

TURKEY POINT – SCOUT LAGOON

Monitoring Report #5
for the April 2006 Monitoring Event

Submitted April 2006

ACOE permit # SAJ-2004-813
Conditions of Certification PA 03-45

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TABLE OF CONTENTS

INTRODUCTION	1
PROJECT LOCATION	1
LICENSE/PERMIT INFORMATION	1
SUCCESS CRITERIA	1
VEGETATIVE ANALYSIS	2
OBSERVED WILDLIFE UTILIZATION	4
W.A.T.E.R. SCORES	5
NEXT MONITORING REPORT	5
SUMMARY	5
DISCUSSION OF MONITORING RESULTS OVER TIME	5
APPENDIX	7
LOCATION MAP	8
SITE MAP - with photostations	9
PHOTOPAGES	10
VEGETATIVE COVERAGE TABLES AND W.A.T.E.R. TABLE	19
MONITORING REPORT SCHEDULE	36
CIRCULATION LIST	37

INTRODUCTION

The following document addresses one aspect of the Project's mitigation plans: The creation of a marine lagoon (Scout Lagoon) and seagrass habitat. Due to the requirements of the expansion project, Gardner Lagoon (a man-made lagoon) has been filled. Mitigation for the loss of seagrass within Gardner Lagoon consisted of transplanting seagrass to the newly created Scout Lagoon. Scout Lagoon was excavated to create approximately 1.3 acres for new seagrass habitat.

Upon excavation of Scout Lagoon, a 75/25 mix of sand/muck was graded into the lagoon to create optimal growing substrate for the transplanted sea grasses. The muck was acquired from Gardner Lagoon in order to closely mimic the seagrass donor site conditions. Approximately 120 cubic yards of native material was excavated from Gardner Lagoon and mixed with sand before placement into Scout Lagoon. After the planting site was graded, the lagoon was allowed to settle for approximately 72 hours before planting. Approximately 8,000 *Halodule wrightii* were transplanted to the lagoon between February 28 and March 9, 2005. The surrounding shore line was planted with 260 red mangroves (*Rhizophora mangle*) in two rows every five feet. This report was written to document the conditions in the month of April 2006. The data collection for this report was completed on April 4, 2006.

PROJECT LOCATION

The project is located adjacent to Biscayne Bay immediately north of the existing Turkey Point Power Plant in Section 27 and 28, Township 57s, Range 40E in Florida City, Dade County, Florida. Latitude - 25°26'09" North. Longitude - 80°19'52" West.

LICENSE/PERMIT INFORMATION

The Army Corps of Engineers has issued permit SAJ-2004-813 for activities associated with construction at the Turkey Point Expansion Project and associated mitigation activities including transplanting of seagrass. The Turkey Point Expansion Project and mitigation activities are also authorized under the Power Plant Siting Act, Conditions of Certification PA 03-45.

SUCCESS CRITERIA

- A) Mitigation areas shall be monitored per mitigation plan dated January 27, 2005. Annual monitoring reports shall include W.A.T.E.R. scores to demonstrate an upward trend towards the required functional value. Monitoring months are as follows:
 - a. Year 1: April, June, August, and October (Following permit issuance, ACOE agreed that the first monitoring event would take place in May instead of April and that the last monitoring would take place in November instead of October).
 - b. Year 2: April, August, and October
 - c. Year 3-5: April and August
- B) Scout Lagoon shall meet the projected W.A.T.E.R. score of 0.80 in a time period of 5 years from the time of creation. W.A.T.E.R. scores are to be submitted at least annually.

VEGETATIVE ANALYSIS

The field sampling protocol was designed to evaluate the existing percent coverage of seagrass within the newly planted Scout Lagoon. A total of eight non-overlapping transects, each 10 meters in length, were randomly selected to effectively represent seagrass coverage within the planted site. GPS coordinates were acquired for the start and end points of each transect.

Percent coverage of seagrass was measured within the planting site using a modified belt transect method. A 1.0 m² quadrat was used to quantify seagrasses and other benthic cover along each 10 meter transect. Quadrats were divided into 100 10x10cm squares. Seagrass presence within a single square represented one percent of each quadrat. Percent cover of each quadrat was recorded along the 10 meter transect and percent cover is shown for each transect in Table 1 (see Appendix). In addition, a modified Braun-Blanquet scale was used to provide a baseline for determining transplantation success in Table 2 (see Appendix). Additionally, a permanent 1.0 m² quadrat was established for monitoring of a fixed plot. Results for the success of the permanent quadrat are listed in Table 3 (see Appendix).

Photos of the area were taken from fixed photo stations, allowing for comparison with later reports.

Seagrass and Macroalgal Results

Species noted in the site included the following:

Scientific Name	Common Name	Mean
<i>Halodule wrightii</i>	shoal grass	38.3
<i>Ruppia maritima</i>	Widgeon grass	5.7
<i>Acetabularia calyculus</i>	mermaid wine glass	0.8
<i>Caulerpa sertularoides</i>	caulerpa	0.9
<i>Ceramium sp.</i>	red algae	4.0
<i>Caulerpa sp.</i>	pipe cleaner algae	9.5
<i>Valonia sp.</i>	bubble algae	2.8
TOTAL		61.9

Overall average percent cover for the area was 61.9%, a notable increase from November 2005 when coverage was 53.7%. Little winter dieback was noted. *Halodule wrightii* and *Ruppia maritima* were both present within transects and appear healthy and dense. *Ruppia sp.* occurred mainly around the shallow edges of the lagoon. Macroalgal species were observed in all transects within the site. *Ceramium sp.* coverage is increasing throughout all transects. Additionally, colonies of *Valonia sp.* were noted along the shallow lagoon edge. The average Braun-Blanquet score was 8.1.

Excluding Macroalgal coverage, the average percent cover for seagrass is 43.9% and the average Braun-Blanquet score is 4.8. The permanent one meter quadrat contained 40% cover (a 10% increase since November 2005) with a Braun-Blanquet score of 6.0. *Halodule wrightii*, *Ceramium sp.*, and *Valonia sp.* were noted within this quadrat. Percent coverages of the seagrass bed with and without Macroalgal species for the eight transects are listed in the following chart.

Aquatic Coverage - Seagrass and Macroalgal Species		
Transect	Average Percent Cover	Average Braun-Blanquet Score
1	60	7.7
2	56.1	6.4
3	52.7	6.0
4	52.4	7.6
5	64.1	8.6
6	65.8	9.6
7	70.1	10.0
8	73.9	9.2
AVERAGE	61.9	8.1

Aquatic Coverage - Seagrass Species		
Transect	Average Percent Cover	Average Braun-Blanquet Score
1	43.5	4.0
2	40.5	4.0
3	42.5	4.2
4	37.0	4.8
5	44.5	5.0
6	44.0	5.4
7	48.0	5.5
8	51.5	5.1
AVERAGE	43.9	4.8

Mangroves

Red mangroves (*Rhizophora mangle*) were planted at 0.0 NGVD around the perimeter of the lagoon. The range in height of these mangroves was from 22-28 inches at the time of planting. The range in the current heights of the mangroves is 27-48 inches. The mangroves appear to be in good health. Twenty-seven of the 260 originally planted were noted to be dead or missing at the time of this report. Eight mangroves had fallen over but were replanted during this monitoring visit. Their health will be closely monitored in future reports. Numerous mangrove seedlings were observed among the planted mangroves. Naturally recruited ground cover observed among mangrove plantings include glasswort and buttonwood seedlings.

Survivorship of the planted mangroves is at 89.62%. Photographic stations were previously established to monitor the progress of the planted mangroves, and photographs were taken during this monitoring event (see Site Map and Photopages in appendix).

Mangrove Survivorship			
Scientific Name	Common Name	Initial Count	Count at MR #5
<i>Rhizophora mangle</i>	Red Mangrove	260	233
% Survivorship			89.62

OBSERVED WILDLIFE UTILIZATION

The following faunal species were observed directly during this or previous monitoring report.

Legend: †=Deceased * =Species listed as endangered, threatened, or species of special concern by Florida Fish and Wildlife Conservation Commission or United States Fish and Wildlife Service.

