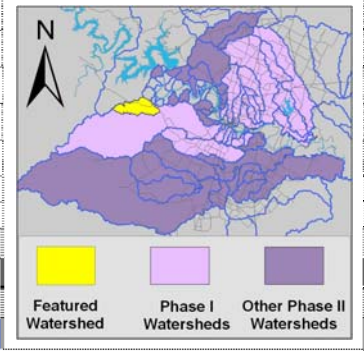


Little Barton Creek Watershed

Watershed Overview

Catchment	Total area	11.4 sq. miles						
	Area in recharge	none						
	Creek length	10 miles						
Demographics	Receiving water	Barton Creek						
	2000 population	459						
	2030 projected population	4,076						
Land Use	30 year projected % increase	788 %						
	Impervious cover (2003 estimate)	4.1 %						
	Impervious cover (2013 estimate)	9.5 %						
Overall EII Scores	2001	2004	2007	2010	2012	2014	2016	
	82	76	77	89	82	82	85	



Flow Regime* for Sample Sites on Little Barton Creek

Site	1999		2001				2004				2007				2010				2011				2012				2014				2016									
	Jan	Jan	Mar	Mar	Jun	Sep	Dec	Mar	May	May	Jun	Oct	Dec	Feb	May	Jun	Sep	Dec	Mar	May	May	Oct	Dec	Mar	May	Jul	Sep	Jan	Apr	May	Jun	Jul	Sep	Jan	Apr	May	Jun	Jul	Sep	
1115	B	B	B	B	B	n	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	n	n	B	B	n		B	n	B	B	B		B	B	
1114	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	n	B	B	n		B	n	B	B	B		B	B	
77	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B		B	B	B

* B = baseflow n = no flow S = storm flow blue = Samples were taken light blue = Samples were not taken blank = not visited

Index scores* for Little Barton Creek Sites by Year

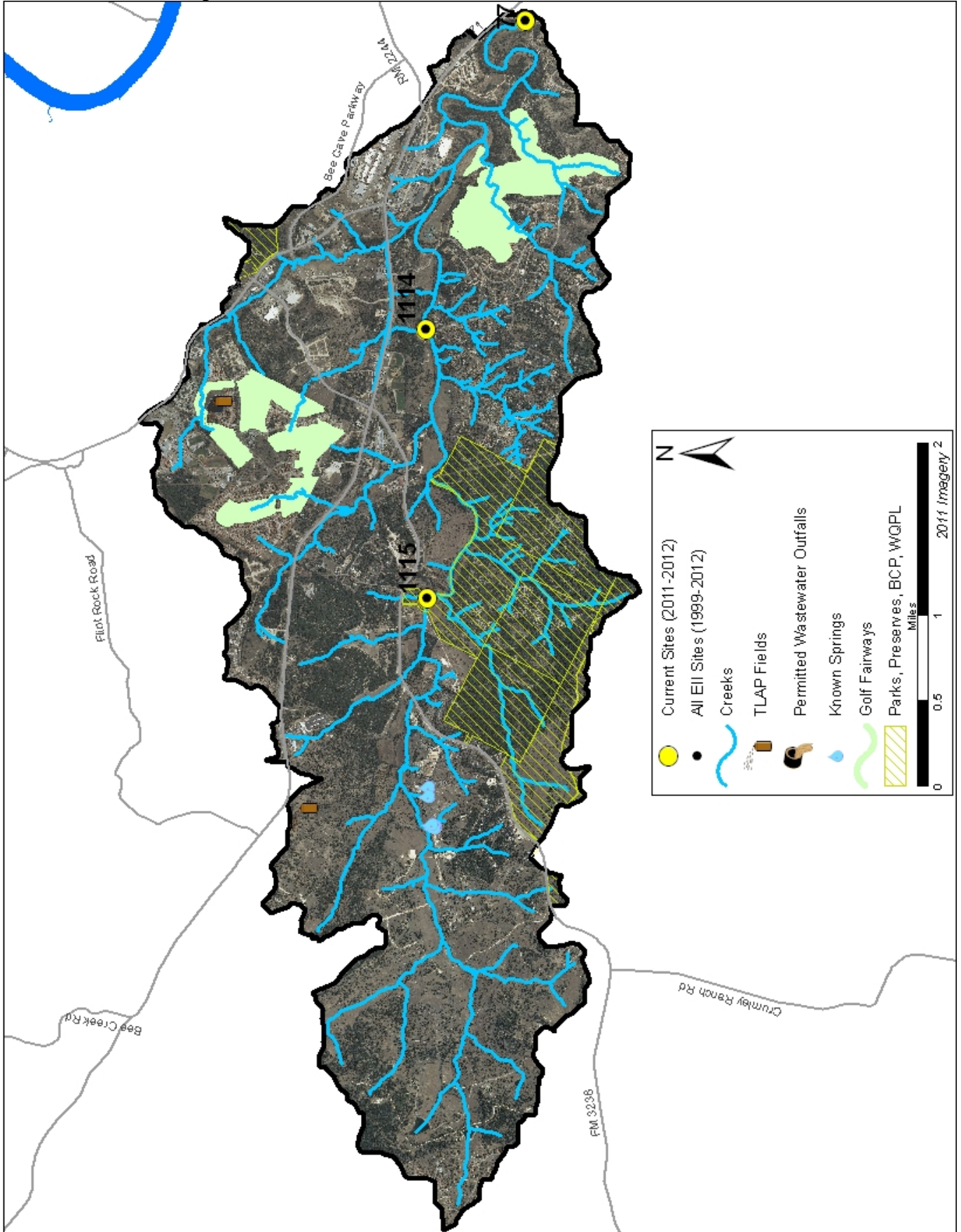
Reach	Site	Site Name	Year	Water Quality	Sediment**	Contact Rec.	Non-Contact Rec.	Physical Integrity	Aquatic Life	Benthic subindex	Diatom subindex	Total EII Score
LBA1	77	Little Barton Creek @ Barton Creek	1998	78	95	95	95	73	87	77	96	87
LBA2	1114	Little Barton Creek @ Great Divide Dr	1998	76	95	92	89	89	76	61	91	86
LBA3	1115	Little Barton Creek @ Hamilton Pool Rd	1998	81	95	97	86	81	75	67	82	86
LBA1	77	Little Barton Creek @ Barton Creek	2001	64	92	87	81	71	73	73	72	74
LBA2	1114	Little Barton Creek @ Great Divide Dr	2001	68	92	94	98	89	71	61	81	81
LBA3	1115	Little Barton Creek @ Hamilton Pool Rd	2001	68	92	93	88	83	70	61	79	78
LBA1	77	Little Barton Creek @ Barton Creek	2004	73	90	63	86	66	92	89	95	78
LBA2	1114	Little Barton Creek @ Great Divide Dr	2004	63	90	47	92	73	93	94	92	76
LBA3	1115	Little Barton Creek @ Hamilton Pool Rd	2004	66	90	45	84	64	84	79	89	72
LBA1	77	Little Barton Creek @ Barton Creek	2007	72	85	82	94	78	71	71		80
LBA2	1114	Little Barton Creek @ Great Divide Dr	2007	66	85	66	94	81	70	79	60	77
LBA3	1115	Little Barton Creek @ Hamilton Pool Rd	2007	67	85	58	88	75	60	82	57	72
LBA1	77	Little Barton Creek @ Barton Creek	2010	79	85	97	100	76	96	99	92	89
LBA2	1114	Little Barton Creek @ Great Divide Dr	2010	78	85	86	100	86	94	100	88	88
LBA3	1115	Little Barton Creek @ Hamilton Pool Rd	2010	84	85	94	98	93	83	90	76	90
LBA1	77	Little Barton Creek @ Barton Creek	2012	71	87	92	88	75	100	100	100	86
LBA2	1114	Little Barton Creek @ Great Divide Dr	2012	59	87	67	72	88	97	100	94	78
LBA3	1115	Little Barton Creek @ Hamilton Pool Rd	2012	60	87	75	91	83	94	90	98	82
LBA1	77	Little Barton Creek @ Barton Creek	2014	73	84	89	83	85	99	100	97	86
LBA2	1114	Little Barton Creek @ Great Divide Dr	2014	58	84	77	83	84	95	100	90	80
LBA3	1115	Little Barton Creek @ Hamilton Pool Rd	2014	68	84	75	78	82	89	92	86	79
LBA1	77	Little Barton Creek @ Barton Creek	2016	72	84	88	97	81	96	100	92	86
LBA2	1114	Little Barton Creek @ Great Divide Dr	2016	70	84	52	97	93	97	99	95	82
LBA3	1115	Little Barton Creek @ Hamilton Pool Rd	2016	76	84	91	96	89	86	80	91	87

