

ENTRIX

MEMORANDUM

TO: Marsh Assessment Subgroup

Jim Hoff, NOAA
Kevin Smith, MDNR
Rick Ayella, MDE
Jacqui Michel, RPI
Al Rizzo, USFWS

FROM: Gary Harmon, ENTRIX

DATE: February 14, 2001

SUBJECT: September 2000 Field Effort for the Swanson Creek Oil Spill

cc: Ralph Markarian, ENTRIX
Wayne Kicklighter, ENTRIX

This memo summarizes the major findings and decisions made during the September 2000 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 September Field Effort we revisited the 49 sampling stations that were established in July and added 12 more stations to collect data on oiling and recovery in the W1A marsh. The new stations were in heavily oiled *Scirpus* marsh (SH1I, SH2I, SC3I), reference *Scirpus* marsh (SRI1I, SRI2I, SRT3I), areas in W1A that had been planted in native substrate (PH1I, PH2I, PH3I), and areas that had been planted in ditched areas with imported sand substrate (DH1I, DH2I, DH3I).

At all 61 sampling stations we collected information on reproductive status (number of stems with fruits, flowers or seeds) of plants in the sampling area. We also collected vegetative characteristics of plants at the new sampling stations. The group decided that repeating the measurements from July at the same sampling stations would yield very little new information. This gives information on the size and density of all the areas from either July or September and the reproductive status from all the stations in September. A summary of the vegetative characteristics of all the exposure groups is shown in Table 1. Table 2 is a summary of the reproductive characteristics of all the stations. Table 3 shows the vegetation characteristics of each sampling station from the September sampling. Table 3 can be compared to the tables on the photoplates from the July report or can be used when examining the photos taken during the

Draft

September monitoring. The reproductive characteristics from all 61 stations are shown on the September photoplates.

We have also included summary tables of all the field data sheets taken during the September monitoring. Table 4 is a summary of the data sheets taken for the vegetative characteristics of the 12 new stations. Table 5 is a summary of the data sheets for reproductive characteristics for all 61 sampling stations.

Table 6 is a summary of the field data for the erosion monitoring sites. Each site consists of three stakes in a straight line. The first stake is in the water at the edge of the vegetation. The stakes are approximately 15 feet apart. If erosion occurs such that we lose the shoreline stake, we should still be able to estimate the amount of erosion by measuring through the interior stakes to the shoreline.

Daily Activities

Tuesday September 18, 2000

- People attending were: Gary Harmon (ENTRIX), Angie Morrow (ENTRIX), Nicole Vesper (ENTRIX), Art Saunders (ENTRIX), Mitch Keiller (MDNR), Jacqui Michel (RPI), Anne Wearmouth (PEPCO), Rick Ayella (MDE), Sean Everett (MDNR), and Gayle Stone (Gallagher Marine Systems).
- Information was collected for 20 photoquads.
- Personnel broke into groups as shown on the data sheets to collect the data.

Wednesday September 19, 2000

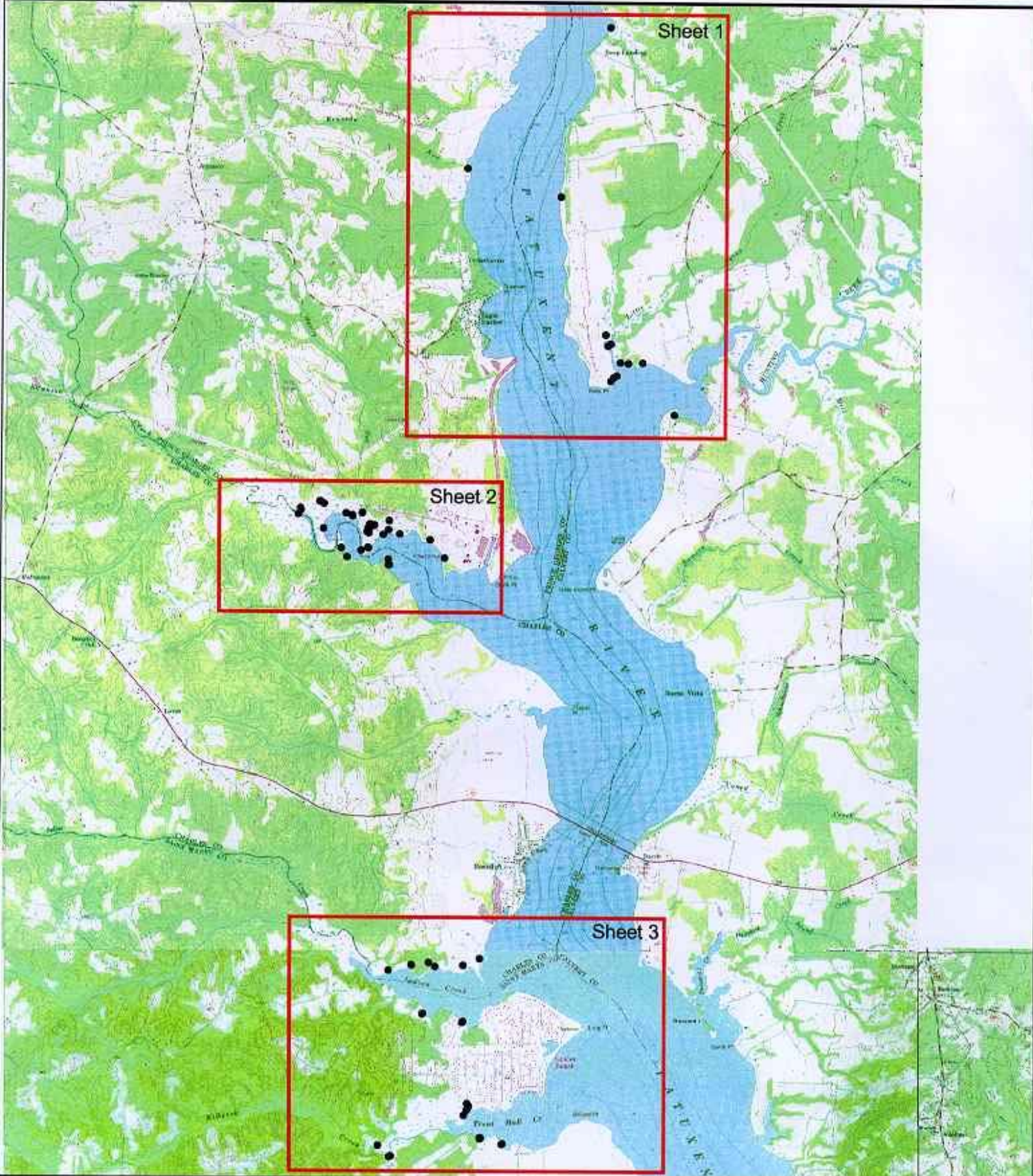
- People attending were: Gary Harmon (ENTRIX), Angie Morrow (ENTRIX), Bob Nailon (ENTRIX), Jacqui Michel (RPI), Sean Everett (MDNR), Rick Ayella (MDE), and Mitch Keiller (MDNR).
- Information was collected for 23 photoquads.
- We again split into groups to collect the data more efficiently.