Wildlife Group	Common Name	Scientific Name
Aquatic	Nudibranch	<i>Aplysia dactylomela</i>
	Minnows	<i>Gambusia spp.</i>
	Tunicate	<i>Clavelina sp.</i>
	Blue land crab	<i>Cardisoma guanhumi</i>
	Needlefish	<i>Strongylura timucu</i>
	Bonefish	<i>Albula vulpes</i>
	Checkered puffer	<i>Sphoeroides testudineus</i>
	Barracuda	<i>Sphyraena barracuda</i>
	Mangrove Snapper	<i>Lutjanus griseus</i>
	Mojarra	<i>Eucinostomus sp.</i>
Birds	Fiddler Crab	<i>Uca minax</i>
	*Brown Pelican	<i>Pelecanus occidentalis</i>
	American Crow	<i>Corvus brachyrhynchos</i>
	Blue Jay	<i>Cyanocitta cristata</i>
	Mourning Dove	<i>Zenaida macroura</i>
	Killdeer	<i>Charadrius vociferus</i>
	Common Yellowthroat	<i>Geothlypis trichas</i>
	Palm Warbler	<i>Dendroica palmarum</i>
	Northern Mockingbird	<i>Mimus polyglottos</i>
	Red-winged Blackbird	<i>Agelaius phoeniceus</i>
	Turkey Vulture	<i>Cathartes aura</i>
	Great Egret	<i>Ardea alba</i>
	Great Blue Heron	<i>Ardea herodias</i>
	Belted Kingfisher	<i>Ceryle alcyon</i>
	Least Sandpiper	<i>Calidris minutilla</i>
	American Redstart	<i>Setophaga ruticilla</i>
	Northern Harrier	<i>Circus cyaneus</i>
	*Wood Stork	<i>Mycteria americana</i>
	*Osprey	<i>Pandion haliaetus</i>
	Spotted Sandpiper	<i>Actitis macularia</i>
	Red-Bellied Woodpecker	<i>Melanerpes carolinus</i>
	White Pelican	<i>Pelecanus erythrorhynchos</i>
Reptiles & Amphibians	Brown Anole	<i>Anolis sagrei</i>
Invertebrates	Bees/Wasps sp.	(Order Hymenoptera)
	Butterflies & Moths	(Order Lepidoptera)
	Damselflies	(Order Odonata)
	Dragonflies	(Order Odonata)

W.A.T.E.R. SCORES

W.A.T.E.R. scores for the site were evaluated in two polygons. The lagoon area consisted of one polygon. This area received a W.A.T.E.R. score of 0.73. The mangrove area consisted of another polygon. This area received a W.A.T.E.R. score of 0.69. The evaluation matrix is attached in the appendix.

NEXT MONITORING REPORT

The sixth monitoring report (MR#6) for the Turkey Point, Scout Lagoon Seagrass Beds will be prepared during the month of August 2005, and submitted by early September. This will document the growth during the next five months.

SUMMARY

The overall health of the site appears to be very good. Seagrass communities are healthy and dense. The average percent cover of seagrass and macroalgae is 61.9% with a Braun-Blanquet score of 8.1. Overall coverage for *Halodule wrightii* and *Ruppia maritima* is 43.9% with a Braun-Blanquet score of 4.8. *Ruppia maritima* coverage is greater toward the edges of the lagoon than in the middle. Macroalgal coverage is also greater near the shallow edges of the lagoon and has increased significantly in density and diversity since the last monitoring report.

The site continues to thrive as a habitat for diverse wildlife. Needlefish, barracuda, and bonefish were noted within the lagoon. A spotted sandpiper was observed in the mangroves, and songbirds such as red-bellied woodpecker and mourning dove flew overhead.

Plants have been installed in the upland area immediately east of the lagoon. These can be seen in the photostation pictures (see photopages in appendix). They appear to be well established.

The mangroves are growing well around the lagoon. Twenty-seven were noted to be dead or missing; however, the survivorship of the red mangroves is at 89.62%. Numerous naturally recruited mangrove seedlings were noted in the planted area and many have grown significantly since the last monitoring visit. Naturally recruited ground cover observed among mangrove plantings include glasswort and buttonwood seedlings.

The W.A.T.E.R. score for the lagoon area was calculated to be 0.73. The W.A.T.E.R. score for the mangrove area was calculated to be 0.69.

DISCUSSION OF MONITORING RESULTS OVER TIME

This section discusses the April 2006 monitoring results in relation to previous monitoring results. These results indicate satisfactory progress toward achieving the success criteria.

Seagrass cover, total herbaceous cover (seagrass and macroalgal species), species diversity, and Braun-Blanquet scores within the lagoon have increased during the past five

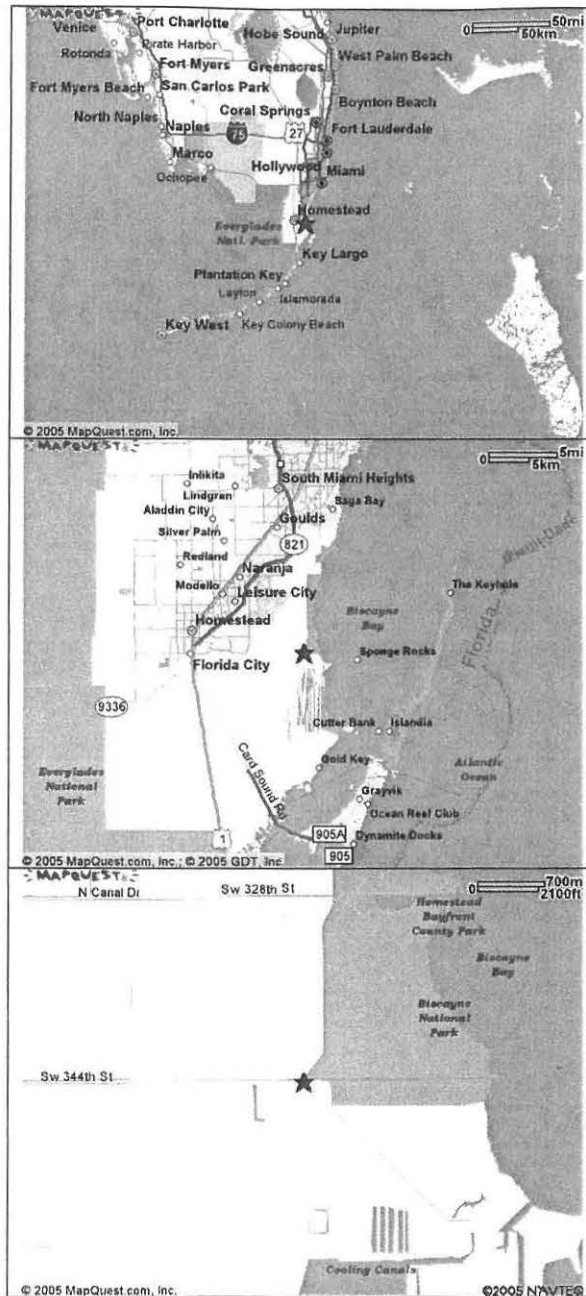
months (see Table 4 in appendix). No exotic species have been observed within the lagoon since project inception.

Mangrove survivorship is excellent. Planted individuals have grown about 2-10 inches, and numerous seedlings have become established in the planted area since March 2005 (visible in photos).

June 2005 was the first month for which the W.A.T.E.R. scores were calculated. The current (April 2006) score for the lagoon is 91% of the success criteria score of 0.80. The current score for the mangroves is 86% of the success criteria score of 0.80. The W.A.T.E.R. scores have increased since the last report due to an increase in wildlife diversity observed.

