

# ENTRIX

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**TO:** Marsh Assessment Subgroup  
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**FROM:** Gary Harmon, ENTRIX

**DATE:** August 30, 2001

**SUBJECT:** July 2001 Field Effort for the Swanson Creek Oil Spill

**cc:** Ralph Markarian, ENTRIX  
Wayne Kicklighter, ENTRIX

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This report summarizes the field results from the July 2001 marsh injury assessment effort for the Swanson Creek Oil Spill. Included are plates of photos of each exposure group, a map showing the location of each photoquad and erosion monitoring site, a data summary table for the major vegetation characteristics, a table containing all the information from the field data sheets and a brief description of daily activities.

During the July field effort we revisited the 61 sampling stations and 6 erosion monitoring stations that were established in 2000. At all 61 sampling stations we collected information on the height, aerial cover, plant density, oiling characteristics, and fauna in the sampling area. A summary of the vegetative characteristics of all the exposure groups is shown in Table 1. Table 2 is a summary table of all the field data sheets taken during the July 2001 monitoring. Table 3 is a summary of the field data for the erosion monitoring sites. Each site consists of three stakes in a straight line.

## Daily Activities

### Monday July 16, 2001

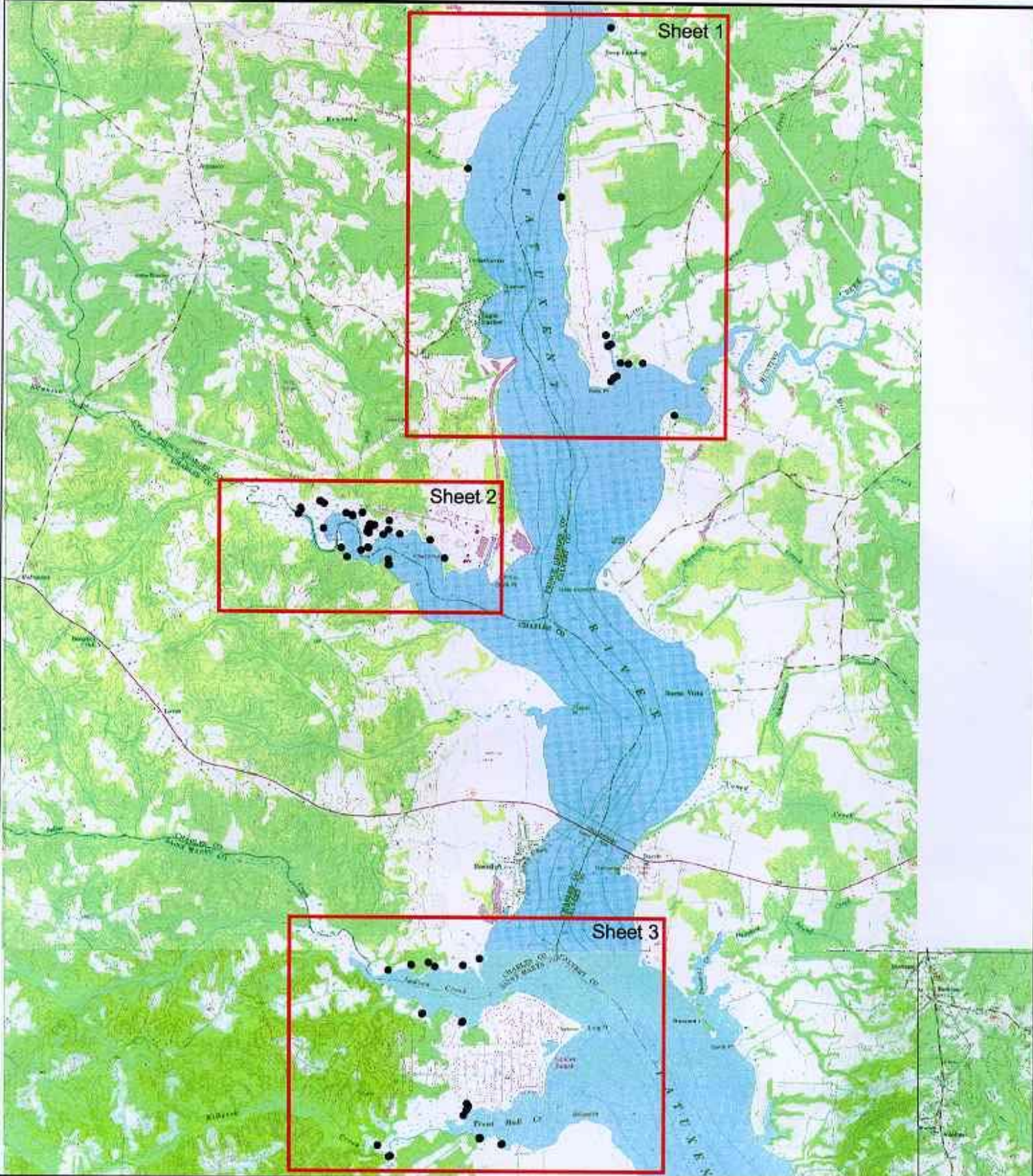
- People attending were: Gary Harmon (ENTRIX), Angie Morrow (ENTRIX), Dave Jackson (ENTRIX), Phillip Steffan (ENTRIX), Mitch Keiller (MDNR), Jacqui Michel (RPI), Rick Ayella (MDE), Al Rizzo (USFWS), and MF (MDNR);
- Information was collected for 25 photoquads and 2 erosion monitoring sites; and
- Personnel broke into groups as shown on the data sheets to collect the data.

**Tuesday July 17, 2001**

- People attending were Gary Harmon (ENTRIX), Angie Morrow (ENTRIX), Dave Jackson (ENTRIX), Phillip Steffan (ENTRIX), Mitch Keiller (MDNR), Jacqui Michel (RPI), Rick Ayella (MDE), Al Rizzo (USWFS);
- Information was collected for 31 photoquads and 4 erosion monitoring sites; and
- We again split into groups to collect the data more efficiently.