* 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 12.5-0 V. Bad

Little Barton Creek Watershed

Aerial Map



Little Barton Creek Watershed

Water Quality Data – Temperature, Conductivity, pH, Dissolved Oxygen & E. coli for 2016 Sample Sites (Downstream to Upstream)

Qualifiers to the left of the value	>	Greater than	Qualifiers to the right of the value	(blank)	Useable
	<	Less than		S	Exceeds standard range
	<J	Less than detected limit		R	Rejected, failed QC
	J	Estimated			

Watershed	Site	EII Reach	Date	Temp. flag	Cond. flag	pH flag	D.O. flag	E. Coli flag
Little Barton	77	LBA1	01/12/2016	12.2	713	7.99	11.3	20.1
Little Barton	77	LBA1	04/12/2016	20.8	710	8.07	9.2	7.5
Little Barton	77	LBA1	06/22/2016	28.1	624	7.99	8.8	
Little Barton	77	LBA1	07/12/2016	27.7	626	8.05	7.9	17.5
Little Barton	77	LBA1	09/13/2016	26.0	644	8.05	9.1	33.1
LBA1 Mean				23.0	663	8.03	9.2	19.5
Little Barton	1114	LBA2	01/12/2016	10.6	695	7.60	10.3	143.9
Little Barton	1114	LBA2	04/12/2016	20.0	681	7.71	7.5	80.9
Little Barton	1114	LBA2	06/22/2016	22.5	711	7.37	6.2	
Little Barton	1114	LBA2	07/12/2016	27.6	599	7.63	5.8	22.8
Little Barton	1114	LBA2	09/13/2016	25.0	633	7.63	7.2	1119.9
LBA2 Mean				21.1	664	7.59	7.4	341.9
Little Barton	1115	LBA3	01/12/2016	10.9	668	7.96	11.0	18.1
Little Barton	1115	LBA3	04/12/2016	19.5	662	7.93	8.9	16.0
Little Barton	1115	LBA3	06/22/2016	23.8	657	7.96	9.3	
Little Barton	1115	LBA3	07/12/2016	27.6	606	7.89	7.5	5.1
Little Barton	1115	LBA3	09/13/2016	26.1	623	7.92	8.4	23.1
LBA3 Mean				21.6	643	7.93	9.0	15.6
Little Barton Mean				21.9	657	7.85	8.5	125.7

Gray highlighting indicates that the value exceeds one standard deviation from the mean of all E.I.I. sites combined.

Summary Statistics for all 2015-2016 E.I.I. Sites Combined					
Parameter	2015-2016 Average	2015-2016 Minimum	2015-2016 Maximum	1 Standard Deviation Above	1 Standard Deviation Below
Temperature (C°)	20.7	5.8	34.2	27.5	
Conductivity (uS/cm)	722	160	3549	955	
pH (Standard units)	7.86	5.85	10.25	8.24	7.47
D.O. (mg/l)	7.9	0.1	18.7	10.4	5.5
E. Coli (col/100ml)	316.1	1.0	2420.0	883.7	

Little Barton Creek Watershed

Water Quality Data – Ammonia, Nitrate / Nitrite, Ortho-Phosphorus, Total Suspended Solids & Turbidity for 2016 Sample Sites (Downstream to Upstream)

Qualifiers to the left of the value	>	Greater than	Qualifiers to the right of the value	(blank)	Useable
	<	Less than		S	Exceeds standard range
	<J	Less than detected limit		R	Rejected, failed QC
	J	Estimated			