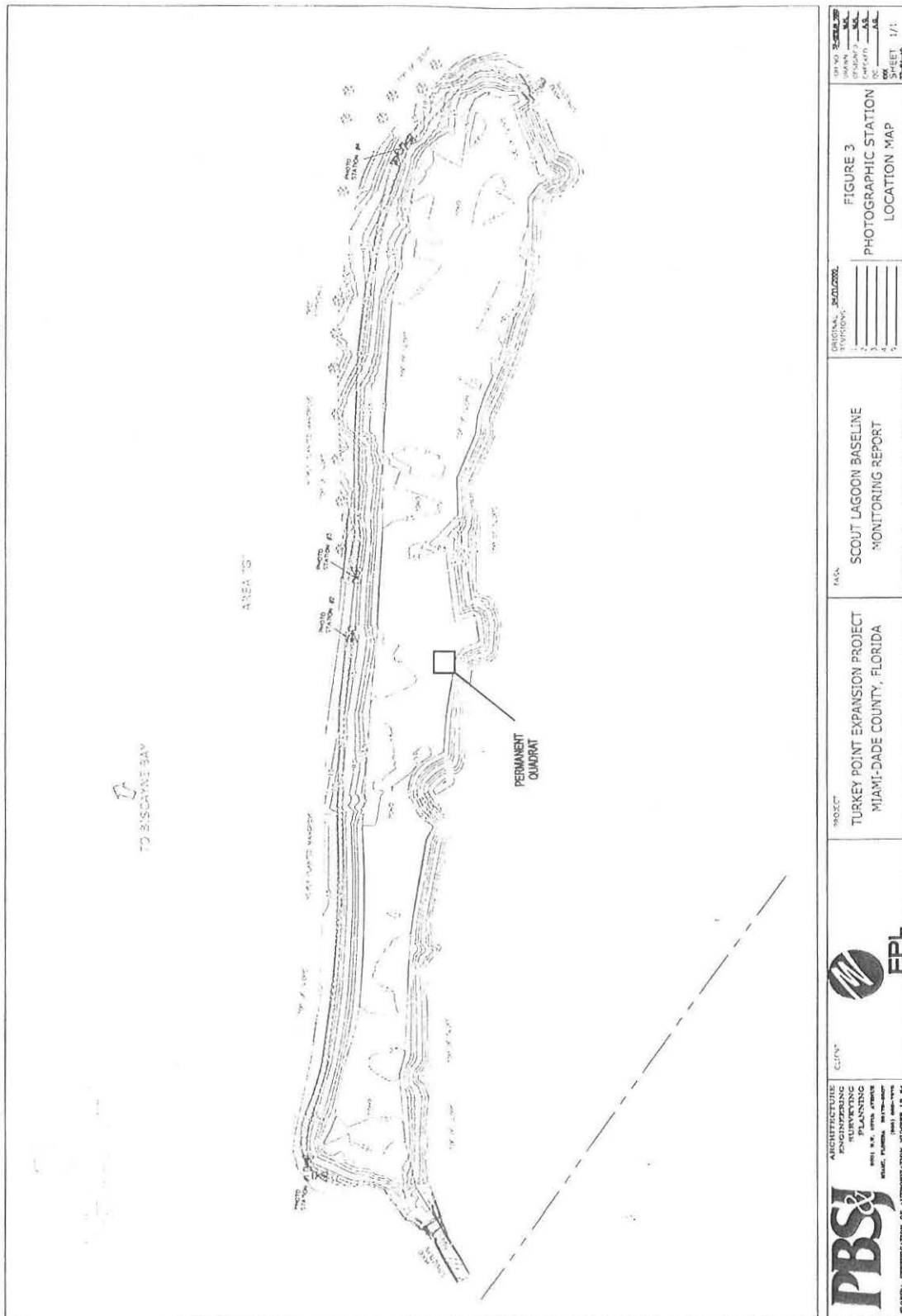
APPENDIX

LOCATION MAP



Take the Florida Turnpike south to the end, reaching US1 in Homestead.
Take a left onto Palm Drive. Head east to the end.

SITE MAP - with photostations



PHOTOPAGES

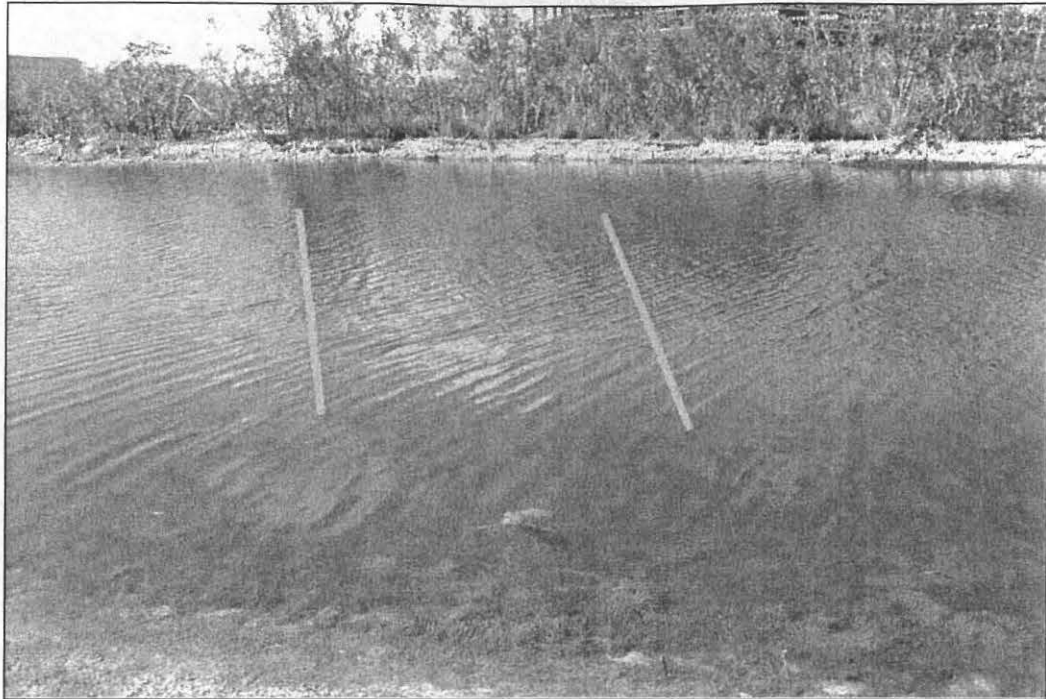


Photo 1: Transect 1 and 2 location buoys.

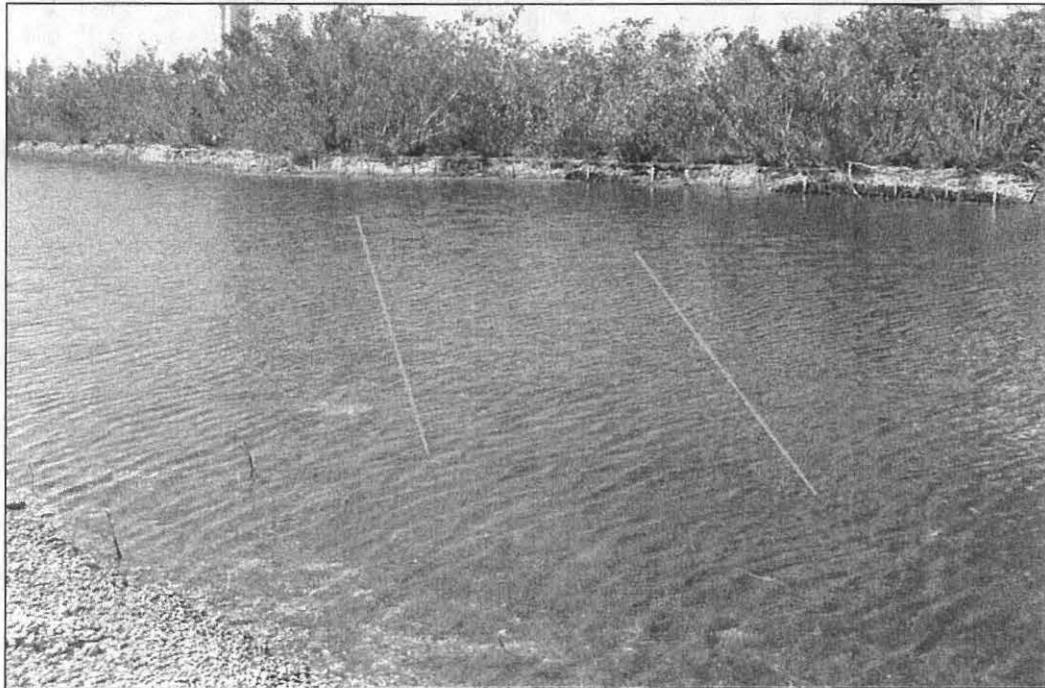


Photo 2: Transect 3 and 4 location buoys.

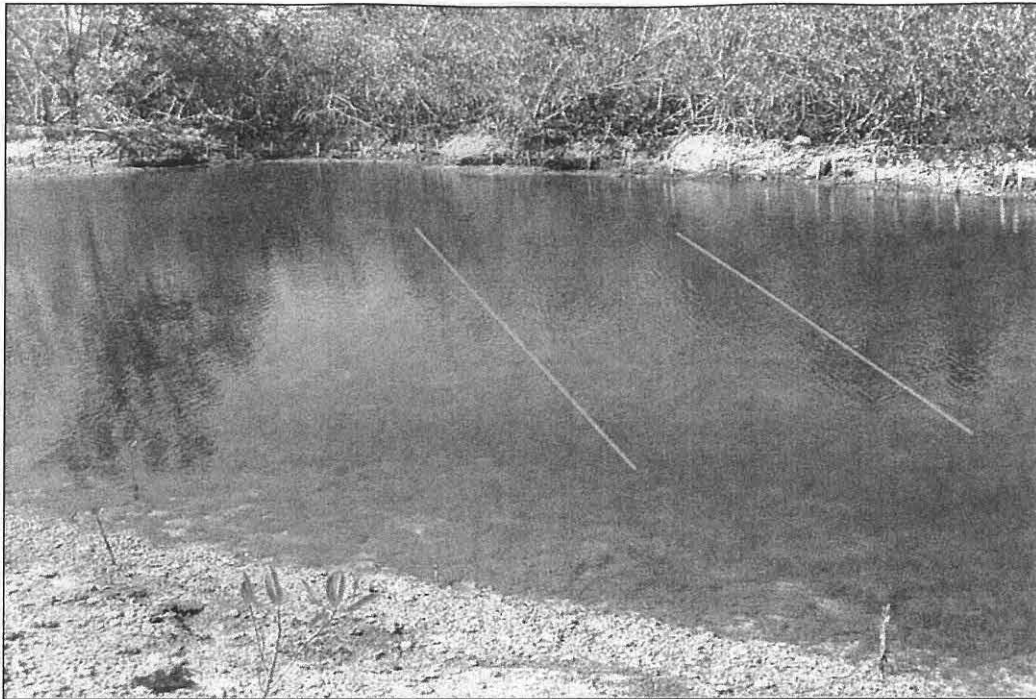


Photo 3: Transect 5 and 6 location buoys.