**Wednesday July 18, 2001**

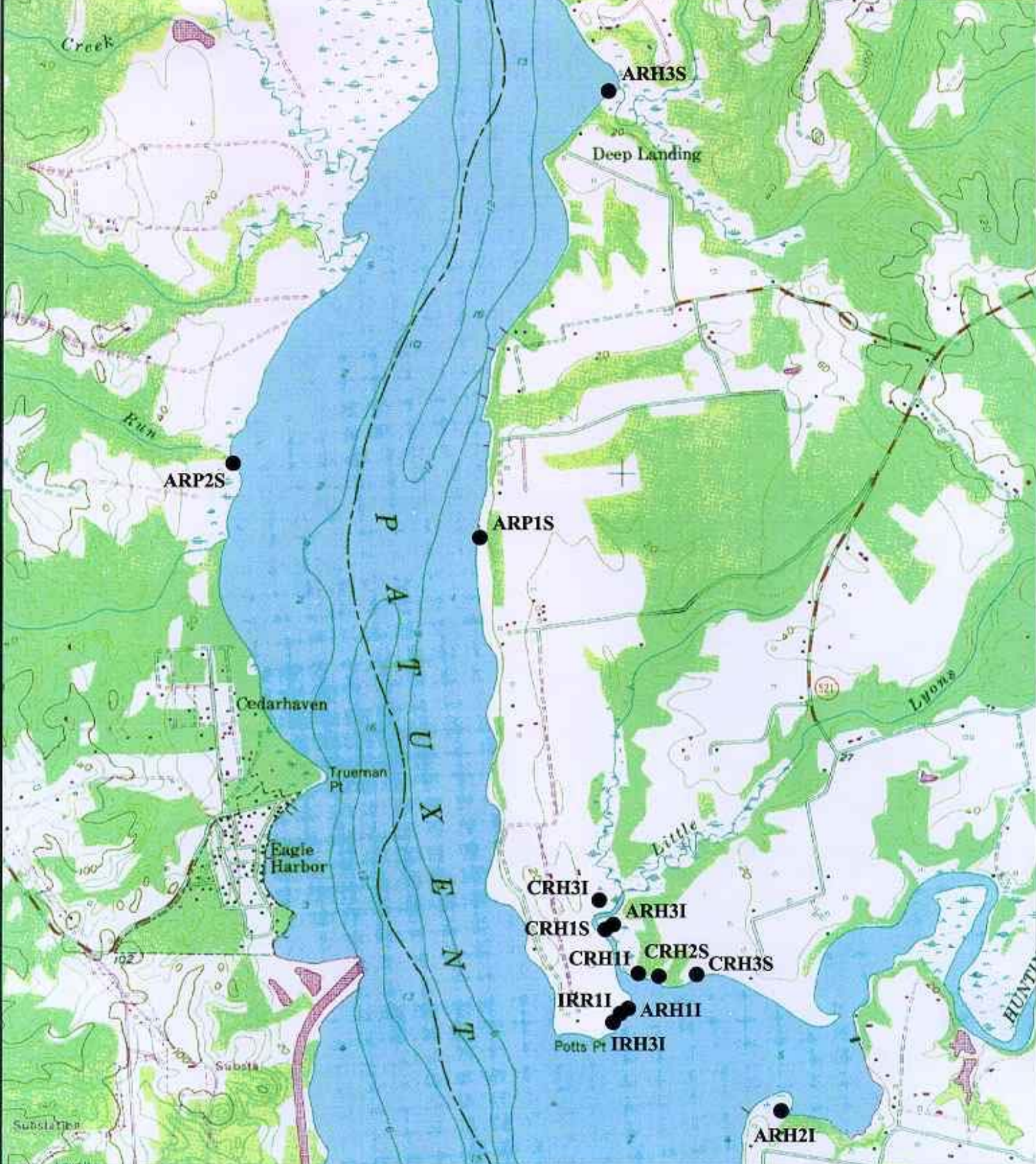
- People attending were Gary Harmon (ENTRIX), Angie Morrow (ENTRIX), Rick Ayella (MDE), and Kevin Smith (MDNR); and
- Information was collected for 5 photoquads.



**PEPCO OIL SPILL**  
**Marsh Injury**  
**Assessment**



<b>E N T R I X</b>	
Photoquad Sampling and Erosion Monitoring Locations	
<i>DRAFT</i> Index Map	
PROJECT: 729901	DATE: 08/01/01



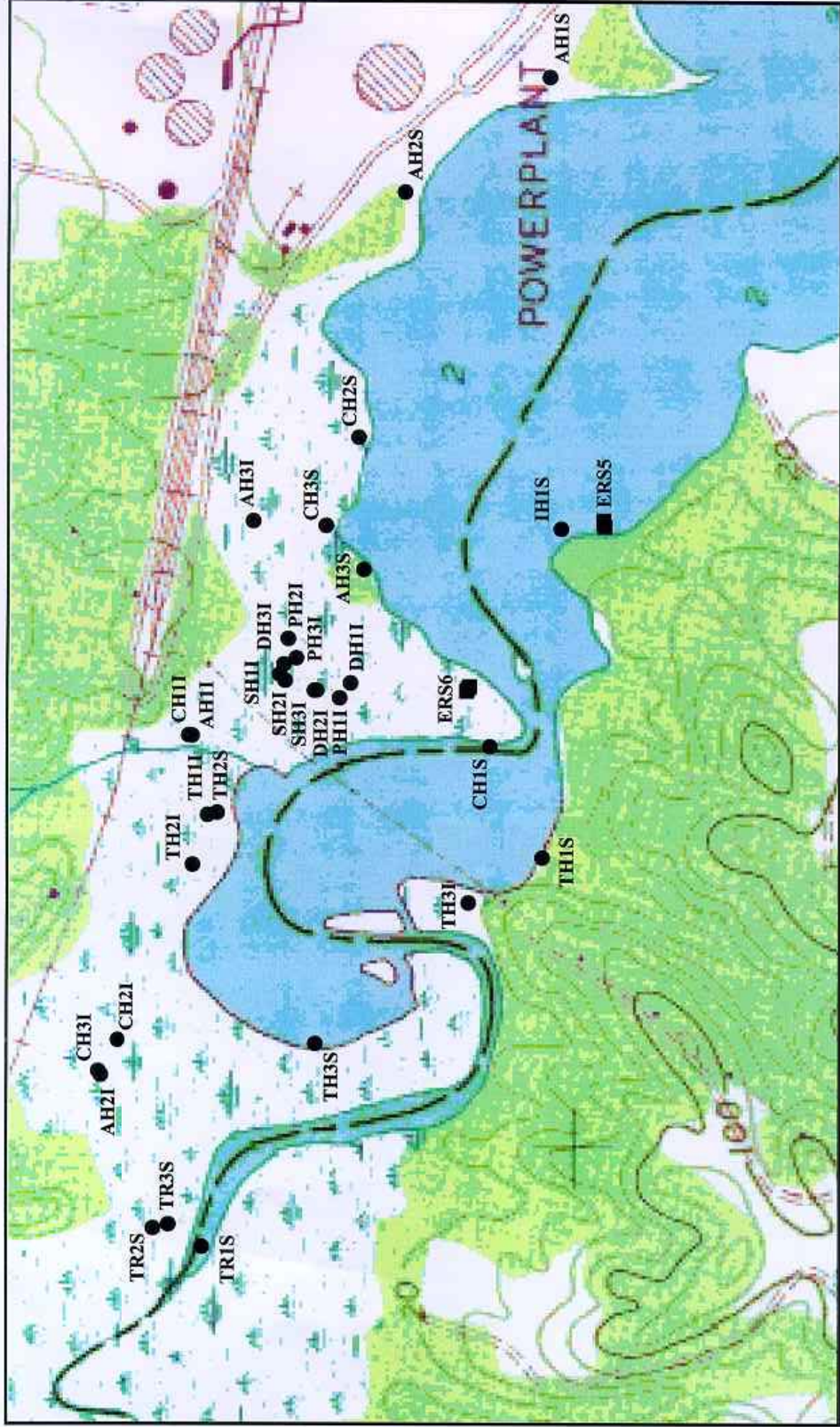
**PEPCO OIL SPILL**  
**Marsh Injury Assessment**

**Sampling Locations**

- Photoquad
- Erosion

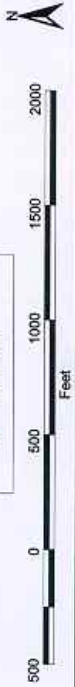


ENTRIX	
Photoquad Sampling and Erosion Monitoring Locations	
<b>DRAFT</b>	
Sheet 1 of 3	
PROJECT: 729901	DATE: 08/01/01