Thursday September 20, 2000

- People attending were: Gary Harmon (ENTRIX), Bob Nailon (ENTRIX), Angie Morrow (ENTRIX), Rick Ayella (MDE), and Sean Everett (MDNR).
- Information was collected for 18 photoquads.
- We again split into groups. In the afternoon Bob Nailon and Sean Everett formed one team and Gary Harmon and Rick Ayella formed a second team. Angie Morrow processed sediment samples.

Friday September 21, 2000

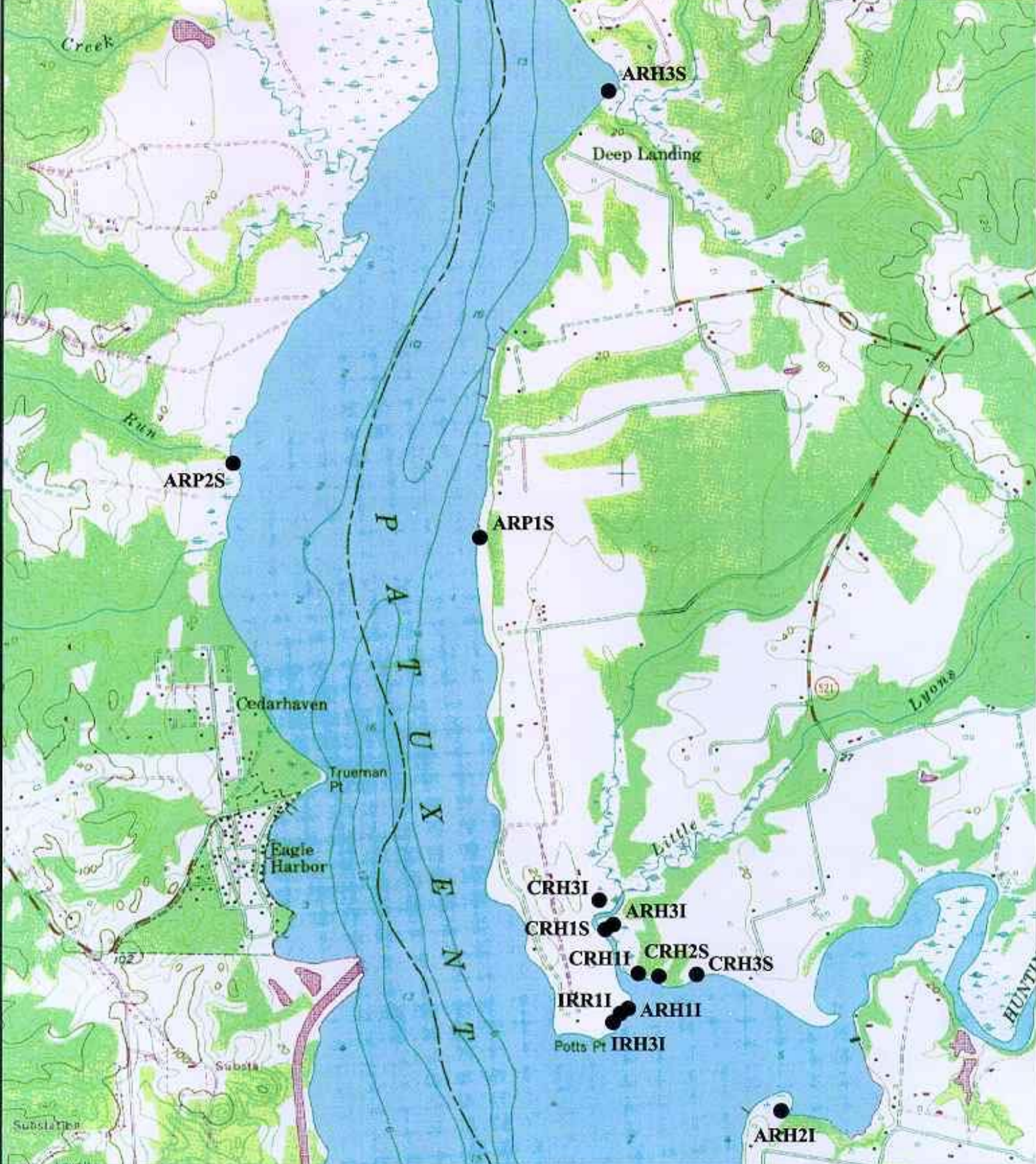
- People attending were: Gary Harmon (ENTRIX), Bob Nailon (ENTRIX), Sean Everett (MDNR), and Rick Ayella (MDE).
- Six erosion monitoring sites were established. At each site 3 stakes were installed approximately 15 feet apart in a line approximately perpendicular to the shore. These were installed in locations where erosion is most likely to occur due to the length of fetch or other considerations. All stakes were located using differential GPS equipment.