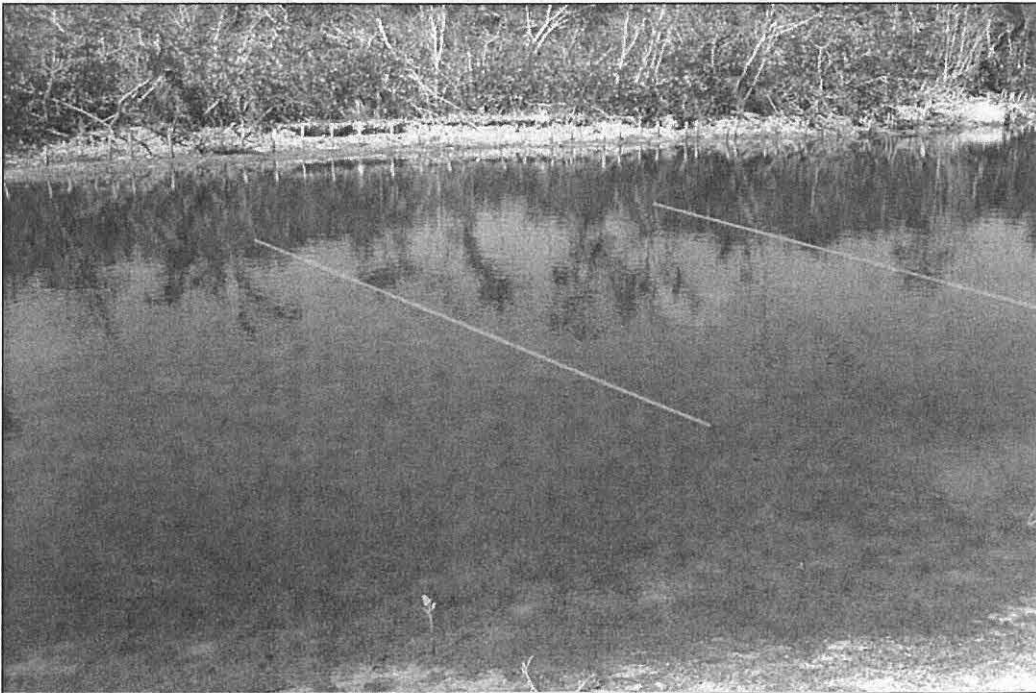


Photo 4: Transect 7 and 8 location buoys.

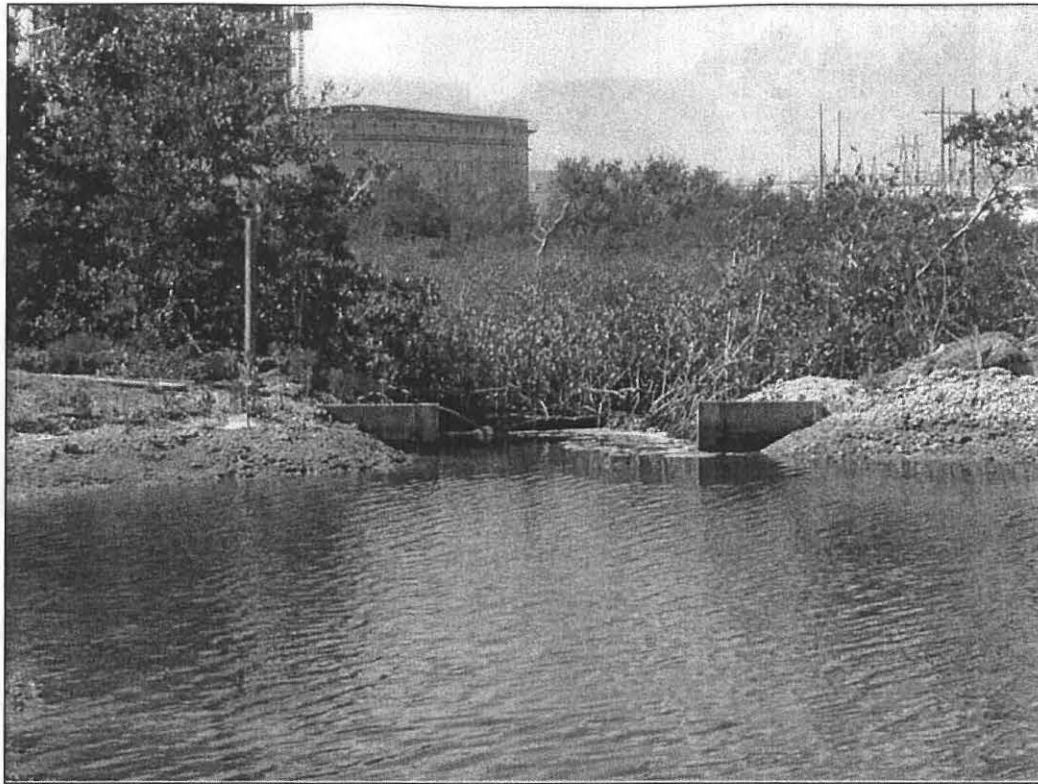


Photo 5: Adjustable weir at the south connection point. Outgoing tide.



Photo 6: Reinforced adjustable weir at the north connection point. Outgoing tide.



Photo 7: Mangrove Photostation 1. View to the south.

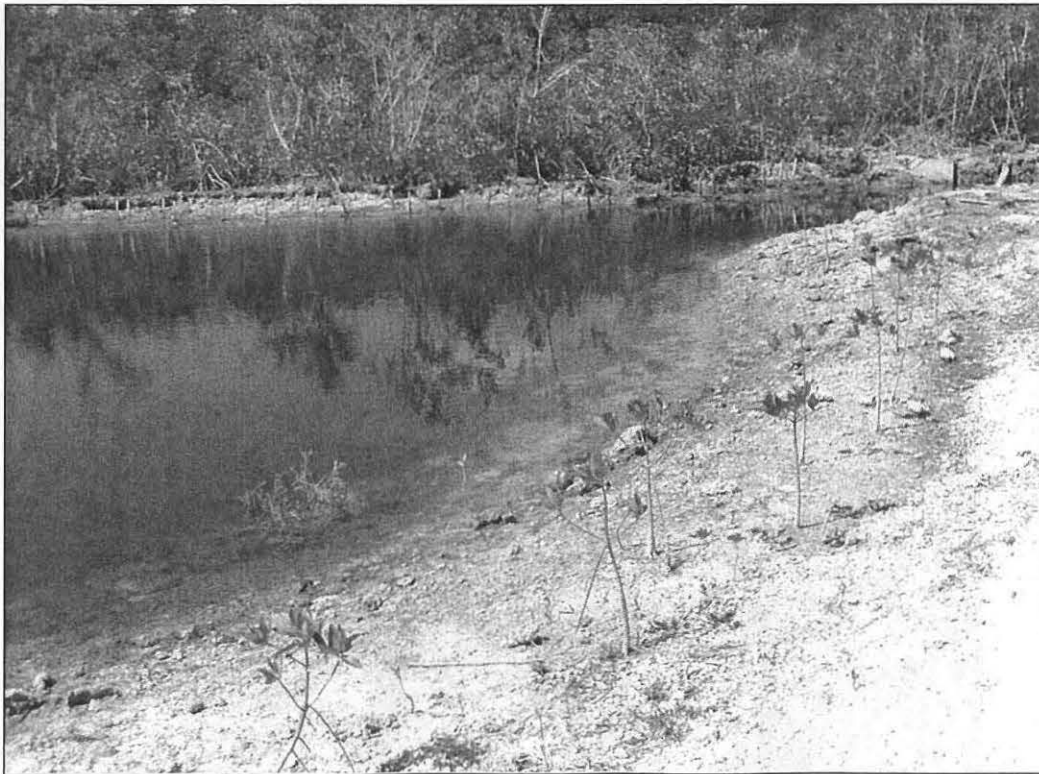


Photo 8: Mangrove Photostation 1. View to the northwest.