**PEPCO OIL SPILL  
Marsh Injury  
Assessment**

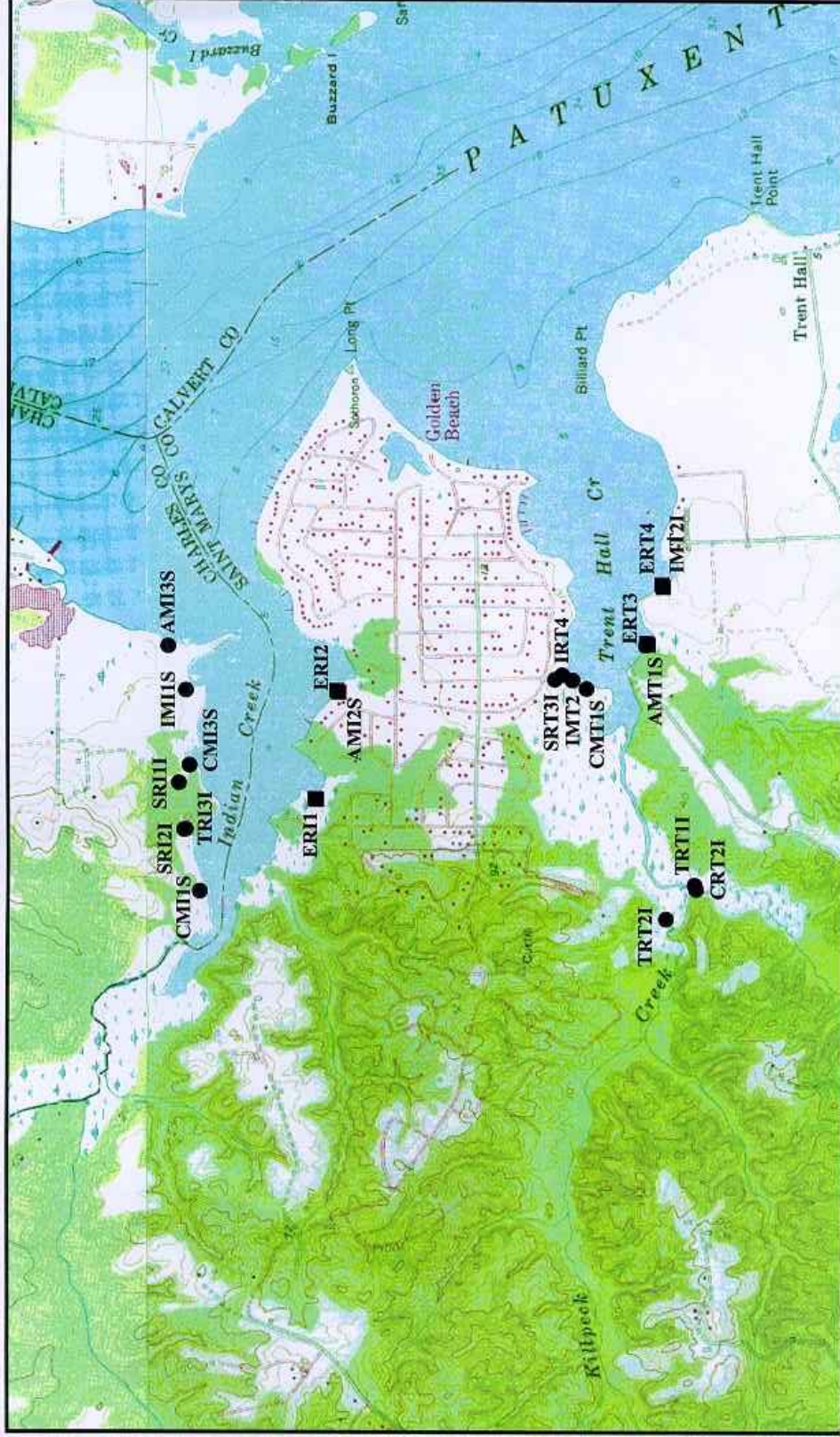
**Sampling Locations**  
 ● Photoquod  
 ■ Erosion



**E N T R I X**

Photoquod Sampling  
and Erosion  
Monitoring Locations  
*DRAFT*  
Sheet 2 of 3

PROJECT: 729901 | DATE: 08/07/01



# PEPCO OIL SPILL Marsh Injury Assessment

**Sampling Locations**

- Photoquod
- Erosion



**E N T R I X**

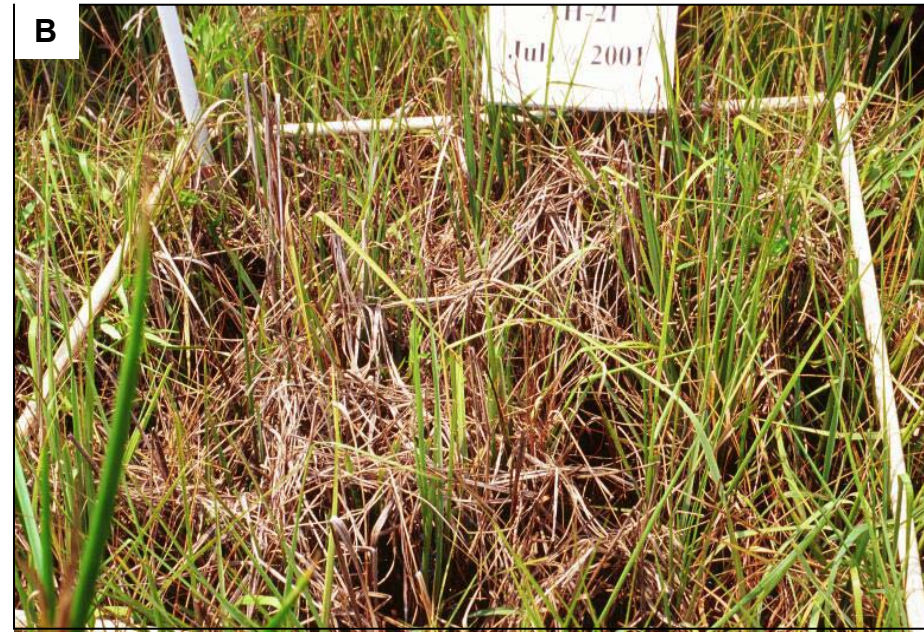
Photoquod Sampling  
and Erosion  
Monitoring Locations  
**DRAFT**  
Sheet 3 of 3

PROJECT: 729901 | DATE: 01/29/01



Site #	% Cover	Average Height (m)	Total Stem Count (Dominant Species)
<b>A</b> AH1S	100	1.41	244 (152)
<b>B</b> AH2S	75	1.48	246 (236)
<b>C</b> AH3S	25	1.02	173 (172)
Average for Site Type	66.67	1.30	221 (186.67)

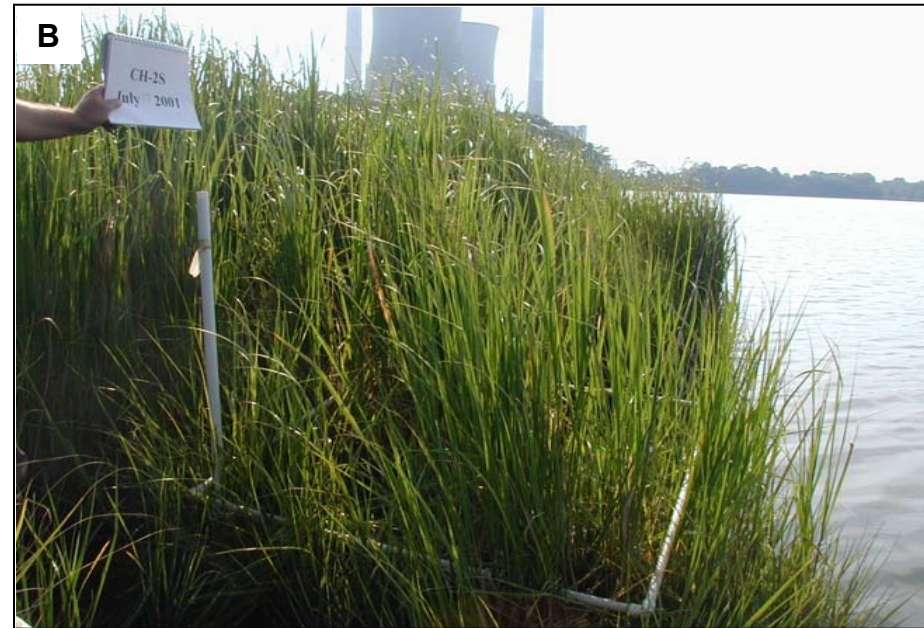




Site #	% Cover	Average Height (m)	Total Stem Count (Dominant Species)
<b>A</b> AH1I NOTE: site labeled AH2I	80	1.02	155 (73)
<b>B</b> AH2I	40	0.91	64 (55)
<b>C</b> AH3I	100	1.13	252 (156)
Average for Site Type	73.33	1.02	157 (95)