PEPCO OIL SPILL
Marsh Injury
Assessment



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



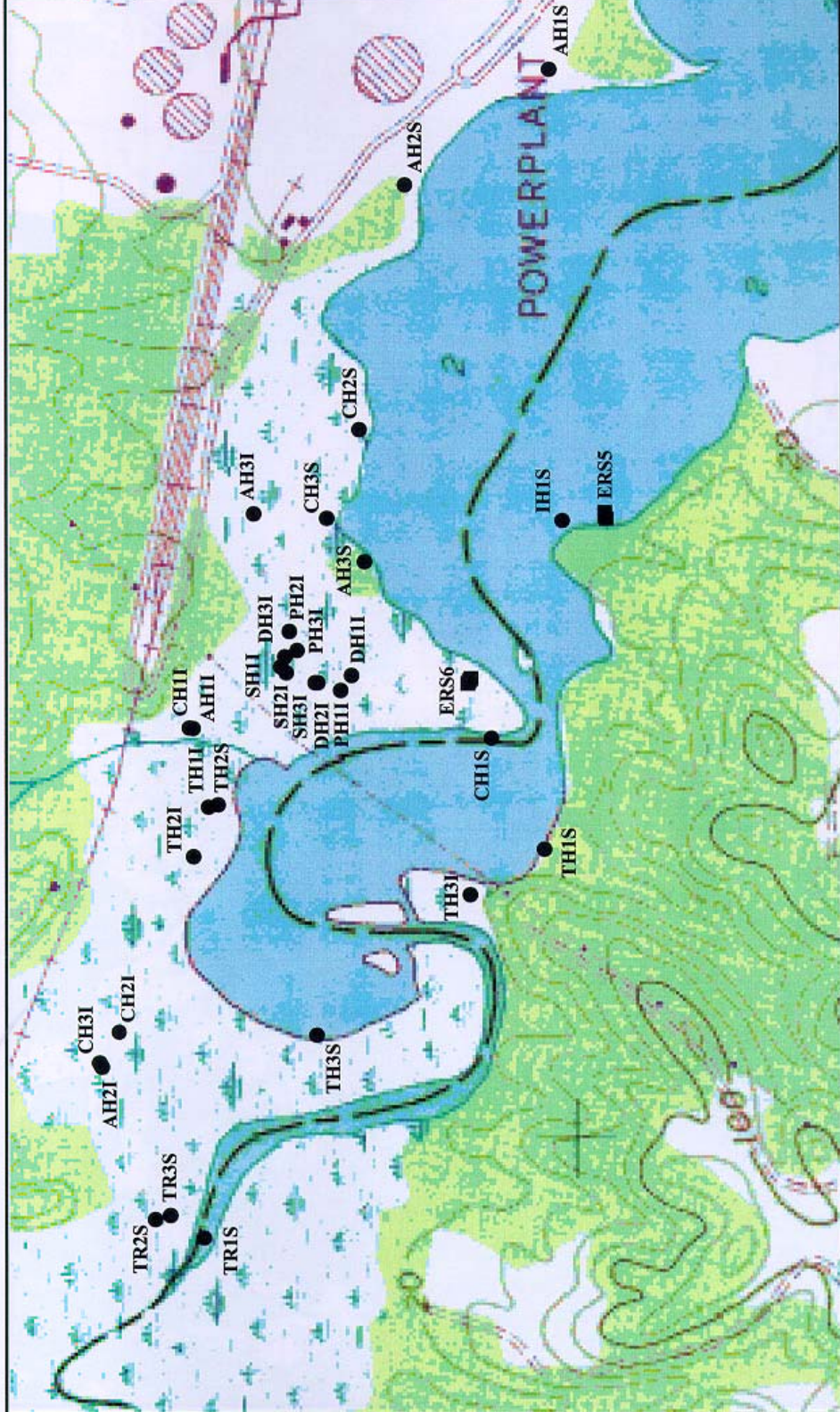
PEPCO OIL SPILL
Marsh Injury Assessment

Sampling Locations

- Photoquad
- Erosion



ENTRIX	
Photoquad Sampling and Erosion Monitoring Locations	
DRAFT	
Sheet 1 of 3	
PROJECT: 729801	DATE: 08/01/01



**PEPCO OIL SPILL
Marsh Injury
Assessment**

ENTRIX

Photoquad Sampling
and Erosion
Monitoring Locations

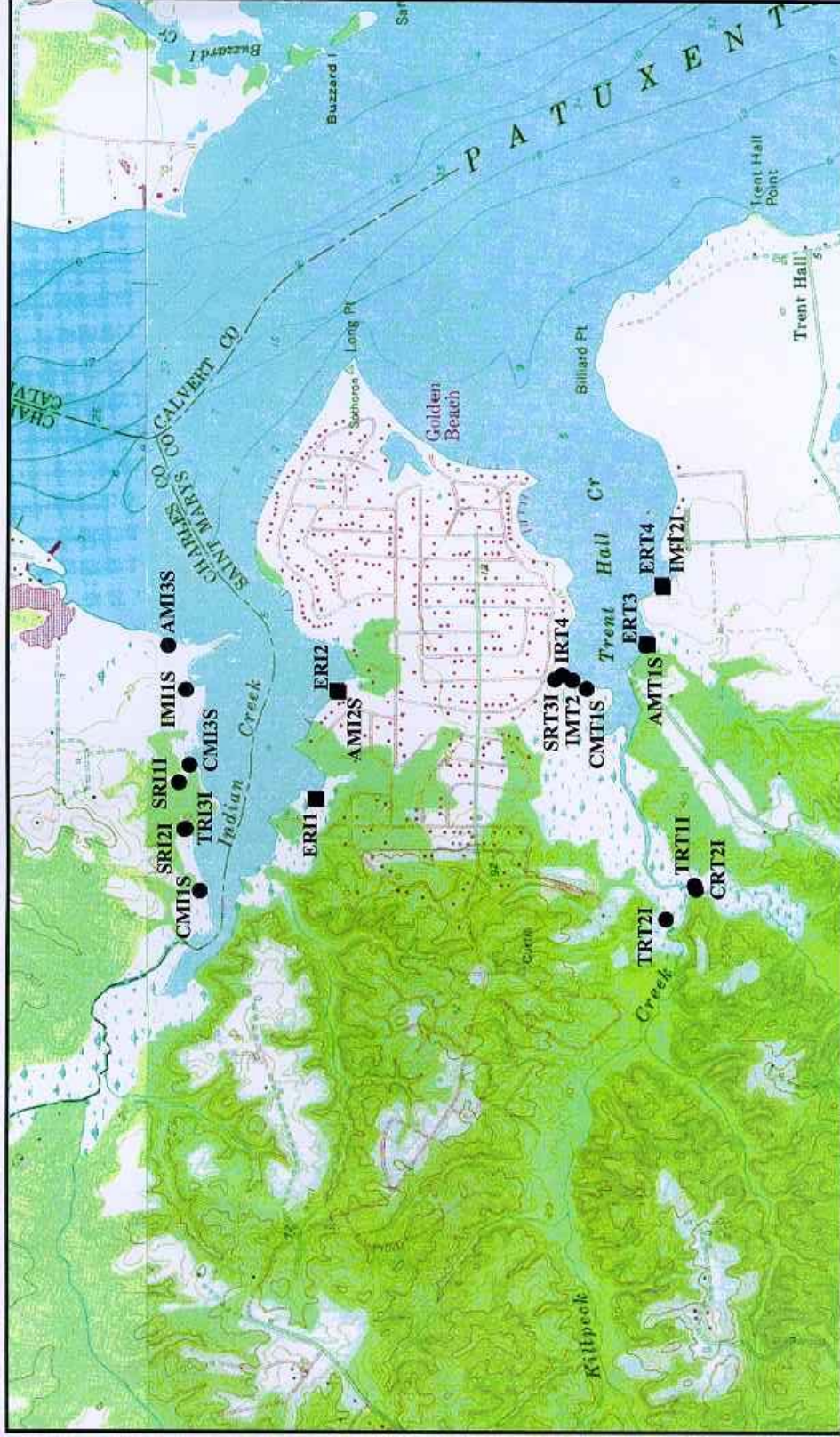
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Sheet 2 of 3

PROJECT: 729801 | DATE: 01/26/01

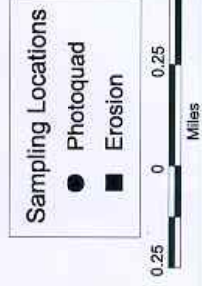
Sampling Locations

- Photoquad
- Erosion





PEPCO OIL SPILL Marsh Injury Assessment



E N T R I X

Photoquod Sampling
and Erosion
Monitoring Locations
DRAFT
Sheet 3 of 3

PROJECT: 729901 | DATE: 01/29/01

A**B****C**

Site #	Total Fruit Count
A AH1S	104
B AH2S	26
C AH3S	75
Average for Site Type	68.33