Watershed	Site	EII Reach	Date	NH3-N		NO3/NO2		Ortho-P		T.S.S		Turb.		
				<	flag	<>	flag	<>	flag	<>	flag	<>	flag	
Little Barton	77	LBA1	01/12/2016	<J	0.008		0.53	<J	0.004	<J	1.0		1.1	R
Little Barton	77	LBA1	04/12/2016	<J	0.008		0.26	<J	0.004	<J	1.0		2.0	
Little Barton	77	LBA1	06/22/2016											
Little Barton	77	LBA1	07/12/2016	<J	0.008		0.46	<J	0.004	<J	1.0		1.0	R
Little Barton	77	LBA1	09/13/2016	<J	0.008		0.27	<J	0.004	<J	1.1		1.7	
LBA1 Mean					0.008		0.38		0.004		1.0		1.4	
Little Barton	1114	LBA2	01/12/2016	<J	0.008		0.42	<J	0.004	<J	1.0		0.6	R
Little Barton	1114	LBA2	04/12/2016	<J	0.008		0.12	<J	0.004	<J	1.1		0.9	
Little Barton	1114	LBA2	06/22/2016											
Little Barton	1114	LBA2	07/12/2016	<J	0.008		0.09	<J	0.004	<J	1.0		4.8	R
Little Barton	1114	LBA2	09/13/2016	<J	0.008		0.13	<J	0.004	<J	1.0		1.0	
LBA2 Mean					0.008		0.19		0.004		1.0		1.8	
Little Barton	1115	LBA3	01/12/2016	<J	0.008		0.40	<J	0.004	<J	1.0		0.9	R
Little Barton	1115	LBA3	04/12/2016	<J	0.008		0.06	<J	0.004		2.1		1.3	
Little Barton	1115	LBA3	06/22/2016											
Little Barton	1115	LBA3	07/12/2016		0.020		0.03	<J	0.004		4.0		2.2	R
Little Barton	1115	LBA3	09/13/2016	<J	0.008		0.08	<J	0.004		1.8		1.8	
LBA3 Mean					0.011		0.14		0.004		2.2		1.5	
Little Barton Mean					0.009		0.24		0.004		1.4		1.6	

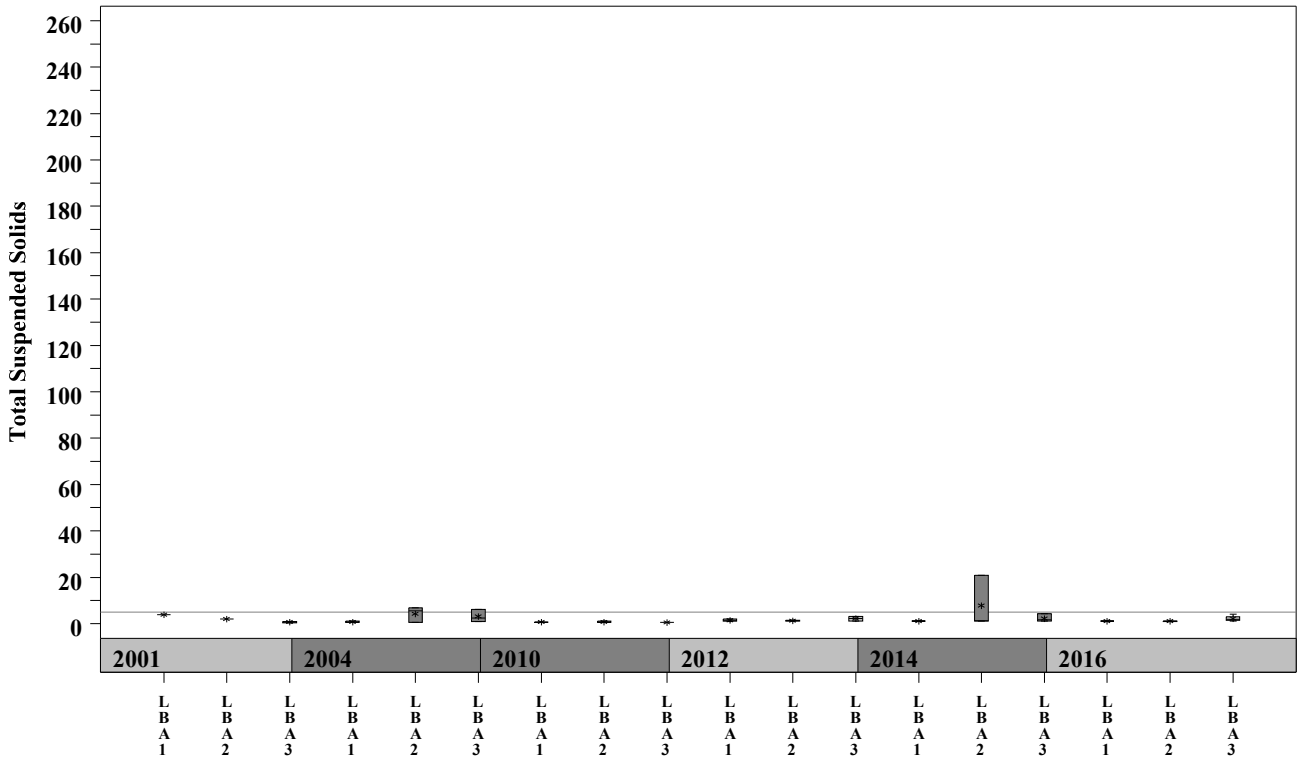
Gray highlighting indicates that the value exceeds one standard deviation from the mean of all E.I.I. sites combined.

Summary Statistics for all 2015-2016 E.I.I. Sites Combined				
Parameter	2015-2016 Average	2015-2016 Minimum	2015-2016 Maximum	1 Standard Deviation Above
Temperature (C°)	20.7	5.8	34.2	0.085
Conductivity (uS/cm)	722	160	3549	3.16
pH (Standard units)	7.86	5.85	10.25	0.08
D.O. (mg/l)	7.9	0.1	18.7	9.7
<i>E. Coli</i> (col/100ml)	316.1	1.0	2420.0	11.7