Site #	% Cover	Average Height (m)	Total Stem Count (Dominant Species)
<b>A</b> CH1S	60	1.38	147 (146)
<b>B</b> CH2S	75	1.68	165 (165)
<b>C</b> CH3S	85	1.05	110 (106)
Average for Site Type	73.33	1.37	140.67 (139)





Site #	% Cover	Average Height (m)	Total Stem Count (Dominant Species)
<b>A</b> CH1I	90	1.40	113 (87)
<b>B</b> CH2I	20	1.04	53 (48)
<b>C</b> CH3I	75	1.62	96 (96)
Average for Site Type	61.67	1.35	87.33 (77)





Site #	% Cover	Average Height (m)	Total Stem Count (Dominant Species)
<b>A TH1S</b>	100	1.82	136 (78)
<b>B TH2S</b>	40	2.11	49 (49)
<b>C TH3S</b>	85	2.69	55 (55)
Average for Site Type	75	2.21	80 (60.67)



Site #	% Cover	Average Height (m)	Total Stem Count (Dominant Species)
<b>A TH1</b>	50	2.31	77 (77)
<b>B TH2</b>	55	2.32	120 (120)
<b>C TH3</b>	35	2.08	82 (81)
Average for Site Type	46.7	2.24	93 (92.67)



Site #	% Cover	Average Height (m)	Total Stem Count (Dominant Species)
<b>A</b> AMT1S	40	0.94	39 (39)
<b>B</b> AMI2S	35	0.75	57 (57)
<b>C</b> AMI3S	65	0.98	173 (160)
Average for Site Type	46.67	0.89	89.67 (85.33)

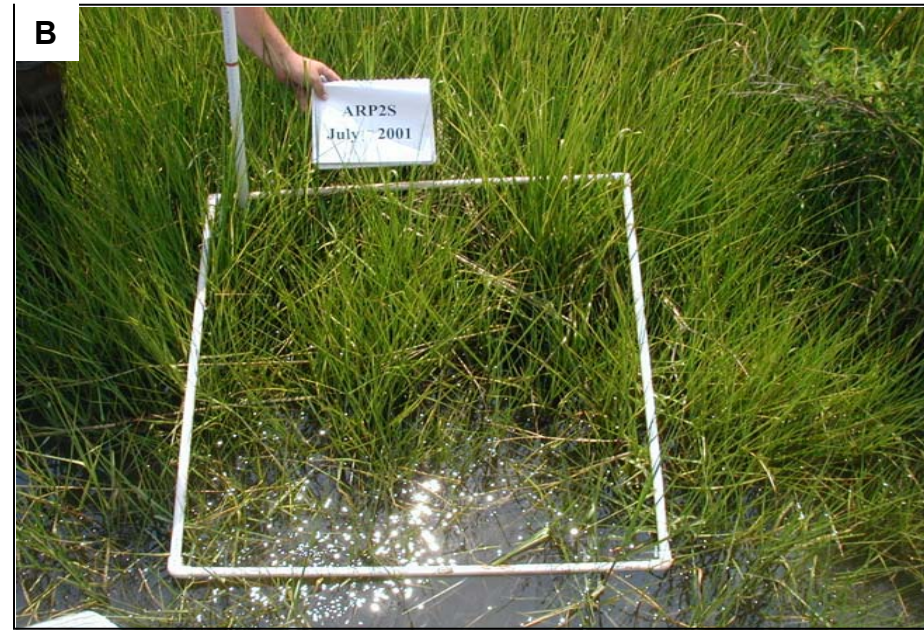


Site #	% Cover	Average Height (m)	Total Stem Count (Dominant Species)
<b>A CMI1S</b>	25	1.49	48 (40)
<b>B CMI3S</b>	80	1.58	73 (73)
<b>C CMT1S</b>	85	1.67	220 (220)
Average for Site Type	63.33	1.58	113.67 (111)





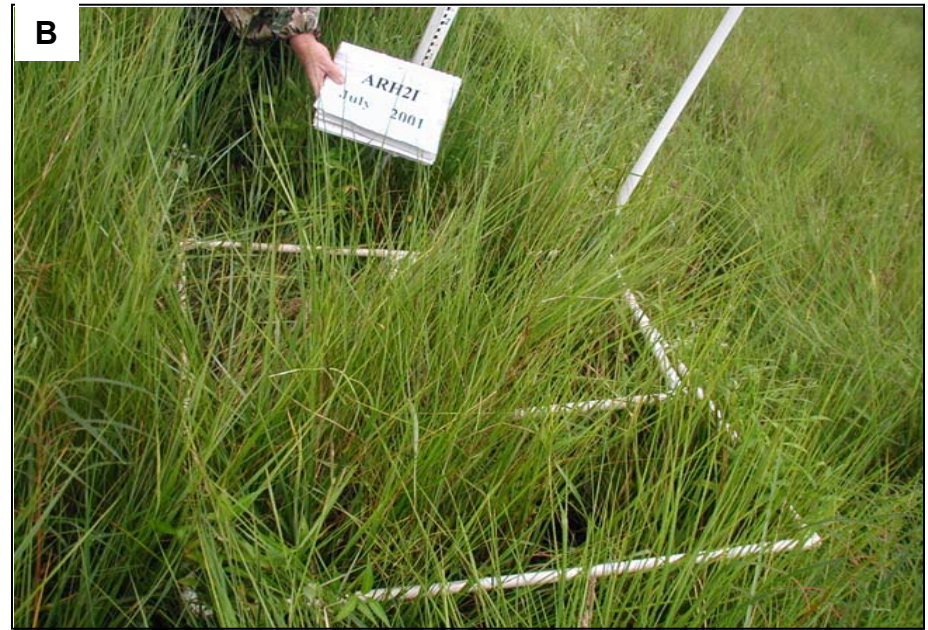
Site #	% Cover	Average Height (m)	Total Stem Count (Iva Only)
A IMT2			4
B IMT2I	70	1.15	1
C IMI1S			5
D IH1S	50	1.66	6
Average for Site Type	60	1.41	4