A



B



C



Site #	Total Fruit Count
A AH1	12
B AH2	1
C AH3	5
Average for Site Type	6.00

A



B



C

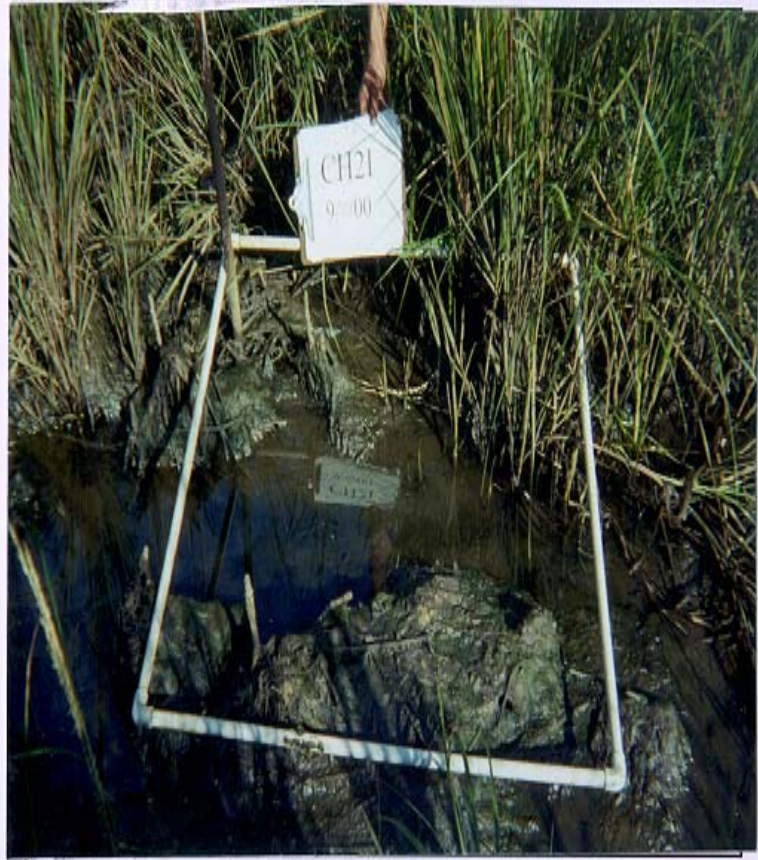


Site #	Total Fruit Count
A CH1S	9
B CH2S	49
C CH3S	14
Average for Site Type	24.00

A



B



C



Site #	Total Fruit Count
A CH11	30
B CH21	13
C CH31	6
Average for Site Type	16.33

A



B



C



Site #	Total Fruit Count
A TH1S	4
B TH2S	3
C TH3S	0
Average for Site Type	3.50

A



B



C



Site #	Total Fruit Count
A TH11	19
B TH21	8
C TH31	2
Average for Site Type	9.67

A



B



C



Site #	Total Fruit Count
A AMT1S	58
B AMI2S	26
C AMI3S	164
Average for Site Type	82.67

A



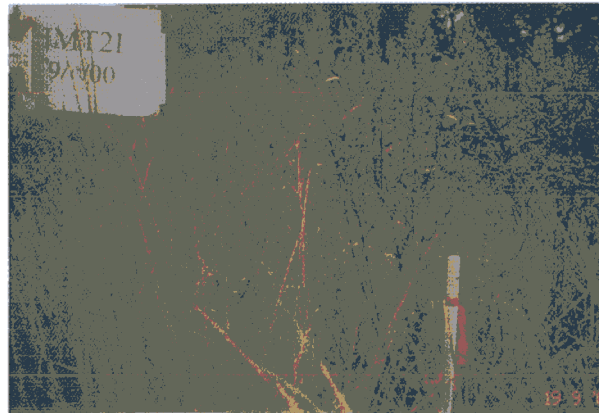
B



C



Site #	Total Fruit Count
A CMI1S	40
B CMI3S	22
C CMT1S	2
Average for Site Type	21.33

A**B****C****D**

Site #	Total Fruit Count
A IMT2	17
B IMT21	29
C IMI1S	14
D IH1S	8
Average for Site Type	17.00

A



B



C



Site #	Total Fruit Count
A ARP1S	115
B ARP2S	58
C ARH3S	5
Average for Site Type	59.33

A



B



C



Site #	Total Fruit Count
A ARH11	25
B ARH21	7
C ARH31	8
Average for Site Type	13.33

A



B



C



Site #	Total Fruit Count
A CRH1S	35
B CRH2S	3
C CRH3S	6
Average for Site Type	14.67

A**B****C**

Site #	Total Fruit Count
A CRH11	8
B CRT21	46
C CRH31	8
Average for Site Type	20.67

A



B



C



Site #	Total Fruit Count
A TR1S	13
B TR2S	8
C TR3S	22
Average for Site Type	14.33

A



B



C



Site #	Total Fruit Count
A TRT1I	8
B TRT2I	28
C TRI3I	49
Average for Site Type	28.33

A



B



C



Site #	Total Fruit Count
A IRR11	37
B IRH31	13
C IRT4	19
Average for Site Type	23.00



Site #	Total Fruit Count
A SH11	0
B SH21	0
C SH31	0
Average for Site Type	0.00

A**B****C**

Site #	Total Fruit Count
A SRI11	0
B SRI21	5
C SRI31	3
Average for Site Type	2.67



Site #	Total Fruit Count
A DH11	0
B DH21	0
C DH31	0
Average for Site Type	0.00



Site #	Total Fruit Count
A PH11	0
B PH21	0
C PH31	0
Average for Site Type	0.00

Table 1: Vegetation Summary: July and September, 2000 Marsh Assessment

July, 2000									
	% cover			Stem Count (/m ²)			Stem Height (m)		
	Heavy	Moderate	Reference	Heavy	Moderate	Reference	Heavy	Moderate	Reference
Alterniflora shoreline	36.67	63.33	75	88	221	421.3	1.09	0.88	1.06
Alterniflora interior	90		88.33	261		150	1.3		1.17
Cynosuroides shoreline	85	93.33	93.33	168.3	216	237.3	1.50	2.53	1.76
Cynosuroides interior	63.33		67.5	45		104.3	1.56		2.9
Typha shoreline	45		56.67	51.3		89.6	3.72		2.18
Typha interior	66.67		66.67	111.6		55.6	2.26		2.13
Iva	75		66.67	7.75 /quadrat		8/quadrat	3.6		2.38
September, 2000									
	% cover			Stem Count (/m ²)			Stem Height (m)		
	Heavy	Moderate	Reference	Heavy	Moderate	Reference	Heavy	Moderate	Reference
Alterniflora ditched	20		88.33	45.67		150	1.11		1.17
Alterniflora planted	6.67		88.33	19.33		150	0.71		1.17
Scirpus interior	91.67		80	701		500	1.35		1.24

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 m²

Table 2: Fruiting Summary: September, 2000 Marsh Assessment

September, 2000			
	Total Fruit Count		
	Heavy	Moderate	Reference
Alterniflora shoreline	68.33	82.67	59.33
Alterniflora interior	6		13.33
Alterniflora ditched	0		13.33
Alterniflora planted	0		13.33
Cynosuroides shoreline	24	21.33	14.67
Cynosuroides interior	16.33		20.67
Scirpus interior	0		2.67
Typha shoreline	3.5		14.33
Typha interior	9.67		28.33
Iva		17	23

Note: All data are averages for the exposure group.

