Water temp (°C):	
For Bay Samples:	Bottom temp (°C): 22.9	Bottom spec. cond. 48074	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C)
20	480351	22.9	KV
40	41315	23.3	
60			
Notes:			
surface <u>sp cond</u> <u>temp</u> 48035 <u>22.9</u> - second visit to site to confirm readings from 1st attempt - a lot of sediment in samples (photos taken + samples collected for measurement later)			
Ecological observations of note:			
- Sparse to Moderate Thalassia - Some brown algae + Calcareous algae - Silty substrate			

		Surveyor: MM, KV Date: 4/6/10	
Arrival	Time: 9:45 AM		
Departure	10:45 AM		
Site/Grid:	FIS	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: SN 83595/155900 RR3 Troll b
GPS coords: N. 25.29508		W. 80.34409	
Water depth (m): 3.03		Tidal Condition: <del>High</del> Ebb	
Air temp (°C): 23.3		Water temp (°C): 22.9	
For Bay Samples:	Bottom temp (°C): 22.9	Bottom spec. cond. 48074	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C)
20	41315	23.3	
40	42436	22.7	
60	46912	22.8	
Notes:			
surface <u>sp cond</u> <u>temp</u> 48035 <u>22.9</u> - Second visit to site to confirm readings from first attempt - A lot of sediment in samples (photos taken + samples collected for measurement later)			
Ecological observations of note:			
- Sparse to Moderate Thalassia - Some brown algae + Calcareous algae - silty substrate			

		Surveyor: MM, KV	
Time:		Date: 4/6/10	
Arrival	11:13 AM		
Departure	11:41 AM		
Site/Grid: J10		Original selected site: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Equipment serial no.: RR3 Troll 6 SN 83595/155900
GPS coords: N. 25.35146 / W 80.29440 <input checked="" type="checkbox"/>			
Water depth (m): 2.87		Tidal Condition: Ebb	
Air temp (°C): 23.9		Water temp (°C): 23.1	
For Bay Samples:	Bottom temp (°C): 23.2	Bottom spec. cond.: 52071	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	51996	22.9	
40	52526	22.8	
60			
Notes: Surface $\frac{sp. cond}{51587 \mu S} \frac{temp}{23.1^\circ C}$ - could not achieve 60 cm sample after > 10 attempts - most refusals at 40-50 cm - samples smell of H <sub>2</sub> S			
Ecological observations of note: - Several large sponges noted - sparse Thalassia + calcareous algae - coarse sandy bottom <input checked="" type="checkbox"/>			

		Surveyor: MM, KV	
Time:		Date: 4/6/10	
Arrival	11:46 AM		
Departure	12:08 PM		
Site/Grid: I10		Original selected site: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Equipment serial no.: RR3 Troll 6 SN 83595/155900
GPS coords: N. 25.35128 / W. 80.30691			
Water depth (m): 3.14		Tidal Condition: Low	
Air temp (°C): 24.1		Water temp (°C):	
For Bay Samples:	Bottom temp (°C): 23.3	Bottom spec. cond.: 52828	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	51445	22.7	
40	51040	22.6	
60			
Notes: surface $\frac{sp. cond}{52368 \mu S} \frac{temp}{23.3^\circ C}$ - could not achieve 60 cm after > 10 attempts - Refusal @ 45 cm on average - samples smelled faintly of H <sub>2</sub> S			
Ecological observations of note: - <input checked="" type="checkbox"/> sparse Thalassia - some brown algae + Acetabularia - coarse sand substrate			

	Time:	Surveyor: MM, KV Date: 4/6/10	
Arrival	12:17 PM		
Departure	12:33 PM		
Site/Grid:	(W) H1010	Original selected site: Yes/No	Equipment serial no.: RR3 Troll 6 SN 83595/155900
GPS coords: N. 25.35138 W. 80.31260			
Water depth (m): 3.37		Tidal Condition: Low	
Air temp (°C): 23.9		Water temp (°C): 23.3	
For Bay Samples:	Bottom temp (°C): 23.3	Bottom spec. cond. 52556	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52436	22.6	/
40			
60			
Notes: surface sp. cond temp (W) 52168us 23.3°C - could not achieve 40 cm after >10 attempts - Refusal at 15-18cm on avg. - Sample smelled of H <sub>2</sub> S			
Ecological observations of note: - Sparse Thalassia - Some brown algae, Acetabularia, - Several open sandy areas noted			

	Time:	Surveyor: MM, KV Date: 4/6/10	
Arrival	12:35 PM		
Departure	12:59 PM		
Site/Grid:	(W) H10	Original selected site: Yes/No	Equipment serial no.: RR3 Troll 6 SN 83595/155900
GPS coords: N. 25.35147 W. 80.31927			
Water depth (m): 3.23		Tidal Condition: Low	
Air temp (°C): 24.4		Water temp (°C): 23.4	
For Bay Samples:	Bottom temp (°C): 23.3	Bottom spec. cond. 52191	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50398	23.0	/
40			
60			
Notes: surface sp. cond temp 52134us 23.4°C - could not achieve 40 cm after 10 attempts - Refusal at ~30cm on avg. - Sample smelled of H <sub>2</sub> S			
Ecological observations of note: - Sparse Thalassia - Some brown algae, penicillus, Acetabularia, calcareous algae - coarse sand substrate			

labeled as IS-10 in files (W)

		Surveyor: MM, KV Date: 4/6/10	
Arrival	1:03 PM		
Departure	1:26 PM		
Site/Grid:	GH10	Original selected site: <u>Yes/No</u>	Equipment serial no.: RR3 Troll6 SN 83595/155900
GPS coords: N. 25.35136 W. 80.32500			
Water depth (m): 2.84		Tidal Condition: Low	
Air temp (°C): 24.2		Water temp (°C): 23.7	
For Bay Samples:	Bottom temp (°C): 23.7	Bottom spec. cond. 51492	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes: Surface <u>Spec. cond</u> 51410us <u>Temp</u> 23.7°C - could not achieve 20cm after 10 attempts - refusal at 10cm on average			
Ecological observations of note: - coarse sand substrate - drift algae, pericillius, & Dasycladia noted - 2 gorgonians observed			

		Surveyor: MM, KV Date: 4/6/10	
Arrival	1:33 PM		
Departure	1:49 PM		
Site/Grid:	HI9	Original selected site: <u>Yes/No</u>	Equipment serial no.: RR3 Troll6 SN 83595/155900
GPS coords: N. 25.36262 W. 80.31252			
Water depth (m): 2.74		Tidal Condition: Low	
Air temp (°C): 24.6		Water temp (°C): 23.9	
For Bay Samples:	Bottom temp (°C): 23.8	Bottom spec. cond. 50828	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes: Surface <u>Spec. cond</u> 51848us <u>Temp</u> 23.9°C - Refusal @ 5cm on > 10 attempts			
Ecological observations of note: - <del>metal structure</del> round metal structure w/ corals and Condylectis (anemone) growing on it (looks like a hub cap) - coarse sand & shell hash w/ coral rubble - several sponges + Gorgonians present			

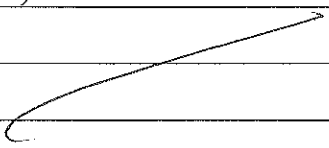
	Time:		Surveyor: MM, KV Date: 4/6/10
Arrival	1:59 PM		
Departure	2:20 PM		
Site/Grid:	I9	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: RR3 Troll 6 SN 83595/155900
GPS coords: N. 25. 36247 W. 80. 30673			
Water depth (m): 2.71		Tidal Condition: Low	
Air temp (°C): 24.0		Water temp (°C): 23.8	
For Bay Samples:	Bottom temp (°C): 23.7	Bottom spec. cond. 52807	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	51260	23.6	/
40			
60			
Notes:			
<p>surface <u>sp cond</u> 52595 <u>temp</u> 23.8°C</p> <p>- Refusal at 15 <sup>(20)</sup> cm - 25 cm on avg.</p> <p>- 20 cm sample smelled of H<sub>2</sub>S</p>			
Ecological observations of note:			
<p>Site is</p> <p>- Right next to a crab pot (21m to the west) of crab pot</p> <p>- Sparse Thalassia</p> <p>- Some Acetabularia, brown algae, + pericillius</p> <p>- coarse sand substrate</p>			

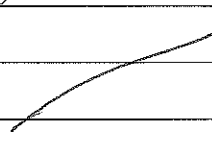
	Time:		Surveyor: MM, KV Date: 4/6/10
Arrival	2:24 PM		
Departure	2:46 PM		
Site/Grid:	I59	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: RR3 Troll 6 SN 83595/155900
GPS coords: N. 25. 36249 W. 80. 29988			
Water depth (m): 2.97		Tidal Condition: Flood	
Air temp (°C): 25.7		Water temp (°C): 24.1	
For Bay Samples:	Bottom temp (°C): 23.9	Bottom spec. cond. 53221	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	51548	23.8	/
40	516340	23.5	
60	(20)		
Notes:			
<p>surface <u>sp cond</u> 52274 <u>temp</u> 24.1°C</p> <p>- Refusal at 25-35 cm on avg</p> <p>- Samples smelled of H<sub>2</sub>S</p>			
Ecological observations of note:			
<p>- Sparse Thalassia + drift algae</p> <p>- coarse sand shell hash substrate</p>			



		Surveyor: MM, KV	
Time:		Date: 4/6/10	
Arrival	2:51 PM		
Departure	3:17 PM		
Site/Grid:	J9	Original selected site: <input checked="" type="checkbox"/> Yes/No	Equipment serial no.: R23 Troll 6 SN 83595/15590
GPS coords: N. 25.36259 / W. 80.29430			
Water depth (m): 2.81		Tidal Condition: Flood	
Air temp (°C): 24.3		Water temp (°C): 24.0	
For Bay Samples:	Bottom temp (°C): 24.0	Bottom spec. cond. 52677	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52151	24.3	
40	51628	23.6	
60	52525	23.0	
Notes: Surface sp cond 52602ms temp 24.0°C - All samples smelled of H <sub>2</sub> S			
Ecological observations of note: - sparse Thalassia + Dasycladis - moderately coarse sand substrate - some Penicillus present			

		Surveyor: MM, KV	
Time:		Date: 4/6/10	
Arrival	3:26 PM		
Departure	3:42 PM		
Site/Grid:	K9	Original selected site: <input checked="" type="checkbox"/> Yes/No	Equipment serial no.: R23 Troll 6 SN 83595/15590
GPS coords: N. 25.36228 / W. 80.28191			
Water depth (m): 2.64		Tidal Condition: Flood	
Air temp (°C): 25.6		Water temp (°C): 24.2	
For Bay Samples:	Bottom temp (°C): 24.0	Bottom spec. cond. 52984	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes: Surface sp cond 53815ms temp 24.2°C - Refusal at 2cm			
Ecological observations of note: - coarse sand substrate - several gorgonians and very large sponges (basketball size + larger)			

	Time:	Surveyor: MM, KV Date: 4/6/10	
Arrival	3:53 PM		
Departure	4:26 PM		
Site/Grid:	K8	Original selected site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Equipment serial no.: RR3 Troll 6 SN 83595/155900
GPS coords: N. 25.37362 W. 80.28174			
Water depth (m): 1.82		Tidal Condition: Flood	
Air temp (°C): 25.3		Water temp (°C): 24.7	
For Bay Samples:	Bottom temp (°C): 24.6	Bottom spec. cond.: 53104	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	51422	24.6	
40	51669	24.1	
60	51598	24.0	
Notes: surface <u>sp cond</u> <u>temp</u> 52970 us 24.7°C - All samples smelled of H <sub>2</sub> S			
Ecological observations of note: - sparse to moderate <i>Thalassia</i> covered in drift algae - several small open sandy patches - sandy substrate w/ shell hash			

	Time:	Surveyor: MM, KV Date: 4/6/10	
Arrival	4:32 PM		
Departure	4:58 PM		
Site/Grid:	K7	Original selected site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Equipment serial no.: RR3 Troll 6 SN 83595/155900
GPS coords: N. 25.38527 W. 80.28174			
Water depth (m): 2.15		Tidal Condition: High	
Air temp (°C): 24.3		Water temp (°C): 24.4	
For Bay Samples:	Bottom temp (°C): 24.4	Bottom spec. cond.: 53485	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	51273	23.7	
40	50989	23.0	
60			
Notes: surface <u>sp cond</u> <u>temp</u> 53443 us 24.4°C - Refusal 45-50 cm - Samples smelled of H <sub>2</sub> S			
Ecological observations of note: - moderate to dense <i>Thalassia</i> 2ft diameter - several sand mounds (8-12 in. tall) observed - not sure what causes them - some drift algae and sponges present			

		Surveyor: MM, KV Date: 4/7/10	
Arrival	Time: 9:26 AM		
Departure	9:57 AM		
Site/Grid:	BB2A second sampling	Original selected site: Yes/No	Equipment serial no.: RR1 Troll 4 SN 83587/154841
GPS coords: N. 25.44227 / W. 80.32157			
Water depth (m): 4.13		Tidal Condition: Ebb	
Air temp (°C): 23.5		Water temp (°C): 23.0	
For Bay Samples:	Bottom temp (°C): 23.1	Bottom spec. cond.: 51636	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	NOT RESAMPLED		
40			
60			
Notes: Surface sp cond temp 49761 us 23.0°C - could not resample porewater - sediment too silty - nothing but sludge came up. Only surface + bottom resampled			
Ecological observations of note: - Sludge substrate - Some sparse drift algae; otherwise bare bottom			

		Surveyor: MM, KV Date: 4/7/10	
Arrival	Time: 9:58 AM		
Departure	<del>10:15 AM</del> (K)		
Site/Grid:	BB2B Second sampling	Original selected site: Yes/No	Equipment serial no.: RR1 Troll 4 SN 83587/154841
GPS coords: N. 25.44228 / W. 80.32164			
Water depth (m): 4.13		Tidal Condition: Ebb	
Air temp (°C): 24.0		Water temp (°C): 22.8	
For Bay Samples:	Bottom temp (°C): 22.7	Bottom spec. cond.: 51566	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	NOT RESAMPLED		
40			
60			
Notes: Surface sp cond temp 51453 us 22.8°C - could not resample porewater - sediment too silty - nothing but sludge came up. Only surface + bottom resampled			
Ecological observations of note: - Sludge substrate - Some sparse drift algae; otherwise bare bottom			

		Surveyor: MM, KV	
Time:		Date: 4/7/10	
Arrival	10:24 AM		
Departure	10:50 AM		
Site/Grid:	BB4A <i>second sampling</i>	Original selected site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Equipment serial no.: SN 83587/154841 RRI TROLL
GPS coords: N. 25.42278 W. 80.32004			
Water depth (m): 1.48		Tidal Condition: Ebb	
Air temp (°C): 24.4		Water temp (°C): 23.6	
For Bay Samples:	Bottom temp (°C): 23.2	Bottom spec. cond.: 52335	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	49453	23.4	/
40	49256	23.4	
60	47529	23.4	
Notes:			
surface <u>spec cond</u> 51800 <u>temp</u> 23.6°C - samples smell of H <sub>2</sub> S			
Ecological observations of note:			
- Sparse to moderate Thalassia + drift algae - Some Dasycladia present - silty/sandy substrate w/ some shell hash			

		Surveyor: MM, KV	
Time:		Date: 4/7/10	
Arrival	10:51 AM		
Departure	11:14 AM		
Site/Grid:	BB4B <i>second sampling</i>	Original selected site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Equipment serial no.: SN 83587/154841 RRI TROLL
GPS coords: N. 25.42279 W. 80.32001			
Water depth (m): 1.41		Tidal Condition: Ebb	
Air temp (°C): 24.8		Water temp (°C): 23.3	
For Bay Samples:	Bottom temp (°C): 23.4	Bottom spec. cond.: 52619	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	51020	23.4	/
40	48019	23.4	
60	49119	23.2	
Notes:			
surface <u>spec cond</u> 52632 <u>temp</u> 23.3°C - samples smell of H <sub>2</sub> S - site ~ 3m NE of BB4A			
Ecological observations of note:			
- sparse to moderate Thalassia + drift algae - some Dasycladia present - silty/sandy substrate w/ some shell hash			

BB4A-40 mislabeled in file as BB4A-20 (taken at a later time than the actual BB4A-12)

		Surveyor: MM, KV	
Time:		Date: 4/7/10	
Arrival	11:35 AM		
Departure	11:51 AM		
Site/Grid:	J8	Original selected site: <input checked="" type="radio"/> Yes / <input type="radio"/> No	Equipment serial no.: RR1 Troll 4 SN 83587/154841
GPS coords: N. 25.37382 W. 80.29423			
Water depth (m): 1.98		Tidal Condition: Ebb	
Air temp (°C): 25.4		Water temp (°C): 24.0	
For Bay Samples:	Bottom temp (°C): 23.8	Bottom spec. cond. 52923	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes: surface sp cond temp 52810 $\mu$ S 24.0			
- Refusal at 3-10 cm after 10 attempts			
- periwinkle sipper broke off at this site			
tip of the <del>sample</del> <input checked="" type="radio"/> (W)			
Ecological observations of note:			
- Several Gorgonians noted			
- Some Thalassia + Drift algae			
- coarse sand substrate			

		Surveyor: MM, KV	
Time:		Date: 4/7/10	
Arrival	11:53 AM		
Departure	12:40 PM		
Site/Grid:	IJ8	Original selected site: <input checked="" type="radio"/> Yes / <input type="radio"/> No	Equipment serial no.: SN 83587/154841 RR1 Troll 4
GPS coords: N. 25.37386 W. 80.30010			
Water depth (m): 2.10		Tidal Condition: Low	
Air temp (°C): 25.5		Water temp (°C): 24.0	
For Bay Samples:	Bottom temp (°C): 23.9	Bottom spec. cond. <del>52923</del> 53027	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	51661	23.8	
40	51341	23.8	
60 <input checked="" type="radio"/> (W)	51567	23.7	
Notes: surface sp cond temp 52723 $\mu$ S 24.0°C			
- samples smell of H <sub>2</sub> S			
Ecological observations of note:			
- More Dasycladis than Thalassia, but both are sparse			
- coarse sand substrate			

		Surveyor: KV, MM	
Time:		Date: 4/7/10	
Arrival	1:05 PM		
Departure	1:30 PM		
Site/Grid:	HI8	Original selected site: Yes <input checked="" type="radio"/> No <input type="radio"/>	Equipment serial no.: RRI TROLL 100 SN 83587/154841
GPS coords: N. 25.37202 / W. 80.31137			
Water depth (m): N/A		Tidal Condition: Low	
Air temp (°C): 25.6		Water temp (°C): N/A	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	

Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	58465	26.1	
40	55262	24.3	
60	55770	23.5	

Notes:

- Samples were amber-colored
- Smelled organic, but very stinky. Not H<sub>2</sub>S
- 20m from the shoreline, ~~shallow~~ (KV)

Ecological observations of note:

- In an open red mangrove-dominated area, with black mangroves mixed in. Most black mangroves are larger than the reds
- Black mangrove pneumatophores cover the ground
- Scattered garbage
- Shoreline covered w/ dead coral (coral rubble) + some Salicornia
- Several photos taken

		Surveyor: MM, KV	
Time:		Date: 4/7/10	
Arrival	1:59 PM		
Departure	2:12 PM		
Site/Grid:	G-9-10	Original selected site: Yes <input checked="" type="radio"/> No <input type="radio"/>	Equipment serial no.: RRI TROLL 100 SN 83587/154841
GPS coords: N. 25.39637 / W. 80.32761			
Water depth (m): N/A		Tidal Condition: <del>Low</del> Flood	
Air temp (°C): 25.5		Water temp (°C): N/A	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	

Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	56358	26.3	
40	58259	24.1	
60	60002	23.5	

Notes:

- Site located ~ 12m SW of original point
- Samples smelled organic but very stinky - not H<sub>2</sub>S
- Amber-colored samples

Ecological observations of note:

- Red and Black Mangrove stand w/ several old large black mangroves
- Fungus growing on many red mangroves
- Black mangrove pneumatophores cover the ground
- Change in canopy height NW of point (trees get shorter)

	Time:	Surveyor: MM,KN Date: 4/7/10	
Arrival	2:55 PM		
Departure	3:08 PM		
Site/Grid:	FG-11	Original selected site: Yes/No <input checked="" type="radio"/> No	Equipment serial no.: RRI Troll 4 SN 83587/154841
GPS coords: N. 25. 33909 / W. 80. 33791			
Water depth (m): N/A		Tidal Condition: Flood	
Air temp (°C): 26.9		Water temp (°C): N/A	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	54882	26.8	
40	61765	26.2	
60	62057	24.6	
Notes:			
<ul style="list-style-type: none"> <li>- site located ~60m to the NE of original point</li> <li>- samples were amber-colored w/ some red pent in the 20cm <sup>(K)</sup> sample</li> <li>- smelled of H<sub>2</sub>S + organic matter</li> </ul>			
Ecological observations of note:			
<ul style="list-style-type: none"> <li>- Thick scrub red mangrove (~1-1.5m tall) stand</li> <li>- Some Australian Pines ~60m SE of point (8m tall)</li> <li>- Rabbit poop near <sup>(K)</sup> sampling area</li> </ul>			

	Time:	Surveyor: MM,KN Date: 4/7/10	
Arrival			
Departure			
Site/Grid:	M2 A	Original selected site: Yes/No	Equipment serial no.:
GPS coords: N. 25. W. 80.			
Water depth (m):		Tidal Condition:	
Air temp (°C):		Water temp (°C):	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes:			
Ecological observations of note:			

Time:		Surveyor: KY, EH	
Arrival 9:36 AM		Date: 4/12/10	
Departure 10:01 AM			
Site/Grid:	Original selected site: Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>	Equipment serial no.: RR3 + Troll 6 SN 83595/155908	
GPS coords: N 25.39290 W 80.32739			
Water depth (m): 0.39		Tidal Condition: High	
Air temp (°C): 21.0		Water temp (°C): 23.2	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	

Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	51054	24.1	<del>                    </del>
40	49160	24.1	
60	52705	23.3	

Notes: Surface sp cond temp  
49735 23.2°C  
- Site located ~ 5m SE of original point  
- samples smelled of H<sub>2</sub>S  
- 60 cm sample had marl; 40+20 had peat

Ecological observations of note:

- site located in red mangrove stand ~ 4m tall on avg
- site adjacent to tidal creek
- fungus growing on several red mangroves
- several small white starfish noted (3 pictures taken)

- started lightly drizzling during sampling - waited until drizzle stopped before continuing

Time:		Surveyor: KY, EH	
Arrival 10:16		Date: 4/12/10	
Departure 10:34			
Site/Grid:	Original selected site: Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>	Equipment serial no.: SN 83595/155908 RR3 Troll 6	
GPS coords: N 25.39280 W 80.32745			
Water depth (m): 0.37		Tidal Condition: High	
Air temp (°C): 21.5		Water temp (°C): 23.3	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	

Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	49881	23.3	<del>                    </del>
40	47304	23.3	
60	47644	23.1	

Notes: Surface sp cond temp  
50126 23.3°C  
- Site located 3m <sup>(K)</sup> SW of <sup>(K)</sup> M2A  
- Samples smelled of H<sub>2</sub>S

Ecological observations of note:

- Site located in red mangrove stand ~ 4m tall on avg.
- site adjacent to tidal creek
- fungus growing on several red mangroves
- several small white starfish noted



		Surveyor: KV, EH	
Time:		Date: 4/12/10	
Arrival	12:12 PM		
Departure	12:54 PM		
Site/Grid:	GH8	Original selected site: <input checked="" type="radio"/> Yes / <input type="radio"/> No	Equipment serial no.: SN 83595/155900 RR3 Troll 100
GPS coords: N 25.37390 / W 80.32498			
Water depth (m): 0.17		Tidal Condition: <del>ebb</del> Ebb	
Air temp (°C): 20.3		Water temp (°C): 24.2	
For Bay Samples:		Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50457	22.9	
40	52299	22.8	
60	55663	22.8	
Notes:			
- sprinkling upon arrival to site - waited to sample until after rain subsided - Samples small of the surface $\frac{sp\ cond}{50919\ \mu S}$			
Ecological observations of note:			
- scrub red mangrove area ~ 1.5m tall - numerous crab holes around site - sparse Dasycladus - marl substrate			

		Surveyor: KV, EH	
Time:		Date: 4/12/10	
Arrival	2:14 PM		
Departure	3:17 PM		
Site/Grid:	G-2-3	Original selected site: <input checked="" type="radio"/> Yes / <input type="radio"/> No	Equipment serial no.: SN 83595/155900 RR3 Troll 100
GPS coords: N 25.43531 / W 80.33552			
Water depth (m): 0.14		Tidal Condition: N/A	
Air temp (°C): 23.7		Water temp (°C): 24.1	
For Bay Samples:		Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	20187	24.1	
40	21649	24.0	
60	22503	25.1	
Notes:			
- site too close to road - moved ~ 30m away from road + transmission line - brought by sprinkles (K) - surface sampling delayed by rain $\frac{sp\ cond}{3937}$ surface $\frac{sp\ cond}{3936.9}$			
Ecological observations of note:			
- scrub red mangroves - marl substrate - some minor frost damage on mangroves - Distichlis spicata sparse btwn scrub mangroves - sparse white mangroves also present			

		Surveyor: KV, EA	
Time:		Date: 4/12/10	
Arrival	3:40 pm		
Departure	4:02 pm		
Site/Grid:	F-2-3 <del>F-2-3</del> (K)	Original selected site: Yes/No	Equipment serial no.: RR3 Troll 6 SN 83595/155900
GPS coords: N 25.43587 W 80.34402			
Water depth (m): 0.07		Tidal Condition: N/A	
Air temp (°C): 24.8		Water temp (°C): 26.0	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	7162.5	23.8	/
40	8408.5	23.8	
60	16034	24.1	
Notes:			
- located ~50m W of original point - samples smelled organic + looked like chocolate milk <div style="text-align: right;">sp cond Surface 2410.9 uS</div>			
Ecological observations of note:			
- scrub red mangroves ~1.5m tall - small bunches of sawgrass present ~0.5m tall scattered - several dead snags noted (K) mangroves - marl substrate that has been dry in recent past (exhibiting cracks)			

		Surveyor: KV, EIT	
Time:		Date: 4/12/10	
Arrival	4:32 PM		
Departure	4:51 PM		
Site/Grid:	G-1-2	Original selected site: Yes/No	Equipment serial no.: RR3 Troll 6 SN 81640/155900
GPS coords: N 25.44763 W 80.33798			
Water depth (m): 0.08		Tidal Condition: N/A	
Air temp (°C): 24.9		Water temp (°C): 24.5	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50135	25.1	/
40	52317	24.4	
60	54100 (K)	24.4	
Notes:			
Site located 15 m SE of original point All samples smelled of H <sub>2</sub> S chunks of peat in 40 cm sample <div style="text-align: right;">sp cond Surface 15888 uS</div>			
Ecological observations of note:			
- Scrub red mangrove ~1 meter tall (thick) - several dead white mangrove snags - dark veination on underside of some red mangrove leaves			

Time:		Surveyor: KV, EH Date: 4/12/10	
Arrival	5:59 PM		
Departure	6:24 PM		
Site/Grid:	F-1-2	Original selected site: Yes <input checked="" type="radio"/> No <input type="radio"/>	Equipment serial no.: RR3 Troll 6 SN 83595/155900
GPS coords: N. 25.44780 ✓ W. 80.34634 ✓			
Water depth (m): 0.02		Tidal Condition: N/A	
Air temp (°C): 23.6 ✓		Water temp (°C): 24.3	
For Bay Samples:		Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	29,285	24.4	/
40	28,182	24.2	
60	21,499	23.7	
Notes:			
- site located ~25m SW of original point - started drizzling upon arrival - delayed sampling until rain subsided. surface <u>sp cond</u> 9848.7 <u>temp</u> 24.3°C			
Ecological observations of note:			
- scrub red mangrove ~ 1m tall - several dead white mangrove snags ~ 2m tall - marl substrate			

Time:		Surveyor: KV, EH Date: 4/12/10	
Arrival	6:45 PM		
Departure	6:59 PM		
Site/Grid:	E-1-2	Original selected site: Yes <input checked="" type="radio"/> No <input type="radio"/>	Equipment serial no.: RR3 Troll 6 SN 83595/155900
GPS coords: N. 25.44760 ✓ W 80.35650 ✓			
Water depth (m): 0.09		Tidal Condition: N/A	
Air temp (°C): 23.1 ✓		Water temp (°C): 22.0	
For Bay Samples:		Bottom temp (°C):	Bottom spec. cond.
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	1408.1	23.0	/
40	1445.8	22.6	
60	1342.6	22.6	
Notes:			
- site is 70m SW of original point - can hear gunshots from shooting range surface <u>sp cond</u> 419.65 <u>temp</u> 22.0°C			
Ecological observations of note:			
- sawgrass patch w/ Cassurina trees scattered in it - Cassurina - 4m tall - sawgrass - 1.5m tall			

**August 2010**

	Time:		Surveyor: JFV, HH, MM
Arrival	10:06		Date: 8/7/10
Departure	11:27		
Site/Grid:	G15	Original selected site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Equipment serial no.: RR 1, Probe #4 SN 83587 / 154841
GPS coords: N 25.29512 W 80.33178			
Water depth (m): 2.87 m		Tidal Condition: Low	
Air temp (°C): <del>34.3</del> 33.3		Water temp (°C): 31.9	
For Bay Samples:	Bottom temp (°C): 32.16	Bottom spec. cond. (uS): 49379.06	
32.3		50494	
Aqua TROLL 100			
Depth (cm)	Spec. Cond. (uS)	Temperature (°C)	Temp measured in-situ (°C):
20	51149	32.7	<del>32.7</del>
40	51329	32.0	/
60	50248	32.1	
Notes:			
Top 149,497 uS <del>31.8</del> 31.9 - Temp (last reading)			
Fine sediment is claying tube			
20cm Strong H <sub>2</sub> S odor. Fine gray sediment			
40cm Strong H <sub>2</sub> S odor. Not as turbid as 20cm			
60cm Strong H <sub>2</sub> S odor. Fine sediment like M 20cm and 40cm			
Surface conductivity 49498.25			
Ecological observations of note:			
Dense Thalassia, Moderate Syringoteuthis. Individuals of Penicillus and Culerpera			
Silty bottom			

	Time:		Surveyor: MM, JFV, HH
Arrival	11:37		Date: 8-17-10
Departure	12:21		
Site/Grid:	F15	Original selected site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Equipment serial no.: RR 1, Probe #4 SN 835871 / 154841
GPS coords: N 25.29508 W 80.34409			
Water depth (m): 1.68 m		Tidal Condition: Low	
Air temp (°C): 32.6		Water temp (°C): 31.8	
For Bay Samples:	Bottom temp (°C): 31.8	Bottom spec. cond. 43406	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	48992	31.6	/
40	42030	<del>31.8</del> 31.7	
60	48448	32.1	
Notes:			
Water is about 5' deep @ site.			
Sampling started 11:47			
20cm H <sub>2</sub> S odor, turbid with fine sediment			
40cm Mild H <sub>2</sub> S smell, a lot of fine sediment			
60cm Mild H <sub>2</sub> S odor, turbid with fine sed			
Surface water temperature 31.8°C. Sp con 49116.25			
Ecological observations of note:			
Moderate Thalassia. Individuals of Penicillus, Halimeda (calcareous algae), Vataphora			

		Surveyor: MM, HH, JFV	
Time:		Date: 8-17-10	
Arrival	12:31		
Departure	13:15		
Site/Grid: E15			
Original selected site: <input checked="" type="checkbox"/> Yes/No		Equipment serial no.: SN 83587/154841 RR1 Probe #1	
GPS coords: N 25.29508 W 80.34409			
Water depth (m): 2.53 m		Tidal Condition: Low	
Air temp (°C): 33.2°		Water temp (°C): 32.2°	
For Bay Samples:		Bottom temp (°C): 32.2	Bottom spec. cond. 49482
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	49302	32.8	
40	49884	32.0	
60	48469	32.5	
Notes:			
20cm mild H <sub>2</sub> S smell. Fine sediment. Turbid sample 40cm moderate H <sub>2</sub> S odor. Less turbid than 20cm. Some fine sediment 60cm mild H <sub>2</sub> S smell. Turbidity same as 40cm. Surface Temp: 32.2°C, Sp Cond: 49449 μS			
Ecological observations of note:			
Moderate Thalassia, A few Panacilla			

		Surveyor: MM, HH, JFV	
Time:		Date: 8-17-10	
Arrival	13:25		
Departure	13:58		
Site/Grid: D15			
Original selected site: <input checked="" type="checkbox"/> Yes/No		Equipment serial no.: SN 83587/154841 RR1 Probe #4	
GPS coords: N 25.29542 W 80.36929			
Water depth (m): 2.53 m		Tidal Condition: Low	
Air temp (°C): 33.7°		Water temp (°C): 32.6°	
For Bay Samples:		Bottom temp (°C): 32.6	Bottom spec. cond. 47748
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	49250	32.0	
40	47984	32.8 <sup>32.7</sup>	
60	46330	32.7	
Notes:			
20cm mild H <sub>2</sub> S odor. Slightly turbid 40cm moderate H <sub>2</sub> S odor. Slightly turbid 60cm mild H <sub>2</sub> S. Moderately turbid Surface Temp 32.6°C; Sp Cond 47634			
Ecological observations of note:			
Dense Thalassia			

	Time:	Surveyor: MM, HH, JFV	
Arrival	14:20	Date: 8-17-10	
Departure	14:27		
Site/Grid:	D14	Original selected site: <input checked="" type="checkbox"/> Yes/No	Equipment serial no.: SN 83587/154841 RR 1 Probe #4
GPS coords: N 25.30658 W 80.36920			
Water depth (m): 1.95 <sub>m</sub>		Tidal Condition: incoming	
Air temp (°C): 33.7°		Water temp (°C): 32.8°	
For Bay Samples:	Bottom temp (°C): 33.0	Bottom spec. cond. 47254	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes:			
<p>Made many attempts, but porewater sipper was always rejected.</p> <p>No porewater sampling done.</p> <p>Hard bottom 5-10 cm beneath sand surface.</p> <p>Surface water Temp: 32.8 Sp. Cond: 47424</p>			
Ecological observations of note:			
<p>Sandier than previous sites to the south.</p> <p>Sandy shell hash substrate</p> <p>Primarily Bataphora</p> <p>Penicillus, small stony corals, gorgonians, sponges, brown drift algae</p>			

	Time:	Surveyor: MM, HH, JFV	
Arrival	14:27	Date: 8-17-10	
Departure	15:04		
Site/Grid:	E14	Original selected site: <input checked="" type="checkbox"/> Yes/No	Equipment serial no.: RR 1 Probe #4 SN 83587/154841
GPS coords: N 25.30646 W 80.35646			
Water depth (m): 2.41 <sub>m</sub>		Tidal Condition: incoming	
Air temp (°C): 33.0°		Water temp (°C): 32.8°	
For Bay Samples:	Bottom temp (°C): 33.1	Bottom spec. cond. 49478	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52010	32.2	* saved as DW-20
40	51448	32.0	
60	51167	32.2	
Notes:			
<p>20 cm Mild H<sub>2</sub>S odor. <del>Very</del> Not much fine sediment</p> <p>40 cm Moderate H<sub>2</sub>S odor. Moderate turbidity. Gray sediment</p> <p>60 cm Strong H<sub>2</sub>S odor. Moderate turbidity. Fine sediment</p> <p>Surface Temp: 32.8; Spec Cond 48279 <math>\mu</math>S</p>			
Ecological observations of note:			
<p>Dense Thalassia</p> <p>silty substrate</p> <p>Live scallop</p>			

	Time:		Surveyor: MM, HH, JEV Date: 8-17-10
Arrival	15:15		
Departure	15:49		

Site/Grid:	F14	Original selected site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Equipment serial no.: KR1 Probe #4 SN 83587 / 154841
------------	-----	---	--

GPS coords: N 25.30639 W 80.35646 80.34382

Water depth (m): 1.55 m		Tidal Condition: incoming	
Air temp (°C): 33.9 °		Water temp (°C): 32.8°	
For Bay Samples:	Bottom temp (°C): <del>33.0</del> 32.9		Bottom spec. cond. 48081

Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	43277	32.7	
40	50450	<del>33.0</del> 32.8	
60	49121	<del>33.0</del> 32.7	

Notes:

20 cm Mild H<sub>2</sub>S odor. Fine sediment  
40 cm Mild H<sub>2</sub>S odor. Fine sediment  
60 cm Mild H<sub>2</sub>S odor. Fine sediment

Surface Water T: 32.8°C Sp Cond 48100

Ecological observations of note:

Several purple sponges present  
Sponges, stony coral, Halimeda, Eudodia, blue sponge  
Moderate Thalassia  
Sandy silt bottom. More sand than E14

	Time:		Surveyor: MM, HH, JEV Date: 8-17-10
Arrival	16:06		
Departure	16:57		

Site/Grid:	G14	Original selected site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Equipment serial no.: RR1 Probe #4 SN 83587 / 154841
------------	-----	---	--

GPS coords: N 25.30619 W 80.33185

Water depth (m): 3.44 m	Tidal Condition: incoming	
Air temp (°C): 33.5°	Water temp (°C): 32.7°	
For Bay Samples:	Bottom temp (°C): 33.0 32.8	Bottom spec. cond. 52042 52041

Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52089	32.3	
40	52759	32.5	
60	51463	32.6	

Notes:

20 cm Mild H<sub>2</sub>S odor. Low turbidity  
40 cm Mild H<sub>2</sub>S odor. Low turbidity  
60 cm Moderate H<sub>2</sub>S smell. Very low turbidity


Surface Water Temp 32.7°C Sp cond 49030

Ecological observations of note:

Tiny seahorse  
Penicillus, seraxodion (sparse), Caulipera, Acetabularia  
Silty bottom.



	Time:		Surveyor: MM, HH, JV
Arrival	9:12		Date: 8/18/10
Departure	9:50		
Site/Grid:	H 14	Original selected site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Equipment serial no.: RR1, Troll #4 SN 83587/154841
GPS coords: N 25.30644 W 80.31927			
Water depth (m): 3.54 m		Tidal Condition: Ebbing	
Air temp (°C): 31.5°		Water temp (°C): 32.1°	
For Bay Samples:	Bottom temp (°C): 32.6°	Bottom spec. cond. 51902	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52531	31.7	
40	52875	32.0	
60	—	—	
Notes:			
20cm Moderate H <sub>2</sub> S odor. Some fine sediment 40cm Low turbidity. Fine sediment. No odor 60cm No sample taken, 15 refusals.			
Surface Water Temp 32.1°C Sp Cond 51491 µS			
Ecological observations of note:			
Dense Thalassia, Moderate Sargassum. Some Penicillium. Sea anemonae			

	Time:		Surveyor: MM, HH, JV
Arrival	10:00		Date: 8-18-10
Departure	10:33		
Site/Grid:	I 13	Original selected site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Equipment serial no.: RR1 Troll #4 SN 83587/154841
GPS coords: N 25.31775 W 80.30687			
Water depth (m): 3.35 m		Tidal Condition: Ebb	
Air temp (°C): 31.6°		Water temp (°C): 31.9°	
For Bay Samples:	Bottom temp (°C): 32.6°	Bottom spec. cond. 51562	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	51839	31.9	
40	53346	31.6	
60	52981	31.6	
Notes:			
20cm No odor. Low turbidity 40cm Mild H <sub>2</sub> S odor. Low turbidity 60cm Mild H <sub>2</sub> S odor. Moderate turbidity			
Surface Water Temperature 31.9°C. Sp Cond 50695 µS			
Ecological observations of note:			
 Abuluria, Moderate to dense Thalassia, moderate sargassum, Penicillium, Celerpa, Halimeda			

		Surveyor: MM, HH, JFV	
Time:		Date: 8-18-10	
Arrival	10:42		
Departure	11:11		
Site/Grid:	H 13	Original selected site: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Equipment serial no.: RR 1 Troll #4 SN 837-83587/154841
GPS coords: N 25.31770 W 80.31966 (HH)			
Water depth (m): 3.44m		Tidal Condition: ebb	
Air temp (°C): 31.7°		Water temp (°C): 31.8°	
For Bay Samples:	Bottom temp (°C): 32.4°	Bottom spec. cond. 42783	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52464	31.8	/
40	53226	31.6	
60	51988	31.6	
Notes:			
20 cm Moderate H <sub>2</sub> S odor. Very low turbidity 40 cm Mild H <sub>2</sub> S odor. Mild turbidity 60 cm Mild H <sub>2</sub> S odor. Mild turbidity Surface water Temp 31.8°C. Sp Cond. 50406			
Ecological observations of note:			
Numerous Porecellus, sparse Thalassia, isolated sponge, some Halimeda Silty sand with some shell hash			




		Surveyor: MM, HH, JFV	
Time:		Date: 8-18-10	
Arrival	11:25		
Departure	11:54		
Site/Grid:	F 13	Original selected site: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Equipment serial no.: SN 83587/154841 RR 1 Troll #4
GPS coords: N 25.31783 W 80.34415			
Water depth (m): 2.68m		Tidal Condition: ebb	
Air temp (°C): 32.0°		Water temp (°C): 32.2°	
For Bay Samples:	Bottom temp (°C): 32.1°	Bottom spec. cond. 49884	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52367	31.9	/
40	—	—	
60	—	—	
Notes:			
20 cm Moderate H <sub>2</sub> S odor. Moderate turbidity 40 cm 20 rejections. No success No attempt at 60 cm. Surface Water Temp 32.2°C. Sp Cond 49831			
Ecological observations of note:			
Sparse Thalassia. Numerous Porecellus Solitary eudania, sponges, Halimeda			



	Time:		Surveyor: MM, HH, JFV Date: 8-18-10
Arrival	12:12		
Departure	12:54		
Site/Grid:	E13	Original selected site: <input checked="" type="checkbox"/> Yes/No	Equipment serial no.: SN 83587/154841 RR1 Troll #4
GPS coords: N 25.31777 W 80.35654			
Water depth (m): 1.77 m		Tidal Condition: Low	
Air temp (°C): 32.6°		Water temp (°C): 32.7°	
For Bay Samples:	Bottom temp (°C): 33.1°	Bottom spec. cond. 48864	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	53174 53175	32.2	
40	53731	32.0 <sup>HH</sup> 31.8	
60	53633	32.0	
Notes:			
20 cm Mild H <sub>2</sub> S odor. Rust-colored deposits that are fine and sparse. 40 cm First sample had too much sediment and not enough water. Added about 15 ml of another sample from same depth to make a composite sample. Mild H <sub>2</sub> S odor. 60 cm Very mild H <sub>2</sub> S odor. Moderate turbidity. Surface Water Temp 32.7 Sp Cond 47267.45			
Ecological observations of note:			
Dense Thalassia			

	Time:		Surveyor: MM, HH, JFV Date: 8-18-10
Arrival	13:05		
Departure	13:50		
Site/Grid:	D13	Original selected site: <input checked="" type="checkbox"/> Yes/No	Equipment serial no.: SN 83587/154841 RR1 Troll #4
GPS coords: N 25.19384 W 80.36925 N 25.31799 W 80.36914			
Water depth (m): 1.92 m		Tidal Condition: Low	
Air temp (°C): 32.8°		Water temp (°C): 33.1°	
For Bay Samples:	Bottom temp (°C): 33.0	Bottom spec. cond. 46385	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	49144	32.5	
40	48596	32.5	
60	50581	33.2	
Notes:			
20 cm Moderate H <sub>2</sub> S odor. Moderate turbidity. 40 cm Mild H <sub>2</sub> S odor. Fine gray sediment. 15 refusals before success. 60 cm 20 refusals, moved 2 m and had success. Light brown fine sediment. Mild H <sub>2</sub> S odor. Surface Water Temp: 33.1° Sp Cond 46868			
Ecological observations of note:			
Silty bottom. Dense to moderate Thalassia			

	Time:		Surveyor: MM, HH, SS Date: 8-18-10
Arrival	14:25		
Departure	14:44pm		
Site/Grid:	H12	Original selected site: Yes/No	Equipment serial no.: SN 83587 / 154841 RR1 Troll #4
GPS coords: N 25.32904 W 80.31976			
Water depth (m): 3.20 m		Tidal Condition: LOW	
Air temp (°C): 31.8°		Water temp (°C): 32.9°	
For Bay Samples:	Bottom temp (°C): 32.6	Bottom spec. cond. 50564	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes: Surface 50297 $\mu$ S & 32.9 °C 35 attempts to reach 20 cm - rejected unable to take readings. avg refusal between 5-10 cm			
Ecological observations of note: Very sparse Thalassia, numerous penicillus, (44) not udotea present Some large sponges noted Sandy shell hash bottom			

	Time:		Surveyor: MM, HH, SS Date: 8/18/10
Arrival	14:55		
Departure	15:23		
Site/Grid:	J12	Original selected site: Yes/No	Equipment serial no.: RR1 Troll #4 SN 83587 / 154841
GPS coords: <del>N 25.32895</del> N 25.32895 W 80.29478			
Water depth (m): 10.2 ft = 3.1 m		Tidal Condition: flood tide	
Air temp (°C): 32.4°		Water temp (°C): 33.1°	
For Bay Samples:	Bottom temp (°C): 33.1°	Bottom spec. cond. 51099 $\mu$ S	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	53810 $\mu$ S	34.4°	
40	53324 $\mu$ S	33.7°	
60			
Notes: Surface H <sub>2</sub> O: 33.1°C ; 51295 $\mu$ S mild H <sub>2</sub> S odor, moderate turbidity w/ fine gray sediment			
Ecological observations of note: Site is approximately 200 m from mangrove island located to the south. Moderate Thalassia, multiple penicillus and halimeda 28 attempts at 60 cm, refusal avg 40-45 cm			

	Time:	Surveyor: MM, HH, JFV Date: 8/18/10	
Arrival	15:29		
Departure	16:04		
Site/Grid:	J11	Original selected site: Yes/No	Equipment serial no.: SN 83587/154841 LR1, Troll #4
GPS coords: N 25.33992 W 80.29440			
Water depth (m): 11 ft = 3.4 m		Tidal Condition: flood	
Air temp (°C): 32.4°		Water temp (°C): 32.8°	
For Bay Samples:	Bottom temp (°C): 32.8°	Bottom spec. cond. 51120	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	54,472  54,473 	33.0°	
40	52,796 	33.1°	
60	52358	33.0°	
Notes: surface temp 32.8°, 540-51040 $\mu$ S JFV			
Ecological observations of note: one refusal at 40 cm mild H <sub>2</sub> S odor 16 refusals for 60 cm Dense Thalassia and a few penicillius w/ silty bottom			

	Time:	Surveyor: MM, HH, JFV Date: 8-18-10	
Arrival	16:14		
Departure	16:37		
Site/Grid:	I 11	Original selected site: Yes/No	Equipment serial no.: RR1 Troll #4 SN 83587/154841
GPS coords: N 25.33984 W 80.30692			
Water depth (m): 3.20m		Tidal Condition: FLOOD	
Air temp (°C): 33.4°		Water temp (°C): 33.0°	
For Bay Samples:	Bottom temp (°C): 33.0°	Bottom spec. cond. <del>50824</del> 50825 	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	54890	33.2	
40	532445	32.0	
60		—	
Notes: 20cm strong H <sub>2</sub> S odor. 40cm moderate H <sub>2</sub> S odor  Surface Water Temp 33.0°C Sp Cond 51029 $\mu$ S			
Ecological observations of note: Moderate Thalassia, Penicillius, Halimeda Sandy silty substrate with a little shell hash			

		Surveyor: MM, HH, JFV	
Time:		Date: 8-18-10	
Arrival	16:45		
Departure	17:07		
Site/Grid:	H11	Original selected site: Yes/No	Equipment serial no.: RR1 Troll #4 SN 83587/154841
GPS coords: N 25.34013 W 80.31940			
Water depth (m):		Tidal Condition: <del>flow</del> flood	
Air temp (°C): 32.3		Water temp (°C): 33.2	
For Bay Samples:	Bottom temp (°C): 33.1	Bottom spec. cond. 50748	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	54052	32.5	
40	—	—	
60	—	—	
Notes:			
20 cm moderate H <sub>2</sub> S odor, Low turbidity. Some gray sediment 20 refusals @ around 20.0 cm, no readings taken @ 40 or 60 cm Surface Water Temp 33.2°C. Sp Cond 50738			
Ecological observations of note:			
Sparse Thalassia. Numerous Pericillia, Halimeda, few sponges Sandy shell hash bottom			

		Surveyor: MM, HH, JFV	
Time:		Date: 8-18-10	
Arrival	17:16		
Departure	<del>15:35</del> 17:36		
Site/Grid:	H10	Original selected site: Yes/No	Equipment serial no.: RR1 Troll #4 SN 83587/154841
GPS coords: N 25.35145 W 80.31931			
Water depth (m): 3.02 m		Tidal Condition: flood	
Air temp (°C): 32.2		Water temp (°C): 33.0	
For Bay Samples:	Bottom temp (°C): (H) <del>33.0</del> 32.9	Bottom spec. cond. 50645	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	53317 <sub>μS</sub>	32.5	
40			
60			
Notes:			
Unable to save as a log surface readings on RR is full = <del>32</del> 33.0°C temp & 58738 μS moderate H <sub>2</sub> S odor, very low turbidity			
Ecological observations of note:			
12 refusals at forty, max depth at 40 cm sandy shell hash substrate Numerous pericillia, sparse Thalassia sponges, gorgonians and stony corals present but solitary			

Time: <del>9:20am</del> <sup>9:19am</sup> (K)		Surveyor: MM JFV	
Arrival: 9:20am		Date: 8/19/12	
Departure: 9:40			
Site/Grid:	HI10	Original selected site: Yes/No	Equipment serial no.: R21, Troll #4 SN 83587/154841
GPS coords: N 25.35138 W 80.31255			
Water depth (m): 10.5ft = 3.2m		Tidal Condition: Ebb	
Air temp (°C): 32.3°		Water temp (°C): 32.0°	
For Bay Samples:	Bottom temp (°C): 32.1	Bottom spec. cond. 50193 µS	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52734	31.7	/
40	51520	31.8	
60			
Notes:			
2 refusals before success for 40 cm depth 20 refusals at 60 cm - mild H <sub>2</sub> S odor, turbid samples surface temp 32.0° spec cond 50175 µS			
Ecological observations of note:			
Sparse Thallasia, numerous penicillus sparse bataphora & holomida isolated sponges, sandy silty bottom			

Time:		Surveyor: MM JFV	
Arrival: 9:53am		Date: 8/19/10	
Departure: 10:18am			
Site/Grid:	I10	Original selected site: Yes/No	Equipment serial no.: R21, Troll 4 SN 83587/154841
GPS coords: N 25.35148 W 80.30698			
Water depth (m): 9.5ft = 2.9m		Tidal Condition: Ebb	
Air temp (°C): 32.3		Water temp (°C): 32.1°	
For Bay Samples:	Bottom temp (°C): 32.0	Bottom spec. cond. 50,239 µS	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	51124	31.7	/
40	52969	31.5	
60			
Notes:			
2 refusals before success at 20% cm 15 refusals before success at 40% cm 20 refusals at <del>20</del> 60 cm surface temp 32.1°C, spec cond 50191 µS			
Ecological observations of note:			
Sparse Thallasia, numerous penicillus, bataphora acetadularia present solitary sponges and stony coral sandy shell hash bottom			

	Time:		Surveyor: MM JFV
Arrival	10:27 am		Date: 8/19/10
Departure	10:50 am		

Site/Grid:	J10	Original selected site: Yes/No	Equipment serial no.: RR1, Troll #4 SN 83587/154841
------------	-----	--------------------------------	---

GPS coords: N 25.35164 W 80.29430

Water depth (m): 8.7 ft = 2.7 m	Tidal Condition: Ebb
Air temp (°C): 32.4°	Water temp (°C): 32.0°
For Bay Samples:	Bottom temp (°C): 32.1° Bottom spec. cond. 50792 $\mu$ S

	Aqua TROLL 100		
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	53159	31.8° (JFV) 32.0° (JFV)	
40	54075	31.0° 31.5°	
60			

Notes: surface temp: 32.0° specific cond: 50674  $\mu$ S  
 2 refusals @ 20 cm before success  
 5 refusal @ 40 cm before success  
 20 refusals @ 60 cm -  
 low turbidity samples

Ecological observations of note:  
 sparse *Thalassia*, several *penicillus*,  
 sparse *batophora*, *halimeda*  
 solitary stony corals and sponges and  
 sand shell wash bottom.

	Time:		Surveyor: MM JFV
Arrival	11:00		Date: 8/17/10
Departure	11:27		

Site/Grid:	J9	Original selected site: Yes/No	Equipment serial no.: RR1, Troll #4 SN 83587/154841
------------	----	--------------------------------	---

GPS coords: N 25.36266 W 80.29427

Water depth (m): 8.5 ft = 2.6 m	Tidal Condition: Ebb
Air temp (°C): 32.5°	Water temp (°C): 32.1°
For Bay Samples:	Bottom temp (°C): 32.0° Bottom spec. cond. 50552

	Aqua TROLL 100		
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52321	31.8	
40	53001	31.8	
60	53625	32.0° (JFV) 31.9	

Notes: mild H<sub>2</sub>S odor, low turbidity  
 Moderate *Thalassia*  
 several *penicillus*, *batophora*, several *acetabularia*  
 several drift brown algae present  
 sandy silty bottom

Ecological observations of note:  
 surface water 32.1°C temp, 50551  $\mu$ S spec cond.



	Time:		Surveyor: MM/JFU
Arrival	11:35am		Date: 8/19/10
Departure	12:02		
Site/Grid:	IJ9	Original selected site: Yes/No	Equipment serial no.: RL1, Probe #4 SN 83587/154841
GPS coords: <del>8</del> N 25.36255 W 80.29974			
Water depth (m): 8.5ft = 2.6m		Tidal Condition: Ebb	
Air temp (°C): 33.1		Water temp (°C): 32.2	
For Bay Samples:	Bottom temp (°C): 32.2	Bottom spec. cond. 50564 $\mu$ S	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	51596 $\mu$ S	32.0	/
40			
60			
Notes: surface water temp 32.2°C, <del>50544</del> 50545 $\mu$ S 19 refusals at 20 cm before success 50544 $\mu$ S spec cond. 20 refusals at 40 cm no additional samples taken 19 refusals at 60 cm			
Ecological observations of note: Sparse Thallasia, several penicillus + bataphora, several acetabularia, solitary stony corals and sponges. sandy shell hash substrate.			

	Time:		Surveyor: MM/JFU
Arrival	12:06		Date: 8/19/10
Departure	12:31		
Site/Grid:	I9	Original selected site: Yes/No	Equipment serial no.: RL1, Probe #4 SN 83587/154841
GPS coords: N 25.36240 W 80.30677			
Water depth (m): 9.0ft = 2.7m		Tidal Condition: Ebb	
Air temp (°C): 33.2		Water temp (°C): 32.3	
For Bay Samples:	Bottom temp (°C): 32.3	Bottom spec. cond. 50404 $\mu$ S	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	51749 $\mu$ S	32.7	/
40			
60			
Notes: surface water = 32.3, 50428 $\mu$ S spec cond 22 refusals at 40 cm - no sample taken no sample taken at 60 cm.			
Ecological observations of note: 6 refusals at 20 cm before success sandy shell hash bottom sparse Thallasia, isolated sponges & corals more open sand than IJ9 several penicillus + bataphora and acetabularia			

		Surveyor: JFV HH	
Time:		Date: 8/19/10	
Arrival	12:55		
Departure	1:33 13:33		
Site/Grid:	I 8	Original selected site: Yes/No	Equipment serial no.: RR1 Probe #4 SN 83587 / 154841
GPS coords: N 25.37411 W 80.30657			
Water depth (m): 1.4m		Tidal Condition: Ebb	
Air temp (°C): 33.4°		Water temp (°C): 33.0°	
For Bay Samples:	Bottom temp (°C): 33.1°	Bottom spec. cond. 49905 µS	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50768	33.0	
40	52629	32.5	
60	50418	32.7	
Notes:			
<p>8 refusals before success @ 20°C          surface 33.0°C temp, 49786 µS spec cond          20 (SEP)          15 refusals at 40 cm before success          4 refusals at 60 cm before success          Filed as I8-0 instead of I8-T          taken @ 13:11</p>			
Ecological observations of note:			
<p>sandy shelly substrate, barren          - sparse <i>Thalassia</i> &amp; <i>Halodule</i>, <i>Pataphora</i>,  <i>Penniculus</i>, <i>Acetabularia</i>, stony corals,          sponges and gorgonians</p>			

		Surveyor: JFV HH	
Time: (2)		Date: 8/19/10	
Arrival	1:39 pm 13:39		
Departure	2:04 pm 14:04		
Site/Grid:	I J 8	Original selected site: Yes/No	Equipment serial no.: RR1, Probe #4 SN 83587 / 154841
GPS coords: N 25.37393 W 80.30018			
Water depth (m): 6.2 ft = 1.9m		Tidal Condition: Low	
Air temp (°C): 33.4°		Water temp (°C): 33.0°	
For Bay Samples:	Bottom temp (°C): (JFV) 32.9 33.0	Bottom spec. cond. 50282 50287 µS (JFV)	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52723	32.4	
40	53222	32.3	
60	52562	32.4	
Notes:			
<p>Moderate H<sub>2</sub>S odor, low turbidity          surface temp 33.0°C, 50282 µS spec cond          file is saved as IJ8-0 8-19 @ 2:02 → actually IJ8-T          needs to be</p>			
Ecological observations of note:			
<p>Dense <i>Thalassia</i>, silty bottom</p>			

	Time: <u>14:10</u>	Surveyor: MM JFV	
Arrival	<u>2:10</u>	Date: <u>8/19/10</u>	
Departure	<u>2:37</u> 14:33		
Site/Grid:	<u>J8</u>	Original selected site: Yes/No	Equipment serial no.: <u>RPI Probe #4</u> <u>SN 83587/15484/</u>

GPS coords: N 25.37379 W 80.29417

Water depth (m): <u>1.8m</u>	Tidal Condition: <u>Low</u>
Air temp (°C): <u>33.4</u>	Water temp (°C): <u>33.0</u>
For Bay Samples:	Bottom temp (°C): <u>32.9</u> <u>32-33.0</u> <u>JFV</u>
	Bottom spec. cond. <u>50573 <math>\mu</math>S</u>

Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<u>52880</u>	<u>32.4</u>	/
40	<u>51969</u>	<u>32.6</u>	
60			

Notes:

Moderate H<sub>2</sub>S odor, low turbidity at 20cm  
19 refusals at 40cm before success  
24 refusals at 60cm - no sample taken  
surface  $\rightarrow$  50618  $\mu$ S ; 33.0 C temp.

Ecological observations of note:

Sparse to moderate Thalassia butophora, brown drift algae  
some stony corals, fair number of gorgonians +  
sponges.  
very sparse Halodule  
Bataphora & acetabularia present

	Time: <u>14:40</u>	Surveyor: MM JFV	
Arrival	<u>2:40pm</u> 14:40	Date: <u>8/19/10</u>	
Departure	<u>2:56pm</u> 14:56		
Site/Grid:	<u>BB9A</u>	Original selected site: Yes/No	Equipment serial no.: <u>RPI Probe #4</u> <u>SN 83587/15484/</u>

GPS coords: N 25.37153 W 80.29523

Water depth (m): <u>6.3 ft <math>\approx</math> 1.9m</u>	Tidal Condition: <u>Low</u>
Air temp (°C): <u>33.6</u>	Water temp (°C): <u>32.9</u>
For Bay Samples:	Bottom temp (°C): <u>32.9</u>
	Bottom spec. cond. <u>50820</u> <u>50821</u> <u>JFV</u>

Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<u>52145 <math>\mu</math>S</u>	<u>32.4</u>	/
40			
60			

Notes:

14 refusals @ 20cm before success  
22 refusals @ 40cm, no sample taken  
surface @ 32.9°C, 50876  $\mu$ S spec cond.

Ecological observations of note:

Sparse to moderate Thalassia (JFV)  
Some butophora and acetabularia  
multiple gorgonians, some sponges + solitary stony corals  
w/ sandy shell hash bottom.

		Surveyor: MM JFV	
Time: ②		Date: 8/19/10	
Arrival	2:58 pm	14:58	
Departure	3:23 pm	15:33	
Site/Grid:	BB9B	Original selected site: Yes/No	Equipment serial no.: RR1 probe #4 SN 83587/154841
GPS coords: N 25.37152 W 80.29521			
Water depth (m): 6.2 ft = 1.9 m		Tidal Condition: Flood	
Air temp (°C): 33.4°		Water temp (°C): 32.9°	
For Bay Samples:	Bottom temp (°C): 32.9°	Bottom spec. cond. 50854 μS	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	32.5	51321	/
40	32.9	52891	
60			
Notes: surface water: 50855 μS spec cond, 32.9°C temp			
24 refusals at 60 cm - no sample taken			
file saved 30 JFV			
Ecological observations of note:			
Moderate <i>Thalassia</i> w/ butophora and pencilus, gorgonians, sponges and solitary stony corals w/ sandy shell hash bottom			

		Surveyor: MM JFV	
Time: ②		Date: 8/19/10	
Arrival	3:49 pm	15:49	
Departure	4:23 pm	16:23	
Site/Grid:	K8	Original selected site: Yes/No	Equipment serial no.: RR1 Probe #4 SN 83587/154841
GPS coords: N 25.37380° W 80.28176			
Water depth (m): 1.40 m		Tidal Condition: Flood	
Air temp (°C): 33.6°		Water temp (°C): 33.1°	
For Bay Samples:	Bottom temp (°C): 33.0°	Bottom spec. cond. 50617 μS	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	53410 μS	32.8	/
40	51855 μS	32.7	
60	51768 μS	32.7	
Notes: File for K8 at 0 depth at 2:24 was saved KB_0			
AID T deleted to same last set of data -			
surface water spec cond 50710, 33.1°C temp			
Ecological observations of note:			
Dense <i>Thalassia</i> , intermittent solitary sponges and Brown Drift algae. silty sand bottom.			

