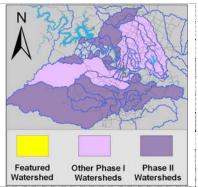
Summary Sheet

Catchment	Total area		1 square miles							
	Area in recharge		none							
	Creek length		1 mile							
	Receiving water		Town Lake							
Demographics	2000 population	2,963								
	2030 projected po	3,316								
	30 year projected	12 %								
Land Use	Impervious cover	(2003 estimate)	53.41 %							
Overall EII Scores	2000	2003	2006	2009	2011					
	48	47	46	46	36					



Flow Regime* for Sample Sites on Harpers Branch Upstream to Downstream

		2003				2006				2009					2010	2011						
Site #	Site Name	Feb	Mar	Mar	May	Sep	Dec	Feb	May	Jul	Aug	Nov	Feb	May	May	Oct	Dec	Dec	Mar	Jun	Jun	Sep
		WQ	WQ	Bio	WQ	WQ	WQ	WQ	WQ	Bio	WQ	WQ	WQ	WQ	Bio	WQ	WQ	WQ	WQ	WQ	Bio	WQ
484	Riverside	В	В	В	В	В	В															
844	Woodland	В	В	В	В	В	В	В	В	В	n	В	n	В	В	В	В	В	В	n	n	n
* $B = baseflow$ $n = no flow$ $S = storm flow$						blı	blue = Samples were taken grey = Samples were not taken blank = not visited					d										

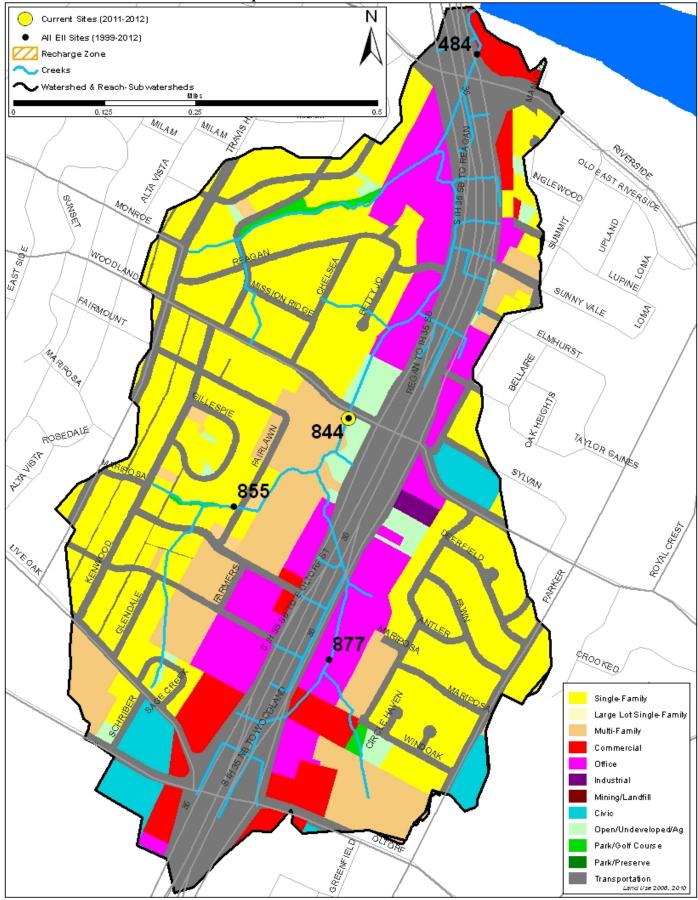
Summary of 2011 Data for Harper's Branch											
Summary	Parameter	Mean	Max	Min	Discussion						
Physicochemical	D.O. mg/l	3.0	3.1	2.9	Consistently low concentrations.						
	pH st.units	7.50	Some low values.								
	Cond uS/cm	858	Above average, but within normal range.								
Nutrients	NH ₃ mg/l	0.032	0.049	0.015	Within normal range.						
	NO ₃ mg/l	0.766	0.866	0.666	Within normal range.						
	Ortho P mg/l	0.095	0.100	0.090	Above average, but within normal range.						
Sediment Load	TSS mg/l	10.0	15.5	4.4	Consistently above average, with some high concentrations.						
	Turbidity ntu	12.50	13.52	11.47	Consistently above average, with some high concentrations.						
Biology	E.Coli /100ml	74	74	74	Within normal range.						
	ons are provided in the introduction of this report										