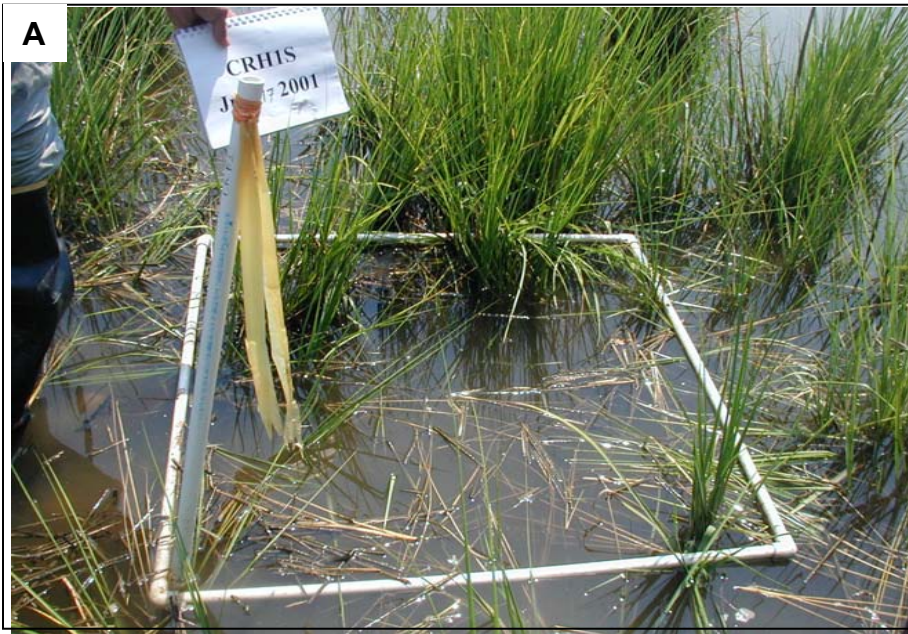
Site #	% Cover	Average Height (m)	Total Stem Count (Dominant Species)
<b>A</b> ARP1S	80	1.34	291 (288)
<b>B</b> ARP2S	70	1.06	184 (184)
<b>C</b> ARP3S	70	0.85	581 (308)
Average for Site Type	73.33	1.08	352 (260)







Site #	% Cover	Average Height (m)	Total Stem Count (Dominant Species)
<b>A</b> ARH11	90	1.01	185 (180)
<b>B</b> ARH21	98	0.69	444 (436)
<b>C</b> ARH31	100	1.35	100 (84)
Average for Site Type	96	1.02	243 (233.33)



Site #	% Cover	Average Height (m)	Total Stem Count (Dominant Species)
<b>A CRH1S</b>	15	0.93	39 (38)
<b>B CRH2S</b>	95	1.58	137 (136)
<b>C CHR3S</b>	95	2.42	94 (94)
Average for Site Type	68.33	1.64	90 (89.33)



Site #	% Cover	Average Height (m)	Total Stem Count (Dominant Species)
<b>A</b> CRH11	95	1.18	152 (148)
<b>B</b> CRT2I		2.16	62 (44)
<b>C</b> CRH3I	75	1.53	90 (90)
Average for Site Type	85	1.62	101.3 (94)





Site #	% Cover	Average Height (m)	Total Stem Count (Dominant Species)
<b>A</b> TR1S	75	1.75	137 (125)
<b>B</b> TR2S	50	1.29	67 (51)
<b>C</b> TR3S	100	1.47	137 (102)
Average for Site Type	75	1.50	113.67 (92.67)





Site #	% Cover	Average Height (m)	Total Stem Count (Dominant Species)
<b>A</b> TRT11	75	2.50	72 (56)
<b>B</b> TRT21	30	1.99	56 (23)
<b>C</b> TRI31	50	1.69	105 (86)
Average for Site Type	51.67	2.06	77.67 (55)





Site #	% Cover	Average Height (m)	Total Stem Count (Iva Only)
<b>A</b> IRR11	80	1.49	4
<b>B</b> IRH31	50	1.67	7
<b>C</b> IRT4			5
Average for Site Type	65	1.58	5.33



Site #	% Cover	Average Height (m)	Total Stem Count (Dominant Species)
<b>A</b> SH11	27	1.11	144 (144)
<b>B</b> SH21	30	1.06	261 (261)
<b>C</b> SH31	75	1.20	368 (368)
Average for Site Type	44	1.12	257.67 (257.67)



Site #	% Cover	Average Height (m)	Total Stem Count (Dominant Species)
<b>A</b> SRI11	40	1.24	180 (180)
<b>B</b> SRI21	20	1.16	148 (148)
<b>C</b> SRT31	80		119 (115)
Average for Site Type	46.67	1.2	149 (147.67)







Site #	% Cover	Average Height (m)	Total Stem Count (Dominant Species)
<b>A</b> DH11	30	0.87	75 (57)
<b>B</b> DH21	32	0.49	36 (19)
<b>C</b> DH31	45	1.4	75 (66)
Average for Site Type	35.67	0.92	62 (47.3)



Site #	% Cover	Average Height (m)	Total Stem Count (Dominant Species)
<b>A PH1I</b>	25	0.88	59 (57)
<b>B PH2I</b>	42	0.82	67 (59)
<b>C PH3I</b>	15	0.89	66 (66)
Average for Site Type	27.33	0.86	64 (60.67)



**ER1S**



**ER12**



**ERT3**



**ERT4**



ERS5S



ERS6S



Table 1: Vegetation Summary Table: July, 2001 Marsh Assessment

	% cover			Stem Count (/m <sup>2</sup> )			Stem Height (m)		
	Heavy	Moderate	Reference	Heavy	Moderate	Reference	Heavy	Moderate	Reference
Alterniflora shoreline	66.67	46.67	73.33	186.67	85.33	260	1.3	0.89	1.08
Alterniflora Interior	73.33		96	95		233.33	1.02		1.02
Alterniflora ditched	35.67		96	62		233.33	0.92		1.02
Alterniflora planted	27.33		96	60.67		233.33	0.86		1.02
Cynosuroides shoreline	73.33	63.33	68.33	139	111	89.33	1.37	1.58	1.64
Cynosuroides interior	61.67		85	77		94	1.35		1.62
Typha shoreline	75		75	60.67		92.67	2.21		1.50
Typha Interior	46.7		51.67	92.67		55	2.24		2.06
Iva	60		65	4		5.33	1.41		1.58
Scirpus interior	44		46.67	257.67		149	1.12		1.2

**NOTE:** All data are averages for the exposure group.  
 Stem counts and heights are for the dominant species only.  
 Iva quadrats are circular plots with a 2 meter radius, approx. 12.57 m<sup>2</sup>

**Table 2: Pepco Marsh Assessment Datasheet Summary Table July 2001 Field Effort- Vegetation Characteristics**

Quad ID	Sampling Date	Distance from Water (m)	Water Depth (cm)	% Aerial Cover	Stems per m <sup>2</sup>														Mean Stem Height of Tallest Individuals of each Species (m)								Chlorosis							
					Alterniflora	Typha	Scirpus	Cynosuroides	Polygonum	Marsh hemp	Orache	Iva	Peltandra	Pluchia	Arum	Hibicus	Fleabane	Bog hemp	Other	Alterniflora	Typha	Cynosuroides	Polygonum	Scirpus	Iva	Marsh hemp		Peltandra	Distichlis	Bullrush	Orache			
AH1S	7/16/2001	0.5		100	152		92												1.31															slight
AH2S	7/16/2001	0.25		75	236			10											1.38		1.57												slight	
AH3S	7/17/2001		3	25	172			1											0.93		1.10											slight		
AH1I	7/16/2001		8	80	73		24	18	40										1.02		1.40	0.68	0.97									slight		
AH2I	7/16/2001		10	40	55				9										0.91															
AH3I	7/18/2001		0	100	156					28	4								1.26											1.01		slight; seems to be more than reference		
CH1S	7/17/2001	on water	0	60			1	146													1.70		1.06									slight		
CH2S	7/17/2001		0	75				165													1.68											none		
CH3S	7/17/2001		0	85				106		4											1.18			0.91										
CH1I	7/16/2001		8	90	17		9	87											1.20		1.87		1.14									slight		