	Time:		Surveyor: MM JFV Date: 8/20/10
Arrival	8:45		
Departure	9:22		
Site/Grid:	K7	Original selected site: Yes/No	Equipment serial no.: RR1, Troll #4 SN 83587 / 154841
GPS coords: N25.38521 W80.28199°			
Water depth (m): 7.0 ft = 2.1 m		Tidal Condition: High	
Air temp (°C): 31.4°		Water temp (°C): 32.3°	
For Bay Samples:	Bottom temp (°C): 32.3°	Bottom spec. cond. 51070 $\mu$ S	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	31.5	51778 $\mu$ S	/
40	31.4	53866 $\mu$ S	
60	31.5	505283	
Notes: surface temp 32.3°, spec cond 51153 $\mu$ S 2 refusals @ 60cm & for access - very low turbidity and mild H <sub>2</sub> S odor			
Ecological observations of note: Moderate to dense <i>Thalassia</i> numerous pericillius + halimeda several botaphora and acetabularia solitary sponge silty bottom			

	Time:		Surveyor: MM JFV Date: 8/20/10
Arrival	9:28		
Departure	9:59		
Site/Grid:	JK7	Original selected site: Yes/No	Equipment serial no.: RR1, Troll #4 SN 83587 / 154841
GPS coords: N25.38522 W80.28754			
Water depth (m): 5.8 ft = 1.8 m		Tidal Condition: Ebb	
Air temp (°C): 34.7°		Water temp (°C): 32.3°	
For Bay Samples:	Bottom temp (°C): 32.3°	Bottom spec. cond. 51461 $\mu$ S	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52752 $\mu$ S	32.5	/
40	53891 $\mu$ S	32.6	
60	52646 $\mu$ S	32.4	
Notes: surface <sup>32.2°</sup> <del>32.3°</del> spec cond 51328 $\mu$ S mild turbidity, moderate H <sub>2</sub> S odor			
Ecological observations of note: moderate to dense <i>Thalassia</i> silty bottom			

	Time:	Surveyor: <i>MH JFV</i> Date: <i>8/20/10</i>	
Arrival	<i>10:15 am</i>		
Departure	<i>10:43 am</i>		
Site/Grid:	<i>J7</i>	Original selected site: Yes/No	Equipment serial no.: <i>RR1, Probe #4</i> <i>SN 83587 / 154841</i>
GPS coords: <i>N 25.38618 W 80.29462</i>			
Water depth (m): <i>0.94 m</i>		Tidal Condition: <i>Ebb</i>	
Air temp (°C): <i>33.7</i>		Water temp (°C): <i>32.9</i>	
For Bay Samples:	Bottom temp (°C): <i>32.8</i>	Bottom spec. cond. <i>50903</i> <del>50806</del> $\mu S$ <i>(JFV)</i>	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<i>53820</i>	<i>32.6</i>	/
40	<i>53192</i>	<i>32.2</i>	
60	<i>51675</i>	<i>32.2</i>	
Notes: <i>surface + temp 32.9° spec cond 50903</i> <i>mod H<sub>2</sub>S odor, no turbidity</i> <i>11 refusals before success @ 60 cm</i>			
Ecological observations of note: <i>Dense Thalassia w/ several Halimeda</i> <i>and silty bottom</i>			

	Time:	Surveyor: <i>MH JFV</i> Date: <i>8/20/10</i>	
Arrival	<i>10:55 am</i>		
Departure	<i>11:21 am</i>		
Site/Grid:	<i>J7</i>	Original selected site: Yes/No	Equipment serial no.: <i>RR1, Probe #4</i> <i>SN 83587 / 154841</i>
GPS coords: <i>N 25.38528 W 80.29998</i>			
Water depth (m): <i>1.06 m</i>		Tidal Condition: <i>Ebb</i>	
Air temp (°C): <i>34.0</i>		Water temp (°C): <i>33.2</i>	
For Bay Samples:	Bottom temp (°C): <i>33.2</i>	Bottom spec. cond. <i>51446</i> $\mu S$	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<i>51992</i>	<i>32.9</i>	/
40	<i>52790</i>	<i>32.8</i>	
60	<i>52348</i>	<i>32.8</i>	
Notes: <i>surface water 33.2°C, 51413 <math>\mu S</math></i> <i>very mild H<sub>2</sub>S odor, very low turbidity</i>			
Ecological observations of note: <i>sparse to moderate Thalassia</i> <i>and dense cataphora</i> <i>sandy shell hash bottom</i>			

	Time:		Surveyor: MM JFV Date: 8/20/10
Arrival	12:02		
Departure	12:40		
Site/Grid:	HJ7	Original selected site: Yes/No	Equipment serial no.: SN 83587/154841 RRI Probe #4
GPS coords: N 25.38606 W 80.31243			
Water depth (m): 38 cm = 0.38 m		Tidal Condition: Ebb	
Air temp (°C): 35.6		Water temp (°C): 34.6	
For Bay Samples:	Bottom temp (°C): 34.6	Bottom spec. cond. 53202 $\mu$ S	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	53451	34.1	/
40	53146	33.1	
60	53434	32.7	
Notes: slight red sediment in 40 cm + 60 cm sensors. low turbidity, moderate H <sub>2</sub> S odor			
Ecological observations of note: Sparse to moderate <i>Thalassia</i> silty bottom			

	Time: (RV)		Surveyor: MM JFV Date: 8/20/10
Arrival	4:17 pm 13:17		
Departure	2:00 pm 14:00		
Site/Grid:	H6	Original selected site: Yes/No	Equipment serial no.: RRI, Probe #4 SN 83587/154841
GPS coords: N 25.39652 W 80.31898			
Water depth (m): 1.04 m		Tidal Condition: Ebb	
Air temp (°C): 98.4 F = 36.9°C		Water temp (°C): 35.0	
For Bay Samples:	Bottom temp (°C): 35.0 34.9	Bottom spec. cond. 52843	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	34.1	54.361	/
40	33.7	54.080	
60	33.5	54.185	
Notes: Surface water temp 35.0 : 52876 $\mu$ S spec cond. - mild H <sub>2</sub> S odor 10 refusals before successful 60 cm			
Ecological observations of note: Sparse to moderate <i>Thalassia</i> Silty bottom			

		Time: (K)		Surveyor: MM JFV	
		Date: 8/20/10			
Arrival		2:49 pm 14:19			
Departure		2:40 pm 14:40			
(K)					
Site/Grid:		BB8A		Original selected site: Yes/No	
				Equipment serial no.: RRI, Probe # SN 83587/154841	
GPS coords: N 25.40240 W 80.31952					
Water depth (m):		56 cm = 0.56 m		Tidal Condition: Low	
Air temp (°C):		34.2 °C		Water temp (°C): 35.5	
For Bay Samples:		Bottom temp (°C): 35.5 °		Bottom spec. cond. 53115 μS	
Aqua TROLL 100					
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):		
*20	53818 μS	34.2	* saved as BB8A on RRI		
40	54000 μS	33.1			
60	54013 μS	33.2			
Notes: Dense Thalassia, sparse to moderate Syringodium. Tall Thalassia that is bending at the water surface. Silty bottom mild H <sub>2</sub> S odor in samples. surface readings not taken as water is shallow					
Ecological observations of note: water in area feels much cooler at the root base while in dense tall Thalassia compared against area outside of dense patch. Schools of Snapper are abundant.					

		Time: (K)		Surveyor: MM, SFV	
		Date: 8/20/10			
Arrival		2:43 pm 14:43			
Departure		3:12 pm 15:12			
(K)					
Site/Grid:		BB8B		Original selected site: Yes/No	
				Equipment serial no.: RRI, Probe # SN 83587/154841	
GPS coords: N 25.40243 W 80.31960					
Water depth (m):		57 cm = 0.57 m		Tidal Condition: Low	
Air temp (°C):		34.2 °		Water temp (°C): 35.6 °	
For Bay Samples:		Bottom temp (°C): 35.6 °		Bottom spec. cond. 53005 μS	
(SFV)					
Aqua TROLL 100					
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):		
20	54258 μS	34.2			
*40	54037 μS	34.2	* saved as BB8A-40		
60	55082 μS	34.3			
Notes: Dense Thalassia w/ sparse to moderate Syringodium. Site has cooler water temperature at root base. Silty bottom Mild H <sub>2</sub> S odor in samples.					
Ecological observations of note: sediment surface is soft, attempts to walk/wade is difficult as there are numerous holes that are created when you step.					



Time:		Surveyor: MM, JFV, SH	
Arrival 9:19 am		Date: 8/21/10	
Departure 7:45 am			
Site/Grid: H7	Original selected site: Yes/No	Equipment serial no.: RRI, Probe #4 SN 83587/154841	
GPS coords: N 25.38807 W 80.31691			
Water depth (m): 51.5 cm = 0.52 m		Tidal Condition: High	
Air temp (°C): 33.2°		Water temp (°C): 31.8°	
For Bay Samples:	Bottom temp (°C): 31.8° 31.1°	Bottom spec. cond. 52604 $\mu$ S	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52880 $\mu$ S	32.1°	/
40	52543 $\mu$ S JFV 52544 $\mu$ S	31.3° 31.2°	
60	52698 $\mu$ S	30.5°	
Notes:			
- 20 cm - mild H <sub>2</sub> S odor 40 & 60 - moderate H <sub>2</sub> S odor low turbidity in all samples Did not take a surface conductivity reading as water is too shallow.			
Ecological observations of note:			
Sparse Halodule, moderate batophora a lot of dead vegetative matter & shell hash peat bottom			

Time:		Surveyor: MM, JFV, SH	
Arrival 10:05 am		Date: 8/21/10	
Departure 10:30 am			
Site/Grid: 6H6	Original selected site: Yes/No	Equipment serial no.: RRI, Probe #4 SN 83587/154841	
GPS coords: N 25.39647 W 80.32490			
Water depth (m): 1.13 m		Tidal Condition: High	
Air temp (°C): 33.3°		Water temp (°C): 32.2° same as bottom	
For Bay Samples:	Bottom temp (°C): 32.2°	Bottom spec. cond. 53279 $\mu$ S	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52929 $\mu$ S	32.4	/
40	54173 $\mu$ S	32.4	
60	52074 $\mu$ S	32.1	
Notes:			
20 cm - mild H <sub>2</sub> S odor. & 40 cm - sample is turbid 60 cm - moderate H <sub>2</sub> S odor, fine sediment			
Ecological observations of note:			
Dense Thalassia, silty bottom			

		Surveyor: M <sup>m</sup> , JV, SH	
Time:		Date: 8/21/10	
Arrival	10:46am		
Departure	11:09		
Site/Grid:	BB6B	Original selected site: Yes/No	Equipment serial no.: RR#1, probe #41 SN 83587/154841
GPS coords: N 25.40604 W 80.32897			
Water depth (m): 49 cm = 0.49m		Tidal Condition: Ebb tide	
Air temp (°C): 33.1		Water temp (°C): 31.5° 5 cm as bottom	
For Bay Samples:	Bottom temp (°C): 31.5°	Bottom spec. cond. 54817 #5.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	54159 <sub>us</sub>	31.3°C	/
40	51,259 <sub>us</sub>	31.0°C	
60	51,168	30.9°C	
Notes: 20 cm - turbid sample, mild H <sub>2</sub> S 40 cm - silty brown, moderate H <sub>2</sub> S 60 cm - very mild H <sub>2</sub> S odor, low turbidity no surface water cond. taken b/c water was too shallow			
Ecological observations of note: soft bottom, moderate Thalassia w/ a silty bottom, with a little shell hash moderate Thalassia w/ silty bottom, shell			

		Surveyor: M <sup>m</sup> , JV, SH	
Time: 10:40		Date: 8/21/10	
Arrival	11:09 am		
Departure	11:30 am		
Site/Grid:	BB6A	Original selected site: Yes/No	Equipment serial no.: RR#1, probe #41 SN 83587/154841
GPS coords: N 25.40607 W 80.32889			
Water depth (m): 49 cm		Tidal Condition: Ebb tide	
Air temp (°C): 33.1		Water temp (°C): 31.7° 5 cm as bottom	
For Bay Samples:	Bottom temp (°C): 31.40	Bottom spec. cond. 31.7°C	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	54,564	32.3°C	
40	52,042	31.7°C	
60	51,906	31.8°C	
Notes: 20 cm - mild odor H <sub>2</sub> S, turbid. 40 cm - slightly turbid, moderate H <sub>2</sub> S odor. 60 cm - turbid, brown color, no spec conductivity taken for SW b/c too shallow.			
Ecological observations of note: moderate Thalassia w/ a silty bottom, a little shell hash			

Time:		Surveyor: MM, JFV, SH	
Arrival 11:44am		Date: 8/21/10	
Departure 12:22pm			
Site/Grid:	✓ GH5	Original selected site: Yes/No	Equipment serial no.: RR1, Probe #4 SN 83587/154841
GPS coords: N 25.40776 W 80.32502			
Water depth (m): 1.2m		Tidal Condition: Ebb	
Air temp (°C): 32.7		Water temp (°C): 32.9°C	
For Bay Samples:	Bottom temp (°C): 32.7	Bottom spec. cond. 53,525 $\mu$ S	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	53,080	32.6	/
40	51,370	32.5	
60	53,166	32.7	
Notes:			
@20cm mild H <sub>2</sub> S odor & turbid @40cm no odor, brown + turbid, 4 refusals at 40 @60cm brown + turbid, 16 refusals before success no surface water conductivity b/c of depth.			
Ecological observations of note:			
Sparse Thalassia, moderate botanophora, solitary sponges, few Halimeda silty sandy bottom			

Time:		Surveyor: JFV, MM, SH	
Arrival 12:34pm		Date: 8/21/10	
Departure 12:51pm			
Site/Grid:	✓ H5	Original selected site: Yes/No	Equipment serial no.: RR1, Probe #4 SN 83587/154841
GPS coords: N 25.40783 W 80.31897			
Water depth (m): 1.09m		Tidal Condition: Ebb	
Air temp (°C): 33.4°		Water temp (°C): 33°	
For Bay Samples:	Bottom temp (°C): 30-33°	Bottom spec. cond. 53,079 $\mu$ S	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	53,353	33°	/
40	refusal	at 30 cm. (24 refusals)	
60	refusal	at 30cm	
Notes:			
Specific conductance not taken for Surface Water b/c of depth. 20cm low turbidity, very mild H <sub>2</sub> S odor.			
Ecological observations of note:			
Sparse thall, moderate botanophora, numerous penicillia, few Halimeda, solitary sponges and strong corals sandy shell for hard bottom			

		Surveyor: JFV, MM, SH	
Time:		Date: 8/21/10	
Arrival	12:57		
Departure	1:37 pm. (K)	13:37	
Site/Grid:	HI6 ✓	Original selected site: Yes/No	Equipment serial no.: RR1 Probe #4 SN 83587/154841
GPS coords: N 25.39664 W 080.31255			
Water depth (m): 1.03 m		Tidal Condition: Ebb	
Air temp (°C): 33 °C		Water temp (°C): 33.5°	
For Bay Samples:	Bottom temp (°C): 33.2°	Bottom spec. cond. 52445 µS	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<del>52827</del>	32.7	/
40	53,757	32.2	
60	56620	32.7	
Notes:			
20 cm - low odor very little 13 refusals before success at 40 cm 40 cm - mild H <sub>2</sub> S odor, white color. 60 cm - no surface water conductivity taken, too shallow			
Ecological observations of note:			
Sparse thallasia, dense batophora. few udotea, few pericillus, few Halimeda solitary stony corals, sandy shell hash.			

		Surveyor: JFV, MM, SH	
Time: (K)		Date: 8/21/10	
Arrival	1:53 pm. 13:53		
Departure	2:24 pm. (K)	14:24	
Site/Grid:	IJ6 ✓	Original selected site: Yes/No	Equipment serial no.: RR1 Probe #4 SN 83587/154841
GPS coords: N 25.39650, W 080.30009			
Water depth (m): 1.56 m		Tidal Condition: Ebb	
Air temp (°C): 33.1 °C		Water temp (°C): 33.4°	
For Bay Samples:	Bottom temp (°C): 33.3	Bottom spec. cond. <del>52150</del> 52150	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52486.8	32.7 °C	/
40	54037	32.8 °C	
60	52246	32.7 °C	
Notes:			
20 cm - very minor H <sub>2</sub> S odor 40 cm - high turbidity, very 60 cm - strong H <sub>2</sub> S odor, low turbidity. Surface water Temp: 33.4 specific conductivity: 52273			
Ecological observations of note:			
Dense thallasia, few Halimeda, few pericillus Sandy shell hash bottom.			

	Time: ②		Surveyor: 8/21/10 Date: MM, JFV, SH ↓
Arrival	2:50 pm	1450	
Departure	3:19 pm	15:19	
Site/Grid:	J6 ✓	Original selected site: Yes/No	Equipment serial no.: SN 53587 / 154841 RR #1, Probe #4
GPS coords: N 25.39651 W 080.294104			
Water depth (m): 0.93 m		Tidal Condition: Ebb.	
Air temp (°C): 33.3°		Water temp (°C): 34.3°	
For Bay Samples:	Bottom temp (°C): 34.3°	Bottom spec. cond. 51641	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52560	32.8	
40	52749	33.1	
60	51726	33.6	
Notes: 20cm - low turbidity, mild H <sub>2</sub> S odor 40cm - moderately turbid 60cm - very mild H <sub>2</sub> S odor, turbid, cloudy. no surface water readings b/c water too shallow.			
Ecological observations of note: Dense Thallasia, sparse batophore, few pericills, acetabularia (a few), few holomeda Sandy shell hash.			

	Time: ②		Surveyor: mm, JFH, SH Date: 8/21/10
Arrival	3:35 pm 15:35		
Departure	4:08 pm 16:08		
Site/Grid:	BB7B ✓	Original selected site: Yes/No	Equipment serial no.: SN 53587 / 154841 RR #1, Probe #4
GPS coords: N 25.40463 W 080.28829.			
Water depth (m): 1.13 m		Tidal Condition: Ebb	
Air temp (°C): 35.0°		Water temp (°C): 33.2°	
For Bay Samples:	Bottom temp (°C): 33.2°	Bottom spec. cond. 51374	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52629	33.1	
40	53394	32.6	
60	54420	32.9.	
Notes: not taking surface water readings b/c is too shallow. 20cm - moderate odor, very low turbidity. 40cm - low turbidity, mild H <sub>2</sub> S odor 60cm - very low turbidity, moderate H <sub>2</sub> S odor.			
Ecological observations of note: sparse Thallasia, dense batophora, gorgonians, sparse some acetabularia, clean white sand and shell ash.			

	Time: ②	Surveyor: mm, JFV, SH
Arrival	4-08 16:08	Date: 8/21/10
Departure	4-19 16:19	
Site/Grid:	BB7A	Original selected site: Yes/No
		Equipment serial no.: SN 83587 / 154841 R#1, PROBE #11

GPS coords: N 25.40462 W 80.28829

Water depth (m): 1.1m	Tidal Condition: Low
Air temp (°C): 35.0°	Water temp (°C): 34.8°
For Bay Samples:	Bottom temp (°C): 33.3
	Bottom spec. cond. 51421

Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	23 rejections, (5m) no samples taken.		
40			
60			

Notes:

Ecological observations of note:

open sand w/ moderate botaphora, numerous gorgonias, numerous sponges, numerous small stony corals, brown drift algae, some acrotabularia, some penicillus

	Time:	Surveyor:
Arrival		Date:
Departure		
Site/Grid:		Original selected site: Yes/No
		Equipment serial no.:

GPS coords:

Water depth (m):	Tidal Condition:
Air temp (°C):	Water temp (°C):
For Bay Samples:	Bottom temp (°C):
	Bottom spec. cond.

Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20		XN	
40			
60			

Notes:

Ecological observations of note:

	Time:		Surveyor: HEH Date: 8-22-10
Arrival	8:54		
Departure	9:28		
Site/Grid:	GH4	Original selected site: <input checked="" type="checkbox"/> Yes/No	Equipment serial no.: RR1 T10114 SN 83587/154841
GPS coords: N 25.41899 W 80.32472			
Water depth (m): 4.7 ft = 1.4 m		Tidal Condition: Flood	
Air temp (°C): 29.6°		Water temp (°C): 30.7°	
For Bay Samples:	Bottom temp (°C): 30.8°	Bottom spec. cond. 53684	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	53214	29.8	
40	53853	30.2	
60	—	—	
Notes: <u>HEH</u> 20 cm <del>moderate</del> H <sub>2</sub> S odor. Brownish gray water color. Low particulates 40 cm 14 refusals. Awe 4 m N to get sample. Brown-gray color. Mild 60 cm 25 refusals as deep as 50 cm. No sample <span style="float: right;">particulates moderate H<sub>2</sub>S odor</span> Surface Water Temp 30.7°C sp. Cond 53721 MS			
Ecological observations of note: Sparse Thalassia Mod to Dense brown drift algae Sparse Batophora			

	Time:		Surveyor: HEH Date: 8-22-10
Arrival	9:32		
Departure	10:01		
Site/Grid:	BIB 4A	Original selected site: <input checked="" type="checkbox"/> Yes/No	Equipment serial no.: RR1 T10114 SN 83587/154841
GPS coords: N 25.42277 W 80.32011			
Water depth (m): 5.9 ft = 1.8 m		Tidal Condition: <del>Flood</del> HIGH	
Air temp (°C): 31.7°		Water temp (°C): 30.8°	
For Bay Samples:	Bottom temp (°C): 31.1	Bottom spec. cond. 53464	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	51980	30.9	
40	48798	31.2	
60	49223	30.6	
Notes: 20 cm Color: Gray; Particulate: Moderate; Odor: Moderate H <sub>2</sub> S 40 cm Color: Gray; Particulate: Moderate; Odor: Mild H <sub>2</sub> S 60 cm Color: Brownish Gray; Particulate: Low; Odor: Mild H <sub>2</sub> S Surface Water Temp 30.8°C sp Cond 52839 MS			
Ecological observations of note: Dense Thalassia Individuals of Halimeda			



	Time:		Surveyor: HEH Date: 8-22-10
Arrival	10:01		
Departure	10:22		
Site/Grid:	B34B	Original selected site: <input checked="" type="checkbox"/> Yes/No	Equipment serial no.: RR1 Troll 4 SN 53587/154841
GPS coords: N 25.42277 W 80.32021			
Water depth (m): 5.8 ft = 1.8 m		Tidal Condition: <del>FLAT</del> <sup>HEH</sup> HIGH	
Air temp (°C): 32.6°		Water temp (°C): 30.9°	
For Bay Samples:	Bottom temp (°C): 31.1°	Bottom spec. cond. 53526	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52322	30.7	
40	49329	30.4	
60	48590	30.5	
Notes:			
20 cm Color: Gray; Particulate: Moderate; Odor: Mild H <sub>2</sub> S 40 cm Color: Gray; Particulate: Moderate; Odor: Mild H <sub>2</sub> S 60 cm Brownish color; Particulate: Moderate; Odor: Mild H <sub>2</sub> S  Surface Water Temp: 30.9°C sp Cond 51418 µS			
Ecological observations of note:			
Silty sandy bottom Mod to Dense Thalassia A few Paricillus			

	Time:		Surveyor: HEH Date: 8-22-10
Arrival	10:25		
Departure	10:55		
Site/Grid:	H4	Original selected site: <input checked="" type="checkbox"/> Yes/No	Equipment serial no.: SN 53587/154841 RR1 Troll 4
GPS coords: N 25.41909 W 80.31873			
Water depth (m): 6.1 ft = 1.9 m		Tidal Condition: <del>FLAT</del> <sup>HEH</sup> HIGH	
Air temp (°C): 32.3°		Water temp (°C): 31.0°	
For Bay Samples:	Bottom temp (°C): 31.3°	Bottom spec. cond. 53593	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	53280	30.7	
40	53560	30.6	
60	55145	30.4	
Notes:			
60 cm Color: None; Particulates: Low; Odor: Mild H <sub>2</sub> S 20 cm Color: None; Particulates: Low; Odor: Mild H <sub>2</sub> S 4 <del>20</del> refusals @ 20 cm before success. 4 refusals @ 40 cm before success. 40 cm Color: None; Particulates: Low; Odor: Mild H <sub>2</sub> S Surface Water Temp: 31.0 Sp Cond 51637 8 refusals @ 60 cm before success			
Ecological observations of note:			
Sandy silty with a little shell hash Sparse Thalassia Sparse to Moderate Botophora Numerous Penicillus A few Halimeda			



	Time:		Surveyor: HEH
Arrival	11:00		Date: 8-22-10
Departure	11:22		
Site/Grid:	HI4	Original selected site: <input checked="" type="radio"/> Yes/ <input type="radio"/> No	Equipment serial no.: RR1 Troll 4 SN 83587/154841
GPS coords: N 25.41890 W 80.31251			
Water depth (m): 6.3 ft = 1.9 m		Tidal Condition: HIGH	
Air temp (°C): 31.0°		Water temp (°C): 31.2°	
For Bay Samples:	Bottom temp (°C): 31.4°	Bottom spec. cond. 53015	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	53175	31.2	
40	54420	30.7	
60	—	—	
Notes:			
20 cm Color: None; Particulate: Low; Odor: Mild H <sub>2</sub> S			
13 refusals @ 40 cm before success			
40 cm Color: None; Particulate: None; Sediment: Low; Odor: Mild H <sub>2</sub> S			
24 refusals, deepest around 30 cm. No sample @ 60 cm			
Surface Water Temp: 31.2°C Sp Cond 52223 HS			
Ecological observations of note:			
Sparse Thalassia			
Moderate Botophora			
A few Halimeda and Penicillus			
Sandy shell hash substrate			

	Time:		Surveyor: HEH
Arrival	11:29		Date: 8-22-10
Departure	11:48		
Site/Grid:	I5	Original selected site: <input checked="" type="radio"/> Yes/ <input type="radio"/> No	Equipment serial no.: RR1 Troll 4 SN 83587/154841
GPS coords: N 25.40779 W 80.30643			
Water depth (m): 4.9 ft = 1.5 m		Tidal Condition: HIGH	
Air temp (°C): 31.4°		Water temp (°C): 31.1°	
For Bay Samples:	Bottom temp (°C): 31.2°	Bottom spec. cond. 52926	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	53393	31.0	
40	54060	30.8	
60	—	—	
Notes:			
20 cm Color: none; Particulate: <del>Low</del> none; Sediment: Low; Odor: Moderate H <sub>2</sub> S			
40 cm Color: none; Particulate: none; Sediment: Low; Odor: Moderate H <sub>2</sub> S			
24 refusals @ 50 cm. No sample @ 60 cm			
Surface Water Temp: 31.1°C Sp Cond 52963 HS			
Ecological observations of note:			
Sparse Thalassia			
Dense Botophora			
A few Halimeda and Penicillus			
Sandy shell hash substrate			

	Time:	Surveyor: HEH Date: 8-22-10	
Arrival	11:53		
Departure	12:44		
Site/Grid:	BB5A	Original selected site: <input checked="" type="radio"/> Yes/ <input type="radio"/> No	Equipment serial no.: RR1 Troll 4 9083587/154841
GPS coords: N 25.40922 W 80.29819			
Water depth (m): 62 ft = 1.9 m		Tidal Condition: <del>HEH</del> EBB	
Air temp (°C): 32.2		Water temp (°C): 31.3	
For Bay Samples:	Bottom temp (°C): 31.3	Bottom spec. cond.: 52664	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	53367	30.7	
40	52691	30.7 <del>HEH</del> 30.6	
60	53133	30.7	
Notes: 5 refusals @ 20 cm before success 20 cm Color: None; Particulate: None; Sediment: None; Odor: Mild H <sub>2</sub> S 12 refusals @ 40 cm before success 40 cm Color: None; Particulate: None; Sediment: Low; Odor: Mild H <sub>2</sub> S 7 refusals @ 60 cm before success 60 cm Color: None; Particulate: None; Sediment: Low; Odor: Surface Water Temp: 31.3°C Sp Cond 52612 $\mu$ S			
Ecological observations of note: Sparse Thalassia Moderate Autophora A few Penicillus Sandy shell hash substrate			

	Time:	Surveyor: HEH Date: 8-22-10	
Arrival	12:44		
Departure	13:12		
Site/Grid:	BB5B	Original selected site: <input checked="" type="radio"/> Yes/ <input type="radio"/> No	Equipment serial no.: 9083587/154841 RR1 Troll 4
GPS coords: N 25.40927 W 80.29821			
Water depth (m): 5.1 ft = 1.6 m		Tidal Condition: EBB	
Air temp (°C): 28.9		Water temp (°C): 31.1	
For Bay Samples:	Bottom temp (°C): 31.3	Bottom spec. cond.: 52581 52582	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52772	29.6	
40	53971	29.5	
60	54047	29.8	
Notes: 20 cm Color: None; Particulate: None; Sediment: Low; Odor: Mild H <sub>2</sub> S 40 cm Color: None; Particulate: None; Sediment: Low; Odor: Mild H <sub>2</sub> S 60 cm Color: None; Particulate: None; Sediment: Low; Odor: Mild H <sub>2</sub> S			
Surface Water Temp: 31.1°C Sp Cond 52735 $\mu$ S			
Ecological observations of note: Dense Thalassia Silty sandy bottom.			

	Time:		Surveyor: <i>HEH</i> Date: <i>8-22-10</i>
Arrival	<i>13:15</i>		
Departure	<i>14:15</i>		
Site/Grid:	<i>J5</i>	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: <i>RR1 Troll 4</i> <i>SN 83587/154841</i>
GPS coords: <i>N 25.40760 W 80.29400</i>			
Water depth (m): <i>5.3 ft = 1.6 m</i>		Tidal Condition: <i>EBB</i>	
Air temp (°C): <i>28.5°</i>		Water temp (°C): <i>31.1°</i>	
For Bay Samples:	Bottom temp (°C): <i>31.3</i>	Bottom spec. cond. <i>52204</i>	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<i>52306</i>	<i>29.4</i>	
40	<i>53298</i>	<i>29.6</i>	
60	<i>53413</i>	<i>29.9</i>	
Notes: 20 cm Color: <i>None</i> ; Particulate: <i>None</i> ; Sediment: <i>Low</i> ; odor: <i>Mild H<sub>2</sub>S</i> 40 cm Color: <i>None</i> ; Particulate: <i>None</i> ; Sediment: <i>Low</i> ; odor: <i>Mild H<sub>2</sub>S</i> 60 cm Color: <i>None</i> ; Particulate: <i>None</i> ; Sediment: <i>Low</i> ; odor:			
Surface Water Temp: <i>31.1°C</i> ; Sp Cond <i>52318 uS</i>			
Ecological observations of note: <i>Many Gorgonians and sponges</i>			

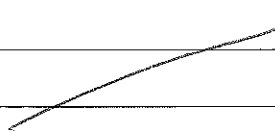
	Time:		Surveyor: <i>HEH</i> Date: <i>8-22-10</i>
Arrival	<i>14:18</i>		
Departure	<i>14:42</i>		
Site/Grid:	<i>J4</i>	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: <i>RR1 Troll 4</i> <i>SN 83587/154841</i>
GPS coords: <i>N 25.41899 W 80.29398</i>			
Water depth (m): <i>5.2 ft = 1.6 m</i>		Tidal Condition: <i>EBB</i>	
Air temp (°C): <i>31.0°</i>		Water temp (°C): <i>31.1</i>	
For Bay Samples:	Bottom temp (°C): <i>31.2</i>	Bottom spec. cond. <i>52069</i>	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<i>52301</i>	<i>30.5</i>	
40	<i>52828</i>	<i>30.4</i>	
60	<i>—</i>	<i>—</i>	
Notes: <i>4 refusals @ 20 cm before success</i> <i>20 cm Color: None; Particulate: None; Sediment: Low; odor: Mild H<sub>2</sub>S</i> <i>4 refusals @ 40 cm before success</i> <i>40 cm Color: None; Particulate: None; Sediment: Low; odor: Mild H<sub>2</sub>S</i> <i>24 refusals @ around 45 cm. No sample @ 60 cm</i>			
Surface Water Temp: <i>31.1°C</i> Sp Cond <i>52080 uS</i>			
Ecological observations of note: <i>Sparse Thalassia</i> <i>Sparse Botophora</i> <i>Individuals of Penicillus and Halimeda</i> <i>Some brown drift algae</i>			

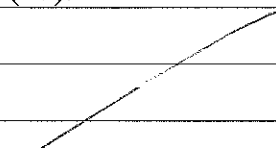
	Time:		Surveyor: HEH Date: 8-22-10
Arrival	14:49		
Departure	15:13		
Site/Grid:	IJ3	Original selected site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Equipment serial no.: RR1 TROLL 4 SN 83587/154841
GPS coords: N 25.43038 W 80.30022			
Water depth (m): 60 ft = 1.8 m		Tidal Condition: EBB	
Air temp (°C): 32.0°		Water temp (°C): 31.3°	
For Bay Samples:	Bottom temp (°C): 31.4°	Bottom spec. cond. 52813	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52575	33.3	
40	—	—	
60	—	—	
Notes: 23 refusals before success @ 20 cm 20 cm Color: None; Particulate: None; Sediment: Low; odor 25 refusals @ 20 cm. No sample @ 40 cm or 60 cm  Surface Water Temp: 31.3°C sp Cond 52773 NS			
Ecological observations of note: Moderate Botophora and brown drift algae A few Pericillius and Gorgonians  Sandy shellhash substrate.			

	Time:		Surveyor: HEH Date: 8-22-10
Arrival	15:25		
Departure	15:51		
Site/Grid:	GH3	Original selected site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Equipment serial no.: RR1 TROLL 4 SN 83587/154841
GPS coords: N 25.43032 W 80.32497			
Water depth (m): 25 ft = 0.85 m		Tidal Condition: EBB	
Air temp (°C): 31.0°		Water temp (°C): 30.9°	
For Bay Samples:	Bottom temp (°C): —	Bottom spec. cond. —	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<del>53688</del> 52202	<del>30.9</del> 30.7	
40	53087	30.1	
60	52680	30.1	
Notes: 20 cm Color: Tan; Particulate: None; Sediment: Low, brown odor: Mild H <sub>2</sub> S 40 cm Color: Brown; Particulate: Moderate; Sediment: Low, brown odor: Moderate H <sub>2</sub> S 60 cm: Color: None; Particulate: None; Sediment: Low; odor: Moderate H <sub>2</sub> S Too shallow for Bottom Temp and Sp Cond. 4 refusals @ 60 cm before success Surface Water Temp: 30.9°C; sp Cond 52202 NS			
Ecological observations of note: Dense Thalassia and brown drift algae.  Silty substrate			

	Time:	Surveyor: <i>HEH</i> Date: <i>8-23-10</i>	
Arrival	<i>8:42</i>		
Departure	<i>9:18</i>		
Site/Grid:	<i>BB3A</i>	Original selected site: <u>Yes</u> /No	Equipment serial no.: <i>RR1 T0114</i> <i>SN 83587 / 154841</i>
GPS coords: <i>N 25.44142 W 80.32892</i>			
Water depth (m): <i>0.49m</i>		Tidal Condition: <i>FLOOD</i>	
Air temp (°C): <i>30.7</i>		Water temp (°C): <i>29.9</i>	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<i>49178</i>	<i>30.3</i>	
40	<i>48608</i>	<i>30.1</i>	
60	<i>48040</i>	<i>30.7</i>	
<i>48041 HEH</i>			
Notes:			
<i>20 cm Color: White; Particulate: High; Sediment: Low; odor: Mild H<sub>2</sub>S</i> <i>40 cm Color: Light gray-brown; Particulate: High; Sediment: Low; odor: Mild H<sub>2</sub>S</i> <i>60 cm Color: Light gray-tan; Particulate: High; Sediment: Low; odor: Mild H<sub>2</sub>S</i> <i>Too shallow for bottom readings.</i> <i>Surface Water Temp: 29.9°C Sp Cond 47479 <math>\mu</math>S</i>			
Ecological observations of note:			
<i>Sparse Thalassia</i> <i>A few Acetabularia, Botophora, Pericillius</i> <i>Sandy shell hash substrate</i>			

	Time:	Surveyor: <i>HEH</i> Date: <i>8-23-10</i>	
Arrival	<i>9:19</i>		
Departure	<i>9:55</i>		
Site/Grid:	<i>BB3B</i>	Original selected site: <u>Yes</u> /No	Equipment serial no.: <i>RR1 T0114</i> <i>SN 83587 / 154841</i>
GPS coords: <i>N 25.44145 W 80.32875</i>			
Water depth (m): <i>0.53 m</i>		Tidal Condition: <i>FLOOD</i>	
Air temp (°C): <i>30.8</i>		Water temp (°C): <i>30.1</i>	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<i>50345</i>	<i>30.7</i>	
40	<i>48735</i>	<i>30.9</i>	
60	<i>47883</i>	<i>31.2 30.2</i>	
<i>HEH</i>			
Notes:			
<i>20 cm Color: None; Particulate: Low; Sediment: Low; odor: Mild H<sub>2</sub>S</i> <i>40 cm Color: White; Particulate: High; Sediment: Moderate; odor: Mild H<sub>2</sub>S</i> <i>60 cm Color: Gray; Particulate: High; Sediment: Low; odor: Mild H<sub>2</sub>S</i> <i>Too shallow for bottom readings</i> <i>Surface Water Temp: 30.1°C Sp Cond 47589 <math>\mu</math>S</i>			
Ecological observations of note:			
<i>Sparse Thalassia</i> <i>A few Botophora</i> <i>Sandy shell hash substrate</i>			

		Surveyor: <i>HEH</i>	
Time:		Date: <i>8-23-10</i>	
Arrival	<i>10:04</i>		
Departure	<i>10:22</i>		
Site/Grid:	<i>GH2</i>	Original selected site: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Equipment serial no.: <i>KR1 Troll 4</i> <i>SN 83587 / 154841</i>
GPS coords: <i>N 25.44158 W 80.32470</i>			
Water depth (m): <i>5.3 ft = 1.6 m</i>		Tidal Condition: <i>HIGH</i>	
Air temp (°C): <i>32.5</i>		Water temp (°C): <i>30.4</i>	
For Bay Samples:	Bottom temp (°C): <i>30.3</i>	Bottom spec. cond.: <i>49279</i>	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
<i>20</i>	<i>49,464</i>	<i>30.4</i>	
<i>40</i>	<i>—</i>	<i>—</i>	
<i>60</i>	<i>—</i>	<i>—</i>	
Notes: <i>10 refusals @ 20cm before success</i> <i>20 cm Color: None; Particulate: Low; Sediment: Moderate; Odor: Mild H<sub>2</sub>S</i> <i>25 refusals @ 20cm. No sample for 40cm or 60cm</i>			
Surface Water Temp <i>30.4°C</i> Sp Cond <i>49211 μS</i>			
Ecological observations of note:			
<i>Sparse Thalassia</i> <i>Sparse Botophora</i> <i>Numerous Paracillus</i> <i>A Few Halimeda</i> <i>Sandy shell hash substrate</i>			

		Surveyor: <i>HEH</i>	
Time:		Date: <i>8-23-10</i>	
Arrival	<i>10:28</i>		
Departure	<i>10:49</i>		
Site/Grid:	<i>BB2A</i>	Original selected site: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Equipment serial no.: <i>KR1 Troll 4</i> <i>SN 83587 / 154841</i>
GPS coords: <i>N 25.44242 W 80.32127</i>			
Water depth (m): <i>12.5 ft = 3.8 m</i>		Tidal Condition: <i>HIGH</i>	
Air temp (°C): <i>32.1</i>		Water temp (°C): <i>30.1</i>	
For Bay Samples:	Bottom temp (°C): <i>30.2</i>	Bottom spec. cond.: <i>51002</i>	
<i>*Sund as GH2-0 at 10:40:35 time</i>			
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
<i>20</i>	<i>51725</i>	<i>30.4</i>	
<i>40</i>	<i>—</i>	<i>—</i>	
<i>60</i>	<i>—</i>	<i>—</i>	
Notes: <i>17 refusals @ 20cm before success</i> <i>20 cm Color: None; Particulate: None; Sediment: Low; Odor: Mild H<sub>2</sub>S</i> <i>24 refusals @ 20cm. No sample at 40cm or 60cm.</i>			
Surface Water Temp: <i>30.1°C</i> Sp Cond <i>50250 μS</i>			
Ecological observations of note:			
<i>Some brown drift algae and Caulerpa</i>  <i>Sandy shell hash substrate.</i>			

	Time:		Surveyor: HEH Date: 8-23-10
Arrival	10:50		
Departure	11:11		
Site/Grid:	BB2B	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: RR1 Troll 4 SN 83587 / 154841
GPS coords: N 25.44242 W 80.32128			
Water depth (m): 12.4ft = 3.8m		Tidal Condition: HIGH	
Air temp (°C): 32.6		Water temp (°C): 30.3	
For Bay Samples:	Bottom temp (°C): 30.3	Bottom spec. cond. 51011	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	51338	30.5	
40	50932	30.4	
60	—	—	
Notes: 8 refusals @ 20 cm 20 cm Color: None; Particulate: Low; Sediment: Low; odor: mild H <sub>2</sub> S 16 refusals @ 40 cm before success 40 cm Color: None; Particulate: None; Sediment: Low; odor: Mild H <sub>2</sub> S 22 refusals @ 60 cm. No sample @ 60 cm Surface Water Temp: 30.3°C Sp Cond 50084 uS			
Ecological observations of note: Some brown drift algae and Caulerpa  Sandy shell hash substrate			

	Time:		Surveyor: HEH Date: 8-23-10
Arrival	11:19		
Departure	11:42		
Site/Grid:	BB1A	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: RR1 Troll 4 SN 83587 / 154841
GPS coords: N 25.45224 W 80.30843			
Water depth (m): 8.7ft = 2.7m		Tidal Condition: HIGH	
Air temp (°C): 32.4		Water temp (°C): 30.5	
For Bay Samples:	Bottom temp (°C): 30.4	Bottom spec. cond. 40862	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	51959	30.6	
40	—	—	
60	—	—	
Notes: 11 refusals @ 20 cm before success 20 cm Color: None; Particulate: None; Sediment: Low; odor: Mild H <sub>2</sub> S 23 refusals shallower than 40 cm. No sample taken @ 40 cm or 60 cm  Surface Water Temp: 30.5°C Sp Cond 50755 uS			
Ecological observations of note: Numerous Penaeus, Halimeda, Ulloa  Rubble bottom			

		Surveyor: HEH	
Time:		Date: 8-23-10	
Arrival	11:42		
Departure	12:46		
Site/Grid:	BB1B	Original selected site: <input checked="" type="checkbox"/> Yes/ <input type="checkbox"/> No	Equipment serial no.: RRI <del>TR114</del> <sup>TR114</sup> 9183587/154841
GPS coords: N 25.45225 W 80.30842			
Water depth (m): 8.3 ft = 2.5 m		Tidal Condition: HIGH	
Air temp (°C): 32.7		Water temp (°C): 30.4	
For Bay Samples:	Bottom temp (°C): 30.5	Bottom spec. cond. 51144	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52575	30.5	
40	51758	31.1	
60	—	—	
Notes: 8 refusals @ 20 cm before success 20 cm Color: None; Particulate: None; Sediment: Low Gray sand; Odor: Mild H <sub>2</sub> S 16 refusals @ 40 cm before success 40 cm Color: None; Particulate: None; Sediment: Low; Odor: Moderate H <sub>2</sub> S 24 refusals at around 30 cm. No sample @ 60 cm Surface Water Temp: 30.4°C Sp Cond 50982 uS			
Ecological observations of note: Numerous Poreococcus and Halimeda.  Rubble bottom			

		Surveyor: HEH	
Time:		Date: 8-23-10	
Arrival	12:24		
Departure	12:40		
Site/Grid:	I1	Original selected site: <input checked="" type="checkbox"/> Yes/ <input type="checkbox"/> No	Equipment serial no.: RRI <del>TR114</del> <sup>TR114</sup> 9183587/154841
GPS coords: N 25.45529 W 80.30837			
Water depth (m): 6.4 ft = 2.0 m		Tidal Condition: EBB	
Air temp (°C): 32.1		Water temp (°C): 30.8	
For Bay Samples:	Bottom temp (°C): 30.6	Bottom spec. cond. 50703	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50643	31.6	
40	—	—	
60	—	—	
Notes: 20 refusals before success. 20 cm Color: None; Particulate: None; Sediment: Low; Odor: Moderate H <sub>2</sub> S 25 refusals at around 20 cm. No sample taken @ 40 cm or 60 cm  Surface Water Temp: 30.8°C Sp Cond 50599 uS			
Ecological observations of note: Sparse Thalassia Numerous Poreococcus Several Gorgonians Sand, shell hash bottom			



	Time:		Surveyor: HEH
Arrival	12:54		Date: 8-23-10
Departure	13:18		
Site/Grid:	GH1	Original selected site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Equipment serial no.: RR1 T0114 SN 83587/15487/15484/
GPS coords: N 25.45268 W 80.32503 (HEH)			
Water depth (m): 5.7 ft = 1.7 m		Tidal Condition: EBB	
Air temp (°C): 32.6		Water temp (°C): 30.7	
For Bay Samples:	Bottom temp (°C): <del>30.7</del> 30.6	Bottom spec. cond. 48477	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	49823	31.7	
40	49871	32.3	
60	—	—	
Notes: 12 refusals @ 20cm before success 20 cm Color: None; Particulate: None; Sediment: Low; Odor: Moderate H <sub>2</sub> S 6 refusals @ 40cm before success 40 cm Color: Brown-Grey; Particulate: Moderate; Sediment: Moderate 24 refusals before 60cm, No sample @ 60cm. Odor: Moderate H <sub>2</sub> S Surface Water Temp: 30.7°C Sp cond: 48447 uS			
Ecological observations of note: sparse Thalassia and Botophoron Numerous Perceivillus Some Halimeda Sandy shell hash substrate. Mostly open			

	Time:		Surveyor: HEH
Arrival	13:23		Date: 8-23-10
Departure	13:50		
Site/Grid:	GI G1	Original selected site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Equipment serial no.: RR1 T0114 SN 83587/15487/15484/
GPS coords: N 25.45278 W 80.33113			
Water depth (m): 4.1 ft = 1.2 m		Tidal Condition: EBB	
Air temp (°C): 33.9		Water temp (°C): 31.3	
For Bay Samples:	Bottom temp (°C): 31.2	Bottom spec. cond. 47563	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	49989	32.3	
40	48570	32.1	
60	—	—	
Notes: 20 cm Color: None; Particulate: None; Sediment: Low; Odor: Moderate H <sub>2</sub> S 12 refusals @ 40cm before success 40cm Color: Tan-brown; Particulate: Low; Sediment: Low; Odor: Mild H <sub>2</sub> S 24 refusals before 60cm deep. No sample @ 60cm. Surface Water Temp: 31.3°C Sp Cond 47454 uS			
Ecological observations of note: Dense Thalassia and brown drift algae. A few Perceivillus Sandy shell hash substrate			

	Time:		Surveyor: HEH Date: 8-23-10
Arrival	14:04		
Departure	14:35		
Site/Grid:	J2	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: RR1 T10114 SN 83587/154941
GPS coords: N 25.44162 W 80.29401			
Water depth (m): 5.6 ft = 1.7 m		Tidal Condition: EBB	
Air temp (°C): 31.6		Water temp (°C): 31.1	
For Bay Samples:	Bottom temp (°C): 31.0	Bottom spec. cond. 51208	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	51516	32.1	/
40	—	—	
60	—	—	
Notes:			
9 refusals @ 20cm before success 20 cm Color: None; Particulate: None; Sediment: Low; Odor: Mild H <sub>2</sub> S 24 refusals before 40cm. No sample at 40cm or 60cm  Surface Water Temp: 31.1°C Sp Cond 51127 µS			
Ecological observations of note:			
Sparse Thalassia, brown drift algae • Some Penicillus, Halimeda Sandy shell hash substrate			

	Time:		Surveyor: HEH Date: 8-23-10
Arrival	14:42		
Departure	15:08		
Site/Grid:	G45	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: RR1 T10114 SN 83587/154941
GPS coords: N 25.40777 W 80.32496			
Water depth (m): 3.5 ft = 1.1 m		Tidal Condition: EBB	
Air temp (°C): 30.4		Water temp (°C): 31.3	
For Bay Samples:	Bottom temp (°C): 31.3	Bottom spec. cond. 52554	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52122	30.8	/
40	52737	31.2	
60	52754	31.0	
Notes:			
20 cm Color: Brown-Gray; Particulate: <sup>Low (HEH)</sup> Mild; Sediment: Moderate Fine brown; Odor: Moderate H <sub>2</sub> S 5 refusals @ 40cm before success (HEH) 40 cm Color: Brown-Gray; Particulate: <sup>Low (HEH)</sup> None; Sediment: Low Fine brown; 60 cm Color: None; Particulate: None; Sediment: Low; Odor: Moderate H <sub>2</sub> S Surface Water Temp: 31.3°C Sp Cond 52506 µS			
Ecological observations of note:			
Moderate Thalassia. Some Botophorn, Penicillus, Halimeda Sandy silty substrate			

	Time: <u>HEH</u>	Surveyor: <u>HEH</u>	
Arrival	<u>31.4 15:22</u>	Date: <u>8-23-10</u>	
Departure	<u>15:43</u>		
Site/Grid:	<u>BB8A</u>	Original selected site: <u>Yes</u> /No	Equipment serial no.: <u>RR1 Troll 4</u> <u>SN 83587/154841</u>
GPS coords: <u>N 25.40238 W 80.31957</u>			
Water depth (m): <u>0.67m</u>		Tidal Condition: <u>EBB</u>	
Air temp (°C): <u>31.6</u>		Water temp (°C): <u>31.1</u>	
For Bay Samples:	Bottom temp (°C): <u>—</u>	Bottom spec. cond. <u>—</u>	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<u>52186</u>	<u>30.7</u>	
40	<u>52437</u>	<u>30.9</u>	
60	<u>51590</u>	<u>31.0</u>	
Notes:			
<u>20 cm Color: None; Particulate: None; Sediment: Moderate fine brown; Odor: Strong H<sub>2</sub>S</u> <u>40 cm Color: None; Particulate: None; Sediment: Low; Odor: Strong H<sub>2</sub>S</u> <u>60 cm Color: None; Particulate: None; Sediment: Low; Odor: Moderate H<sub>2</sub>S</u> <u>Too shallow for bottom reading</u> <u>Surface Water Temp: 31.1 °C sp cond 50529 <math>\mu</math>S</u>			
Ecological observations of note:			
<u>Dense Thalassia</u> <u>some Serenodivum</u>			

	Time:	Surveyor: <u>HEH</u>	
Arrival	<u>15:43</u>	Date: <u>8-23-10</u>	
Departure	<u>16:03</u>		
Site/Grid:	<u>BB8B</u>	Original selected site: <u>Yes</u> /No	Equipment serial no.: <u>RR1 Troll 4</u> <u>SN 83587/154841</u>
GPS coords: <u>N 25.40238 W 80.31956</u>			
Water depth (m): <u>0.67 m</u>		Tidal Condition: <u>EBB</u>	
Air temp (°C): <u>31.7</u>		Water temp (°C): <u>31.1</u>	
For Bay Samples:	Bottom temp (°C): <u>—</u>	Bottom spec. cond. <u>—</u>	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<u>51884</u>	<u>HEH</u> <u>31.7</u> <u>31.0</u>	
40	<u>53042</u>	<u>30.9</u>	
60	<u>53060</u>	<u>30.9</u>	
Notes:			
<u>20 cm Color: None; Particulate: None; Sediment: Moderate fine brown; Odor: Moderate H<sub>2</sub>S</u> <u>40 cm Color: None; Particulate: None; Sediment: Low; Odor: Moderate H<sub>2</sub>S</u> <u>60 cm Color: None; Particulate: None; Sediment: Low; Odor: Moderate H<sub>2</sub>S</u> <u>Too shallow for bottom reading</u> <u>Surface Water Temp: 31.1 °C sp cond 50629 <math>\mu</math>S</u>			
Ecological observations of note:			
<u>Dense Thalassia</u> <u>Sparsely Serenodivum</u>			

	Time:		Surveyor: HEH Date: 8-23-10
Arrival	16:32		
Departure	17:14		
Site/Grid:	I 26	Original selected site: <input checked="" type="radio"/> Yes/ <input type="radio"/> No	Equipment serial no.: RRI T011 4 2N 83587/154841
GPS coords: N 25.39654 W 80.38006			
Water depth (m): 5.1 ft = 1.6 m		Tidal Condition: EBB	
Air temp (°C): 31.8		Water temp (°C): 31.0	
For Bay Samples:	Bottom temp (°C): 31.0	Bottom spec. cond. 49412	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52202	30.7	/
40	51290	30.8	
60	50066	30.9	
Notes:			
20 cm Color: None; Particulate: None; Sediment: Low; Odor: Moderate H <sub>2</sub> S 40 cm Color: None; Particulate: None; Sediment: Low; Odor: Moderate H <sub>2</sub> S 60 cm Color: Gray; Particulate: Moderate; Sediment: Low-Fine Surface Water Temp: 31.0°C Sp Cond 49393 <sup>brown and sand</sup> <sub>Odor: Moderate H<sub>2</sub>S</sub>			
Ecological observations of note:			
Dense Thalassia Several Halimeda Silty Sandy bottom			

	Time:		Surveyor: Date:
Arrival			
Departure			
Site/Grid:		Original selected site: Yes/No	Equipment serial no.:
GPS coords:			
Water depth (m):		Tidal Condition:	
Air temp (°C):		Water temp (°C):	
For Bay Samples:	Bottom temp (°C):	Bottom spec. cond.	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
40			
60			
Notes:			
Ecological observations of note:			

	Time:	Surveyor: HEH	
Arrival	9:39	Date: 8-24-10	
Departure	10:34		
Site/Grid:	F14	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: RR1 Troll 4 SV 83587/154841
GPS coords: N 25.30637 W 80.34389			
Water depth (m): 48 ft = 1.5 m		Tidal Condition: FLOOD	
Air temp (°C): 32.3		Water temp (°C): 30.2	
For Bay Samples:	Bottom temp (°C): 30.2	Bottom spec. cond. 47587	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	48861	30.8	
40	49290	31.7	
60	50019	31.3	
Notes: 20 cm Color: Gray; Turbidity: High; Sediment: High <sup>(HEH)</sup> silt; Odor: + strong H <sub>2</sub> S 40 cm C: Gray; T: Hi; Sed: Hi; Fine silt; Odor: Moderate H <sub>2</sub> S 60 cm C: Light Gray; T: Low; Sed: Moderate fine; Odor: Surface Water Temp: 30.2°C Sp Cond 47694 µS			
Ecological observations of note: Sparse to Moderate Thalassia Several sponges Numerous Pericillus A few Halimeda Silty shell hash substrate			

	Time:	Surveyor: HEH	
Arrival	10:38	Date: 8-24-10	
Departure	11:21		
Site/Grid:	F15	Original selected site: <input checked="" type="radio"/> Yes <input type="radio"/> No	Equipment serial no.: SV 83587/154841 RR1 Troll 4
GPS coords: N 25.29510 W 80.34409			
Water depth (m): 6.1 ft = 1.9 m		Tidal Condition: HIGH	
Air temp (°C): 32.4		Water temp (°C): 30.5	
For Bay Samples:	Bottom temp (°C): 30.5	Bottom spec. cond. 48657	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	49781	31.8	
40	49568	32.1	
60	49903	31.8	
Notes: 20 cm Color: Gray; Turbidity: Hi; Sediment: Moderate silt; Odor: Moderate H <sub>2</sub> S 40 cm C: Gray; T: Hi; Sed: Hi silt; Odor: Moderate H <sub>2</sub> S 60 cm C: Gray; T: Hi; Sed: Moderate silt; Mod Samples had to be pulled several times to clear sediment in order to obtain enough water to test. Surface Water Temp: 30.5°C Sp 48643 µS			
Ecological observations of note: Sparse Thalassia A few Pericillus Silty Sandy bottom			

		Surveyor: HEH	
Time:		Date: 8-24-10	
Arrival	11:36		
Departure	12:05		
Site/Grid:	R_FG12	Original selected site: Yes <input checked="" type="radio"/> No	Equipment serial no.: RR1 Troll 4 SN 83587/154841
GPS coords: N 25.32880 W 80.33816			
Water depth (m): 8.6ft = 2.6m		Tidal Condition: HIGH	
Air temp (°C): 32.2		Water temp (°C): 30.6	
For Bay Samples:	Bottom temp (°C): 30.5	Bottom spec. cond. 48314	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50058	30.6	/
40	51469	31.1	
60	50488	31.2	
Notes: 20 refills @ 20 cm before success - Had to move a few meters S. 20cm Color: None; Turbidity: None; Sediment: Low-coarse sand; Odor: Mild H <sub>2</sub> S 40cm C: Tan-gray; T: Low; Sed: Low-fine brown; Odor: Moderate H <sub>2</sub> S 60cm C: Tan-gray; T: Moderate; Sed: Moderate silt; O: Mod H <sub>2</sub> S Surface Water Temp: 30.6°C Sp Cond 48286 uS			
Ecological observations of note: Moderate Botophorn Sparse Thalassia, Brown drift algae Some Halimeda, stony corals			

		Surveyor: HEH	
Time:		Date: 8-24-10	
Arrival	12:10		
Departure	12:35		
Site/Grid:	R-G12	Original selected site: Yes <input checked="" type="radio"/> No	Equipment serial no.: SN 83587/154841 RR1 Troll 4
GPS coords: <del>N 25.32880 W 80.33816</del> N 25.32862 (HEH) W 80.33173			
Water depth (m): 10.45ft = 3.2m		Tidal Condition: HIGH	
Air temp (°C): 32.7		Water temp (°C): 30.8	
For Bay Samples:	Bottom temp (°C): 30.8	Bottom spec. cond. 48947	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52905	31.2	/
40	52823	31.1	
60	50053	30.8	
Notes: 20cm Color: None; T: None; S: Low sand; Odor: Moderate H <sub>2</sub> S 40cm C: None; T: None; S: Low gray sand; Odor: Mild H <sub>2</sub> S 60cm C: None; T: None; S: Low sand; O: Mild H <sub>2</sub> S Surface Water Temp: 30.8°C Sp Cond 48946 uS			
Ecological observations of note: Moderate Thalassia some Acetabularia and Penicillus shell hash Sandy <del>silty</del> bottom (HEH)			

	Time:		Surveyor: <i>HEH</i> Date: <i>8-24-10</i>
Arrival	<i>12:42</i>		
Departure	<i>13:09</i>		
Site/Grid:	<i>R-611</i>	Original selected site: Yes <input checked="" type="radio"/> No <input type="radio"/>	Equipment serial no.: <i>RR1 Troll 4</i> <i>SN 83587/154841</i>
GPS coords: <i>N 25.33996 W 80.33168</i>			
Water depth (m): <i>9.3 ft = 2.8 m</i>		Tidal Condition: <i>E88</i>	
Air temp (°C): <i>33.4</i>		Water temp (°C): <i>31.1</i>	
For Bay Samples:	Bottom temp (°C): <i>31.2</i>	Bottom spec. cond. <i>49246</i>	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<i>50974</i>	<i>31.6</i>	
40	—	—	
60	—	—	
Notes:			
<i>Sparse Thalassia</i> <i>Moderate to Dense Brown Drift algae</i> <i>some Acetabularia, Halimeda, Penicillus</i>			
Ecological observations of note:			
<i>20 cm Color: None; Turbidity: None; Sediment: Low silt; Odor: Moderate H<sub>2</sub>S</i> <i>20 refugils @ 25 cm. No sampler &lt; 40 cm or 60 cm</i>  <i>Surface Water Temp. 31.1°C Sp Cond 49007 uS</i>			

	Time:		Surveyor: <i>HEH</i> Date: <i>8-24-10</i>
Arrival	<i>13:17</i>		
Departure	<i>13:55</i>		
Site/Grid:	<i>G11-BAY</i>	Original selected site: Yes <input checked="" type="radio"/> No <input type="radio"/>	Equipment serial no.: <i>RR1 Troll 4</i> <i>SN 83587/154841</i>
GPS coords: <i>N 25.34485 W 80.33264</i>			
Water depth (m): <i>5.4 ft = 1.3 m</i>		Tidal Condition: <i>E88</i>	
Air temp (°C): <i>32.9</i>		Water temp (°C): <i>31.0</i>	
For Bay Samples:	Bottom temp (°C): <i>31.0</i>	Bottom spec. cond. <i>48436</i>	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<i>49706</i>	<i>31.2</i>	
40	<i>52163</i>	<i>31.5</i>	
60	<i>51889</i>	<i>31.7</i>	
Notes:			
<i>20 cm C: Tan; T: None; Sed: Low fine brown; Odor: Mild H<sub>2</sub>S</i> <i>40 cm C: Tan; T: None; Sed: Low; Odor: Moderate H<sub>2</sub>S</i> <i>60 cm C: Brown; T: None; Sed: Low; Odor: Strong H<sub>2</sub>S</i>  <i>Surface Water Temp: 31.0°C Sp Cond 54212 uS</i>			
Ecological observations of note:			
<i>Moderate Thalassia with heavy epiphyte growth</i> <i>Sparse Syringodium</i> <i>A few Penicillus, Ulodida, Acetabularia</i> <i>Sandy shell hash bottom</i>			

		Surveyor: <i>HEH</i>	
Time:		Date: <i>8-24-10</i>	
Arrival	<i>14:03</i>		
Departure	<i>14:33</i>		
Site/Grid:	<i>G10-BAY</i>	Original selected site: Yes/No	Equipment serial no.: <i>RR1 T0114</i> <i>SU 83587/154841</i>
GPS coords: <i>N 25.34837 W 80.33105</i>			
Water depth (m): <i>HEH</i> <del>5.2m</del> <i>1m</i>		Tidal Condition: <i>E6B</i>	
Air temp (°C): <i>32.7</i>		Water temp (°C): <i>32.0</i>	
For Bay Samples:	Bottom temp (°C): <i>32.0</i>	Bottom spec. cond. <i>49593</i>	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
<i>20</i>	<i>52126</i>	<i>31.9</i>	
<i>40</i>	<i>51851</i>	<i>32.2</i>	
<i>60</i>	<i>51236</i>	<i>32.5</i>	
Notes: <i>20 cm C: None; T: None; Sed: Low Fine brown; Odor: Moderate H<sub>2</sub>S</i> <i>Moderate to Dense TH</i> <i>HEH</i> <i>Isolated sponges, Halimeda</i> <i>40 cm C: brown gray; T: Low; Sed: Moderate; Odor: Moderate H<sub>2</sub>S</i> <i>60 cm C: brown; T: Low; Sed: low; Odor:</i> <i>Surface Water Temp: 32.0°C sp Cond 49669.65</i>			
Ecological observations of note: <i>Moderate to dense Thalassia with a heavy epiphytic load.</i> <i>Isolated sponges, Halimeda, and Acetabularia</i>  <i>Sandy shell hash bottom</i>			

		Surveyor: <i>HEH</i>	
Time:		Date: <i>8-24-10</i>	
Arrival	<i>14:38</i>		
Departure	<i>15:03</i>		
Site/Grid:	<i>R-GH20</i>	Original selected site: Yes/No	Equipment serial no.: <i>RR1 T0114</i> <i>SU 83587/154841</i>
GPS coords: <i>N 25.35131 W 80.32491</i>			
Water depth (m): <i>8.6 ft = 2.6 m</i>		Tidal Condition: <i>E6B</i>	
Air temp (°C): <i>32.9</i>		Water temp (°C): <i>31.3</i>	
For Bay Samples:	Bottom temp (°C): <i>HEH</i> <del>31.2</del> <i>31.2</i>	Bottom spec. cond. <del>49505</del> <i>49777</i>	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
<i>20</i>	<i>49811</i>	<i>31.6</i>	
<i>40</i>	<i>52650</i>	<i>32.0</i>	
<i>60</i>	<i>49696</i>	<i>31.9</i>	
Notes: <i>4 refusals @ 20 cm before success.</i> <i>20 cm C: None; T: None; Sed: Low gray sand; odor: Mild H<sub>2</sub>S</i> <i>40 cm C: None; T: None; Sed: Low; odor: Moderate H<sub>2</sub>S</i> <i>60 cm C: None; T: None; Sed: Low; odor: Mild H<sub>2</sub>S</i>  <i>Surface Water Temp 31.3°C sp Cond 49362</i>			
Ecological observations of note: <i>Moderate Thalassia</i> <i>Moderate Brown Drift algae</i> <i>A few Penicillius</i> <i>A solitary sponge</i> <i>Sandy shell hash</i>			



	Time:		Surveyor: HEH Date: 8-24-10
Arrival	15:13		
Departure	15:39		
Site/Grid:	H9-BAY	Original selected site: Yes/No	Equipment serial no.: RR1 T0114 SN 83587/154841
GPS coords: N 25.36163 W 80.32168			
Water depth (m): 6.0ft = 1.8m		Tidal Condition: EBB	
Air temp (°C): 32.8		Water temp (°C): 31.6	
For Bay Samples:	Bottom temp (°C): 31.4	Bottom spec. cond. 48186	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	50945	31.7	
40	53139	31.9	
60	50547	32.4	
Notes:			
20cm C: None; T: None; Sed Low fine sand; Odor: Mild H <sub>2</sub> S			
40cm C: None; T: None; Sed: Low; Odor: Moderate H <sub>2</sub> S			
60cm C: Dark brown; T: Low; Sed Low fine brown; Odor: Mild H <sub>2</sub> S			
Surface Water Temp: 31.6°C Sp Cond: 48004 µS			
Ecological observations of note:			
Dense Thalassia			
Sand shell hash substrate			

	Time:		Surveyor: HEH Date: 8-24-10
Arrival	1547		
Departure	1613		
Site/Grid:	R-HI9	Original selected site: Yes/No (HEH)	Equipment serial no.: RR1 T0114 SN 83587/154841
GPS coords: <del>N 25.36246 W 80.31239</del> N 25.36246 W 80.31226			
Water depth (m): 8.0ft = 2.4m		Tidal Condition: EBB	
Air temp (°C): 33.1		Water temp (°C): 31.4	
For Bay Samples:	Bottom temp (°C): 31.4	Bottom spec. cond. 48724	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	51413	31.8	
40	53154	31.7	
60	51405	31.7	
Notes: Moved site 10m east because refusal at original location.			
20cm C: None; T: None; Sed: Low sand; Odor: Mild H <sub>2</sub> S			
40cm C: None; T: None; Sed: Low; Odor: Moderate H <sub>2</sub> S			
Surface Water Temp 31.4°C Sp Cond 48702 µS			
Ecological observations of note:			
2m x 2m patch of moderate Thalassia bordered by brown drift algae.			
A few sponges, gorgonians, stony coral.			