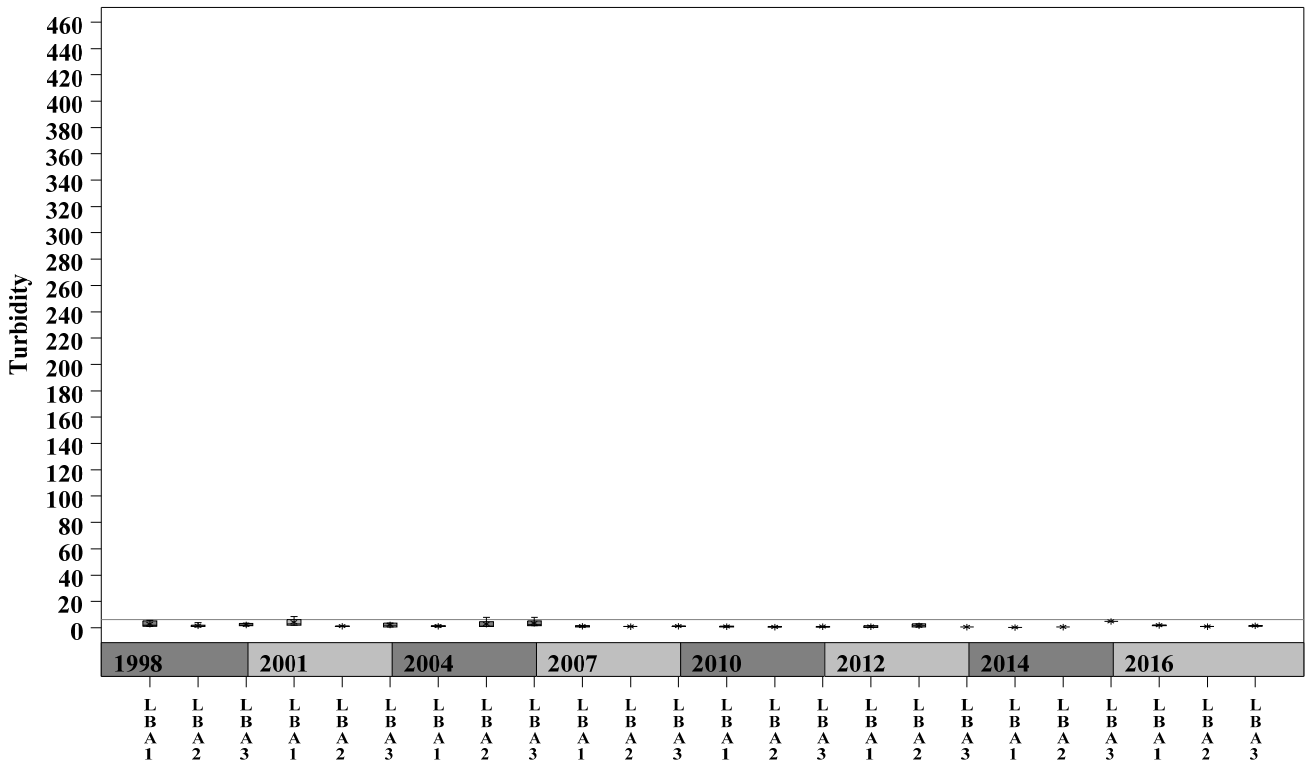
Little Barton Creek Watershed

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

Parameter=TOTAL SUSPENDEED SOLIDS Unit=mg/L Watershed=Little Barton



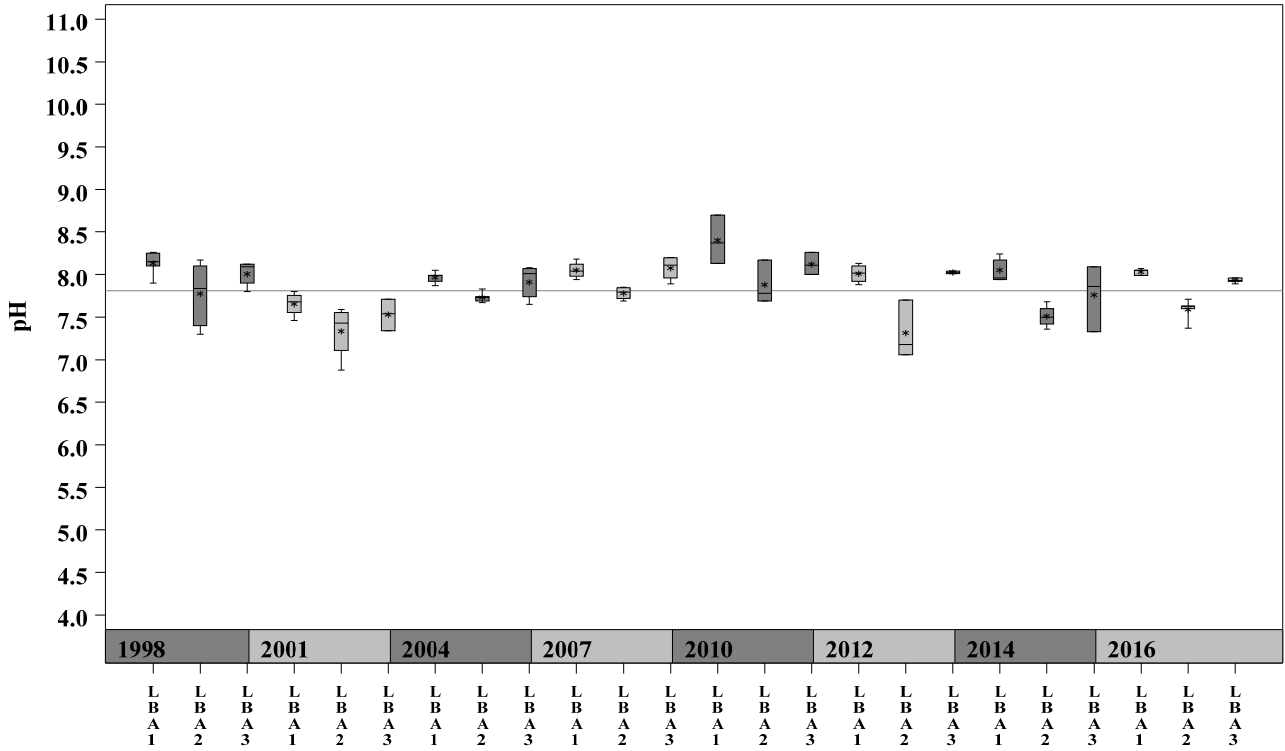
Parameter=TURBIDITY Unit=NTU Watershed=Little Barton