Table 3: Vegetation Characteristics for Additional Sampled Quads in September, 2000.

SHI

Site #	%Cover	Average Height in meters	Total Stem Count (Dominant Species)
A SH1I	100	1.44	572 (107)
B SH2I	85	1.34	704 (700)
C SH3I	90	1.28	1296 (1296)
Average for Site Type	91.67	1.35	857.33 (701)

DHI

Site #	%Cover	Average Height in meters	Total Stem Count (Dominant Species)
A DH1I	35	2.08	81 (81)
B DH2I	5 *	0.58	15 (15)
C DH3I	20	0.67	41 (41)
Average for Site Type	20.00	1.11	45.67 (45.67)

PHI

Site #	%Cover	Average Height in meters	Total Stem Count (Dominant Species)
A PH1I	0	0.00	0.00
B PH2I	10	0.75	23 (18)
C PH3I	10	0.68	40 (40)
Average for Site Type	6.67	0.71	21 (19.33)

SRI

Site #	%Cover	Average Height in meters	Total Stem Count (Dominant Species)
A SRI1I	80	1.34	640 (640)
B SRI2I	80	1.24	452 (452)
C SRI3I	80 *	1.12	411 (408)
Average for Site Type	80.00	1.24	501 (500)

* "Percent Cover" value is an estimation based on photos of sampling quad- no data available.

Table 4: Pepco Marsh Assessment Datasheet Summary Table September 2000 Field Effort- Vegetative Characteristics for New Photoquads

Quad ID	Sampling Date	Distance from Water (m)	Water Depth (cm)	% Aerial Cover	Stems per m ²				Mean Stem Height			Chlorosis	Oiling Characteristics														Fauna		General Comments		
					SC (m ²)-alterniflora	SC (m ²)-Typha	SC (m ²)-Scirpus	SC (m ²)-other	MSH (m)-alterniflora	MSH (m)-Typha	MSH (m)-Scirpus		Oiling Interval (cm)	% Cover of Veg. Oil	Veg. Oil Thickness	Veg. Oil Location	Veg. Oil Descriptor	Vegetation 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 Fauna
PH1I	9/18/00		0	0				eleocharis				NA							yes	yes	film	15-20	6 cm of compaction			No black droplets of oil	no		no		All planted alterniflora dead - no plants in quad (Q9)
PH2I	9/18/00		0	10	18	5		3 patches of eleocharis	0.71	0.8		slight	0-30	trace	stain	entire plant	dry		yes	yes	film	50						no		no	
PH3I	9/18/00		0.5	10	40			eleocharis 5%	0.67			slight	0-40	75	stain & coat	entire plant	dry		yes		film	100	Unknown	partial filled	black oil droplet on water table in disturbed areas- 50% compaction			no		no	Did not use the blue painted pole as the corner marker- added another stake
DH1I	9/18/00		0	35	81				1.08			slight; heavy rust	0-30	trace	stain	stems mostly	dry	spots on plants	yes	yes	film	50			black oil droplets on water table in disturbed areas	heavy rust; oil <5%; replanting #5	no		no	Q5 of the Monitoring of Planting Revegetation	
DH2I	9/18/00		0		15				0.58				0-65	50	coat	entire plant	tacky		yes	yes	film	50	Unknown			7cm compaction of core	no		no	60% of quad covered by algae mat; mat covers area of black oiled surface where it is not being remobilized from surface	
DH3I	9/18/00		0.5	20	41				0.67			slight; some rust	0-25	5	stain	entire plant	tacky		yes	yes	film	100	Unknown		sandy		no		no		
SH1I	9/18/00		3	100	144				1.00		1.19	moderate	0-15	100	stain	stem	dry		yes	yes	water in quad	100				water surface covered with sheen	no		no		
SH2I	9/18/00		0	85				1 pluchea; 5% eleocharis			1.34	slight	0	0					no;	muddy peat			Unknown	strong odor			no		no		
SH3I	9/18/00		0	90							1.28	slight	0-70	20	stain; coat	stem	dry	1/2 stain, 1/2 coat	yes	yes	film	100	Unknown	partially filled pores	heavy root mat to bottom, soft mud			no		no	
SR1I1	9/19/00		1	80							1.34		NA						NA								yes	spider; grass hoppers	right behind CMI site, no sediment core for chemistry station		
SR1I2	9/19/00		1	80				Distichlis understory			1.24	severe	NA						NA								yes	mosquitos	late senescence; no sediment for chemistry; 5m away from TR13I		
SRT3I	9/19/00		0.5					3 pluchea (entire 1m quad flowering); eleocharis in 1m quad; Distichlis Spicata			1.12;	moderate senescence on leaves		NA					NA									yes	2 spiders; leaf hopper		

Table 5: Pepco Marsh Assessment Datasheet Summary Table September 2000 Field Effort- Fruiting Characteristics for all Photoquads

Flowers/ Fruiting Stems per m²

Quad ID	Sampling Date	Habitat/Injury Category	Water Depth (cm)	SC (m ²)-alterniflora	SC (m ²)-cynosuroides	SC (m ²)-Typha	SC (m ²)-Scirpus	SC (12.57 m ² quad)-Iva	SC (m ²)-polygonum	SC (m ²)-orach	SC (m ²)-marsh hemp	SC (m ²)-pontedaria	SC (m ²)-peltandra	SC (m ²)-other	Chlorosis
AH1S	9/18/2000	heavy	0	96			8								slight; early senescence
AH2S	9/18/2000	heavy	0	19- with seed heads	7- with seed heads										slight; early senescence
AH3S	9/18/2000	heavy/quad	0	75			not counted- no seeds								moderate; entire leaf
AH1I	9/18/2000	alterniflora heavy	0-6	11- all seed dispersed							1- heavy fruit				moderate; most plant tips brown to the widest part of plant
AH2I	9/20/2000	heavy	0-2.5	1											slight
AH3I	9/18/2000	heavy alterniflora		2- old fruits							3- lots of fruit with seed				moderate; less than AH1I & CH1I
CH-1S	9/19/2000	cynosuroides	0		9										moderate
CH2S	9/18/2000	heavy/quad	0	2	45									2 unknown (pale purple daisy like flower)	moderate; entire length of several flower blades
CH3S	9/18/2000	heavy/quad	0	10	2		2								slight; tips of leaves

Table 5: Pepco Marsh Assessment Datasheet Summary Table September 2000 Field Effort- Fruiting Characteristics for all Photoquads