	Time:		Surveyor: <i>HEH</i> Date: <i>8-24-10</i>
Arrival	<i>16:45</i>		
Departure	<i>1727</i>		
Site/Grid:	<i>R-I6</i>	Original selected site: Yes/No	Equipment serial no.: <i>RR1 Troll 4</i> <i>SN 83557 / 154841</i>
GPS coords: <i>N 25.39633 W 80.30639</i>			
Water depth (m): <i>4.2 ft = 1.28 m</i>		Tidal Condition: <i>EBB</i>	
Air temp (°C): <i>32.6</i>		Water temp (°C): <i>31.3</i>	
For Bay Samples:	Bottom temp (°C): <i>31.2</i>	Bottom spec. cond.: <i>50416</i>	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<i>50609</i>	<i>31.8</i>	/
40	<i>52176</i>	<i>31.1</i>	
60	—	—	
Notes:			
<i>20 cm Color: None; Turbidity: None; Sediment: Low; Odor: Moderate H<sub>2</sub>S</i> <i>40 cm C: None; T: None; Sed: None; Odor: Mild H<sub>2</sub>S</i> <i>30 refusals around 15 cm. No sample @ 60 cm.</i> <i>Surface Water Temp 31.3°C Sp Cond 50356</i>			
Ecological observations of note:			
<i>Sparse Thalassia</i> <i>Dense Botophora</i> <i>Individual Halimeda</i>			

	Time:		Surveyor: <i>HEH</i> Date: <i>8-24-10</i>
Arrival	<i>1807</i>		
Departure	<i>1846</i>		
Site/Grid:	<i>BF</i>	Original selected site: Yes/No	Equipment serial no.: <i>RR1 Troll 4</i> <i>SN 83557 / 154841</i>
GPS coords: <i>N 25.40722 W 80.32729</i>			
Water depth (m): <i>0.5 m</i>		Tidal Condition: <i>LOW</i>	
Air temp (°C): <i>31.3</i>		Water temp (°C): <i>31.9</i>	
For Bay Samples:	Bottom temp (°C): —	Bottom spec. cond.: —	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<i>53277</i>	<i>30.7</i>	/
40	<i>52553</i>	<i>30.9</i>	
60	<i>52004</i>	<i>31.1</i>	
Notes:			
<i>20 cm: Color: Tan gray; T: Moderate; Sed: Moderate fine brown and sand.</i> <i>Odor: Mild H<sub>2</sub>S</i> <i>40 cm: C: Dark gray-brown; T: Hi; Sed: Moderate; Odor: Mild H<sub>2</sub>S</i> <i>60 cm: C: Tan; T: Moderate; Sed: Low silt; Odor: Moderate H<sub>2</sub>S</i> <i>Too shallow for bottom readings</i> <i>Surface Water Temp: 31.9°C Sp Cond 53478/15</i>			
Ecological observations of note:			
<i>Sparse Thalassia, Botophora, Brown drift algae</i>  <i>Sandy shell hash substrate.</i>			

		Surveyor: MM, JEV	
Time: <u>9:18</u>		Date: <u>8/25/10</u>	
Arrival	<u>9:18</u>		
Departure	<u>9:55</u>		
Site/Grid: <u>R-H1</u>		Original selected site: Yes/No <u>(JEU)</u>	Equipment serial no.: <u>RR1, Probe #4</u>
GPS coords: <u>N25 45271 W80 31833</u>		<u>N25 45317 W80 31831</u>	
Water depth (m): <u>5.9 ft = 1.8 m</u>		Tidal Condition: <u>flood</u>	
Air temp (°C): <u>31.5°</u>		Water temp (°C): <u>30.0</u>	
For Bay Samples:	Bottom temp (°C): <u>29.9</u>	Bottom spec. cond. <u>52776</u>	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<u>51332</u>	<u>30.2</u>	
40	<u>53630</u>	<u>30.3</u>	
60	<u>51348</u>	<u>30.3</u>	
Notes:			
<p>Moderate to mild H<sub>2</sub>S odor 20, 40, 60 cm  20 &amp; 40 cm sample: moderately turbid  60 cm - sample is very turbid, white in color  surface water Temp 30.0 Sp cond 52787</p>			
Ecological observations of note:			
<p>sparsely Thalassia, few pericillius &amp; hale media  sandy shell hash substrate.</p>			

		Surveyor: MM, JEV	
Time:		Date: <u>8/25/10</u>	
Arrival	<u>10:05</u>		
Departure	<u>10:34 am</u>		
Site/Grid: <u>R-H1</u>		Original selected site: Yes/No	Equipment serial no.: <u>RR1, Probe #4</u>
GPS coords: <u>N25 45266 W80 31274</u>			
Water depth (m): <u>6.3 ft = 1.9 m</u>		Tidal Condition: <u>Flood</u>	
Air temp (°C): <u>31.7</u>		Water temp (°C): <u>30.1</u>	
For Bay Samples:	Bottom temp (°C): <u>30.0</u>	Bottom spec. cond. <u>52848</u>	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<u>51630</u>	<u>30.5</u>	
40	<u>51006</u>	<u>30.5</u>	
60	<u>52439</u>	<u>30.3</u>	
Notes:			
<p>mild H<sub>2</sub>S odor, very little turbidity  surface water spec cond 52331 <math>\mu</math>S 30.1 °C</p>			
Ecological observations of note:			
<p>sparsely Thalassia, some pericillius and  Hale media and brown drift algae  and sandy shell hash substrate</p>			

Time:		Surveyor: MM JFV	
Arrival 10:43		Date: 8/25/10	
Departure 11:18am			
Site/Grid:	R-151	Original selected site: Yes/No	Equipment serial no.: RR1 Probe # 4 SN 83587 / 154841
GPS coords: N 452. N 25 452.78 W 80. 30032			
Water depth (m): 7.7 ft = 2.3m		Tidal Condition: flood	
Air temp (°C): 32.5°		Water temp (°C): 30.2	
For Bay Samples:	Bottom temp (°C): 30.2	Bottom spec. cond. 51599	
Aqua TROLL 100			
Depth (cm)	Spec. Cond. (JFV)	Temperature (°C)	Temp measured in-situ (°C):
20	52000	30.6	/
40	53013	30.8	
60	53392	30.8	
Notes:			
Moderate H <sub>2</sub> S odor, very low turbidity in all samples. surface spec cond - 51731 μS, 30.2°C temp.			
Ecological observations of note:			
Moderate Thalassia, a few of Bataphora, Acetabularia, Halimeda, Penicillaria and a solitary sponge w/ sand shell hash bottom			

Time:		Surveyor: JFV MM	
Arrival 11:28		Date: 8/25/10	
Departure 12:06			
Site/Grid:	R-152	Original selected site: Yes/No	Equipment serial no.: RR1 Probe # 4 SN 83587 / 154841
GPS coords: N 25.44 106 W 80. 30684			
Water depth (m): 7.2 ft = 2.2m		Tidal Condition: High	
Air temp (°C): 32.1		Water temp (°C): 30.4	
For Bay Samples:	Bottom temp (°C): 30.2	Bottom spec. cond. 51599 51360 30.3°	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	53992	30.8°	
40 (JFV)	52500 524500	31.0°	Sand approx 12-42
60	53316	31.2°	
Notes:			
Moderate H <sub>2</sub> S odor, very low turbidity 20 & 40 cm samples High turbidity in 60 cm sample surface water spec cond 51408 μS 30.4°C temp			
Ecological observations of note:			
Dense Thalassia, a few Penicillaria Sandy shell hash substrate			

		Surveyor: JFV MM	
Time:		Date: 8/25/10	
Arrival	12:13		
Departure	12:41		
Site/Grid:		Original selected site: Yes/No	Equipment serial no.:
R-H.2			RR1 Probe #4 SN 83587/154841
GPS coords: N25.44151 W80.31216			
Water depth (m): 7.0 $2.1m$		Tidal Condition: High	
Air temp (°C): 31.7		Water temp (°C): 30.7	
For Bay Samples:		Bottom temp (°C): 30.5	Bottom spec. cond. 5259.1 $\mu S$
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	53786	31.5	
40	53104	31.5	
60	53443	31.7	
Notes:			
Moderate H <sub>2</sub> S odor. 20-60 cm sample very little turbidity, 60 cm			
Sub water 52080 $\mu S$ spec cond, 30.7 °C temp			
Ecological observations of note:			
Moderate to dense Thalassia, sparse halophora, few Penicillia + Halimeda			
Sandy shell & hash bottom			

		Surveyor: MM JFV	
Time:		Date: 8/25/10	
Arrival	12:51		
Departure	1:47 pm	13:47	
Site/Grid:		Original selected site: Yes/No	Equipment serial no.:
R-H.2			RR1 Probe #4 SN 83587/154841
GPS coords: N25.44270 W80.31983			
Water depth (m): 5.8 ft = 1.8m		Tidal Condition: High	
Air temp (°C): 32.4		Water temp (°C): 30.9	
For Bay Samples:		Bottom temp (°C): 30.9	Bottom spec. cond. 52861
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52542	32.4	
40	52774	31.9	
60	50983	31.9	
Notes:			
surface water spec cond = 52808 $\mu S$ , 30.9 °C temp.			
turbid gray sample @ 20 cm - 60 cm			
moderate H <sub>2</sub> S odor			
Ecological observations of note:			
Sparse Thalassia with a few batophora, halimeda + penicillia			
sandy shell hash bottom.			

	Time: <u>14:06</u> (E)	Surveyor: MM, JFV Date: 8/25/10	
Arrival	<u>2:06</u>	14:06	
Departure	<u>2:31 pm</u> (E)	14:31	
Site/Grid:	H2 B	Original selected site: Yes/No	Equipment serial no.: SV 83587 / 154841 R/R 1, Probe #4 SV 154
GPS coords: N 25.44592 W 80.31617 (JFV)			
Water depth (m): <u>5 ft = 1.5 m</u>		Tidal Condition: <u>Ebb</u>	
Air temp (°C): <u>32.6</u>		Water temp (°C): <u>31.4</u>	
For Bay Samples:	Bottom temp (°C): <u>31.2°</u>	Bottom spec. cond.: <u>52903</u>	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<u>52839</u>	<u>31.6</u>	/
40	<u>53261</u>	<u>31.9</u>	
60	<u>54203</u>	<u>32.0</u>	
Notes: Surface water temp 31.4. Spec cond: 52930 - Site inside barge canal, samples taken just off edge			
Ecological observations of note: Dense <i>Thalassia</i> , a few <i>Pencillius</i> Sandy bottom			

	Time: <u>14:42</u> (E)	Surveyor: MM, JFV Date: 8/25/10	
Arrival	<u>2:42</u>	14:42	
Departure	<u>3:18</u>	15:18	
Site/Grid:	GH2 B	Original selected site: Yes/No	Equipment serial no.: R/R 1, Probe #4 SV 83587 / 154841
GPS coords: <u>N 25.44208 W 80.32469</u> N 25.43996 W 80.32449			
Water depth (m): <u>5 ft = 1.5 m</u>		Tidal Condition: <u>Ebb</u>	
Air temp (°C): <u>33.3</u>		Water temp (°C): <u>31.6</u>	
For Bay Samples:	Bottom temp (°C): <u>30.3</u>	Bottom spec. cond.: <u>52789</u> <u>52853</u> (JFV)	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	<u>53352</u>	<u>31.7</u>	/
40			
60			
Notes: surface 52447 $\mu$ S 31.6° Temp pt is inside Barge Canal 13 refusals @ 20cm before success 24 refusals @ 40cm, no sample taken			
Ecological observations of note: silty bottom w/ moderate <i>Caulerpa</i> GH2-00 - bottom reading			

		Surveyor: MM JFV Date: 8/25/10	
Arrival	Time: 3:31 pm	15:31	
Departure	3:58 pm	15:58	
Site/Grid:	I3-N	Original selected site: Yes/No	Equipment serial no.: SV 83587/15484/ RR1, Probe #4
GPS coords: N25.43020 W 80.30621			
Water depth (m): 6.5 ft = 2.0 m		Tidal Condition: Ebb	
Air temp (°C): 33.1		Water temp (°C): 31.5	
For Bay Samples:	Bottom temp (°C): 31.5	Bottom spec. cond.: 51120 µS	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	53910 µS	32.0	
40	55143 µS	31.9	
60	54820 µS 54819 µS	32.0	
Notes: surface is I3-N → 51032 µS, 31.5°C mild H <sub>2</sub> S odor, low turbidity			
Ecological observations of note: Dense Thalassia, a few Bataphora, Enicillus & Halimeda Sandy shell near bottom			

		Surveyor: MM JFV Date: 8/25/10	
Arrival	Time: 4:02 pm	16:02	
Departure	4:54 pm	16:34	
Site/Grid:	H13-N	Original selected site: Yes/No	Equipment serial no.: RR1, Probe #4 SV 83587/15484/
GPS coords: N25.43077 W80.31309°			
Water depth (m): 6 ft = 1.8 m		Tidal Condition: Ebb	
Air temp (°C): 33.3		Water temp (°C): 31.8	
For Bay Samples:	Bottom temp (°C): 31.7	Bottom spec. cond.: 52224	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52594 µS	31.3	
40	52817	31.2	
60	52209	31.2	
Notes: surface 52182 µS 31.8°C temp rabbit sample 20-60 cm moderate H <sub>2</sub> S odor 20 & 40 Strong H <sub>2</sub> S odor @ 60 cm			
Ecological observations of note: Dense Thalassia a few Acetabulara and Bataphora Sandy shell near bottom			

	Time:	Surveyor: MM JFV Date: 8/26/10	
Arrival	9:14am		
Departure	9:41		
Site/Grid:	G13	Original selected site: Yes/No	Equipment serial no.: SV 83587 / 154841 RRI, Probe #4
GPS coords: N25.31777 W80.33173			
Water depth (m): 11.0 ft = 3.3m		Tidal Condition: flood	
Air temp (°C): 29.2		Water temp (°C): 30.7	
For Bay Samples:	Bottom temp (°C): 30.7	Bottom spec. cond. 48918	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52083	29.30.0	
40			
60			
Notes: Surface spec cond 48912, 30.7°C temp very low turbidity at 20 cm 20+ refusals at 40 cm (HM) 20+ refusals at 40 cm (KC)			
Ecological observations of note:  Sparse to moderate Thalassia, with a few Penicillus, sandy shell hash bottom.			

	Time:	Surveyor: MM JFV Date: 8/26/10	
Arrival	9:50am		
Departure	10:16am		
Site/Grid:	G412	Original selected site: Yes/No	Equipment serial no.: SV 83587 / 154841 RRI, Probe #4
GPS coords: N25.32860 W80.32491			
Water depth (m): 12.0 ft = 3.7m		Tidal Condition: flood	
Air temp (°C): 29.5		Water temp (°C): 30.8	
For Bay Samples:	Bottom temp (°C): 31.2	Bottom spec. cond. 50254 50253 (JFV)	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52208	29.9	
40	52237	29.7	
60	51741	29.9	
Notes: Surface 49685FS, 30.8°C turbid sample @ 20 cm, strong H2S odor turbid sample @ 40 cm, moderate H2S turbid sample @ 60 cm, mild H2S odor			
Ecological observations of note:  Sparse to moderate Thalassia, Some Penicillus Sandy shell hash bottom with a little bit of silt on top			



Time:		Surveyor: M.M. JEV	
Arrival		Date: 8/26/10	
Departure			
Site/Grid:	Original selected site: Yes/No	Equipment serial no.:	
GH 11		SV 83587/151841 RRI, Probe #4	
GPS coords: N25.33994 W80.32513			
Water depth (m): 10.0 ft = 3.0 m		Tidal Condition: flood	
Air temp (°C): 29.8°		Water temp (°C): 30.9	
For Bay Samples:	Bottom temp (°C): 30.9°	Bottom spec. cond. 49631	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	53473	30.4	
40	51859	30.3	
60	51884	30.4	
Notes: surface spec cond 49815 µS, temp 30.9° Moderate H <sub>2</sub> S odor at 20 cm, very low turbidity mild H <sub>2</sub> S odor & low turbidity @ 40 cm & 60 cm spiny lobsters and stone crab observed			
Ecological observations of note:			
Sparse to moderate Thalassia, some Penicillaria, Halimeda and LAM. Acetabularia Sandy shell hash bottom			

Time:		Surveyor: M.M. JEV	
Arrival		Date: 8/26/10	
Departure			
Site/Grid:	Original selected site: Yes/No	Equipment serial no.:	
GH 11		SV 83587/151841 RRI, Probe #4	
GPS coords: N25.33994 W80.31255			
Water depth (m): 11.3 ft = 3.44 m		Tidal Condition: flood	
Air temp (°C): 30.8°		Water temp (°C): 30.7	
For Bay Samples:	Bottom temp (°C): 30.8°	Bottom spec. cond. 50852	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52006 µS	30.4°	
40	52337	30.6	
60	53270	30.6	
Notes: surface water spec cond 50814 µS, temp 30.7° 8 spiny lobsters observed around a sponge low turbidity 30 rejections before success at 20 cm 50+ rejections at 40 cm before success			
Ecological observations of note:			
Moderate Thalassia w/ a few Penicillaria Sandy shell hash bottom			

		Surveyor: JFV, MM	
Time:		Date: 8/26/10	
Arrival	12:00 pm		
Departure	12:32 pm		
Site/Grid:	IJ4	Original selected site: Yes/No	Equipment serial no.: RR1, Probe #4 SV 53557/154541
GPS coords: N 25.41884 W 80.29997			
Water depth (m): 6.5 ft = 2.0 m		Tidal Condition: High	
Air temp (°C): 31.3		Water temp (°C): 30.1	
For Bay Samples:	Bottom temp (°C): 30.0	Bottom spec. cond. 51.320	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	51667 $\mu$ S	30.6	/
40	52155 $\mu$ S	30.9	
60	54824	30.6	
Notes: surface spec cond 51296 $\mu$ S, 30.1°C low turbidity, mild H <sub>2</sub> S odor @ 20cm moderate turbidity + moderate H <sub>2</sub> S odor @ 40cm & 60cm			
Ecological observations of note: Sparse <i>Thalassia</i> , <i>Penicillus</i> , <i>Bataphora</i> and <i>Galemeda</i> w/ sandy shell hash bottom			

		Surveyor: JFV, MM	
Time:		Date: 8/26/10	
Arrival	12:40 pm		
Departure	1:00 pm (W)	13:00	
Site/Grid:	I4	Original selected site: Yes/No	Equipment serial no.: RR1, Probe #4 SV 53557/154541
GPS coords: N 25.41914 W 80.30635			
Water depth (m): 6.3 ft = 1.9 m		Tidal Condition: High	
Air temp (°C): 31.5°C		Water temp (°C): 30.1	
For Bay Samples:	Bottom temp (°C): 30.2	Bottom spec. cond. 50978	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	52212	30.8°	/
40	51235	31.0°	
60			
Notes: low turbidity mild H <sub>2</sub> S odor @ 20cm + 40cm 50+ rejections at 60cm - no sample taken surface spec cond = 5106 $\mu$ S, 30.1°C			
Ecological observations of note: Sparse <i>Thalassia</i> and <i>Bataphora</i> a few <i>Penicillus</i> , sandy shell hash bottom			

Time:		Surveyor: MK JFV	
Date: 8/26/10			
Arrival	14:00pm (K)	13:10	
Departure	1:30pm (K)	13:30	
Site/Grid:	H3	Original selected site: Yes/No	Equipment serial no.: RR1, Probe #4 SN 83587/154841
GPS coords: <del>N 25 40 25</del> N 25 40 25 W 80 31873			
Water depth (m): 5.8 ft = 1.8 m		Tidal Condition: High	
Air temp (°C): 31.5°		Water temp (°C): 30.1°	
For Bay Samples:	Bottom temp (°C): 30.2	Bottom spec. cond. 53337 $\mu$ S	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	53172	31.4	/
40	53513 53153 (JFV)	31.4	
60	538067	32.2	
Notes: surface spec cond 53361 $\mu$ S, 30.1°C moderate turbidity + H <sub>2</sub> S odor at 20-60cm			
Ecological observations of note: sparse <i>Thalassia</i> few <i>Bataphora</i> , <i>Penicillus</i> + <i>Halimeda</i> Sandy shell hash bottom			

Time:		Surveyor: MK JFV	
Date: 8/26/10			
Arrival	1:37pm (K)	13:37	
Departure	2:05pm (K)	14:05	
Site/Grid:	G3	Original selected site: Yes/No	Equipment serial no.: SN 83587/154841 RR1, Probe #4
GPS coords: N 25 42772 W 80 32536			
Water depth (m): 4.5 ft = 1.4 m		Tidal Condition: Ebb	
Air temp (°C): 31.7		Water temp (°C): 30.3°	
For Bay Samples:	Bottom temp (°C): 30.5	Bottom spec. cond. 53463	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20	53755	32.7	/
40	53579	32.6	
60	53394	31.8	
Notes: surface spec cond 53386 $\mu$ S, 30.3°C temp. moderate turbidity 20-60cm, moderate H <sub>2</sub> S odor			
Ecological observations of note: Dense <i>Thalassia</i> , brown drift algae + <i>Penicillus</i> and a few <i>Halimeda</i> . Sandy bottom			

**September 2010**

# WET SEASON 2010 Porewater Tracer Suite Sampling: Biscayne Bay

Time		Date: 9/22/10	
Arrival:	12:41	Surveyors: SH, MM, SE, TJ	
Departure:	15:17		
Site/Grid: H2B		Original Site Selected: Yes/No	
GPS Coordinates (NAD 1983)--Latitude: 25.44592			
Longitude: 80.31674			
Water depth (m): 12 ft		Tidal conditions: Ebb	
Air temp (°C):		High tide: 10:00 A.M.	
Instrument: Rugged Reader + Aqua Troll 100			
Manufacturer: YSI/In-Situ		Sensor ID: #4	
Model: #3 S/N 83595/154841			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm <sup>below surface</sup>	<del>43283</del> 23823	<del>28.47</del> 28.47	Second reading corrected measurement.
~ 11 ft	41135	28.94	
	42243 (SE)	28.7 (SE)	first location reading.
porewater 30 cm	30,306	29.6	sample collection reading
Tracer Suite Collected from: 3 locations			
Volume collected: 1000 mL			
Notes: site located in Barge Canal, moved once to new site due to heavy, fine silt on bottom, causing tube to clog. Bottom of entire area covered in fine mud/silt making filtering of samples extremely difficult.			
Ecological Observations: silty bottom. temp probe in @ 13:40 out @ 13:49			

Time		Date: 9/22/10	
Arrival:	16:31	Surveyors: SH, MM, SE, TJ	
Departure:	18:06		
Site/Grid: 03		Original Site Selected: Yes/No	
GPS Coordinates (NAD 1983)--Latitude: 25.42757			
Longitude: 80.32539			
Water depth (m): 12 ft (SD)		Tidal conditions: Ebb	
Air temp (°C): 37°C		High tide: 10:00 A.M.	
Instrument: Rugged Reader + Aqua Troll 100			
Manufacturer: YSI/In-Situ		Sensor ID: #4	
Model: Rugged Reader Unit #3 S/N 83595/154841			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
	19085	29.75	3 ft at water 30 cm off of bottom
30 cm <sup>water surface</sup>	19114	29.63	
porewater 25 cm sep	40306	28.43 (SD)	temp will be added from thermo-probe
		28.6	temp probe in: 17:23 out: 17:38
Tracer Suite Collected from: 2 locations			
Volume collected: mL 1000 mL collected			
Notes:			
Ecological Observations: moderate Thalassia w/ some halimeda + pericallus sandy silty bottom			

# WET SEASON 2010 Porewater Tracer Suite Sampling: Biscayne Bay

Time	10-10am	Date:	9/23/10
Arrival:	10-10	Surveyors:	SE/MM
Departure:	11:32		
Site/Grid:	36	Original Site Selected:	(Yes/No)
GPS Coordinates (NAD 1983)--Latitude: 25.39647			
Longitude: 80.29420			
Water depth (m):	1.6m	Tidal conditions:	Rising
Air temp (°C):	31.3	High tide:	11:26 @ 9. PM
Instrument: RR#3 S/N 83545			
Manufacturer:	YSI/In-Situ	Sensor ID:	#4 SN 154841
Model:	100 Aqua Troll		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm from H <sub>2</sub> O	46211	30.50	
13 m from H <sub>2</sub> O surface	46212	30.51	
60 cm in sediment	51454	29.21	Thermoworks TC1000 temp coll @ 5 sec intervals from
	Temp probe @ 60 cm	29.2	10.37-11.20
Tracer Suite Collected from: 2 locations			
Volume collected: 1000 mL			
Notes:			
10-12 knot wind			
Sample collected @ 60 cm by hand b/c the pump gets clogged.			
Ecological Observations: Seagrass			
Dense Thalassia, Acetabularia, Halimeda, Penicillaria			
Silty sandy bottom			

9/24/10

Time	9:30	Date:	9/23/10 (SE)
Arrival:	9:30	Surveyors:	SE/MM
Departure:	10:20		
Site/Grid:	H3	Original Site Selected:	Yes/No
GPS Coordinates (NAD 1983)--Latitude: 25.43008			
Longitude: 80.31902			
Water depth (m):	1.7m	Tidal conditions:	Rising
Air temp (°C):	30.8	High tide:	12:04 pm @ T. PP
Instrument: RR#3 S/N 83545			
Manufacturer:	YSI/In-Situ	Sensor ID:	#4 SN 154841
Model:	100 AT		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm from top	25654	27.90	
30 cm from 1 m	25840	27.65	
24 cm in sediment	29461	27.64	Thermoworks TC1000 Temp coll @ 5 sec int.s
	Temp probe @ 24 cm	27.6	btw 9:48-9:58 am
Tracer Suite Collected from: 2 locations			
Volume collected: 1000 mL			
Notes:			
12-15 knot wind			
Low visibility. Choppy.			
Peristaltic pump not changed. Hand syringe extraction.			
Ecological Observations: Poor visibility			
Sample collected from small (<1 m <sup>2</sup> ) patch. All hard bottom (sandy shell hash)			
Penicillaria, Batophora present			

# WET SEASON 2010 Porewater Tracer Suite Sampling: Biscayne Bay

Time	10:40	Date:	9/24/10
Arrival:	10:40	Surveyors:	SE/MM
Departure:	11:55		
Site/Grid:	I3	Original Site Selected:	(Yes/No)
GPS Coordinates (NAD 1983)--Latitude:		25.429776	
		Longitude: 80.30699	
Water depth (m):	2.3 m	Tidal conditions:	Rising
Air temp (°C):	31.7°C	High tide:	12:04 pm @ T. Pt
Instrument:	RR#3 S/N 83595		
Manufacturer:	YSI/In-Situ	Sensor ID:	#4 S/N 154841
Model:	AT100		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm below H <sub>2</sub> O	36462	27.77	
2 m below H <sub>2</sub> O	38571	27.91	
43 cm below sediment	45626	28.73	Thermowork TC1000 temp collected @ 5 sec intervals
	Temp probe @ 43 cm	28.8	by 10:10 - 11:22 am
Tracer Suite Collected from: 2 locations			
Volume collected: 1000 mL			
Notes: slightly deeper H <sub>2</sub> O. Better visibility. Wind > 12 knots. Waves 3+ ft.			
Ecological Observations: Sparse Thalassia. Sandy shell hash. Halimeda, Botryophora & Penicillium.			

Time		Date:	9/25/10
Arrival:	8:30	Surveyors:	SE/MM/SV
Departure:	9:44		
Site/Grid:	I33	Original Site Selected:	(Yes/No)
GPS Coordinates (NAD 1983)--Latitude:		25.42043	
		Longitude: 80.30623	
Water depth (m):	2.3 m	Tidal conditions:	Rising
Air temp (°C):	31.7°C	High tide:	12:41 @ T. Pt
Instrument:	RR#3 S/N 83595		
Manufacturer:	YSI/In-Situ	Sensor ID:	#4 S/N 154841
Model:	AT100		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm below H <sub>2</sub> O	45198	27.73	
30 cm above sediment	45197	27.72	
45 cm in sediment	45457		Temp probe in: 9:08
Tracer Suite Collected from: 2 locations			
Volume collected: 1000 mL			
Notes: Spade (SE)			
Ecological Observations: Sparse Thalassia Some Halimeda, Botryophora & Penicillium Sandy shell hash.			

#2	Time:	Surveyor: MM/SE/JV Date: 9/25/10	
Arrival	9:50		
Departure	10:33		
Site/Grid:	IS4	Original selected site: Yes/No	RR#3/AT100 #4 SN83595/154841
GPS coords:	25. 41892 80.36003 High tide:		
Water depth (m):	2.1m		
Air temp (°C):	28.3	Water temp (°C):	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
30 cm below	51103	27.63	
40	47632	28.61	
30 cm from sed	51140	27.64	
33 cm down	46845	28.4	Temp probe in @ 10:07
Notes: Turbid (< 1m) . Windy Silt around 2-10m radius. (SE) Airtemp 26.6			
Ecological observations of note: Small patches of Thalassia (< 1m) Refusal in 3-5 top cm. dibm. Gorgonians, open shell hash,			

#3	Time:	Surveyor: MM/SE/JV Date: 9/25/10	
Arrival	10:40		
Departure	11:17		
Site/Grid:	08-5B	Original selected site: Yes/No	RR#3/AT100 #4 SN83595/154841
GPS coords:	25. 40929 80.29823 High tide:		
Water depth (m):	2.1m		
Air temp (°C):	28.3	Water temp (°C):	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20			
30 cm below	52154	28.78	
40	49990	28.68	
30 cm from sediment	49336	27.78	
50 cm in sed	47744	28.7	Temp probe in @ 10:53
Notes: Visib ≈ 1.5m Bottom 49336 μS 27.78 °C 01732 [1H data coll. & spec cond. recorded]			
Ecological observations of note: Dense Thalassia bed.			



Time:		Surveyor: MM/SE/JV	
Arrival 11:23		Date: 9/25/10	
Departure 12:00			
Site/Grid: 55	Original selected site: Yes/No	RR#3/AT100#4 83595/154841	
GPS coords: 25-40744 50 80-29392			
Water depth (m): 2.1			
Air temp (°C): 28.3		Water temp (°C):	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20 30cm below sand	49096 50076	28.42	29.09
40 30cm above sand	49096 50076	28.22	29.09
50 40cm	49199	28.4	Temp probe in @ 11:34
Notes: Windy 5-10 knots Clearer (visib 2-3m) H2O has strong H2S smell.			
Ecological observations of note: patchy distrib of moderate Thal Gorgon, sponges, Halimeda Batophora present. Sandy shell hash.			

Time:		Surveyor: MM/SE/JV	
Arrival 12:32		Date: 9/25/10	
Departure 13:19			
Site/Grid: HI5 HI6	Original selected site: Yes/No	RR#3/AT100#4 83595/154841	
GPS coords: 25-39632 80-31250			
Water depth (m): 1.7			
Air temp (°C): 29.10		Water temp (°C):	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20 30cm below sand	34691	28.46	
40 30cm from sand	34969	28.26	
50 52cm be	51030	28.5	
Notes: Windy ~5 knots Visib ~2m 12:51 Temp probe inserted			
Ecological observations of note: Med to dense Thalassia Dmg Batip, some Halimeda + Renicella			

# WET SEASON 2010 Porewater Tracer Suite Sampling: Biscayne Bay (Data recopied by SE)

Time		Date: 9/25/10	
Arrival:	9:50	Surveyors: mm/SE/JV	
Departure:	10:33		
Site/Grid:	IS4	Original Site Selected: <input checked="" type="checkbox"/> Yes/No	
GPS Coordinates (NAD 1983)--Latitude: 25.41892			
Longitude: 80.30003			
Water depth (m):	2.1	Tidal conditions: Rising	
Air temp (°C):	28.3	High tide: 12:41 @ T. Pt.	
Instrument: RR#3 SN 83595			
Manufacturer: YSI(In-Situ)		Sensor ID: #14 SN 154841	
Model: AT 100			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm from surface	44080	27.63	H <sub>2</sub> O temp @ 17:45:28 65°
30 cm below sediment	47632	27.64	" " " : 28.61°C
33 cm below sediment	46845	28.4	
			Temp probe in @ 10:07
Tracer Suite Collected from: 2 locations			
Volume collected: 1000 mL			
Notes:			
Turbid (<1m). Windy. Airtemp 26.6°C @ ~17:45pm @ low/buying tide			
Ecological Observations:			
Small patches of Thalassia (<1m) diameter Refusal in top 3-5cm mostly. Sandy shell hash Some Gorgonians present.			

Time		Date: 9/25/10	
Arrival:	10:40	Surveyors: SE/JV/mm	
Departure:	11:17		
Site/Grid:	BB5 B	Original Site Selected: <input checked="" type="checkbox"/> Yes/No	
GPS Coordinates (NAD 1983)--Latitude: 25.40929			
Longitude: 80.29823			
Water depth (m):	2.1	Tidal conditions: Rising	
Air temp (°C):	28.3	High tide: 12:41 @ T. Pt.	
Instrument: RR#3 SN 83595			
Manufacturer: YSI(In-Situ)		Sensor ID: #14 SN 154841	
Model: AT 100			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes: @ 17:32 hrs
30 cm below H <sub>2</sub> O	52154	28.78	Cond: 46086 Temp: 28.90°C
30 cm above sediment	49336	27.78	48990 28.68°C
50 cm in sediment	47744	28.7	
			Temp probe in @ 10:53
Tracer Suite Collected from: 2 locations			
Volume collected: 1000 mL			
Notes:			
Visib poor (<1.5m). Remeasured Spec Cond + Temp at low/outgoing tide @ 17:32 hrs, to determine variability btw incoming vs outgoing tides.			
Ecological Observations:			
Dense Thalassia beds			

#6	Time: 13:25	Surveyor: SE/mm/JV Date: 9/25/10	
Arrival	13:25		
Departure	14:03		
Site/Grid:	G46	Original selected site: Yes/No	RR#3/AT100#4 SN 83595/154841
GPS coords:	25.39653 80.32487		
Water depth (m):	1.5		
Air temp (°C):	29.2	Water temp (°C):	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20 cm from surf	29059	28.44	
30 cm from sediment	29328	28.29	
50 cm in sediment	29700	28.8	
Notes: Cloudy, wind < 5 knots A lot of air in 2nd hole. Pumping rate 500 L/min Temp probe inserted @ 13:38			
Ecological observations of note: mod Thal sandy silty bottom			

#7	Time: 14:13	Surveyor: SE/mm/JV Date: 9/25/10	
Arrival	14:13		
Departure	15:17		
Site/Grid:	BF	Original selected site: Yes/No	RR#3/AT100#4 SN 83595/154841
GPS coords:	25.40720 80.32733		
Water depth (m):	1.2		
Air temp (°C):	31.3	Water temp (°C):	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
20 cm from top of H <sub>2</sub> O	25427	28.87	Not 80
30 cm from top of H <sub>2</sub> O	25624	28.77	
40 cm from top of H <sub>2</sub> O	27643	28.77	
50 cm below sediment	38528	29.0	Sam Peaty porch H <sub>2</sub> O w/ silt + sediment
Notes: Temp probe inserted @ 14:34 Cloudy, wind ≈ 5 knots Initially inserted @ 60 cm but encountered sig difficulty in extracting sample. Probe was able to finally collect at 55 cm after 15 min			
Ecological observations of note: Anomaly spot: Sparse Thalassia Drift algae			

#8	Time: 15:22	Surveyor: SE/MM/JV	
Arrival	3:22	Date: 9/25/10	
Departure	4:38		
Site/Grid:	GHS	Original selected site: Yes/No	RR#3 / AT100 #4 SN 83595 / 154841
GPS coords:	25.40770 80.32517		
Water depth (m):	1.5m		
Air temp (°C):	33.0	Water temp (°C):	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
30cm <sup>20</sup> from top of H2O	25405	28.98	
30cm <sup>40</sup> from sediment	26674	28.79	
25cm <sup>60</sup> below sediment	41851	28.6	500ml from hole 1 100ml from hole 2 400ml " " 3 w/ small sipper.
Notes: Visib 51m, wind < 5 knots Sediment fine + silty, clogging up hole. A lot of air getting in. Silt + sediment clogging hole. Used smaller sipper w/ sock screen to allow uptake.			
Ecological observations of note: Sandy shell hash Sparse Thalassia, few Batophora + Halimeda Temp probe in @ 15:30			

#9	Time: 16:50	Surveyor: SE/MM/JV	
Arrival	4:50	Date: 9/25/10	
Departure	17:35		
Site/Grid:	45	Original selected site: Yes/No	RR#3 / AT100 #4 SN 83595 / 154841
GPS coords:	25.40787 80.31901		
Water depth (m):	1.6		
Air temp (°C):	29.3	Water temp (°C):	
Aqua TROLL 100			
Depth (cm)	Spec. Cond.	Temperature (°C)	Temp measured in-situ (°C):
30cm <sup>20</sup> from top	29886	28.74	
30cm <sup>40</sup> from sediment	30852	28.61	
45cm <sup>60</sup> below sediment	51909	28.2	
Notes: Visib < 1m. Wind ≈ 5 knots Bottom Bedrock close to surface. Tried to find sediment. Probed several dozen times. Temp probe inserted @ 17:00			
Ecological observations of note: Sparse Thalassia w/ Batophora + Halimeda Sandy shell hash bottom Sampled in Thalassia patch (small, ≈ 50cm diam)			

# WET SEASON 2010 Porewater Tracer Suite Sampling: Biscayne Bay

Time		Date: 9/26/10	
Arrival:	10:00 am	Surveyors: MM/DE/SV	
Departure:	11:26 am		
Site/Grid: E14		Original Site Selected: Yes/No	
GPS Coordinates (NAD 1983)--Latitude: N 25.30644			
Longitude: W 80.34383			
Water depth (m): 5.5 ft = 1.7 m		Tidal conditions: Rising	
Air temp (°C): 24.7		High tide: 2:01 @ West Canal Sound	
Instrument: R2#3 S/N 83595			
Manufacturer: YSI (In-Situ)		Sensor ID: Port 4 / Unit 3	
Model: AT 100		S/N 154841	
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm below surface	42468	27.55	Drizzling
30 cm from bottom	42200 (SV)	27.54	Drizzling
Sample	48101	26.86	Drizzling still
Samples collected at 10:53 am		Temp probe @ 60 cm: 28.7°C	
Tracer Suite Collected from: 2 locations			
Volume collected: 1000 mL			
Notes:			
Sample collected from 60 cm flat limestone inside the sample			
pumping started at 10:22 am			
strong smell of H <sub>2</sub> S - many air bubbles in tubing			
no sample obtained from second probe, tried a third time (10:38 am) restart pumping			
Ecological Observations:			
Moderate Thalassia with Halimeda, Penicillus, Sponges in the area, sandy small hard bottom			

Time		Date: 9/26/10	
Arrival:	11:21	Surveyors: MM/DE/SV	
Departure:	12:05		
Site/Grid: J12		Original Site Selected: Yes/No	
GPS Coordinates (NAD 1983)--Latitude: N 25.32879			
Longitude: W 80.29426			
Water depth (m): 10.7 ft = 3.3 m		Tidal conditions: Flood tide	
Air temp (°C): 28.6		High tide: 2:01 pm	
Instrument: R2#3 S/N 83595			
Manufacturer: YSI (In-Situ)		Sensor ID: Port 4, Unit 3	
Model: AT 100 S/N 154841			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm below surface	47633	27.95	flat bay water
30 cm from bottom	50650	28.30	flat bay water
Sample	46303	27.52 (SV)	Temp probe @ 30 cm: 28.9°C
probe in water @ 11:30 am			
Samples collected @ 11:52 am			
Tracer Suite Collected from: 2 locations			
Volume collected: 1000 mL			
Notes:			
No rain @ site. Pumping started @ 11:52			
Sample collected @ 30 cm.			
Strong H <sub>2</sub> S smell, 8' flat limestone is sample.			
Ecological Observations:			
Moderate to dense Thalassia w/ Halimeda, Caulerpa, Penicillus with sandy silty bottom			

# WET SEASON 2010 Porewater Tracer Suite Sampling: Biscayne Bay

Time		Date: 09-26-2010	
Arrival:	12:13	Surveyors: MM SE JFV	
Departure:	12:51 pm		
Site/Grid: HI 11		Original Site Selected: Yes/No	
GPS Coordinates (NAD 1983)--Latitude: N 25.33496		Longitude: W 80.31244	
Water depth (m): 12.0 ft = 3.7 m	Tidal conditions: Flood tide		
Air temp (°C): 29.9°	High tide: 2:01 pm		
Instrument: RL#3 SN 83595			
Manufacturer: YSI/In-Situ		Sensor ID: Unit 3, Probe #4	
Model: AT-100 #4 S/N 154841			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
below 30cm surface	45552	27.9	
above 30cm from bottom	48820	28.1	
Sample	47762	29.9 <sup>(TV)</sup>	Temp probe @ 30cm: 28.4°C
Temp probe placed @		12:23	
Sample collected @		12:42 pm	
Tracer Suite Collected from: 2 locations			
Volume collected: 1000 mL			
Notes: Sample taken at 30cm Pumping started at 12:27 Strong H2S odor			
Ecological Observations: Sparse to moderate <i>Thalassia</i> <i>Penicillus</i> , <i>Halimeda</i> present w/ scattered sponges. Sandy shell hash bottom			

Time		Date: 9/26/10	
Arrival:	12:59 pm	Surveyors: MM SE JFV	
Departure:	13:37 pm		
Site/Grid: HI 10		Original Site Selected: Yes/No	
GPS Coordinates (NAD 1983)--Latitude: N 25.35130		Longitude: W 80.31265	
Water depth (m): 11.5 ft = 3.5 m	Tidal conditions: Flood tide		
Air temp (°C): 30.7	High tide: 2:01 pm		
Instrument: RL#3 SN 83595			
Manufacturer: YSI/In-Situ		Sensor ID: Unit 3, Probe #4	
Model: AT 100 #4 SN 154841			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
below 30cm surface	47309	28.4	
above 30cm from bottom	48799	28.2	
Sample	53333	24.2 <sup>(TV)</sup>	Temp probe @ 35cm: 28.5°C
Temp probe @		13:03 pm	
Sample collected @		13:17	
Tracer Suite Collected from: 1 locations			
Volume collected: mL			
Notes: Pumping started at 13:05 pm No sample taken @ 35cm			
Ecological Observations: Moderate <i>Thalassia</i> , <i>Penicillus</i> , <i>Halimeda</i> and <i>Caulerpa</i> . Sandy shell hash bottom.			

# WET SEASON 2010 Porewater Tracer Suite Sampling: Biscayne Bay

Time		Date: 9/26/10	
Arrival:	13:48	Surveyors:	
Departure:	14:22	MM SE JFV	
Site/Grid:	H10	Original Site Selected: Yes/No	
GPS Coordinates (NAD 1983)--Latitude: N25.35142			
Longitude: W 80.31932			
Water depth (m):	11.0 ft = 3.4 m	Tidal conditions: High tide	
Air temp (°C):	33.1°	High tide: 2:01 pm	
Instrument: RQ#3 SN 83595			
Manufacturer: YSI/In-Situ		Sensor ID: Unit 2, Probe #4	
Model: AT 100 #4		SN 154841	
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm before surface	46771	28.82	
30 cm from bottom	48030	28.32	
Samples	50471	28.4	Temp probe @ 35 cm
Temp probe placed at 13:55			
Samples collected @ 14:08			
Tracer Suite Collected from: 2 locations			
Volume collected: 1000 mL			
Notes:			
- Very low turbidity in samples Samples collected @ 35 cm			
Ecological Observations:			
sparse <i>Thalassia</i> , <i>Penicillaria</i> , <i>Halimeda</i> , and <i>Caulerpa</i> . Sandy shell hash bottom.			

Time		Date: 9/26/10	
Arrival:	14:40	Surveyors:	
Departure:	15:30 pm	MM SE JFV	
Site/Grid:	G11 - Bay	Original Site Selected: Yes/No	
GPS Coordinates (NAD 1983)--Latitude: N25.34461			
Longitude: W 80.33256			
Water depth (m):	5.4 ft = 1.6 m	Tidal conditions: High tide	
Air temp (°C):	34.10	High tide: 2:01 pm	
Instrument: RQ#3 83595			
Manufacturer: YSI/In-Situ		Sensor ID: Unit 3, Probe #4	
Model: AT-100 #4		SN 154841	
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
surface 30 cm	43671	29.3	
30 cm from bottom	48291	28.3	
Samples	49709	28.9	Temp probe @ 60 cm
Temp probe in @ 14:42			
Sample collected @ 15:05			
Tracer Suite Collected from: 2 locations			
Volume collected: 1000 mL			
Notes:			
Pumping started at 14:45 Samples collected @ 60 cm			
Ecological Observations:			
Moderate to dense <i>Thalassia</i> , some <i>Springadium</i> , brown drift algae, <i>Caulerpa</i> , <i>Halimeda</i> , <i>Penicillaria</i> Sandy Silty shell hash bottom.			

# WET SEASON 2010 Porewater Tracer Suite Sampling: Biscayne Bay

Time		Date: 9/26/10	
Arrival:	15:46	Surveyors:	
Departure:	16:11	MM SE JFV	
Site/Grid:	H9-Bay	Original Site Selected (Yes/No)	
GPS Coordinates (NAD 1983)--Latitude: N 25.36151			
Longitude: W 80.32159			
Water depth (m):	6.5 ft = 2.0 m	Tidal conditions: Ebb tide	
Air temp (°C):	32.7	High tide: 2:01 pm	
Instrument: <del>RR#3</del> SN 83595			
Manufacturer: YSI/In-Situ		Sensor ID: Unit 3, Probe #4	
Model: AT100 #4 SN 154841			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm below surface	44511	29.6	
30 cm above bottom	47405	28.8	
Sample	52196	29.1	Temp probe
Temp probe on @		15:52 pm	
Sample collected @		60 cm @ 16:05	
Tracer Suite Collected from: 2 locations			
Volume collected: 1000 mL			
Notes: Pumping started at: 15:53 <del>SEA</del> Sampling started Strong H <sub>2</sub> S odor and red sediment in sample			
Ecological Observations: Dense Thalassia			

Time		Date: 9/26/10	
Arrival:	16:24	Surveyors:	
Departure:	16:56	MM SE JFV	
Site/Grid:	J9	Original Site Selected (Yes/No)	
GPS Coordinates (NAD 1983)--Latitude: N 25.36254			
Longitude: W 80.29424			
Water depth (m):	9.2 ft = 2.8 m	Tidal conditions: Ebb tide	
Air temp (°C):	29.7	High tide: 2:01 pm	
Instrument: <del>RR#3</del> SN 83595			
Manufacturer: YSI/In-Situ		Sensor ID: Unit 3, Probe #4	
Model: AT100 #4 SN 154841			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm below surface	48707	28.6	
30 cm from bottom	49012	28.5	
Sample	48971	<del>28.8</del> (K) 28.4	temp probe
Temp probe on @		16:30	
Sample collected @		40 cm	
Tracer Suite Collected from: 2 locations			
Volume collected: 1000 mL			
Notes: Pumping started @ 16:32 Samples collected @ 16:39			
Ecological Observations: Moderate to dense Thalassia, brown drift algae, Acetabularia, Halimeda & Penicillium present. Sandy shell hash bottom.			



# WET SEASON 2010 Porewater Tracer Suite Sampling: Biscayne Bay

Time		Date: 9/26/10	
Arrival:	17:05	Surveyors:	
Departure:	17:44	MM SE JFV	
Site/Grid: IJ8		Original Site Selected: (Yes/No)	
GPS Coordinates (NAD 1983)--Latitude: N25.37379			
Longitude: W80.30062			
Water depth (m): 7.2 ft = 2.2 m	Tidal conditions: Ebb tide		
Air temp (°C): 30.8	High tide: 2:01 pm		
Instrument: RP#3 SN 83595			
Manufacturer: YSI/In-Situ		Sensor ID: Unit 3, Probe #4	
Model: AT100 #4 SN154841			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm below surface	46312	29.3	
30 cm from bottom	48440	29.9	
Sample	51967	28.6	temp probe @ 60 cm
Temp probe in @ 17:21			
Sample	collected @ 60	cm	
Tracer Suite Collected from: 2 locations			
Volume collected: 1000 mL			
Notes: pumping started @ 17:21 Mild H <sub>2</sub> S odor in sample Samples collected @ 17:29			
Ecological Observations: Dense Thalassia with a few brown drift algae, sponges, Penicillus, w/a sandy shell wash bottom.			

Time		Date: 9/26/10	
Arrival:	17:55	Surveyors:	
Departure:	18:53	MM SE JFV	
Site/Grid: JK7		Original Site Selected: (Yes/No)	
GPS Coordinates (NAD 1983)--Latitude: N25.38527			
Longitude: W80.29759			
Water depth (m): 5.5 ft = 1.7 m	Tidal conditions: Ebb tide		
Air temp (°C): 29.8	High tide: 2:01 pm		
Instrument: RP#3 SN 83595			
Manufacturer: YSI/In-Situ		Sensor ID: Unit 3, Probe #4	
Model: AT100 #4 SN154841			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm below surface	47876	29.1	
30 cm from bottom	47902	29.0	
Sample	50431	28.7	temp probe @ 60 cm
Temp probe in @ 18:13			
Sample	collected @	60 cm	
Tracer Suite Collected from: 2 locations			
Volume collected: 1000 mL			
Notes: pumping started @ 18:14 Samples collected @ 18:34 Strong H <sub>2</sub> S odor in samples			
Ecological Observations: Moderate to dense Thalassia, Penicillus and Halimeda present. Sandy shell wash bottom.			

# WET SEASON 2010 Porewater Tracer Suite Sampling: Biscayne Bay

Time		Date: 9/27/10	
Arrival:	8:40	Surveyors: HH & JFV	
Departure:	9:38 am		
Site/Grid:	JJ7	Original Site Selected: (Yes/No)	
GPS Coordinates (NAD 1983)--Latitude: N25.38516		Longitude: W80.30024	
Water depth (m):	4.0 ft = 1.2 m	Tidal conditions: Low	
Air temp (°C):	28.6°	High tide: 14:01 pm	
Instrument: RR#3 SN 83595			
Manufacturer: YSI/In-Situ		Sensor ID: Unit 3, Probe #4	
Model: AT 100#4 SN 154841			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm below surface	46440	28.06	
30 cm above bottom	46462	28.06	
sample	47243	28.5	Temp probe @ 35 cm: 28.7°C
Temp probe in at 8:48 am			
Samples collected at 9:07 am			
Tracer Suite Collected from: 2 locations			
Volume collected: 1000 mL			
Notes:			
sample @ 35 cm depth			
Pumping started @ 8:50 am			
Ecological Observations:			
Sparse Thalassia Penicillus Batopora and Halimeda present			
Sandy shell hash bottom			

Time		Date: 9/27/10	
Arrival:	10:03	Surveyors: HH JFV	
Departure:	10:43		
Site/Grid:	HI7	Original Site Selected: (Yes/No)	
GPS Coordinates (NAD 1983)--Latitude: N25.38610		Longitude: W80.31248	
Water depth (m):	0.5 m	Tidal conditions: Flood	
Air temp (°C):	30.9	High tide: 14:01 pm	
Instrument: RR#3 SN 83595			
Manufacturer: YSI/In-Situ		Sensor ID: Unit 3, Probe #4	
Model: AT-100#4 SN 154841			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm below surface	same: 35179	28.9	
30 cm above bottom			
sample	53421	29.6	Temp probe @ 60 cm
Temp probe in at 10:04			
Samples collected at 60 cm			
Tracer Suite Collected from: 2 locations			
Volume collected: 1000 mL			
Notes:			
pumping started @ 10:05			
Samples collected @ 10:10 am			
Temp probe out @ 10:10			
Ecological Observations:			
Dense Thalassia			
sandy silty bottom			

# WET SEASON 2010 Porewater Tracer Suite Sampling: Biscayne Bay

Time		Date: 9/27/10	
Arrival:	11:06	Surveyors:	
Departure:	11:44	MM JFV	
Site/Grid: H4		Original Site Selected (Yes/No)	
GPS Coordinates (NAD 1983)—Latitude: N 25.41903			
Longitude: W 80.31883			
Water depth (m): 6.2 ft = 1.9 m		Tidal conditions: flood	
Air temp (°C): 30.5°		High tide: 2:01 pm	
Instrument: RR#3 SN 83595			
Manufacturer: YSI/In-Situ		Sensor ID: Unit 3, Probe #4	
Model: AT-100 #4 SN 154841			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm below surface	41982	28.62	
30 cm from bottom	42105	28.62	
sample	42478	28.7	Temp probe @ 40 cm
Temp probe in @ 11:09			
Sample	collected @ 40	cm	
Tracer Suite Collected from: 2 locations			
Volume collected: 1000 mL			
Notes: Pumping started @ 11:10 sample collected @ 11:20 am moderate H <sub>2</sub> S odor present in sample, sample is turbid			
Ecological Observations: Sparse Thalassia, Batophora, Halimeda, Penicillus present. Sandy shell hash bottom			

Time		Date: 9/27/10	
Arrival:	12:13	Surveyors:	
Departure:	12:59	MM JFV	
Site/Grid: 642B		Original Site Selected (Yes/No)	
GPS Coordinates (NAD 1983)—Latitude: N 25.44009			
Longitude: W 80.32412			
Water depth (m): 14.9 ft = 4.3 m		Tidal conditions: flood	
Air temp (°C): 32.3		High tide: 2:01 pm	
Instrument: RR#3 SN 83595			
Manufacturer: YSI/In-Situ		Sensor ID: Unit 3/Probe #4	
Model: AT-100 #4 SN 154841			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm below surface	37603	29.0	
30 cm from bottom	42940	29.3	
Sample	45321	29.0	Temp probe @ 20 cm
Temp probe in @ 12:17 pm			
Sample	collected @ 20	cm	
Tracer Suite Collected from: 2 locations			
Volume collected: 1000 mL			
Notes: Pumping started @ 12:19 Sample collected @ 12:34			
Ecological Observations: Sparse Caulerpa Rocky and very silty bottom Visibility at 1.0 m			

# WET SEASON 2010 Porewater Tracer Suite Sampling: Biscayne Bay

Time		Date: 9/28/10	
Arrival:	9:25	Surveyors:	
Departure:	9:58	MM JFV JS	
Site/Grid: G3		Original Site Selected: Yes/No	
GPS Coordinates (NAD 1983)--Latitude: N 25.4261			
Longitude: W 80.32525			
Water depth (m): 3.8 ft = 1.2 m		Tidal conditions: low tide	
Air temp (°C): 30.2		High tide: 2:45 pm	
Instrument: RR#3 SN 83595			
Manufacturer: YSI/In-Situ		Sensor ID: Unit 3, Probe #4	
Model: AT-100 SN 154841			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
20 cm below surface	33311	28.3	
30 cm above surface	93511	28.2	
Sample	41936	<del>28.5</del>	Temp probe @ 35 cm: 28.8 °C
Temp probe in @ 9:33			
Sample collected @ 35 cm			
Tracer Suite Collected from: 2 locations			
Volume collected: 1000 mL			
Notes: Pumping started @ 9:34 Sample collected @ 9:45			
Ecological Observations: Dense Thalassia, Penicillus and Halimeda present Sandy silty bottom.			

Time		Date: 9/29/10	
Arrival:	10:18	Surveyors:	
Departure:	10:42	MM JFV JS	
Site/Grid: J J 1		Original Site Selected: Yes/No	
GPS Coordinates (NAD 1983)--Latitude: N 25.45311			
Longitude: W 80.30052			
Water depth (m): 7.0 ft = 2.1 m		Tidal conditions: flood tide	
Air temp (°C): 30.33		High tide: 2:45 pm	
Instrument: RR#3 SN 83595			
Manufacturer: YSI/In-Situ		Sensor ID: Unit 3, Probe #4	
Model: AT-100 SN 154841			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
20 cm below surface	48364	28.6	
30 cm above bottom	48411	28.5	
Sample	50658	<del>28.9</del>	Temp probe @ 60 cm: 28.9 °C
Temp probe in @ 10:20			
sample collected @ 60 cm			
Tracer Suite Collected from: 2 locations			
Volume collected: 1000 mL			
Notes: Pumping started @ 10:23 strong H <sub>2</sub> S odor in sample sample collected @ 10:28 am.			
Ecological Observations: 15x50 m patch of moderate Thalassia. Halimeda Penicillus several sponges sandy shell hash bottom Udotea present.			

# WET SEASON 2010 Porewater Tracer Suite Sampling: Biscayne Bay

Time		Date: 9/28/10	
Arrival:	11:14am	Surveyors:	
Departure:	11:48am	MM JFV JS	
Site/Grid:	H21	Original Site Selected: (Yes/No)	
GPS Coordinates (NAD 1983)--Latitude: N25.45299			
Longitude: W80.31242			
Water depth (m):	6.0 ft = 1.8m	Tidal conditions: Flood tide	
Air temp (°C):	31.9 32.0	High tide: 2:45pm	
Instrument: RR#3 SN 83595			
Manufacturer: YSI/In-Situ		Sensor ID: UA173 Probe #4	
Model: AT-100#4 SN 154841			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30cm below surface	42537	28.9	
30cm above bottom	42771	28.7	
Sample	45762	<del>28.9</del>	Temp probe @ 60cm 28.9°C
Temp probe in @ 11:27			
Sample collected @ 60 cm			
Tracer Suite Collected from: 2 locations			
Volume collected: 1000 mL			
Notes: Pumping started @ 11:32 Sample collected @ 11:35 Wind changed to south southeast			
Ecological Observations: Moderate Thalassia 10m x 25m patch Penicillus & Halimeda present Sandy shell wash bottom.			

Time		Date: 9/28/10	
Arrival:	12:48	Surveyors:	
Departure:	1:30	MM JFV JS	
Site/Grid:	H2B	Original Site Selected: (Yes/No)	
GPS Coordinates (NAD 1983)--Latitude: N25.44601			
Longitude: W80.31630			
Water depth (m):	11.6 ft = 3.5m	Tidal conditions: Flood tide	
Air temp (°C):	32.9	High tide: 2:45pm	
Instrument: RR#3 SN 83595			
Manufacturer: YSI/In-Situ		Sensor ID: UA173 Probe #4	
Model: AT-100#4 SN 154841			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30cm below surface	43420	29.0	
30cm from bottom	45180	28.9	
Sample	47100	<del>29.7</del>	Temp probe @ 20cm: 28.9°C
Temp probe in @ 12:53			
Sample collected @ 20 cm			
Tracer Suite Collected from: 2 locations			
Volume collected: 1000 mL			
Notes: Pumping started @ 12:56 Sample collected @ 13:07 Sample collected inside canal mild H <sub>2</sub> S odor in sample.			
Ecological Observations: Barren silty bottom with rocks. Penicillus noted present			

Day 4 Field crew: Jen Vega, M. Mohlmann, S. Ewe. Wind 10-20 knots, cloudy, lightning to north. 2/25/10

8:30 am 12857  $\mu$ S/cm @ 27.26-43°C.

8:32 ~~hr~~ left nanaa.

8:50 Arr @ IJ3 (25°43'03"N, 80°30'23"W)

9:11 Started pumping. Probe for temp inserted @ 9:08 am

H<sub>2</sub>O depth: 2.3 m

Air temp: 87.1°F

I<sup>3</sup>  
43 cm  
Sparse Thal  
sandy shell bed  
Halimeda  
Bato  
Penicillina

Depth	Cond	Temp	Notes
30 cm below	45197	27.73	
30 cm above	45197	27.72	
sed			

12.778 @ 23.5°C

43 cm in  
sed 45457

9:44 Pumping complete

9:44 Left site

#2 9:50 am Arr @ IJ4  
10:07 am Probe (temp) inserted.  
10:10 am Pumping started  
10:13 Pumping completed  
10:33 Left site

Arr

#3 10:39 Arr @ BB5B  
10:53 Temp probe inserted 10:53 am.  
10:55 Pumping @ 10:55  
11:12 Left site

# 11:23 Arr @ J5.

#4

- 11-23 Arr @ J5,
- 11-34 Probe (temp) inserted
- 11-36 Sample pumped
- 12-06 COV: 12695  $\mu\text{S/cm}$  @ 32.33°C
- 12-22 Left site.

#5

- 12-32 Arr @ HI6
- 12-51 Probe (temp) inserted at 45cm
- 12-53 Pumping started
- 1-19 Left site

#6 1-25

- 1-38 Arr @ GH6
- 1-40 Temp probe inserted
- 1-40 Pumping started in. A lot of air bubbles from 2nd loc ~~at~~ 0-3m away.
- 2-03 Left site

#7 2-13

- Arr @ BF.
- 2-34 Insert temp probe (1200ml)
- 2-50 Started pumping after 2 syringe volume purge. A lot of dirt + peat.
- 3-17 Left site

#8

- 3-202 Arr @ GH5
- 3-30 Temp probe inserted
- 3-43 Hde clogged. Trying new hole
- 3-55 Still pumping
- 4-18 Still pumping
- 4-38 Left site
- 4-27 Changed to smaller PW sipper + Screen Sol. Coll all H<sub>2</sub>O needed.

#9

- 4-50 Arr @ H5.
- 5-00 Temp probe inserted.
- 5-01 Pump started
- 5-38 Left site

Went to BGSB  
HIY

Left @ 5-48 from HI 4.  
Arr @ Maria

**April 2011**



# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 9:28	Date: 4/4/11		
Departure time: 10:05	Surveyors: EV, JFW, HM		
Site/Grid: E-1 OFF			
GPS Coordinates (NAD 1983)			
Latitude: N 25.45268	Longitude: 80.33080		
Tidal conditions: Flood			
Air temp (°C): 26.7	Water depth: 1.25 m		
Instrument: RR #1			
Instrument Serial No: 83587			
Manufacturer: YSI (In-Situ)			
Sensor Model: AT100			
Sensor Serial No: 154841			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes
30 below surface	56086.9	26.6	
30 above sediment	58616.2	25.9	
40 cm	50078.8	25.8	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other: yellowish tint</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: 9:29			
Temperature probe pulled out at: 9:42			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes: Begin pumping @ 9:29			
Sipper moved @ 9:34			
Composite collected @ 9:41			
Ecological Observations: Halodule & Thalassia present, Sandy shell hash substrate; 10 attempts to reach 60 cm			

Arrival time: 10:19	Date: 4/4/11		
Departure time: 10:46	Surveyors: JFW, EV, MM		
Site/Grid: DB1A			
GPS Coordinates (NAD 1983)			
Latitude: N 25.45211	Longitude: 80.30849		
Tidal conditions: +1000			
Air temp (°C): 27.5	Water depth: 12.0 ft = 3.66 m		
Instrument: Pumped Reader 1			
Instrument Serial No: 83587			
Manufacturer: YSI (In-Situ)			
Sensor Model: Aqua Troll 100			
Sensor Serial No: 154841			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes
30 cm below surface	56263.2	26.7	
30 cm above sediment	56870.8	26.3	
60 cm	51786.1	28.0	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: 10:28			
Temperature probe pulled out at: 10:48			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes: pumping started @ 10:31 - had to restart b/c tubing came loose			
restart at 10:39, stop @ 10:42, 10:43 restart			
10:48 - Composite collected.			
Ecological Observations: Rubble & empty shell hash; several refusals b/w 10-20 cm, but found 1 spot to reach 60			
Penicillus present			

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 10:47	Date: 4/4/11		
Departure time: 11:55	Surveyors: KJ JFV MM		
Site/Grid: BB1B			
GPS Coordinates (NAD 1983)			
Latitude: N 25.45202	Longitude: 80.3850		
Tidal conditions: flood			
Air temp (°C): 78.4	Water depth: 12.1 feet = 3.69m		
Instrument: RL#1	Instrument Serial No: 83587		
Manufacturer: YSI (In-Situ)			
Sensor Model: Aqua Troll 100	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm below surface	56484.4	26.7	
30 cm above sediment	56694.8	26.5	
40 (60)	50387.2	27.5	<div style="display: flex; justify-content: space-between;"> <div> Turbidity H<sub>2</sub>S Odor Other: </div> <div> <div style="display: flex;"> <div style="width: 20%;">Low/Mild</div> <div style="width: 20%;">Moderate</div> <div style="width: 20%;">Strong/High</div> </div> <div style="display: flex;"> <div style="width: 20%;"><input checked="" type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input checked="" type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> </div> </div> </div>
			<div style="display: flex;"> <div style="width: 20%;">Turbidity</div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> </div>
			<div style="display: flex;"> <div style="width: 20%;">H<sub>2</sub>S Odor</div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> </div>
			<div style="display: flex;"> <div style="width: 20%;">Other:</div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> </div>
			<div style="display: flex;"> <div style="width: 20%;">Turbidity</div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> </div>
			<div style="display: flex;"> <div style="width: 20%;">H<sub>2</sub>S Odor</div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> </div>
			<div style="display: flex;"> <div style="width: 20%;">Other:</div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> </div>
Temperature probe inserted at: 10:49			
Temperature probe pulled out at: 11:38			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes: 11:09 - start pumping - sipper get clogged			
11:13 - sipper moved, 11:15 restart pumping			
- stop pump again. 11:19 - restart pumping			
11:29 - restart pump. 11:32 - move sipper			
11:38 - composite made			
Ecological Observations:			
Substrate is silty w/ rubble			
Calcareous algae present			

Arrival time: 12:06	Date: 4/4/11		
Departure time: 12:39	Surveyors: JFV KJ MM		
Site/Grid: H7-1			
GPS Coordinates (NAD 1983)			
Latitude: N 25.45246	Longitude: W 80.31332		
Tidal conditions: High			
Air temp (°C): 29.4	Water depth: 1.60 m		
Instrument: Logger Reader	Instrument Serial No: 83587		
Manufacturer: YSI (In-Situ)			
Sensor Model: Aqua Troll	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm from top of surface	5965.6	26.9	
30 cm from top of sediment	57072.1	26.8	
60	5285.0	28.23	<div style="display: flex; justify-content: space-between;"> <div> Turbidity H<sub>2</sub>S Odor Other: </div> <div> <div style="display: flex;"> <div style="width: 20%;">Low/Mild</div> <div style="width: 20%;">Moderate</div> <div style="width: 20%;">Strong/High</div> </div> <div style="display: flex;"> <div style="width: 20%;"><input checked="" type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input checked="" type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> </div> </div> </div>
			<div style="display: flex;"> <div style="width: 20%;">Turbidity</div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> </div>
			<div style="display: flex;"> <div style="width: 20%;">H<sub>2</sub>S Odor</div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> </div>
			<div style="display: flex;"> <div style="width: 20%;">Other:</div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> </div>
			<div style="display: flex;"> <div style="width: 20%;">Turbidity</div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> </div>
			<div style="display: flex;"> <div style="width: 20%;">H<sub>2</sub>S Odor</div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> </div>
			<div style="display: flex;"> <div style="width: 20%;">Other:</div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> <div style="width: 20%;"><input type="checkbox"/></div> </div>
Temperature probe inserted at: 12:15			
Temperature probe pulled out at: 12:25			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes: Start + pumping at 12:19. 12:22 move sipper - Composite collected at 12:25			
Ecological Observations: Moderate Thalassia sparse			
Penicillus, two types of calcareous algae - Cylindropsylla and Udotea + Penicillus			
↳ also present			

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 17:52	Date: 4/4/11		
Departure time: 13:30	Surveyors: KV JCV MM		
Site/Grid: K1			
GPS Coordinates (NAD 1983)			
Latitude: N 25.45213	Longitude: W 80.28055		
Tidal conditions: High			
Air temp (°C): 31.8	Water depth: 7.0 ft = 2.13 m		
Instrument: Rugged Reader 1			
Instrument Serial No: 83587			
Manufacturer: YSI (In-Situ)			
Sensor Model: Aqua Troll 100			
Sensor Serial No: 154841			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm from surface of water	57140.6	27.03	
30 cm above sediment	57523.9	26.9	
40	56089.0	27.7	<div> <div>Low/Mid</div> <div>Moderate</div> <div>Strong/High</div> </div> <div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div> <div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div> <div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: 13:01			
Temperature probe pulled out at: 13:13			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes: 13:03 start pumping. 10 refusals before 40m			
13:07 - move sipper			
13:10 Composite collected			
Ecological Observations: Sparse Thallasia penicillus and Gorgonias present. Sandy shell hash bottom			

Arrival time: 13:38	Date: 4/4/11		
Departure time: 14:05	Surveyors: JFV KCV MM		
Site/Grid: HI-2			
GPS Coordinates (NAD 1983)			
Latitude: N 25.84150	Longitude: W 80-31201		
Tidal conditions: Ebb			
Air temp (°C): 30.7	Water depth: 5 ft = 1.52 m		
Instrument: Rugged Reader #1			
Instrument Serial No: 83587			
Manufacturer: YSI (In-Situ)			
Sensor Model: Aqua Troll			
Sensor Serial No: 154841			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm below top of water	56409.5	27.1	
30 cm above sediment	56540.1	27.1	
60	54323.4	27.3	<div> <div>Low/Mid</div> <div>Moderate</div> <div>Strong/High</div> </div> <div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div> <div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div> <div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: 13:45			
Temperature probe pulled out at: 13:55			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes: Pump started at 13:46, Sipper moved at 13:49			
Composite sample collected @ 13:51			
Ecological Observations: Moderate Thallasia, Sandy shell hash bottom.			