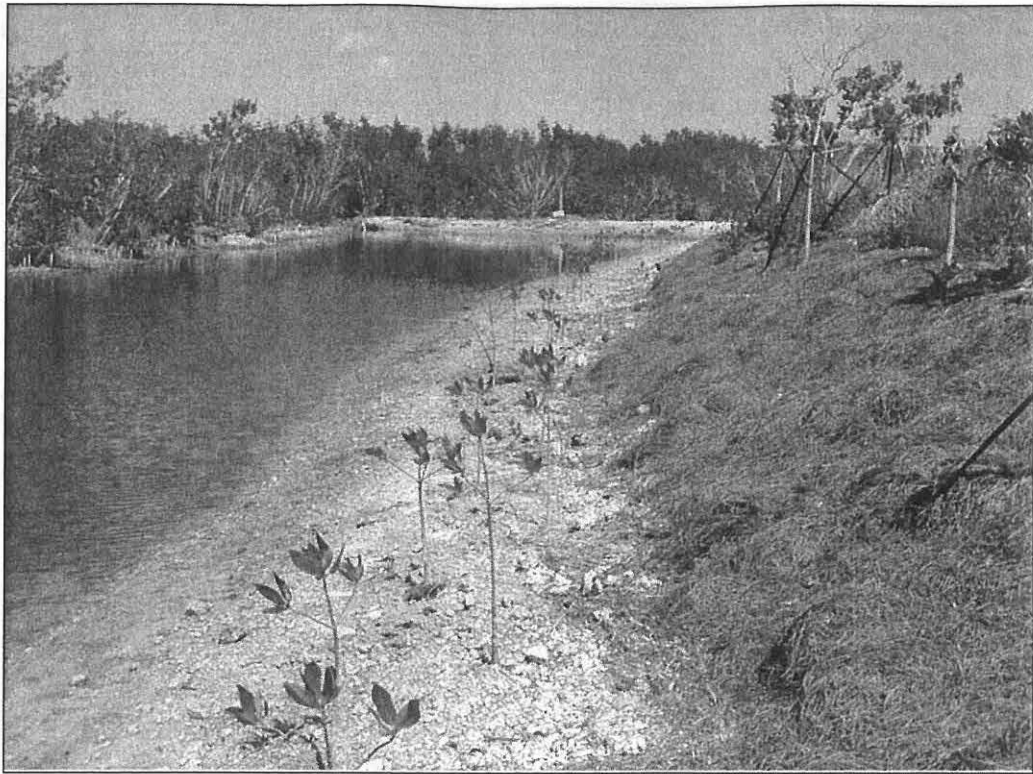


Photo 9: Mangrove Photostation 2. View to the north.

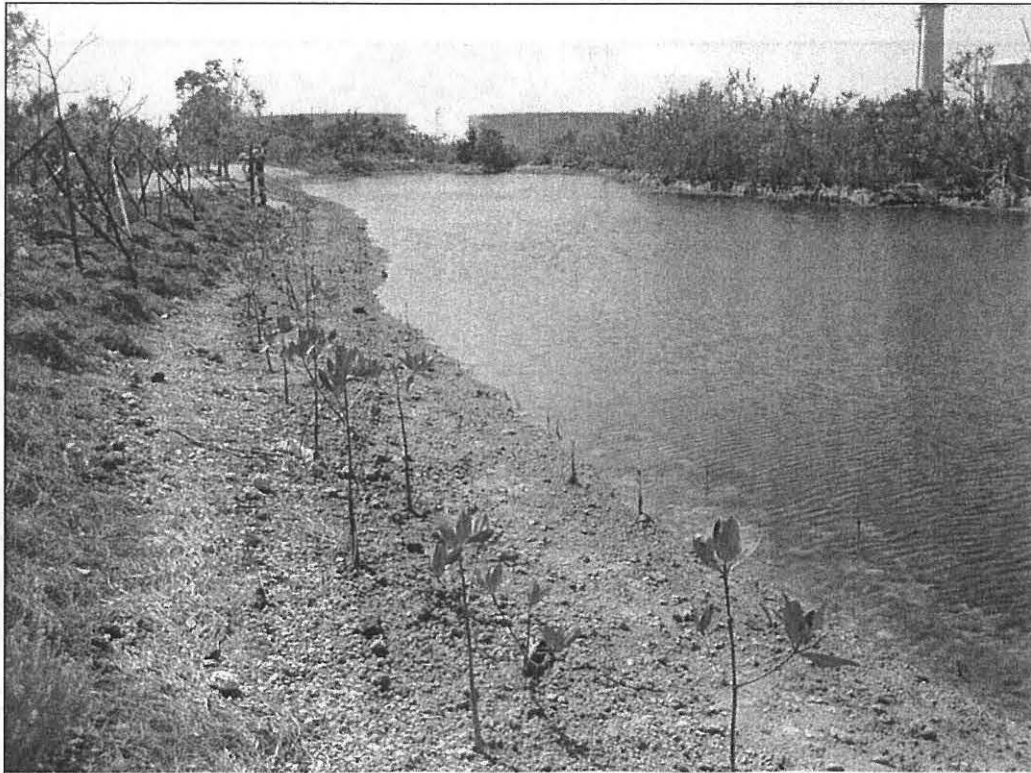


Photo 10: Mangrove Photostation 3. View to the south.

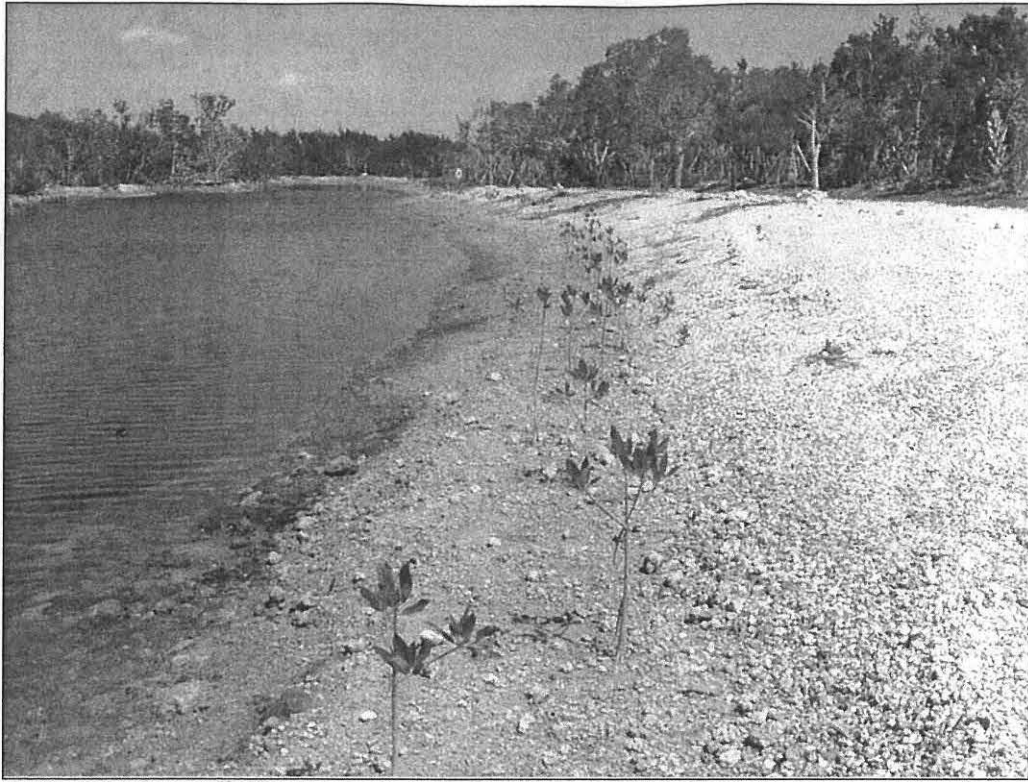


Photo 11: Mangrove Photostation 4. View to the north.



Photo 12: Mangrove Photostation 4. View to the south.



Photo13: *Caulerpa sertularioides*



Photo 14: *Acetabularia calyculus*

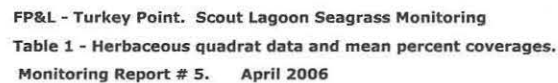


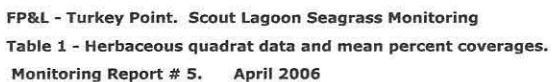
Photo15: Wildlife: Spotted Sandpiper

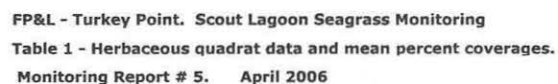


Photo 16: Wildlife: Barracuda

VEGETATIVE COVERAGE TABLES AND W.A.T.E.R. TABLE



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FP&L - Turkey Point. Scout Lagoon Seagrass Monitoring
 Table 2 - Braun-Blanquet Scores.
 Monitoring Report # 5. April 2006

OBSERVED SPECIES		TRANSECT T-1 Braun-Blanquet											TRANSECT T-2 Braun-Blanquet										
SEAGRASS SPECIES	Quadrat (sq m):	1	2	3	4	5	6	7	8	9	10	Mean	1	2	3	4	5	6	7	8	9	10	Mean
<i>Halodule wrightii</i>	shoal grass	4	4	4	4	4	4	4	4	4	4	4.0	4	4	4	4	4	4	4	4	4	4	4.0
<i>Ruppia maritima</i>	Widgeon grass											0.0											0.0
<i>Acetabularia calyculus</i>	mermaid wine glass								1			0.1											0.0
<i>Caulerpa sertularioides</i>	caulerpa											0.0							0.5	0.5			0.1
<i>Ceramium sp.</i>	red algae	1	1	1	1			0.5		0.5		0.5	1	1	1	0.5	0.5	1	1	1	1	1	0.9
<i>Caulerpa sp.</i>	pipe cleaner algae	3	2	3	3	2	2	2	2	3	2	2.4	1	1	1	1	1	1	1	1	1	1	1.0
<i>Valonia sp.</i>	bubble algae	2	2						1	1	1	0.7	1	1	0.5		1	0.5					0.4
Subtotals		10.0	9.0	8.0	8.0	6.0	6.0	6.5	8.0	8.5	7.0	7.7	7.0	7.0	6.5	5.5	6.5	6.5	6.0	6.5	6.5	6.0	6.4
EXOTIC/NUISANCE SPECIES	Quadrat (sq m):	1	2	3	4	5	6	7	8	9	10	Mean	1	2	3	4	5	6	7	8	9	10	Mean
None	None											0.0											0.0
None	None											0.0											0.0
None	None											0.0											0.0
Subtotals		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL BRAUN-BLANQUET COVER		10.0	9.0	8.0	8.0	6.0	6.0	6.5	8.0	8.5	7.0	7.7	7.0	7.0	6.5	5.5	6.5	6.5	6.0	6.5	6.5	6.0	6.4



FP&L - Turkey Point. Scout Lagoon Seagrass Monitoring

Table 2 - Braun-Blanquet Scores.