Flowers/ Fruiting Stems per m²

Quad ID	Sampling Date	Habitat/Injury Category	Water Depth (cm)	SC (m ²)-alterniflora	SC (m ²)-cynosuroides	SC (m ²)-Typha	SC (m ²)-Scirpus	SC (12.57 m ² quad)-Iva	SC (m ²)-polygonum	SC (m ²)-orach	SC (m ²)-marsh hemp	SC (m ²)-pontedaria	SC (m ²)-peltandra	SC (m ²)-other	Chlorosis
AMT1S	9/19/2000			58- tips are turning brown & lighter green leaves											slight
AMI2S	9/19/2000	moderate Indian shoreline	0	25										1; flowering unknown composite	slight; mostly on tips
AMI3S	9/19/2000	moderate shoreline alterniflora	0	160	4										moderate; slight on alterniflora; stems are brown
CMI1S	9/19/2000	moderate shoreline cynosuroides	3	40	no cyno seed heads										slight
CMI3S	9/19/2000	s. cynosuroides moderate shoreline	0	14	8										moderate; some stems totally brown; some stems with only brown tips
CMT-1S	9/19/2000	cynosuroides, mud, shoreline	0		2- some grazing in blades; m. senescence										moderate
IMT2	9/19/2000	Iva moderate	0		10			not counted- all are seedings						eleocharis not counted	

Table 5: Pepco Marsh Assessment Datasheet Summary Table September 2000 Field Effort- Fruiting Characteristics for all Photoquads

Flowers/ Fruiting Stems per m²

Quad ID	Sampling Date	Habitat/Injury Category	Water Depth (cm)	SC (m ²)-alterniflora	SC (m ²)-cynosuroides	SC (m ²)-Typha	SC (m ²)-Scirpus	SC (12.57 m ² quad)-Iva	SC (m ²)-polygonum	SC (m ²)-orach	SC (m ²)-marsh hemp	SC (m ²)-pontedaria	SC (m ²)-peltandra	SC (m ²)-other	Chlorosis
IMT2I	9/19/2000	Iva moderate	0	25				4						aster not counted	slight
IMI1S	9/19/2000	Iva moderate shoreline	0	1- small patch	3			all							
IH-1S	9/19/2000							8- with fruits							
ARP1S	9/20/2000	reference	0	113	2										slight
ARP2S	9/20/2000	reference alterniflora shoreline		58											slight- leaf tips
ARH3S	9/20/2000	reference		1	4										very slight
ARH1I	9/20/2000	alterniflora	0	6										19 marsh aster with flowers	slight
ARH2I	9/20/2000	reference alterniflora interior	0-1	1					4 with fruit					5 atriplex (small); 1 pulchea	slight
ARH3I	9/20/2000	alterniflora	0	0	8- some fruiting heads 9' tall									atriplex viney covers much of the quad	

Table 5: Pepco Marsh Assessment Datasheet Summary Table September 2000 Field Effort- Fruiting Characteristics for all Photoquads

Flowers/ Fruiting Stems per m²

Quad ID	Sampling Date	Habitat/Injury Category	Water Depth (cm)	SC (m ²)-alterniflora	SC (m ²)-cynosuroides	SC (m ²)-Typha	SC (m ²)-Scirpus	SC (12.57 m ² quad)-Iva	SC (m ²)-polygonum	SC (m ²)-orach	SC (m ²)-marsh hemp	SC (m ²)-pontedaria	SC (m ²)-peltandra	SC (m ²)-other	Chlorosis
CRH1S	9/20/2000	cynosuroides shore	0	30	0						5				very slight
CRH2S	9/20/2000	cynosuroides shore	0		3										moderate
CRH3S	9/20/2000	cynosuroides shore	0		5		1								slight to moderate
CRH1I	9/20/2000	cynosuroides-reference	0		8									atriplex- viney a little in flower	slight to moderate
CRT-2I	9/19/2000	cynosuroides reference interior	0		18		0		25		3 with fruit			pluchea 1	moderate (cyno)
CRH3I	9/20/2000	cynosuroides interior	0	1-flowering	4						4			atriplex- few viney	slight; 1 or 2 completely senescent
TRIS	9/18/2000	reference	0			13- early & late senescence								Pluchea not counted	undetermined
TR2S	9/18/2000	reference - Typha	0	not counted		8; early senescence							not counted		moderate
TR3S	9/18/2000	reference - Typha	0	1		22; late senescence							not counted		none

Table 5: Pepco Marsh Assessment Datasheet Summary Table September 2000 Field Effort- Fruiting Characteristics for all Photoquads

Oiling Characteristics

Quad ID	Oiling Interval (cm)	% Cover of Veg. Oil	Veg. Oil Thickness	Veg. Oil Location	Veg. Oil Descriptor	Vegetation Oiling Comments	Sed. Oil Present?	Hydro-carbon Odor?	Sed. Oil Thickness	% Sed. Surface Oiled	Oil Penetration Depth (cm)	Sediment Oil Descriptors	Sediment Oiling Comments	Wrack Present?	Wrack Oiled?
AH1S	0-150	trace	stain	entire plant	dry		no	no		0				no	
AH2S	0-10	<1%	stain; 10cm to light	leaves & stem only	dry		yes	yes			1.2	oiled filled pores & spotty silver sheen	silver & product	no	
AH3S	0-45	trace	Scirpus - coated; alterniflora - stained	entire plant of alterniflora and flower blades of scirpus mainly oiled	dry		yes	yes			2.5	partially filled pores	patchy silver sheen	no	
AH1I	0-25	trace	stain	entire plant	dry		yes	yes	cover	100				no	
AH2I	0-25	40	stain	stems & lower blades	dry		yes	yes	coat; globules of free product	100	0-5	oil residue		no	
AH3I	0-10	trace	stain	entire plant	dry		yes- slight	no- possibly very slight	no oil	0			bluegreen cover	no	
CH-1S	0-25	1	stain	stem only	dry		yes	yes	film	50	10- in surface litter & root cavities	oil filled pores			
CH2S	0-36	trace	stain	leaves only; approx. 5-6 plants in entire quad	dry		no	no						no	
CH3S	0-17	trace	stain	leaves only-bottom	dry		yes	no			2.5	partially filled	light silver sheen	no	

Table 5: Pepco Marsh Assessment Datasheet Summary Table September 2000 Field Effort- Fruiting Characteristics for all Photoquads