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 14:12	Date: 4/4/11		
Departure time: 14:42	Surveyors: JFU KV MM		
Site/Grid: FJ-3			
GPS Coordinates (NAD 1983)			
Latitude: N25.43039	Longitude: W80.24943		
Tidal conditions: Ebb			
Air temp (°C): 32.2	Water depth: 7.0ft = 2.13 m		
Instrument: <del>Rugged Reader #1</del>	Instrument Serial No: 83587		
Manufacturer: YSI (In-Situ)			
Sensor Model: <del>YSI AquaTroll 100</del>	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30cm from top of water	55836.9	27.1	
30cm above sediment	55876.1	27.1	
60	51804.8	28.6	<div style="display: flex; justify-content: space-between;"> <div> Turbidity <input checked="" type="checkbox"/> Low/Mid  H<sub>2</sub>S Odor <input type="checkbox"/>  Other: </div> <div> <input type="checkbox"/> Moderate  <input type="checkbox"/>  <input type="checkbox"/> </div> <div> <input checked="" type="checkbox"/> Strong/High  <input checked="" type="checkbox"/>  <input type="checkbox"/> </div> </div>
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:
Temperature probe inserted at: 14:20			
Temperature probe pulled out at: 14:30			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes: Pumping started @ 14:22, sipper moved at 14:26			
Composite collected @ 14:28			
Ecological Observations: Moderate <i>Thalassia bataphora</i> , Sandy shell hash bottom.			

Arrival time: 14:47	Date: 4/4/11		
Departure time: 15:18	Surveyors: JFU KV MM		
Site/Grid: I3			
GPS Coordinates (NAD 1983)			
Latitude: N25.43019	Longitude: W80.30614		
Tidal conditions: Ebb			
Air temp (°C): 31.4	Water depth: 6.4ft = 1.95m		
Instrument: <del>Rugged Reader #1</del>	Instrument Serial No: 83587		
Manufacturer: YSI (In-Situ)			
Sensor Model: <del>YSI AquaTroll 100</del>	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30cm from top of water	56061.3	27.2	
30cm above sediment	56055.2	27.1	
60	52535.0	29.2	<div style="display: flex; justify-content: space-between;"> <div> Turbidity <input checked="" type="checkbox"/> Low/Mid  H<sub>2</sub>S Odor <input type="checkbox"/>  Other: </div> <div> <input type="checkbox"/> Moderate  <input type="checkbox"/>  <input type="checkbox"/> </div> <div> <input checked="" type="checkbox"/> Strong/High  <input checked="" type="checkbox"/>  <input type="checkbox"/> </div> </div>
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:
Temperature probe inserted at: 14:58			
Temperature probe pulled out at: 15:09			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes: Started pumping at 15:00			
moved sipper at 15:03			
Composite sample collected at 15:06			
Ecological Observations: Sparse to moderate <i>Thalassia</i> <i>Bataphora</i> and <i>Penicillus</i> present. Sandy shell hash substrate			

# Dry Season 2011 Ecological Transect Survey Locations

Arrival time: <del>10:38</del> 10:38	Date: 4/5/11
Departure time: 11:00	Surveyors: KV, JFV, MM
Site/Grid: BB4A	
GPS Coordinates (NAD 1983) <del>N: 25.42271 W: 80.32022</del> KV	
Latitude: 25.42271	Longitude: 80.32022
Tidal conditions: Flood	
Air temp (°C): 86°F = 30.0°C	Surface water depth: 4.6 ft = 1.40 m
Instrument: RRI	Instrument Serial No: 83587
Manufacturer: YSI / In-Situ	
Sensor Model: <del>AT 100</del> KV100	Sensor Serial No: 154841

Type (5x5, 1x1)	Depth	Spec. Cond. (µS/cm)	Temp (°C)	Notes
N/A	30cm below surface	55979.7	26.8	
	30cm above bottom	56675.2	26.3	
	55	48096.5	26.8	Moderate H <sub>2</sub> S; Low turbidity

Notes: Start pump @ 10:49; Stop @ 10:52  
Temp probe in @ 10:47; out @ 10:59  
Start 10:53; Stop 10:59

Ecological Observations: Moderate to dense Thalassia; Pericillius present.  
Sandy/silty substrate

Arrival time: 11:02	Date: 4/5/11
Departure time: 11:33	Surveyors: KV, JFV, MM
Site/Grid: <del>BB4A</del> BB4B (KV)	
GPS Coordinates (NAD 1983) <del>N: 25.42271 W: 80.32022</del> KV	
Latitude: <del>25.42271</del> 25.42260	Longitude: 80.32021
Tidal conditions: Flood	
Air temp (°C): 86°F = 30.0°C	Surface water depth: 4.2 ft = 1.28 m
Instrument: RRI	Instrument Serial No: 83587
Manufacturer: YSI / In-Situ	
Sensor Model: AT 100	Sensor Serial No: 154841

Type (5x5, 1x1)	Depth	Spec. Cond. (µS/cm)	Temp (°C)	Notes
N/A	30cm below surface	56550.7	26.5	
	30cm above ground	56752.6	26.3	
	60	45941.7	26.7	Moderate H <sub>2</sub> S; Low turbidity

Notes: Temp probe in @ 11:02; out @ 11:12  
Start pump @ 11:03; Stop @ 11:05  
Start pump @ 11:06; Stop @ 11:09

Ecological Observations: Moderate to dense Thalassia; Pericillius present. Sandy/silty substrate

Arrival time: 9:00		Date: 4/5/11	
Departure time: 9:32		Surveyors: KU JFU MM	
Site/Grid: B32A			
GPS Coordinates (NAD 1983)			
Latitude: 25.44329		Longitude: 80.32150	
Tidal conditions: <del>low</del> flood gtu			
Air temp (°C): 81°F = 27.2°C		Water depth: 11.6 ft = 3.54 m	
Instrument: Rugged Reader #1		Instrument Serial No: 83587	
Manufacturer: YSI (In-Situ)			
Sensor Model: Aqua Troll 100		Sensor Serial No: 154541	

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes																																								
30cm below surface	58658.0	26.0																																									
30cm above bottom	59125.3	25.7																																									
30cm	56596.0	27.0	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td>Low/Mild</td> <td>Moderate</td> <td>Strong/High</td> </tr> <tr> <td>Turbidity</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> </table>		Low/Mild	Moderate	Strong/High	Turbidity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:			
	Low/Mild	Moderate	Strong/High																																								
Turbidity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											

Temperature probe inserted at: 9:11

Temperature probe pulled out at: 9:32

Tracer Suite collected from 2 locations

Volume collected: 1000 mL

Notes: Reached 30cm depth after 25+ refusals at 25-30cm  
 9:14 start pump; 9:19 stop pump  
 9:21 composite made

Ecological Observations: Barren Silty bottom, w/ very sparse coral

Arrival time: 9:23		Date: 4/5/11	
Departure time: 10:30		Surveyors: RV JFV/MM	
Site/Grid: BR2B			
GPS Coordinates (NAD 1983)			
Latitude: 25 44231		Longitude: 80.32149	
Tidal conditions: Low Flood			
Air temp (°C): 81°F = 27.2°C		Water depth: 11.6 = 3.54 m	
Instrument: R21		Instrument Serial No: 83587	
Manufacturer: YSI / In-Situ			
Sensor Model: R21-AT100		Sensor Serial No: 154841	

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes																																								
30 cm below surface	58751.7	26.1																																									
30 cm above bottom	59129.4	27.8																																									
30	59097.3	28.2	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Low/Mild</th> <th>Moderate</th> <th>Strong/High</th> </tr> </thead> <tbody> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Low/Mild	Moderate	Strong/High	Turbidity	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:			
	Low/Mild	Moderate	Strong/High																																								
Turbidity	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											

Temperature probe inserted at: 9:23

Temperature probe pulled out at: 9:49

Tracer Suite collected from 2 locations

Volume collected: 1000 mL

Notes: Start pump 9:24, stop 9:26  
 Start 9:27, stop 9:33  
 Reached 30 cm depth after several shallow refusals  
 Start again: 9:34; stop 9:36 ← moved probe  
 Start again 9:37; stop 9:40. had to remove sump + ap

Ecological Observations: Barren silty bottom w/ very sparse corals

Pumping stopped @ 10:09

ply self screen;  
see ~~notebook~~<sup>CU</sup>  
Field book for  
complete notes

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: <del>4:00</del> 11:43	Date: 4/5/11		
Departure time: 12:11	Surveyors: KV, JFV, MM		
Site/Grid: <u>134</u>			
GPS Coordinates (NAD 1983)			
Latitude: <u>25.41925</u>	Longitude: <u>80.29994</u>		
Tidal conditions: <u>Flood</u>			
Air temp (°C): <u>90°F = 32.2°C</u>	Water depth: <u>5.5 ft = 1.68 m</u>		
Instrument: <u>RR1</u>			
Instrument Serial No: <u>83587</u>			
Manufacturer: <u>YSI / In-Situ</u>			
Sensor Model: <u>AT100</u>			
Sensor Serial No: <u>154841</u>			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
<u>30 cm <del>at</del> below surface</u>	<u>55793.5</u>	<u>26.7</u>	
<u>30 cm above bottom</u>	<u>56071.6</u>	<u>26.5</u>	
<u>30</u>	<u>56200.2</u>	<u>27.9</u>	<div style="display: flex; justify-content: space-between;"> <div> Turbidity <input checked="" type="checkbox"/> Low/Mild  H<sub>2</sub>S Odor <input checked="" type="checkbox"/> Moderate  Other: </div> <div> <input type="checkbox"/> Strong/High  <input type="checkbox"/>  <input type="checkbox"/> </div> </div>
			<div style="display: flex; justify-content: space-between;"> <div> Turbidity <input type="checkbox"/>  H<sub>2</sub>S Odor <input type="checkbox"/> </div> <div> <input type="checkbox"/> </div> </div>
			<div style="display: flex; justify-content: space-between;"> <div> Turbidity <input type="checkbox"/>  H<sub>2</sub>S Odor <input type="checkbox"/> </div> <div> <input type="checkbox"/> </div> </div>
			<div style="display: flex; justify-content: space-between;"> <div> Turbidity <input type="checkbox"/>  H<sub>2</sub>S Odor <input type="checkbox"/> </div> <div> <input type="checkbox"/> </div> </div>
Temperature probe inserted at: <u>11:47</u>			
Temperature probe pulled out at: <u>11:57</u>			
Tracer Suite collected from <u>2</u> locations			
Volume collected: <u>1000</u> mL			
Notes: <u>Reached 30 after 12+ attempts</u>			
<u>Pump start @ 11:51 ; stop @ 11:53</u>			
<u>Pump start @ 11:54 ; stop @ 11:56</u>			
<u>FeM LV</u>			
Ecological Observations: <u>Sparse Thalassia, drift algae; Gorgonians</u>			
<u>Sponges + corals present; polychaete also present.</u>			
<u>Sandy shell hash substrate - fairly open bottom</u>			

Arrival time: <del>12:18</del> 12:29	Date: 4/5/11		
Departure time: 12:44	Surveyors: KV, JFV, MM		
Site/Grid: <u>R35A</u>			
GPS Coordinates (NAD 1983)			
Latitude: <u>25.40923</u>	Longitude: <u>80.29832</u>		
Tidal conditions: <u>Flood EV High</u>			
Air temp (°C): <u>90°F = 32.2°C</u>	Water depth: <u>5.1 ft = 1.55 m</u>		
Instrument: <u>RR1</u>			
Instrument Serial No: <u>83587</u>			
Manufacturer: <u>YSI / In-Situ</u>			
Sensor Model: <u>AT100</u>			
Sensor Serial No: <u>154841</u>			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
<u>30 cm <del>at</del> below surface</u>	<u>55666.2</u>	<u>27.3</u>	
<u>30 cm above bottom</u>	<u>56093.4</u>	<u>26.9</u>	
<u>60</u>	<u>54118.9</u>	<u>28.7</u>	<div style="display: flex; justify-content: space-between;"> <div> Turbidity <input checked="" type="checkbox"/> Low/Mild  H<sub>2</sub>S Odor <input type="checkbox"/> Moderate  Other: </div> <div> <input type="checkbox"/> Strong/High  <input type="checkbox"/>  <input type="checkbox"/> </div> </div>
			<div style="display: flex; justify-content: space-between;"> <div> Turbidity <input type="checkbox"/>  H<sub>2</sub>S Odor <input type="checkbox"/> </div> <div> <input type="checkbox"/> </div> </div>
			<div style="display: flex; justify-content: space-between;"> <div> Turbidity <input type="checkbox"/>  H<sub>2</sub>S Odor <input type="checkbox"/> </div> <div> <input type="checkbox"/> </div> </div>
			<div style="display: flex; justify-content: space-between;"> <div> Turbidity <input type="checkbox"/>  H<sub>2</sub>S Odor <input type="checkbox"/> </div> <div> <input type="checkbox"/> </div> </div>
Temperature probe inserted at: <u>12:34</u>			
Temperature probe pulled out at: <u>12:44</u>			
Tracer Suite collected from <u>2</u> locations			
Volume collected: <u>1000</u> mL			
Notes: <u>Pump start @ 12:36 ; stop @ 12:39</u>			
<u>Pump start @ 12:40 ; stop @ 12:42</u>			
<u>Fe</u>			
Ecological Observations: <u>Moderate to dense Thalassia;</u>			
<u>Sandy/Silty Substrate</u>			

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 12:45	Date: 4/5/11
Departure time: 13:17	Surveyors: KV, JEV, MM
Site/Grid: B353	
GPS Coordinates (NAD 1983)	
Latitude: 25.40932	Longitude: 80.29837
Tidal conditions: Flood High	
Air temp (°C): 90°F = 32.20C	Water depth: 5.1 ft = 1.55m
Instrument: KRI	Instrument Serial No: 83587
Manufacturer: YSI / In-Situ	
Sensor Model: AT 100	Sensor Serial No: 134841

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes
30 cm below surface	55561.4	27.4	
30 cm above bottom	55971.6	27.0	
60	54736.6	27.7	<div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div> <div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> </div>

Temperature probe inserted at: 12:45

Temperature probe pulled out at: 12:55

Tracer Suite collected from 2 locations

Volume collected: 1000 mL

Notes: pump start @ 12:46 ; stop @ 12:49  
pump start @ 12:50 ; stop @ 12:52

Ecological Observations: Moderate to dense Thalassia; Sandy/Silty Substrate.

Arrival time: 13:32	Date: 4/5/11
Departure time: 14:12	Surveyors: KV, JEV, MM
Site/Grid: H5	
GPS Coordinates (NAD 1983)	
Latitude: 25.40745	Longitude: 80.31890
Tidal conditions: Flood High	
Air temp (°C): 91°F = 32.8°C	Water depth: 4.2 ft = 1.28m
Instrument: KRI	Instrument Serial No: 83587
Manufacturer: YSI / In-Situ	
Sensor Model: AT 100	Sensor Serial No: 154841

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes
30 cm below surface	56529.8	27.7	
30 cm above bottom	56984.3	27.4	
30	56785.9	30.5	<div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div> <div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> </div>

Temperature probe inserted at: 13:45

Temperature probe pulled out at: 13:58

Tracer Suite collected from 2 locations

Volume collected: 1000 mL

Notes: Reached 30 after 12+ attempts  
pump start @ 13:48 ; pump stop @ 13:52  
pump start @ 13:53 ; pump stop @ 13:57

Ecological Observations: Sparse Thalassia, moderate to dense potofera; Sandy shell hash substrate.



# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 14:32	Date: 4/5/11		
Departure time: 15:08	Surveyors: KV, JFV, MM		
Site/Grid: H6			
GPS Coordinates (NAD 1983)			
Latitude: 25.39648	Longitude: 80.31838		
Tidal conditions: Ebb			
Air temp (°C): 40°F = 32.2°C	Water depth: 3.3 ft = 1.0 m		
Instrument: RR1	Instrument Serial No: 83587		
Manufacturer: YSI / In-Situ			
Sensor Model: AT 100	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm	56233.3	28.3	
Below surface			
30 cm	59761.4	56696.8	T = 27.9°C
Above bottom			
40	54269.0	30.2	
			Low/Mild Moderate Strong/High
			Turbidity <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
			H <sub>2</sub> S Odor <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
			Other:
			Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
			H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
			Other:
			Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
			H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
			Other:
Temperature probe inserted at: 14:40			
Temperature probe pulled out at: 14:53			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes: Pump start @ 14:41 ; pump stop @ 14:49			
Pump start @ 14:50 ; pump stop @ 14:52			
Reached 40 cm after 7 rejections			
Ecological Observations: Sparse to moderate <i>Malassia</i> ; Sandy			
silty shell hash			

Arrival time:	Date:		
Departure time:	Surveyors:		
Site/Grid:			
GPS Coordinates (NAD 1983)			
Latitude:	Longitude:		
Tidal conditions:			
Air temp (°C):	Water depth:		
Instrument:	Instrument Serial No:		
Manufacturer: YSI / In-Situ			
Sensor Model:	Sensor Serial No:		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
			Low/Mild Moderate Strong/High
			Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
			H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
			Other:
			Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
			H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
			Other:
			Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
			H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
			Other:
Temperature probe inserted at:			
Temperature probe pulled out at:			
Tracer Suite collected from locations			
Volume collected: mL			
Notes:			
Ecological Observations:			

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 9:21	Date: 4/6/11		
Departure time: 10:11	Surveyors: KJ, HH, MM		
Site/Grid: JK7			
GPS Coordinates (NAD 1983)			
Latitude: N 25.38909	Longitude: W 80.28744		
Tidal conditions: Flood			
Air temp (°C): 23.7°C	Water depth: 5.0 ft = 1.52 m		
Instrument: RRI	Instrument Serial No: 83587		
Manufacturer: YSI /In-Situ			
Sensor Model: AT 100	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30cm below surface	56335.2	25.0	
30cm above bottom	56270.8	25.3	
45	54247.5	23.7	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: 9:37			
Temperature probe pulled out at: 10:00			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes: Reached 45cm after several attempts Pump start @ 9:43; stop @ 9:51 Pump start @ 9:52; stop @ 10:00			
Ecological Observations: Moderate to dense Thalassia; some Penicillaria Asteroidata; sandy shell hash substrate w/ silt layer on top			

Arrival time: 10:20	Date: 4/6/11		
Departure time: 11:16	Surveyors: KJ, HH, MM		
Site/Grid: K8			
GPS Coordinates (NAD 1983)			
Latitude: 25.37360	Longitude: 80.28175		
Tidal conditions: Flood			
Air temp (°C): 25.6	Water depth: 5.2 ft = 1.52 m		
Instrument: RRI	Instrument Serial No: 83587		
Manufacturer: YSI /In-Situ			
Sensor Model: AT 100	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30cm below surface	56260.7	25.8	
30cm above bottom	56119.8	26.0	
60	52341.9	27.0	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: 10:25			
Temperature probe pulled out at: 11:04			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes: pump start @ 10:27; stop @ 10:37 pump start @ 10:38; stop @ 11:03 Had to move the probe several times before a second sample could be obtained.			
Ecological Observations: Moderate Thalassia w/ Sponges & penicillaria present. Sandy/silty substrate			

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 11:29	Date: 4/6/11		
Departure time: 11:59	Surveyors: K.V., M.H., M.M.		
Site/Grid: J38			
GPS Coordinates (NAD 1983)			
Latitude: 25.37392	Longitude: 80.30010		
Tidal conditions: Flood			
Air temp (°C): 28.5	Water depth: 6.8 ft = 2.07 m		
Instrument: RRI	Instrument Serial No: 83587		
Manufacturer: YSI / In-Situ			
Sensor Model: AT 100	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm below surface	56255.7	26.4	
30 cm above bottom	56542.5	26.2	
			Low/Mild Moderate Strong/High
40	51571.9	27.9	Turbidity <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other:
Temperature probe inserted at: 11:36			
Temperature probe pulled out at: 11:48			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes: Reached 40 after 10+ attempts pump start @ 11:41 ; stop @ 11:43 pump start @ 11:44 ; stop @ 11:47			
Ecological Observations: Sparse Thalassia w/ sparse to moderate patafesa ; fairly open bottom w/ sandy shell hash			

Arrival time: 12:08	Date: 4/6/11		
Departure time: not recorded	Surveyors: K.V., M.H., M.M.		
Site/Grid: J37			
GPS Coordinates (NAD 1983)			
Latitude: 25.38506	Longitude: 80.30009		
Tidal conditions: Flood			
Air temp (°C): 28.8	Water depth: 3.7 ft = 1.13 m		
Instrument: RRI	Instrument Serial No: 83587		
Manufacturer: YSI / In-Situ			
Sensor Model: AT 100	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm below surface	55518.5	26.7	
30 cm above bottom	55940.4	26.3	
			Low/Mild Moderate Strong/High
60	51740.6	32.4	Turbidity <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other:
Temperature probe inserted at: 12:18			
Temperature probe pulled out at: 12:39			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes: pump start @ 12:20 ; stop @ 12:32 pump start @ 12:33 ; stop @ 12:35			
Ecological Observations: Sparse Thalassia + Sparse to moderate patafesa ; a lot of dead Thalassia leaves ; sandy shell hash bottom w/ soft sediment			

N: 25 38520  
W: 80.30656

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 13:35	Date: 4/6/11		
Departure time: 13:55	Surveyors: KV, HH, MM		
Site/Grid: F7			
GPS Coordinates (NAD 1983)			
Latitude: N 25.38516	Longitude: W 80.30656		
Tidal conditions: High			
Air temp (°C): 25.18	Water depth: 23 cm		
Instrument: RK1	Instrument Serial No: 83587		
Manufacturer: YSI / In-Situ			
Sensor Model: AT 100	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
KV 30 cm below surface	56114.68	27.44	
KV Scumming surface			
60	54804.3	26.1	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> </div> <div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other: strong organic/mud/silt</div> </div>
			<div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
			<div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
			<div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: —			
Temperature probe pulled out at: —			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes: KV 13:45			
pump start @ 13:42; stop @ 13:47			
pump start @ 13:48; stop @ 13:50			
probed down to 103 cm, which was as far as we could go			
Ecological Observations:			
Red mangrove forest ~ 4 m tall on average.			
Black mangrove pneumatophores also present but no trees visible			

Arrival time: 14:46	Date: 4/6/11		
Departure time: 14:58	Surveyors: KV, HH, MM		
Site/Grid: H17			
GPS Coordinates (NAD 1983)			
Latitude: 25.38610	Longitude: 80.31247		
Tidal conditions: High Ebb 94			
Air temp (°C): 24.0	Water depth: 601 m		
Instrument: RK1	Instrument Serial No: 83587		
Manufacturer: YSI / In-Situ			
Sensor Model: AT 100	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
KV 30 cm below surface	56973.3	27.2	
KV 30 cm below surface	51000.5	25.6	
60	51000.5	25.6	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> </div> <div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
			<div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
			<div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
			<div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: 14:47			
Temperature probe pulled out at: 14:57			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes: KV 14:53			
pump start @ 14:49; stop @ 14:51			
pump start @ 14:52; stop @ 14:53			
Ecological Observations: Sparse Thalassia; sandy/silty bottom			

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 15:48	Date: 4/6/11		
Departure time: 15:57	Surveyors: KV, HA, MM		
Site/Grid: H7			
GPS Coordinates (NAD 1983)			
Latitude: 25.38219	Longitude: 80.31884		
Tidal conditions: Ebb			
Air temp (°C): 27.8	Water depth: 53 cm		
Instrument: RRI	Instrument Serial No: 83587		
Manufacturer: YSI / In-Situ			
Sensor Model: AT100	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
KV 30 cm above surface	58174.8	27.3	
KV 30 cm above bottom			
HA 60	58174.8	27.3	<div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div> <div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> </div>
60	50724.1	27.0	<div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div> <div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> </div>
			<div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div> <div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> </div>
Temperature probe inserted at: —			
Temperature probe pulled out at: —			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
pump start @ 15:48 ; stop @ 15:57			
pump start @ 15:52 ; stop @ 15:54			
Ecological Observations: scrub red mangrove, w/ small patches of large red mangroves intermixed			

Arrival time:	Date: 4/6/11		
Departure time:	Surveyors: KV, HA, MM		
Site/Grid: G1 - ONSHORE			
GPS Coordinates (NAD 1983)			
Latitude:	Longitude:		
Tidal conditions: Ebb			
Air temp (°C):	Water depth:		
Instrument: RRI	Instrument Serial No:		
Manufacturer: YSI / In-Situ			
Sensor Model: AT100	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
KV 30 cm above surface			
KV 30 cm above bottom			
			<div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div> <div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> </div>
			<div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div> <div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> </div>
			<div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div> <div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> </div>
Temperature probe inserted at:			
Temperature probe pulled out at:			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
Could not sample from Bay B/c of 6-8 ft deep / 10-12 ft wide canal			
Ecological Observations:			

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 1148	Date: 4-7-11		
Departure time: 1259	Surveyors: MN KV HH		
Site/Grid: F14			
GPS Coordinates (NAD 1983)			
Latitude: N 25.30635	Longitude: -80.34383		
Tidal conditions: Flood			
Air temp (°C): 29.4	Water depth: 4.54m = 1.4m		
Instrument: RR3	Instrument Serial No: 83595		
Manufacturer: YSI (In-Situ)			
Sensor Model: AT 102	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm below surface	54454.8	26.6	
30 cm above bottom	54590.0	26.6	
			Low/Mild Moderate Strong/High
60	51586.9	30.4	Turbidity <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other:
Temperature probe inserted at: 1155			
Temperature probe pulled out at: 1252			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
Pump start @ 1156; stop @ 1227			
Pump start @ 1232; stop @ 1250			
Ecological Observations:			
Sparse to moderate Thalassia. Drift alga, pericillius			
Hydromedusa, Botryllum			

Arrival time: 1306	Date: 4-7-11		
Departure time: 13:35	Surveyors: KV HH MN		
Site/Grid: F13			
GPS Coordinates (NAD 1983)			
Latitude: 25.31781	Longitude: -80.34410		
Tidal conditions: High			
Air temp (°C): 30.0	Water depth: 9.34m = 2.8m		
Instrument: RR3	Instrument Serial No: 83595		
Manufacturer: YSI (In-Situ)			
Sensor Model: AT 100	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm below surface	54634.5	27.1	
30 cm above bottom	54763.7	27.0	
			Low/Mild Moderate Strong/High
30 cm	52805.6	29.6	Turbidity <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other:
Temperature probe inserted at: 13:15			
Temperature probe pulled out at: 13:25			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
12 refusals			
Pump start @ 1316; stop @ 1319			
Pump start @ 1321; stop @ 1324			
Ecological Observations:			
Moderate			
Sparse Thalassia, Male Botryllum			
Sandy shell hash substrate			

Arrival time: 9:07		Date: 4/7/11	
Departure time: 9:52		Surveyors: KY, HH, MM	
Site/Grid: J11			
GPS Coordinates (NAD 1983)			
Latitude: 25.33948		Longitude: -80.29451	
Tidal conditions: Low			
Air temp (°C): 27.2		Water depth: 10.5' = 3.2m	
Instrument: KR 3		Instrument Serial No: 83595	
Manufacturer: YSI (In-Situ)			
Sensor Model: AT 100		Sensor Serial No: 154841	

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes
30cm below surface	55833.7	26.1	
30cm above bottom	55829.3	26.0	
40cm	53110.5	26.6	<div style="display: flex; justify-content: space-between; font-size: small;"> <span>Low/Mild</span> <span>Moderate</span> <span>Strong/High</span> </div> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> Turbidity <input checked="" type="checkbox"/>  H<sub>2</sub>S Odor <input type="checkbox"/>  Other: </div> <div style="width: 45%;"> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> </div> </div>
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:

Temperature probe inserted at: 9:17

Temperature probe pulled out at: 9:38

Tracer Suite collected from 2 locations

Volume collected: 1000 mL

Notes:

ump start @ 9:19; stop @ 9:23

ump start @ 9:25; stop @ 9:37

Ecological Observations:

Dense *Thalassia*, some *pericallis*, drift algae, sandy shell hash bottom

Arrival time: 10:02		Date: 4/7/11	
Departure time: 11:30		Surveyors: KV, HH, MM	
Site/Grid: J12			
GPS Coordinates (NAD 1983)			
Latitude: 25.32911		Longitude: -80.29475	
Tidal conditions: Low			
Air temp (°C): 29.0		Water depth: 10.24 = 3.1 m	
Instrument: R23		Instrument Serial No: 83595	
Manufacturer: YSI / In-Situ			
Sensor Model: AT 106		Sensor Serial No: 154846	

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
20 cm below surface	55276.4	26.2	
30 cm above bottom	55472.0	26.2	
50 cm	52767.6	28.5	<div style="display: flex; justify-content: space-between; font-size: small;"> <span>Turbidity</span> <span>Low/Mild <input type="checkbox"/></span> <span>Moderate <input checked="" type="checkbox"/></span> <span>Strong/High <input type="checkbox"/></span> </div> <div style="display: flex; justify-content: space-between; font-size: small;"> <span>H<sub>2</sub>S Odor</span> <span><input type="checkbox"/></span> <span><input checked="" type="checkbox"/></span> <span><input type="checkbox"/></span> </div> <div style="display: flex; justify-content: space-between; font-size: small;"> <span>Other:</span> <span></span> <span></span> <span></span> </div> <div style="display: flex; justify-content: space-between; font-size: small;"> <span>Turbidity</span> <span><input type="checkbox"/></span> <span><input type="checkbox"/></span> <span><input type="checkbox"/></span> </div> <div style="display: flex; justify-content: space-between; font-size: small;"> <span>H<sub>2</sub>S Odor</span> <span><input type="checkbox"/></span> <span><input type="checkbox"/></span> <span><input type="checkbox"/></span> </div> <div style="display: flex; justify-content: space-between; font-size: small;"> <span>Other:</span> <span></span> <span></span> <span></span> </div> <div style="display: flex; justify-content: space-between; font-size: small;"> <span>Turbidity</span> <span><input type="checkbox"/></span> <span><input type="checkbox"/></span> <span><input type="checkbox"/></span> </div> <div style="display: flex; justify-content: space-between; font-size: small;"> <span>H<sub>2</sub>S Odor</span> <span><input type="checkbox"/></span> <span><input type="checkbox"/></span> <span><input type="checkbox"/></span> </div> <div style="display: flex; justify-content: space-between; font-size: small;"> <span>Other:</span> <span></span> <span></span> <span></span> </div>

Temperature probe inserted at: 10:12

Temperature probe pulled out at: 11:20

Tracer Suite collected from 2 locations

Volume collected: 1000 mL

Notes: 1032 HH  
 pump start @ 10:43, stop @ 10:53  
 pump start @ 10:55, stop @ 11:17

Ecological Observations:  
 Med - base Thalassia, sparse Sargassum  
 Silty sandy shell hash

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 14:14	Date: 4/7/11		
Departure time: 14:27	Surveyors: KV, HH		
Site/Grid: E-12			
GPS Coordinates (NAD 1983)			
Latitude: 25.32848	Longitude: 80.35667		
Tidal conditions: High			
Air temp (°C): 30.4	Water depth: 0		
Instrument: RR3	Instrument Serial No: 83595		
Manufacturer: YSI In-Situ			
Sensor Model: AT 100	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
5cm	49863.2	27.7	Taken in place of surface water
5cm	54459.3	27.1	Taken in place of surface water
60	49863.2	27.7	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> </div> <div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
			<div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
			<div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
			<div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: —			
Temperature probe pulled out at: —			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
pump start @ 14:15 ; stop @ 14:17			
pump start @ 14:18 ; stop @ 14:20			
Ecological Observations:			
Red mangrove stand ~ 3m tall on average. monoculture.			

Arrival time: 15:29	Date: 4/7/11		
Departure time: 15:43	Surveyors: KV, HH		
Site/Grid: F-12			
GPS Coordinates (NAD 1983)			
Latitude: 25.32884	Longitude: 80.39420		
Tidal conditions: Ebb			
Air temp (°C): 27.7	Water depth: 10cm		
Instrument: RR3	Instrument Serial No: 83595		
Manufacturer: YSI In-Situ			
Sensor Model: AT 100	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
surface	55465.9	29.0	
1			
60	59971.7	26.27.0	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> </div> <div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
			<div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
			<div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
			<div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: —			
Temperature probe pulled out at: —			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
pump start @ 1531 ; stop @ 1533			
pump start @ 1534 ; stop @ 153			
Ecological Observations:			
Red mangrove monoculture ~ 4m tall on avg.			



# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 16:17	Date: 4-7-11		
Departure time: 17:10	Surveyors: KV HH AM		
Site/Grid: 412			
GPS Coordinates (NAD 1983)			
Latitude: 25.32898	Longitude: -80.31970		
Tidal conditions: EBB			
Air temp (°C): 29.8	Water depth: 10.2ft = 3.1m		
Instrument: RA3	Instrument Serial No: 83595		
Manufacturer: YSI (In-Situ)			
Sensor Model: AT 126	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm below surface	55710.2	27.3	
30 cm above bottom	55780.7	27.2	
			Low/Mild Moderate Strong/High
60 cm	52965	32.3	Turbidity <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
			H <sub>2</sub> S Odor <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
			Other:
			Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
			H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
			Other:
			Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
			H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
			Other:
Temperature probe inserted at: 16:31			
Temperature probe pulled out at: 16:45			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
Pump start @ 16:32; stop @ 16:35			
Pump start @ 16:36; stop @ 16:38 because tube fell off			
Pump start @ 16:41; stop @ 16:44			
Ecological Observations:			
Sparse Thalassia, moderate Sertophora, some Eudorea, some Penicillus. Sandy shell hash bottom. Fairly open.			

Arrival time: 17:18	Date: 4-7-11		
Departure time: 17:50	Surveyors: AM KV HH		
Site/Grid: 411			
GPS Coordinates (NAD 1983)			
Latitude: 25.34010	Longitude: -80.31939		
Tidal conditions: Ebb			
Air temp (°C): 28.1	Water depth: 10.4ft = 3.2m		
Instrument: RR3	Instrument Serial No: 83595		
Manufacturer: YSI (In-Situ)			
Sensor Model: AT 100	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30 cm below surface	56081.8	27.4	
30 cm above bottom	56216.8	27.3	
			Low/Mild Moderate Strong/High
60 cm	52717.5	29.8	Turbidity <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
30 (HH)			H <sub>2</sub> S Odor <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
			Other:
			Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
			H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
			Other:
			Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
			H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
			Other:
Temperature probe inserted at: 17:26			
Temperature probe pulled out at: 17:39			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
Pump start @ 17:27; stop @ 17:29			
Pump <del>start</del> start @ 17:30; stop @ 17:39			
Ecological Observations:			
Sparse Thalassia, moderate Sertophora, scattered sponges, few penicillus			
Sandy shell hash bottom, fairly open			

## 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 12:01		Date: 4-8-11	
Departure time: 1245		Surveyors: MM HH JJ	
Site/Grid: 011 offshore new			
GPS Coordinates (NAD 1983)			
Latitude: 25.34311		Longitude: -80.33280	
Tidal conditions: Flood			
Air temp (°C): 29.5		Water depth: 0.9 ft = 2.1 m	
Instrument: RA3 / SN 83595		Instrument Serial No: Unit 3	
Manufacturer: YSI (In-Situ)			
Sensor Model: AT100		Sensor Serial No: 154841	

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes																																								
30 cm below surface	54379.2	27.3																																									
30 cm above bottom	54589.4	27.1																																									
30	52448.8	28.8	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Low/Mild</th> <th>Moderate</th> <th>Strong/High</th> </tr> </thead> <tbody> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td colspan="3"></td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td colspan="3"></td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td colspan="3"></td> </tr> </tbody> </table>		Low/Mild	Moderate	Strong/High	Turbidity	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:			
	Low/Mild	Moderate	Strong/High																																								
Turbidity	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											

Temperature probe inserted at: 12:11

Temperature probe pulled out at: 12:37

Tracer Suite collected from 2 locations

Volume collected: 1000 mL

Notes:

Pump start @ 12:12; stop @ 12:27

Pump start @ 12:28; stop @ 12:37

Ecological Observations:

Sparse Thalassia, Brown drift algae

Scattered sponges, coral, & Periporellas

Sandy shell hash bottom

Arrival time: 13 25		Date: 4-8-11	
Departure time: 13 39		Surveyors: HHJ)	
Site/Grid: G11 onshore - new			
GPS Coordinates (NAD 1983)			
Latitude: 25.34395		Longitude: -80.33539	
Tidal conditions: Flood			
Air temp (°C): 33.6		Water depth: 20cm	
Instrument: RRS		Instrument Serial No: 83595	
Manufacturer: YSI (In-Situ)			
Sensor Model: AT100		Sensor Serial No: 154841	

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
10cm	63714.1	33.1	Checked twice, and got similar reading.
-	-	-	
60cm	52805.3	28.2	
			<div style="display: flex; justify-content: space-between;"> <span>Turbidity</span> <span>Low/Mild</span> <span>Moderate</span> <span>Strong/High</span> </div> <div style="display: flex; justify-content: space-between;"> <span>H<sub>2</sub>S Odor</span> <span><input type="checkbox"/></span> <span><input checked="" type="checkbox"/></span> <span><input type="checkbox"/></span> </div> <div style="display: flex; justify-content: space-between;"> <span>Other:</span> <span></span> <span></span> <span></span> </div> <div style="display: flex; justify-content: space-between;"> <span>Turbidity</span> <span><input type="checkbox"/></span> <span><input type="checkbox"/></span> <span><input type="checkbox"/></span> </div> <div style="display: flex; justify-content: space-between;"> <span>H<sub>2</sub>S Odor</span> <span><input type="checkbox"/></span> <span><input type="checkbox"/></span> <span><input type="checkbox"/></span> </div> <div style="display: flex; justify-content: space-between;"> <span>Other:</span> <span></span> <span></span> <span></span> </div> <div style="display: flex; justify-content: space-between;"> <span>Turbidity</span> <span><input type="checkbox"/></span> <span><input type="checkbox"/></span> <span><input type="checkbox"/></span> </div> <div style="display: flex; justify-content: space-between;"> <span>H<sub>2</sub>S Odor</span> <span><input type="checkbox"/></span> <span><input type="checkbox"/></span> <span><input type="checkbox"/></span> </div> <div style="display: flex; justify-content: space-between;"> <span>Other:</span> <span></span> <span></span> <span></span> </div>

Temperature probe inserted at: \_\_\_\_\_

Temperature probe pulled out at: \_\_\_\_\_

Tracer Suite collected from 2 locations

Volume collected: 1000 mL

Notes:

Pump Start @ 13:30; stop @ 13:32

Pump Start @ 13:33; stop @ 13:34

Ecological Observations:

Moderate R. mangle 1.25 m tall

Depth to rock at least 1.25 m below surface of land

Arrival time: 10:07		Date: 4-8-11	
Departure time: 10:39		Surveyors: MM HH JJ	
Site/Grid: F612			
GPS Coordinates (NAD 1983)			
Latitude: 25.32885		Longitude: -80.33823	
Tidal conditions: Low			
Air temp (°C): 30.7		Water depth: 7.8 ft = 2.4 m	
Instrument: RR3/SN 83595		Instrument Serial No: 01073	
Manufacturer: YSI / In-Situ			
Sensor Model: AT100		Sensor Serial No: 154841	

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:																																								
30 cm below surface	52301.4	26.6																																									
30 cm above bottom	54147.3	26.7																																									
20 cm	53291.5	27.6	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Low/Mild</th> <th>Moderate</th> <th>Strong/High</th> </tr> </thead> <tbody> <tr> <td>Turbidity</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Low/Mild	Moderate	Strong/High	Turbidity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:			
	Low/Mild	Moderate	Strong/High																																								
Turbidity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											

Temperature probe inserted at: 10:22
Temperature probe pulled out at: 10:32
Tracer Suite collected from 2 locations
Volume collected: 1000 mL

Notes:
Pump start @ 1023 ; stop @ 1025
Pump start @ 1026 ; stop @ 1028

Ecological Observations:
Very sparse Thalassia in small patches
Coral, sponges, gorgonians.
Acetabularia, Sargassum, Penicillia
Sands all black bottom

Arrival time: 11:00		Date: 4-8-11	
Departure time: 11:25		Surveyors: HH JJ	
Site/Grid: FGi1			
GPS Coordinates (NAD 1983)			
Latitude: 25.33870		Longitude: -80.33831	
Tidal conditions: Low			
Air temp (°C): 88°F = 31.1°C		Water depth: 0 no surface water	
Instrument: RR3/SN 83595		Instrument Serial No: Unit 3	
Manufacturer: YSI 1(In-Situ)			
Sensor Model: AT 100		Sensor Serial No: 154841	

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
5 cm below ground	61011.5	30.4	
60 cm	54185.5	29.5	

	Low/Mild	Moderate	Strong/High
Turbidity	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other:			
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:			
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:			

Temperature probe inserted at: —

Temperature probe pulled out at: —

Tracer Suite collected from 2 locations

Volume collected: 1000 mL

Notes:

Pump start @ 11:02, stop @ 11:14

Pump start @ 11:15, stop @ 11:20

Ecological Observations:

Rhizophora mangle 1.5 to 2 m tall. Dense

Arrival time: 1423		Date: 4-8-11	
Departure time: 1431		Surveyors: HH	
Site/Grid: F611 redo			
GPS Coordinates (NAD 1983)			
Latitude: 25.33868		Longitude: -80.33829	
Tidal conditions: High			
Air temp (°C): 32.7		Water depth: 0	
Instrument: R/R3		Instrument Serial No: 839 83595	
Manufacturer: YSI / (In-Situ)			
Sensor Model: AT100		Sensor Serial No: 154841	

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes	Low/Mild	Moderate	Strong/High
60cm			from previous collection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Temperature probe inserted at: \_\_\_\_\_

Temperature probe pulled out at: \_\_\_\_\_

Tracer Suite collected from 2 locations

Volume collected: 1000 mL

Notes:

pump start @ 1424; stop @ 1425

pump start @ 1426; stop @ 1430

Ecological Observations:

R. mangle 1.25 to 2 m tall, dense

[illegible]

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 11:14	Date: 4-11-11		
Departure time: 11:55	Surveyors: SE HH MM		
Site/Grid: H9 offshore			
GPS Coordinates (NAD 1983)			
Latitude: 25.36279	Longitude: 80.31863		
Tidal conditions: EBB			
Air temp (°C): 30.8	Water depth: 5.2# = 1.6m		
Instrument: RK3 SU83595	Instrument Serial No: Unit 3		
Manufacturer: YSI (In-Situ)			
Sensor Model: AT 100	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30cm below surface	57019.8	27.9	
30cm above bottom	57021.8	27.9	
			Low/Mild Moderate Strong/High
30cm	56280.4	29.8	Turbidity <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> H <sub>2</sub> S Odor <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other:
Temperature probe inserted at: 11:25			
Temperature probe pulled out at: 11:45			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
Pump start 11:29; stop @ 11:32			
Pump start @ 11:33; stop @ 11:45			
Ecological Observations:			
Some Gorgonians, Halimeda, small patch of Thalassia, a lot of brown drift algae			
Sandy shell hash bottom			

Arrival time: 12:06	Date: 4-11-11		
Departure time: 12:33	Surveyors: HH SE MM		
Site/Grid: J-9			
GPS Coordinates (NAD 1983)			
Latitude: 25.36263	Longitude: -80.29424		
Tidal conditions: Low			
Air temp (°C): 30.2	Water depth: 8.4# = 2.6m		
Instrument: RK3 SU83595	Instrument Serial No: Unit 3		
Manufacturer: YSI (In-Situ)			
Sensor Model: AT 100	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30cm below surface	55994.1	27.9	
30cm above bottom	56187.9	27.8	
			Low/Mild Moderate Strong/High
8' 40"	55576.6	27.5	Turbidity <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> H <sub>2</sub> S Odor <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other:
Temperature probe inserted at: 12:15			
Temperature probe pulled out at: 12:25			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
Pump start @ 12:17; stop @ 12:20			
Pump start @ 12:21; stop @ 12:22			
Ecological Observations:			
Sparse to moderate Thalassia			
Dictyophora, Acetabularia, Sponges, drift algae			
Sandy shell hash bottom			

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 9:45	Date: 4-11-11		
Departure time: 10:08	Surveyors: SE, HH		
Site/Grid: HI-8			
GPS Coordinates (NAD 1983)			
Latitude: 25.37227	Longitude: -80.31123		
Tidal conditions: Low (H) ERS			
Air temp (°C): 27.8°C	Water depth: —		
Instrument: RR3 SN83595	Instrument Serial No: U.43		
Manufacturer: YSI / (In-Situ)			
Sensor Model: A4100	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
5	—	—	No water @ 5 cm
60	44.076.1	26.6	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
			<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
			<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
			<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: —			
Temperature probe pulled out at: —			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
Pump start @ 9:47; stop @ 9:56. Move because no water			
Pump start @ 9:58; stop @ 10:00.			
Pump start @ 10:02; stop @ 10:04			
Ecological Observations:			
Dense Rhizophora mangle 4m tall			
Sparse Avicennia germinans 4m tall			

Arrival time: 10:50	Date: 4-11-11		
Departure time: 10:58	Surveyors: SE, HH		
Site/Grid: H9-onshore			
GPS Coordinates (NAD 1983)			
Latitude: 25.36372	Longitude: -80.31930		
Tidal conditions: Low (H) ERS			
Air temp (°C): 30.1°C	Water depth: —		
Instrument: RR3 SN83595	Instrument Serial No: U.43		
Manufacturer: YSI / (In-Situ)			
Sensor Model: A4100	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
5	—	—	No water available
60 cm	70225.9	26.7	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
			<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
			<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
			<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: —			
Temperature probe pulled out at: —			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
Pump start @ 10:52; stop @ 10:52			
Pump start @ 10:54; stop @ 10:55			
Ecological Observations:			
R mangle and A germinans each 30% cover. 6m tall			
No surface water. Pool at least 90 cm down			

## 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 12:44		Date: 4-11-11	
Departure time: 13:27		Surveyors: MK SE HH	
Site/Grid: HI-10			
GPS Coordinates (NAD 1983)			
Latitude: 25.35152		Longitude: -80.31242	
Tidal conditions: Low			
Air temp (°C): 30.3		Water depth: 10.34 ± 3.1 m	
Instrument: R/R3 SL83595		Instrument Serial No: 01143	
Manufacturer: YSI / In-Situ			
Sensor Model: AT100		Sensor Serial No: 154841	

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:																																								
30 cm below surface	56306.7	27.9																																									
30 cm above bottom	56245.1	27.8																																									
30	55245.6	28.8	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td>Low/Mild</td> <td>Moderate</td> <td>Strong/High</td> </tr> <tr> <td>Turbidity</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td colspan="4">Other:</td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td colspan="4">Other:</td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td colspan="4">Other:</td> </tr> </table>		Low/Mild	Moderate	Strong/High	Turbidity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:			
	Low/Mild	Moderate	Strong/High																																								
Turbidity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											

Temperature probe inserted at: 12:50

Temperature probe pulled out at: 13:12

Tracer Suite collected from 2 locations

Volume collected: 1000 mL

Notes:

Pump start @ 1252 / stop @ 1258

Pump start @ 1259 / stop @ 13:12

Ecological Observations:

Sparsely Thalassia - drift algae, gorgonians, sponge, bryozoans, fairly open

Sandy shell hash bottom

Arrival time: 13:34		Date: 4-1-11	
Departure time: 14:02		Surveyors: MM, SC, HH	
Site/Grid: LH-10			
GPS Coordinates (NAD 1983)			
Latitude: 25.35138		Longitude: -80.32491	
Tidal conditions: Flood			
Air temp (°C): 30.5		Water depth: 8.3 ft = 2.5 m	
Instrument: RC 3 83595		Instrument Serial No: U. + 3	
Manufacturer: YSI (In-Situ)			
Sensor Model: AT 100		Sensor Serial No: 154841	

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:																																								
30 cm below surface	56725.6	28.2																																									
30 cm above bottom	56809.1	28.2																																									
20	56333.7	28.2	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Low/Mild</th> <th>Moderate</th> <th>Strong/High</th> </tr> </thead> <tbody> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Low/Mild	Moderate	Strong/High	Turbidity	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:			
	Low/Mild	Moderate	Strong/High																																								
Turbidity	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											

Temperature probe inserted at: 1341

Temperature probe pulled out at: 1352

Tracer Suite collected from 2 locations

Volume collected: 1000 mL

Notes:

Pump start @ 1343 ; stop @ 1345

Pump start @ 1348 ; stop @ 1349

Ecological Observations:

Sparse Thalassia, moderate Sotopharm. Fairly open bottom, Penicillus, gorgonians, sponges

Sandy shell with bottom

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 14:19	Date: 4-11-11		
Departure time: 14:28	Surveyors: HH, SE		
Site/Grid: G910			
GPS Coordinates (NAD 1983)			
Latitude: N 25.35673	Longitude: W 80.32763		
Tidal conditions: Flood			
Air temp (°C): 91°F = 32.8°C	Water depth: —		
Instrument: RR3 SV 83595	Instrument Serial No: Unit 3		
Manufacturer: YSI (In-Situ)			
Sensor Model: AT 100	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
5 cm	—	—	No water @ 5 cm
60	56844.6	30.3	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: —			
Temperature probe pulled out at: —			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
Pump start @ 14:20, stop @ 14:22			
Pump start @ 14:23, stop @ 14:24			
Ecological Observations:			
Mostly A. germinans 2.5m tall			
Some R. mayle 1-2m tall			

Arrival time: 15:33	Date: 4-11-11		
Departure time: 16:05	Surveyors: SE HH		
Site/Grid: K-1			
GPS Coordinates (NAD 1983)			
Latitude: 25.45212	Longitude: -80.28064		
Tidal conditions: Flood			
Air temp (°C): 90°F = 32.2°C	Water depth: 7.3ft = 2.2m		
Instrument: RR3 SV 83595	Instrument Serial No: Unit 3		
Manufacturer: YSI (In-Situ)			
Sensor Model: AT 100	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
30cm below surface	56316.5	28.9	
30cm above bottom	56352.1	28.8	
125cm below surface	56303.7	28.8	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: —			
Temperature probe pulled out at: —			
Tracer Suite collected from 1 locations			
Volume collected: 1500 mL			
Notes:			
<del>Did not collect</del> (HH)			
Pump start @ 15:53; stop @ 16:01			
Ecological Observations:			
Fairly open bottom.			
Sandy shell hash			



## 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 1511		Date: 4-12-11	
Departure time: 1519		Surveyors: KV HH	
Site/Grid: M7A M7A/B			
GPS Coordinates (NAD 1983)			
Latitude: 25.40127		Longitude: -80.33075	
Tidal conditions: Low Flood			
Air temp (°C): 31.9		Water depth: 6 cm	
Instrument: R3 SN 83595		Instrument Serial No: Unit 3	
Manufacturer: YSI (In-Situ)			
Sensor Model: AT100		Sensor Serial No: 154841	

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes																																								
surface	65308.1	35.6																																									
60 cm	31.0	30.4	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th></th> <th style="text-align: center;">Low/Mild</th> <th style="text-align: center;">Moderate</th> <th style="text-align: center;">Strong/High</th> </tr> <tr> <td>Turbidity</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td colspan="3"> </td> </tr> <tr> <td>Turbidity</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td colspan="3"> </td> </tr> <tr> <td>Turbidity</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td colspan="3"> </td> </tr> </table>		Low/Mild	Moderate	Strong/High	Turbidity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:			
	Low/Mild	Moderate	Strong/High																																								
Turbidity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											

Temperature probe inserted at: —

Temperature probe pulled out at: —

Tracer Suite collected from 2 locations

Volume collected: 1000 mL

Notes:

Pump start @ 15:12; stop @ 15:14

Pump start @ 15:15; stop @ 15:16

Ecological Observations:

Sparse R mangrove 0.75 m tall

Arrival time: 15:48		Date: 4-12-11	
Departure time: 16:06		Surveyors: KV HH	
Site/Grid: 676			
GPS Coordinates (NAD 1983)			
Latitude: 26.37654		Longitude: -80.33058	
Tidal conditions: Flood			
Air temp (°C): 31.8		Water depth: 7 cm	
Instrument: R23 SN 83595		Instrument Serial No: Vnt 3	
Manufacturer: YSI (In-Situ)			
Sensor Model: AT 100		Sensor Serial No: 154841	

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:																																								
Surface	62640.4	35.8																																									
60 cm	50551.2	29.7	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th></th> <th style="width: 25%;">Low/Mild</th> <th style="width: 25%;">Moderate</th> <th style="width: 25%;">Strong/High</th> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td colspan="3"> </td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td colspan="3"> </td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td colspan="3"> </td> </tr> </table>		Low/Mild	Moderate	Strong/High	Turbidity	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:			
	Low/Mild	Moderate	Strong/High																																								
Turbidity	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											

Temperature probe inserted at: ≡

Temperature probe pulled out at: —

Tracer Suite collected from 2 locations

Volume collected: 1000 mL

Notes:

Pump start @ 15:50; stop @ 16:00

Pump start @ 16:01; stop @ 16:03

Ecological Observations:

Sparse R mangla 1 to 1.5 m tall

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 10:21	Date: 4-12-11		
Departure time: 10:40	Surveyors: KV HH		
Site/Grid: G-1 onshore			
GPS Coordinates (NAD 1983)			
Latitude: 25.45175	Longitude: -80.33427		
Tidal conditions: ebb			
Air temp (°C): 32	Water depth: -		
Instrument: RR3 SN 83595	Instrument Serial No: V173		
Manufacturer: YSI (In-Situ)			
Sensor Model: AT 100	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
9cm	61114.8	31.0	Low odor. Moderate turbidity
60	46516.1	32.2 31.6	<div style="display: flex; justify-content: space-between;"> <div> Turbidity <input checked="" type="checkbox"/> Low/Mild  H<sub>2</sub>S Odor <input type="checkbox"/> Moderate  Other: <input type="checkbox"/> Strong/High </div> <div> Turbidity <input type="checkbox"/> Low/Mild  H<sub>2</sub>S Odor <input type="checkbox"/> Moderate  Other: <input type="checkbox"/> Strong/High </div> </div>
Temperature probe inserted at: =			
Temperature probe pulled out at: -			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
<p>Pump start @ 10:23; stop @ 10:25</p> <p>Pump start @ 10:28; stop @ 10:30.</p>			
Ecological Observations:			
<p>N of point R, mangl 1.25 m tall</p> <p>S of point, R mangl 1.5 m tall and L racemosa</p> <p>3-4 m tall.</p>			

Arrival time: 14:17	Date: 4-12-11		
Departure time: 14:29	Surveyors: KV HH		
Site/Grid: M5A/B			
GPS Coordinates (NAD 1983)			
Latitude: N 25.41079	Longitude: W 80.32840		
Tidal conditions: Low			
Air temp (°C): 35.2	Water depth: 1cm		
Instrument: RR3 SN 83595	Instrument Serial No: V173		
Manufacturer: YSI (In-Situ)			
Sensor Model: AT 100	Sensor Serial No: 154841		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
surface	62189.6	34.8	
60 cm	52000.8	30.7	<div style="display: flex; justify-content: space-between;"> <div> Turbidity <input checked="" type="checkbox"/> Low/Mild  H<sub>2</sub>S Odor <input type="checkbox"/> Moderate  Other: <input type="checkbox"/> Strong/High </div> <div> Turbidity <input type="checkbox"/> Low/Mild  H<sub>2</sub>S Odor <input type="checkbox"/> Moderate  Other: <input type="checkbox"/> Strong/High </div> </div>
Temperature probe inserted at: -			
Temperature probe pulled out at: -			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
<p>Pump start @ 14:18; stop @ 14:22</p> <p>Pump start @ 14:23; stop @ 14:24</p>			
Ecological Observations:			
<p>In an old creek? Mostly 1 m R. mangl,</p> <p>but West-East line of 2 m tall R. mangl.</p>			

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 9:38	Date: 4-13-11																																										
Departure time: 9:59	Surveyors: KV, HH																																										
Site/Grid: C-10																																											
GPS Coordinates (NAD 1983)																																											
Latitude: N 25.35089	Longitude: W 80.38044																																										
Tidal conditions: -																																											
Air temp (°C): 29.0	Water depth: -																																										
Instrument: R283 SN 83595 Instrument Serial No: 02. + 3																																											
Manufacturer: YSI / In-Situ																																											
Sensor Model: AT 100	Sensor Serial No: 154841																																										
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:																																								
5	-	-	No water available																																								
<table border="1"> <thead> <tr> <th></th> <th>Low/Mild</th> <th>Moderate</th> <th>Strong/High</th> </tr> </thead> <tbody> <tr> <td>Turbidity</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					Low/Mild	Moderate	Strong/High	Turbidity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:			
	Low/Mild	Moderate	Strong/High																																								
Turbidity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
60	57559.7	28.3																																									
Temperature probe inserted at: - Temperature probe pulled out at: - Tracer Suite collected from 2 locations Volume collected: 1000 mL																																											
Notes:																																											
Pump start @ 9:40; stop @ 9:49 Pump start @ 9:48; stop @ 9:54																																											
Ecological Observations:																																											
Sparse A. germinans 0.5 m tall and R. mangle 0.25 m tall																																											

Arrival time: 10:35	Date: 4-13-11																																										
Departure time: 10:44	Surveyors: KV, HH																																										
Site/Grid: D-10																																											
GPS Coordinates (NAD 1983)																																											
Latitude: 25.35155	Longitude: -80.36880																																										
Tidal conditions: -																																											
Air temp (°C): 32.9	Water depth: -																																										
Instrument: R283 SN 83595 Instrument Serial No: 02. + 3																																											
Manufacturer: YSI / In-Situ																																											
Sensor Model: AT 100	Sensor Serial No: 154841																																										
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:																																								
5 cm	-	-	No water																																								
<table border="1"> <thead> <tr> <th></th> <th>Low/Mild</th> <th>Moderate</th> <th>Strong/High</th> </tr> </thead> <tbody> <tr> <td>Turbidity</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					Low/Mild	Moderate	Strong/High	Turbidity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:			
	Low/Mild	Moderate	Strong/High																																								
Turbidity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
60 cm	60751.8	29.1																																									
Temperature probe inserted at: - Temperature probe pulled out at: - Tracer Suite collected from 2 locations Volume collected: 1000 mL																																											
Notes:																																											
Pump start @ 10:38; stop @ 10:42 Pump start @ 10:44; stop @ 10:46																																											
Ecological Observations:																																											
Sparse R. mangle and A. germinans 0.25 to 1 m tall																																											

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 11:33	Date: 4-13-11		
Departure time: 11:48	Surveyors: KV HH		
Site/Grid: E-10			
GPS Coordinates (NAD 1983)			
Latitude: 25.35155	Longitude: -80.35645		
Tidal conditions: -			
Air temp (°C): 31.0	Water depth: -		
Instrument: RR3 SN83595			
Instrument Serial No: Unit 3			
Manufacturer: YSI (In-Situ)			
Sensor Model: AT100			
Sensor Serial No: 154841			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
5	-	-	
60	-	-	
			<div style="display: flex; justify-content: space-between;"> <span>Low/Mild</span> <span>Moderate</span> <span>Strong/High</span> </div> <div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div> <div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div> <div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: -			
Temperature probe pulled out at: -			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
<p>Pump start @ 11:35 ; stop @ 11:36 and move</p> <p>Pump start @ 11:37 ; stop @ 11:39</p> <p>Tried 12 times N: successful water pull</p>			
Ecological Observations:			
<p>HH-R. m Sparse R. mangla 0.25 to 0.5 m tall.</p> <p>A few A. germinans 1 m tall.</p>			

Arrival time: 12:11	Date: 4-13-11		
Departure time: 12:19	Surveyors: KV HH		
Site/Grid: F10			
GPS Coordinates (NAD 1983)			
Latitude: 25.35180	Longitude: -80.34456		
Tidal conditions: -			
Air temp (°C): 93°F = 33.9°C	Water depth: -		
Instrument: RR3 SN83595			
Instrument Serial No: Unit 3			
Manufacturer: YSI (In-Situ)			
Sensor Model: AT100			
Sensor Serial No: 154841			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
5	-	-	No water available
60	1029	27.2	
			<div style="display: flex; justify-content: space-between;"> <span>Low/Mild</span> <span>Moderate</span> <span>Strong/High</span> </div> <div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div> <div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div> <div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: -			
Temperature probe pulled out at: -			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
<p>Pump start @ 12:14 ; stop @ 12:15</p> <p>Pump start @ 12:16 ; stop @ 12:16</p>			
Ecological Observations:			
<p>Sparse Cladium jamaicense 1 m tall. Sparse R. mangla 1.25 m tall</p>			

## 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 12:57	Date: 4-13-11
Departure time: 13:13	Surveyors: KV HH
Site/Grid: #11	
GPS Coordinates (NAD 1983)	
Latitude: 25.34043	Longitude: -80.34595
Tidal conditions: -	
Air temp (°C): 27.1	Water depth: -
Instrument: RP-3 SN 83595	Instrument Serial No: 0073
Manufacturer: YSI / In Situ	
Sensor Model: AT100	Sensor Serial No: 154841

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:																																								
5 cm	68394.8	26.6																																									
60 cm	48756.6	26.2	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="width: 25%;">Low/Mild</th> <th style="width: 25%;">Moderate</th> <th style="width: 25%;">Strong/High</th> </tr> </thead> <tbody> <tr> <td>Turbidity</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Low/Mild	Moderate	Strong/High	Turbidity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:			
	Low/Mild	Moderate	Strong/High																																								
Turbidity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											

Temperature probe inserted at: -

Temperature probe pulled out at: -

Tracer Suite collected from 2 locations

Volume collected: 1000 mL

Notes:

Pump start @ 13:04, Stop @ 13:05

Pump start @ 13:06, Stop @ 13:07

Ecological Observations:

~~R. munda moderately dense~~ 30% cover, 1 m tall

Arrival time: 1350		Date: 2014-13-11	
Departure time: 13:59		Surveyors: KV, HH	
Site/Grid: E11			
GPS Coordinates (NAD 1983)			
Latitude: N 25.33850		Longitude: W 80.35261	
Tidal conditions: -			
Air temp (°C): 93.0 F = 33.9°C		Water depth: 2 cm	
Instrument: RR3 SN 83595		Instrument Serial No: Vn+3	
Manufacturer: YSI (In-Situ)		Sensor Serial No: 154841	
Sensor Model: AT 100			

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
Surface	58049.0	33.4	check trace. Similar value
60	58049.0	33.4	<div style="display: flex; justify-content: space-between;"> <div> Turbidity <input type="checkbox"/>  H<sub>2</sub>S Odor <input type="checkbox"/>  Other: </div> <div> Low/Mild <input type="checkbox"/>  Moderate <input type="checkbox"/>  Strong/High <input type="checkbox"/> </div> </div>
60	50477.6	28.5	<div style="display: flex; justify-content: space-between;"> <div> Turbidity <input type="checkbox"/>  H<sub>2</sub>S Odor <input type="checkbox"/>  Other: </div> <div> Low/Mild <input checked="" type="checkbox"/>  Moderate <input type="checkbox"/>  Strong/High <input type="checkbox"/> </div> </div>

Temperature probe inserted at: -

Temperature probe pulled out at: -

Tracer Suite collected from 2 locations

Volume collected: 1000 mL

Notes:

Pump start @ 1352; stop @ 1354

Pump start @ 1355; stop @ 1356

Ecological Observations:

R mangle (m till) 20% cover

## 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 15:48 Date: 4/14/11  
Departure time: 16:04 Surveyors: KJ, SH

Site/Grid: D2  
GPS Coordinates (NAD 1983)  
Latitude: 25.44202 Longitude: 80.36827  
Tidal conditions: ☒  
Air temp (°C): 35.7 Water depth: <1cm

Instrument: RP3 Instrument Serial No: 83595  
Manufacturer: YSI / In-Situ  
Sensor Model: AT 200 Sensor Serial No: 177105

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
0	660.24	31.30	Chunks of peat in sample
60	843.78	30.87	<div style="display: flex; justify-content: space-between;"> <div> Turbidity <input type="checkbox"/>  H<sub>2</sub>S Odor <input checked="" type="checkbox"/>  Other: chunks of peat in sample </div> <div> Low/Mild <input checked="" type="checkbox"/>  Moderate <input checked="" type="checkbox"/>  Strong/High <input type="checkbox"/> </div> </div>
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:

Temperature probe inserted at: —  
Temperature probe pulled out at: —  
Tracer Suite collected from 2 locations  
Volume collected: 1000 mL

Notes:  
pump start 15:52; stop 15:53  
pump start 15:54; stop 15:57

Ecological Observations:  
Large area of mostly Typha w/ some Cladium intermixed

[illegible]

## 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 12:18 Date: 4/14/11  
 Departure time: 12:38 Surveyors: KV, SH

Site/Grid: W2A/B  
 GPS Coordinates (NAD 1983)  
 Latitude: 25.43960 Longitude: 80.36055  
 Tidal conditions: —  
 Air temp (°C): 28.7 Water depth: —

Instrument: R23 Instrument Serial No: 83595  
 Manufacturer: YSI / In-Situ  
 Sensor Model: AT200 Sensor Serial No: 177108

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
7cm	935.96	26.81	had to go a little deeper to get sample
60	1699.65	28.19	<div style="display: flex; justify-content: space-between;"> <div>           Turbidity <input checked="" type="checkbox"/>            H<sub>2</sub>S Odor <input checked="" type="checkbox"/>            Other: light brown color/tan         </div> <div>           Low/Mild <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Strong/High <input type="checkbox"/>            Turbidity <input type="checkbox"/> H<sub>2</sub>S Odor <input type="checkbox"/>            Other:         </div> </div>

Temperature probe inserted at: —  
 Temperature probe pulled out at: —  
 Tracer Suite collected from 2 locations  
 Volume collected: 1000 mL

Notes:  
 pump start 12:22, stop 12:25  
 pump start 12:26, stop 12:28

Ecological Observations: Herbaceous cover is sparse, mostly consisting of Blechnum, buttonbush saplings & Lycopodium saplings. Avg. ht ~ 0.5m  
 canopy consists of cecropium & R. mangle might 3.75m. Heavy leaf litter.