**Table 2: Pepco Marsh Assessment Datasheet Summary Table July 2001 Field Effort- Vegetation Characteristics**

Quad ID	Sampling Date	Distance from Water (m)	Water Depth (cm)	% Aerial Cover	Stems per m <sup>2</sup>															Mean Stem Height of Tallest Individuals of each Species (m)										Chlorosis
					Alterniflora	Typha	Scirpus	Cynosuroides	Polygonum	Marsh hemp	Orache	Iva	Peltandra	Pluchia	Arum	Hibicus	Fleabane	Bog hemp	Other	Alterniflora	Typha	Cynosuroides	Polygonum	Scirpus	Iva	Marsh hemp	Peltandra	Distichlis	Bullrush	
CH2I	7/16/2001		15	20			5	48												1.04										slight
CH3I	7/16/2001		10	75				96												1.62										slight
TH1S	7/16/2001	10	0.01	100		58														2.65					0.98					slight
TH2S	7/16/2001	2.5	0	40		49														2.11										moderate
TH3S	7/16/2001	2.5	0	85		55														2.69										slight
TH1I	7/16/2001		1-2	50		77														2.31										moderate
TH2I	7/16/2001		0	55		120														2.32										slight
TH3I	7/17/2001		0.08	35		81			1											2.08										slight
AMT1S	7/17/2001		15	40	39															0.94										slight
AMI2S	7/17/2001		30	35	57															0.75										slight
AM13S	7/17/2001		20	65	160				13											0.98										slight
CMI1S	7/17/2001		18	25				40													1.49									slight
CMI3S	7/17/2001		25	80				73													1.58									slight

**Table 2: Pepco Marsh Assessment Datasheet Summary Table July 2001 Field Effort- Vegetation Characteristics**

Quad ID	Sampling Date	Distance from Water (m)	Water Depth (cm)	% Aerial Cover	Stems per m <sup>2</sup>															Mean Stem Height of Tallest Individuals of each Species (m)								Chlorosis							
					Alterniflora	Typha	Scirpus	Cynosuroides	Polygonum	Marsh hemp	Orache	Iva	Peltandra	Pluchia	Arum	Hibicus	Fleabane	Bog hemp	Other	Alterniflora	Typha	Cynosuroides	Polygonum	Scirpus	Iva	Marsh hemp	Peltandra		Distichlis	Bullrush	Orache				
CMT1S	7/17/2001	0.1	0	85				220																											slight
IMT2	7/17/2001												4																					none	
IMT2I	7/18/2001		0.20	70	1																	1.15												slight	
IMI1S	7/17/2001		20										5																						
IH1S	7/16/2001	2cm from quad		50									6										1.66											none	
ARP1S	7/17/2001		0.18	80	288			3																										slight	
ARP2S	7/17/2001	on water	0.12-0.23	70	184																													very slight	
ARH3S	7/17/2001	at edge	0.14	70	308		272			1												1.08												none	
ARH1I	7/17/2001		0.12	90	180					4			1																					slight	
ARH2I	7/18/2001		3	98	436				5		3											0.58											0.55	slight	
ARH3I	7/17/2001		0	100	12			84		44																								slight	
CRH1S	7/17/2001	on water	0.25	15	38			1																										very slight	
CRH2S	7/18/2001	1.4	0	95				136																									Bullrush- 1	1.30	slight
CRH3S	7/17/2001	2.5	0	95				94																										moderate	
CRH1I	7/18/2001	2.8		95				148		3	1																						0.60	very slight	
CRT2I	7/17/2001		0					44																											none
CRH3I	7/17/2001		0	75				90																									Distichlis 20% of quad	0.73	slight
TR1S	7/16/2001	5	0-1	75		125							12																					slight	



**Table 2: Pepco Marsh Assessment Datasheet Summary Table July 2001 Field Effort- Vegetation Characteristics**

Quad ID	Sampling Date	Distance from Water (m)	Water Depth (cm)	% Aerial Cover	Stems per m <sup>2</sup>														Mean Stem Height of Tallest Individuals of each Species (m)								Chlorosis						
					Alterniflora	Typha	Scirpus	Cynosuroides	Polygonum	Marsh hemp	Orache	Iva	Peltandra	Pluchia	Arum	Hibicus	Fleabane	Bog hemp	Other	Alterniflora	Typha	Cynosuroides	Polygonum	Scirpus	Iva	Marsh hemp		Peltandra	Distichlis	Bullrush	Orache		
TR2S	7/16/2001	5	0.01-0.1	50	2	51												Pluchea- 2		1.81							0.77						slight
TR3S	7/16/2001	8	0.02	100		102																					0.83					slight	
TRT1I	7/17/2001		1	75		56	4	3										Hibiscus- 9		2.50												none	
TRT2I	7/17/2001		0	30		23			18					1	1		6	Rice cut grass- 7		1.99													
TRI3I	7/17/2001		0	50		19	86													1.69												moderate	
IRR1I	7/17/2001		0.18	80								4																				none	
IRH3I	7/17/2001		0.1	50								7																				slight	
IRT4	7/17/2001		0									5																				none	
PH1I	7/16/2001		25	25	57															0.88													
PH2I	7/16/2001		2	42	59	3	5													1.03	1.13			0.30								slight	
PH3I	7/16/2001		5	15	66															0.89												moderate	
DH1I	7/16/2001		20	30	57	2	2										14			2.86				0.87								moderate	
DH2I	7/16/2001		0	32	17		19													1.60													
DH3I	7/16/2001		0	45	66	3														Baccharis- 6	4.46			1.36									

**Table 2: Pepco Marsh Assessment Datasheet Summary Table July 2001 Field Effort- Vegetation Characteristics**

Quad ID	Sampling Date	Distance from Water (m)	Water Depth (cm)	% Aerial Cover	Stems per m <sup>2</sup>														Mean Stem Height of Tallest Individuals of each Species (m)								Chlorosis						
					Alterniflora	Typha	Scirpus	Cynosuroides	Polygonum	Marsh hemp	Orache	Iva	Peltandra	Pluchia	Arum	Hibicus	Fleabane	Bog hemp	Other	Alterniflora	Typha	Cynosuroides	Polygonum	Scirpus	Iva	Marsh hemp		Peltandra	Distichlis	Bullrush	Orache		
SH1I	7/16/2001	>50	0.50	27			144													1.11													moderate
SH2I	7/16/2001		0	30			261													1.06												slight	
SH3I	7/16/2001		4	75			368													1.20													
SRI1I	7/17/2001		0	40			180													1.24												slight	
SRI2I	7/17/2001		0	20			148													1.16													
SRT3I	7/17/2001		0	80		4	115																									slight	