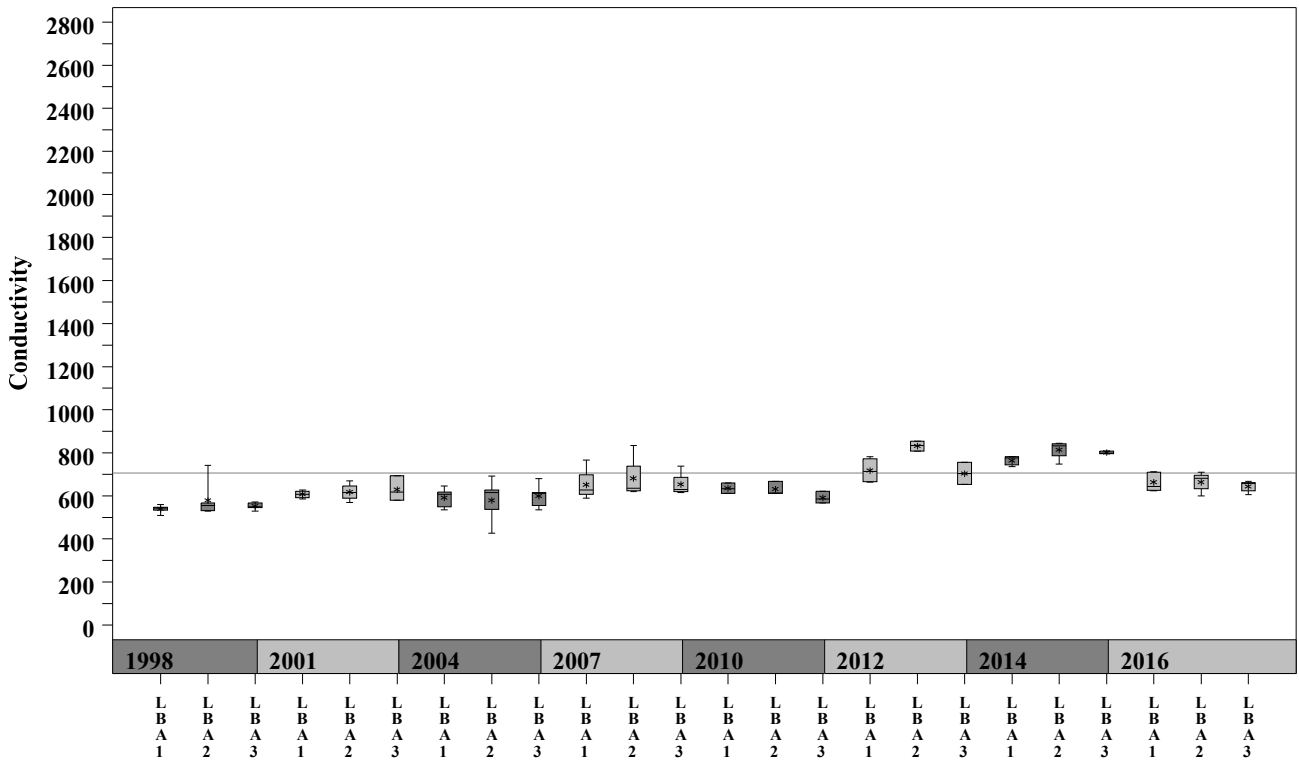
Little Barton Creek Watershed

Data Summary Graphs – pH and Conductivity (Downstream to Upstream by Year)

Parameter = pH Unit = Standard Units Watershed = Little Barton



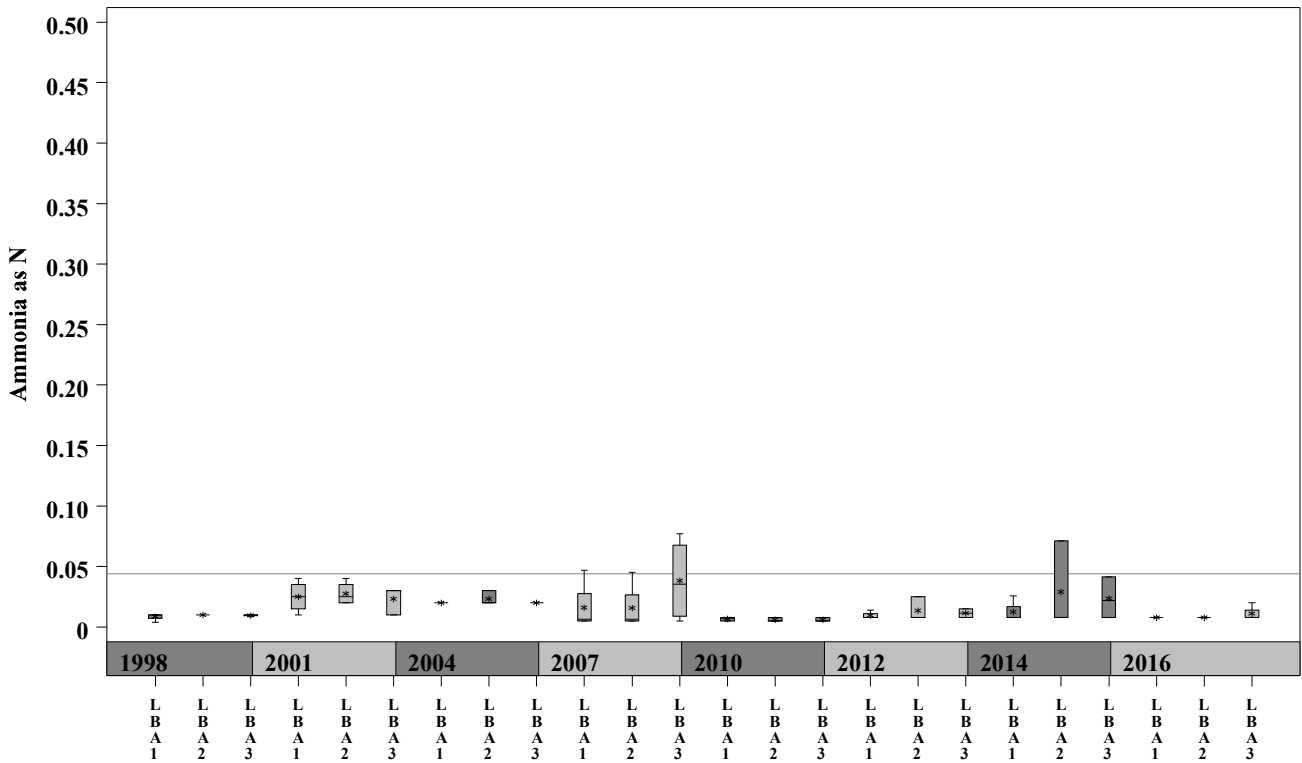
Parameter = CONDUCTIVITY Unit = uS/cm Watershed = Little Barton