Arrival time: 1400		Date: 4/14/11	
Departure time: 14:32		Surveyors: KV, SH	
Site/Grid: W3A/B			
GPS Coordinates (NAD 1983)			
Latitude: 25.43627		Longitude: 80.35295	
Tidal conditions: -			
Air temp (°C): 27.1		Water depth: -	
Instrument: RR3		Instrument Serial No: 83595	
Manufacturer: YSI / In-Situ			
Sensor Model: AT 200		Sensor Serial No: 177108	

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes
5	653.15	26.83	
60	553.11	28.83	<div style="display: flex; justify-content: space-between; font-size: small;"> <span>Turbidity</span> <span>Low/Mild</span> <span>Moderate</span> <span>Strong/High</span> </div> <div style="display: flex; justify-content: space-between;"> <span><input checked="" type="checkbox"/></span> <span><input type="checkbox"/></span> <span><input type="checkbox"/></span> </div> <div style="display: flex; justify-content: space-between; font-size: small;"> <span>H<sub>2</sub>S Odor</span> <span></span> <span></span> </div> <div style="display: flex; justify-content: space-between;"> <span><input type="checkbox"/></span> <span><input checked="" type="checkbox"/></span> <span><input type="checkbox"/></span> </div> <div style="display: flex; justify-content: space-between; font-size: small;"> <span>Other: Toxic</span> <span></span> <span></span> </div>
			<div style="display: flex; justify-content: space-between; font-size: small;"> <span>Turbidity</span> <span></span> <span></span> </div> <div style="display: flex; justify-content: space-between;"> <span><input type="checkbox"/></span> <span><input type="checkbox"/></span> <span><input type="checkbox"/></span> </div> <div style="display: flex; justify-content: space-between; font-size: small;"> <span>H<sub>2</sub>S Odor</span> <span></span> <span></span> </div> <div style="display: flex; justify-content: space-between;"> <span><input type="checkbox"/></span> <span><input type="checkbox"/></span> <span><input type="checkbox"/></span> </div>
			<div style="display: flex; justify-content: space-between; font-size: small;"> <span>Other:</span> <span></span> <span></span> </div> <div style="display: flex; justify-content: space-between; font-size: small;"> <span>Turbidity</span> <span></span> <span></span> </div> <div style="display: flex; justify-content: space-between;"> <span><input type="checkbox"/></span> <span><input type="checkbox"/></span> <span><input type="checkbox"/></span> </div> <div style="display: flex; justify-content: space-between; font-size: small;"> <span>H<sub>2</sub>S Odor</span> <span></span> <span></span> </div> <div style="display: flex; justify-content: space-between;"> <span><input type="checkbox"/></span> <span><input type="checkbox"/></span> <span><input type="checkbox"/></span> </div>

Temperature probe inserted at: —

Temperature probe pulled out at: —

Tracer Suite collected from 2 locations

Volume collected: 1000 mL

Notes: 1405 (KV)

pump start 14:02 stop 14:16

pump start 14:17 stop 14:22

Ecological Observations:

Understory dominated by Blechnum + Thelypteris ~ 0.25 m tall

Canopy dominated by Salix, Myrica, + Cassipouira ~ 3.25 m tall; Heavy leaf litter

Arrival time: 9:48 Date: 4/14/11  
Departure time: 10:03 Surveyors: KV, SH

Site/Grid: C3  
GPS Coordinates (NAD 1983)  
Latitude: 20.4341 Longitude: 80.38152  
Tidal conditions:  
Air temp (°C): 28.5 Water depth: 0

Instrument: KR3 Instrument Serial No: 83595  
Manufacturer: YSI / In-Situ  
Sensor Model: AT 260 Sensor Serial No: ~~77403~~ 177108

Depth (cm)	Spec. Cond. (μS/cm)	Temp (°C)	Notes:
5	3868.12	25.11	
60	3882.69	25.58	<div style="text-align: right;">Low/Mild   Moderate   Strong/High</div> Turbidity <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> H <sub>2</sub> S Odor <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other: Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other: Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other:

Temperature probe inserted at: ~  
Temperature probe pulled out at: ~  
Tracer Suite collected from 2 locations  
Volume collected: 1000 mL

Notes: Pump Start @ 9:54 - Stop @ 9:56  
Pump Start @ 9:57 ; Stop 9:59

Ecological Observations: Cladrum w/ Scattered Cassirina &  
Sparse Typha. Cladrum ~ 0.75 m tall

Arrival time: 1034		Date: 4/14/11	
Departure time: 1106		Surveyors: KV, ST	
Site/Grid: C2			
GPS Coordinates (NAD 1983)			
Latitude: 25.49271		Longitude: 80.37913	
Tidal conditions: -			
Air temp (°C): 30.6		Water depth: 0	
Instrument: RR3		Instrument Serial No: 83595	
Manufacturer: YSI / In-Situ			
Sensor Model: AT200		Sensor Serial No: 177608	

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:																														
5	140700	28.40																															
60	1973.33	26.21	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Low/Mild</th> <th style="width: 33%;">Moderate</th> <th style="width: 33%;">Strong/High</th> </tr> </thead> <tbody> <tr> <td>Turbidity <input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor <input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td colspan="3">Other: *</td> </tr> <tr> <td>Turbidity <input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor <input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td colspan="3">Other:</td> </tr> <tr> <td>Turbidity <input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor <input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td colspan="3">Other:</td> </tr> </tbody> </table>	Low/Mild	Moderate	Strong/High	Turbidity <input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor <input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other: *			Turbidity <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:			Turbidity <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:		
Low/Mild	Moderate	Strong/High																															
Turbidity <input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																															
H <sub>2</sub> S Odor <input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																															
Other: *																																	
Turbidity <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																															
H <sub>2</sub> S Odor <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																															
Other:																																	
Turbidity <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																															
H <sub>2</sub> S Odor <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																															
Other:																																	

Temperature probe inserted at: -

Temperature probe pulled out at: -

Tracer Suite collected from 2 locations

Volume collected: 1000 mL

Notes: Pump start 1037; stop 1039

Pump start 1041; stop 1045 Moved probe

Pump start 10:49; stop 10:51

Pump start 10:53; stop 1056

Ecological Observations: Dominant herb: Cladium ~ 2m tall avg

Dominant canopy: Salix + Myrica ~ 2.5m tall avg



## 2011 Initial Ecological Survey-Tracer Suite Sampling

[illegible]

Arrival time: 13:50		Date: 4/15/11	
Departure time: 18:14:10		Surveyors: JFW SH	
Site/Grid: G-2			
GPS Coordinates (NAD 1983)			
Latitude: N 25.44174		Longitude: W 80.33099	
Tidal conditions: Ebb			
Air temp (°C): 30.9		Water depth: 0	
Instrument: RL #3			
Manufacturer: YSI (In-Situ)		Instrument Serial No: 83595	
Sensor Model: AT 200		Sensor Serial No: 177108	

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:																																								
5 cm	596858	30.8	Low turbidity, no odor																																								
60	589918	28.8	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Low/Mild</th> <th>Moderate</th> <th>Strong/High</th> </tr> </thead> <tbody> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td colspan="3"> </td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td colspan="3"> </td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td colspan="3"> </td> </tr> </tbody> </table>		Low/Mild	Moderate	Strong/High	Turbidity	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:			
	Low/Mild	Moderate	Strong/High																																								
Turbidity	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											

Temperature probe inserted at: N/A

Temperature probe pulled out at:  

Tracer Suite collected from 2 locations

Volume collected: 1000 mL

Notes: - Tall R-mangle at 13:52 start pumping 13:54 stop pump.  
 13:54 start pumping 14:02 stop.

Ecological Observations: Tall R-mangle forest at 4.5m tall along creek North side of creek. Creek has Snappers and Snook in creek.

## 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 10:00		Date: 4/15/11	
Departure time: 10:25		Surveyors: JEV SH	
Site/Grid: W1A/B			
GPS Coordinates (NAD 1983)			
Latitude: N25.44694		Longitude: W80.37179	
Tidal conditions: N/A			
Air temp (°C): 31.3		Water depth: 10	
Instrument: RL#3		Instrument Serial No: 83595	
Manufacturer: YSI (In-Situ)			
Sensor Model: AT 200		Sensor Serial No: 177108	

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:																																								
5 cm	064.6	25.6	No surface water Very turbid No odor Dark Brown color																																								
60	933.6	26.4	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Low/Mild</th> <th>Moderate</th> <th>Strong/High</th> </tr> </thead> <tbody> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td colspan="3"> </td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td colspan="3"> </td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td colspan="3"> </td> </tr> </tbody> </table>		Low/Mild	Moderate	Strong/High	Turbidity	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:			
	Low/Mild	Moderate	Strong/High																																								
Turbidity	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											

Temperature probe inserted at: N/A

Temperature probe pulled out at:  

Tracer Suite collected from 2 locations

Volume collected: 1000 mL

Notes: 10:09 - start pump 10:12 stop pump.  
 10:13 start pump. 10:15 stop pump.  
 Cygodium nictophyllum at site.

Ecological Observations: Inside a tree island  
 Conocarpus erectus, Salix cordianay, Plyna  
 Cerifera, Annona glabra trees at 4.5m avg.  
 Sawgrass, Thelypennia interrupta, Cephalanthus  
 occidentalis at 50% cover 1.25m ht.

Arrival time: 11:15 Date: 4/15/11  
 Departure time: 11:47 Surveyors: JFV SH

Site/Grid: E1-2  
 GPS Coordinates (NAD 1983)  
 Latitude: N 25.44764 Longitude: W 80.35654  
 Tidal conditions: N/A  
 Air temp (°C): 38.0 Water depth: 0

Instrument: RK43 Instrument Serial No: 83595  
 Manufacturer: YSI (In-Situ)  
 Sensor Model: AT 200 Sensor Serial No: 177108

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
5cm	914.0	32.1	very High turbidity fine marl sediment low H <sub>2</sub> S odor
60	1308.5	32.8	<div style="display: flex; justify-content: space-between;"> <div>           Turbidity <input type="checkbox"/>            H<sub>2</sub>S Odor <input checked="" type="checkbox"/>            Other: fine marl sediment         </div> <div>           Low/Mild <input checked="" type="checkbox"/> Moderate <input checked="" type="checkbox"/> Strong/High <input type="checkbox"/>            Turbidity <input type="checkbox"/>            H<sub>2</sub>S Odor <input type="checkbox"/>            Other:         </div> </div>

Temperature probe inserted at: N/A  
 Temperature probe pulled out at:  
 Tracer Suite collected from 2 locations  
 Volume collected: 1000 mL

Notes: 11:17 start pump 10:25 stop pump  
 10:26 - start pump 10:36 stop pump  
 lots of air in tubing

Ecological Observations: Dense sugarcane at 50% cover at 1.70m height sparse Casuarina equisetifolia trees in area.

[illegible][illegible]

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 10:10	Date: 4/18/11		
Departure time: 10:30	Surveyors: KV, JFV		
Site/Grid: F1-2			
GPS Coordinates (NAD 1983)			
Latitude: 25.44778	Longitude: 80.34634		
Tidal conditions: flood			
Air temp (°C): 31.5	Water depth: 0		
Instrument: RR3	Instrument Serial No: 83595		
Manufacturer: YSI (In-Situ)			
Sensor Model: AT200	Sensor Serial No: 177108		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
5	26598.05	28.05	
60	21038.60	30.37	<div style="display: flex; justify-content: space-between;"> <div> Turbidity <input checked="" type="checkbox"/> Low/Mild  H<sub>2</sub>S Odor <input checked="" type="checkbox"/> Moderate  Other: </div> <div> <input type="checkbox"/> Moderate  <input type="checkbox"/> Strong/High </div> </div>
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:
Temperature probe inserted at: —			
Temperature probe pulled out at: —			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
pump start 10:14; stop 10:20			
pump start 10:22; stop 10:27			
probe was inserted 91 cm w/o hitting bedrock			
Ecological Observations:			
Scrub R. mangrove w/ scattered <i>Conocarpus</i> snags.			
<i>T. lamarianus</i> also sparsely present			

Arrival time: 11:36	Date: 4/18/11		
Departure time: 12:09	Surveyors: KV, JFV		
Site/Grid: G1-2			
GPS Coordinates (NAD 1983)			
Latitude: 25.44760	Longitude: 80.33795		
Tidal conditions: High			
Air temp (°C): 32.0	Water depth: 5 cm		
Instrument: RR3	Instrument Serial No: 83595		
Manufacturer: YSI (In-Situ)			
Sensor Model: AT200	Sensor Serial No: 177108		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
0	61093.98	31.87	
60	48665.85	30.87	<div style="display: flex; justify-content: space-between;"> <div> Turbidity <input type="checkbox"/> Low/Mild  H<sub>2</sub>S Odor <input type="checkbox"/> Moderate  Other: </div> <div> <input type="checkbox"/> Moderate  <input checked="" type="checkbox"/> Strong/High </div> </div>
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:
Temperature probe inserted at: —			
Temperature probe pulled out at: —			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
pump start 11:37; stop 11:55			
pump start 11:57; stop			
There is a lot of air in the tubing			
Ecological Observations:			
Scrub R. mangrove w/ scattered <i>C. erectus</i> snags (dead) throughout.			

Point moved - Needs resampling

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 12:58	Date: 4/18/11		
Departure time: 13:20	Surveyors: KV, JFY		
Site/Grid: F1			
GPS Coordinates (NAD 1983)			
Latitude: 25.45090	Longitude: 80.34418		
Tidal conditions: ~			
Air temp (°C): 32.4	Water depth: 9		
Instrument: KR3			
Instrument Serial No:			
Manufacturer: YSI / In-Situ			
Sensor Model: AT 200			
Sensor Serial No: 177108			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
5	28521.09	29.08	Water was milky colored
			KV
60	10268.42	31.17	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> </div> Turbidity <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Other: pink tint Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other: Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other:
Temperature probe inserted at: F			
Temperature probe pulled out at: F			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
pump start 12:59 - stop 13:02			
pump start 13:03 - stop 13:13			
Water has a pink tint, and sample had a lot of air in the tubing. Probe went 91cm w/o hitting bedrock			
Ecological Observations:			
Scrub R. mangrove w/ scattered to c. erectus snags (dead). Marl substrate			

Arrival time: 15:02	Date: 4/18/11		
Departure time: 15:24	Surveyors: KV, JFY		
Site/Grid: <del>457</del> KV M9A/B			
GPS Coordinates (NAD 1983)			
Latitude: 25.38648	Longitude: 80.32974		
Tidal conditions: <del>Low</del> Ebb JFY			
Air temp (°C): 32.6	Water depth: < 1cm		
Instrument: KR3			
Instrument Serial No: 83595			
Manufacturer: YSI / In-Situ			
Sensor Model: AT 200			
Sensor Serial No: 177108			
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
0	22628.82	34.25	
60	63777.82	29.95	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> </div> Turbidity <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Other: Unusual odor - metallic/organic smelling Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other: Turbidity <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other:
Temperature probe inserted at: -			
Temperature probe pulled out at: -			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
pump start 15:05 ; stop 15:10			
pump start 15:11 ; stop 15:15			
probe went to 91cm w/o hitting bedrock and sample had a lot of air in it			
Ecological Observations:			
Scrub R. mangrove dominant, w/ some taller R. mangrove + <del>Alb</del> Black mangrove (~2m tall) KV ~1.75m tall. Also scattered C. erectus snags present (dead). Look like there is groundwater influx b/c there is a line of taller trees.			

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 16:16	Date: 4/18/11		
Departure time: 16:32	Surveyors: KV, JFV		
Site/Grid: MSA/B			
GPS Coordinates (NAD 1983)			
Latitude: N 25.39110	Longitude: W 80.33028		
Tidal conditions: Ebb			
Air temp (°C): 30.2	Water depth: 55 cm		
Instrument: RR3	Instrument Serial No: 83595		
Manufacturer: YSI / In-Situ			
Sensor Model: AT 200	Sensor Serial No: 177108		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
0	57369.91	33.32	
60	56830.50	30.14	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: -			
Temperature probe pulled out at: -			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
pump start 16:19; stop 16:20			
pump start 16:21; stop 16:23			
probe inserted to 91 cm w/o hitting bedrock			
Ecological Observations:			
point located in a deep <sup>KV</sup> hole ~ 8 m across that is deeper than the surrounding habitat.			
substrate is soft. <sup>KV</sup> scrub R. mangrove present around the hole.			

Arrival time: 17:00	Date: 4/18/11		
Departure time: 17:16	Surveyors: KV, JFV		
Site/Grid: C-4			
GPS Coordinates (NAD 1983)			
Latitude: 25.38538	Longitude: 80.33097		
Tidal conditions: Ebb			
Air temp (°C): 28.0	Water depth: 4 cm		
Instrument: RR3	Instrument Serial No: 83595		
Manufacturer: YSI / In-Situ			
Sensor Model: AT 200	Sensor Serial No: 177108		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
0	62078.25	30.23	
60	56784.30	27.25	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: -			
Temperature probe pulled out at: -			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
pump start 17:02; stop 17:03			
pump start 17:04; stop 17:12			
probe inserted 91 cm w/o hitting bedrock			
Ecological Observations:			
Scrub R. mangrove + Black mangrove <sup>KV</sup> w/ taller black mangrove intermixed scrub R. mangrove ~ 0.75 m tall, black mangrove ~ 1.5 m tall.			

Arrival time: <u>9:27</u>		Date: <u>4/19/11</u>	
Departure time: <u>9:43</u>		Surveyors: <u>KV, JPV</u>	
Site/Grid: <u>F1</u>			
GPS Coordinates (NAD 1983)			
Latitude: <u>25.44336</u>		Longitude: <u>80.34098</u>	
Tidal conditions: <u>Flood</u>			
Air temp (°C): <u>28.4</u>		Water depth: <u>0</u>	
Instrument: <u>PCS</u>		Instrument Serial No: <u>83595</u>	
Manufacturer: <u>YSI / In-Situ</u>		Sensor Serial No: <u>177108</u>	
Sensor Model: <u>AT 200</u>			

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:																																								
<u>5</u>	<u>28765.20</u>	<u>27.32</u>	<u>toxic water; hard to obtain sample</u>																																								
<u>60</u>	<u>26816.46</u>	<u>26.12</u>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Low/Mild</th> <th>Moderate</th> <th>Strong/High</th> </tr> </thead> <tbody> <tr> <td>Turbidity</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Low/Mild	Moderate	Strong/High	Turbidity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:			
	Low/Mild	Moderate	Strong/High																																								
Turbidity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											

Temperature probe inserted at: —

Temperature probe pulled out at: —

Tracer Suite collected from 2 locations

Volume collected: 1000 mL

Notes:

pump start 9:28; stop 9:31

pump start 9:32; stop 9:34

probe reached 91cm w/o hitting bedrock

Ecological Observations:

P. mangrove forest ~ 3 m tall on avg. New

leaf litter layer ~ 1 in thick

Arrival time: 11:27 Date: 4/19/11  
Departure time: ~~11:40~~ 11:41 Surveyors: KV, JFY

Site/Grid: M2A/B  
GPS Coordinates (NAD 1983)  
Latitude: N 25.37280 Longitude: W 80.32748  
Tidal conditions: ~~Ebb~~ Flood JFY  
Air temp (°C): 29.5 Water depth: 37 cm

Instrument: RPS Instrument Serial No: 83595  
Manufacturer: YSI / In-Situ  
Sensor Model: ~~77103~~ AT 200 Sensor Serial No: 174108

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
0	56850.81	27.40	
60	55744.79	27.24	

	Low/Mild	Moderate	Strong/High
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Other:			
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:			
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:			

Temperature probe inserted at: —  
Temperature probe pulled out at: —  
Tracer Suite collected from 2 locations  
Volume collected: 1000 mL

Notes:  
pump start 11:29; stop 11:32  
pump start 11:33; stop 11:36  
probe 11:33  
probe was inserted 91 cm w/o hitting bedrock

Ecological Observations:  
Rmangle forest, ~ 4 m tall on avg. Point is located adjacent to a creek that is ~ 5 m across & 3 ft deep.

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 13:49	Date: 4/19/11		
Departure time: 13:59	Surveyors: JFV, KV		
Site/Grid: 68			
GPS Coordinates (NAD 1983)			
Latitude: 25.35401	Longitude: 80.33097		
Tidal conditions: Incoming Ebb JFV			
Air temp (°C): 29.5	Water depth: 11 cm		
Instrument: RK3	Instrument Serial No: 83595		
Manufacturer: YSI / In-Situ			
Sensor Model: AT200	Sensor Serial No: 177108		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
0	65710.25	33.5	
0	65710.25	33.58	
60	59002.23	29.83	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> </div> <div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div> <div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div> <div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: -			
Temperature probe pulled out at: -			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
pump start 13:50; stop 13:52			
pump start 13:53; stop 13:55			
probe inserted to 91 cm w/o hitting bedrock			
Ecological Observations:			
Scrub Mangrove + Black mangrove, both sparse. Substrate is sticky marl			

Arrival time: 14:23	Date: 4/19/11		
Departure time: 14:32	Surveyors: KV, JFV		
Site/Grid: 69			
GPS Coordinates (NAD 1983)			
Latitude: 25.36279	Longitude: 80.33096		
Tidal conditions: High Ebb JFV			
Air temp (°C): 32.2	Water depth: 8.5 cm		
Instrument: RK3	Instrument Serial No: 83595		
Manufacturer: YSI / In-Situ			
Sensor Model: AT200	Sensor Serial No: 177108		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
0	67551.09	31.90	
60	49970.32	29.46	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> </div> <div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div> <div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div> <div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: -			
Temperature probe pulled out at: -			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
pump start 14:23; stop 14:25			
pump start 14:25; stop 14:26			
probe inserted to 91 cm w/o hitting bedrock.			
Ecological Observations:			
Mostly Scrub R. mangrove w/ sparse scrub black mangrove intermixed. Marl substrate			



Arrival time: 14:56		Date: 4/19/11	
Departure time: 15:06		Surveyors: R, JPV	
Site/Grid: 510			
GPS Coordinates (NAD 1983)			
Latitude: 25.3515		Longitude: 80.33212	
Tidal conditions: High Ebb JFV			
Air temp (°C): 28.5		Water depth: 6m	
Instrument: RLS		Instrument Serial No: 83595	
Manufacturer: YSI (In-Situ)			
Sensor Model: AT 300		Sensor Serial No: 177108	

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:																																								
0.9	68850.46	31.99																																									
60	50060.54	29.26	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="width: 25%;">Low/Mild</th> <th style="width: 25%;">Moderate</th> <th style="width: 25%;">Strong/High</th> </tr> </thead> <tbody> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td colspan="3"> </td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td colspan="3"> </td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td colspan="3"> </td> </tr> </tbody> </table>		Low/Mild	Moderate	Strong/High	Turbidity	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:			
	Low/Mild	Moderate	Strong/High																																								
Turbidity	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											

Temperature probe inserted at: —

Temperature probe pulled out at: —

Tracer Suite collected from 2 locations

Volume collected: 1000 mL

Notes:

pump start 14:57; pump stop 14:58

pump start 14:59; pump stop 15:00

probe inserted 91cm w/o hitting bedrock

Ecological Observations:

Sparsely scrub R. mangrove w/ very sparse white mangrove present. All species < 0.5 m tall. Mud substrate.

[illegible]

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 9:06	Date: 4/20/11		
Departure time: 9:17	Surveyors: KV, HT		
Site/Grid: E4			
GPS Coordinates (NAD 1983)			
Latitude: 25.41999	Longitude: 80.35674		
Tidal conditions: -			
Air temp (°C): 27.6	Water depth: 0		
Instrument: <del>KK2</del>	Instrument Serial No: 81640		
Manufacturer: YSI /In-Situ			
Sensor Model: AT 200-100	Sensor Serial No: 177105 KV 125883		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
5	—	—	No water
60	7020.34	26.78	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: -			
Temperature probe pulled out at: -			
Tracer Suite collected from 2 locations			
Volume collected: 1800 mL			
Notes:			
pump start 9:07 - stop 9:10			
pump start 9:11 - stop 9:12			
probe inserted 91 cm w/o hitting bedrock			
Ecological Observations: Cladium w/ sparse scrub R.			
mangrove intermixed, located adjacent to a palm olive + a small canal			

Arrival time: 9:45	Date: 4/20/11		
Departure time: 9:55	Surveyors: KV, HT		
Site/Grid: D7			
GPS Coordinates (NAD 1983)			
Latitude: 25.38576	Longitude: 80.36906		
Tidal conditions: -			
Air temp (°C): 29.7	Water depth: 0		
Instrument: <del>KK2</del> RR#2	Instrument Serial No: 81640		
Manufacturer: YSI /In-Situ			
Sensor Model: AT 200-100	Sensor Serial No: 177105 KV 125883		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
5	—	—	No water
60	2385.95	26.22	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: -			
Temperature probe pulled out at: -			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
pump start 9:46 - stop 9:49			
pump start 9:49 - stop 9:51			
Depth to bedrock ~ 45 cm on average			
(KV) Skaffered			
Ecological Observations: Cladium w/ <del>Scrub</del> Cassytha cover. Point is adjacent to a small tree island to the SE			
Cladium ~ 1 m tall on avg.			

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 10:37	Date: 4/20/11		
Departure time: 11:15	Surveyors: KV, HH		
Site/Grid: DK			
GPS Coordinates (NAD 1983)			
Latitude: 25.37409	Longitude: 80.37009		
Tidal conditions: -			
Air temp (°C): 91°F = 32.8°C	Water depth: 0		
Instrument: <del>DK</del> KR2	Instrument Serial No: 81640		
Manufacturer: YSI / In-Situ			
Sensor Model: AT100	Sensor Serial No: 155883		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
5	2875.26	29.66	Very turbid
60	3008.29	31.68	<div style="display: flex; justify-content: space-between;"> <div>Turbidity</div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> </div> <div style="display: flex; justify-content: space-between;"> <div><input checked="" type="checkbox"/></div> <div><input type="checkbox"/></div> <div><input type="checkbox"/></div> <div><input type="checkbox"/></div> </div> <div>H<sub>2</sub>S Odor</div> <div><input checked="" type="checkbox"/></div> <div><input type="checkbox"/></div> <div><input type="checkbox"/></div>
Other:			
Temperature probe inserted at: -			
Temperature probe pulled out at: -			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
pump start 10:39; stop 10:55			
pump start 10:55; stop 11:05			
Bedrock @ 46' cm on average.			
1st pumping site was very slow			
Ecological Observations:			
Sparse Cladophora ~ 0.25m tall on average.			
Scattered L. nudge + C. erectus across the landscape			

Arrival time: 14:01	Date: 4/20/11		
Departure time: 14:18	Surveyors: KV, HH		
Site/Grid: B8 B12 KV			
GPS Coordinates (NAD 1983)			
Latitude: 25.33297	Longitude: 80.39467		
Tidal conditions: High			
Air temp (°C): 97°F = 36.1°C	Water depth: 2 cm		
Instrument: KR2	Instrument Serial No: 81640		
Manufacturer: YSI / In-Situ			
Sensor Model: AT155883	Sensor Serial No: 155883		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
0	70851.77	32.49	
60	58763.69	29.70	<div style="display: flex; justify-content: space-between;"> <div>Turbidity</div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> </div> <div style="display: flex; justify-content: space-between;"> <div><input type="checkbox"/></div> <div><input checked="" type="checkbox"/></div> <div><input type="checkbox"/></div> <div><input type="checkbox"/></div> </div> <div>H<sub>2</sub>S Odor</div> <div><input type="checkbox"/></div> <div><input checked="" type="checkbox"/></div> <div><input type="checkbox"/></div>
Other:			
Temperature probe inserted at: -			
Temperature probe pulled out at: -			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
pump start 14:05; stop 14:07			
pump start 14:08; stop 14:10			
Ecological Observations:			
Scrub R. nudge ~ 0.25 m tall avg			
Marl substrate			

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 14:06	Date: 4-20-11		
Departure time: 14:23	Surveyors: HH		
Site/Grid: A9			
GPS Coordinates (NAD 1983)			
Latitude: N 25.36217	Longitude: W 80.40620		
Tidal conditions: —			
Air temp (°C): 33	Water depth: 0		
Instrument: RR3/SU83595 Instrument Serial No: Unit 3			
Manufacturer: YSI In-Situ			
Sensor Model: AT 200	Sensor Serial No: 177108		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
5cm	—	—	No water @ 5cm
60cm	415187	27.14	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: —			
Temperature probe pulled out at: —			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
<p>pump start @ 14:09; pump stop @ 14:12</p> <p>pump start @ 14:12; pump stop @ 14:14</p>			
Ecological Observations:			
<p>Cladium jamaicense 0.8m tall</p>			

Arrival time: 14:32	Date: 4-20-11		
Departure time: 14:47	Surveyors: HH		
Site/Grid: B7			
GPS Coordinates (NAD 1983)			
Latitude: N 25.38647	Longitude: W 80.39362		
Tidal conditions: —			
Air temp (°C): 35	Water depth: —		
Instrument: RR3/SU83595 Instrument Serial No: Unit 3			
Manufacturer: YSI In-Situ			
Sensor Model: AT 200	Sensor Serial No: 177108		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
5cm	—	—	No water
60	150202	27.35	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: —			
Temperature probe pulled out at: —			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
<p>pump start @ 14:35; pump stop @ 14:36</p> <p>pump start @ 14:37; pump stop @ 14:39</p>			
Ecological Observations:			
<p>C. jamaicense 0.75m tall</p>			

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 15:01	Date: 4-20-11		
Departure time: 15:18	Surveyors: HH		
Site/Grid: D9			
GPS Coordinates (NAD 1983)			
Latitude: N 25.36235	Longitude: W 80.36912		
Tidal conditions: —			
Air temp (°C): 33	Water depth: —		
Instrument: RR3 LSN 83595	Instrument Serial No: Unit 3		
Manufacturer: YSI In-Situ			
Sensor Model: AT 200	Sensor Serial No: 177108		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
5 cm	1229.97	27.85	Mod turb Low odor
60 cm	1446.29	28.95	<div style="display: flex; justify-content: space-between;"> <div> Low/Mild  <input checked="" type="checkbox"/> </div> <div> Moderate  <input type="checkbox"/> </div> <div> Strong/High  <input type="checkbox"/> </div> </div> Turbidity <input checked="" type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:
Temperature probe inserted at: —			
Temperature probe pulled out at: —			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
Pump start 15:03 ; Pump stop 15:10			
Pump start 15:14 ; Pump stop 15:16			
Ecological Observations:			
C. jamaicensis 0.8 m tall			

Arrival time: 15:29	Date: 4-20-11		
Departure time: 15:40	Surveyors: HH		
Site/Grid: W94/R			
GPS Coordinates (NAD 1983)			
Latitude: N 25.38823	Longitude: W 80.37487		
Tidal conditions: —			
Air temp (°C): 34	Water depth: —		
Instrument: RR3 LSN 83595	Instrument Serial No: Unit 3		
Manufacturer: YSI In-Situ			
Sensor Model: AT 200	Sensor Serial No: 177108		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
5	—	—	No note
60 cm	810.88	27.14	<div style="display: flex; justify-content: space-between;"> <div> Low/Mild  <input checked="" type="checkbox"/> </div> <div> Moderate  <input type="checkbox"/> </div> <div> Strong/High  <input type="checkbox"/> </div> </div> Turbidity <input checked="" type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:
Temperature probe inserted at: —			
Temperature probe pulled out at: —			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
Pump start 15:34 ; Pump stop 15:35			
Pump start 15:35 ; Pump stop 15:37			
Ecological Observations:			
C. jamaicensis 1.2 m tall			

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 14:28	Date: 4/20/11		
Departure time: 14:38	Surveyors: KV		
Site/Grid: <del>B8</del> B8			
GPS Coordinates (NAD 1983)			
Latitude: 25.34601	Longitude: 80.37024		
Tidal conditions: —			
Air temp (°C): 97°F = 36.1°C	Water depth: 0		
Instrument: RZ2	Instrument Serial No: 81640		
Manufacturer: YSI /In-Situ			
Sensor Model: A1100	Sensor Serial No: 155883		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
5	—		No water
50	548399	27.43	<div> <div> Low/Mild  <input type="checkbox"/> </div> <div> Moderate  <input checked="" type="checkbox"/> </div> <div> Strong/High  <input type="checkbox"/> </div> </div> <div> Turbidity  <input type="checkbox"/> </div> <div> H<sub>2</sub>S Odor  <input type="checkbox"/> </div> <div> Other:  <input checked="" type="checkbox"/> </div>
			<div> <div> Low/Mild  <input type="checkbox"/> </div> <div> Moderate  <input type="checkbox"/> </div> <div> Strong/High  <input type="checkbox"/> </div> </div> <div> Turbidity  <input type="checkbox"/> </div> <div> H<sub>2</sub>S Odor  <input type="checkbox"/> </div> <div> Other:  <input type="checkbox"/> </div>
			<div> <div> Low/Mild  <input type="checkbox"/> </div> <div> Moderate  <input type="checkbox"/> </div> <div> Strong/High  <input type="checkbox"/> </div> </div> <div> Turbidity  <input type="checkbox"/> </div> <div> H<sub>2</sub>S Odor  <input type="checkbox"/> </div> <div> Other:  <input type="checkbox"/> </div>
Temperature probe inserted at: ~			
Temperature probe pulled out at: —			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
pump start 14:30 stop 14:32			
pump start 14:33 stop 14:35			
Redside at 50 cm			
Ecological Observations:			
Cladium ~ 0.5m tall; open area surrounded by scattered trees, mostly cassinia + C. erectus			

Arrival time: 15:04	Date: 4/20/11		
Departure time: 15:23	Surveyors: KV		
Site/Grid: C8			
GPS Coordinates (NAD 1983)			
Latitude: 25.37444	Longitude: 80.37706		
Tidal conditions: N/A			
Air temp (°C): 36.1°C	Water depth: 0		
Instrument: RZ2	Instrument Serial No: 81640		
Manufacturer: YSI /In-Situ			
Sensor Model: A1100	Sensor Serial No: 155883		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
5	—		None
No Water			<div> <div> Low/Mild  <input type="checkbox"/> </div> <div> Moderate  <input type="checkbox"/> </div> <div> Strong/High  <input type="checkbox"/> </div> </div> <div> Turbidity  <input type="checkbox"/> </div> <div> H<sub>2</sub>S Odor  <input type="checkbox"/> </div> <div> Other:  <input type="checkbox"/> </div>
			<div> <div> Low/Mild  <input type="checkbox"/> </div> <div> Moderate  <input type="checkbox"/> </div> <div> Strong/High  <input type="checkbox"/> </div> </div> <div> Turbidity  <input type="checkbox"/> </div> <div> H<sub>2</sub>S Odor  <input type="checkbox"/> </div> <div> Other:  <input type="checkbox"/> </div>
			<div> <div> Low/Mild  <input type="checkbox"/> </div> <div> Moderate  <input type="checkbox"/> </div> <div> Strong/High  <input type="checkbox"/> </div> </div> <div> Turbidity  <input type="checkbox"/> </div> <div> H<sub>2</sub>S Odor  <input type="checkbox"/> </div> <div> Other:  <input type="checkbox"/> </div>
Temperature probe inserted at: —			
Temperature probe pulled out at: —			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
pump start 15:07; pump stop 15:10			
pump start stop			
After 10 attempts, no water could be collected at any depth.			
Ecological Observations:			
Cladium w/ cassipha. Cladium ~ 0.5m tall			
alg. (moderate)			

## 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 15:33 Date: 4/20/11  
Departure time: 15:46 Surveyors: KV

Site/Grid: C6  
GPS Coordinates (NAD 1983)  
Latitude: 25.39676 Longitude: 80.37731  
Tidal conditions:  
Air temp (°C): 95°F = 35°C Water depth: 0

Instrument: R22 Instrument Serial No: 81640  
Manufacturer: YSI/In-Situ  
Sensor Model: AT100 Sensor Serial No: 155883

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
5			None
60	2782.99	29.75	<div style="display: flex; justify-content: space-between;"> <div> Turbidity <input checked="" type="checkbox"/> Low/Mild  H<sub>2</sub>S Odor <input type="checkbox"/> Moderate <input type="checkbox"/> Strong/High  Other: </div> <div> Turbidity <input type="checkbox"/>  H<sub>2</sub>S Odor <input type="checkbox"/>  Other: </div> <div> Turbidity <input type="checkbox"/>  H<sub>2</sub>S Odor <input type="checkbox"/>  Other: </div> </div>

Temperature probe inserted at: —  
Temperature probe pulled out at: —  
Tracer Suite collected from 2 locations  
Volume collected: 1000 mL

Notes:  
pump start 15:35; stop 15:38  
pump start 15:41; stop 15:44  
bedrock ~45 cm on avg.

Ecological Observations:  
Open area w/ Cladophora ~0.5m tall on average. Very sparse Typha concinna also present

Arrival time: 16:06 Date: 4/20/11  
Departure time: 16:42 Surveyors: RV ~~ATED~~

Site/Grid: C5  
GPS Coordinates (NAD 1983): N25.40755 W80.37071  
Latitude: 25.3964 (K) Longitude: 80.37731  
Tidal conditions: (K)  
Air temp (°C): 91°F = 32.8°C Water depth: (K) 1

Instrument: KR2 Instrument Serial No: 81640  
Manufacturer: YSI / In-Situ  
Sensor Model: AT400 Sensor Serial No: 155353

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:																																								
5	—		No water																																								
60	5866.86	27.10	<table border="1"><thead><tr><th></th><th>Low/Mild</th><th>Moderate</th><th>Strong/High</th></tr></thead><tbody><tr><td>Turbidity</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>H<sub>2</sub>S Odor</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>Other:</td><td></td><td></td><td></td></tr><tr><td>Turbidity</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>H<sub>2</sub>S Odor</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>Other:</td><td></td><td></td><td></td></tr><tr><td>Turbidity</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>H<sub>2</sub>S Odor</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr><tr><td>Other:</td><td></td><td></td><td></td></tr></tbody></table>		Low/Mild	Moderate	Strong/High	Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:			
	Low/Mild	Moderate	Strong/High																																								
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											

Temperature probe inserted at: —  
Temperature probe pulled out at: —  
Tracer Suite collected from 2 locations  
Volume collected: 1000 mL

Notes:  
pump start 16:11 - stop 16:12  
pump start 16:13 - stop 16:15  
probe inserted to 91 cm w/o hitting bedrock

Ecological Observations:  
Cladrum ~ 0.25 m tall on avg. w/ C. erectus  
Scattered throughout ~ 1 m tall on avg (K)

Arrival time: 17:14		Date: 4/20/11	
Departure time: 17:52		Surveyors: KV, EH	
Site/Grid: E2			
GPS Coordinates (NAD 1983)			
Latitude: 29.44143		Longitude: 80.35645	
Tidal conditions:			
Air temp (°C): 40.0 = 32.2°C		Water depth: 0	
Instrument: RK3 + R2		Instrument Serial No: 8355/81640	
Manufacturer: YSI / In-Situ			
Sensor Model: AT200 AT100		Sensor Serial No: 177105/1555	

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:																																								
5	1007.88	27.68	-																																								
60	1095.21	26.53	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Low/Mild</th> <th>Moderate</th> <th>Strong/High</th> </tr> </thead> <tbody> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td colspan="3"> </td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td colspan="3"> </td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td colspan="3"> </td> </tr> </tbody> </table>		Low/Mild	Moderate	Strong/High	Turbidity	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:			
	Low/Mild	Moderate	Strong/High																																								
Turbidity	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											

Temperature probe inserted at: \_\_\_\_\_

Temperature probe pulled out at: \_\_\_\_\_

Tracer Suite collected from 2 locations

Volume collected: 1000 mL

Notes:

pump start 17:30 ; stop 17:40

pump start 17:41 ; stop 17:48

collected surface reading w/ AT 200 + collected 60 cm reading w/ AT 100

Ecological Observations:

Thick cladium ~ 1m tall avg

Scattered C. erectus across landscape

[illegible]



# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 16:53	Date: 4/20/11
Departure time: 17:03	Surveyors: KV
Site/Grid: D4	
GPS Coordinates (NAD 1983)	
Latitude: 25.41125	Longitude: 80.36532
Tidal conditions: -	
Air temp (°C): 90°F = 32.2°C	Water depth: 0
Instrument: RR2	Instrument Serial No: 81640
Manufacturer: YSI /In-Situ	
Sensor Model: AT460	Sensor Serial No: 155883

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
5			No water
60	2471.05	26.15	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> </div> <div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>

Temperature probe inserted at: =

Temperature probe pulled out at: =

Tracer Suite collected from 2 locations

Volume collected: 1000 mL

Notes:

pump start 16:55 stop 16:57  
 pump start 16:58 stop 17:00

Ecological Observations:

Cladium pruri, ~0.25 m tall an avg  
 Scattered R. nigrile (S. nigris) +  
 C. erectus snags (dead) present

Arrival time: 17:14	Date: 4/20/11
Departure time:	Surveyors: KV/HH
Site/Grid: E2	
GPS Coordinates (NAD 1983)	
Latitude: 25.44146	Longitude: 80.35642
Tidal conditions:	
Air temp (°C): 90°F	Water depth: 0
Instrument: RC3	Instrument Serial No:
Manufacturer: YSI /In-Situ	
Sensor Model: AT 200	Sensor Serial No: 147108

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
5	1007.88	27.68	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> </div> <div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
60			<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> </div> <div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>

Temperature probe inserted at: =

Temperature probe pulled out at: =

Tracer Suite collected from 2 locations

Volume collected: 1000 mL

Notes:

pump start 17:16 stop  
 pump start 17:16 stop  
 Attempted 10 different spots ~ could not collect any water.

Ecological Observations:

Cladium pruri Thick Cladium ~ 1m tall avg.  
 Scattered C. erectus across landscape.

Surface water was difficult to find but we were able to obtain enough for a sample

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 16:02	Date: 4-20-11		
Departure time: 16:44 (HCH)	Surveyors: HH		
Site/Grid: D6			
GPS Coordinates (NAD 1983)			
Latitude: N 25.39662	Longitude: W 80.36829		
Tidal conditions: —			
Air temp (°C): 33	Water depth: —		
Instrument: RR3/SN 83595			
Instrument Serial No: 3			
Manufacturer: YSI (In-Situ)			
Sensor Model: AT200	Sensor Serial No: 177108		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
5 cm	—	—	No water
60	706.38	26.92	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: —			
Temperature probe pulled out at: —			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
Pump start @ 16:06; Stop @ 16:07 Pump start @ 16:07; Stop @ 16:09			
Ecological Observations:			
Sparse Cladium jamaicense 0.75 m tall A few Typha 1.3 m tall Moderate to sparse Eleocharis cellulosa.			

Arrival time: 16:49	Date: 4-20-11		
Departure time: 17:07	Surveyors: HH		
Site/Grid: W6 A/S			
GPS Coordinates (NAD 1983)			
Latitude: N 25.40640	Longitude: W 80.36438		
Tidal conditions: —			
Air temp (°C): 34	Water depth: —		
Instrument: RR3/SN 83595			
Instrument Serial No: V11 + 3			
Manufacturer: YSI (In-Situ)			
Sensor Model: AT200	Sensor Serial No: 177108		
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
5 cm	—	—	No water
60	541.49	27.52	<div> <div>Low/Mild</div> <div>Moderate</div> <div>Strong/High</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> <div>Turbidity</div> <div>H<sub>2</sub>S Odor</div> <div>Other:</div> </div>
Temperature probe inserted at: —			
Temperature probe pulled out at: —			
Tracer Suite collected from 2 locations			
Volume collected: 1000 mL			
Notes:			
Pump start @ 16:55; pump stop @ 16:57 Pump start @ 16:58; pump stop @ 17:00			
Ecological Observations:			
Tree island 10 m past of western edge. Moderate Lygodium. Magnolia virginiana 4m tall Cephaelis 1m tall, Cladium 2 m tall Myrica grisea 3.5 m tall			

# 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 9:54	Date: 4/21/11																																										
Departure time: 10:31	Surveyors: KV, HH																																										
Site/Grid: GH-8																																											
GPS Coordinates (NAD 1983)																																											
Latitude: 25.37388	Longitude: 80.32500																																										
Tidal conditions: Incoming / Flood																																											
Air temp (°C): 30.0	Water depth: 14cm																																										
Instrument: RR3																																											
Instrument Serial No: 83595																																											
Manufacturer: YSI / In-Situ																																											
Sensor Model: AT 200																																											
Sensor Serial No: 177108																																											
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:																																								
0	63454.12	24.65																																									
<table border="1"> <tr> <td></td> <td>Low/Mild</td> <td>Moderate</td> <td>Strong/High</td> </tr> <tr> <td>Turbidity</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> </table>					Low/Mild	Moderate	Strong/High	Turbidity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:			
	Low/Mild	Moderate	Strong/High																																								
Turbidity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
60	51657.16	25.63																																									
Temperature probe inserted at: — Temperature probe pulled out at: — Tracer Suite collected from 2 locations Volume collected: 1000 mL																																											
Notes:																																											
pump start 9:56 ; stop 10:00																																											
pump start 10:01 ; stop 10:03																																											
probe inserted 91cm w/o hitting bedrock																																											
Ecological Observations:																																											
Scrub R. mangrove ~1.25 m tall. Marl substrate																																											

Arrival time: 12:51	Date: 4/21/11																																										
Departure time: 13:03	Surveyors: KV, HH																																										
Site/Grid: W5A/B W5A/B JH																																											
GPS Coordinates (NAD 1983)																																											
Latitude: 25.43024	Longitude: 80.35486																																										
Tidal conditions: N/A																																											
Air temp (°C): 27.0	Water depth: 0																																										
Instrument: RR3																																											
Instrument Serial No: 83595																																											
Manufacturer: YSI / In-Situ																																											
Sensor Model: AT 200																																											
Sensor Serial No: 177108																																											
Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:																																								
5	906.94	26.39																																									
<table border="1"> <tr> <td></td> <td>Low/Mild</td> <td>Moderate</td> <td>Strong/High</td> </tr> <tr> <td>Turbidity</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Turbidity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>H<sub>2</sub>S Odor</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other:</td> <td></td> <td></td> <td></td> </tr> </table>					Low/Mild	Moderate	Strong/High	Turbidity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:				Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:			
	Low/Mild	Moderate	Strong/High																																								
Turbidity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
Turbidity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
H <sub>2</sub> S Odor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																								
Other:																																											
60	842.29	26.89																																									
Temperature probe inserted at: — Temperature probe pulled out at: — Tracer Suite collected from 2 locations Volume collected: 1000 mL																																											
Notes:																																											
pump start 12:52 ; stop 12:53																																											
pump start 12:54 ; stop																																											
probe inserted 91cm w/o hitting bedrock																																											
Ecological Observations:																																											
located in a tree island. Understory dominated by Cladium w/ scattered Blechnum. canopy 1.5m tall dominated by C. erectus, M. Cerifera																																											
+ Salix ~ 4m on edge Cassipouira also present.																																											

## 2011 Initial Ecological Survey-Tracer Suite Sampling

Arrival time: 13:29 Date: 4/2/11  
 Departure time: 13:36 Surveyors: KV, HA

Site/Grid: E3  
 GPS Coordinates (NAD 1983)  
 Latitude: 35.43054 Longitude: 80.35606  
 Tidal conditions: N/A  
 Air temp (°C): 37.2°C Water depth: 0

Instrument: RP3 Instrument Serial No: SV 83545  
 Manufacturer: YSI / In-Situ  
 Sensor Model: AT 200 Sensor Serial No: 177108

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
<u>5</u>	<u>1437.92</u>	<u>27.14</u>	
<u>60</u>	<u>1322.93</u>	<u>27.70</u>	<div style="display: flex; justify-content: space-between;"> <div>           Turbidity <input type="checkbox"/>            H<sub>2</sub>S Odor <input checked="" type="checkbox"/>            Other:         </div> <div>           Low/Mild <input type="checkbox"/> Moderate <input type="checkbox"/> Strong/High <input checked="" type="checkbox"/> </div> </div>
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:
			Turbidity <input type="checkbox"/> H <sub>2</sub> S Odor <input type="checkbox"/> Other:

Temperature probe inserted at: —  
 Temperature probe pulled out at: —  
 Tracer Suite collected from 2 locations  
 Volume collected: 1000 mL

Notes:

pump start 13:26 - stop 13:28  
pump start 13:29 - stop 13:30  
probe inserted 91 cm w/o hitting bedrock

Ecological Observations:

Cladium ~1 m tall w/ scattered R. scrub  
R. mangrove intermixed ~0.4 m tall - point  
adjacent to a small tree island.

Arrival time: 14.18		Date: 4/21/0	
Departure time: 14:29		Surveyors: KV, AH	
Site/Grid: W4A/15			
GPS Coordinates (NAD 1983)			
Latitude: 15.4598		Longitude: 80.36560	
Tidal conditions: -			
Air temp (°C): 99°F = 37.2°C		Water depth: 0	
Instrument: PRS		Instrument Serial No: 9183595	
Manufacturer: YSI (In-Situ)			
Sensor Model: AT 102		Sensor Serial No: 60177108	

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
5	—		No H <sub>2</sub> O
60	3834.14	27.93	<div style="display: flex; justify-content: space-between; font-size: small;"> <span>Low/Mild</span> <span>Moderate</span> <span>Strong/High</span> </div> <div style="display: flex; justify-content: space-between;"> <div>Turbidity <input checked="" type="checkbox"/></div> <div>H<sub>2</sub>S Odor <input checked="" type="checkbox"/></div> <div>Other: yellow tint</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Turbidity <input type="checkbox"/></div> <div>H<sub>2</sub>S Odor <input type="checkbox"/></div> <div>Other:</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Turbidity <input type="checkbox"/></div> <div>H<sub>2</sub>S Odor <input type="checkbox"/></div> <div>Other:</div> </div>

Temperature probe inserted at: -  
 Temperature probe pulled out at: -  
 Tracer Suite collected from 2 locations  
 Volume collected: 1000 mL

Notes:  
 pump start 14:18 = stop 14:21  
 pump start 14:21 = stop 14:23  
 probe inserted 91 cm w/o hitting bedrock

Ecological Observations:  
 Located in a tree island infested w/ Lygodium & poison ivy. understory dominated by Cladium Blechnum, + Lygodium. canopy dominated by dead Cassipouera + Brazilian Pedoe. Lianas ~ 5m

[illegible][illegible]

Arrival time: 8:46 Date: 4/22/11  
Departure time: 9:00am. Surveyors: JFV NM

Site/Grid: N3A/B  
GPS Coordinates (NAD 1983)  
Latitude: N 25.39377 Longitude: W 80.32431  
Tidal conditions: Low  
Air temp (°C): 25.7 Water depth: 0

Instrument: LK-3 Instrument Serial No: 83595  
Manufacturer: YSI / In-Situ  
Sensor Model: AT 200 Sensor Serial No: 177108

Depth (cm)	Spec. Cond. (µS/cm)	Temp (°C)	Notes:
60	54281.6	24.92	
			<div style="display: flex; justify-content: space-between;"> <div> <input checked="" type="checkbox"/> Low/Mild  <input type="checkbox"/> Moderate  <input checked="" type="checkbox"/> Strong/High </div> <div> Turbidity  H<sub>2</sub>S Odor  Other: </div> </div>
5cm	⇒ No water		<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> Low/Mild  <input type="checkbox"/> Moderate  <input type="checkbox"/> Strong/High </div> <div> Turbidity  H<sub>2</sub>S Odor  Other: </div> </div>
			<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> Low/Mild  <input type="checkbox"/> Moderate  <input type="checkbox"/> Strong/High </div> <div> Turbidity  H<sub>2</sub>S Odor  Other: </div> </div>

Temperature probe inserted at: N/A  
Temperature probe pulled out at:  
Tracer Suite collected from 2 locations  
Volume collected: 1000 mL

Notes: Pump start at 8:47. Stop at 8:50  
8:50 - start pump. 8:51 Stop pump.

Ecological Observations: Red mangrove w/ sparse individuals & white mangrove and Black Mangrove at avg ht of 2.10 m - moderately dense

[illegible]

# **APPENDIX E: CALIBRATION LOG SHEETS**

# **Specific Conductance Calibration April 2010**



Please Note:

- Prior to the September 2010 broad-scale porewater sampling event, specific conductance and temperature calibration/verification information was recorded daily in sampling field books. Field instrument calibration forms were adopted and have continued to be used since the beginning of the September 2010 sampling event.
- Mid-day specific conductance and temperature verifications were performed and recorded daily during the April 2010 and August 2010 sampling events.
- There is no temperature field instrument calibration form for the September 2010 sampling event because porewater temperature was recorded using a NIST certified TCTemp1000 temperature probe data logger instead of the AquaTroll 100.

002952.FC09

Partly Cloudy 18.6°C

3/18/2010

Sharon Eve, Kristin Vaughan, Jennifer Vega

Arrive on site at point 69 at 9:00 am  
held Health and Safety Meeting at 9:05 am

Plan to conduct porewater sampling  
for the day along the eastern edge  
of cooling canal system off of the  
easternmost levee from 69-64 on porewater  
sampling grid

9:30 am - Working to prepare In Situ  
Probes + Rugged Readers for calibration

Rugged Reader Unit 1 w/ Aquatroll Unit 4  
~~Reading before calibration:~~ (20)

Calibration solution used: 12890  $\mu$ S

Initial Reading:

Spec Cond = 12158.92  $\mu$ S 9:42 am

12220.44  $\mu$ S

9:43 am

not yet stable

11405.894  $\mu$ S

9:44 am

9:51:05 sec

stabilized

11405.739  $\mu$ S

9:51:35 sec

11405.929  $\mu$ S

9:51:45 sec

BPS - PW Book 1

1 "Kitt in the Rain"

002952.F09

3/18/2010

Pre Calibration reading for RR #2, In situ  
probe #6Spec cond 12827.728  $\mu\text{s}$  10:01:2412832.286  $\mu\text{s}$  10:01:3412833.186  $\mu\text{s}$  10:01:34Calibration of Probe #6 Cell constant = 0.992  
Normal + full stability  $\rightarrow$  yes @ 10:20 amReading of 12890  $\mu\text{s}$  standard12879.49  $\mu\text{s}$  10:14:3312869.62  $\mu\text{s}$  10:14:4312858.649  $\mu\text{s}$  10:14:53Reading of 58670  $\mu\text{s}$  standard58090.039  $\mu\text{s}$  10:26:1858160.617  $\mu\text{s}$  10:26:2858121.406  $\mu\text{s}$  10:26:38Reading of 147  $\mu\text{s}$  Standard206.580  $\mu\text{s}$  10:33:49206.812  $\mu\text{s}$  10:33:59207.016  $\mu\text{s}$  10:34:09

2

BPS-PW Book 1

X

002952.F09

3/18/2010

Arrived @ G-9 @ 11:10 AM

- change point location because original point  
was only 20m away from levee

Porewater site G-9 at N 25.36279 -80.33158

Leave site at 11:42 am

Attempted porewater instrument - does not  
work

12:11 pm Arrived at G-8 - moving

site further from levee

New G-8 site @ N 25.37397 W-80.33097

Surface water present throughout the  
site

Calibration verification at 12:12 pm

w/ standard of 58670  $\mu$ S

Reading - 57839.66

~~57858~~ 57858.08

- 57871.29

Logged - 57.867.458 12:19:50 26.1°C

57.916.246 12:20:00 26.1°C

57.866.039 12:20:10 26.1°C

Leave site at 12:44 pm

BPS- PW Book 1

3 "Rite in the Rain"

002952 F09

Partly Cloudy 20.8°C

3/21/10

Sharon Ewe, Kristin Vaughan, Jennifer Vega

7:25 AM Calibration of Instruments

Unit 1 w/ unit 4

Temperature calibration

Initial Reading Rugged Reader: ~~23.5°C~~ <sup>27.9°C</sup> 23.4°C KV

Initial Reading NIST thermometer: ~~23.2°C~~ <sup>28.0°C</sup> KV

→ @ Room Temperature

Initial Reading RR @ > 30°C: 35.2°C

Initial Reading ~~RR~~ NIST @ > 30°C: 35.5°C

Initial Reading RR @ < 5°C: 0.6°C

Initial Reading ~~RR~~ <sup>NIST KV</sup> @ < 5°C: 0.1°C  
Fluke

Unit 2 w/ unit 5

Sp. Conductance cell calibration

Cond. Standard: 12890  $\mu$ S

Initial Reading: 12776

Calibration cell constant: 1.006; Normal + Full

Stability achieved.

Post calibration Readings:

12890 reading: 12915

58670 reading: 58773

147 reading: 214

8

BPS - PW Book 1



002952.F209

3/21/2010

Unit 2 w/unit 5 8:15 AM

Temperature Calibration

accidentally not logged

Initial Reading RP@roomtemp: ~~28.2°C~~ 24.5°CInitial Reading NIST@roomtemp: ~~28.1°C~~ 24.6°C

Initial Reading RP@ &gt;30°C: 33.3

Initial Reading NIST@ &gt;30°C: 33.0

Initial Reading RP@ &lt;5°C: 0.671°C

Initial Reading NIST@ &lt;5°C: 2.1°

Initial Reading Fluke@ &lt;5°C: 2.1°

Unit 1 w/unit 4 8:20 AM

Sp. Conductance Calibration

Conductivity standard: 12890  $\mu$ S

Initial reading: 12860

Calibration:

cell constant: 0.990; Normal + Full stability achieved

Reading @ 12890  $\mu$ S: } too high - Calibration repeatedReading @ 58670  $\mu$ S: } (no log taken)Reading @ 147  $\mu$ S:

Repeat Calibration

cell constant: 0.988; Normal + Full stability achieved

→

BPS-PW Book 1

9 "All in the Name"

009952.F09

3/21/2010

Reading @ 1289 Qs: 12886  $\mu$ S

Reading @ 58670  $\mu$ S: 58023  $\mu$ S

Reading @ 147  $\mu$ S: 268  $\mu$ S

(K)

002952.FC09

# Probe Verification

3/21/10

Performed at 2:42 PM

Reading at 58670  $\Rightarrow$  58549  $\mu$ S

Temp at 58670  $\Rightarrow$  30.8°C

Reading at 12890  $\Rightarrow$  12988  $\mu$ S

Temp at 12890  $\Rightarrow$  30.2°C

Reading at 147  $\Rightarrow$  253.68  $\mu$ S

Temp at 147  $\Rightarrow$  31.2°C

KJ



002952. F009

3/21/10

Calibration for 3/22/10

Reader #2, Insite Aquatroll #5

Initial reading of standard of 12,890  $\mu$ S

Reading = 13084  $\mu$ S at 10:41 pm

After calibration cell constant is 0.994  
at 12890  $\mu$ S standard

After calibration, read test w/ 12890  $\mu$ S

Standard = 12898 12899  $\mu$ S @ 10:55 pm

test with standard of 147  $\mu$ S

- read <sup>(P)</sup> ~~289.850~~ 28290  $\mu$ S @ 11:12 pm

standard = 58670  $\mu$

- read <sup>(P)</sup> is ~~57983~~ 57984 @ 11:21 pm

Temperature calibration Reader 2 + Troll #5

RR @ Room temp  $\Rightarrow$  24.5°C

NIST @ Room temp  $\Rightarrow$  24.3°C

Fluke @ Room temp  $\Rightarrow$  24.2°C

RR @ >30°C  $\Rightarrow$  39.5°C

NIST @ >30°C  $\Rightarrow$  37.6°C

Fluke @ >30°C  $\Rightarrow$  37.0°C

RR @ <5°C  $\Rightarrow$  ~~3.8~~ 3.5°C

NIST @ <5°C  $\Rightarrow$  3.8°C <sup>(N)</sup>

Fluke @ <5°C  $\Rightarrow$  4.1°C

16

BPS-PW Book 1

3/21/10

Calibration for 3/22/10

RReader #1 Aquatroll #4

Temperature CalibrationRR @ room temp  $\Rightarrow 23.9^{\circ}\text{C}$ NIST @ room temp  $\Rightarrow 23.9^{\circ}\text{C}$ Thermistor @ room temp  $\Rightarrow 23.9^{\circ}\text{C}$ RR @  $> 30^{\circ}\text{C} \Rightarrow 52^{\circ}\text{C}$ NIST @  $> 30^{\circ}\text{C} \Rightarrow 51.8^{\circ}\text{C}$ Thermistor @  $> 30^{\circ}\text{C} \Rightarrow 51.3^{\circ}\text{C}$ RR @ ~~21.8~~ Low  $\Rightarrow 8.8^{\circ}\text{C}$ NIST @ Low  $\Rightarrow 8.9^{\circ}\text{C}$ Thermistor @ Low  $\Rightarrow 9.0^{\circ}\text{C}$ Conductivity CalibrationInitial Reading of 12890  $\mu\text{S} \Rightarrow 12746 \mu\text{S} @ 21.8^{\circ}\text{C}$ 

Post calibration:

Reading @ 12890  $\mu\text{S} \Rightarrow 12753 \mu\text{S} @ 22.4^{\circ}\text{C}$ Reading @ 147  $\mu\text{S} \Rightarrow 162 \mu\text{S} @ 21.6^{\circ}\text{C}$ Reading @ 58670  $\mu\text{S} \Rightarrow 59223 @ 21.5^{\circ}\text{C}$ 

(20)

002952. F009

Arrived @ 1:34 PM

3/22/10

Site ~~W3b~~ W3b @ N: 25.43626 W: 80.38894

Site W3b is north of W3a

Site very similar to W3a

Brazilian pepper, Cocoplum, Myrica

and Persea sp. at site ~~free~~

Herbaceous Blechnum and Cocoplum

sapling. Site dominated by dead

Blechnum fronds.

3 samples obtained. Left site @ 1:58 PM

Midday Verification for Sp. Conductivity

(K) ~~Reading~~ @ 2:34 PM 322 (K)

Reading at 147  $\mu$ S: 322  $\mu$ S Temp: 22.1

Reading at 12890  $\mu$ S: 12729  $\mu$ S Temp: 23.1

Reading at 58670: 58353 Temp: 23.4

Arrived at site W5a @ 2:53 PM

N: 25.43027 W: 80.35482

Site located ~ 30m west of original point

to stay 50m from levee.

- Located w/in ~~river~~ <sup>(K)</sup> system old riverine system

- Canopy dominated by Cassipouira, Myrica

BFS-PW Book 1

23 "lit in the rain"

002952.F09

Calibration of Instruments for 3/22/10  
 Conducted late 3/22/10 & units kept on.

SPEC. CONDUCTANCE

Units 1 (Rugged Reader) &amp; 4 (AquaTroll 100)

Initial read @ 12,890  $\mu\text{S}/\text{cm}$ ; 12,753  $\mu\text{S}/\text{cm}$ ; 10:51 pm

After calibration reads using a  
 3 pt. verification:

Std ( $\mu\text{S}/\text{cm}$ )	Read ( $\mu\text{S}/\text{cm}$ )	Time
147	159162	10:56 pm
12,890	12,898	10:55
58,670	59,223	11:03

Units 3 (Rugged Reader) &amp; AquaTroll 6

Initial read @ 12,890  $\mu\text{S}/\text{cm}$ ; 12,850  $\mu\text{S}/\text{cm}$ ; 10:13 pm

After calibration, 3-pt verification:

Std ( $\mu\text{S}/\text{cm}$ )	Read ( $\mu\text{S}/\text{cm}$ )	Time:
12,890	12,899	10:17 pm
147	172	10:20 pm
58,670	58953	10:22 pm

TEMPERATURE

	Temp (°C)		RR#1	RR#3
	NIST	Thermistor	Unit Troll 4	Troll 6
Mid	26.1	25.9	26.0	26.0
High	36.5*	35.6*	35.7	35.8
Low	6.0	6.6	5.4	5.5

\*values checked. okay.