**Table 2: Pepco Marsh Assessment Datasheet Summary Table July 2001 Field Effort- Vegetation Characteristics**

Quad ID	Sampling Date	Oiling Characteristics															Fauna		
		Oiling Interval (cm)	% Cover of Veg. Oil	Veg. Oil Thickness	Veg Oil Location	Veg Oil Descriptors	Veg Oiling Comments	Sed. Oil Present?	Hydro-carbon Odor	Sed. Oil Thickness	% Sed. Surface Oiled	Oil Penetration Depth (cm)	Sediment Oil Descriptors	Core Description	Sediment Oiling Comments	Wrack Present?	Wrack Oiled?	Fauna Present?	Types/ Numbers Present
AH1S	7/16/2001	0						yes	slight when disturbed			No evidence of oil (sand & gravel with underlying clay)		sand & gravel with underlying clay	Slight sheen when sediment was disturbed			yes	1 spider, 3 leaf hoppers, 2 ants
AH2S	7/16/2001	0	none					yes when disturbed	yes	film	0-5%	8	filled pores of sandy substrate	sandy layer on top of clay- oil penetration till clay layer				yes	approx 10-15 leaf hoppers, 3 spiders, assassin bugs
AH3S	7/17/2001	none	none					yes when disturbed		sheen	sheen	None apparent, but sheen is released							
AH1I	7/16/2001	0						no	no			too much water			lost water from top of core and sheen present when disturbed			yes	spider, ants
AH2I	7/16/2001							yes		film	20%								
AH3I	7/18/2001							yes when disturbed	no			None apparent				no		yes	metallic beetles, white leaf hoppers, several spiders, a few spiral snails
CH1S	7/17/2001		none					yes	yes		water on quad	10.16	oil filled pores			no		yes	water on quad, few small snails
CH2S	7/17/2001		none					yes							very slight sheen near quad when disturbed	no		no	
CH3S	7/17/2001	none	none					no	no							no		yes	few small snails, beetle
CH1I	7/16/2001	0	none	film			present when disturbed	yes	yes	droplets when disturbed		5 - bottom of organic layer	filled pores	top 5 cm organic- rest clay matter, oil penetration to clay layer				yes	grass hopper, water spider (high water), beetle

**Table 2: Pepco Marsh Assessment Datasheet Summary Table July 2001 Field Effort- Vegetation Characteristics**

Quad ID	Sampling Date	Oiling Characteristics															Fauna		
		Oiling Interval (cm)	% Cover of Veg. Oil	Veg. Oil Thickness	Veg Oil Location	Veg Oil Descriptors	Veg Oiling Comments	Sed. Oil Present?	Hydro-carbon Odor	Sed. Oil Thickness	% Sed. Surface Oiled	Oil Penetration Depth (cm)	Sediment Oil Descriptors	Core Description	Sediment Oiling Comments	Wrack Present?	Wrack Oiled?	Fauna Present?	Types/ Numbers Present
CH2I	7/16/2001							yes	yes	film	50	>25 - oil in stem cavities	oil filled pores	firm, soft- clay and peat		no		no	
CH3I	7/16/2001	none	none					yes	yes	film on water	20		partially filled pores	oil droplets in core					
TH1S	7/16/2001							yes	very faint	very slight sheen in core hole								yes	1 beetle, 4 spiders, small mites, approx 8 snails
TH2S	7/16/2001							yes	yes	film	5	6	oil residue	soft peat, greasy/ oily- 6 cm black zone over brown (oxidized subsurface)		no		yes	juvenile coffee bean snails
TH3S	7/16/2001							yes; slight when disturbed	no	film	only when disturbed, very minor	minor present in surface - sheen on surface				no		yes	7 snails, spider, pin-head sized snails (many)
TH1I	7/16/2001							yes	yes	film	20	0-4	partially filled pores- black droplets in core hole on water after disturbance					yes	juvenile coffee bean snails
TH2I	7/16/2001							yes	yes			0-8 in organic ooze soil, clean in clay below	partially filled pores	0-8 cm organic ooze (brown/grey stiff clay)				yes	juvenile coffee bean snails, spiders, 1 slug
TH3I	7/17/2001							yes	yes	None visible on surface						no		yes	ants, leaf hoppers, snails
AMT1S	7/17/2001							very slight when disturbed								no			
AMI2S	7/17/2001							yes	no	sheen released to water while taking cores						no			
AM13S	7/17/2001							no	no							no			
CMI1S	7/17/2001							no	no									yes	coffee bean snails- abundant
CMI3S	7/17/2001							no	no							no			

**Table 2: Pepco Marsh Assessment Datasheet Summary Table July 2001 Field Effort- Vegetation Characteristics**

Quad ID	Sampling Date	Oiling Characteristics															Fauna			
		Oiling Interval (cm)	% Cover of Veg. Oil	Veg. Oil Thickness	Veg Oil Location	Veg Oil Descriptors	Veg Oiling Comments	Sed. Oil Present?	Hydro-carbon Odor	Sed. Oil Thickness	% Sed. Surface Oiled	Oil Penetration Depth (cm)	Sediment Oil Descriptors	Core Description	Sediment Oiling Comments	Wrack Present?	Wrack Oiled?	Fauna Present?	Types/ Numbers Present	
CMT1S	7/17/2001							no	no			2 in 1 root cavity	oil residue	dead root matter with clay rich soil (15 cm deep)			no		yes	<5 juvenile coffee bean snails, leaf hoppers
IMT2	7/17/2001	0-20	50	coat	stem	dry		no	no	film when disturbed							no		yes	litterina, adult & juvenile coffee bean snails
IMT2I	7/18/2001							no	no										yes	spiders
IMI1S	7/17/2001	none																		
IH1S	7/16/2001						dried residue oil on stems (paint)										yes; behind clumps		yes	3 centipeds, spiders (many), pill bugs (many), funnel spider web; full quad beetles
ARP1S	7/17/2001							no	no											
ARP2S	7/17/2001							no	no								no		no	
ARH3S	7/17/2001							no	no								no			
ARH1I	7/17/2001							no	no										yes	spiders
ARH2I	7/18/2001																no			
ARH3I	7/17/2001	none																	yes	few snails, spider, lightning bug
CRH1S	7/17/2001	none																	yes	beetle, water spiders, leaf hoppers, spiders
CRH2S	7/18/2001	none						no	no								yes- 5% of quad		yes	several spiders, white leaf hoppers, few small snails, beetle
CRH3S	7/17/2001	none						no	no								no		yes	clam shells, some small snails
CRH1I	7/18/2001	none						no									yes		yes	spiders, leaf hoppers
CRT2I	7/17/2001																no		yes	ants, few spiders
CRH3I	7/17/2001							no	no								no		yes	leaf hoppers, ants, grass hoppers, snails, spiders
TR1S	7/16/2001	none																	yes	ants, snail 10+

**Table 2: Pepco Marsh Assessment Datasheet Summary Table July 2001 Field Effort- Vegetation Characteristics**

Quad ID	Sampling Date	Oiling Characteristics															Fauna		
		Oiling Interval (cm)	% Cover of Veg. Oil	Veg. Oil Thickness	Veg Oil Location	Veg Oil Descriptors	Veg Oiling Comments	Sed. Oil Present?	Hydro-carbon Odor	Sed. Oil Thickness	% Sed. Surface Oiled	Oil Penetration Depth (cm)	Sediment Oil Descriptors	Core Description	Sediment Oiling Comments	Wrack Present?	Wrack Oiled?	Fauna Present?	Types/ Numbers Present
TR2S	7/16/2001																	yes	3 spiders
TR3S	7/16/2001																	yes	snails (larger), red mites, ants, spiders
TRT1I	7/17/2001														no			yes	1 catapiller, juvenile coffee bean snails
TRT2I	7/17/2001														no			yes	1 spider
TRI3I	7/17/2001														no			yes	coffee bean snails, spiders
IRR1I	7/17/2001							no	no						no			yes	grasshoppers
IRH3I	7/17/2001							no	no						no				
IRT4	7/17/2001														no			yes	coffee bean snails- abundant
PH1I	7/16/2001							yes	yes	Black oil droplets heavy on water surface when disturbed		could not be determined	partially filled pores						
PH2I	7/16/2001		0- until disturbed	film			oil drops when walking; oil on surface when walking	yes	yes	coat when disturbed		could not be determined due to water level	could not be determined-core was not obtained	could not determined-core was not obtained				yes	ants, leaf hoppers
PH3I	7/16/2001							yes	yes	film and black droplets	50% film	5	oil residue	0-5 cm oil residue, 5-10 cm oil in pores	no		yes	leaf hoppers	
DH1I	7/16/2001	none						yes	no	film on water		could not be determined due to water level		reducing zone 0-5, 10 -15 cm is sand					
DH2I	7/16/2001	0-25	1	coat	entire plant	tacky		yes	yes	film	20%			0-20 cm sand-mostly reduced, organic (oily peat) below	no		no		
DH3I	7/16/2001							no	no			unknown		sand fill- 2 bands of reducing zones at 0-5 and 10-12 cm	Black oil droplets on water in hole dug for core retrieval	no		yes	leaf hoppers, juvenile snails, periwinkles