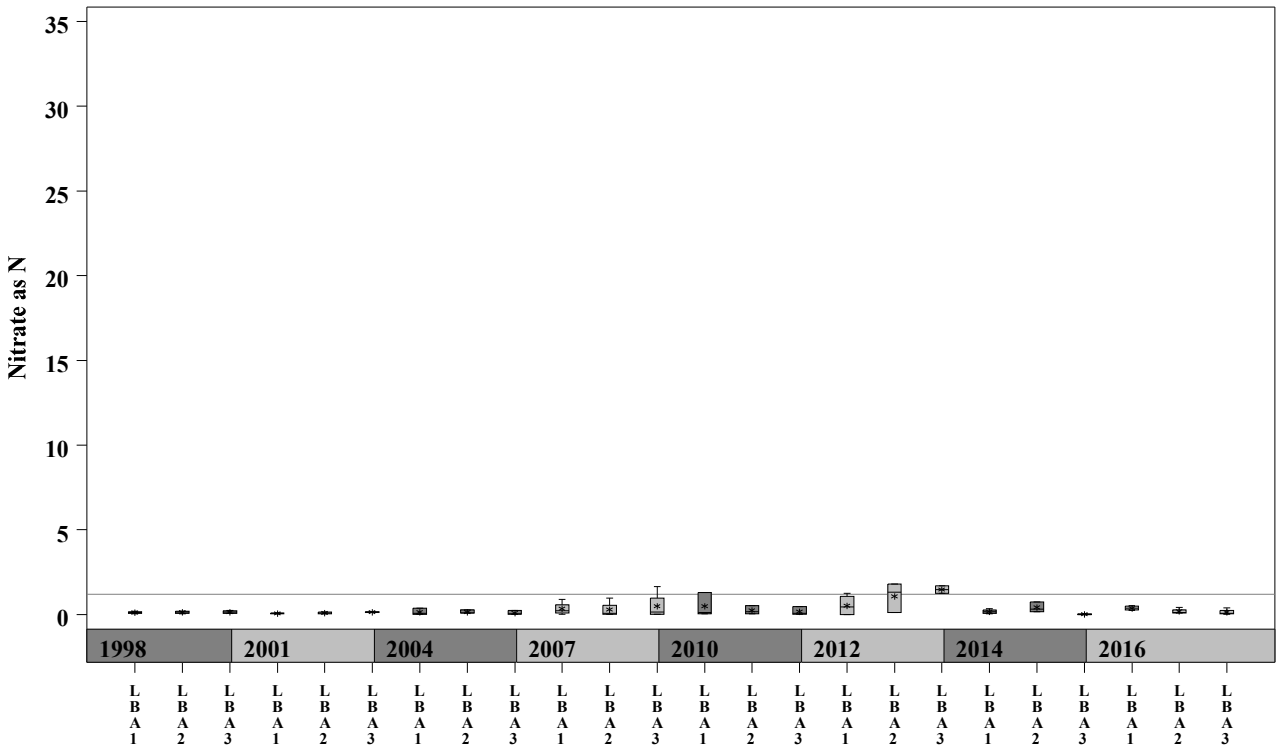
Little Barton Creek Watershed

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

Parameter=AMMONIA AS N Unit=mg/L Watershed=Little Barton



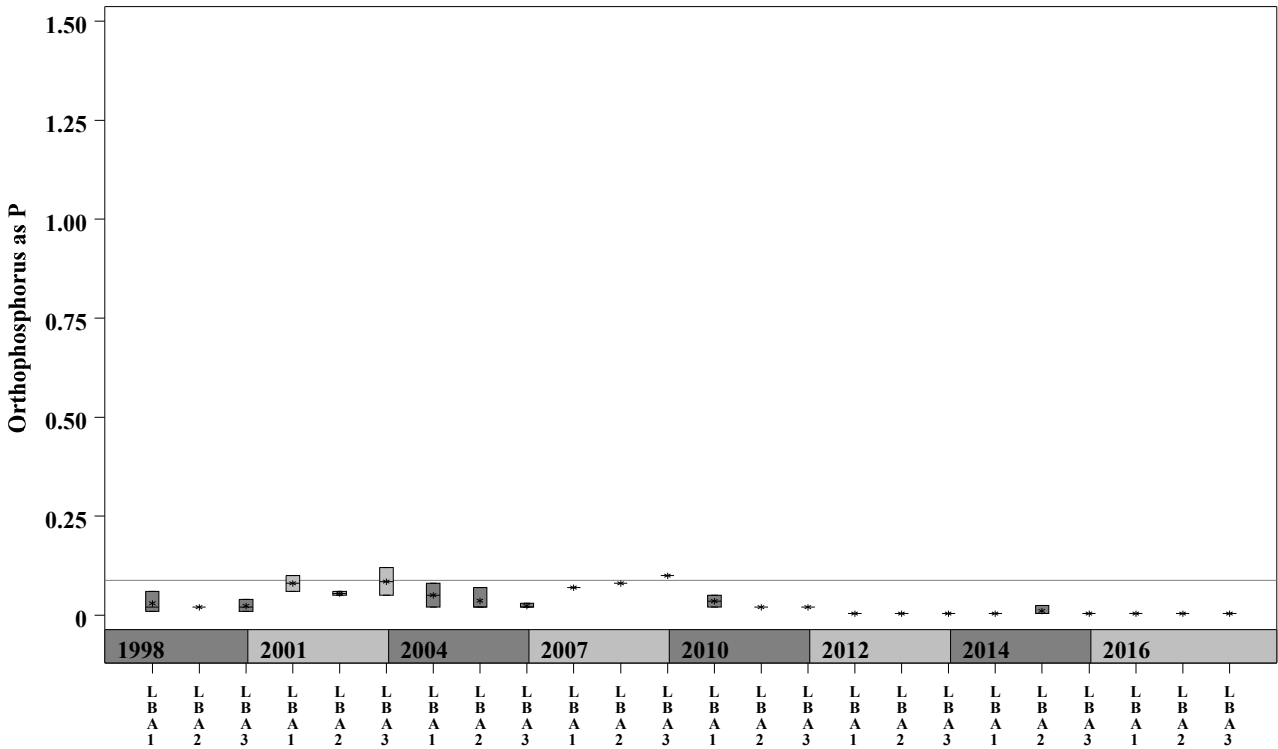
Parameter=NITRATE AS N Unit=mg/L Watershed=Little Barton