Monitoring Report # 5. April 2006

OBSERVED SPECIES		TRANSECT T-3 Braun-Blanquet											TRANSECT T-4 Braun-Blanquet										
SEAGRASS SPECIES	Quadrat (sq m):	1	2	3	4	5	6	7	8	9	10	Mean	1	2	3	4	5	6	7	8	9	10	Mean
<i>Halodule wrightii</i>	shoal grass	4	4	4	5	4	4	4	4	5	4	4.2	3	3	3	4	4	4	3	4	4	4	3.6
<i>Ruppia maritima</i>	Widgeon grass											0.0	4	2							3	3	1.2
<i>Acetabularia calyculus</i>	mermaid wine glass									1		0.1											0.0
<i>Caulerpa sertularioides</i>	caulerpa											0.0			2								0.2
<i>Ceramium sp.</i>	red algae	0.5	0.5	0.5	1	1	1	1	0.5	0.5	0.5	0.7	1	2			1	2		1	0.5	1	0.9
<i>Caulerpa sp.</i>	pipe cleaner algae	1	1			0.5			2	2	1	0.8	2	2	1	2			2		2	2	1.3
<i>Valonia sp.</i>	bubble algae	1								1		0.2		0.5			1	2	1				0.5
Subtotals		6.5	5.5	4.5	6.0	5.5	5.0	5.0	6.5	9.5	5.5	6.0	10.0	9.5	6.0	6.0	6.0	8.0	6.0	5.0	9.5	10.0	7.6
EXOTIC/NUISANCE SPECIES	Quadrat (sq m):	1	2	3	4	5	6	7	8	9	10	Mean	1	2	3	4	5	6	7	8	9	10	Mean
None	None											0.0											0.0
None	None											0.0											0.0
None	None											0.0											0.0
Subtotals		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL BRAUN-BLANQUET COVER		6.5	5.5	4.5	6.0	5.5	5.0	5.0	6.5	9.5	5.5	6.0	10.0	9.5	6.0	6.0	6.0	8.0	6.0	5.0	9.5	10.0	7.6



FP&L - Turkey Point. Scout Lagoon Seagrass Monitoring

Table 2 - Braun-Blanquet Scores.

Monitoring Report # 5. April 2006

OBSERVED SPECIES		TRANSECT T-5 Braun-Blanquet											TRANSECT T-6 Braun-Blanquet										
SEAGRASS SPECIES	Quadrat (sq m):	1	2	3	4	5	6	7	8	9	10	Mean	1	2	3	4	5	6	7	8	9	10	Mean
<i>Halodule wrightii</i>	shoal grass	4	4	4	4	4	4	4	3	4	4	3.9	4	4	4	4	4	4	4	4	5	5	4.2
<i>Ruppia maritima</i>	Widgeon grass	4	4	3								1.1	3	3	2						2	2	1.2
<i>Acetabularia calyculus</i>	mermaid wine glass								0.5	0.5		0.1	1								0.5		0.2
<i>Caulerpa sertularioides</i>	caulerpa			1					1			0.2							2	2			0.4
<i>Ceramium sp.</i>	red algae	1	0.5	1	1	1			1	1	1	0.8	0.5	1	1	1	2			0.5	1	1	0.8
<i>Caulerpa sp.</i>	pipe cleaner algae	1	1	1	2	1	2	1	1	2	3	1.5	2	3	2	2	1	1	2	2	3	3	2.1
<i>Valonia sp.</i>	bubble algae	1	2	1	1	0.5	1	1	1	0.5	1	1.0	0.5	1			2	1		2		1	0.8
Subtotals		11.0	11.5	11.0	8.0	6.5	7.0	6.0	7.5	8.0	9.0	8.6	11.0	12.0	9.0	7.0	9.0	6.0	8.0	10.5	11.5	12.0	9.6
EXOTIC/NUISANCE SPECIES	Quadrat (sq m):	1	2	3	4	5	6	7	8	9	10	Mean	1	2	3	4	5	6	7	8	9	10	Mean
None	None											0.0											0.0
None	None											0.0											0.0
None	None											0.0											0.0
Subtotals		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL BRAUN-BLANQUET COVER		11.0	11.5	11.0	8.0	6.5	7.0	6.0	7.5	8.0	9.0	8.6	11.0	12.0	9.0	7.0	9.0	6.0	8.0	10.5	11.5	12.0	9.6



FP&L - Turkey Point. Scout Lagoon Seagrass Monitoring

Table 2 - Braun-Blanquet Scores.

Monitoring Report # 5. April 2006

OBSERVED SPECIES		TRANSECT T-7 Braun-Blanquet											TRANSECT T-8 Braun-Blanquet											Mean for All Tran- sects
SEAGRASS SPECIES	Quadrat (sq m):	1	2	3	4	5	6	7	8	9	10	Mean	1	2	3	4	5	6	7	8	9	10	Mean	
<i>Halodule wrightii</i>	shoal grass	4	4	4	4	4	4	4	4	5	5	4.2	4	5	4	5	4	3	4	4	4	4	4.1	4.0
<i>Ruppia maritima</i>	Widgeon grass	4	2	4							3	1.3	4								3	3	1.0	0.7
<i>Acetabularia calyculus</i>	mermaid wine glass	1						2	1	1		0.5					1				2	1	0.4	0.2
<i>Caulerpa sertularioides</i>	caulerpa		2	1								0.3											0.0	0.2
<i>Ceramium sp.</i>	red algae	1	1	1	2		0.5	1	1	1	2	1.1	0.5			1	1	1		0.5	0.5	0.5	0.5	0.8
<i>Caulerpa sp.</i>	pipe cleaner algae	1	2	2	2	2	2	2	2	3	2	2.0	2	3	3	3	3	3	2	3	3	2	2.7	1.7
<i>Valonia sp.</i>	bubble algae		1	1	0.5			1	0.5		2	0.6	1	1	1			1		1			0.5	0.6
Subtotals		11.0	12.0	13.0	8.5	6.0	6.5	10.0	8.5	10.0	14.0	10.0	11.5	9.0	8.0	9.0	8.0	9.0	6.0	8.5	12.5	10.5	9.2	8.1
EXOTIC/NUISANCE SPECIES	Quadrat (sq m):	1	2	3	4	5	6	7	8	9	10	Mean	1	2	3	4	5	6	7	8	9	10	Mean	
None	None											0.0											0.0	0.0
None	None											0.0											0.0	0.0
None	None											0.0											0.0	0.0
Subtotals		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL BRAUN-BLANQUET COVER		11.0	12.0	13.0	8.5	6.0	6.5	10.0	8.5	10.0	14.0	10.0	11.5	9.0	8.0	9.0	8.0	9.0	6.0	8.5	12.5	10.5	9.2	8.1



FP&L - Turkey Point, Scout Lagoon Seagrass Monitoring
Table 3 - Permanent Quadrat Data
Monitoring Report # 5, April 2006

OBSERVED SPECIES		May 2005	June 2005	August 2005	November 2005	April 2006	August 2006	October 2006	April 2007	August 2007	April 2008
SEAGRASS SPECIES	Quadrat (sq m):										
<i>Halodule wrightii</i>	shoal grass	4	8	16	20	25					
<i>Ruppia maritima</i>	Widgeon grass										
<i>Acetabularia calyculus</i>	mermaid wine glass										
<i>Caulerpa sertularioides</i>	caulerpa	1	2								
<i>Ceramium sp.</i>	red algae					10					
<i>Caulerpa sp.</i>	pipe cleaner algae			7	10						
<i>Valonia sp.</i>	bubble algae					5					
% Total per quadrat		5.0	10.0	23.0	30.0	40.0	0.0	0.0	0.0	0.0	0.0
EXOTIC/NUISANCE SPECIES	Quadrat (sq m):										
None	None										
None	None										
None	None										
% Total per quadrat		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL HERBACEOUS % COVER	Quadrat (sq m):										
Areal Quadrat Herbaceous Coverage		5	10	23	30	40	0	0	0	0	0
Areal Open Water/Detritous/Bare ground		95	90	77	70	60	100	100	100	100	100
TOTAL AREAL COVERAGE		100	100	100	100	100	100	100	100	100	100