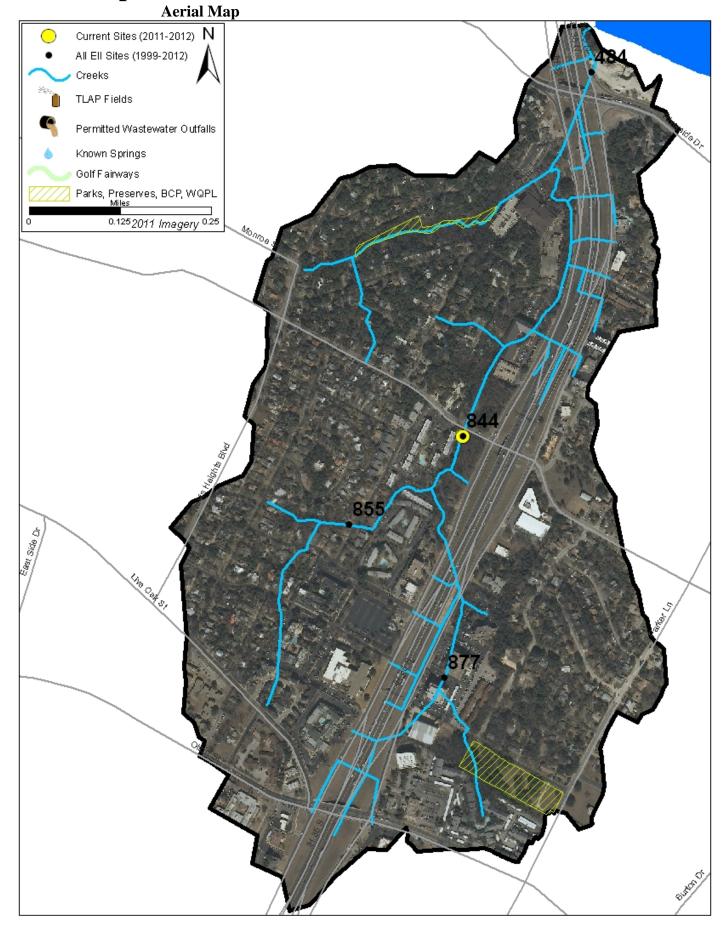
Index scores* for Harpers Branch Sites by Year