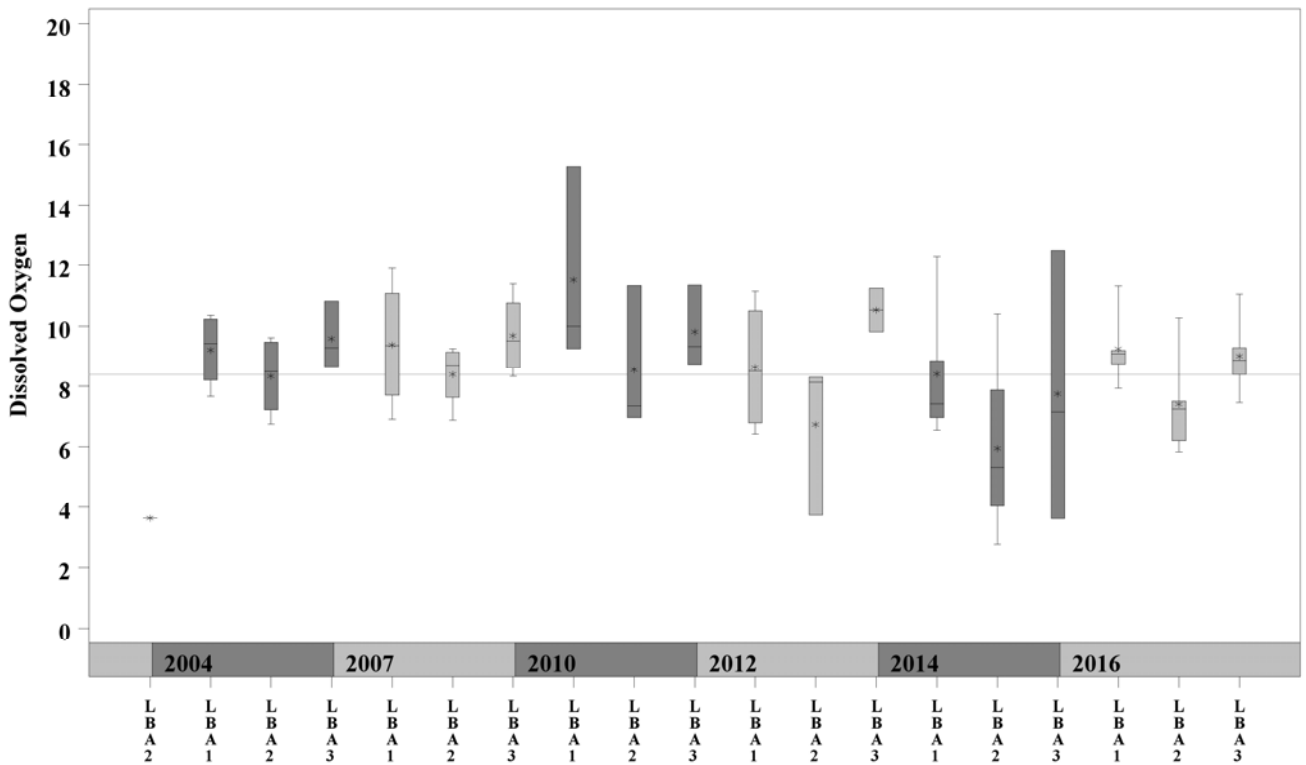
Little Barton Creek Watershed

Data Summary Graphs – Orthophosphate and Dissolved Oxygen (Downstream to Upstream by Year)

Parameter=ORTHOPHOSPHORUS AS P Unit=mg/L Watershed=Little Barton



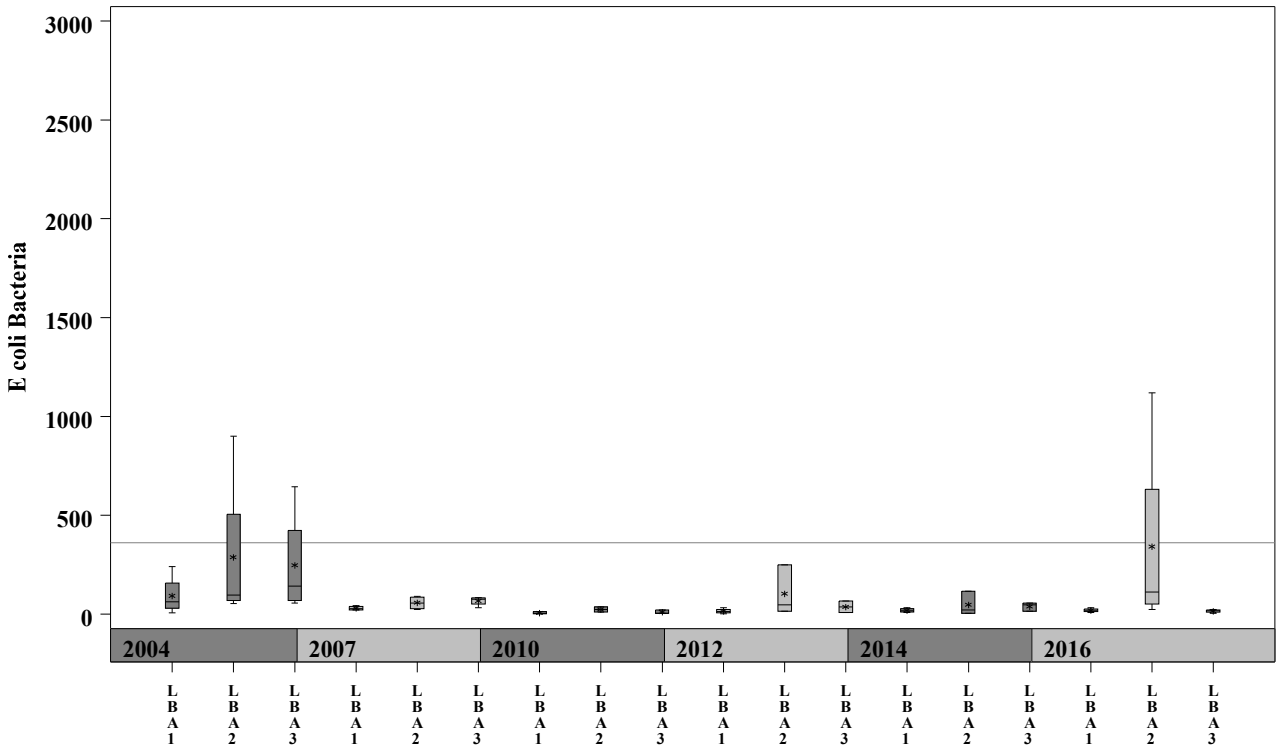
Parameter= DISSOLVED OXYGEN Unit= mg/L Watershed= Little Barton