27° in the room.

BPS-PW Book 1



002952. F009

3/23/10

Left site @ 12:02 PM

Dropped key w/ Monica @ 12:35 pm  
Arr @ Palm Drive near F2 @ 12:55.

Midday ~~can~~ verification.

Cond.	Reading	Temp.
147	189	26.4
12,890	12901	26.2
58,670	59190	26.2

F2 kv

Arrive @ ~~F2~~ at 1:26 PM

N 25,44176 W 80,34356

- Site located in a patch of ~~saw~~ Juncus  
w/ intermixed sawgrass + sparse scrub  
red mangroves

- Ground covered w/ periphyton 1 cm thick  
periphyton layer

- Samples have distinct  $H_2S$  odor.

Left site @ 1:45 PM

Arrive @ W1A at 2:21

N 25,44676 W 80,37180

- Site located in old riverine system

- canopy dominated by Brazilian Pepper,  
Salix, ~~Conocarpus~~, and Myrica

30

BFS - PW Book 1

002952. FLO1

Calibration of Instruments for 3/24/10  
 Conducted late 3/23/10 and units kept on.

### SPECIFIC CONDUCTANCE

Units: 2 (Rugged Reader) & 5 (Aquatroll 100)

- 1) Initial read for 12,890 @ 25°C: 12,411  $\mu\text{S}/\text{cm}$  @ 22.4°C
- 2) Calibration cell constant: 1.009 (full stability achieved)
- 3) 3-pt verification: 

Std ( $\mu\text{S}/\text{cm}$ )	Read ( $\mu\text{S}/\text{cm}$ )	Temp (°C)
12,890	12,900	22.4
147	199	22.9
58670	59065	22.8

Units: 1 (Rugged Reader) & 4 (Aquatroll 100)

- 1) Initial read for 12,890  $\mu\text{S}/\text{cm}$  @ 25°C: 12,868 @ 22.9°C
- 2) Calib. cell constant: 1.002 (full stability achieved)
- 3) 3-pt verification: 

Std ( $\mu\text{S}/\text{cm}$ )	Read ( $\mu\text{S}/\text{cm}$ )	Temp (°C)
12,890	12,903	22.9
147	201	22.8
58670	58788	22.8

### TEMPERATURE

	Temp (°C)	Setup 1		Setup 2	
		NIST	RR #2, Troll 5	RR #1, Troll 4	NIST
Mid	(ambient)	24.1	24.2	23.9	24.0
High	(> 30°C)	36.5	35.9 36.0	36.2	36.5
Low	(< 5°C)	5.9	5.8	6.2	6.0

34

BPS - PW - Book 1

002952.F009

3/24/11

Leave C8 @ 1:47 pm

Arrive at C7 @ 1:50 @ N25.38549 W80.38023

Sawgrass marsh w/ periphyton on the ground  
Original site is 80m to the west. Tree Islands  
dot the surrounding area

Depth to bedrock is 40.0cm

Six attempts made to reach 60cm

2 porewater samples surveyed.

Leave site at 2:03 pm

Site W9a arrive at 2:09 pm - landed.

Midday verification of RRI, Probe #4

147  $\mu$ s Standard - Reading  $\Rightarrow$  214.01  $\mu$ s  
@ 26.4°C @ 2:17 pm

12890  $\mu$ s Standard - Reading of  $\Rightarrow$  1953  $\mu$ s  
@ 26.27.0°C @ 2:21 pm

58,670  $\mu$ s Standard - Reading of  $\Rightarrow$  59,239  $\mu$ s  
@ 27.3°C @ 2:26 pm

KV and SE went into <sup>(REV)</sup> ~~the~~ Island to

BPS- PW Book 1

43 "At the Rain"

002952. F009

Calibration of Instruments for 3/25/10 3/24/10  
 Conducted 3/24/10 p.m. & units kept on.

### SPECIFIC CONDUCTANCE

Units: 1 (Rugged Reader) & 4 (AquaTroll 100)

- 1) Initial read for 12,890  $\mu\text{S}/\text{cm}$  @ 25°C: 12906 @ 24.8°C
- 2) Calibration cell constant: 1.002 (Full stability achieved)
- 3) 3-pt verification:
 

Std ( $\mu\text{S}/\text{cm}$ )	Read ( $\mu\text{S}/\text{cm}$ )	Temp (°C)
12890	12906	23.5
147	219	22.6
58670	58754	22.4

Units: 2 (Rugged Reader) & AquaTroll #5

- 1) Initial read for 12,890  $\mu\text{S}/\text{cm}$ : 12946 @ 22.2
- 2) Calib. cell constant: 1.008 (Full stability achieved)
- 3) 3-pt verification:
 

Std ( $\mu\text{S}/\text{cm}$ )	Read ( $\mu\text{S}/\text{cm}$ )	Temp (°C)
12890	12901	23.5
147	219	23.1
58670	58724	22.7

### TEMPERATURE

Temp	NIST (°C)	RR1	RR2
Mid	24.1	23.9	24.3
High	33.3	32.9	32.9
Low	7.0	6.7	6.7

50

BPS-PW Book 1



002952. FCO9

3/25/10

11:20am E12, F12, C13 - currently flooded  
unable to land. B13 also flooded

B12 unable to land.

C12 unable to land.

F11 unable to land - need car to go down

E11 - open areas are flooded - unable  
to land, may be able to land take  
car down to remnant roads

D11, C11, B11, unable to land

11:34am - Head back to Turkey Pt. helipad

11:40am - Arrive at Helipad

Arrived @ F11 @ <sup>(10)</sup> 1:01 PM

N. 25.34045 W 80.34590

- located in a scrub red mangrove surrounded  
by tree islands

- tree islands w/in a 150m radius of  
site

- substrate is very soft marl

Leave site @ 1:17 PM

Midday verification @ 1:28 PM

Reading at 12890  $\Rightarrow$  12907 mS

Temp at 12890  $\Rightarrow$  27.2°C

BPS - PW Book 1

55 "Kite in the Rain"

002952 F109

Instrument calibration for 3/26/10

3/25/10

Conducted on 3/25/10 by Sharon Ewe

SPECIFIC CONDUCTANCE

Units: 1 (Rugged Reader) &amp; 4 (AquaTroll)

1) Initial read for 12,890  $\mu\text{S}/\text{cm}$  @ 25°C: 12919  $\mu\text{S}/\text{cm}$  @ 20.5

2) Calibration cell constant: 1.001

3-pt. verification: Std ( $\mu\text{S}/\text{cm}$ )	Read ( $\mu\text{S}/\text{cm}$ )	Temp (°C)
12,890	12905	20.5
147	158	22.0
58,670	59564	22.6

Units: 2 (Rugged Reader) &amp; 5 (AquaTroll)

1) Initial read for 12,890  $\mu\text{S}/\text{cm}$  @ 25°C: 12,865 @ 20.7

2) Calibration cell constant: 1.012

3-pt. verification: Std ( $\mu\text{S}/\text{cm}$ )	Read ( $\mu\text{S}/\text{cm}$ )	Temp (°C)
12,890	12,886	20.7
147	161	22.2
58,670	58,686	22.3

TEMPERATURE

Temp	NIST	RR.1	RR.2
Mid	24.1	24.0	24.0
High	35.5	35.6	35.7
Low	5.4	5.3	5.5

BPS - PW Book 1

57 "Rite in the Rain"

002952.FLO9

3/26/10

Arrive at F12 at 3:46 PM

N 25.32921 W 80.34426

- Soil saturated - Mangrove peat
- Red mangrove forest ~ 8m tall
- 20 m from fringe
- 40 & 60 cm samples have strong  $\frac{1}{2}$  S odor
- Mangrove forest ~ 8m tall  $\Rightarrow$  monospecific canopy

Left site @ 3:55 PM

Arrive @ E13 at 4:50 PM

N. 25.31777 W. 80.35654

- Substrate silt/sand w/ thick *Thalassia* bed covering the ground.

Leave site @ 5:15 PM

Midday verification performed in the evening  
@ 9:45 PM

Reading ~~for~~ for 12890  $\Rightarrow$  12340  $\mu$ S; Temp 20.6°C  
(KV)

KV

002952, FLOW

Midday verification

3/22/10

done at end of day (10.00.20 pm)

Reading at  $147 \mu\text{S/cm}$  :  $166 \mu\text{S/cm}$ ,  $20.9^\circ\text{C}$

$12890 \mu\text{S/cm}$  :  $12776 \mu\text{S/cm}$ ,  $22.5^\circ\text{C}$

$58670 \mu\text{S/cm}$  :  $58816 \mu\text{S/cm}$ ,  $21.3^\circ\text{C}$

JFV

BPS-PW Book 2

002952. FLO9

Instrument calibration for 3/27/10 <sup>(SE)</sup> 3/26/10  
 Conducted on 3/26/10 by Sharon Ewe

### SPECIFIC CONDUCTANCE

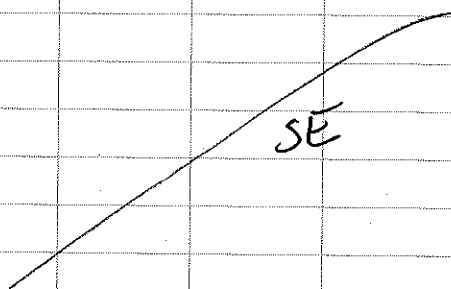
Unit: 1 (Rugged Reader) & 4 (AquaTroll)

- 1) Initial read @ 12,890  $\mu\text{S}/\text{cm}$  @ 25°C: 12,847 @ 20.5°C
- 2) Calibration cell constant: 1.006 (full stability achieved)
- 3) 3-pt. verification: Std ( $\mu\text{S}/\text{cm}$ ) Read ( $\mu\text{S}/\text{cm}$ ) Temp (°C)

12,890	12,899	20.6
147	179	21.6
58,670	58,833	22.4

### TEMPERATURE

Temp	NIST Thermometer	Rugged Reader 1
mid	26.2	25.9
High	36.5	36.0
Low	6.7	6.8



BPS-PW Book 2

5 "Rite in the Rain"



3/27/10

Arrive at G46 at 12:51 PM

N. 25. 39646 W 80. 32489

- all 3 samples smelled of  $H_2S$
  - Moderate *Thalassia* coverage w/ some brown algae
  - Substrate sandy/silty w/ shell hash
- Left site @ 1:17 PM

Arrive at H6 @ 1:28 PM

N 25, 39652 W 80. 31899

- ② - Depth to bedrock ~ 48 cm after >10 attempts
  - samples had  $H_2S$  odor
  - Moderate *Thalassia* coverage on silty substrate
- Left site @ 1:47 PM

Midday verification performed at 12:35 PM

~~Reading at 12890~~ → ②Reading at 58670 → 58175  $\mu S$ 

Temp → 25.7°C ②

- Note: Field day notes ~~were~~ recompiled for 3/27/10 were recompiled after the field day ended, but midday verification was entered into field book on 3/27/10. That's why it is out of order.

3/30/10

Conductivity calibration for 3/31/10

Rugged Reader 2, Troll #5

Initial Reading @ 12890  $\mu\text{S}$   $\Rightarrow$  12911  $\mu\text{S}$  at 22.3°C

Post calibration readings

Standard	Reading	Temp
12890 $\mu\text{S}$	12902 $\mu\text{S}$	23.0°C
147 $\mu\text{S}$	167 $\mu\text{S}$	22.9°C
58670 $\mu\text{S}$	59488 $\mu\text{S}$	22.8°C

Calibration info: standard used - 12890  $\mu\text{S}$ 

Cell constant - 1.012

Temp calibration

Rugged Reader 2, Troll #5

	Probe	NIST	Thermistor
Ambient	30.0°C	30.7°C	29.5°C
High	60.8°C	61.0°C	60.7°C
Low	0.4°C	0.5°C	0.3°C

3/30/10

Conductivity Calibration for 3/31/10

Rugged Reader 3 and Troll 6

Initial Reading @ 12890  $\mu\text{S}$   $\Rightarrow$  12752  $\mu\text{S}$   
at 23.6 $^{\circ}\text{C}$ Calibration Info: Standard used - 12890  $\mu\text{S}$   
Cell constant - 1.006

Post Calibration Readings

Standard	Reading	Temp
12890 $\mu\text{S}$	12920 $\mu\text{S}$	23.6 $^{\circ}\text{C}$
147 $\mu\text{S}$	179 $\mu\text{S}$	23.3 $^{\circ}\text{C}$
58670 $\mu\text{S}$	59375 $\mu\text{S}$	23.3 $^{\circ}\text{C}$

Temp Calibration

Rugged Reader 3 Troll 6

	Probe	NIST	Thermistor
Ambient	29.9 $^{\circ}\text{C}$	30.7 $^{\circ}\text{C}$	29.5 $^{\circ}\text{C}$
High	<del>60.3<math>^{\circ}\text{C}</math></del> $\text{C}$	61.0 $^{\circ}\text{C}$	60.7 $^{\circ}\text{C}$
Low	<del>0.5<math>^{\circ}\text{C}</math></del> $\text{C}$	0.5 $^{\circ}\text{C}$	0.3 $^{\circ}\text{C}$
	60.3 $^{\circ}\text{C}$		
	0.5 $^{\circ}\text{C}$		

PV



002952.F009

3/31/10

Arrive at BB6B @ 1:09 PM

N.25.40601 W80.32898

- site located ~3m SE of BB-6A
  - sediment very silty
  - very sparse *Thalassia* observed
  - line of red mangroves near the point, including several juveniles
  - samples smelled of  $H_2S$
- Left site @ 1:23 PM

Midday verification performed @ 1:40 PM

Reading @ 12890  $\mu S \Rightarrow 12853 \mu S @ 23.3^\circ C$

Arrive @ BB8A @ 1:46 PM

N.25.40236 W80.31955

- Site located in a very dense patch of seagrass in an otherwise barren landscape
  - located in a very dense patch of *Thalassia* w/ sparse to moderate *Halodule* mixed in
  - Site is located close to the middle of the patch of grass
  - samples smell of  $H_2S$
- Left site @ 2:13 PM

C02952.F009

3/31/10

Conductivity Calibration for 4/1/10

RR 1 and Troll 4

Initial Reading @ 12890  $\mu\text{S}$   $\Rightarrow$  12695  $\mu\text{S}$  at  
24.4°CCalibration info  $\Rightarrow$  standard used: 12890  $\mu\text{S}$   
cell constant: 1.001

Standard	Reading	Temp
12890 $\mu\text{S}$	12870	<del>24.8</del> 25.0
147 $\mu\text{S}$	201.86	24.9
58670 $\mu\text{S}$	59059	24.8

Temperature Calibration for 4/1/10 (performed on 4/1/10)

RR 1 and Troll 4

	Probe	NIST
Ambient	21.7°C	22.3°C
High	57.7°C	58.4°C
Low	1.7°C	1.9°C

BPS -FW Book 2

23 "Rite in the Rain"

3/31/10

Calibration for 4/1/10

RR1 and Trolly

Initial Reading @ 12890  $\mu$ S  $\Rightarrow$  13308  $\mu$ S at  
24.9°CCalibration info  $\Rightarrow$  standard used: 12890  $\mu$ S  
cell constant: 0.985

Standard	Reading	Temp
12890 $\mu$ S	12879 $\mu$ S	25.4
147 $\mu$ S	223.31 $\mu$ S	25.2
58670 $\mu$ S	57544 $\mu$ S	25.1

Temperature Calibration for 4/1/10 (performed on 4/1/10)

	NIST	Probe
Ambient	22.3°C	21.7°C
High	58.4°C	57.7°C
Low	1.9°C	1.8°C

(KW)

002952. FC09

4/1/10

- Difficult to retrieve samples below 20 cm - substrate becomes a thick clay at 40+ cm
- Samples smell of  $H_2S$
- Moderate *Thalassia* coverage
- 2 jelly fish <sup>Ⓢ</sup> noted drifting in the water column.

Left site @ 1253 PM

Middling Verification at 1259 PM

Reading @ 12890  $\mu S \Rightarrow 13236 \mu S @ 24^\circ C$

\*changed out standard & re-verified

Second reading (w/new standard) @ 12890  $\mu S \Rightarrow 12950 \mu S @ 22.8^\circ C$

Arrive @ F14 at 1:02 PM

N 25.30638 W 80.34386

- Samples smell of  $H_2S$
  - 40 cm sample contained sediment
  - Moderate *Thalassia* coverage w/ heavy <sup>Ⓢ</sup> drift algae
  - Some *Dasyatis* present
  - Sandy shell hash substrate
- Left site @ 1:43 PM

4/1/10

Calibration for 4/2/10

Reader 2 and Troll 5

Initial Reading @ 12890  $\mu\text{S}$   $\Rightarrow$  12481  $\mu\text{S}$  @  
21.4°CCalibration Info: standard used  $\Rightarrow$  12890  $\mu\text{S}$   
cell constant  $\Rightarrow$  1.016

Standard	Reading	Temp
12890 $\mu\text{S}$	12903	21.7°C
147 $\mu\text{S}$	181.22	21.6°C
58670 $\mu\text{S}$	59538	21.6°C

Temp calibration (Performed 4/2/10)

	Probe	NIST
Ambient	23.0°C	23.1°C
High @	63.1°C	63.3°C
Low	4.8°C	4.7°C

002952. FCO9

4/11/10

Calibration for 4/2/10

RReader 3 and Troll 6

Initial Reading @ 12890  $\mu$ S  $\Rightarrow$  12793  $\mu$ S  
@ 21.3°C

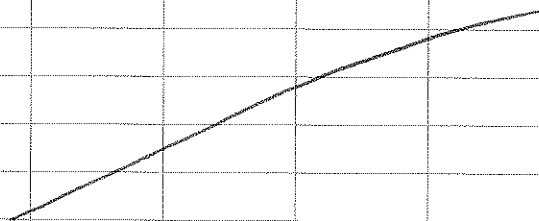
Calibration info: Standard used - 12890  $\mu$ S

Cell constant - 1.014

Standard	Reading	Temp
12890 $\mu$ S	12895 $\mu$ S	21.4
147 $\mu$ S	202.35 $\mu$ S	21.5
58670 $\mu$ S	59235 $\mu$ S	21.7

Temperature Calibration (performed 4/2/10)

⑥	Probe	NEST
Ambient	22.9°C	23.1°C
High	60.2°C	60.8°C
Low	4.7°C	4.7°C





002952.F609

4/2/10

Leave H1 @ 12:32 PM

Midday verification performed @ 12:35 PM

Standard used  $\Rightarrow$  12890  $\mu$ S

Reading - 12936  $\mu$ S @ 24.1°C

Arrive @ G41 at 12:50 PM

N. 25.45267 W 80.32500

- Avg depth to bedrock ~ 5-8 cm

- sparse drift algae

- coarse sand shell hash

Ⓢ - samples smell of  $H_2S$

Leave @ 1:06 PM

Arrive @ G1 at 1:15 PM

N. 25.45279 W 80.33071

- Depth to bedrock avg 15-25 cm

- samples smell of  $H_2S$

- Moderate ~~th~~Ⓢ Thalassia w/ extensive drift algae coverage

- Some red algae noted

Leave @ 1:37 PM

Stopped in at the Marina @ 1:45 PM

BPS-PW Book 2

35 *lit in the Rain*

002952.FC09

4/2/10

Conductivity calibration for 4/3/10

RReader 3 and Troll 6

Initial Reading @ 12890  $\mu\text{S}$   $\Rightarrow$  12979  $\mu\text{S}$  @  
23.0°C

Calibration information:

standard used: 12890  $\mu\text{S}$

cell constant: 1.009

Standard	Reading	Temp
12890 $\mu\text{S}$	12895 $\mu\text{S}$	23.1°C
147 $\mu\text{S}$	210.83 $\mu\text{S}$	23.4°C
58670 $\mu\text{S}$	58987 $\mu\text{S}$	23.4°C

Temp Calibration for 4/3/10 RReader 3 + Troll 6  
(performed on 4/3/10)

	Probe	NIST
Ambient	22.7°C	22.8°C
High	58.6°C	58.9°C
Low	2.9°C	3.1°C



802952. E209

4/2/10

Conductivity Calibration for 4/3/10

RReader 2 + Troll 5

Initial Reading @ 12890  $\mu\text{S}$   $\Rightarrow$  12839  $\mu\text{S}$  at 23.0°C

Calibration information:

Standard used: 12890  $\mu\text{S}$

Cell constant: 1.020

Standard	Reading	Temp
12890 $\mu\text{S}$	12910 $\mu\text{S}$	23.0°C
147 $\mu\text{S}$	245.0 $\mu\text{S}$	23.1°C
58670 $\mu\text{S}$	59363 $\mu\text{S}$	23.1°C

Temperature Calibration for 4/3/10 (performed on 4/3/10)

RReader 2 + Troll 5

	Probe	NIST
Ambient	22.6°C	22.8°C
High	58.3°C	58.9°C
Low	2.1°C	2.4°C

W

BPS - PW Book 2

39 "Rite in the Rain"

002952. FLOW

4/3/10

- Sandy shell hash substrate
- Leave site 12:22 PM

Arrive @ I7 at 12:56 PM

N. 25.38520 W 80.30656

- Samples smell of  $H_2S$
  - Scattered garbage around site (including 50 gallon barrel)
  - Site is ~15m NE of original point
  - Mostly red mangrove stand w/ intermixed black mangroves
  - tide is <sup>(K)</sup>noticeably rising (but not enough <sup>(K)</sup>for a surface sample)
  - a lot of dead old mangroves in the area
- Leave @ 1:13 PM

Midday verification performed @ 1:35 PM

Reading @ 12890  $\mu S \geq 12874 \mu S @ 25.8^\circ C$

Arrive at HI7 @ 1:57 PM

N. 25.38605 W 80.31245

- site located ~70m N. of original point
- NEST thermometer is no longer working - collected air temp. for this site from the

42

BPS. PW Book 2

002952 FLO9

4/4/10

Conductivity calibration for 4/4/10

RReader 3 and Troll 86

Initial reading @ 12890  $\mu\text{S}$   $\Rightarrow$  12769  $\mu\text{S}$  @  
21.8°C

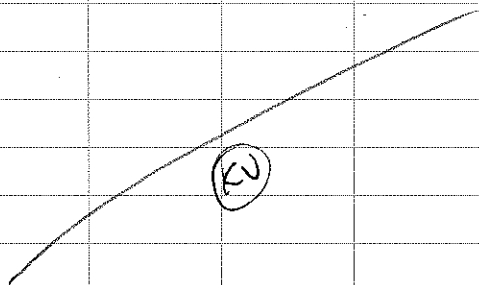
Calibration information

standard used: 12890  $\mu\text{S}$ 

cell constant: 1.019

Standard	Reading	Temp
12890 $\mu\text{S}$	12891 $\mu\text{S}$	21.9°
147 $\mu\text{S}$	287.13 $\mu\text{S}$	21.9°
58670 $\mu\text{S}$	58978 $\mu\text{S}$	21.8°

No temperature calibration performed b/c NIST thermometer is broken. Will replace soon.



BPS-PW Book 2

002452.FC09

4/4/10

Conductivity calibration for 4/4/10

R reader 2nd Troll 5

(4) Initial reading @ 12890  $\mu\text{S}$   $\Rightarrow$  12879  $\mu\text{S}$  at 21.4°C

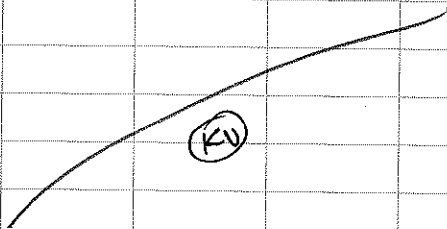
Calibration info:

Standard used: 12890  $\mu\text{S}$ 

cell constant: 1.016

Standard	Reading	Temp
12890 $\mu\text{S}$	12901 $\mu\text{S}$	21.3°C
147 $\mu\text{S}$	259.90 $\mu\text{S}$	21.0°C
58670 $\mu\text{S}$	59229 $\mu\text{S}$	20.9°C

No temperature calibration performed b/c NIST  
 (4) thermometer is broken, will replace soon.



BPS-PW Book 2

47° After the Rain

002952. Flo9

4/4/10

- coarse sand substrate
- Leave @ 12:25 PM

Arrive @ F13 at 12:30 PM

N 25.31779 W 80.34412

- could not reach 40cm after >10 attempts, most refusals w/in upper 10cm
- Sample swelled of  $H_2S$
- Moderate to dense *Thalassia* w/some *Syringodium* mixed in
- sparse *Dasycladia*, *Penicillaria*, and *Acetabularia*
- substrate sandy/silty
- Leave @ 12:53 PM

Midday verification performed @ 12:55 PM

Standard used: 12890  $\mu S$

Reading: 12949  $\mu S$  @ 25.2°C

Arrive @ I12 at 1:15 PM

N 25.32885 W. 80.30695

- could not reach 20cm after >10 attempts
- Depth to bedrock ~ 5cm
- coarse sand substrate

50

BPS PW Book 2

602952.FLO9

RReader 1 Troll 84

4/5/10

Conductivity Calibration for 4/5/10 ~~RReader~~ (K)

Initial Reading @ 12890  $\mu$ S  $\Rightarrow$  12821  $\mu$ S @

21.3°C

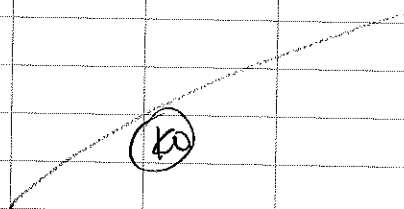
Calibration info:

Standard used - 12890  $\mu$ S

Cell constant - 1.007

Standard	Reading	Temp
12890 $\mu$ S	12903 $\mu$ S	21.3°C
147 $\mu$ S	198.17 $\mu$ S	21.3°C
58670 $\mu$ S	59820 $\mu$ S	21.4°C

No temperature calibration performed b/c  
NIST thermometer is broken. A new thermometer  
has been ~~ordered~~ ordered today.  
(K)



BPS-PW Book 2

53

March 10, 2010



002952.F09

4/5/10

Conductivity calibration for 4/5/10

Reader 3 Trol 6

Initial Reading @ 12890  $\mu\text{S}$   $\Rightarrow$  12978  $\mu\text{S}$   
@ 21.1°C

Calibration information:

Standard used - 12890  $\mu\text{S}$

cell constant - 1.013

Standard	Reading	Temp
12890 $\mu\text{S}$	12909 $\mu\text{S}$	21.2°C
147 $\mu\text{S}$	181.48 $\mu\text{S}$	21.1°C
58670 $\mu\text{S}$	59531 $\mu\text{S}$	21.0°C

No temperature calibration performed b/c  
NIST thermometer is broken. A new one  
has been ordered today.

(KO)

84

BPS-PW Book 2

002952. FLO9

4/5/10

Arrive @ G11 at 1:28 PM (2)

Midday verification performed at 1:23 PM

Reading @ 12890  $\Rightarrow$  12928  $\mu$ S at 26.2°C

Arrive @ G11 at 1:28 PM

N. 25.34005 W 80.33163

- could not achieve 20 cm after 10 attempts
- Depth to bedrock ~ 8 cm
- coarse sandy substrate
- several Gorgonians noted
- Sparse *Thalassia*
- some brown algae, *Acetabularia*, + *Penicillus*

Leave @ 1:46 PM

Arrive @ G111 at 1:48 PM

N. 25.33983 W 80.32497

- could not achieve 20 cm after 10 attempts
- Depth to bedrock ~ 8 cm
- coarse sand w/ shell hash substrate
- several small Gorgonians
- some *Acetabularia*, *Penicillus*

Leave @ 2:06 PM



002952.FCM

4/6/10

### Conductivity Calibration

RR1 and Troll 4

Initial Reading @ 12890  $\mu\text{S}$   $\Rightarrow$  12941  $\mu\text{S}$   
@ 21.4°C

### Conductivity information:

Standard used: 12890  $\mu\text{S}$

cell constant: 1.005

Standard	Reading	Temp
12890 $\mu\text{S}$	12900 $\mu\text{S}$	21.5°C
147 $\mu\text{S}$	228.28 $\mu\text{S}$	21.5°C
58670 $\mu\text{S}$	59732 $\mu\text{S}$	21.8°C

No temperature calibration performed b/c  
NIST thermometer is broken. Replacement  
coming soon

(W)

002952.F009

Book 3

4/6/10

Conductivity Calibration

RR3 + Troll 6

Initial Reading @  $12890 \mu\text{S} \Rightarrow 1275 \mu\text{S}$   
@  $21.3^\circ\text{C}$ 

Conductivity information:

Standard used:  $12890 \mu\text{S}$ cell constant:  $1.023$ 

Standard	Reading	Temp
$12890 \mu\text{S}$	$12898 \mu\text{S}$	$21.4^\circ\text{C}$
$147 \mu\text{S}$	$216.67 \mu\text{S}$	$21.2^\circ\text{C}$
$58670 \mu\text{S}$	$59507 \mu\text{S}$	$21.3^\circ\text{C}$

No temperature calibration performed b/c  
NEST thermometer is broken. Replacement  
coming soon.


 KV

BPS-PW Book 3

1 "Rain in the Rain"

4/6/10

- drift algae, pericillius, + Dasycladus noted.
- 2 Gorgonians observed
- leave @ 1:26 PM

Midday verification performed @ 1:16 PM  
Reading @ 12890  $\mu$ S  $\Rightarrow$  13135  $\mu$ S @ 26.6°C

Arrive @ HI9 at 1:33 PM

N. 25.36262 W 80.31252

- Refusal @ 5cm on >10 attempts
- Round metal structure (looks like a hub cap) w/ corals and Condylactis (anemone) growing on it.
- coarse sand + shell hash w/ coral rubble
- several sponges + Gorgonians present
- leave @ 1:49 PM

Arrive @ I9 at 1:59 PM

N. 25.36247 W. 80.30673

- Refusal at 15-25cm on avg.
- 20cm sample smelled of  $H_2S$
- Right next to a crab pot (site is ~1m to the west of crab pot)

BPS-PW Book 3

5 "Rite in the Rain"

002152.FC09

Book 3

4/7/10

Conductivity Calibration for 4/7/10

R Reader 1 Troll 4

Initial reading @  $12890 \mu S \Rightarrow 12818 \mu S @$   
 $21.8^\circ C$ 

Calibration Information

Standard used:  $12890 \mu S$ cell constant:  $1.009$ 

Standard	Reading	Temp
$12890 \mu S$	$12906 \mu S$	$21.8^\circ C$
$147 \mu S$	$163.88 \mu S$	$21.6^\circ C$
$58670 \mu S$	$59988 \mu S$	$21.6^\circ C$

No temperature calibration performed b/c NIST  
thermometer is broken. Replacement coming  
soon.

KV

BPS - PW Book 3

9 "Rite in the Rain"

4/7/10

Conductivity Calibration for 4/7/10

RReader 3 and Troll 6

Initial Reading @ 12890  $\mu\text{S}$   $\Rightarrow$  13084  $\mu\text{S}$  @  
22.2°C

Calibration information:

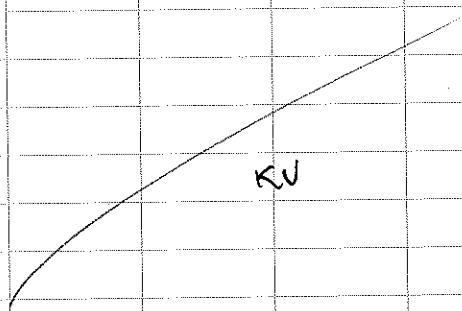
Standard used: 12890  $\mu\text{S}$ 

cell constant: 1.010

12896  $\mu\text{S}$ 

Standard	Reading	Temp
12890 $\mu\text{S}$	<del>12890</del> 12896 $\mu\text{S}$	22.3°C
147 $\mu\text{S}$	186.23 $\mu\text{S}$	22.0°C
58670 $\mu\text{S}$	59333 $\mu\text{S}$	21.9°C

No temperature calibration performed b/c NIST  
thermometer is broken Replacement coming  
soon.



4/7/10

Midday verification performed at 12:33 PM  
Reading @ 12890  $\mu\text{S}$   $\Rightarrow$  12998  $\mu\text{S}$  at 25.2°C

Arrive at HI8 @ 1:05 PM

N. 25.37202 W. 80.31137

- Samples were amber-colored
  - Smelled organic, but very stinky. Not an  $\text{H}_2\text{S}$  scent.
  - Site is ~20m from the shoreline, located in the mangroves.
  - In an open red mangrove-dominated area, w/ black mangroves mixed in.
  - Most black mangroves are larger than the red mangroves in both trunk thickness & height.
  - Black mangrove pneumatophores cover the ground
  - Scattered garbage
  - shoreline covered w/ dead coral ("coral rubble") & some *Salicornia*
  - Several photos taken of the area
- Leave @ 1:30 PM

002952.F109

Book 3

4/11/10

Conductivity Calibration for 4/11/10

Mini Reader 1 and Troll #4

Initial reading @ 12890  $\mu\text{S}$   $\Rightarrow$  13289  $\mu\text{S}$  @  
23.2°C

Calibration information:

Standard used: 12890  $\mu\text{S}$ 

Cell constant: 0.982

Standard	Reading	Temp
12890 $\mu\text{S}$	12891 $\mu\text{S}$	23.3°C
147 $\mu\text{S}$	235,28 $\mu\text{S}$	23.1°C
58670 $\mu\text{S}$	58646 $\mu\text{S}$	23.2°C

Temperature Calibration (performed on 4/12/10)

	NIST°C	Probe°C
Ambient	22.9	23.0
High	62.0	61.9
Low	8.3	8.4

KW

BPS - PW Book 3

17 "Not in the Rain"



4/11/10

Conductivity Calibration for 4/12/10

KReader #3 and Troll #6

Initial Reading @ 12890  $\mu\text{S}$   $\Rightarrow$  13114  $\mu\text{S}$  @  
24.00°C

Calibration information:

Standard used: 12890  $\mu\text{S}$ 

cell constant: 0.995

Standard	Reading	Temp
12890 $\mu\text{S}$	12903 $\mu\text{S}$	24.1°C
147 $\mu\text{S}$	204.46 $\mu\text{S}$	23.1°C
58670 $\mu\text{S}$	58417 $\mu\text{S}$	23.1°C

Temperature Calibration (performed on 4/12/10)

	NIST°C	Probe°C
Ambient	<del>22.9</del> 22.9	23.0
High	62.0	61.9
Low	8.3	8.5


 W



4/12/10

- Marl Substrate

leave site @ 12:54 PM

Midday verification performed @ 2:06 PM

Reading @ 12890  $\mu$ S  $\rightarrow$  12900  $\mu$ S @ 22.0°C

Arrive @ G-2-3 at 2:14 PM

N. 25.43531 W 80.33552

- original site is too close to the road - moved ~ 50m away from Road + Transmission line
  - Surface sampling delayed by rain
  - Scrub red mangroves
  - marl substrate
  - Some minor frost damage on mangroves
  - *Distichlis spicata* sparse b/w scrub mangroves
  - Sparse white mangroves also present
- leave @ 3:17 PM

Arrive @ F-2-3 at 3:40 PM

N. 25.43587 W 80.34402

- located ~ 50m W of original point
- Samples smelled organic & looked like chocolate milk.
- Scrub red mangroves ~ 1.5m tall

# **Specific Conductance Calibration August 2010**

002952.F209

Book 3

8/17/10

Jennifer Vega

Conductivity Calibration for 8/17/10

R Reader 1, and Troll # 4

Initial Reading w/ 58,670  $\mu\text{S}$   $\Rightarrow$  59,546.609

@ 26.898°C

Calibration information:

standard used: 58,670  $\mu\text{S}$ 

cell constant 0.996

Standard	Reading	Temp
12890 $\mu\text{S}$	12694.91 $\mu\text{S}$	27.29°C
58670 $\mu\text{S}$	59105.95	<del>27.48</del> 27.42°C
100,000 $\mu\text{S}$	99217.87	27.15°C

Temperature Calibration/Verification

	SI K/J Thermometer	probe °C
Ambient	24.7	24.82

002952.F09

Book 3

8/17/10

Arrive D15 13:25 sample @ 25.29542 W 80.36829

Site 15 m E of D15

Mild  $H_2S$  odor. Moderate turbidity with fine sediment

Depart 13:58

Midday Verification done @ 14:03

Std 12890  $\Rightarrow$  12898 NS 33.5°CStd 58670  $\Rightarrow$  59105 33.8°C

Arrive 14:20 D14 N 25.30658 W 80.36920

Porewater sipper rejected. Hard bottom 5-10 cm down.

No sampling of porewater done.

Depart 14:27

Arrive 14:37 E14 N 25.30646 W 80.35646

D14 at 20 in RR should be E14 at 20

Depart 15:04

Arrive 15:15 F14 N 25.30639 W 80.34382

Depart 15:49

Boat took awhile to start. Depart 16:02.

Arrive 16:06 G14 N 25.30619 W 80.33885

Wind has picked up a little bit. Slight chop in water

Depart 16:57

26

BPS - PW Book 3

002952. FLOA

Book 3

8/17/10.

Arrive back at Homestead Bayfront Marina  
@ 5:50pm.

Evening verification:

Rugged Reader Unit 1 and Aquatrol #4

Reading w/ 58,670  $\mu$ S Standard = 59,180 @ 28.8°C

Reading w/ 12,890  $\mu$ S Standard = 12,873 @ 26.7°C

Reading w/ 100,000  $\mu$ S Standard = 99,708 @ 26.6°C

*[Handwritten mark]*

*[Large handwritten signature]*

BPS - PW Book 3

27 "Return the King"

002952. FLO9

Book 3

8/18/10

Temp Calibration

Nist Thermometer

20.1°C

Troll #4

19.959 ± 20.0°C

Aug 18 High Tide: 6:22 am

Low Tide 1:17 pm

High Tide 7:20 pm

Heading out on ebb tide

Leave Homestead Bayfront Marina @ 8:30 am  
 "Ellie" Helen Hammond, Mark Hohlmann (EAI)  
 & Jennifer Vega

Partly Cloudy. 80°F

Plan to go to H14, I13, H13

D13

Skip G13, go to F13, E13, D13

Skip F13 &amp; F12, go to skip F012 &amp; G124

G412, go to H12, skip I12, go to

J12, J11, I11

Arrive H14 9:12 N 25.30644 W 80.31927

4 rejections @ 40 cm. Success on 5<sup>th</sup> attempt

15 rejections @ 60 cm. None successful

Depart 9:50

Arrive I13 10:00 N 25.31775 W 80.30887

28

BPS-PW Book 3

002952.FC09

Book 3

2/18/10

2 rejections @ 40 cm

5 rejections @ 60 cm

Depart 10:33

Arrive H13 10:42 N 25.31770 W 80.31766

Depart 11:11

Arrive F13 11:25 N 25.31783 W 80.31715

Slightly breezier and choppy than yesterday (w)

8 refusals @ 20 cm before success

20 refusals @ 40 cm No sample taken

No sample taken at 60 cm

Depart at 11:54

Arrive E13 @ 12:12 N 25.31777 W 80.35654

Midday Verification 12:13

5867 NS Std  $\Rightarrow$  59065 NS @ 31.7 °C

A lot of sediment @ 40 cm. Made composite sample

Depart 12:54

Arrive D13 @ 13:05 N 25.31799 W 80.36914

5 refusals @ 40 cm before success

20 refusals @ 60 cm, moved 2m, then had success

Depart 13:50

BPS-PW Book 3

29 "Ret in the Rain"



002952.F009

8/18/10 <sup>②</sup> Book 3  
8/18

present but solitary.

Leave site at <sup>②</sup> 17:35 pm

Arrive at Ramp @ 6:20 pm

Leave Homestead Bay Front Marina @  
7:00 pm.

## Evening verification

Standard	Reading	Temp (°C)
12,890 $\mu$ S	12,950 $\mu$ S	28.4
58,670 $\mu$ S	<sup>59410</sup> <del>59407</del> $\mu$ S	28.4
100,000 $\mu$ S	100,066 $\mu$ S	28.2

## Calibration information

standard used: 58,670  $\mu$ S

cell constant: 0.984

## verification of calibration:

Standard	Reading	Temp (°C)
58,670 $\mu$ S	58,482 $\mu$ S	28.4
12,890 $\mu$ S	12,819 $\mu$ S	28.3
100,000 $\mu$ S	98,256 $\mu$ S	28.4

Temp	Verification	(°C)	(°C)
@ 20-25°C water	Nist Therm	22.1	Troll # 4 22.4

32

BPS-PW Book 3



002952. FCO9

Book 3  
8/19/10

6 refusals at 20 cm before success

22 refusals @ 40 cm - no sample taken  
no sample @ 60 cm.

sparse *Thalassia*, several *penicillus*,  
*bataphora* and *acetabularia*

more open than IJ9

sandy shell hash bottom

12:45 pm - Passed HI-9 - for into mangroves,  
skip to see if HI 8 is accessible.

12:50 pm - HI8 not accessible

12:55 pm - arrive at IJ8

- Hiday verification @ 1:00 pm

58670  $\mu$ S standard, read at 32.4°C  
and 58317  $\mu$ S

GPS coordinates @ N25.37411 W80.20657

15 refusals at 40 cm before success

4 refusals at 60 cm before success.

Leave site at 1:33 pm

Arrive at IJ8 @ 1:39 pm

file saved @ ~~1:43~~ IJ8-0 8-19 ~~88~~

for IJ8-T, sample taken at

2:02<sup>W</sup> pm 14:02

BPS - PW Book 3

35 "Rite in the Rain"

002952.FL01

Book 3

8/19/60

Marma

KR1, Probe #4.

Evening verification

standard	loading	Temp (°C)
12,890 $\mu$ S	12833 $\mu$ S	28.8
58,670 $\mu$ S	<del>58567</del> $\mu$ S	29.1
100,000 $\mu$ S	98334.	29.1

38

BPS-PW Book 3

8/20/10

Calibration for Probe #4 = 154841

Standard used 58,670  $\mu\text{S}$ 

Cell constant = 0.989

Verification of calibration

Standard	Reading	Temp ( $^{\circ}\text{C}$ )
58670 $\mu\text{S}$	<del>58694</del> 58700 $\mu\text{S}$	28.2
12890 $\mu\text{S}$	12861 $\mu\text{S}$	27.6
100,000 $\mu\text{S}$	98488	27.6

Calibration for Probe #5 = 155883

Standard used 58,670  $\mu\text{S}$ 

Cell constant = 1.007

Verification of calibration

Standard	Reading	Temp ( $^{\circ}\text{C}$ )
58670 $\mu\text{S}$	58616 $\mu\text{S}$	28.1
12890 $\mu\text{S}$	12922 $\mu\text{S}$	27.4
100,000 $\mu\text{S}$	<del>98249</del> 98250 $\mu\text{S}$	27.0

Probe #5 Temp Verification @ 20-25 $^{\circ}\text{C}$ Nist Thermometer ( $^{\circ}\text{C}$ )

20.8

Probe #5 ( $^{\circ}\text{C}$ )

20.5

002952.FLO9

Book 3

8/21/10

Calibration for Probe 4. = 154841

standard used 58.670  $\mu$ S

cell constant = 0.981

Verification of calibration

standard	Reading	Temp (°C)
58.670 $\mu$ S	58339 $\mu$ S	26.8
12.890 $\mu$ S	12811 $\mu$ S	26.4
100,000 $\mu$ S	98106 $\mu$ S	26.6

Temp verification probe # 4

Nist Probe # 4

24.6°C 24.3°C

Tides for today. Turkey Point, Biscayne  
East Atsenucker, Lar. Bay

Low 3:54 am 0.6 ft

High 9:07 am 1.8 ft

Low 4:14 pm 0.3 ft

High 9:47 pm 1.9 ft.

BPS-PW Book 3

45 "Return the Mine"

002452.F09

Book 3

8/21/10

13:22 p.m. conducted mid day verification

standard is 58,670

probe #4

reading: 58,026

temp: 31.9 °C

Departed @ 1:37 p.m.

Arrived at IT6 @ 1:53 p.m.

20cm - very minor  $H_2S$  odor

40cm - high turbidity, low odor.

60cm -  $H_2S$  odor strong, low turbidity.

Ecol: Dense Thalassia, few Halomeda, few pericillius, sandy shell hash bottom.

Departure @ <sup>(W)</sup> 2:24 p.m. 14:24Arrival @ J6 @ <sup>(W)</sup> 2:50 p.m. 14:50

N 25.39651 W 080.29401

20cm - low turbidity, mild  $H_2S$  odor.

40cm - moderately turbid

60cm - very mild  $H_2S$  odor, turbid, cloudy.

Dense Thalassia, sparse batophore, few pericillius, acetabularia, few halomeda, sandy shell hash.

Departure @ 3:19

BPS - PW Book 2

49 "Rite in the Rain"

8/21/0

- We are towing smaller boat w/ engine problem behind us to FPL ramp.

Captain on small boat works for the nuclear section of FPL.

- Small boat is dropped off at FPL ramp

~~@ 5:02 pm~~ 17:02

Arrive @ Homestead Bayfront Marina

@ 5:20 p.m.

R1, Probe #4.

Emerging Verification

Standard	Reading	Temp (C)
12890 $\mu$ S	12931 $\mu$ S	25.4
58,670 $\mu$ S	58408 58409	25.0
100,000 $\mu$ S	98617 $\mu$ S	23.24.0

Calibration on Probe #4 for 8/22/0

standard 58,670  $\mu$ S

cal cell constant = 0.986

Calibration verification on Probe #4

Standard	Reading	Temp (C)
58,670 $\mu$ S	58,350 $\mu$ S	24.0
12,890 $\mu$ S	12,907 $\mu$ S	23.8
100,000 $\mu$ S	99,062 $\mu$ S	23.7

BFS - PW Book 3

51 "Rite in the Rain"

002952. F109

Book 3

HE Hammond M. Muhlmann Bay, Brewster

8-22-10

Arrive ~~HI~~ I5 e 11:29 N 25.40779 W 80.30643

Depart 11:48

Arrive BB5A e 11:53 N 25.40922 W 80.29819

Stopped work @ 12:19 due to nearby lightning.

Moved site marker about 4 m SW for BB5B

Depart BB5A / Arrive BB5B e 12:44

N 25.40927 W 80.29821

Moved work station inside cabin to protect sampler  
from light rain.

Depart 13:15 <sup>(JPD)</sup> 2

Arrive J5 13:15 N 25.40760 W 80.29400

Midday Verification

Std: 12890.25  $\Rightarrow$  <sup>12860.25</sup> ~~13637.5~~ e 28.5°C

NIST: 28.9°C  $\Rightarrow$  28.4°C

Took a short break after sampling.

Depart 14:15

Rain has stopped.

Arrive J4 14:18 N 25.41849 W 80.29398

Depart 14:42

Arrive IJ3 e 14:49 N 25.43038 W 80.30022

HEH has 1-inch long shallow cut on right middle finger. No blood.

Depart 15:13

Deleted several surface water logs to make room in RR

BPS-PW Book 3

53 "Rite in the Rain"



002152. F009

Book 3

8-22-10

Arrive GH3 15:25 N 25.43032 W 80.32497

Site is about 50m SE of red mangroves

Depart 15:51

Arrive @ Marha 16:25

Temperature Verification 19:59

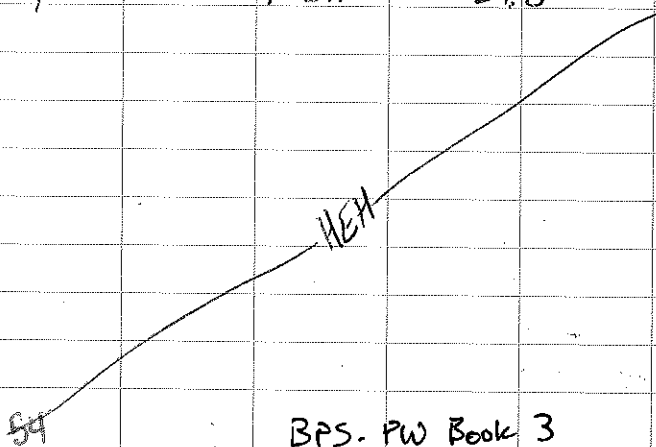
NIST 21.4  $\Rightarrow$  21.3NIST 2.8  $\Rightarrow$  2.1

Calibration on Probe #4

STD 58670  $\mu$ S

Cell constant 0.969

<u>STD (<math>\mu</math>S)</u>	<u>Reading (<math>\mu</math>S)</u>	<u>Temp (<math>^{\circ}</math>C)</u>
12890 $\mu$ S	12671	22.7
58,670	57253	23.1
100,000	97311	24.8



BPS. PW Book 3



002952. FLO9

Book 3

H. Elli Hammond, Mark Adelman (EAI)

8:25

8-23-10

20% cloud cover 28.6°C. Calm

Health and Safety meeting - stretching. EH + MN  
 Contacted Joan Altwater and Audrey Rotnick (FPL)  
 with Float plans.

Plan do do GH1, I1, ~~BB1B~~, BB1A, J2, ~~GH3~~ <sup>(BFI)</sup>, BB2A, BB2B.  
 BB3A and BB3B are in shallow water (less than  
 3 feet), so we anchored the boat about  
 40 meters from the site.

Arrive BB3A/BB3B 8:42 N 25.44140

W 80.32897. Near PowerPlant.

Depart 9:55

Arrive GH2 10:04 N 25.44158 W 80.32470

Only sample @ 20 cm. Could not get 40 cm or deeper.

Depart 10:22

Arrive BB2 10:28 N 25.44242 W 80.32127

BB2A-O is in lag as GH2-O @ 10:40

Depart 10:49 / Arrive BB2B 10:50

Moved site 4 m west for B.

Depart 11:11

Arrive BB1A 11:19 N 25.45224 W 80.30843

Moderate breeze and light chop

Move to BB1B 11:42. Move site 4 m NE

Midday Verification std 12890  $\Rightarrow$  12771 @ 34.1°CN15T 33.2°C  $\Rightarrow$  32.4°C

BPS-PW Book 3

55 "Return the Rain"

8-23-10

12:09 Uploaded data to computer

Depart 12:22

Arrive I 1 12:24 N 25.45529 W 80.30837

Refusal below 20cm. No sample @ 40cm or 60cm

Depart 12:46

Arrive GH 1 12:54 N 25.45268 W 80.32503

No sample @ 60cm

Depart 13:18

Arrive G 1 13:23 N 25.45278 W 80.33113

Depart 13:50

Arrive J 2 14:04 N 25.44162 W 80.29401

Raining 14:21

Depart 14:35 Rain stopped

Arrive GH 5 14:42 N 25.40777 W 80.32446

Depart 15:08

Arrive BB 8A 15:22 N 25.40238 W 80.31457

Moved site 4 m East 15:43 N 25.40238 W 80.31456

Depart 16:03

Arrive I 3 6 16:32 N 25.39654 W 80.30006

Depart 17:15/19

Back at Marina 17:45

Verification/Calibration KRI Troll 4

NIST = 4.1°C  $\Rightarrow$  2.8°CNIST = 1.9°C  $\Rightarrow$  2.0°C

56

BPS-PW Book 3

002952.FC09

Book 3

8-23-10

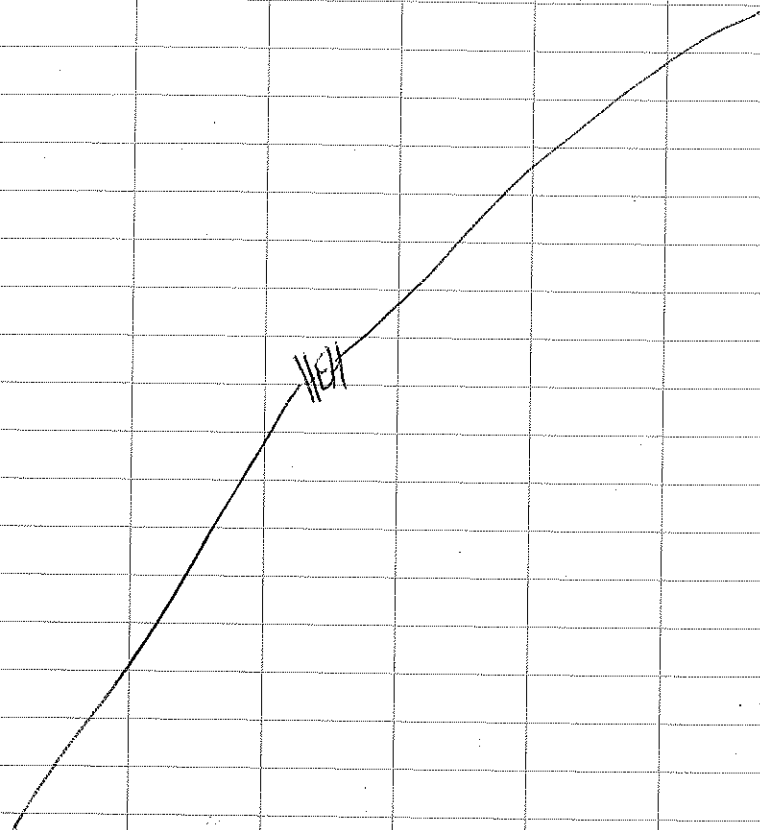
NIST  $24.7^{\circ}\text{C} \Rightarrow 24.5^{\circ}\text{C}$ 

Calibration

STD: 58670.25

Cell constant: 0.987

STD (kg)	Reading	Temp ( $^{\circ}\text{C}$ )
12890	12676	23.7
58670	58771	24.4
100 000	98860	23.4



BPS. RW Book 3

57 "All in the Rain"

002952.F009

Book 3

H. Elli Hammond Mark Mohlmann (EAI)

8-24-10

31°C 90% cloud cover, No wind, Calm water.

Contacted Audrey Rotrock (FPL) and Joan

Altwater (E&amp;E) with Float plan.

Health and safety mtg - Sun and wind safety: HH, MM

Heading to F14 and F15, then working sites north.

Arrive F14 9:39 N 25.30637 W 80.34389

Depart 10:34

Arrive F15 10:38 N 25.29510 W 80.34407

Depart 11:21

Arrive R.FG12 11:36

~~N 25.32862 W 80.33173~~~~N 25.32880 W 80.33816~~

Correct N 25.32880 W 80.33816

Depart 12:05

~~N 25.32802 W 80.33173~~

Arrive R.G12 12:10 N 25.32870 W 80.33171

Depart 12:35

Midday Verification

NIST 32.6°C  $\Rightarrow$  31.6°CSTD 12890  $\Rightarrow$  12678  $\Rightarrow$  31.3°C

Arrive R.G11 12:42 N 25.33996 W 80.33168

No samples @ 40 cm or 60 cm

Depart 13:09

Arrive G11-BAY 13:17 N 25.34485 W 80.33264

Site is about 15 meters SE of <sup>red</sup> mangrove fringe.

Manatee sighted near boat. Mark could see fresh water mixing with salt water at mouth of canal.

58

BPS-PW Book 3

002952 FCD9

Book 3

8-24-10

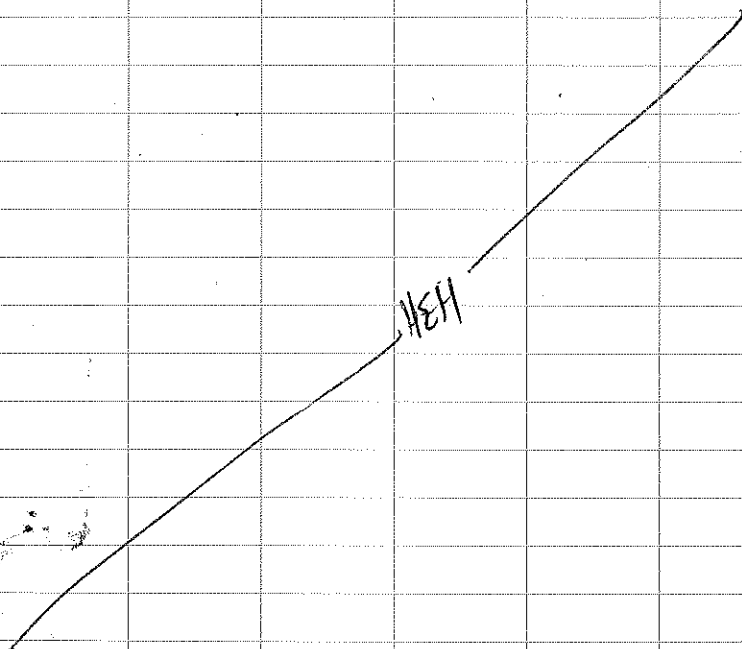
Temperature Verification

NIST  $20.3^{\circ}\text{C} \Rightarrow 19.6^{\circ}\text{C}$  $31.7^{\circ}\text{C} \Rightarrow 30.3^{\circ}\text{C}$ Sp Cond Calibration @ 12890  $\mu\text{S}$ 

Cell Constant 0.987

STD ( $\mu\text{S}$ )	READING ( $\mu\text{S}$ )	TEMP ( $^{\circ}\text{C}$ )
12890	12789	31.9
58670	58704.5	33.4
100,000	99294	33.4

Returned to Marina @ 1930



002952. FCD7

Book 4

R-J2

8/25/10

Dense Thallasia, a few Penicillium

Sandy shell hash substrate

Leave at 12:06 pm

12:13pm arrive @ R-J H2

N25.44151 W80.31216

Moderate to dense Thallasia, sparse  
Bataphora, a few Penicillium + Halimeda

Sandy shell hash bottom

12:41 leave site

12:51 Arrive at R-H2

N25.44270 ~~W80.31983~~ <sup>(TFU)</sup> W80.31983

Sparse Thallasia with a few Bataphora,  
Halimeda and Penicillium

Sandy shell hash bottom

1343pm - Midday Verification

58670  $\mu$ S standard read @ 58277  $\mu$ S  
at 34.7°C

13:47pm - Leave the site.

14:06

2:06pm

Arrive @ H2-B @ N25.44592 W80.31617

Site is in large canal, to (coordinates sent

BPS. PW Book 4

"Return the favor"

002952.FL09

Book 4

8/25/10

4:55pm - Arrive at Homestead Bayfront  
Hanna.

5:30pm - Leave Homestead Bayfront Hanna

- Evening verification:

Standard	Reading	Temp.
12890 $\mu S$	12724 $\mu S$	21.5
58670 $\mu S$	58579 $\mu S$	21.7
100,000 $\mu S$	100790 $\mu S$	21.8

calibration (GFV)

*[Signature]*



002952. FCO1

Jennifer Vega

Book 4

8/26/10

Morning Calibration

Calibration standard 58,670  $\mu$ S

proposed cell constant 0.990

Calibration verification

standard	Reading	Temp
58,670 $\mu$ S	<del>58,704</del> <del>58,703</del> $\mu$ S	22.3
12,890 $\mu$ S	<del>12,787</del> $\mu$ S	22.6
100,000 $\mu$ S	<del>100,802</del> <del>100,861</del> $\mu$ S	22.2

Temp &amp; Verification

Nist thermometer

Probe #4

23.8 °C

23.8 °C

Low ~~(FV)~~ 7:00am 7:11am~~(FV)~~ 11:00am

High 12:31 pm

Low 7:27 pm

85°F Overcast

8:05am Leave Homestead Bayfront Marina  
w/ Kevin Conniff (SFWMD), Hank Hohlmann  
(EAI) and Jennifer Vega.

Heading to do the last remaining  
points from Agencies

4

BPS - PW Book 4



002952. FLO7

Book 4

8/26/10

12:01 pm Arrive @ IJ 4

N25.41884 W80.29997

Midday ~~Verifica~~<sup>TPD</sup> Verification at noon

58670 ps standard read @

58319 ps @ 29.2 C Temp.

low turbidity, mild  $H_2S$  odor sample

@ 20 cm

moderate turbidity + moderate  $H_2S$  odor  
at 40 cm & 60 cm

Sparse *Thalassia*, *Penicillus*, *Bataphora*  
and *Halemeda*, w/ sandy shell  
hash bottom.

12:32 pm Leave the site.

Arrive @ I4 at 12:40 pm @

N25.41914 W80.30635

50 + repetitions at 60 cm, no sample  
taken

Sparse *Thalassia* and *Bataphora*,  
a few *Penicillus*

Sandy shell hash bottom.

Leave site at 1304 pm

Arrive at H3 @ 13:10 pm @ N25.43025 W80.31873

Moderate turbidity &  $H_2S$  odor @ 20 - 60 cm

BPS - PW Book 4

7 "Rite in the Rain"

# **Specific Conductance Calibration September 2010**

# FPL Turkey Point Monitoring Plan Field Instrument Calibration Form

Rugged Reader  
Unit 3/SN 83595

Parameter: Specific conductance

AQUA TROLL 100

FDEP-SOP Reference: FT1200

Unit 4/SN # 154841

## QAPP Requirements:

Initial Calibration	Initial Calibration Verification (ICV)	Continuing Calibration Verification (CCV)
<ul style="list-style-type: none"> <li>- Use 1 standard at the upper end of expected sample reading range but no less than 720 uS/cm</li> <li>- Conduct daily prior to use or if CCV fails</li> </ul>	<ul style="list-style-type: none"> <li>- Read after pressing "Calibrate"</li> <li>- 1 standard at the low end of expected sample reading range but no less than 100 uS/cm</li> <li>- Must be within <math>\pm 5\%</math> of TV</li> </ul>	<ul style="list-style-type: none"> <li>- Read at the end of the event, or within 24 hrs of initial calibration, whichever is less.</li> <li>- Read only (do not press "calibrate")</li> <li>- Two standards that bracket the sample value range. Must be within <math>\pm 5\%</math> of TV</li> </ul>

Date	Time	Operation (IC, ICV, CCV)	Instrument or meter ID	Calibration Standard (ID & Lot#)	Calibration Standard Reference Value (TV)	Instrument or Meter Reading (uS/cm)	Acceptance Criteria Met? (Y/N)	Comments <sup>1</sup>	Calibration verified by
9/22/10	8:51am	CCV	RR-Unit 3 AT100-Unit 4	CS9912 9A1050	12,890 @ 25.10°C	12,735 @ 28.9°C	Y		S.H.
9/23/10	7:55	CCV	RR-Unit 3 AT-100-Unit 4	Geotech 0A6218	100,000	91,065	Y		S.H.
9/24/10	7:10	CCV	RR-Unit 3 AT-100-Unit 4	CS9912 9A1050	12,890 @ 25°C	12,796 $\mu$ S/cm @ 24.16°C	Y		S.E.
9/25/10	8:30	CCV	RR-Unit 3 AT-100-Unit 4	CS9912 9A1050	12,890 $\mu$ S @ 25°C	12,867 $\mu$ S/cm @ 26.43°C	Y		S.E.
9/25/10	12:06	CCV	RR-Unit 3 AT-100-Unit 4	CS9912 9A1050	12,890 $\mu$ S @ 25°C	12,695 $\mu$ S/cm @ 32.33°C	Y		S.E.
9/26/10	7:15	CCV	RR-Unit 3 AT-100-Unit 4	CS9912 9A1050	12,890 $\mu$ S/cm @ 25°C	12,778 $\mu$ S/cm @ 23.5°C	Y		S.E.
9/26/10	13:37	CCV	RR-Unit 3 AT-100-Unit 4	CS9912 9A1050	12,890 $\mu$ S/cm @ 25°C	12,777 $\mu$ S/cm @ 30.64°C	Y		J.F.V.
9/27/10	6:39	CCV	RR-Unit 3 AT-100-Unit 4	CS9912 9A1050	12,890 $\mu$ S/cm @ 25°C	12,188 $\mu$ S/cm @ 35°C	Y		J.F.V.
9/27/10	13:10	CCV	RR-Unit 3 AT-100-Unit 4	CS9912 9A1050	12,890 $\mu$ S/cm @ 25°C	12,767 $\mu$ S/cm @ 32.65°C	Y		J.F.V.

<sup>1</sup> = Indicate any failed verifications; all corrective actions taken; any maintenance performed.

9/28/10 7:54 CCV RR-Unit 3 CS9912 12,890  $\mu$ S/cm 12,831  $\mu$ S/cm  
AT-100 9A1050 @ 25°C @ 27.7°C  
Unit 4

J.F.V.

9/28/10 13:27 CCV RR-Unit 3 CS9912 12,890  $\mu$ S/cm 12,840  $\mu$ S/cm  
AT-100 9A1050 @ 25°C @ 30.0°C  
Unit 4

J.F.V.