Oiling Characteristics

Quad ID	Oiling Interval (cm)	% Cover of Veg. Oil	Veg. Oil Thickness	Veg. Oil Location	Veg. Oil Descriptor	Vegetation Oiling Comments	Sed. Oil Present?	Hydro-carbon Odor?	Sed. Oil Thickness	% Sed. Surface Oiled	Oil Penetration Depth (cm)	Sediment Oil Descriptors	Sediment Oiling Comments	Wrack Present?	Wrack Oiled?
CH1I	0-25	trace	stain	entire plant	dry		yes	yes	cover; mostly in lower parts of quad	100			sheen present on standing water; bluegreen over much of the surface	no	
CH2I	0-35	50		stem & leaves	dry on veg.; pooled oil on sediment		yes	yes	isolated globules on sediment surface	50	under 1.2 of fresh sediment	oil residue		no	
CH3I	0-33	100% of quad	pool	stem only	dry on plant		yes	yes	cover	100	0-5	oil residue		no	
TH-1S	0-45	50	stain	stem only; as multiple bands on some stems, 10% on others	tacky		yes	yes	film	100		partially filled pores	black oil droplets on water table in foot prints		
TH-2S	0-45	50	coat	stem only	dry		yes	yes	film	100		partially filled pores	black drops/heavy sheen		
TH-3S	0-45	10	coat	stem only	dry		yes		film	100			heavy sheen; black oil droplets on water when subtidal sediment is disturbed	no	
TH-1I	NA						yes		film	<10			sheen in water in foot prints	no	
TH2I	0-41	10	stain	leaves	dry	spots	yes	yes	coat	100	0-7.6	oil residue	sheen on water	no	
TH3I	15-18		stain	leaves only	dry	band	yes	yes	0.25-2" deep in sediment	50	.6-5.0 deep in sediment	oil residue	sheen on surface	no	

Table 5: Pepco Marsh Assessment Datasheet Summary Table September 2000 Field Effort- Fruiting Characteristics for all Photoquads

Oiling Characteristics

Quad ID	Oiling Interval (cm)	% Cover of Veg. Oil	Veg. Oil Thickness	Veg. Oil Location	Veg. Oil Descriptor	Vegetation Oiling Comments	Sed. Oil Present?	Hydro-carbon Odor?	Sed. Oil Thickness	% Sed. Surface Oiled	Oil Penetration Depth (cm)	Sediment Oil Descriptors	Sediment Oiling Comments	Wrack Present?	Wrack Oiled?
AMT1S	NA						no	no	film				underwater; heavy rainbow sheen released from subtidal sediments when disturbed; more in subtidal weeds than in the peat scarp	no	
AMI2S	NA						yes	yes- slight	sheen on surface				may have sediment over top of oiling; oil penetration about 2-3 cm; sheen on surface		
AMI3S	NA						no	no- odor observed when sediment is disturbed	none				No visible oil on surface but is present approx 1/2" down; hydrocarbon odor present when sediment is disturbed	no	
CMI1S	NA					can't discern oil vegetation mud coating may obscure	yes; when sediment is disturbed	no	sheen in water				a little sheen is released when sediment disturbed, but none visible	no	
CMI3S	NA					can't discern oil on stem	no	no						no	
CMT-1S	NA						no	no							
IMT2	NA												not in quad, but heavy sheen released as we walked along the marsh scarp in the water; most sheens came from peat mat, though some from the subtidal sediments	no	

Table 5: Pepco Marsh Assessment Datasheet Summary Table September 2000 Field Effort- Fruiting Characteristics for all Photoquads

Oiling Characteristics

Quad ID	Oiling Interval (cm)	% Cover of Veg. Oil	Veg. Oil Thickness	Veg. Oil Location	Veg. Oil Descriptor	Vegetation Oiling Comments	Sed. Oil Present?	Hydro-carbon Odor?	Sed. Oil Thickness	% Sed. Surface Oiled	Oil Penetration Depth (cm)	Sediment Oil Descriptors	Sediment Oiling Comments	Wrack Present?	Wrack Oiled?
CRH1S	NA						NA							no	
CRH2S	NA						NA							no	
CRH3S	NA						NA							no	
CRH1I	NA						NA								
CRT-2I	NA						NA							no	
CRH3I	NA						NA							no	
TRIS	NA						no	no						no	
TR2S	NA						no	no						no	
TR3S	NA						no	no						no	

Table 5: Pepco Marsh Assessment Datasheet Summary Table September 2000 Field Effort- Fruiting Characteristics for all Photoquads

Oiling Characteristics

Quad ID	Oiling Interval (cm)	% Cover of Veg. Oil	Veg. Oil Thickness	Veg. Oil Location	Veg. Oil Descriptor	Vegetation Oiling Comments	Sed. Oil Present?	Hydro-carbon Odor?	Sed. Oil Thickness	% Sed. Surface Oiled	Oil Penetration Depth (cm)	Sediment Oil Descriptors	Sediment Oiling Comments	Wrack Present?	Wrack Oiled?
TRT1I	NA						NA		organic sheen					no	
TR-T2I	NA						NA							no	
TRI3I	NA						NA							no	
IRR1I	NA						NA								
IRH3I	NA						NA							no	
IRT4	NA						NA							no	
PH1I	NA						yes	yes	film; no black droplets	15-20; only low spots	6 cm of compaction				
PH2I	0-30	trace	stain	entire plant	dry		yes	yes	film	50				no	
PH3I	0-40	75	stain & coat	entire plant	dry		yes		film	100	unknown	partial filled		no	

Table 5: Pepco Marsh Assessment Datasheet Summary Table September 2000 Field Effort- Fruiting Characteristics for all Photoquads

Oiling Characteristics

Quad ID	Oiling Interval (cm)	% Cover of Veg. Oil	Veg. Oil Thickness	Veg. Oil Location	Veg. Oil Descriptor	Vegetation Oiling Comments	Sed. Oil Present?	Hydro-carbon Odor?	Sed. Oil Thickness	% Sed. Surface Oiled	Oil Penetration Depth (cm)	Sediment Oil Descriptors	Sediment Oiling Comments	Wrack Present?	Wrack Oiled?
DH1I	0-30	trace	stain	stems mostly	dry	spots on plants	yes	yes	film	50			heavy rust; oil ,5%; replanting #5	no	
DH2I	0-65	50	coat	entire plant	tacky		yes	yes	film	50	unknown		7 cm compaction of core	no	
DH3I	0-25	5	stain	entire plant	tacky		yes	yes	film	100	unknown			no	
SH1I	0-15	100	stain	stem	dry		yes	yes	water in quad	100			water surface covered with sheen	no	
SH2I	0	0					no	no, muddy peat			unknown	strong odor		no	
SH3I	0-70	20	stain, coat	stem	dry	one-half stain, one-half coat	yes	yes	film	100	unknown	partially filled pores		no	
SRI1I	NA						NA				NA				
SRI2I	NA						NA				NA				
SRT3I	NA						NA				NA				

Table 5: Pepco Marsh Assessment Datasheet Summary Table September 2000 Field Effort- Fruiting Characteristics for all Photoquads