**Table 2: Pepco Marsh Assessment Datasheet Summary Table July 2001 Field Effort- Vegetation Characteristics**

Quad ID	Sampling Date	Oiling Characteristics															Fauna		
		Oiling Interval (cm)	% Cover of Veg. Oil	Veg. Oil Thickness	Veg Oil Location	Veg Oil Descriptors	Veg Oiling Comments	Sed. Oil Present?	Hydro-carbon Odor	Sed. Oil Thickness	% Sed. Surface Oiled	Oil Penetration Depth (cm)	Sediment Oil Descriptors	Core Description	Sediment Oiling Comments	Wrack Present?	Wrack Oiled?	Fauna Present?	Types/ Numbers Present
SH1I	7/16/2001							yes	yes	film, black oil droplets on water after trampling	100% sheen	0-12 (0-5 heavier oil)	black oil residue	very soft, water saturated, root mat/ zone	Core had black smearing in core, sediment plug at bottom was clean	no		yes	6 coffee bean snails, lots of leaf hoppers, approx 10 spiders on surface
SH2I	7/16/2001							no				surface 0-5		slight degree of oil sheen 0-5 cm in root cavities		no		yes	lots of leaf hoppers, 1 slug, 10 spiders, 1 or 2 beetles
SH3I	7/16/2001							yes		film	50	could not be determined- 15 cm organic layer	partially filled pores	black oil droplets on water table in core hole- 100% coverage	No oil penetration	no		yes	
SRI1I	7/17/2001															no		yes	spider
SRI2I	7/17/2001															no		no	
SRT3I	7/17/2001															no		yes	adult coffee bean snails, egg mat

**Table 2: Pepco Marsh Assessment Datasheet Summary Table July 2001 Field Effort- Vegetation Characteristics**

Quad ID	Sampling Date	General Comments
AH1S	7/16/2001	Unknown green leafy plant- approx 1 cm leaf & 1 cm high
AH2S	7/16/2001	Large oil sheen flowing from site (approx 10 x 10 m) within 5 minutes from disturbance of site
AH3S	7/17/2001	Vegetation in SW corner of the quad, may have lost part of the quad due to erosion, slight oil sheen with disturbance, water covering quad
AH1I	7/16/2001	Water high
AH2I	7/16/2001	Black oil droplets on surface of water in core head
AH3I	7/18/2001	More Orache heads than any other site
CH1S	7/17/2001	Another stake is located behind the stake from where the quad was located, thinning towards shoreline
CH2S	7/17/2001	Quad located on a point very near the shore
CH3S	7/17/2001	There is another stake behind this one but this one still was labeled
CH1I	7/16/2001	



**Table 2: Pepco Marsh Assessment Datasheet Summary Table July 2001 Field Effort- Vegetation Characteristics**

Quad ID	Sampling Date	General Comments
CH2I	7/16/2001	Site was located underwater
CH3I	7/16/2001	
TH1S	7/16/2001	Sample taken in one-half of quad; snails higher up in vegetation
TH2S	7/16/2001	
TH3S	7/16/2001	
TH1I	7/16/2001	
TH2I	7/16/2001	
TH3I	7/17/2001	Site was difficult to locate
AMT1S	7/17/2001	Site is located under water
AMI2S	7/17/2001	Site is located under water
AM13S	7/17/2001	Site is located under water
CMI1S	7/17/2001	
CMI3S	7/17/2001	Site is located under water

**Table 2: Pepco Marsh Assessment Datasheet Summary Table July 2001 Field Effort- Vegetation Characteristics**

Quad ID	Sampling Date	General Comments
CMT1S	7/17/2001	Very difficult to take core- down root matter
IMT2	7/17/2001	Lots of dead stems- many have oil
IMT2I	7/18/2001	Raining- water in quad
IMI1S	7/17/2001	50% of stems are dead; lots of new growth, though
IH1S	7/16/2001	
ARP1S	7/17/2001	20% open water, 100% cover in 80% of the area
ARP2S	7/17/2001	
ARH3S	7/17/2001	Site located behind log driftwood on shoreline
ARH1I	7/17/2001	
ARH2I	7/18/2001	Raining
ARH3I	7/17/2001	Distichlis also present- no mention of percent cover
CRH1S	7/17/2001	Water on quad
CRH2S	7/18/2001	Chemical curls is compressed, 2 dead Bulrush stems present, between CRH1I & CRH3S
CRH3S	7/17/2001	Lots of clam shells, small snails present
CRH1I	7/18/2001	
CRT2I	7/17/2001	
CRH3I	7/17/2001	
TR1S	7/16/2001	Dead stems from last year- most not wrack

**Table 2: Pepco Marsh Assessment Datasheet Summary Table July 2001 Field Effort- Vegetation Characteristics**

Quad ID	Sampling Date	General Comments
TR2S	7/16/2001	Muskrat den approx 2.5 m from quad
TR3S	7/16/2001	All fauna observed in one-quarter quad
TRT1I	7/17/2001	Sediment had algae on it
TRT2I	7/17/2001	
TRI3I	7/17/2001	
IRR1I	7/17/2001	
IRH3I	7/17/2001	<0.5m Iva seedlings; fish swimming through site
IRT4	7/17/2001	No visual difference in # dead stems vs oiled site just visited
PH1I	7/16/2001	
PH2I	7/16/2001	Surface flooded
PH3I	7/16/2001	Algae mat over 50% of the quadrant surface
DH1I	7/16/2001	Underwater, very patchy, low vegetation
DH2I	7/16/2001	Heavy oil in peat at 20 cm below sand fill
DH3I	7/16/2001	Algae and Eleocharis on sediment surface

**Table 2: Pepco Marsh Assessment Datasheet Summary Table July 2001 Field Effort- Vegetation Characteristics**

Quad ID	Sampling Date	General Comments
SH1I	7/16/2001	
SH2I	7/16/2001	Site slightly elevated
SH3I	7/16/2001	
SRI1I	7/17/2001	
SRI2I	7/17/2001	
SRT3I	7/17/2001	

**Table 3: Summary of Erosion Monitoring Sites  
July 16-17, 2001**

<b>Quad</b>	<b>Comments</b>
ER1S	Vegetation eroded approximately 1 ft.
ER12	No shoreline erosion
ERT3	No obvious erosion, vegetation clump in front of quad
ERT4	South stake was missing. Measured shoreline position approx 26' from middle stake
ERS5S	Located 1.1 m from nearest vegetation and 1.7 m from vegetation scarp
ERS6S	<i>Spartina</i> clump located by first stake appears to be undercut and is leaning against the stake