Site	Site Name	Year	Water Quality	Sediment**	Contact Rec.	Non- Contact Rec.	Physical Integrity	Aquatic Life	Benthic subindex	Diatom subindex	Total EII Score
484	Harpers Branch Creek @ Riverside Dr	2000	46	59	63	57	27	30	29	31	47
844	Harpers Branch Creek @ Woodland Ave	2000	41	59	67	79	38	22	27	16	51
855	Harpers Branch Creek @ Fairlawn	2000		59		64	49	19	29	9	48
877	Harpers Branch Creek @ Windoak Drive	2000		59		52	25	21	31	11	39
484	Harpers Branch Creek @ Riverside Dr	2003	46	57	70	31	36	19	19	18	43
844	Harpers Branch Creek @ Woodland Ave	2003	45	57	47	65	56	33	30	35	51_
844	Harpers Branch Creek @ Woodland Ave	2006	39	51	33	66	46	43	26	60	46
844	Harpers Branch Creek @ Woodland Ave	2009	36	54	25	76	39	46	22	70	46
844	Harpers Branch Creek @ Woodland Ave	2011	32	58	44	28	34	17	17		36
	484 844 855 877 484 844 844 844	484 Harpers Branch Creek @ Riverside Dr 844 Harpers Branch Creek @ Woodland Ave 855 Harpers Branch Creek @ Fairlawn 877 Harpers Branch Creek @ Windoak Drive 484 Harpers Branch Creek @ Riverside Dr 844 Harpers Branch Creek @ Woodland Ave	484 Harpers Branch Creek @ Riverside Dr 2000 844 Harpers Branch Creek @ Woodland Ave 2000 855 Harpers Branch Creek @ Fairlawn 2000 877 Harpers Branch Creek @ Windoak Drive 2000 484 Harpers Branch Creek @ Riverside Dr 2003 844 Harpers Branch Creek @ Woodland Ave 2003 844 Harpers Branch Creek @ Woodland Ave 2006 844 Harpers Branch Creek @ Woodland Ave 2009 844 Harpers Branch Creek @ Woodland Ave 2011	484 Harpers Branch Creek @ Riverside Dr 2000 46 844 Harpers Branch Creek @ Woodland Ave 2000 41 855 Harpers Branch Creek @ Fairlawn 2000 877 Harpers Branch Creek @ Windoak Drive 2000 484 Harpers Branch Creek @ Riverside Dr 2003 46 844 Harpers Branch Creek @ Woodland Ave 2003 45 844 Harpers Branch Creek @ Woodland Ave 2006 39 844 Harpers Branch Creek @ Woodland Ave 2009 36	484 Harpers Branch Creek @ Riverside Dr 2000 46 59 844 Harpers Branch Creek @ Woodland Ave 2000 41 59 855 Harpers Branch Creek @ Fairlawn 2000 59 877 Harpers Branch Creek @ Windoak Drive 2000 59 484 Harpers Branch Creek @ Riverside Dr 2003 46 57 844 Harpers Branch Creek @ Woodland Ave 2003 45 57 844 Harpers Branch Creek @ Woodland Ave 2006 39 51 844 Harpers Branch Creek @ Woodland Ave 2009 54 844 Harpers Branch Creek @ Woodland Ave 2011 37 58	484 Harpers Branch Creek @ Riverside Dr 2000 46 59 63 844 Harpers Branch Creek @ Woodland Ave 2000 41 59 67 855 Harpers Branch Creek @ Fairlawn 2000 59 877 Harpers Branch Creek @ Windoak Drive 2000 59 484 Harpers Branch Creek @ Riverside Dr 2003 46 57 70 844 Harpers Branch Creek @ Woodland Ave 2003 45 57 47 844 Harpers Branch Creek @ Woodland Ave 2006 39 51 33 844 Harpers Branch Creek @ Woodland Ave 2009 36 54 26 844 Harpers Branch Creek @ Woodland Ave 2011 37 58 44	484 Harpers Branch Creek @ Riverside Dr 2000 46 59 63 57 844 Harpers Branch Creek @ Woodland Ave 2000 41 59 67 79 855 Harpers Branch Creek @ Fairlawn 2000 59 64 877 Harpers Branch Creek @ Windoak Drive 2000 59 52 484 Harpers Branch Creek @ Riverside Dr 2003 46 57 70 31 844 Harpers Branch Creek @ Woodland Ave 2003 45 57 47 65 844 Harpers Branch Creek @ Woodland Ave 2006 39 51 30 66 844 Harpers Branch Creek @ Woodland Ave 2009 54 76 844 Harpers Branch Creek @ Woodland Ave 2011 32 58 44 28	484 Harpers Branch Creek @ Riverside Dr 2000 46 59 63 57 77 844 Harpers Branch Creek @ Woodland Ave 2000 41 59 67 79 38 855 Harpers Branch Creek @ Fairlawn 2000 59 64 49 877 Harpers Branch Creek @ Windoak Drive 2000 59 52 484 Harpers Branch Creek @ Riverside Dr 2003 46 57 70 31 36 844 Harpers Branch Creek @ Woodland Ave 2003 45 57 47 65 56 844 Harpers Branch Creek @ Woodland Ave 2006 39 51 39 66 46 844 Harpers Branch Creek @ Woodland Ave 2009 36 54 76 39 844 Harpers Branch Creek @ Woodland Ave 2011 37 58 44 78 34	484 Harpers Branch Creek @ Riverside Dr 2000 46 59 63 57 27 30 844 Harpers Branch Creek @ Woodland Ave 2000 41 59 67 79 38 22 855 Harpers Branch Creek @ Fairlawn 2000 59 64 49 19 877 Harpers Branch Creek @ Windoak Drive 2000 59 52 21 484 Harpers Branch Creek @ Riverside Dr 2003 46 57 70 31 36 19 844 Harpers Branch Creek @ Woodland Ave 2003 45 57 47 65 56 33 844 Harpers Branch Creek @ Woodland Ave 2009 39 51 33 66 46 43 844 Harpers Branch Creek @ Woodland Ave 2009 58 54 76 39 46 844 Harpers Branch Creek @ Woodland Ave 2011 37 58 44 76 39 46	484 Harpers Branch Creek @ Riverside Dr 2000 46 59 63 57 70 29 844 Harpers Branch Creek @ Woodland Ave 2000 41 59 67 79 38 22 77 855 Harpers Branch Creek @ Fairlawn 2000 59 64 49 19 20 877 Harpers Branch Creek @ Windoak Drive 2000 59 52 21 31 484 Harpers Branch Creek @ Riverside Dr 2003 46 57 70 31 30 19 19 844 Harpers Branch Creek @ Woodland Ave 2003 45 57 47 65 56 33 844 Harpers Branch Creek @ Woodland Ave 2009 39 51 33 66 46 43 20 844 Harpers Branch Creek @ Woodland Ave 2009 35 54 76 39 46 22 844 Harpers Branch Creek @ Woodland Ave 2011 37 58 44 37 17 17	484 Harpers Branch Creek @ Riverside Dr 2000 46 59 63 57 27 30 20 31 844 Harpers Branch Creek @ Woodland Ave 2000 41 59 67 79 38 22 27 16 855 Harpers Branch Creek @ Fairlawn 2000 59 64 49 19 29 877 Harpers Branch Creek @ Windoak Drive 2000 59 52 25 21 31 11 484 Harpers Branch Creek @ Riverside Dr 2003 46 57 70 31 36 19 19 18 844 Harpers Branch Creek @ Woodland Ave 2003 45 57 47 65 56 30 30 844 Harpers Branch Creek @ Woodland Ave 2009 54 76 39 46 22 70 844 Harpers Branch Creek @ Woodland Ave 2011 37 58 44 78 39 46 22 70