Quad ID	Fauna Present?	Types/Numbers Fauna	General Comments
AH1S	no		silver sheen present outside quad, closer to shoreline
AH2S	yes	1 grasshopper	Benthic sample (1335), silver rainbow sheen; visible product; 8" sample material
AH3S	yes	1 spider in quad	raccoon tracks in quad
AH1I	yes	four small white insects	most of surface covered with bluegreen algae which covers the oil; stake labeled AH2I; lots of flowering polygonum (white flower behind quad)
AH2I	yes	2 spiders	
AH3I	yes	2 dead lady bugs	vegetation is short approx. 1m; bluegreen cover in quad- covering oil
CH-1S	no	NA	lots of sheen (silver/rainbow) blown up along shoreline after arrival at the site
CH2S	no		Juvenile blue crab, approx. 1", escaped benthic sample
CH3S	yes	2 spiders; 1 grasshopper	1 meter closer to shoreline is more cynosuroides

Table 5: Pepco Marsh Assessment Datasheet Summary Table September 2000 Field Effort- Fruiting Characteristics for all Photoquads

Quad ID	Fauna Present?	Types/Numbers Fauna	General Comments
CH1I	yes	1 large spider; 2 lady bugs	stake says CH2I; no seeds found on scirpus
CH2I	yes	small minnows swimming through in channel; no benthic or epifauna present	veg. only in upper 10% of quad; new channel forming
CH3I	yes	spider web	80% of alterniflora, 20% cynosuroides
TH-1S	yes	caterpillar	
TH-2S			
TH-3S	yes	1 caterpillar; 1 spider	No seed heads along entire fringe of this area; lots of stumps in front of live vegetation
TH-1I	yes	caterpillar	
TH2I	yes	1 caterpillar; 2 spiders	
TH3I	yes	2 spiders; 1 littorina	

Table 5: Pepco Marsh Assessment Datasheet Summary Table September 2000 Field Effort- Fruiting Characteristics for all Photoquads

Quad ID	Fauna Present?	Types/Numbers Fauna	General Comments
AMT1S	yes	leaf hopper	
AMI2S	no		
AMI3S	yes	grasshopper	shoreline alterniflora except for one corner
CMI1S	yes	1 spider	
CMI3S	yes	3 large spiders	
CMT-1S	no; 1 burrow (crab)	no	1 concrete block in middle of quad (removed it)- no epibiota on it
IMT2	no		

Table 5: Pepco Marsh Assessment Datasheet Summary Table September 2000 Field Effort- Fruiting Characteristics for all Photoquads

Quad ID	Fauna Present?	Types/Numbers Fauna	General Comments
IMT2I	yes	1 grasshopper; spiders	sheens released from sediments when disturbed
IMI1S	yes	many spittle bugs on Iva	
IH-1S	yes	1 spider; caterpillar; spittle bug; grasshopper	heavy band of arum seeds in wrack line at high tide on sand/gravel substrate, very spare vegetation beneath
ARP1S	no		
ARP2S	yes	spider; 2 jumping bugs	no other spp present
ARH3S	no		Station may have been renamed
ARH1I	no	except gnats	alterniflora plants- short (approx. 1 m in height)
ARH2I	no		crab parts - possible predation; polygonum with fruit
ARH3I	yes	white insect; spider	site is very thick with atrip. covering alterniflora; some polygonum; very tall cynosuroides

Table 5: Pepco Marsh Assessment Datasheet Summary Table September 2000 Field Effort- Fruiting Characteristics for all Photoquads

Quad ID	Fauna Present?	Types/Numbers Fauna	General Comments
CRH1S	yes	spiders; gnats	
CRH2S	yes	crawling insect (black)	plants in quad look like they had been knocked down
CRH3S			Quad was moved several feet back; the old stake was missing and the GPS indicated it would have been approx. 1/2m in front of the existing vegetation
CRH1I	yes	gnats	vegetation shows signs on feeding
CRT-2I	yes	3 spiders	1 wren nest in quad; pluchea-flowering
CRH3I	yes	spider; some gnats at base	
TRIS	yes	2 small white spiders; 1 small red beetle	benthic sample taken at this station; light oil on fringe of quad
TR2S	yes	1 caterpillar; 1 snail; 4 spiders	evidence of animal feeding; quadrant is barely into Typha - transition to S. alterniflora & Peltandra
TR3S	yes	2 caterpillars; 1 snail	

Table 5: Pepco Marsh Assessment Datasheet Summary Table September 2000 Field Effort- Fruiting Characteristics for all Photoquads

Quad ID	Fauna Present?	Types/Numbers Fauna	General Comments
TRT1I	yes	1 spider	
TR-T2I	no		at water of small channel, adjacent to area of pluchea, cyno, etc. - low vegetation
TRI3I	yes	7 white spiders; 1 large spider	
IRR1I	yes	spittle bugs; gnats	
IRH3I			
IRT4	no	no	
PH1I	no	NA	all planted alterniflora dead
PH2I	no		
PH3I	no		Did not use the blue parameter pole as the corner marker- added another stake

Table 5: Pepco Marsh Assessment Datasheet Summary Table September 2000 Field Effort- Fruiting Characteristics for all Photoquads

Quad ID	Fauna Present?	Types/Numbers Fauna	General Comments
DH1I	no		
DH2I	no		60% of quad covered by algae mat; mat covers area of black oiled surface where it is net being remobilized from surface
DH3I	no		
SH1I	no		
SH2I	no		
SH3I	no		
SRI1I	yes	spider; grass hoppers	right behind CMI site, no sediment core for chemistry station
SRI2I	yes	mosquitos	late senescence; no sediment for chemistry; 5m abay from TRI3I
SRT3I	yes	2 spiders; leaf hopper	

**Table 6: Summary of Erosion Monitoring Sites
September 21, 2000**

Quad ID	Location	Description of Location	Comments
ERI1S	shoreline	at edge of shore	Line of stakes starts from the shore and extends to middle of window in yellow house
ERI1M	middle stake	15' from ERI1S	
ERI1U	upper stake	30' from ERI1S	
ERI2S	shoreline	at edge of shore	None
AMI_S	middle	26' 4" from ERI2S	
ERI2U	upper stake	41' 0" from ERI2S	
ERT3S	shoreline	at edge of shore	Area is described as hummocky with very broken marsh and open water around ERT3M. The site near AMT1S is located in a straight line to the black locust tree.
ERT3M	middle stake	15' from ERT3S	
ERT3U	upper stake	30' from ERT3S	
ERT4S	shoreline	at edge of shore	ERT4M is located at a monitoring stake not currently being used (AMT1I). ERT4U is located in relatively straight shoreline with a cut east of the transect.
ERT4M	middle stake	26' from ERT4S	
ERT4U	upper stake	41' from ERT4S	
ERS5S	shoreline	at edge of shore	Flushing operations had just been completed in this area. The stake at ERS5S is located at the edge of scarp with intact root mats but apparently dead vegetation. Location begins at the shorepoint moving toward a butternut tree located just outside of the boomed area.
ERS5M	middle stake	15' from ERS5S	
ERS5U	upper stake	30' from ERS5S	
ERS6S	shoreline	Point in front of break site	ERS6S is in front of a clump of Spartina that is already partially undercut. Some of the Spartina hummocks along shoreline have no vegetation above root growth.
ERS6M	middle stake	15' from ERS6S	
ERS6U	upper stake	30' from ERS6S	