OBSERVED SPECIES		May 2005	June 2005	August 2005	November 2005	April 2006	August 2006	October 2006	April 2007	August 2007	April 2008
SEAGRASS SPECIES	Quadrat (sq m):										
<i>Halodule wrightii</i>	shoal grass	1	2	3	3	2					
<i>Ruppia maritima</i>	Widgeon grass										
<i>Acetabularia calyculus</i>	mermaid wine glass										
<i>Caulerpa sertularioides</i>	caulerpa	0.1	0.1								
<i>Ceramium sp.</i>	red algae					2					
<i>Caulerpa sp.</i>	pipe cleaner algae			2	2						
<i>Valonia sp.</i>	bubble algae					2					
Subtotals		1.1	2.1	5.0	5.0	6.0	0.0	0.0	0.0	0.0	0.0
EXOTIC/NUISANCE SPECIES	Quadrat (sq m):										
None	None										
None	None										
None	None										
Subtotals		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL BRAUN-BLANQUET COVER		1.1	2.1	5.0	5.0	6.0	0.0	0.0	0.0	0.0	0.0



TABLE 3

ALL SPECIES TRANSECT COVERAGE	SCORES											
	May '05	June '05	Aug '05	Nov '05	April '06	Aug '06	Oct '06	April '07	Aug '07	April '08	Aug '08	
AVERAGE PERCENT COVER	5.4	12.9	48.9	53.7	81.9							
AVERAGE BRAUN-BLANQUET SCORE	1.4	2.9	6.9	6.9	8.1							

SEAGRASS (ONLY) TRANSECT COVERAGE		SCORES									
	May '05	June '05	Aug '05	Nov '05	April '06	Aug '06	Oct '06	April '07	Aug '07	April '08	Aug '08
AVERAGE PERCENT COVER	4.8	9.7	36.4	41.4	43.9						
AVERAGE BRAUN-BLANQUET SCORE	1.2	2.3	4.3	4.5	4.8						

W.A.T.E.R.		SCORES										Success Criterion
		May '05	June '05	Aug '05	Nov '05	April '06	Aug '06	Oct '06	April '07	Aug '07	April '08	Aug '08
LAGOON - SEAGRASS ONLY		NC	0.63	0.69	0.71	0.73						0.80
MANGROVE BUFFER		NC	0.57	0.59	0.67	0.69						0.80

NC = not calculated

MANGROVE BUFFER		SURVIVORSHIP											
Scientific Name	Common Name	# Planted	May '05	June '05	Aug '05	Nov '05	April '06	Aug '06	Oct '06	April '07	Aug '07	April '08	Aug '08
<i>Rhizophora mangle</i>	Red mangrove	260	257	253	240	235	233						
% Survivorship		100%	98.85%	97.31%	92.31%	90.38%	89.62%						

PERMANENT QUADRAT	SCORES										
	May '05	June '05	Aug '05	Nov '05	April '06	Aug '06	Oct '06	April '07	Aug '07	April '08	Aug '08
AVERAGE PERCENT COVER	5.0	10.0	23	30	40						
AVERAGE BRAUN-BLANQUET SCORE	1.1	2.1	5	5	6						

Mitigation Bank Wetland Function Evaluation Matrix

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews
Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advise from
EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Dade County

Project: FPL Scout Lagoon

Reviewer: Janine Bacquie

Date: 6-Apr-06

Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			MANGROVE	LAGOON				
1. Fish & Wildlife Functions Apply to freshwater, saltwater, brackish and mitigation systems								
a. Waterfowl, wading birds, wetland dependent, or aquatic birds of prey. (Mit. Bank - High specie count w/ low pop. #'s score 1)	7 or more species commonly observed	3	3	3				
	3-6 species commonly observed	2						
	1-2 species commonly observed	1						
	0 species commonly observed	0						
b. Fish (Mit. Bank - High specie count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	7 or more species commonly observed	3	2	3				
	3-6 species commonly observed	2						
	1-2 species commonly observed	1						
	0 species commonly observed	0						
c. Mammals (Mit. Bank - High specie count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	Top predator (carnivore) &/or large mammals	3	0	0				
	Medium sized mammals , (adult weight > 6 lbs.)	2						
	Small animals (rodents, etc.) , (adult weight < 6 lbs.)	1						
	0 species present	0						
d. Aquatic macroinvertebrates, amphibians (Mit. Bank - High specie count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	7 or more species commonly observed	3	2	3				
	3-6 species commonly observed	2						
	1-2 species commonly observed	1						
	0 species commonly observed	0						
e. Aquatic reptiles (Mit. Bank - High specie count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	Large species observed	3	1	0				
	Aquatic turtles	2						
	Snakes & lizards	1						
	No evidence of species present	0						

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Project: FPL Scout Lagoon

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Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			MANGROVE	LAGOON				
2. Vegetative Functions Apply to freshwater, saltwater, brackish and mitigation systems								
a. Overstory/shrub canopy	Desirable trees/shrub healthy & providing appropriate habitat (seedlings present) & no inappropriate species	3	3	N/A				
	Desirable trees/shrubs exhibit signs of stress (no seedlings) few inappropriate species present	2						
	Inappropriate trees/shrubs shading or overcoming desirable tree/shrubs	1						
	Very little or no desirable tree/shrubs present (evidence suggests there should be)	0						
b. Vegetative ground cover	Assessment area exhibits <2% inappropriate herbaceous ground cover for specific wetland systems and groundcover is present	3	3	3				
	Assessment area contains >2% but <30% inappropriate herbaceous groundcover, or lack of groundcover >2% but < 30%	2						
	Assessment area contains >30% to <70% inappropriate herbaceous groundcover, or lack of ground cover >30% to <70%	1						
	Assessment area >70% inappropriate herbaceous groundcover or lack of groundcover >70%	0						
c. Periphyton mat coverage	Periphyton (Blue-green algae) present with average mat thickness >1 1/4 in. (measure active & dead layer)	3	0	1				
	Periphyton (Blue-green algae) present with average mat thickness between 3/4 in. to 1 1/4 in. (active & dead layer)	2						
	Periphyton (Blue-green algae) present with average mat thickness between 1/4 in. to 3/4 in. (active & dead layer)	1						
	Periphyton (Blue-green algae) not present or if present with average thickness of 0.0 to 1/4 in. (active & dead layer)	0						
d. Category 1 and Category 2 exotic plants or (non-native) species	< (or = to) 1 % exotic plant cover	3	3	3				
	>1 % to 10 % exotic plant cover	2						
	>10 % to 65 % exotic plant cover	1						
	> 65 % exotic plant cover	0						
e. Habitat diversity (vegetative) (within assessment area)	>3 native species communities on site within assessment area	3	1	2				
	2 or 3 native specie communities on site within assessment area	2						
	1 native species community with 75 % to 90 % coverage within assessment area	1						
	1 native species community has > 90 % coverage within assessment area	0						
f. Biological diversity within 3000 feet (approximately 1/2 mile from edge of assessment area)	> 3 alternative habitats available (including upland)	3	2	2				
	2 to 3 alternative habitats	2						
	1 alternative habitat	1						
	Same habitat type, or inappropriate / impacted	0						

Mitigation Bank Wetland Function Evaluation Matrix

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Project: FPL Scout Lagoon

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Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			MANGROVE	LAGOON				
3. Hydrologic Functions								
a. Surface water hydrology / sheet flow Apply to freshwater, saltwater, brackish and mitigation systems	Major connection (Flowing water/ river or floodplain/ uniform flow through natural systems)	3	3	3				
	Moderate connection (Natural restriction of flow or Flowing water due to hydrologic engineering)	2						
	Minor connection (Runoff collection point, or uneven flow due to berms, ditches, roadways etc.)	1						
	Hydrologically isolated, no net lateral movement	0						
b. Hydroperiod (normal year) fresh systems	> 8 months inundated with no reversals & every year drydown	3						
	>5 months < 8 months or >5 years continuous inundation (look for strong water stains on persistent vegetation)	2						
	>1 month < 5 months, with possible reversals (look for soft or less distinct water stains on persistent vegetation)	1						
	< 4 weeks cumulative annual inundation or < 2 weeks continuous inundation	0						
b-1 Alternate to b. for Short Hydroperiod (normal year) fresh systems:	>10 weeks of continuous inundation including soil saturation	3						
	> 6 weeks but <10 weeks of continuous inundation including soil saturation	2						
	>2 weeks but <6 weeks of inundation, including soil saturation	1						
	<2 weeks of continuous inundation	0						
b-2 Alternate to b. for Saltwater, brackish (tidal) systems	Inundated by >90% high tides	3	3	3				
	Inundated by "spring" high tides (bi-monthly)	2						
	Inundated by "extreme high" tides only (biannually)	1						
	Inundated by storm surges only	0						
b-3 Alternate to b. for High Marsh (Juncus-Distichlis)	Inundated by high "spring" tides (monthly) and flushed by fresh water sheetflow every 10 days average	3						
	Inundated by high "spring" tides (monthly) and flushed by fresh water sheetflow every 30 days on the average	2						
	Inundated by high "spring" tides (monthly) and exposed to rain only	1						
	Inundated by >50% high tides and exposed to rain only	0						
b-4 Alternate to b. for Riverine systems	Inundated by high tides (daily) and/or recieves and maintains fresh water at least into first half of dry season	3						
	Inundated by high tides (daily) and/or recieves and maintains fresh water during rainy season only	2						
	Inundated by high tides (daily) and/or recieves fresh water but does not maintain (reversal) during rainy season	1						
	Inundated by spring tides (bi-monthly) and/or experiences frequent reversals of fresh water (flashy)	0						