# **Specific Conductance Calibration April 2011**

# **FPL Turkey Point Monitoring Plan Field Instrument Calibration Form**

Parameter: **Specific conductance**

FDEP-SOP Reference: **FT1200**

## **QAPP Requirements:**

Initial Calibration	Initial Calibration Verification (ICV)	Continuing Calibration Verification (CCV)
<ul style="list-style-type: none"> <li>- Use 1 standard at the upper end of expected sample reading range but no less than 720 <math>\mu\text{S}/\text{cm}</math></li> <li>- Conduct daily prior to use or if CCV fails</li> </ul>	<ul style="list-style-type: none"> <li>- Read after pressing "Calibrate"</li> <li>- 1 standard at the low end of expected sample reading range but no less than 100 <math>\mu\text{S}/\text{cm}</math></li> <li>- Must be within <math>\pm 5\%</math> of TV</li> </ul>	<ul style="list-style-type: none"> <li>- Read at the end of the event, or within 24 hrs of initial calibration, whichever is less.</li> <li>- Read only (do not press "calibrate")</li> <li>- Two standards that bracket the sample value range. Must be within <math>\pm 5\%</math> of TV</li> </ul>

Date	Time	Operation (IC, ICV, CCV)	Instrument or meter ID	Calibration Standard (ID & Lot#)	Calibration Standard Reference Value (TV)	Instrument or Meter Reading ( $\mu\text{S}/\text{cm}$ )	Acceptance Criteria Met? (Y/N)	Comments <sup>1</sup>	Calibration verified by
4/4/11	6:47	IC	RR1 AT154841	YSI 3169 Lot 10E100360 Exp 11/2011	50,000 $\mu\text{S}$		Y	Cell constant = 1.006	KV <sup>82</sup>
4/4/11	6:50	CCV	RR1 AT154841	YSI 3169 Lot 10E100360 Exp 11/2011	50,000 $\mu\text{S}$	50029.98 $\mu\text{S}$	Y	T = 28.38°C	KV <sup>82</sup>
4/4/11	6:53	CCV	RR1 AT154841	Geotech Lot OAH388 Exp 8/11	25,000 $\mu\text{S}$	25328.46 $\mu\text{S}$	Y	T = 27.25°C	KV <sup>82</sup>
4/4/11	6:55	CCV	RR1 AT154841	Geotech Lot OAG318 opened 3/11/10	100,000 $\mu\text{S}$	99066.12 $\mu\text{S}$	Y	T = 27.14°C	KV <sup>82</sup>
4/4/11	7:01	IC	RR2 AT155853	YSI 3169 Lot 10E100360 Exp 11/2011	50,000 $\mu\text{S}$	5044 50044.51 $\mu\text{S}$	Y	T = 27.69°C cell constant = 1.017	KV <sup>82</sup>
4/4/11	7:04	CCV	RR2 AT155853	Geotech Lot OAH388 Exp 8/11	25,000 $\mu\text{S}$	25437.06 $\mu\text{S}$	Y	T = 27.20°C	KV <sup>82</sup>
4/4/11	7:06	CCV	RR2 AT155853	Geotech Lot OAG318 opened 3/11/10	100,000 $\mu\text{S}$	99114 99114.17 $\mu\text{S}$	Y	T = 27.15°C	KV <sup>82</sup>
4/4/11	16:35	CCV	RR1 AT154841	Geotech Lot OAH388 Exp 8/11	25,000 $\mu\text{S}$	25942.23 $\mu\text{S}$	Y	T = 30.98°C	KV <sup>82</sup>
4/4/11	16:38	CCV	RR1 AT154841	Geotech Lot OAG318 opened 3/11/10	100,000 $\mu\text{S}$	99328.07 $\mu\text{S}$	Y	T = 31.18°C	KV <sup>82</sup>

<sup>1</sup> = Indicate any failed verifications; all corrective actions taken; any maintenance performed.

# FPL Turkey Point Monitoring Plan Field Instrument Calibration Form

Parameter: **Specific conductance**

FDEP-SOP Reference: **FT1200**

## QAPP Requirements:

Initial Calibration	Initial Calibration Verification (CV)	Continuing Calibration Verification (CV)
<ul style="list-style-type: none"> <li>- Use 1 standard at the upper end of expected sample reading range but no less than 720 uS/cm</li> <li>- Conduct daily prior to use or if CCV fails</li> </ul>	<ul style="list-style-type: none"> <li>- Read after pressing "Calibrate"</li> <li>- 1 standard at the low end of expected sample reading range but no less than 100 uS/cm</li> <li>- Must be within <math>\pm 5\%</math> of TV</li> </ul>	<ul style="list-style-type: none"> <li>- Read at the end of the event, or within 24 hrs of initial calibration, whichever is less.</li> <li>- Read only (do not press "calibrate")</li> <li>- Two standards that bracket the sample value range. Must be within <math>\pm 5\%</math> of TV</li> </ul>

Date	Time	Operation (IC, ICV, CCV)	Instrument or meter ID	Calibration Standard (ID & Lot#)	Calibration Standard Reference Value (TV)	Instrument or Meter Reading (uS/cm)	Acceptance Criteria Met? (Y/N)	Comments <sup>1</sup>	Calibration verified by
4/5/11	7:28	CCV	RR1 AT154841	25,000 uS	Geotech Lot OAH388 Exp 3/11	25582.02 uS	Y	T=27.6°C	KV
4/5/11	7:30	CCV	RR1 AT154841	100,000 uS	Geotech Lot OAG318 opened 3/11/10	99047.10 uS	Y	T=27.4°C	KV
4/5/11	7:25	CCV	RR2 AT155883	25,000 uS	Geotech Lot OAH388 Exp 3/11	25387.16 uS	Y	T=27.8°C	KV
4/5/11	7:28	CCV	RR2 AT155883	100,000 uS	Geotech Lot OAG318 opened 3/11/10	98583.91 uS	Y	T=27.53	KV
4/5/11	16:36	CCV	RR1 AT154841	25,000 uS	Geotech Lot OAH388 Exp 3/11	25855.04 uS	Y	T=29.06°C	KV
4/5/11	16:40	CCV	RR1 AT154841	100,000 uS	Geotech Lot OAG318 opened 3/11/10	99542.69 uS	Y	T=29.18°C	KV
4/6/11	7:06	CCV	RR1 AT154841	25,000 uS	Geotech Lot OAH388 Exp 3/11	25226.78 uS	Y	T=25.84°C	KV
4/6/11	7:08	CCV	RR1 AT154841	100,000 uS	Geotech Lot OAG318 opened 3/11/10	99100.42 uS	Y	T=25.84°C	KV
4/6/11	7:11	CCV	RR2 AT155883	25,000 uS	Geotech Lot OAH388 Exp 3/11	25318.02 uS	Y	T=25.98°C	KV

<sup>1</sup> - Indicate any failed verifications; all corrective actions taken; any maintenance performed.

# **FPL Turkey Point Monitoring Plan** **Field Instrument Calibration Form**

Parameter: **Specific conductance**

FDEP-SOP Reference: **FT1200**

**QAPP Requirements:**

Initial Calibration	Initial Calibration Verification (ICV)	Conductivity Calibration Verification (CCV)
<ul style="list-style-type: none"> <li>- Use 1 standard at the upper end of expected sample reading range but no less than 720 uS/cm</li> <li>- Conduct daily prior to use or if CCV fails</li> </ul>	<ul style="list-style-type: none"> <li>- Read after pressing "Calibrate"</li> <li>- 1 standard at the low end of expected sample reading range but no less than 100 uS/cm</li> <li>- Must be within <math>\pm 5\%</math> of TV</li> </ul>	<ul style="list-style-type: none"> <li>- Read at the end of the event, or within 24 hrs of initial calibration, whichever is less.</li> <li>- Read only (do not press "calibrate")</li> <li>- Two standards that bracket the sample value range. Must be within <math>\pm 5\%</math> of TV</li> </ul>

Date	Time	Operation (IC, ICV, CCV)	Instrument or meter ID	Calibration Standard (ID & Lot#)	Calibration Standard Reference Value (TV)	Instrument or Meter Reading (uS/cm)	Acceptance Criteria Met? (Y/N)	Comments <sup>1</sup>	Calibration verified by
4/6/11	7:15	CCV	RR2 AT155883	100,000 uS	Geotech Lot OAG318 opened 3/11/10	98437.73 uS	Y	T=26.03°C	KV <sup>82</sup>
4/6/11	18:53	CCV	RR1 AT154841	25,000 uS	Geotech Lot OAG318 exp 3/11	25764.50	Y	T=26.7	KV <sup>82</sup>
4/6/11	18:56	CCV	RR1 AT154841	100,000 uS	Geotech Lot OAG318 opened 3/11/10	98708.01	Y	T=26.97	KV <sup>82</sup>
4/7/11	7:18	CCV	RR3 83595 AT154841	25,000 uS	Geotech Lot OAG318 opened 3/11/10	25254.86	Y	T=26.52	KV <sup>82</sup>
4/7/11	7:21	CCV	RR3 83595 AT154841	100,000 uS	Geotech Lot OAG318 opened 3/11/10	98285.16	Y	T=26.41	ICV <sup>82</sup>
4/7/11	7:26	CCV	RR2 AT155883	25,000 uS	Geotech Lot OAG318 exp 3/11	25181.21	Y	T=26.05	KV <sup>82</sup>
4/7/11	7:28	CCV	RR2 AT155883	100,000 uS	Geotech Lot OAG318 opened 3/11/10	100890.12	Y	T=26.31	KV <sup>82</sup>
4/7/11	19:15	CCV	RR3 AT154841	25,000 uS	Geotech Lot OAG318 exp 3/11	25275.74	Y	T=26.76	KV <sup>82</sup>
4/7/11	19:18	CCV	RR3 AT154841	100,000 uS	Geotech Lot OAG318 opened 3/11/10	100860.51	Y	T=27.74	KV <sup>82</sup>

<sup>1</sup> = Indicate any failed verifications; all corrective actions taken; any maintenance performed.

# **FPL Turkey Point Monitoring Plan** **Field Instrument Calibration Form**

Parameter: **Specific conductance**

FDEP-SOP Reference: **FT1200**

## **QAPP Requirements:**

Initial Calibration	Initial Calibration Verification (ICV)	Continuing Calibration Verification (CCV)
<ul style="list-style-type: none"> <li>- Use 1 standard at the upper end of expected sample reading range but no less than 720 uS/cm</li> <li>- Conduct daily prior to use or if CCV fails</li> </ul>	<ul style="list-style-type: none"> <li>- Read after pressing "Calibrate"</li> <li>- 1 standard at the low end of expected sample reading range but no less than 100 uS/cm</li> <li>- Must be within <math>\pm 5\%</math> of TV</li> </ul>	<ul style="list-style-type: none"> <li>- Read at the end of the event, or within 24 hrs of initial calibration, whichever is less.</li> <li>- Read only (do not press "calibrate")</li> <li>- Two standards that bracket the sample value range. Must be within <math>\pm 5\%</math> of TV</li> </ul>

Date	Time	Operation (IC, ICV, CCV)	Instrument or meter ID	Calibration Standard (ID & Lot#)	Calibration Standard Reference Value (TV)	Instrument or Meter Reading (uS/cm)	Acceptance Criteria Met? (Y/N)	Comments <sup>1</sup>	Calibration verified by
4-8-11	07:18	CCV	RR 2 155883	Geotech OAH 388 Exp 8/11	25,000 $\mu$ S	26,241.22	y	t = 27.56	JFV
4/8/11	07:30	CCV	RR 3 154841	Geotech OAH 388 Exp 8/11	11	26,212.04	y	t = 27.67c	JFV
4/8/11	07:19	CCV	RR 2 155883	Geotech Lot OAH 388	100,000 $\mu$ S	104,471.29	y	t = 27.39c	JFV
4/8/11	07:31	CCV	RR 3 154841	Geotech Lot OAH 388	11	103,432.06	y	t = 27.47c	JFV
4/8/11	16:46	CCV	RR 3 AT100 SN 154841	Geotech Lot OAH 388 Exp 8/11	25,000 @ 25°C	24916.6 @ 28.2°C	y	t = 28.5°C	JFV
4/8/11	16:50	CCV	RR 3 AT100 SN 154841	Geotech Lot OAH 388	100,000 @ 25°C	98349.2	y	t = 28.8°C	JFV
4/8/11	16:55	CCV	RR 2 AT100 155883	Geotech OAH 388 Exp 8/11	25,000 at 25°C	25,138.6 @ 28.7°C	y	- Not used in field today	JFV
4/8/11	16:59	CCV	RR 2 AT100 155883	Geotech Lot OAH 388	100,000 at 25°C	100147.0 @ 28.4°C	y	- Not used in field today	JFV

<sup>1</sup> = Indicate any failed verifications; all corrective actions taken; any maintenance performed.



# **FPL Turkey Point Monitoring Plan** **Field Instrument Calibration Form**

Parameter: **Specific conductance**

FDEP-SOP Reference: **FT1200**

**QAPP Requirements:**

Initial Calibration	Initial Calibration Verification (ICV)	Conductivity Calibration Verification (CCV)
<ul style="list-style-type: none"> <li>- Use 1 standard at the upper end of expected sample reading range but no less than 720 uS/cm</li> <li>- Conduct daily prior to use or if CCV fails.</li> </ul>	<ul style="list-style-type: none"> <li>- Read after pressing "Calibrate"</li> <li>- 1 standard at the low end of expected sample reading range but no less than 100 uS/cm</li> <li>- Must be within <math>\pm 5\%</math> of TV</li> </ul>	<ul style="list-style-type: none"> <li>- Read at the end of the event, or within 24 hrs of initial calibration, whichever is less.</li> <li>- Read only (do not press "calibrate")</li> <li>- Two standards that bracket the sample value range. Must be within <math>\pm 5\%</math> of TV</li> </ul>

Date	Time	Operation (IC, ICV, CCV)	Instrument or meter ID	Calibration Standard (ID & Lot#)	Calibration Standard Reference Value (TV)	Instrument or Meter Reading (uS/cm)	Acceptance Criteria Met? (Y/N)	Comments <sup>1</sup>	Calibration verified by
4/11/11	6:44	IC	RR3 AT154841	50,000 YSI 3169 Lot 10E10360 Exp 11/11	50,000	-	Y	Cell constant = 1.006	HEH
4/11/11	6:48	ICV	RR3 AT154841	YSI 3169 Lot 10E10360 Exp 11/2011	50,000	49942.1	Y	T = 29.35°C	HEH
4/11/11	6:50	CCV	RR3 AT154841	GeoTech OAH 388 Exp 8/11	250,000	25312.8	Y	T = 28.39°C	HEH
4/11/11	6:53	CCV	RR3 AT154841	GeoTech Lot OAH 080 Exp 11/2011	100,000	100139.38	Y	T = 28.17°C	HEH
4/11/11	6:56	IC	RR2 AT155883	YSI 3169 Lot 10E10360 Exp 11/2011	50,000	-	Y	Cell constant = 1.028	HEH
4/11/11	6:59	ICV	RR2 AT155883	YSI 3169 Lot 10E10360 Exp 11/2011	50,000	49477.14	Y	T = 28.21	HEH
4/11/11	7:01	CCV	RR2 AT155883	GeoTech OAH 388 Exp 8/11	25,000	25,532.7	Y	T = 27.68	HEH
4/11/11	7:02	CCV	RR2 AT155883	GeoTech Lot OAH 080 Exp 11/2011	100,000	106747.00	Y	T = 27.63	HEH

<sup>1</sup> = Indicate any failed verifications; all corrective actions taken; any maintenance performed.

# FPL Turkey Point Monitoring Plan Field Instrument Calibration Form

Parameter: **Specific conductance**

FDEP-SOP Reference: **FT1200**

## QAPP Requirements:

Initial Calibration	Initial Calibration Verification (ICV)	Continuing Calibration Verification (CCV)
<ul style="list-style-type: none"> <li>- Use 1 standard at the upper end of expected sample reading range but no less than 720 uS/cm</li> <li>- Conduct daily prior to use or if CCV fails</li> </ul>	<ul style="list-style-type: none"> <li>- Read after pressing "Calibrate"</li> <li>- 1 standard at the low end of expected sample reading range but no less than 100 uS/cm</li> <li>- Must be within <math>\pm 5\%</math> of TV</li> </ul>	<ul style="list-style-type: none"> <li>- Read at the end of the event, or within 24 hrs of initial calibration, whichever is less.</li> <li>- Read only (do not press "calibrate")</li> <li>- Two standards that bracket the sample value range. Must be within <math>\pm 5\%</math> of TV</li> </ul>

Date	Time	Operation (IC, ICV, CCV)	Instrument or meter ID	Calibration Standard (ID & Lot#)	Calibration Standard Reference Value (TV)	Instrument or Meter Reading (uS/cm)	Acceptance Criteria Met? (Y/N)	Comments <sup>1</sup>	Calibration verified by
4/11/11	17:17	CCV	RR 3 154841	Geotech Lot OAH 388 exp 8/11	25,000	25622.8	Y	T = 28.8	HEH
4/11/11	17:22	CCV	RR 3 154841	Geotech Lot OAH 388 exp 11/2011	100,000	100,135.3	Y	T = 29.3	HEH
4/12/11	7:51	CCV	RR 3 154841	Geotech Lot OAH 388 exp 8/11	25,000	24981.16	Y	T = 27.03	KV
4/12/11	7:57	CCV	RR 3 154841	Geotech Lot OAH 388 exp 11/2011	100,000	100581.29	Y	T = 27.42	KV
4/12/11	8:00	CCV	RR 2 155863	Geotech Lot OAH 388 exp 8/11	25,000	25210.41	Y	T = 27.26	KV
4/12/11	8:02	CCV	RR 2 155863	Geotech Lot OAH 388 exp 11/2011	100,000	100568.65	Y	T = 27.23	KV
4/12/11	17:19	CCV	RR 3 154841	Geotech Lot OAH 388 exp 8/11	25,000	24,652.1	Y	T = 31.6	HEH
4/12/11	17:22	CCV	RR 3 154841	Geotech Lot OAH 388 exp 11/2011	100,000	99640.1	Y	T = 31.0	HEH

<sup>1</sup> - Indicate any failed verifications; all corrective actions taken; any maintenance performed.

# FPL Turkey Point Monitoring Plan Field Instrument Calibration Form

Parameter: **Specific conductance**

FDEP-SOP Reference: **FT1200**

## QAPP Requirements:

Initial Calibration	Initial Calibration Verification (ICV)	Conductivity Calibration Verification (CCV)
<ul style="list-style-type: none"> <li>- Use 1 standard at the upper end of expected sample reading range but no less than 720 uS/cm</li> <li>- Conduct daily prior to use or if CCV fails</li> </ul>	<ul style="list-style-type: none"> <li>- Read after pressing "Calibrate"</li> <li>- 1 standard at the low end of expected sample reading range but no less than 100 uS/cm</li> <li>- Must be within <math>\pm 5\%</math> of TV</li> </ul>	<ul style="list-style-type: none"> <li>- Read at the end of the event, or within 24 hrs of initial calibration, whichever is less.</li> <li>- Read only (do not press "calibrate")</li> <li>- Two standards that bracket the sample value range. Must be within <math>\pm 5\%</math> of TV</li> </ul>

Date	Time	Operation (IC, ICV, CCV)	Instrument or meter ID	Calibration Standard (ID & Lot#)	Calibration Standard Reference Value (TV)	Instrument or Meter Reading (uS/cm)	Acceptance Criteria Met? (Y/N)	Comments <sup>1</sup>	Calibration verified by
4/13/11	7:40	CCV	RR3 154841	Geotech Lot 0A11385 Exp 8/11	25,000	25,126.6	Y	T = 27.1	HEH <sup>gk</sup>
4/13/11	7:45	CCV	RR3 154841	Geotech Lot 0A1080 Exp 11/11	100,000	99642.2	Y	T = 27.0	HEH <sup>gk</sup>
4/13/11	7:48	CCV	RR2 155883	Geotech Lot 0A11388 Exp 8/11	25,000	25,359.2	Y	T = 27.0	HEH <sup>gk</sup>
4/13/11	7:50	CCV	RR2 155883	Geotech Lot 0A1088 Exp 11/11	100,000	99926.5	Y	T = 26.9	HEH <sup>gk</sup>
4/13/11	15:23	CCV	RR3 154841	Geotech Lot 0A11385 Exp 8/11	25,000	25463.23	Y	T = 28.45°C	KV <sup>gk</sup>
4/13/11	15:25	CCV	RR3 154841	Geotech Lot 0A1088 Exp 11/11	100,000	99400.55	Y	T = 28.48°C	KV <sup>gk</sup>
<del>4/14/11</del>	<del>7:55</del>	<del>CCV</del>	<del>RR3 154841</del>	<del>Geotech Lot 0A11388 Exp 8/11</del>	<del>25,000</del>	<del>1009.98</del>	<del>Y</del>	<del>T = 25.88°C</del>	<del>KV</del>
4/14/11	7:55	ICV IC	RR3 154841	Geotech Lot 0A11388 Exp 11/11	1,000	1009.98	Y	cell constant: 0.911 T = 25.88°C Lot 1AB217 exp 2/12	KV <sup>gk</sup>
4/14/11	8:02	ICV IC	RR2 155883	Geotech Lot 0A1088 Exp 11/11	<del>25,000</del> 1,000	997.22	Y	cell constant: 0.893 T = 25.96°C Lot 1AB217 exp 2/12	KV <sup>gk</sup>

<sup>1</sup> = Indicate any failed verifications; all corrective actions taken; any maintenance performed.

# FPL Turkey Point Monitoring Plan Field Instrument Calibration Form

Parameter: **Specific conductance**

FDEP-SOP Reference: **FT1200**

**QAPP Requirements:**

Initial Calibration	Initial Calibration Verification (ICV)	Continuing Calibration Verification (CCV)
<ul style="list-style-type: none"> <li>- Use 1 standard at the upper end of expected sample reading range but no less than 720 uS/cm</li> <li>- Conduct daily prior to use or if CCV fails</li> </ul>	<ul style="list-style-type: none"> <li>- Read after pressing "Calibrate"</li> <li>- 1 standard at the low end of expected sample reading range but no less than 100 uS/cm</li> <li>- Must be within <math>\pm 5\%</math> of TV</li> </ul>	<ul style="list-style-type: none"> <li>- Read at the end of the event, or within 24 hrs of initial calibration, whichever is less.</li> <li>- Read only (do not press "calibrate")</li> <li>- Two standards that bracket the sample value range. Must be within <math>\pm 5\%</math> of TV</li> </ul>

Date	Time	Operation (IC, ICV, CCV)	Instrument or meter ID	Calibration Standard (ID & Lot#)	Calibration Standard Reference Value (TV)	Instrument or Meter Reading (uS/cm)	Acceptance Criteria Met? (Y/N)	Comments <sup>1</sup>	Calibration verified by
4/14/11	8:06	CCV	RR2 155883	Geotech Lot 0A6114 7/11 exp	12880	11289.30	N	Lot 0A6114 exp 7/11 T=25.44°C Lot 1A8217 exp 2/12	KV
4/14/11	8:12	CCV	RR3 154841	Geotech Lot 0A6114 7/11 exp	12880	11499.35	N	T=25.43°C	KV
4/14/11	8:15	IC	RR2 155883	Geotech Lot 0A6114 7/11 exp	12880	12869.64	Y	T=25.40°C cell constant: 1.028	KV <sup>90</sup>
4/14/11	8:19	IC <sup>KV</sup>	RR2 155883	Geotech Lot 1A8217 exp 2/12	1000	998.47	Y	T=25.91 cell constant: 0.875	KV <sup>90</sup>
4/14/11	8:27	CCV	RR2 155883	Geotech	25,000	21538.32	N	T=25.80°C	KV
4/14/11		CCV	RR3 154841	Geotech	25000			T=	KV
4/14/11	8:48	IC	RR3 177108	Geotech Lot 1A8217 2/12	1000	1012.9	Y	T=25.03 cell constant: 1.024	KV <sup>90</sup>
4/14/11	8:53	CCV	RR3 177108	Geotech Lot 0A6114 7/11 exp	12880	12593.85	Y	T=25.26	KV <sup>90</sup>
4/14/11	8:10	CCV	"	Geotech Lot 1A8217 2/12	1,500	1,004.48	Y	t=28.25	JJ <sup>90</sup>

<sup>1</sup> - Indicate any failed verifications; all corrective actions taken; any maintenance performed.

# FPL Turkey Point Monitoring Plan Field Instrument Calibration Form

Parameter:

Specific conductance

FDEP-SOP Reference: FT1200

## QAPP Requirements:

Initial Calibration	Initial Calibration Verification (ICV)	Continuing Calibration Verification (CCV)
<ul style="list-style-type: none"> <li>- Use 1 standard at the upper end of expected sample reading range but no less than 720 uS/cm</li> <li>- Conduct daily prior to use or if CCV fails</li> </ul>	<ul style="list-style-type: none"> <li>- Read after pressing "Calibrate"</li> <li>- 1 standard at the low end of expected sample reading range but no less than 100 uS/cm</li> <li>- Must be within <math>\pm 5\%</math> of TV</li> </ul>	<ul style="list-style-type: none"> <li>- Read at the end of the event, or within 24 hrs of initial calibration, whichever is less.</li> <li>- Read only (do not press "calibrate")</li> <li>- Two standards that bracket the sample value range. Must be within <math>\pm 5\%</math> of TV</li> </ul>

Date	Time	Operation (IC, ICV, CCV)	Instrument or meter ID	Calibration Standard (ID & Lot#)	Calibration Standard Reference Value (TV)	Instrument or Meter Reading (uS/cm)	Acceptance Criteria Met? (Y/N)	Comments <sup>1</sup>	Calibration verified by
4/14/11	18:12	CCV	RR3 177108	Broken OAK 114 7/11	12,880	12,736.35	y	t = 29.51	JAV
4/15/11	8:03	CCV	RR3 AT200 177108	Geotech Lot 1A B217 Exp 2/12	1000 $\mu$ S/cm	1024.11	y	t = 27.09	JAV
4/15/11	8:11	CCV	RR3 AT200 177108	Geotech Lot OAK 114 Exp 7/11	12,880 $\mu$ S/cm	<del>12,468.0</del> 12468.0	y	t = 26.61	JAV
4/15/11	17:04	CCV	RR3 AT200 177108	Geotech Lot 1A B217 Exp 2/12	1000 $\mu$ S/cm	1017.9	y	t = 27.42	JAV
4/15/11	17:15	CCV	RR3 AT200 177108	Geotech Lot OAK 114 Exp 11/2011	100,000 $\mu$ S/cm	102731.2	y	t = 27.28.0	JAV
4/18/11	7:19	IC	RR3 AT200 177108	YSE Lot 10E 10030 Exp 11/2011	50,000 $\mu$ S/cm @ 25C		y	Cell constant 1.000	JAV
4/18/11	7:20	CCV	RR3 AT200 177108	YSE Lot 10E 10030 Exp 11/2011	50,000 $\mu$ S/cm @ 25C	49,988.9 $\mu$ S/cm	y	t = 27.15	JAV
4/18/11	7:36	CCV	RR3 AT200 177108	Geotech Lot 1A B217 Exp 2/2012	1000 $\mu$ S/cm	1002.4	y	t = 27.36	JAV
4/18/11	7:39	CCV	RR3 AT200 177108	Geotech Lot OAK 114 Exp 11/2011	100,000 $\mu$ S/cm @ 25C	99622.5 $\mu$ S/cm	y	t = 26.86	JAV

<sup>1</sup> - Indicate any failed verifications; all corrective actions taken; any maintenance performed.

# **FPL Turkey Point Monitoring Plan Field Instrument Calibration Form**

Parameter: **Specific conductance**

FDEP-SOP Reference: **FT1200**

**QAPP Requirements:**

Initial Calibration	Initial Calibration Verification (CV)	Continuing Calibration Verification (CCV)
<ul style="list-style-type: none"> <li>- Use 1 standard at the upper end of expected sample reading range but no less than 720 uS/cm</li> <li>- Conduct daily prior to use or if CCV fails</li> </ul>	<ul style="list-style-type: none"> <li>- Read after pressing "Calibrate"</li> <li>- 1 standard at the low end of expected sample reading range but no less than 100 uS/cm</li> <li>- Must be within <math>\pm 5\%</math> of TV</li> </ul>	<ul style="list-style-type: none"> <li>- Read at the end of the event, or within 24 hrs of initial calibration, whichever is less.</li> <li>- Read only (do not press "calibrate")</li> <li>- Two standards that bracket the sample value range. Must be within <math>\pm 5\%</math> of TV</li> </ul>

Date	Time	Operation (IC, ICV, CCV)	Instrument or meter ID	Calibration Standard (ID & Lot#)	Calibration Standard Reference Value (TV)	Instrument or Meter Reading (uS/cm)	Acceptance Criteria Met? (Y/N)	Comments <sup>1</sup>	Calibration verified by
4/18/11	18:34	CCV	RR3 177108	1000 uS Geotech Lot 1A8217 exp 2/12	1000 uS	1007.13	Y	T = 28.70	KV <sup>92</sup>
4/18/11	18:40	CCV	RR3 177108	100,000 uS Geotech OAK080 exp 11/2011	100,000 uS	100127.40	Y	T = 28.32	KV <sup>92</sup>
4/19/11	7:25	CCV	RR3 177108	1,000 uS Geotech Lot 1A8217 exp 2/12	1,000 uS	1109.82	N	T = 27.63	HEH
4/19/11	7:30	CCV	RR3 177108	100,000 uS Geotech OAK080 exp 11/2011	100,000 uS	98,363.98	Y	T = 27.21	HEH <sup>92</sup>
4/19/11	7:35	CCV	RR3 177108	1,000 uS Geotech Lot 1A8217 exp 2/12	1,000 uS changed soln	1071.36 1030.59	Y	T = 27.38	HEH
4/19/11	16:38	CCV	RR3 177108	1000 uS Geotech Lot 1A8217 exp 2/12	1000 uS	980.55	Y	T = 28.21	KV <sup>92</sup>
4/19/11	16:41	CCV	RR3 177108	100,000 uS Geotech OAK080 exp 11/2011	100,000 uS	100840.53	Y	T = 29.31	KV <sup>92</sup>
4/19/11	17:35	IC	RR2 155883	50,000 uS Geotech Lot 1A8336 exp 2/12	50,000 uS	50,258.88	Y	Cell constant = 1.020 T = 29.68	HEH <sup>92</sup>
4/19/11	17:43	CCV	RR2 155883	1,000 uS Geotech Lot 1A8217 exp 2/12	1,000 uS	1,049.95	Y	T = 29.04	HEH <sup>92</sup>

<sup>1</sup> = Indicate any failed verifications; all corrective actions taken; any maintenance performed.

4/19/11 17:45 CCV RR2 155883 Geotech Lot OAK080 exp 11/2011 100,000 uS 100832.54 Y T = 29.45 HEH

# FPL Turkey Point Monitoring Plan Field Instrument Calibration Form

Parameter: Specific conductance

FDEP-SOP Reference: FT1200

QAPP Requirements:

Initial Calibration	Initial Calibration	Continual Calibration
<ul style="list-style-type: none"> <li>- Use 1 standard at the upper end of expected sample reading range but no less than 720 uS/cm</li> <li>- Conduct daily prior to use or if CCV falls</li> </ul>	<ul style="list-style-type: none"> <li>- Read after pressing "Calibrate"</li> <li>- 1 standard at the low end of expected sample reading range but no less than 100 uS/cm</li> <li>- Must be within <math>\pm 5\%</math> of TV</li> </ul>	<ul style="list-style-type: none"> <li>- Read at the end of the event, or within 24 hrs of initial calibration, whichever is less.</li> <li>- Read only (do not press "calibrate")</li> <li>- Two standards that bracket the sample value range. Must be within <math>\pm 5\%</math> of TV</li> </ul>

Date	Time	Operation (IC, ICV, CCV)	Instrument or meter ID	Calibration Standard (ID & Lot#)	Calibration Standard Reference Value (TV)	Instrument or Meter Reading (uS/cm)	Acceptance Criteria Met? (Y/N)	Comments <sup>1</sup>	Calibration verified by
4/24/11	6:54	CCV	RR2 155883	Geotech Lot 1AB217 exp 2/12	1,000 NS	1057.44	N	T = 28.11	
4/20/11	6:59	IC	RR2 155897	Geotech Lot OAK080 exp 11/11	50,000	—		Cell constant 1.017	gk
4/20	7:01	CCV	RR2 155897	Geotech OAK080 exp 11/11	50,000	50156.85	Y	T = 28.82	HEH <sup>gk</sup>
4/20	7:03	CCV	RR2 155897	Geotech 1AB217 2/12	1,000	900.43	N	T = 26.72	gk
4/20	7:08	CCV	RR2 155883	Geotech 1AB217 exp 2/12	1,000	962.04	Y	T = 27.21	HEH <sup>gk</sup>
4/20	7:10	CCV	RR2 155883	Geotech OAK080 exp 11/11	100,000	101190.7	Y	T = 27.47	HEH <sup>gk</sup>
4/20	7:14	CCV	RR3 177108	Geotech OAK080 exp 11/11	100,000	100,308.97	Y	T = 27.74	HEH <sup>gk</sup>
4/20	7:16	CCV	RR3 177108	Geotech 1AB217 exp 2/12	1,000	986.57	Y	T = 26.45	HEH <sup>gk</sup>
4/20	7:12	CCV	RR2 155883	Geotech OAK080 exp 11/11	100,000	102860.13		T = 28.79	KV <sup>gk</sup>

<sup>1</sup> = Indicate any failed verifications; all corrective actions taken; any maintenance performed.

changed  
1,000  
500

# **FPL Turkey Point Monitoring Plan** **Field Instrument Calibration Form**

Parameter: **Specific conductance**

FDEP-SOP Reference: **FT1200**

QAPP Requirements:

Initial Calibration	Initial Calibration Verification (ICV)	Continuing Calibration Verification (CCV)
<ul style="list-style-type: none"> <li>- Use 1 standard at the upper end of expected sample reading range but no less than 720 uS/cm</li> <li>- Conduct daily prior to use or if CCV fails</li> </ul>	<ul style="list-style-type: none"> <li>- Read after pressing "Calibrate"</li> <li>- 1 standard at the low end of expected sample reading range but no less than 100 uS/cm</li> <li>- Must be within <math>\pm 5\%</math> of TV</li> </ul>	<ul style="list-style-type: none"> <li>- Read at the end of the event, or within 24 hrs of initial calibration, whichever is less.</li> <li>- Read only (do not press "calibrate")</li> <li>- Two standards that bracket the sample value range. Must be within <math>\pm 5\%</math> of TV</li> </ul>

Date	Time	Operation (IC, ICV, CCV)	Instrument or meter ID	Calibration Standard (ID & Lot#)	Calibration Standard Reference Value (TV)	Instrument or Meter Reading (uS/cm)	Acceptance Criteria Met? (Y/N)	Comments <sup>1</sup>	Calibration verified by
4/20/11	19:15	CCV	RR2 155883	Geotech 1AB217 exp 2/12	1000	1000.05	Y	T = 26.37	KV <sup>92</sup>
4/20/11	19:19	CCV	RR3 177108	Geotech 0AK080 exp 11/11	100,000	101380.73	Y	T = 28.28	KV <sup>92</sup>
4/20/11	19:22	CCV	RR3 177108	Geotech 1AB217 exp 2/12	1000	1022.74	Y	T = 26.24	KV <sup>92</sup>
4/21/11	7:13	CCV	RR3 177108	Geotech 1AB217 exp 2/12	1000	1020.86	Y	T = 27.87	KV <sup>92</sup>
4/21/11	7:10	CCV	RR3 177108	Geotech 0AK080 exp 11/11	100,000	99816.97	Y	T = 27.84	KV <sup>92</sup>
4/21/11	7:16	CCV	RR2 155883	Geotech 1AB217 exp 2/12	1000	951.69	Y	T = 27.88	KV <sup>92</sup>
4/21/11	7:17	CCV	RR2 155883	Geotech 0AK080 exp 11/11	100,000	100253.43	Y	T = 27.61	KV <sup>92</sup>
4/21/11	16:28	CCV	RR3 177108	Geotech 1AB217 exp 2/12	1000	1004.23	Y	T = 29.87	KV <sup>92</sup>
4/21/11	16:31	CCV	RR3 177108	Geotech 0AK080 exp 11/11	100,000	100561.96	Y	T = 30.46	KV <sup>92</sup>

<sup>1</sup> = Indicate any failed verifications; all corrective actions taken; any maintenance performed.



# **FPL Turkey Point Monitoring Plan** **Field Instrument Calibration Form**

Parameter: **Specific conductance**

FDEP-SOP Reference: **FT1200**

**QAPP Requirements:**

Initial Calibration	Initial Calibration Verification (CV)	Conductivity Calibration Verification (CCV)
<ul style="list-style-type: none"> <li>- Use 1 standard at the upper end of expected sample reading range but no less than 720 uS/cm</li> <li>- Conduct daily prior to use or if CCV fails</li> </ul>	<ul style="list-style-type: none"> <li>- Read after pressing "Calibrate"</li> <li>- 1 standard at the low end of expected sample reading range but no less than 100 uS/cm</li> <li>- Must be within <math>\pm 5\%</math> of TV</li> </ul>	<ul style="list-style-type: none"> <li>- Read at the end of the event, or within 24 hrs of initial calibration, whichever is less.</li> <li>- Read only (do not press "calibrate")</li> <li>- Two standards that bracket the sample value range. Must be within <math>\pm 5\%</math> of TV</li> </ul>

Date	Time	Operation (IC, ICV, CCV)	Instrument or meter ID	Calibration Standard (ID & Lot#)	Calibration Standard Reference Value (TV)	Instrument or Meter Reading (uS/cm)	Acceptance Criteria Met? (Y/N)	Comments <sup>1</sup>	Calibration verified by
4/22/11	6:55 AM	CCV	AT 200 177108	GeoTech Lot DAK080 Exp 11/2011	100,000 $\mu$ S/cm @ 25°C	100672.15	Y	t = 28.32	JAV 8 <sup>th</sup>
4/22/11	7:00	CCV	AT 200 177108	GeoTech Lot 1AB247 Exp 2/2012	100,000 $\mu$ S/cm @ 25°C	1013.4	Y	t = 28.15	JAV 8 <sup>th</sup>
4/22/11	12:47	CCV	AT 200 177108	GeoTech Lot 1AB247 Exp 2/2012	100,000 $\mu$ S/cm @ 25°C	1025.10	Y	t = 26.50	JAV 8 <sup>th</sup>
4/22/11	12:44	CCV	AT 200 177108	GeoTech Lot DAK080 Exp 11/2011	100,000 $\mu$ S/cm @ 25°C	100731.35	Y	t = 26.50	JAV 8 <sup>th</sup>

<sup>1</sup> = Indicate any failed verifications; all corrective actions taken; any maintenance performed.

# **Temperature, Water Calibration April 2011**

Initial Ecological Characterization  
Tracer Suite Sampling 2011

**FPL Turkey Point Monitoring Plan**  
**Field Instrument Calibration Form**

Parameter: Temperature, water

FDEP-SOP Reference: FT1400

QAPP Requirements: Monthly verification against NIST-traceable thermometer  
Must be within  $\pm 0.5^{\circ}\text{C}$  of NIST-traceable readings  
Quarterly verification at temperatures above and below the range  
of sample readings for the quarter

Date	Time	Instrument or meter ID	NIST- Traceable Thermometer ID	Instrument or meter reading (Deg C)	NIST Thermometer reading (Deg C)	Acceptance Criteria Met? (Y/N)	Comments <sup>1</sup>	Calibration verified by
4/3/11	5:11 pm	Unit Troll 100 SN 154841	SN 10184755 JAV	25.3°	25.6°	Y	Using RR 83587 Unit #1	JAV
4/3/11	5:14	Unit Troll 100 SN 155883	SN 10184755 SN 155883 JAV	25.3°	25.6°	Y	Using RR Unit #2 81640	J.V.
4/22/11	13:04	Unit Troll 177108	SN 101847574	27.88	28.7°	N	Using RR 3-83587 JAV 83595	JAV
5/6/11	15:35	RR2 177108	Ebro 15050223	28.0°C	28.2	Y	NIST thermometer used on 4/22/11. May have malfunctioned.	KV
Note:		NIST	Thermometer SN 101847551			- on	4/21/11 - No longer	
		functional						

1 = Indicate any failed verifications; all corrective actions taken; any maintenance performed.

# **APPENDIX F:**

# **FIELD PHOTO DOCUMENTATION**



**Figure F-1. Photos of Taller Mangrove Fringe where M7a is to be Located  
(Field Book 1, Page 6, January 18, 2010).**



**Figure F-2. Atypical Growth of Red Mangroves As Seen in M7 Area  
(Field Book 1, Page 7, January 18, 2010).**





**Figure F-3. Evidence of Dead Red Mangroves was Noted through the Open Patch of M6a (Field Book 1, Pages 11 and 12, March 21, 2010).**





**Figure F-4. Site W2b is 2 m SE of W2a, also Located in the Area of Thick Tree Vegetation (Field Book 1, Page 20, March 21, 2010).**





**Figure F-5. Fine Silty Sediment Characterized Samples Taken at Transect F15  
(Field Book 3, Page 2, April 6, 2010).**



**Site is in mangroves about 20 m from shoreline**



**Looking in at HI-8**



**Open red mangrove-dominated area with black mangroves mixed in**



**Most black mangroves are larger than the red mangroves in both trunk thickness and height**



**Black mangrove pneumatophores cover ground**



**Scattered garbage along shoreline**



**Coral rubble and some *Salicornia***

**Figure F-6. Photos Representative of Transect HI-8 (Field Book 3, Page 14, April 7, 2010).**

# **APPENDIX G:**

## **LEVEL IV LABORATORY REPORTS**

*Appendix G files may be found on enclosed CD*



# **APPENDIX H:**

## **DATA USABILITY SUMMARIES FOR POREWATER LABORATORY RESULTS**

**September 2010**

## DATA USABILITY SUMMARY

On behalf of Florida Power & Light Company (FPL), Ecology and Environment, Inc. (E & E) reviewed three data packages from Test America Laboratories, Inc. (Test America) and subcontract labs for the analysis of **porewater** samples collected during the September 2010 (Biscayne Bay only) porewater sampling event and the October through December 2010 ecological porewater event at the Turkey Point facility in Homestead, Florida. Data were reviewed for conformance to the requirements of the guidance document, *Florida Power & Light Company, Inc. Turkey Point Monitoring Plan Quality Assurance Project Plan (QAPP), April and August, 2010* (FPL Turkey Point Monitoring Plan QAPP) and modifications provided by FPL to the South Florida Water Management District during the November 2010 Quarterly meeting.

**Intended Use of Data:** To provide current data on the environmental conditions of the groundwater and surface waters in the monitoring area and to assess chemicals of concern levels in groundwater and surface waters and to guide future monitoring actions, if necessary.

Analyses requested included:

- EPA Method 200.7 – Metals, Total, by Inductively Coupled Plasma / Atomic Emission Spectroscopy (ICP/AES) - Ba and Fe only
- SW-846-6010 - Metals, Total, by ICP/AES - Ca, Mg, K, Na, B, and Sr
- EPA Method 300 – Anions by Ion Chromatography - bromide, chloride, fluoride, sulfate
- SM 4500-S2 F – Sulfides
- SM 2320B - Alkalinity
- SW-846-9060 – Dissolved Inorganic Carbon
- SM 4500 NH3 G – Ammonia - dissolved
- EPA Method 351.2 – Total Kjeldahl Nitrogen (TKN)
- EPA Method 353.2 – Nitrate/Nitrite as Nitrogen
- SM 4500 P E – Orthophosphate, dissolved
- EPA Method 365.1 – Total phosphorous

- Non-standard method -  $^{18}\text{O}/^{16}\text{O}$
- Non-standard method -  $^2\text{H}/^1\text{H}$
- Non-standard method -  $^{13}\text{C}/^{12}\text{C}$
- Non-standard method -  $^{87}\text{Sr}/^{86}\text{Sr}$
- Non-standard method -  $^3\text{H}$

Carbon isotope analysis was performed by to the University of Miami, Stable Isotope Laboratory, Rosenstiel School of Marine Atmospheric Science. Hydrogen and Oxygen isotope analyses were performed by the University of Miami, Laboratory of Stable Isotope Ecology. The samples for these analyses were shipped to Test America who forwarded them to the respective labs for analysis. The tritium and strontium isotope samples were shipped directly to United States Geologic Survey (USGS), Menlo Park, California for analysis.

Data were reviewed and validated as described in the *FPL Turkey Point Monitoring Plan QAPP* and the results of the review/validation are discussed in this Data Usability Summary (DUS). The following laboratory submittals and field data were examined:

- the reportable data and the results of supporting quality control (QC) analyses;
- the case narratives;
- the chain of custody (COC) and sample receipt checklist; and
- sampling logs and field logbooks.

Table 1 lists sample and laboratory identifications, methods requested, quality control (QC) performed, and identification corrections. Table 2 lists method and laboratory quality control acceptance criteria. Tables 3a and 3b summarize field duplicate results. Table 4 summarizes the data qualified as a result of this validation. Table 5 lists the qualifier codes and definitions used to qualify data in this validation.

## Introduction

A total of eighty six samples were reviewed in this DUS. During the September 2010 event, thirty porewater samples and three field blanks were analyzed for one or more of the analyses listed above. During the October through December 2010 event, fifty porewater samples, one porewater duplicate sample, and two field blanks were analyzed



for the analyses listed above. In addition, two internal test samples, BB3E1-EQ TEST and BB4B2-FD TEST, were submitted for analysis. Table 1 below lists the sample identifications (IDs) cross-referenced to laboratory identifications and the analyses selected. Also any corrections for the sample ID are noted.

“Level 4 Mini Final Reports” along with the subcontract isotope data were submitted to FPL between February 2 and March 14, 2011. A revision to the Level 4 reports was submitted to FPL on April 20, 2011. The revision includes sample login sheets. In addition, tritium results were resubmitted May 20, 2011. USGS indicated an instrument error caused an approximate 5% difference in the previously reported results.

## **Data Review / Validation Results**

### **Analytical Results**

All results were evaluated against the method detection limit (MDL), defined as the minimum concentration of an analyte reported with 99% confidence that the analyte concentration is greater than zero. The reporting limit (RL) or practical quantitation limit (PQL), is defined as the lowest non-zero standard concentration in the calibration curve. Results are reported with an “I” flag if less than the RL but greater than the MDL. Non-detected results are reported as less than the value of the MDL.

The hydrogen and oxygen isotope results for samples 121010-F2-4-30CM, 111210-F3-4-30CM, 111210-F4-3-30CM, and 121010-F4-4-30CM were not reported, although they were collected and submitted to TestAmerica for analysis.

The results for Dissolved Ammonia are reported in the data summary table, FPL\_Results Sept-Dec 2010\_052511.xlsx, in the “Total Ammonia” row.

**Table 1: Sample Listing**

SDG	Matrix	Sample ID	Lab ID	Sample Date	Analyses	QC	ID Corr.
37430	PW	092310-BB-PW-J6	660-37430-5	09/23/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092510-BB-PW-IJ3	660-37436-1	09/25/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092510-BB-PW-HI6	660-37436-2	09/25/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092510-BB-PW-GH6	660-37436-3	09/25/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092510-BB-PW-BB5B	660-37436-4	09/25/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092510-BB-PW-IJ4	660-37436-5	09/25/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092510-BB-PW-BF	660-37436-6	09/25/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092510-BB-PW-J5	660-37436-7	09/25/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092510-BB-PW-GH5	660-37436-8	09/25/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092510-BB-PW-H5	660-37436-9	09/25/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092410-BB-PW-H3	660-37436-10	09/24/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092410-BB-PW-I3	660-37436-11	09/24/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092610-BB-PW-F14	660-37455-1	09/26/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86	300-MS/MSD	None
37430	PW	092610-BB-PW-J12	660-37455-2	09/26/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092610-BB-PW-HI11	660-37455-3	09/26/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092610-BB-PW-HI10	660-37455-4	09/26/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092610-BB-PW-H10	660-37455-5	09/26/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092610-BB-PW-G11-Bay	660-37455-6	09/26/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092610-BB-PW-H9-Bay	660-37455-7	09/26/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060,		None

SDG	Matrix	Sample ID	Lab ID	Sample Date	Analyses	QC	ID Corr.
					d13C, d18O, d2H, d3H, Sr 87/86		
37430	PW	092610-BB-PW-J9	660-37455-8	09/26/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092610-BB-PW-IJ8	660-37455-9	09/26/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092610-BB-PW-JK7	660-37455-10	09/26/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092610-BB-PW-FBlank	660-37455-11FB	09/26/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092710-BB-PW-IJ7	660-37508-1	09/27/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86	200.7-MS/MSD/PDS/SD/LD	None
37430	PW	092710-BB-PW-HJ7	660-37508-2	09/27/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092710-BB-PW-H4	660-37508-3	09/27/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092710-BB-PW-GH2B	660-37508-4	09/27/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092810-BB-PW-FCEB	660-37511-1	09/28/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092810-BB-PW-EB	660-37511-2	09/28/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092810-BB-PW-G3	660-37511-3	09/28/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092810-BB-PW-IJ1	660-37511-4	09/28/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092810-BB-PW-HI1	660-37511-5	09/28/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	092810-BB-PW-H2B	660-37511-6	09/28/2010	200.7(Ba,Fe),6010,300,2320, 4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	100610-F2-1-30cm	660-37618-1	10/06/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	100610-EB-1	660-37618-2	10/06/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86	4500NH3-LD	None
37430	PW	100610-F2-2-30cm	660-37618-3	10/06/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None

SDG	Matrix	Sample ID	Lab ID	Sample Date	Analyses	QC	ID Corr.
37430	PW	102810-BB3E1-30	660-37969-1	10/28/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86	200.7-MS/MSD/PDS/SD/LD, 4500PE-MS/MSD/LD	None
37430	PW	102810-BB3E1-EQ TEST	660-37969-2	10/28/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	102810-BB4A30-30	660-37969-3	10/28/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	102810-BB4B2-30	660-37969-4	10/28/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	102810-BB4B2-FD TEST	660-37969-5	10/28/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	102810-BB4C7-30	660-37969-6	10/28/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	102810-BB4D5-30	660-37969-7	10/28/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	102810-BB4E1-30	660-37969-8	10/28/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86	300-MS/MSD, 351-MS/MSD, 4500NH3-LD	None
37430	PW	102710-BB2A4-30	660-37972-1	10/27/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86	365.1-MS/MSD, 2320-LD, 4500NH3-LD	None
37430	PW	102710-BB2B1-30	660-37972-2	10/27/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	102710-BB2C2-30	660-37972-3	10/27/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	102710-BB2D8-30	660-37972-4	10/27/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	102710-BB2E5-30	660-37972-5	10/27/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060,		None

SDG	Matrix	Sample ID	Lab ID	Sample Date	Analyses	QC	ID Corr.
					d13C, d18O, d2H, d3H, Sr 87/86		
37430	PW	102710-BB3A4-30	660-37972-6	10/27/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86	353-MS/LD	None
37430	PW	102710-BB3B6-30	660-37972-7	10/27/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	102710-BB3C1-30	660-37972-8	10/27/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	102710-BB3D4-30	660-37972-9	10/27/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	102710-BB2E5-30-DUP	660-37972-10	10/27/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86	300-MS/MSD	None
37430	PW	110510-M4-2-30CM	660-38122-1	11/05/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86	200.7-MS/MSD/PDS/SD/LD, 4500PE-MS/MSD/LD	None
37430	PW	110510-M4-1-30CM	660-38122-2	11/05/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	111510-M2-2-30CM	660-38249-1	11/15/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86	4500PE-LD	None
37430	PW	111510-M2-1-30CM	660-38249-2	11/15/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86	4500PE-MS/MSD	None
37430	PW	111510-FCEB-01	660-38249-3	11/15/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	111610-M1-2-30CM	660-38264-1	11/16/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86	4500PE-MS/MSD/LD	None
37430	PW	111710-M1-1-30CM	660-38322-1	11/17/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86	365.1-MS/LD, 4500PE-MS/MSD/LD	None

SDG	Matrix	Sample ID	Lab ID	Sample Date	Analyses	QC	ID Corr.
37430	PW	111710-M3-2-30CM	660-38322-2	11/17/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	111810-M3-1-30CM	660-38322-3	11/18/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86	4500PE-MS/MSD/LD	None
37430	PW	111810-F5-1-30CM	660-38322-4	11/18/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	111810-F5-2-30CM	660-38322-5	11/18/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	111810-M5-1-30CM	660-38322-6	11/18/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37430	PW	111810-M5-2-30CM	660-38322-7	11/18/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86	200.7-MS/MSD/PDS/LD, 4500NH3-LD	None
37687	PW	101210-F3-3-30CM	660-37687-1	10/12/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37687	PW	101210-F3-2-30CM	660-37687-2	10/12/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86	200.7-MS/MSD/PDS/SD/LD, 4500NH3-LD	None
37687	PW	102010-F6-1-30CM	660-37841-1	10/20/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86	4500PE-MS/MSD	None
37687	PW	102010-F6-2-30CM	660-37841-2	10/20/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37687	PW	102010-F6-3-30CM	660-37841-3	10/20/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37687	PW	102210-F2-3-30CM	660-37885-1	10/22/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37687	PW	102210-F3-1-30CM	660-37885-2	10/22/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None

SDG	Matrix	Sample ID	Lab ID	Sample Date	Analyses	QC	ID Corr.
37687	PW	102910-F1-1-30CM	660-38006-1	10/29/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86	4500NH3-MS/MSD, 4500PE-MS/MSD/LD	None
37687	PW	102910-FB-1	660-38006-2	10/29/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37687	PW	102910-F1-2-30CM	660-38006-3	10/29/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37687	PW	110810-F4-1-30CM	660-38131-1	11/08/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86	4500PE-MS/MSD/LD	None
37687	PW	110810-F4-2-30CM	660-38131-2	11/08/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37687	PW	110910-F6-4-30CM	660-38167-1	11/09/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86	4500PE-MS/MSD/LD	None
37687	PW	111210-F4-3-30CM	660-38225-1	11/12/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86	4500PE-MS/MSD/LD	None
37687	PW	111210-F3-4-30CM	660-38225-2	11/12/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86	4500NH3-LD	None
37687	PW	121010-F4-4-30CM	660-38718-1	12/10/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86	4500PE-MS/MSD/LD	None
37687	PW	121010-F2-4-30CM	660-38718-4	12/10/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37931	PW	102610-BB1-A6-30	660-37931-1	10/26/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86	200.7-MS/MSD/PDS/SD/LD	None
37931	PW	102610-BB1-B8-30	660-37931-2	10/26/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86	351.2-MS/MSD	None
37931	PW	102610-BB1-C4-30	660-37931-3	10/26/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None

SDG	Matrix	Sample ID	Lab ID	Sample Date	Analyses	QC	ID Corr.
37931	PW	102610-BB1-D8-30	660-37931-4	10/26/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None
37931	PW	102610-BB1-E5-30	660-37931-5	10/26/2010	200.7(Ba,Fe),6010,300,2320, 4500NH3, 353.3, 351.2, 4500PE, 365.1,4500S, 9060, d13C, d18O, d2H, d3H, Sr 87/86		None



## Quality Control (QC) Acceptance Criteria

Table 2 summarizes the analytical method and laboratory QC requirements and criteria for each method performed during this event. Criteria reviewed include initial and continuing calibration verifications (ICV/CCV), interference check standards (ICS), contract required quantitation limit (CRQL) standards, laboratory control samples (LCS), matrix spikes (MS), lab duplicates for samples, control, and matrix spikes (Dup), post digestion spikes (PDS), and serial dilutions (SD). Not all criteria are required for each method.

**Table 2: Method and Laboratory QC Acceptance Criteria**

Method	Source	IC/CCV	ICS	CRQL	LCS	MS	Dup	PDS	SD
<b>200.7</b>	Method	±5/±10	±20%	NA	±15%	±30%	NA	±15%	±10%
	Lab	±5/±10	±20%	±50%	±15%	±30%	20%	±15%	±10%
<b>300</b>	Method	±10/±10	NA	NA	±10%	±20%	NA	NA	NA
	Lab	±10/±10	NA	NA	±10%	±10%	30%	NA	NA
<b>6010</b>	Method	±10%mid ±30%low	NA	NA	±20%	±25%	20%	±20%	±10%
	Lab	±10/±10	±20%	±50%	±25%	±25%	20%	±25%	±10%
<b>9060</b>	Method	NA	NA	NA	NA	NA	NA	NA	NA
	Lab	±10/±10	NA	NA	Not listed	NA	NA	NA	NA
<b>4500 S2F</b>	Method	NA	NA	NA	NA	NA	NA	NA	NA
	Lab	NA	NA	NA	±25%	NA	25%	NA	NA
<b>2320B</b>	Method	NA	NA	NA	NA	NA	NA	NA	NA
	Lab	NA	NA	NA	±20%	NA	30%	NA	NA
<b>2540C</b>	Method	NA	NA	NA	NA	NA	NA	NA	NA
	Lab	NA	NA	NA	±20%	NA	20%	NA	NA
<sup>2</sup> H/ <sup>1</sup> H	Lab	NA	NA	NA	±2‰	NA	NA	NA	NA
<sup>18</sup> O/ <sup>16</sup> O	Lab	NA	NA	NA	±0.07‰	NA	NA	NA	NA
<sup>13</sup> C/ <sup>12</sup> C	Lab	NA	NA	NA	±0.1‰	NA	NA	NA	NA
<sup>87</sup> Sr/ <sup>86</sup> Sr	Lab	NA	NA	NA	±0.001%	NA	NA	NA	NA
<sup>3</sup> H	Lab	NA	NA	NA	NA	NA	NA	NA	NA

NA = Not applicable.

The laboratory limits either met or exceeded method requirements in all cases with one exception. The Method 6010 Laboratory Control Sample (LCS) criteria are listed as 80-120% while the laboratories' criteria is 75-125% although the laboratory is allowed by the method to establish criteria based on historical results.

Laboratory acceptance limits are used for this validation with the exception of the duplicate precision criteria (20% for aqueous samples, 40% for other matrices).

### **Documentation**

Samples were evaluated for agreement with the COC. All samples were received in the appropriate containers and in good condition with the paperwork filled out properly.

### **Preservation and Holding Times**

Samples were shipped and received in good condition. Samples were preserved in the field as specified in the QAPP. Samples were prepared and analyzed within holding times with a few exceptions. The orthophosphate holding time (48 hours) was exceeded by a few hours in several samples. Results have been qualified as estimated, J, in these samples. Qualified data are listed in Table 4.

### **Calibrations**

Calibration applies to methods 200.7, 6010, 300, 245.1, 2320, and 2540C. According to the data sheets, initial calibration and continuing calibration data met method requirements. No samples were qualified based on calibration results.

### **MDL/RL/CRQL**

All MDLs met project objectives. Some MDL's may be elevated due to sample dilution.

The CRQL, or Contract Required Quantitation Limit, is required for methods 200.7 and 6010. The standard must be analyzed during each run and must have a percent recovery within 50-150% of the true value. No samples were qualified based on CRQL results.

Tritium results less than the uncertainty (1 sigma) associated with the result are qualified as estimated not detected, UJ. Qualified data are listed in Table 4.

### **Interference Check Standards**

Interference Check Standards (ICS) are required in Methods 6010 and 6020. The ICS consists of two solutions: A and AB. Solution A contains the possible interferents and solution AB contains the analytes and interferents. ICS results must fall within the acceptance recovery criteria of 80-120%. No samples were qualified based on ICS results.

### **Blanks**

The laboratory performs calibration and preparation (method) blanks if required by the analytical method. Sample results for analytes detected in an associated method or preparation blank at concentrations less than ten times the equivalent blank concentration will be qualified as "V" at the reported concentration. Sample results for analytes detected in all other blanks (i.e., field, equipment, calibration) at concentrations less than ten times the equivalent blank concentration shall be qualified as "J" at the reported concentration. All laboratory blanks were performed at the required frequency.

For the September through December sampling events, five field blanks were collected and submitted for analysis. The appropriate number of blanks was collected. It should be noted that blank contamination can only be applied to samples collected the same day and with the same equipment. Data from different days cannot be qualified based on the blank contamination.

Tritium was detected in the field blanks 092610-BB-PW-FBlank1, 092810-BB-PW-EB, 092810-FCEB, 100610-EB-1, 102910-FB-1, and 111510-FCEB-01 at levels below the uncertainty. Tritium results less than the uncertainty have been qualified as estimated not detected, UJ, in the field blanks.

Alkalinity and bicarbonate were detected in the field blank 092610-BB-PW-FBlank at concentrations above the reporting limit. However, associated results were greater than 10 times the concentrations detected in the blanks.

Chloride was detected in the field blank 092810-BB-PW-EB at concentrations below the reporting limit; sulfate was detected above the reporting limit. However, associated results were greater than 10 times the concentrations detected in the blanks.

Iron and magnesium were detected in the field blank 092810-BB-PW-FCEB at concentrations below the reporting limit; sodium, chloride, fluoride, and sulfate were detected above the reporting limit. Associated results were greater than 10x the concentrations detected in the blanks with the exception of fluoride in 092810-BB-PW-HI1. Fluoride has been qualified as estimated, J, in sample 092810-BB-PW-HI1.

In SDG 37430, Iron was detected below the reporting limit in the Method 200.7 method blanks 640-73786, 74636, 75154, and 75527. Detected sample results, less than 10 times the associated blank concentration, have been qualified "V". All other associated results were either not detected or detected at concentrations greater than 10 times the associated blank concentration.

In SDG 37687, Iron was detected below the reporting limit in the Method 200.7 method blanks 640-74636 and 75154. Barium was detected below the reporting limit in the method blank 640-76042. All associated results were either not detected or detected at concentrations greater than 10 times the associated blank concentration.

Magnesium was detected below the reporting limit in the Method 6010 method blank 660-104163. All associated results were either not detected or detected at concentrations greater than 10 times the associated blank concentration.

In SDG 37931, Iron was detected below the reporting limit in the Method 200.7 method blanks 640-74636. All associated results were either not detected or detected at concentrations greater than 10 times the associated blank concentration.

### **Laboratory Control Samples**

Laboratory Control Samples (LCS) recoveries for all applicable analyses were within laboratory acceptance criteria and were performed at the required frequency.

### **Matrix Spike/Matrix Spike Duplicates**

MS/MSD samples were performed at the required frequency for applicable methods. Recovery calculations are not required if the concentration added is less than 30% of the sample background concentration. MS/MSD recoveries of less than 10% are qualified as unusable due to apparent significant matrix effects. MS/MSD precision and accuracy results for all applicable analyses were within project objectives with the following exceptions.

In SDG 37430, the Method 300 MS/MSD recoveries of sulfate were below laboratory established limits in sample 092610-BB-PW-F14. MS/MSD recoveries of bromide in sample 102710-BB2E5-30-DUP were above laboratory limits. Sulfate has been qualified as estimated with a low bias, J-, in sample 092610-BB-PW-F14 and bromide has been qualified as estimated with a high bias, J+, in sample 102710-BB2E5-30-DUP.

The Method 353.2 MS recovery of nitrate / nitrite was above laboratory limits in sample 102710-BB3A4-30. Nitrate / nitrite was not detected in the original sample therefore no data was qualified..

The Method 4500 P E MS/MSD recoveries of ortho-phosphate were below laboratory limits in samples 102810-BB3E1-30, 111510-M2-1-30CM , 111610-M1-2-30CM, 111710-M1-1-30CM, 111810-M3-1-30CM, and 110510-M4-2-30CM. Ortho-phosphate has been qualified as estimated with a low bias, J-, in each of these samples.

### **Post Digestion Spike**

A PDS is applicable to Methods 6010 and 200.7 Sample 110510-M4-2-30CM had high PDS recoveries for Barium and Iron. The MS/MSD recoveries were within laboratory objectives. No samples were qualified based upon PDS results.

### **Serial Dilution**

Serial dilutions are run to help evaluate whether significant physical or chemical interferences exist due to sample matrix. When analyte concentrations are sufficiently high (the concentration in the original sample is minimally a factor of 50 above the detection limit, the results obtained for a five-fold dilution of the original sample are compared to the original results by means of a percent difference (%D). The %D is

compared to a precision acceptance limit of  $\pm 10\%$ . If the SD does not meet the criteria, all results for that analyte in the associated sample delivery group (SDG) are qualified as estimated (flagged "J/UJ"). No samples were qualified based on SD results.

### **Laboratory Duplicates**

Laboratories randomly select samples to perform internal duplicate analyses. The criteria for laboratory duplicate precision, as relative percent difference (RPD), is less than or equal to 20% for aqueous samples. All duplicate precision was within project objectives with the following exceptions.

In SDG 37430, the 200.7 laboratory duplicate had a high RPD for iron in sample 111810-M5-2-30CM. Iron has been qualified as estimated, J, in sample 111810-M5-2-30CM. The 365.1 laboratory duplicate had a high RPD for total phosphorous in sample 111710-M1-1-30CM. Total phosphorous has been qualified as estimated, J, in sample 111710-M1-1-30CM.

In 37687, the 200.7 laboratory duplicate had a high RPD for iron in sample 101210-F3-2-30CM. Iron has been qualified as estimated, J, in sample 101210-F3-2-30CM.

### **Field Precision**

The criteria for field duplicate precision, as RPD, is less than or equal to 20% for aqueous samples, the same as for laboratory duplicate precision. The results for analytes where both values are greater than the reporting limit are given as relative percent difference. Results of analytes where one or both values are less than the reporting limit are not considered appropriate for assessing precision. One field duplicate pair was collected during the sampling event: 102710-BB2E5-30 and 102710-BB2E5-30-DUP. Table 3 summarize field duplicate precision results.

In the field duplicate pair, the bromide, total phosphorous, TKN, alkalinity, bicarbonate, sulfide, hydrogen isotope, oxygen isotope, carbon isotope, and tritium results had high RPD's. These results have been qualified as estimated, J, in both samples. Qualified data is listed in Table 4.