* blank cells indicate parameter was not collected, blank row indicate site was dropped **sediment samples only collected at the downstream site 100-87.5 Excellent 87.5-75 V. Good 75-62.5 Good 62.5-50 Fair 50-37.5 Marginal 37.5-25 Poor 25-12.5 Bad 51-12.5-0 V. Bac

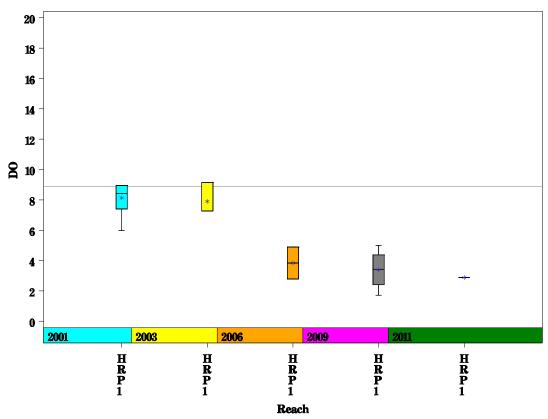
Land Use Map



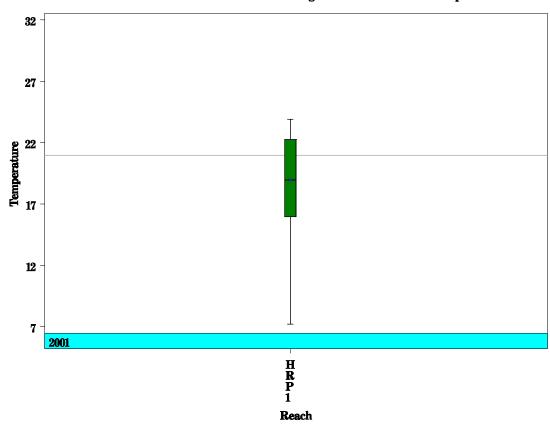


Data Summary Graphs – <u>Dissolved Oxygen</u> and <u>Temperature</u> (Downstream to Upstream by Year)

Parameter = DISSOLVED OXYGEN Unit = MG/L Watershed = Harper's Branch

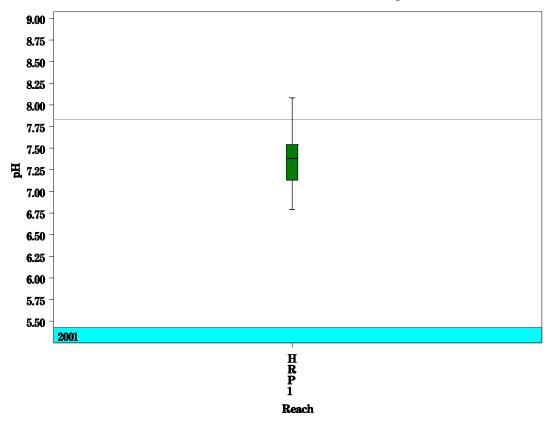


Parameter=WATER TEMPERATURE Unit=Deg. Celsius Watershed=Harper's Branch

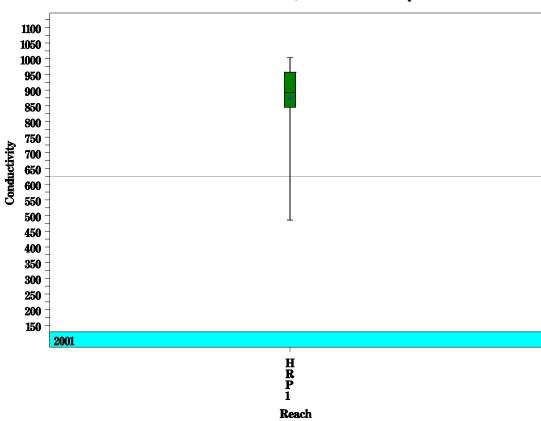


Data Summary Graphs – <u>pH</u> and <u>Conductivity</u> (Downstream to Upstream by Year)