Mitigation Bank Wetland Function Evaluation Matrix

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Project: FPL Scout Lagoon

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Date: 6-Apr-06

Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			MANGROVE	LAGOON				
3. Hydrologic Functions continued								
c- Hydropattern (fresh system)	>1 ft. water depth for at least 2.5 months and <6 in. for >1 month (measure water mark/ lichen line); or water depth ideal for specific wetland system.	3						
	>6 in. to 1 ft. for at least 2.5 months (measure water mark/ lichen line) or water depth borderline over or under for specific wetland system	2						
	<6 in. for at least 2.5 months (measure water mark/ lichen line) or water depth incorrect for specific wetland system	4						
	<6 in. in association with either canals, ditches, swales, culverts, pumps, and/or wellfields, or these factors cause water depth to be too deep for specific system.	0						
c-1 Alternate to c. for Saltwater, brackish (tidal) systems	>1 ft. water depth <2 ft. on 90% high tides	3	1	3				
	> 6 in. water depth <1 ft. on >50% high tides	2						
	< 6 in. water depth , but > than saturated	1						
	Saturated by saline water table only	0						
c-2 Alternate to c. for High Marsh (Juncus-Distichlis)	>10 in. water depth <2 ft. on regular basis during growing season	3						
	>6 in. to 10 in. water depth on regular basis during growing season	2						
	>1 in. to 5 in. water depth on regular basis during growing season	4						
	>0.0 in. to 1 in. water depth sporadically during growing season	0						
c-3 Alternate to c. for Riverine systems	>2 ft. water depth (main channel) <6 ft. for 8 months	3						
	>2 ft. water depth (main channel) <4 ft. for 6 months	2						
	>1 ft. water depth (main channel) <2.5 ft. for 4 months	4						
	<1 ft. water depth, but dry for >4 weeks (dry season)	0						

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Project: FPL Scout Lagoon

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Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			MANGROVE	LAGOON				
3. Hydrologic Functions continued								
d. Water Quality	No indication of poor water quality (lab testing required, all values within acceptable range)	3	2	2				
	No visual indicators of poor water quality observed (1 value just over or under acceptable range)	2						
	Visual indicators of poor water quality questionable (2 values over or under acceptable range)	1						
	Visual indicators of poor water quality observed or lab verified (values are out of acceptable range)	0						
e. Intactness of historic topography (soil disturbance)	Unaltered	3	3	3				
	Slightly altered soil disturbance, < 10% of assessment area	2						
	Moderately altered soil disturbance, < 25% of assessment area	1						
	Extremely altered soil disturbance, may exceed 50% of assessment area	0						
f. Soils, organic (fresh systems)	Organic soil classified hydric soil >12 in. or any thickness over bedrock/caprock with perched water table and either condition covering >90% of surface area	3						
	Organic soil classified hydric soil >6 in. but <12 in. and covering >90% of surface area	2						
	Organic soil classified hydric soil >1 in. but <6 in. and covering >50% but <90% of surface area	1						
	Organic soil classified non-hydric soil <1 in. for >50% of surface area	0						
f-1 Alternate to f. for Freshwater, saltwater systems	Sandy soil classified hydric soil with distinct mottling and concretions present in greater than 40% of horizon.	3						
	Sandy soil classified hydric soil with mottling and concretions present in > 20% but < 40% of horizon.	2						
	Sandy soil classified hydric soil with light or sparse mottling and concretions < 2 mm diameter or < 20% of horizon.	1						
	Sandy soil exhibits strong evidence of disturbance or mechanical manipulations or is fill material.	0						
f-2 Alternate to f. for Freshwater, saltwater, brackish (tidal) systems	Calcareous loam >12 in. and >90 % of surface area	3	2	0				
	Calcareous loam >6 in. to <12 in. and >90% of surface area	2						
	Calcareous loam >1 in. to <6 in. and covering >50% but <90% of surface area	1						
	Calcareous loam <1 in. for >50% of surface area	0						

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Project: FPL Scout Lagoon

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Date: 6-Apr-06

Parameter/ Function	Scoring Criteria	Ratings	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
			MANGROVE	LAGOON				
4. Salinity Parameters Apply to freshwater, saltwater, brackish, hypersaline and mitigation systems - Choose 1								
a. Optimum salinity for fresh systems during growing season based on mean high salinity for a normal year. <i>Apply to freshwater systems within 5 miles of the coast</i>	<2 parts per thousand (ppt)	3						
	2 to 3 parts per thousand (ppt)	2						
	4 to 5 parts per thousand (ppt)	1						
	>5 parts per thousand (ppt)	0						
a-1. Alternate to a.- Optimum salinity for brackish systems during growing season based on mean high salinity for a normal year. <i>Apply to brackish (tidal) systems only</i>	6 to 8 parts per thousand (ppt)	3						
	9 to 13 parts per thousand (ppt)	2						
	14 to 16 parts per thousand (ppt)	1						
	>16 parts per thousand (ppt)	0						
a-2. Alternate to a. Optimum salinity for saline systems during growing season based on mean high salinity for a normal year. <i>Apply to saline marsh (tidal) systems only</i>	17 to 19 parts per thousand (ppt)	3	3	3				
	20 to 22 parts per thousand (ppt)	2						
	23 to 25 parts per thousand (ppt)	1						
	>25 parts per thousand (ppt)	0						
a-3. Alternate to a.- Optimum salinity for hypersaline systems during growing season based on mean high salinity for a normal year. <i>Apply to hypersaline (tidal) systems only</i>	26 to 41 parts per thousand (ppt)	3						
	42 to 46 parts per thousand (ppt)	2						
	47 to 51 parts per thousand (ppt)	1						
	>51 parts per thousand (ppt)	0						
a-4 Alternate to a.- Optimum salinity for riverine/tidal creek system during growing season based on mean high salinity for a normal year. <i>Apply to riverine systems only</i>	bottom (lower) third between 12 to 25 ppt	3						
	middle third between 5 to 11 ppt							
	upper (top) third between 0 to 4 ppt							
	bottom (lower) third between 25 to 32 ppt	2						
	middle third between 6 to 24 ppt							
	upper (top) third between 0 to 5 ppt							
	bottom (lower) third between 30 to 40 ppt	1						
	middle third between 8 to 29 ppt							
	upper (top) third between 0 to 7 ppt							
	bottom (lower) third between 35 to 50 ppt	0						
	middle third between 10 to 34 ppt							
	upper (top) third between 0 to 9 ppt							
Cotleur Hearing, Inc.			37	37				
W.A.T.E.R. created by: Bill L. Maus			54	51				
11/1/1998			0.69	0.73				
Cumulative Score (SC)			0.8	0.8				
Maximum Possible Score (MPS)			86	91				
W.A.T.E.R. = Cumulative Score/Maximum Possible Score								
Success Criteria								
Percent of Success Criteria Score								

CIRCULATION LIST

- U.S. Army Corps of Engineers
Palm Beach Regulatory Office
Attn: Tori White / Leah Oberlin
4400 PGA Boulevard, Suite 500
Palm Beach Gardens, Florida 33410
Re: Project No: SAJ-2004-813 (IP-TKW)
- U.S. Army Corps of Engineers
Enforcement Section (CESAJ-RD-PE)
Attn: Lisa Abernathy
P.O. Box 4970
Jacksonville, Florida 32232-0019
Re: Project No: SAJ-2004-813 (IP-TKW)
- Don Keirn
DEP Southeast District Office
400 N. Congress Ave.
West Palm Beach, Florida 33401
- Tim Gray
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- Florida Power & Light
Attn: Rachel Godino
700 Universe Boulevard
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- X WilsonMiller Inc.
Attn: Ann M. Redmond
1441 Maclay Commerce Drive
Suite 101
Tallahassee, Florida 32312
- X Robert Miller, Chief Operating Officer
Native Technologies, Inc.
814 South Military Trail
Deerfield Beach, Florida 33442

MONITORING REPORT SCHEDULE

REPORT	AGENCY	SUBMITTAL DATE
1	Wilson Miller/USACOE/FPL	May 27, 2005
2	Wilson Miller/USACOE/FPL	July 8, 2005
3	Wilson Miller/USACOE/FPL	September 7, 2005
4	Wilson Miller/USACOE/FPL	December 15, 2005
5	Wilson Miller/USACOE/FPL	April 20, 2006
6	Wilson Miller/USACOE/FPL	
7	Wilson Miller/USACOE/FPL	
8	Wilson Miller/USACOE/FPL	
9	Wilson Miller/USACOE/FPL	
10	Wilson Miller/USACOE/FPL	
11	Wilson Miller/USACOE/FPL	
12	Wilson Miller/USACOE/FPL	
13	Wilson Miller/USACOE/FPL	