**Table 3 - Field Precision**

Method	Analyte	Unit	MQL	102710- BB2E5-30	102710- BB2E5-30- DUP	RPD / Abs. Diff.	Rating	Samp Qual
200.7	Iron	mg/L	1.0	0.54	0.48	NC	Acceptable	None
6010	Calcium	mg/L	5.0	450	480	6.5%	Acceptable	None
6010	Magnesium	mg/L	0.8	1200	1200	0.0%	Acceptable	None
6010	Potassium	mg/L	10	360	380	5.4%	Acceptable	None
6010	Sodium	mg/L	50	10000	8700	13.9%	Acceptable	None
6010	Boron	mg/L	0.5	4.6	4.8	4.3%	Acceptable	None
6010	Strontium	mg/L	0.05	7.1	7.7	8.1%	Acceptable	None
300	Bromide	mg/L	5.0	59	19	102.6%	Unacceptable	J
300	Chloride	mg/L	500	19000	20000	5.1%	Acceptable	None
300	Sulfate	mg/L	50	2300	2300	0.0%	Acceptable	None
4500NH3	Ammonia-Dissolved	mg/L	0.05	0.13	0.14	7.4%	Acceptable	None
351.2	TKN	mg/L	0.2	0.45	0.73	47.5%	Unacceptable	J
353.2	Nitrate/nitrite	mg/L	0.01	0.0066	ND	NC	Acceptable	None
365.1	TP	mg/L	0.01	0.017	0.013	26.7%	Unacceptable	J
4500PE	OP	mg/L	0.04	0.13	ND	NC	Acceptable	None
2320	Alkalinity	mg/L	1.0	250	310	21.4%	Unacceptable	J
2320	Bicarbonate	mg/L	1.0	250	310	21.4%	Unacceptable	J
4500 S2F	Sulfide	mg/L	1.0	9.3	13	33.2%	Unacceptable	J
9060	DIC	mg/L	1.0	51	61	17.9%	Acceptable	None
Non-standard	d18O	‰	NA	0.6	1.1	58.8%	Unacceptable	J
Non-standard	d2H	‰	NA	11.0	8.0	31.6%	Unacceptable	J
Non-standard	d13C	‰	NA	-2.58	-3.46	29.1%	Unacceptable	J
Non-standard	dSr87/86	‰	NA	0.70913	0.70912	0.0%	Acceptable	None
Non-standard	Tritium	pCi/L	<5	7.9	ND	NC	Acceptable	None

Abs. Diff -  
 DUP - Duplicate  
 mg/L - Milligrams per liter.  
 MQL - reporting limit  
 NC - Not calculated.  
 ND - Not detected.  
 pCi/L - PicoCuries per liter.

### Automated Data Processing Tool (ADaPT)

The laboratory submitted electronic data deliverables (EDDs) for each of the two SDGs in the ADaPT format. These EDDs were run through the ADaPT EDD Error Check by the laboratory against the FDEP generated library "DWM\_Library\_20100722" before submission. Any critical errors noted in the EDD Error Check are corrected by the laboratory before submission. Comments are provided by the laboratory for the remaining errors noted.

All qualifiers presented in Table 4, with the exception of the isotope results, have been added to the ADaPT files and saved. The EDDs have been signed as “Reviewed” and uploaded to the FPL database.

### Technical Consistency

Certain technical comparisons are performed on data to ensure validity. The comparisons to be made and the acceptance criteria for each are defined FDEP-QA-002/02, Requirements for Field and Analytical Work. The values for the charge balance determination and the cation and anion calculated conductivity are provided in the ADaPT files. The following is a list of the technical comparisons made and the results of those comparisons. Technical comparison calculations are provided in the results summary table provided with this DUS.

- *The total anion charge must be within 80% - 110% of the total cation charge.*  
BB2 E5-30-DUP, BB3E1-30, BB3E1-EQ TEST, BB4D5-30, F2-1-30CM, F2-2-30CM, F3-1-30CM, F6-3-30CM, BB-PW-BB5B, BB-PW-GH2B, BB-PW-G3, BB-PW-H2B, BB-PW-H5, BB-PW-H10, BB-PW-HI1, BB-PW-HI10, BB-PW-IJ4, BB-PW-J12, and BB-PW-IJ1 anion charge was greater than 110% of the cation charge based on values calculated in ADaPT; F2-1-30cm, F2-2-30cm, F3-1-30CM was less than 80% of the cation charge based on values calculated in ADaPT.
- *The measured specific conductivity (uS/cm) must be within 80% - 120% of the conductivity estimated from major cation concentrations. **This is only required when the initial charge balance calculation does not pass the criterion.***  
Specific conductivity was not measured at the time of collection for samples BB2 E5-30-DUP, BB3E1-30, BB3E1-EQ TEST, and BB4D5-30. The conductivity versus cation concentration results were within criteria for each sample except BB-PW-J12, F2-1-30CM, F2-2-30CM, F3-1-30CM. Calcium, magnesium, sodium, and potassium data were qualified as estimated, J, in sample BB-PW-J12, F2-1-30CM, F2-2-30CM, F3-1-30CM based on technical comparisons.,
- *The measured specific conductivity (uS/cm) must be within 80% - 120% of the conductivity estimated from major anion concentrations. **This is only required when the initial charge balance calculation does not pass the criterion.***  
Specific conductivity was not measured at the time of collection for samples BB2



E5-30-DUP, BB3E1-30, BB3E1-EQ TEST, and BB4D5-30., The conductivity was lower than 80% of the anion concentration in BB-PW-BB5B, BB-PW-GH2B, BB-PW-G3, BB-PW-H2B, BB-PW-H5, BB-PW-H10, BB-PW-HI1, BB-PW-HI10, BB-PW-J12, BB-PW-IJ1, and F6-3-30CM. Alkalinity, bromide, sulfate, chloride, and fluoride analyses have been qualified as estimated, J/UJ, in these samples.

- *The orthophosphate concentration must be less than 120% of the total phosphorus concentration.* Phosphorous was not analyzed in the Biscayne Bay porewater (BB-PW) samples. In several samples, the ortho-phosphate concentration was greater than 120% of the total phosphorus concentration. Both ortho-phosphate and total phosphorous results have been qualified as estimated (J) in these samples. Qualified data is listed in Table 4.

## Summary

No results have been qualified as unusable. Porewater analytical data are usable for the purpose of determining current conditions in porewater at the affected property. Qualified data is summarized in Table 4 below. Qualifier codes and definitions are summarized in Table 5.

Some tritium results have been qualified as estimated not detected, UJ, when the uncertainty of the result exceeded the result. Analytical results have been qualified due to:

- Field and equipment blank detections;
- Holding time exceedances;
- Method blank detections;
- Matrix spike and matrix spike duplicate recoveries;
- Laboratory and field duplicate precision; and
- Technical comparisons (i.e. charge balance, total vs dissolved)

Notations include:

- Hydrogen and oxygen isotope results for samples 121010-F2-4-30CM, 111210-F3-4-30CM, 111210-F4-3-30CM, and 121010-F4-4-30CM were not reported. Sample was collected and submitted to TA.
- Specific conductivity was not measured at the time of sample collection for some porewaters.

#### Data Quality Indicators

Precision and accuracy results are discussed throughout this DUS with a summary of exceptions noted in Table 4. Based on the number of usable or missed data points compared to the total submitted for analysis, the project met the completeness goal for the sampling event. Comparability was met based on sampling procedures and analytical method selection, and the use of consistent reporting units.

**Table 4 - Summary of Qualified Data**

SDG	Method	Sample ID	Analyte	Result	Val Qual	Matrix	Reason for Qualification
37430	300	092610-BB-PW-F14	Sulfate	2500	J-	PW	Low MS/MSD %Rec
37430	Non-standard	092510-BB-PW-GH5	Tritium	5.3 pC/L	UJ	PW	Result<uncertainty
37430	Non-standard	092410-BB-PW-H3	Tritium	0.5 pC/L	UJ	PW	Result<uncertainty
37430	Non-standard	092610-BB-PW-FBlank	Tritium	1.4 pC/L	UJ	PW	Result<uncertainty
37430	Non-standard	092810-BB-PW-EB	Tritium	2.3 pC/L	UJ	PW	Result<uncertainty
37430	Non-standard	092810-BB-PW-FCEB	Tritium	5.9 pC/L	UJ	PW	Result<uncertainty
37430	2320	092510-BB-PW-BB5B	Alkalinity	180	J	PW	Anion<80%cond
37430	2320	092510-BB-PW-BB5B	Bicarbonate	180	J	PW	Anion<80%cond
37430	300	092510-BB-PW-BB5B	Bromide	65	J	PW	Anion<80%cond
37430	300	092510-BB-PW-BB5B	Chloride	19000	J	PW	Anion<80%cond
37430	300	092510-BB-PW-BB5B	Fluoride	0.20	U J	PW	Anion<80%cond
37430	300	092510-BB-PW-BB5B	Sulfate	2600	J	PW	Anion<80%cond
37430	2320	092710-BB-PW-GH2B	Alkalinity	190	J	PW	Anion<80%cond
37430	2320	092710-BB-PW-GH2B	Bicarbonate	190	J	PW	Anion<80%cond
37430	300	092710-BB-PW-GH2B	Bromide	74	J	PW	Anion<80%cond
37430	300	092710-BB-PW-GH2B	Chloride	18000	J	PW	Anion<80%cond
37430	300	092710-BB-PW-GH2B	Fluoride	0.20	U J	PW	Anion<80%cond
37430	300	092710-BB-PW-GH2B	Sulfate	3000	J	PW	Anion<80%cond
37430	Non-standard	092710-BB-PW-GH2B	Tritium	-0.9 pC/L	UJ	PW	Result<uncertainty
37430	2320	092810-BB-PW-G3	Alkalinity	250	J	PW	Anion<80%cond
37430	2320	092810-BB-PW-G3	Bicarbonate	250	J	PW	Anion<80%cond
37430	300	092810-BB-PW-G3	Bromide	46	J	PW	Anion<80%cond
37430	300	092810-BB-PW-G3	Chloride	18000	J	PW	Anion<80%cond

SDG	Method	Sample ID	Analyte	Result	Val Qual	Matrix	Reason for Qualification
37430	300	092810-BB-PW-G3	Fluoride	0.69	J	PW	Anion<80%cond
37430	300	092810-BB-PW-G3	Sulfate	2900	J	PW	Anion<80%cond
37430	2320	092810-BB-PW-H2B	Alkalinity	130	J	PW	Anion<80%cond
37430	2320	092810-BB-PW-H2B	Bicarbonate	130	J	PW	Anion<80%cond
37430	300	092810-BB-PW-H2B	Bromide	56	J	PW	Anion<80%cond
37430	300	092810-BB-PW-H2B	Chloride	18000	J	PW	Anion<80%cond
37430	300	092810-BB-PW-H2B	Fluoride	0.59	J	PW	Anion<80%cond
37430	300	092810-BB-PW-H2B	Sulfate	3800	J	PW	Anion<80%cond
37430	2320	092510-BB-PW-H5	Alkalinity	300	J	PW	Anion<80%cond
37430	2320	092510-BB-PW-H5	Bicarbonate	300	J	PW	Anion<80%cond
37430	300	092510-BB-PW-H5	Bromide	65	J	PW	Anion<80%cond
37430	300	092510-BB-PW-H5	Chloride	20000	J	PW	Anion<80%cond
37430	300	092510-BB-PW-H5	Fluoride	0.20	UJ	PW	Anion<80%cond
37430	300	092510-BB-PW-H5	Sulfate	2600	J	PW	Anion<80%cond
37430	2320	092610-BB-PW-H10	Alkalinity	190	J	PW	Anion<80%cond
37430	2320	092610-BB-PW-H10	Bicarbonate	190	J	PW	Anion<80%cond
37430	300	092610-BB-PW-H10	Bromide	74	J	PW	Anion<80%cond
37430	300	092610-BB-PW-H10	Chloride	20000	J	PW	Anion<80%cond
37430	300	092610-BB-PW-H10	Fluoride	0.87	IJ	PW	Anion<80%cond
37430	300	092610-BB-PW-H10	Sulfate	3200	J	PW	Anion<80%cond
37430	Non-standard	092610-BB-PW-H10	Tritium	-1.8 pC/L	UJ	PW	Result<uncertainty
37430	2320	092810-BB-PW-HI1	Alkalinity	170	J	PW	Anion<80%cond
37430	2320	092810-BB-PW-HI1	Bicarbonate	170	J	PW	Anion<80%cond
37430	300	092810-BB-PW-HI1	Bromide	56	J	PW	Anion<80%cond
37430	300	092810-BB-PW-HI1	Chloride	17000	J	PW	Anion<80%cond
37430	300	092810-BB-PW-HI1	Fluoride	0.54	J	PW	Detected in FB, Anion<80%cond
37430	300	092810-BB-PW-HI1	Sulfate	3300	J	PW	Anion<80%cond
37430	2320	092610-BB-PW-	Alkalinity	250	J	PW	Anion<80%cond

SDG	Method	Sample ID	Analyte	Result	Val Qual	Matrix	Reason for Qualification
		HI10					
37430	2320	092610-BB-PW-HI10	Bicarbonate	250	J	PW	Anion<80%cond
37430	300	092610-BB-PW-HI10	Bromide	76	J	PW	Anion<80%cond
37430	300	092610-BB-PW-HI10	Chloride	22000	J	PW	Anion<80%cond
37430	300	092610-BB-PW-HI10	Fluoride	0.84	IJ	PW	Anion<80%cond
37430	300	092610-BB-PW-HI10	Sulfate	2800	J	PW	Anion<80%cond
37430	2320	092610-BB-PW-J12	Alkalinity	230	J	PW	Anion<80%cond
37430	2320	092610-BB-PW-J12	Bicarbonate	230	J	PW	Anion<80%cond
37430	300	092610-BB-PW-J12	Bromide	130	J	PW	Anion<80%cond
37430	300	092610-BB-PW-J12	Chloride	21000	J	PW	Anion<80%cond
37430	300	092610-BB-PW-J12	Fluoride	0.90	IJ	PW	Anion<80%cond
37430	300	092610-BB-PW-J12	Sulfate	2700	J	PW	Anion<80%cond
37430	6010	092610-BB-PW-J12	Calcium	680	J	PW	Cation<80%Cond
37430	6010	092610-BB-PW-J12	Magnesium	1300	J	PW	Cation<80%Cond
37430	6010	092610-BB-PW-J12	Potassium	400	J	PW	Cation<80%Cond
37430	6010	092610-BB-PW-J12	Sodium	10000	J	PW	Cation<80%Cond
37430	2320	092810-BB-PW-IJ1	Alkalinity	240	J	PW	Anion<80%cond
37430	2320	092810-BB-PW-IJ1	Bicarbonate	240	J	PW	Anion<80%cond
37430	300	092810-BB-PW-IJ1	Bromide	61	J	PW	Anion<80%cond
37430	300	092810-BB-PW-IJ1	Chloride	20000	J	PW	Anion<80%cond
37430	300	092810-BB-PW-IJ1	Fluoride	0.76	IJ	PW	Anion<80%cond
37430	300	092810-BB-PW-IJ1	Sulfate	3100	J	PW	Anion<80%cond
37430	200.7	092810-BB-PW-FCEB	Iron	0.0053	V	PW	Detected in MB
37931	Non-standard	102610-BB1-B8-30	Tritium	7.9 pC/L	UJ	PW	Result<uncertainty
37931	Non-standard	102610-BB1-C4-30	Tritium	2.8 pC/L	UJ	PW	Result<uncertainty
37931	Non-standard	102610-BB1-D8-30	Tritium	-0.6 pC/L	UJ	PW	Result<uncertainty
37430	365.1	102710-BB2-A4-30	OP	0.011	IJ	PW	HT exceeded
37430	365.1	102710-BB2-B1-30	OP	0.045	J	PW	OP>120%TP, HT exceeded

SDG	Method	Sample ID	Analyte	Result	Val Qual	Matrix	Reason for Qualification
37430	365.1	102710-BB2-B1-30	TP	0.018	J	PW	OP>120%TP
37430	365.1	102710-BB2-C2-30	OP	0.01	UJ	PW	HT exceeded
37430	365.1	102710-BB2-D8-30	OP	0.01	UJ	PW	HT exceeded
37430	300	102710-BB2E5-30	Bromide	59	J	PW	High FD RPD
37430	351.2	102710-BB2E5-30	TKN	0.45	J	PW	High FD RPD
37430	365.1	102710-BB2E5-30	OP	0.13	J	PW	HT exceeded, OP>120%TP
37430	365.1	102710-BB2E5-30	TP	0.017	J	PW	High FD RPD, OP>120%TP
37430	2320	102710-BB2E5-30	Alkalinity	250	J	PW	High FD RPD
37430	2320	102710-BB2E5-30	Bicarbonate	250	J	PW	High FD RPD
37430	4500S	102710-BB2E5-30	Sulfide	9.3	J	PW	High FD RPD
37430	Non-standard	102710-BB2E5-30	d2H	11 ‰	J	PW	High FD RPD
37430	Non-standard	102710-BB2E5-30	d18O	0.6 ‰	J	PW	High FD RPD
37430	Non-standard	102710-BB2E5-30	d13C	-2.58 ‰	J	PW	High FD RPD
37430	351.2	102710-BB2E5-30-DUP	TKN	0.73	J	PW	High FD RPD
37430	365.1	102710-BB2E5-30-DUP	TP	0.013	J	PW	High FD RPD, OP>120%TP
37430	2320	102710-BB2E5-30-DUP	Alkalinity	310	J	PW	High FD RPD
37430	2320	102710-BB2E5-30-DUP	Bicarbonate	310	J	PW	High FD RPD
37430	4500S	102710-BB2E5-30-DUP	Sulfide	13	J	PW	High FD RPD
37430	Non-standard	102710-BB2E5-30-DUP	d2H	8.0 ‰	J	PW	High FD RPD
37430	Non-standard	102710-BB2E5-30-DUP	d18O	1.1 ‰	J	PW	High FD RPD
37430	Non-standard	102710-BB2E5-30-DUP	d13C	-3.46 ‰	J	PW	High FD RPD
37430	Non-standard	102710-BB2-E5-30-DUP	Tritium	0.4 pC/L	UJ	PW	Result<uncertainty
37430	300	102710-BB2E5-30-DUP	Bromide	19	J+	PW	High MS/MSD %Rec, High FD RPD
37430	4500PE	102710-BB3-A4-30	OP	0.13	J	PW	OP>120%TP, HT exceeded
37430	365.1	102710-BB3-A4-30	TP	0.023	J	PW	OP>120%TP
37430	4500PE	102710-BB3-B6-30	OP	0.10	J	PW	OP>120%TP
37430	365.1	102710-BB3-B6-30	TP	0.013	J	PW	OP>120%TP, HT exceeded
37430	365.1	102810-BB3-E1-	TP	0.017	J	PW	OP>120%TP

SDG	Method	Sample ID	Analyte	Result	Val Qual	Matrix	Reason for Qualification
		30					
37430	4500 P E	102810-BB3E1-30	OP	0.037	J-	PW	Low MS/MSD %Rec OP>120%TP
37430	Non-standard	102810-BB3-E1-30	Tritium	-0.2 pC/L	UJ	PW	Result<uncertainty
37430	Non-standard	102810-BB3-E1-EQ TEST	Tritium	0 pC/L	UJ	PW	Result<uncertainty
37430	4500PE	102810-BB4-C7-30	OP	0.022	I J	PW	OP>120%TP
37430	365.1	102810-BB4-C7-30	TP	0.017	J	PW	OP>120%TP
37430	4500PE	102810-BB4-D5-30	OP	0.029	I J	PW	OP>120%TP
37430	365.1	102810-BB4-D5-30	TP	0.015	J	PW	OP>120%TP
37430	6010	100610-F2-1-30cm	Calcium	160	J	PW	Cation>120%Cond
37430	6010	100610-F2-1-30cm	Magnesium	12	J	PW	Cation>120%Cond
37430	6010	100610-F2-1-30cm	Potassium	4.8	J	PW	Cation>120%Cond
37430	6010	100610-F2-1-30cm	Sodium	48	J	PW	Cation>120%Cond
37430	6010	100610-F2-2-30cm	Calcium	500	J	PW	Cation<80%Cond
37430	6010	100610-F2-2-30cm	Magnesium	23	J	PW	Cation<80%Cond
37430	6010	100610-F2-2-30cm	Potassium	4.3	J	PW	Cation<80%Cond
37430	6010	100610-F2-2-30cm	Sodium	110	J	PW	Cation<80%Cond
37687	6010	102210-F3-1-30CM	Calcium	390	J	PW	Cation<80%Cond
37687	6010	102210-F3-1-30CM	Magnesium	28	J	PW	Cation<80%Cond
37687	6010	102210-F3-1-30CM	Potassium	7.6	J	PW	Cation<80%Cond
37687	6010	102210-F3-1-30CM	Sodium	180	J	PW	Cation<80%Cond
37687	6010	111210-F3-4-30CM	Boron	0.048	V	PW	Detected in MB
37687	200.7	101210-F3-2-30CM	Iron	0.17	J	PW	High LD RPD
37687	6010	111210-F4-3-30CM	Boron	0.035	V	PW	Detected in MB
37687	4500PE	110810-F4-1-30CM	OP	0.010	J	PW	OP>120%TP
37687	365.1	110810-F4-1-30CM	TP	0.0066	I J	PW	OP>120%TP
37687	4500PE	110810-F4-2-30CM	OP	0.0069	I J	PW	OP>120%TP
37687	365.1	110810-F4-2-30CM	TP	0.0044	U J	PW	OP>120%TP
37687	2320	102010-F6-3-30CM	Alkalinity	440	J	PW	Anion<80%cond

SDG	Method	Sample ID	Analyte	Result	Val Qual	Matrix	Reason for Qualification
37687	2320	102010-F6-3-30CM	Bicarbonate	440	J	PW	Anion<80%cond
37687	300	102010-F6-3-30CM	Bromide	1.7	J	PW	Anion<80%cond
37687	300	102010-F6-3-30CM	Chloride	990	J	PW	Anion<80%cond
37687	300	102010-F6-3-30CM	Fluoride	0.020	U J	PW	Anion<80%cond
37687	300	102010-F6-3-30CM	Sulfate	87	J	PW	Anion<80%cond
37687	4500PE	110910-F6-4-30CM	OP	0.022	J	PW	OP>120%TP
37687	365.1	110910-F6-4-30CM	TP	0.018	J	PW	OP>120%TP
37687	Non-standard	102010-F6-1-30CM	Tritium	4.4 pC/L	UJ	PW	Result<uncertainty
37687	Non-standard	102010-F6-3-30CM	Tritium	2.9 pC/L	UJ	PW	Result<uncertainty
37430	365.1	111710-M1-1-30CM	TP	0.021	J	PW	High LD RPD OP>120%TP
37430	4500 P E	111710-M1-1-30CM	OP	0.032	J-	PW	Low MS/MSD %Rec, OP>120%TP
37430	4500 P E	111610-M1-2-30CM	OP	0.032	J-	PW	Low MS/MSD %Rec
37430	4500 P E	111510-M2-1-30CM	OP	0.034	J-	PW	Low MS/MSD %Rec
37430	4500 P E	111810-M3-1-30CM	OP	0.027	J-	PW	Low MS/MSD %Rec
37430	4500PE	110510-M4-1-30CM	OP	0.036	I J	PW	OP>120%TP
37430	365.1	110510-M4-1-30CM	TP	0.018	J	PW	OP>120%TP
37430	365.1	110510-M4-2-30CM	TP	0.015	J	PW	OP>120%TP
37430	4500 P E	110510-M4-2-30CM	OP	0.036	J-	PW	Low MS/MSD %Rec OP>120%TP
37430	200.7	111810-M5-2-30CM	Iron	0.380	J	PW	High LD RPD
37430	4500PE	111810-M5-2-30CM	OP	0.032	J	PW	OP>120%TP
37430	365.1	111810-M5-2-30CM	TP	0.024	J	PW	OP>120%TP
37430	4500PE	102910-FB-1	OP	0.0064	I J	PW	OP>120%TP
37430	365.1	102910-FB-1	TP	0.0044	U J	PW	OP>120%TP
37430	Non-standard	100610-EB-1	Tritium	0.5 pC/L	UJ	PW	Result<uncertainty
37430	200.7	100610-EB-1	Iron	0.0047	V	PW	Detected in MB
37687	Non-standard	102910-FB-1	Tritium	2.3 pC/L	UJ	PW	Result<uncertainty
37430	Non-standard	111510-FCEB-01	Tritium	-0.6 pC/L	UJ	PW	Result<uncertainty
37430	200.7	111510-FCEB-01	Iron	0.017	V	PW	Detected in MB

Note: Results are in mg/L unless specified



**Table 5: Data Qualifier Codes**

Code	Definition
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.
J	Estimated value. A "J" value shall be accompanied by a detailed explanation to justify the reason(s) for designating the value as estimated. A bias is assigned if discernable.
Q	Holding Time exceeded.
V	Indicates that the analyte was detected at or above the method detection limit in both the sample and the associated method blank and the value of 10 times the blank value was equal to or greater than the associated sample value. Only for method blank and J qualifier for other blanks.
I	Value detected between the MDL and the reporting limit.
?	Data are rejected and should not be used. Some or all of the quality control data for the analyte were outside criteria, and the presence or absence of the analyte cannot be determined from the data.
Code	Bias
+	Bias is high.
-	Bias is low.

Prepared by: Steven Elliott, Chemist, E&E

Date: 05/31/2011

Revision of DUS 041811

**April 2011**

## DATA USABILITY SUMMARY

File Name:	FPL_PW_April 2011_DUS
Current Version:	02/10/2012
Results Table:	FPL_PW_April 2011_Results

On behalf of Florida Power & Light Company (FPL), Ecology and Environment, Inc. (E & E) reviewed one data package from Test America Laboratories, Inc. (Test America) and subcontract labs for the analysis of **porewater** samples collected during the **April 2011 ecological porewater sampling event** at the Turkey Point facility in Homestead, Florida. Data were reviewed for conformance to the requirements of the guidance document, *Florida Power & Light Company, Inc. Turkey Point Monitoring Plan Quality Assurance Project Plan (QAPP), April and August, 2010* (FPL Turkey Point Monitoring Plan QAPP) and modifications provided by FPL to the South Florida Water Management District during the November 2010 Quarterly meeting.

**Intended Use of Data:** To provide current data on the environmental conditions of the porewaters in the monitoring area and to assess chemicals of concern levels in porewaters and to guide future monitoring actions, if necessary.

Analyses requested included:

- EPA Method 200.7 – Metals, Total, by Inductively Coupled Plasma / Atomic Emission Spectroscopy (ICP/AES) - Ba and Fe only
- SW-846-6010 - Metals, Total, by ICP/AES - Ca, Mg, K, Na, B, and Sr
- EPA Method 300 – Anions by Ion Chromatography - bromide, chloride, fluoride, sulfate
- SM 4500-S2 F – Sulfides
- SM 2320B - Alkalinity
- SW-846-9060 – Dissolved Inorganic Carbon
- Non-standard method -  $^{18}\text{O}/^{16}\text{O}$
- Non-standard method -  $^2\text{H}/^1\text{H}$
- Non-standard method -  $^{13}\text{C}/^{12}\text{C}$

- Non-standard method -  $^{87}\text{Sr}/^{86}\text{Sr}$
- Non-standard method -  $^3\text{H}$

Carbon isotope analysis was performed by to the University of Miami, Stable Isotope Laboratory, Rosenstiel School of Marine Atmospheric Science. Hydrogen and Oxygen isotope analyses were performed by the University of Miami, Laboratory of Stable Isotope Ecology. The samples for these analyses were shipped to Test America who forwarded them to the respective labs for analysis. The tritium and strontium isotope samples were shipped directly to United States Geologic Survey (USGS), Menlo Park, California for analysis.

Data were reviewed and validated as described in the *FPL Turkey Point Monitoring Plan QAPP* and the results of the review/validation are discussed in this Data Usability Summary (DUS). The following laboratory submittals and field data were examined:

- the reportable data and the results of supporting quality control (QC) analyses;
- the case narratives;
- the chain of custody (COC) and sample receipt checklist; and
- sampling logs and field logbooks.

Table 1 lists sample and laboratory identifications, methods requested, quality control (QC) performed, and identification corrections. Table 2 lists method and laboratory quality control acceptance criteria. Table 3 summarizes the data qualified as a result of this validation. Table 4 lists the qualifier codes and definitions used to qualify data in this validation.

## Introduction

A total of ninety seven samples were reviewed in this DUS; eighty eight porewater samples, two equipment blanks, one field cleaned equipment blank, and six field blanks. Table 1 below lists the sample identifications (IDs) cross-referenced to laboratory identifications and the analyses selected. Also any corrections for the sample ID are noted.

Test America “Level 4 Mini Final Reports” were submitted to FPL between May 31,

2011. Isotope results were received between July 2, 2011 and January 5, 2012.

## **Data Review / Validation Results**

### **Analytical Results**

All results were evaluated against the method detection limit (MDL), defined as the minimum concentration of an analyte reported with 99% confidence that the analyte concentration is greater than zero. The reporting limit (RL) or practical quantitation limit (PQL), is defined as the lowest non-zero standard concentration in the calibration curve. Results are reported with an "I" flag if less than the RL but greater than the MDL. Non-detected results are reported as less than the value of the MDL.

All submitted samples were analyzed and reported with the following exceptions. The hydrogen and oxygen isotope results for samples 040711-PW-J11-40 and 040811-PW-G11off-30. and the tritium results for 040511-PW-H6-40 and 040511-PW-EB1 were not reported due to samples being lost during analysis.

**Table 1: Sample Listing**

SDG	Matrix	Sample ID	Lab ID	Sample Date	Analyses	QC	ID Corr.
40581	AQ	040411-PW-EB1	660-40581-1	4/4/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	AQ	040511-PW-FB1	660-40581-10	4/5/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	AQ	040611-FCEB-1	660-40658-3	4/6/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	AQ	040711-PW-EB	660-40658-9	4/7/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		040711-PW- EB
40581	AQ	040811-PW-FB1	660-40658-18	4/8/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		040811-PW- FB1
40581	AQ	041211-PW-FB1	660-40741-13	4/12/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	AQ	041411-PW-FB1	660-40765-11	4/14/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	AQ	041911-PW-FB1	660-40877-11	4/19/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	AQ	042111-PW-FB1	660-40902-7	4/21/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		
40581	GW	042011-PW-A9-60	660-40877-17	4/20/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	040411-PW-BB1A/B-60	660-40581-3	4/4/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86	300-MS/MSD	None
40581	GW	040511-PW-BB2A/B-30	660-40581-11	4/5/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	040511-PW-BB4A/B-55	660-40581-13	4/5/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	040511-PW-BB5A/B-60	660-40581-16	4/5/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	042011-PW-B7-60	660-40877-15	4/20/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	042011-PW-B8-60	660-40877-18	4/20/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	042011-PW-B12-60	660-40877-16	4/20/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	041411-PW-C2-60	660-40765-7	4/14/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	041411-PW-C3-60	660-40765-6	4/14/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90		None

SDG	Matrix	Sample ID	Lab ID	Sample Date	Analyses	QC	ID Corr.
					60,d13c,d180,d2H,Sr87/86		
40581	GW	042011-PW-C5-60	660-40877-26	4/20/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86	300-MS/MSD	None
40581	GW	042011-PW-C6-60	660-40877-12	4/20/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86	68	None
40581	GW	041311-PW-C10-60	660-40765-1	4/13/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86	200.7- MS/MSD/PDS/SD/ LD, 300-MS/MSD	None
40581	GW	041411-PW-D2-60	660-40765-10	4/14/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86	300-MS/MSD	None
40581	GW	042111-PW-D3-60	660-40902-5	4/21/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	042011-PW-D4-60	660-40877-24	4/20/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	042011-PW-D6-60	660-40877-22	4/20/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	042011-PW-D7-60	660-40877-21	4/20/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86	200.7- MS/MSD/PDS/SD/ LD	None
40581	GW	042011-PW-D8-60	660-40877-19	4/20/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	042011-PW-D9-60	660-40877-14	4/20/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86	300-MS/MSD	None
40581	GW	041311-PW-D10-60	660-40765-2	4/13/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	041311-PW-E11-60	660-40765-5	4/13/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	041511-PW-E1-2-60	660-40790-2	4/15/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	040711-PW-E1260	660-40658-14	4/7/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		040711-PW- E12-60
40581	GW	042011-PW-E2-60	660-40877-25	4/20/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	042111-PW-E3-60	660-40902-1	4/21/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	042011-PW-E4-60	660-40877-20	4/20/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86	300-MS/MSD	None
40581	GW	041911-PW-F1-60	660-40877-6	4/19/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None

SDG	Matrix	Sample ID	Lab ID	Sample Date	Analyses	QC	ID Corr.
40581	GW	041811-PW-F1-2-60	660-40877-1	4/18/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86	200.7- MS/MSD/PDS/SD/ LD, 300-MS/MSD	None
40581	GW	040711-PW-F1260	660-40658-15	4/7/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		040711-PW- F12-60
40581	GW	040711-PW-F1330	660-40658-13	4/7/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		040711-PW- F13-30
40581	GW	040711-PW-F1460	660-40658-12	4/7/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		040711-PW- F14-60
40581	GW	041311-PW-F10-60	660-40765-3	4/13/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	041311-PW-F11-60	660-40765-4	4/13/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	041511-PW-F2-60	660-40790-4	4/15/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86	300-MS/MSD	None
40581	GW	040811-PW-FG1160	660-40658-20	4/8/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86	300-MS/MSD	040811-PW- FG11-60
40581	GW	040811-PW-FG1220	660-40658-19	4/8/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		040811-PW- FG12-20
40581	GW	041511-PW-G2-60	660-40790-3	4/15/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	041111-PW-G9-60	660-40741-7	4/11/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	041111-PW-G1on-60	660-40741-2	4/11/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86	33	None
40581	GW	040411-PW-G1 off-40	660-40581-2	4/4/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86	200.7- MS/MSD/PDS/SD/ LD, 300-MS/MSD	None
40581	GW	041811-PW-G1-2-60	660-40877-2	4/18/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	041211-PW-G6-60	660-40741-12	4/12/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	041811-PW-G7-60	660-40877-5	4/18/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	041911-PW-G8-60	660-40877-8	4/19/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	041911-PW-G9-60	660-40877-9	4/19/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	041911-PW-G10-60	660-40877-10	4/19/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90		None



SDG	Matrix	Sample ID	Lab ID	Sample Date	Analyses	QC	ID Corr.
					60,d13c,d180,d2H,Sr87/86		
40581	GW	040811-PW-G11 on 60	660-40658-21	4/8/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	040811-PW-G11 off 30	660-40658-22	4/8/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	042111-PW-GH8-60	660-40902-3	4/21/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86	300-MS/MSD	None
40581	GW	041111-PW-GH10-30	660-40741-6	4/11/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	041111-PW-HI8-60	660-40741-1	4/11/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	041111-PW-HI10-30	660-40741-5	4/11/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	040711-PW-H1260	660-40658-16	4/7/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		040711-PW- H12-60
40581	GW	040711-PW-H1130	660-40658-17	4/7/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		040711-PW- H11-30
40581	GW	040411-PW-HI1-60	660-40581-5	4/4/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	040411-PW-HI2-60	660-40581-7	4/4/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	040511-PW-H5-30	660-40581-18	4/5/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	040511-PW-H6-40	660-40581-19	4/5/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86	300-MS/MSD	None
40581	GW	041211-PW-H9on-60	660-40741-9	4/12/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	041111-PW-H9off-30	660-40741-3	4/11/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	040611-HI760	660-40658-6	4/6/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		040611-HI7-60
40581	GW	040411-PW-IJ3-60	660-40581-8	4/4/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	040411-PW-I3-60	660-40581-9	4/4/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	040611-IJ760	660-40658-7	4/6/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		040611-IJ7-60
40581	GW	040611-PW-IJ760	660-40658-8	4/6/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		040611-PW- IJ7-60

SDG	Matrix	Sample ID	Lab ID	Sample Date	Analyses	QC	ID Corr.
40581	GW	040611-I760	660-40658-5	4/6/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		040611-I7-60
40581	GW	040511-PW-IJ4-30	660-40581-15	4/5/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	040611-IJ840	660-40658-2	4/6/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		040611-PW-IJ8-40
40581	GW	040711-PW-J1140	660-40658-10	4/7/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		040711-PW-J11-40
40581	GW	040711-PW-J1250	660-40658-11	4/7/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86	300-MS/MSD	040711-PW-J12-50
40581	GW	041111-PW-J9-40	660-40741-4	4/11/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	040611-PWJK745	660-40658-1	4/6/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86	200.7- MS/MSD/PDS/SD/ LD, 300-MS/MSD	040611-PW-JK7-45
40581	GW	040611-K860	660-40658-4	4/6/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		040611-K8-60
40581	GW	041111-PW-K1-midH2o	660-40741-8	4/11/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	041911-PW-M2A/B-60	660-40877-7	4/19/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	042211-PW-M3A/B	660-40902-6	4/22/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86	300-MS/MSD	042211-PW-M3A/B-60
40581	GW	041211-PW-M5A/B-60	660-40741-10	4/12/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	041211-PW-M7A/B-60	660-40741-11	4/12/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	041811-PW-M8A/B-60	660-40877-4	4/18/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	041811-PW-M9A/B-60	660-40877-3	4/18/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	041511-PW-W1A/B-60	660-40790-1	4/15/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	041411-PW-W2A/B-60	660-40765-8	4/14/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86	300-MS/MSD	None
40581	GW	041411-PW-W3A/B-60	660-40765-9	4/14/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None
40581	GW	042111-PW-W4A/B-60	660-40902-2	4/21/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,90 60,d13c,d180,d2H,Sr87/86		None

SDG	Matrix	Sample ID	Lab ID	Sample Date	Analyses	QC	ID Corr.
40581	GW	042111-PW-W5A/B-60	660-40902-4	4/21/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,9060,d13c,d180,d2H,Sr87/86		None
40581	GW	042011-PW-W6A/B-60	660-40877-23	4/20/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,9060,d13c,d180,d2H,Sr87/86		None
40581	GW	042011-PW-W9A/B-60	660-40877-13	4/20/2011	200.7(Ba,Fe),6010,300,2320,2540,4500S,9060,d13c,d180,d2H,Sr87/86		None

## Quality Control (QC) Acceptance Criteria

Table 2 summarizes the analytical method and laboratory QC requirements and criteria for each method performed during this event. Criteria reviewed include initial and continuing calibration verifications (ICV/CCV), interference check standards (ICS), contract required quantitation limit (CRQL) standards, laboratory control samples (LCS), matrix spikes (MS), lab duplicates for samples, control, and matrix spikes (Dup), post digestion spikes (PDS), and serial dilutions (SD). Not all criteria are required for each method.

**Table 2: Method and Laboratory QC Acceptance Criteria**

Method	Source	IC/CCV	ICS	CRQL	LCS	MS	Dup	PDS	SD
200.7	Method	±5/±10	±20%	NA	±15%	±30%	NA	±15%	±10%
	Lab	±5/±10	±20%	±50%	±15%	±30%	20%	±15%	±10%
300	Method	±10/±10	NA	NA	±10%	±20%	NA	NA	NA
	Lab	±10/±10	NA	NA	±10%	±10%	30%	NA	NA
6010	Method	±10%mid ±30%low	NA	NA	±20%	±25%	20%	±20%	±10%
	Lab	±10/±10	±20%	±50%	±25%	±25%	20%	±25%	±10%
9060	Method	NA	NA	NA	NA	NA	NA	NA	NA
	Lab	±10/±10	NA	NA	Not listed	NA	NA	NA	NA
4500 S2F	Method	NA	NA	NA	NA	NA	NA	NA	NA
	Lab	NA	NA	NA	±25%	NA	25%	NA	NA
2320B	Method	NA	NA	NA	NA	NA	NA	NA	NA
	Lab	NA	NA	NA	±20%	NA	30%	NA	NA

NA = Not applicable.

Laboratory acceptance limits are used for this validation with the exception of the duplicate precision criteria (20% for aqueous samples, 40% for other matrices).

## Documentation

Samples were evaluated for agreement with the COC. All samples were received in the appropriate containers and in good condition with the paperwork filled out properly.

## Preservation and Holding Times

Samples were shipped and received in good condition. Samples were preserved in the field as specified in the QAPP. Samples were prepared and analyzed within holding times.

### **Calibrations**

Calibration applies to methods 200.7, 6010, 300, 245.1, 2320, and 2540C and to the field measurement of specific conductivity. A temperature verification in the middle of the event was labeled as not passing. It was determined the NIST reference thermometer was not reading accurately and was replaced. The temperature verification at the beginning of each month was within criteria. No temperature data was qualified. According to the data sheets, initial calibration and continuing calibration data met method requirements. No samples were qualified based on calibration results.

### **MDL/RL/CRQL**

All MDLs met project objectives. Some MDL's may be elevated due to sample dilution.

The CRQL, or Contract Required Quantitation Limit, is required for methods 200.7 and 6010. The standard must be analyzed during each run and must have a percent recovery within 50-150% of the true value. No samples were qualified based on CRQL results.

Tritium was detected at levels below the uncertainty in the equipment/field blanks 040411-PW-EB1, 040611-PW-FCEB1, 040811-PW-FB1, 041211-PW-FB1, 041411-PW-EB1, and 042111-PW-EB1 and in the samples 041111-PW-K1-midH2O, 041111-PW-J9-40, 040511-PW-IJ4-30, and 041111-PW-H9off-30. Tritium results less than the uncertainty (1 sigma) associated with the result are qualified as estimated not detected, UJ. Qualified data are listed in Table 3.

MDL's do not apply to carbon, hydrogen and oxygen isotope data; results for these analytes are considered acceptable when the standard deviations of the associated results are less than the criteria set in QAPP Table 4-2.4 . Carbon results standard deviations were all below 1%. The standard deviations for hydrogen and oxygen results were below 5 and 0.5%, respectively.

### **Interference Check Standards**

Interference Check Standards (ICS) are required in Methods 6010 and 6020. The ICS consists of two solutions: A and AB. Solution A contains the possible interferents and solution AB contains the analytes and interferents. ICS results must fall within the acceptance recovery criteria of 80-120%. No samples were qualified based on ICS results.

### **Blanks**

The laboratory performs calibration and preparation (method) blanks if required by the analytical method. Sample results for analytes detected in an associated method or preparation blank at concentrations less than ten times the equivalent blank concentration will be qualified as "V" at the reported concentration. Sample results for analytes detected in all other blanks (i.e., field, equipment, calibration) at concentrations less than ten times the equivalent blank concentration shall be qualified as "J" at the reported concentration. All laboratory blanks were performed at the required frequency.

For the April 2011 sampling event, two equipment blanks, one field cleaned equipment blank, and six field blanks were collected and submitted for analysis.

Tritium was detected in the equipment blanks 040711-EB1 and 041911-FB1 at levels above the uncertainty. Tritium results less than the 10 times the blank concentration have been qualified as estimated, J.

Strontium isotope results were detected at concentrations greater than 10 times the concentrations detected in the associated equipment and field blanks.

Iron, sodium, and boron were detected in the equipment blank 040411-PW-EB1. Iron magnesium, and boron were detected in the field blank 040511PW-FB1. Boron and alkalinity were detected in the field blank 040811-PW-FB1. Iron, calcium, magnesium, sodium, boron, strontium, chloride, fluoride, and alkalinity were detected in the field blank 041211-PW-FB1. Barium, magnesium, sulfate, boron, and alkalinity were detected in the field blank 041911-PW-FB1. All associated sample results were either

not detected or detected at concentrations greater than 10 times the blank concentrations.

Iron, boron, chloride, and alkalinity were detected in the field cleaned equipment blank 040611-PW-FCEB1. Associated boron, chloride, and alkalinity results were all greater than 10 times the blank concentration. Detected iron results less than 10 times the blank concentration have been qualified as estimated.

Barium, iron, calcium, sodium, fluoride, magnesium, and boron were detected in the equipment blank 040711-PW-EB. All analytes except fluoride and iron were either not detected or detected at concentrations greater than 10 times the blank concentrations. Detected iron results less than 10 times the blank concentration have been qualified as estimated.

Barium, iron, calcium, magnesium, boron, chloride, and alkalinity were detected in the field blank 041411-PW-FB1. All analytes except boron were either not detected or detected at concentrations greater than 10 times the blank concentrations. Detected boron results less than 10 times the blank concentration have been qualified as estimated.

Barium, magnesium, and boron were detected in the field blank 042111-PW-FB1. Barium and magnesium results were all either not detected or detected at concentrations greater than 10 times the blank concentration. Detected boron results less than 10 times the blank concentration have been qualified as estimated.

Barium was detected in a method blank, MB 80165, at a level below the reporting limit. All associated sample results were either not detected or detected at concentrations greater than 10 times the blank concentration with one exception. Barium in sample 041411-PW-FB1 has been qualified as detected in the method blank, V.

Iron was detected in a method blank, MB 80428, at a level below the reporting limit. All associated sample results were either not detected or detected at concentrations greater than 10 times the blank concentration.

Magnesium was detected in two method blanks, MB 109228 and MB 109356, at levels below the reporting limit. All associated sample results were either not detected or detected at concentrations greater than 10 times the blank concentration with two exceptions. Magnesium results in samples 041911-PW-FB1 and 042111-PW-FB1 have been qualified as detected in the method blank, V.

### **Laboratory Control Samples**

Laboratory Control Samples (LCS) recoveries for all applicable analyses were within laboratory acceptance criteria and were performed at the required frequency.

### **Matrix Spike/Matrix Spike Duplicates**

MS/MSD samples were performed at the required frequency for applicable methods. Recovery calculations are not required if the concentration added is less than 30% of the sample background concentration. MS/MSD recoveries of less than 10% are qualified as unusable due to apparent significant matrix effects. MS/MSD precision and accuracy results for all applicable analyses were within project objectives.

The MS/MSD recoveries of sulfate were below laboratory limits in sample 041411-PW-D2-60, 042011-PW-D9-60, 042111-PW-GH8-60, and 041811-PW-F1-2-60. Sulfate results have been qualified as estimated with a low bias, J-, in these samples.

The MS and/or MSD recoveries of chloride were below laboratory limits in samples 040611-PW-JK7-45, 040411-PW-G1 off-40, 041511-PW-F2-60, 042111-PW-M3A/B and 042111-PW-GH8-60. Chloride results have been qualified as estimated with a low bias, J-, in these samples.

The MS and/or MSD recoveries of bromide were above laboratory limits in samples 041111-PW-HI8-60, 040711-PW-J1250, 041511-PW-F2-60, and 042011-PW-E4-60. Bromide results have been qualified as estimated with a high bias, J+, in these samples.

The MS/MSD recoveries of fluoride were below laboratory limits in sample 042111-PW-M3A/B. Fluoride results have been qualified as estimated with a low bias, J-, in this sample.



### **Post Digestion Spike**

A PDS is applicable to Methods 6010 and 200.7 Sample 110510-M4-2-30CM had high PDS recoveries for Barium and Iron. The MS/MSD recoveries were within laboratory objectives. No samples were qualified based upon PDS results.

### **Serial Dilution**

Serial dilutions are run to help evaluate whether significant physical or chemical interferences exist due to sample matrix. When analyte concentrations are sufficiently high (the concentration in the original sample is minimally a factor of 50 above the detection limit, the results obtained for a five-fold dilution of the original sample are compared to the original results by means of a percent difference (%D). The %D is compared to a precision acceptance limit of  $\pm 10\%$ . If the SD does not meet the criteria, all results for that analyte in the associated sample delivery group (SDG) are qualified as estimated (flagged "J/UJ"). No samples were qualified based on SD results.

### **Laboratory Duplicates**

Laboratories randomly select samples to perform internal duplicate analyses. The criteria for laboratory duplicate precision, as relative percent difference (RPD), is less than or equal to 20% for aqueous samples. All duplicate precision was within project objectives.

### **Field Precision**

The criteria for field duplicate precision, as RPD, is less than or equal to 20% for aqueous samples, the same as for laboratory duplicate precision. The results for analytes where both values are greater than the reporting limit are given as relative percent difference. Results of analytes where one or both values are less than the reporting limit are not considered appropriate for assessing precision.

A field duplicate was not collected during this sampling event.

### **Automated Data Processing Tool (ADaPT)**

The laboratory submitted electronic data deliverables (EDD) for the SDG in the ADaPT format. These EDD were run through the ADaPT EDD Error Check by the laboratory against the FDEP generated library "DWM\_Library\_20100722" before submission. Any

critical errors noted in the EDD Error Check are corrected by the laboratory before submission. Comments are provided by the laboratory for the remaining errors noted.

All qualifiers presented in Table 4, with the exception of the isotope results, have been added to the ADaPT files and saved. The EDD have been signed as “Reviewed” and uploaded to the FPL database.

### Technical Consistency

Certain technical comparisons are performed on data to ensure validity. The comparisons to be made and the acceptance criteria for each are defined FDEP-QA-002/02, Requirements for Field and Analytical Work. The values for the charge balance determination and the cation and anion calculated conductivity are provided in the ADaPT files. The following is a list of the technical comparisons made and the results of those comparisons. Technical comparison calculations are provided in the results summary table provided with this DUS.

- *The total anion charge must be within 80% - 110% of the total cation charge.*  
Samples PW-HI7-60, PW-HI8-60, PW-F10-60, and PW-W2A/B-60 anion charge was greater than 110% of the cation charge, Samples PW-G1 on-60, PW-C3-60, PW-E1-2-60, PW-A9-60, PW-C5-60, PW-D4-60, and PW-E2-60 anion charge was less than 80% of the cation charge based on values calculated in ADaPT.
- *The measured specific conductivity (uS/cm) must be within 80% - 120% of the conductivity estimated from major cation concentrations. **This is only required when the initial charge balance calculation does not pass the criterion.*** The conductivity versus cation concentration results were within criteria for each sample except PW-C3-60, PW-E1-2-60, PW-A9-60, PW-G1 on-60, PW-C5-60, PW-D4-60, and PW-E2-60. Calcium, magnesium, sodium, and potassium data were qualified as estimated, J, in these samples based on technical comparisons.
- *The measured specific conductivity (uS/cm) must be within 80% - 120% of the conductivity estimated from major anion concentrations. **This is only required when the initial charge balance calculation does not pass the criterion.*** The conductivity versus anion concentration results were within criteria for each sample except PW-HI7-60, PW-G1 on-60, PW-HI8-60, PW-W2A/B-60, and PW-

E2-60. Bromide, chloride, fluoride, sulfate and alkalinity data were qualified as estimated, J, in these samples based on technical comparisons.. Qualified data are listed in Table 3.

## Summary

No results have been qualified as unusable. Porewater analytical data are usable for the purpose of determining current conditions in porewater at the affected property. Qualified data is summarized in Table 4 below. Qualifier codes and definitions are summarized in Table 5.

Some tritium results have been qualified as estimated not detected, UJ, when the uncertainty of the result exceeded the result. Analytical results have been qualified due to:

- Equipment/Field blank detections;
- Method blank detections;
- Laboratory duplicate precision; and
- Technical comparisons (i.e. charge balance)

Notations include:

- The hydrogen and oxygen isotope results for samples 040711-PW-J11-40 and 040811-PW-G11off-30.and the tritium results for 040511-PW-H6-40 and 040511-PW-EB1 were not reported due to samples being lost during analysis.

## Data Quality Indicators

Precision and accuracy results are discussed throughout this DUS with a summary of exceptions noted in Table 4. Based on the number of usable or missed data points compared to the total submitted for analysis, the project met the completeness goal for the sampling event. Comparability was met based on sampling procedures and analytical method selection, and the use of consistent reporting units.

**Table 3 - Summary of Qualified Data**

SDG	Method	Sample ID	Analyte	Result	Val Qual	Matrix	Reason for Qualification
40581	USGS	040411-PW-EB1	Tritium	-1.6	UJ	PW	Results<uncertainty
40581	USGS	040611-PW-FCEB1	Tritium	-0.9	UJ	PW	Results<uncertainty
40581	USGS	040811-PW-FB1	Tritium	5.3	UJ	PW	Results<uncertainty
40581	USGS	041211-PW-FB1	Tritium	1.9	UJ	PW	Results<uncertainty
40581	USGS	041411-PW-EB1	Tritium	-0.2	UJ	PW	Results<uncertainty
40581	200.7	041411-PW-FB1	Barium	0.0011	V	AQ	Detected in MB
40581	200.7	041911-PW-FB1	Magnesium	0.03	V	AQ	Detected in MB
40581	200.7	042111-PW-FB1	Magnesium	0.04	V	AQ	Detected in MB
40581	USGS	042111-PW-EB1	Tritium	1.8	UJ	PW	Results<uncertainty
40581	6010	042011-PW-A9-60	Calcium	1600	J	PW	S.C.<80% Cation
40581	6010	042011-PW-A9-60	Magnesium	60	J	PW	S.C.<80% Cation
40581	6010	042011-PW-A9-60	Potassium	10	J	PW	S.C.<80% Cation
40581	6010	042011-PW-A9-60	Sodium	550	J	PW	S.C.<80% Cation
40581	6010	041411-PW-C2-60	Boron	0.062	J	SW	Detected in FB
40581	6010	041411-PW-C3-60	Boron	0.094	J	SW	Detected in FB
40581	6010	041411-PW-C3-60	Calcium	1300	J	PW	S.C.<80% Cation
40581	6010	041411-PW-C3-60	Magnesium	41	J	PW	S.C.<80% Cation
40581	6010	041411-PW-C3-60	Potassium	4.4	J	PW	S.C.<80% Cation
40581	6010	041411-PW-C3-60	Sodium	420	J	PW	S.C.<80% Cation
40581	6010	042011-PW-C5-60	Calcium	1200	J	PW	S.C.<80% Cation
40581	6010	042011-PW-C5-60	Magnesium	63	J	PW	S.C.<80% Cation
40581	6010	042011-PW-C5-60	Potassium	16	J	PW	S.C.<80% Cation
40581	6010	042011-PW-C5-60	Sodium	830	J	PW	S.C.<80% Cation
40581	6010	041411-PW-D2-60	Boron	0.069	J	SW	Detected in FB
40581	300	041411-PW-D2-60	Sulfate	0.31	IJ-	SW	Low MS/MSD Rec.
40581	6010	042111-PW-D3-60	Boron	0.12	J	SW	Detected in FB
40581	6010	042011-PW-D4-60	Calcium	680	J	PW	S.C.<80% Cation
40581	6010	042011-PW-D4-60	Magnesium	54	J	PW	S.C.<80% Cation
40581	6010	042011-PW-D4-60	Potassium	8.7	J	PW	S.C.<80% Cation
40581	6010	042011-PW-D4-60	Sodium	270	J	PW	S.C.<80% Cation
40581	300	042011-PW-D9-60	Sulfate	5.6	J-	SW	Low MS/MSD Rec.
40581	6010	041511-PW-E1-2-60	Calcium	300	J	PW	S.C.<80% Cation
40581	6010	041511-PW-E1-2-60	Magnesium	14	J	PW	S.C.<80% Cation
40581	6010	041511-PW-E1-2-60	Potassium	1.9	J	PW	S.C.<80% Cation
40581	6010	041511-PW-E1-2-60	Sodium	78	J	PW	S.C.<80% Cation
40581	6010	042011-PW-E2-60	Calcium	330	J	PW	S.C.<80% Cation
40581	6010	042011-PW-E2-60	Magnesium	16	J	PW	S.C.<80% Cation
40581	6010	042011-PW-E2-60	Potassium	4.5	J	PW	S.C.<80% Cation

SDG	Method	Sample ID	Analyte	Result	Val Qual	Matrix	Reason for Qualification
40581	6010	042011-PW-E2-60	Sodium	58	J	PW	S.C.<80% Cation
40581	300	042011-PW-E2-60	Bromide	0.29	J	PW	S.C.>120% Anion
40581	300	042011-PW-E2-60	Chloride	86	J	PW	S.C.>120% Anion
40581	300	042011-PW-E2-60	Fluoride	0.07	IJ	PW	S.C.>120% Anion
40581	300	042011-PW-E2-60	Sulfate	5.3	J	PW	S.C.>120% Anion
40581	2320	042011-PW-E2-60	Alkalinity	350	J	PW	S.C.>120% Anion
40581	2320	042011-PW-E2-60	Bicarbonate	350	J	PW	S.C.>120% Anion
40581	6010	042111-PW-E3-60	Boron	0.049	J	SW	Detected in FB
40581	300	042011-PW-E4-60	Bromide	5.7	J+	SW	High MS Rec.
40581	200.7	040711-PW-E12-60	Iron	0.69	IJ	SW	Detected in FB
40581	300	040711-PW-E12-60	Fluoride	0.62	J	SW	Detected in FB
40581	USGS	040711-PW-E12-60	Tritium	41.1	J	PW	Detected in FB
40581	USGS	041911-PW-F1-60	Tritium	39.2	J	PW	Detected in FB
40581	300	041811-PW-F1-2-60	Sulfate	780	J-	SW	Low MS/MSD Rec.
40581	300	041511-PW-F2-60	Bromide	5.2	J+	SW	High MS/MSD Rec.
40581	300	041511-PW-F2-60	Chloride	2300	J-	SW	Low MSD Rec.
40581	300	040711-PW-F12-60	Fluoride	0.64	J	SW	Detected in FB
40581	USGS	040711-PW-F12-60	Tritium	35	J	PW	Detected in FB
40581	200.7	040711-PW-F12-60	Iron	1.6	J	SW	Detected in FB
40581	300	040711-PW-F13-30	Fluoride	0.56	J	SW	Detected in FB
40581	USGS	040711-PW-F13-30	Tritium	26.5	J	PW	Detected in FB
40581	200.7	040711-PW-F13-30	Iron	0.92	IJ	SW	Detected in FB
40581	300	040711-PW-F14-60	Fluoride	0.61	J	SW	Detected in FB
40581	USGS	040711-PW-F14-60	Tritium	25.1	J	PW	Detected in FB
40581	300	040411-PW-G1 off-40	Chloride	20000	J-	SW	Low MS/MSD Rec.
40581	6010	041111-PW-G1 on-60	Calcium	770	J	PW	S.C.<80% Cation
40581	6010	041111-PW-G1 on-60	Magnesium	2000	J	PW	S.C.<80% Cation
40581	6010	041111-PW-G1 on-60	Potassium	580	J	PW	S.C.<80% Cation
40581	6010	041111-PW-G1 on-60	Sodium	14000	J	PW	S.C.<80% Cation
40581	300	041111-PW-G1 on-60	Bromide	91	J	PW	S.C.>120% Anion
40581	300	041111-PW-G1 on-60	Chloride	15000	J	PW	S.C.>120% Anion
40581	300	041111-PW-G1 on-60	Fluoride	0.76	J	PW	S.C.>120% Anion
40581	300	041111-PW-G1 on-60	Sulfate	7900	J	PW	S.C.>120% Anion
40581	2320	041111-PW-G1 on-60	Alkalinity	420	J	PW	S.C.>120% Anion
40581	2320	041111-PW-G1 on-60	Bicarbonate	420	J	PW	S.C.>120% Anion
40581	USGS	041911-PW-G10-60	Tritium	77.2	J	PW	Detected in FB
40581	300	042111-PW-GH8-60	Sulfate	3400	J-	SW	Low MS/MSD Rec.
40581	300	042111-PW-GH8-60	Chloride	19000	J-	SW	Low MS Rec.
40581	200.7	040611-PW-H7-60	Iron	0.95	IJ	SW	Detected in FB
40581	USGS	041111-PW-H9off-30	Tritium	6.4	UJ	PW	Results<uncertainty
40581	300	040711-PW-H11-30	Fluoride	0.57	J	SW	Detected in FB
40581	200.7	040711-PW-H11-30	Iron	0.98	IJ	SW	Detected in FB

SDG	Method	Sample ID	Analyte	Result	Val Qual	Matrix	Reason for Qualification
40581	USGS	040711-PW-H11-30	Tritium	18.6	J	PW	Detected in FB
40581	USGS	040711-PW-H12-60	Tritium	6.7	J	PW	Detected in FB
40581	200.7	040711-PW-H12-60	Iron	0.97	IJ	SW	Detected in FB
40581	300	040711-PW-H12-60	Fluoride	0.57	J	SW	Detected in FB
40581	200.7	040611-PW-HI7-60	Iron	0.83	IJ	SW	Detected in FB
40581	300	040611-PW-HI7-60	Bromide	65	J	PW	S.C.<80% Anion
40581	300	040611-PW-HI7-60	Chloride	19000	J	PW	S.C.<80% Anion
40581	300	040611-PW-HI7-60	Fluoride	0.58	J	PW	S.C.<80% Anion
40581	300	040611-PW-HI7-60	Sulfate	2500	J	PW	S.C.<80% Anion
40581	2320	040611-PW-HI7-60	Alkalinity	240	J	PW	S.C.<80% Anion
40581	2320	040611-PW-HI7-60	Bicarbonate	240	J	PW	S.C.<80% Anion
40581	300	041111-PW-HI8-60	Bromide	58	J	SW	High MS Low MSD Rec.
40581	300	041111-PW-HI8-60	Bromide	58	J	PW	S.C.<80% Anion
40581	300	041111-PW-HI8-60	Chloride	16000	J	PW	S.C.<80% Anion
40581	300	041111-PW-HI8-60	Fluoride	1.0	J	PW	S.C.<80% Anion
40581	300	041111-PW-HI8-60	Sulfate	7800	J	PW	S.C.<80% Anion
40581	2320	041111-PW-HI8-60	Alkalinity	210	J	PW	S.C.<80% Anion
40581	2320	041111-PW-HI8-60	Bicarbonate	210	J	PW	S.C.<80% Anion
40581	200.7	040611-PW-I7-60	Iron	1.0	J	SW	Detected in FB
40581	USGS	040511-PW-IJ4-30	Tritium	6.7	UJ	PW	Results<uncertainty
40581	200.7	040611-PW-IJ8-40	Iron	0.76	IJ	SW	Detected in FB
40581	200.7	040611-PW-IJ7-60	Iron	3.6	J	SW	Detected in FB
40581	USGS	041111-PW-J9-40	Tritium	7.4	UJ	PW	Results<uncertainty
40581	200.7	040711-PW-J11-40	Iron	1.0	J	SW	Detected in FB
40581	300	040711-PW-J11-40	Fluoride	0.64	J	SW	Detected in FB
40581	USGS	040711-PW-J11-40	Tritium	15.4	J	PW	Detected in FB
40581	300	040711-PW-J12-50	Fluoride	0.56	J	SW	Detected in FB
40581	300	040711-PW-J12-50	Bromide	62	J+	SW	High MS Rec.
40581	USGS	040711-PW-J12-50	Tritium	9.4	J	PW	Detected in FB
40581	300	040611-PW-JK7-45	Chloride	21000	J-	SW	Low MSD Rec.
40581	200.7	040611-PW-JK7-45	Iron	1.2	J	SW	Detected in FB
40581	200.7	040611-PW-K8-60	Iron	1.0	J	SW	Detected in FB
40581	USGS	041111-PW-K1-midH2O	Tritium	7.1	UJ	PW	Results<uncertainty
40581	USGS	041911-PW-M2A/B-60	Tritium	45.1	J	PW	Detected in FB
40581	300	042111-PW-M3A/B	Chloride	21000	J-	SW	Low MS Rec.
40581	300	042111-PW-M3A/B	Fluoride	0.68	J-	SW	Low MS/MSD Rec.
40581	6010	041411-PW-W2A/B-60	Boron	0.23	J	SW	Detected in FB
40581	300	041411-PW-W2A/B-60	Bromide	0.96	J	PW	S.C.<80% Anion
40581	300	041411-PW-W2A/B-60	Chloride	490	J	PW	S.C.<80% Anion
40581	300	041411-PW-W2A/B-60	Fluoride	0.44	IJ	PW	S.C.<80% Anion

SDG	Method	Sample ID	Analyte	Result	Val Qual	Matrix	Reason for Qualification
40581	300	041411-PW-W2A/B-60	Sulfate	1.4	J	PW	S.C.<80% Anion
40581	2320	041411-PW-W2A/B-60	Alkalinity	310	J	PW	S.C.<80% Anion
40581	2320	041411-PW-W2A/B-60	Bicarbonate	310	J	PW	S.C.<80% Anion
40581	6010	041411-PW-W3A/B-60	Boron	0.063	J	SW	Detected in FB
40581	6010	042111-PW-W4A/B-60	Boron	0.25	J	SW	Detected in FB
40581	6010	042111-PW-W5A/B-60	Boron	0.045	J	SW	Detected in FB

Note: Results are in mg/L with the exception of tritium, reported in pCi/L.

**Table 4: Data Qualifier Codes**

Code	Definition
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.
J	Estimated value. A "J" value shall be accompanied by a detailed explanation to justify the reason(s) for designating the value as estimated. A bias is assigned if discernable.
Q	Holding Time exceeded.
V	Indicates that the analyte was detected at or above the method detection limit in both the sample and the associated method blank and the value of 10 times the blank value was equal to or greater than the associated sample value. Only for method blank and J qualifier for other blanks.
I	Value detected between the MDL and the reporting limit.
?	Data are rejected and should not be used. Some or all of the quality control data for the analyte were outside criteria, and the presence or absence of the analyte cannot be determined from the data.
Code	Bias
+	Bias is high.
-	Bias is low.

Prepared by: Steven Elliott, Chemist, E&E

Date: 02/10/2012