Little Barton Creek Watershed

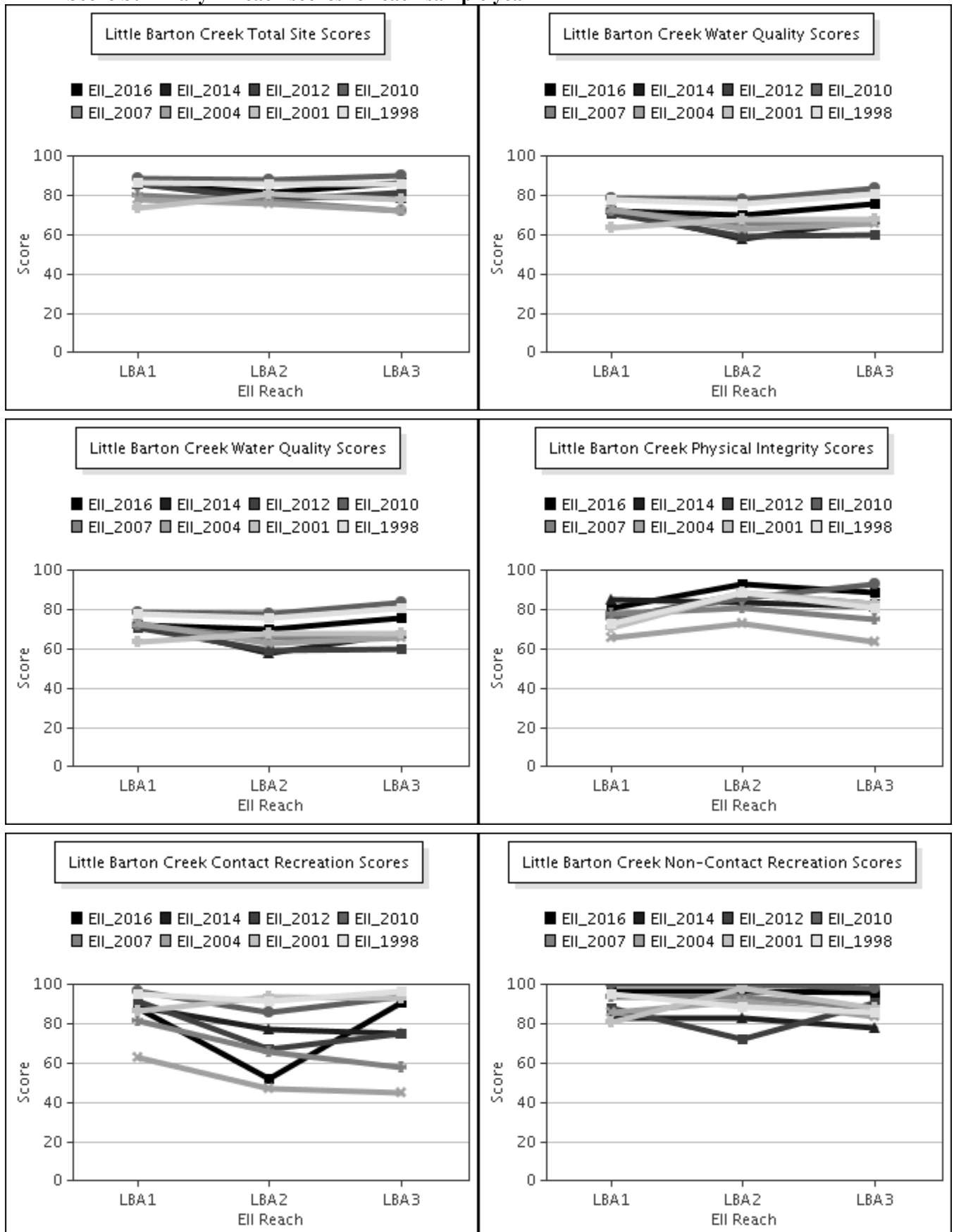
Data Summary Graphs – *E.coli* (Downstream to Upstream by Year)

Parameter = E COLI BACTERIA Unit = MPN/100mL Watershed = Little Barton



Little Barton Creek Watershed

Score Summary – Reach scores for each sample year



Little Barton Creek Watershed

Benthic Macroinvertebrates – Taxa List, Pollution Tolerance Index & Functional Feeding Group for 2016 Sample Sites (Downstream to Upstream)

Benthic Macroinvertebrates - Little Barton Creek			LBA @ Hamilton Pool (1115) 05/09/2016 (WRE)	LBA @ Great Divide (1114) 05/09/2016 (WRE)	LBA @ BAR (77) 06/22/2016 (WRE)
Benthic Macroinvertebrate ID	PTI	FFG			
Perlesta	0	P		4	
Erpetogomphus	1	P	1		
Chimarra	2	FC	14	21	23
Helicopsyche	2	SC		3	
Hexacylopeus Ferrugineus	2	CG,SC			1
Hydroptila	2	PI,SC	1	8	
Microcylopeus Pusillus	2	CG,SC		5	18
Isonychia	3	FC			3
Neotrichia	3	SC			2
Baetodes	4	SC		1	14
Camelobaetidiidus	4	CG		28	4
Fallceon	4	CG,SC	4	158	5
Mayatrichia	4	SC			2
Simulium	4	FC	57	11	14
Smicridea	4	FC			5
Aquarius	5	P			1
Petrophila (Moth)	5	SC		2	
Argia	6	P	9	5	1
Cheumatopsyche	6	FC	42	36	33
Chironomidae	6	FC,P	3	11	7
Hemerodromia	6	CG,P		1	
Hydracarina	6		1	2	3
Rhagovelia	6	P			2
Stenonema Femoratum	6	CG,SC	3	1	
Tanypodinae	6	P		4	
Caenis	7	CG,SC		1	
Helisoma Anceps	7	SC	1	1	
Stenelmis	7	CG,SC		3	
Caloparyphus/Euparyphus	8	CG,SC		1	1
Hirudinea	8	P	1		
Hyaella	8	CG,SH		16	
Oligochaeta	8	CG			2
Berosus	9	CG		1	
Dugesia		CG,P		5	2
Metrobates		P			1
Staphylinidae		P			1

Little Barton Creek Watershed

Site Photographs



1115_00-us-05_24_2010



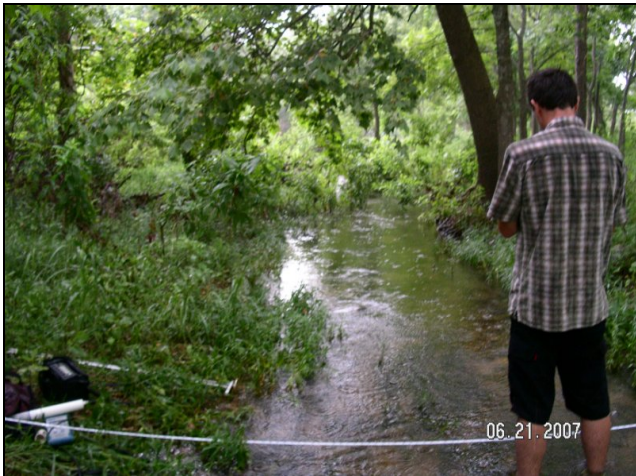
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1115_ds_06_21_2007



1114_t00-ur-05_19_2004



1114_us_06_21_2007



1114_00-ur-05_24_2010

Little Barton Creek Watershed

Site Photographs



77-panC-03_04_2010



77_00-us-05_24_2010



77_00-ds-05_24_2010



77_t00-us-05_19_2004



77_t00-ds-05_19_2004