Parameter=PH Unit=Standard units Watershed=Harper's Branch

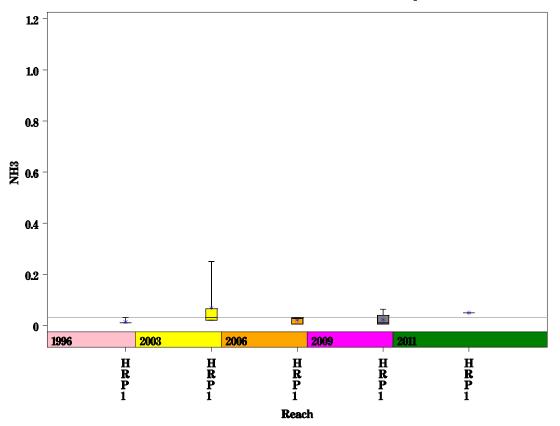


Parameter = CONDUCTIVITY Unit = uS/cm Watershed = Harper's Branch

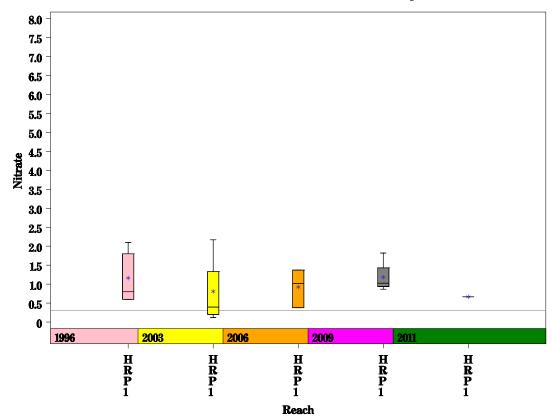


Data Summary Graphs – Ammonia and Nitrate/Nitrite (Downstream to Upstream by Year)

Parameter=AMMONIA AS N Unit=MG/L Watershed=Harper's Branch

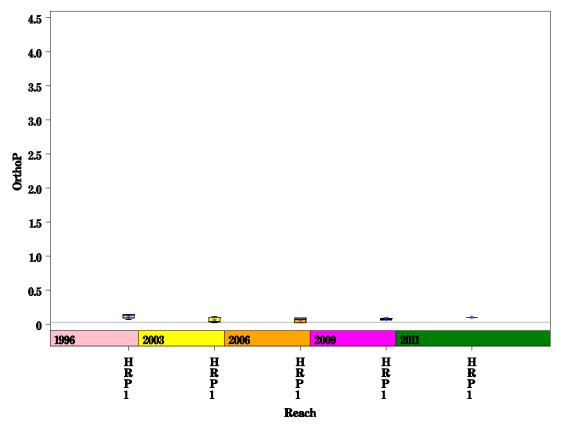


Parameter=NITRATE AS N Unit=MG/L Watershed=Harper's Branch

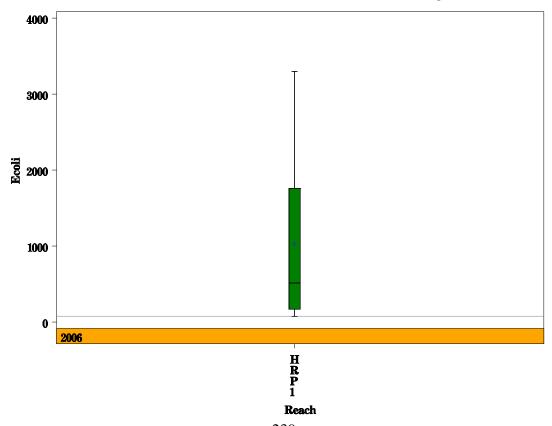


Data Summary Graphs – Orthophosphate and <u>E.coli</u> (Downstream to Upstream by Year)



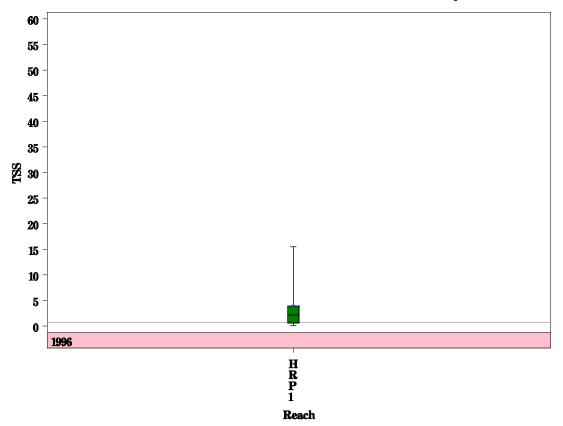


Parameter=E COLI BACTERIA Unit=MPN/100ML Watershed=Harper's Branch

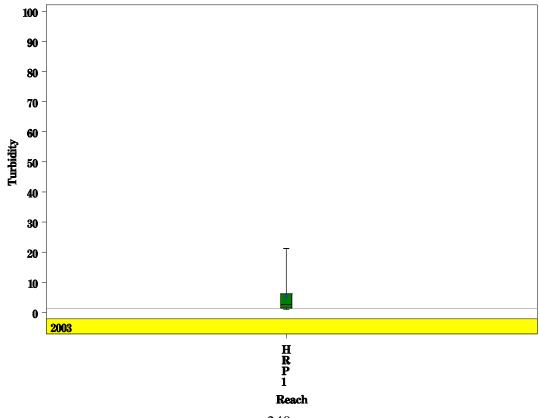


Data Summary Graphs – <u>Total Suspended Solids</u> and <u>Turbidity</u> (Downstream to Upstream by Year)

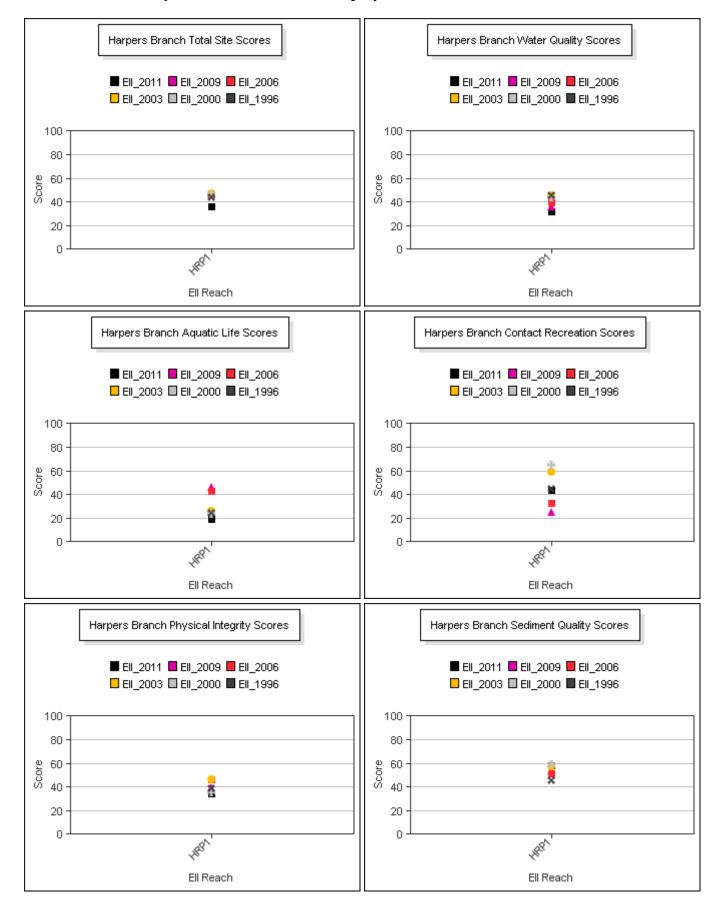
Parameter = TOTAL SUSPENDED SOLIDS Unit = MG/L Watershed = Harper's Branch



Parameter=TURBIDITY Unit=NTU Watershed=Harper's Branch



Score Summary – Reach scores for each sample year



Site Photographs





844_t00-us-02_16_2001

844_t00-ds-02_16_2001







844_t00-ds-03_11_2003

844_t00-us-03_11_2003





844_t00-us-07_12_2006

844_t00-us1-07_12_2006

Harpers Branch Watershed Site Photographs





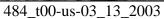
844-t00-us-05-29-2009

844-t00-ds-05-29-2009



484_t00-ur-03_13_2003







484_t00-ds-03_13_2003

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