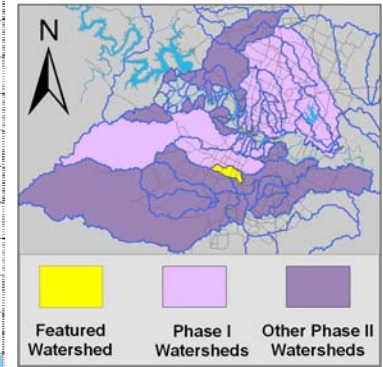


South Boggy Watershed

Watershed Overview

Catchment	Total area	4.8 sq. miles					
	Area in recharge	0					
	Creek length	7 miles					
	Receiving water	Onion Creek					
Demographics	2000 population	16,002					
	2030 projected population	18,721					
	30 year projected % increase	17 %					
Land Use	Impervious cover (2003 estimate)	19.9 %					
	Impervious cover (2013 estimate)	30.5 %					
Overall EII Scores	2001	2004	2007	2010	2012	2014	2016
	66	61	66	71	61	59	71



Flow Regime* for Sample Sites on South Boggy 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	Apr	May	Jul	Sep	Jan	Apr	May	Jul	Sep	Jan	Apr	May	Jul	Sep		
1080	B	B	B	S	n	B	B																																	
1081	B	B	B	S	n	B	B	B	B	B	n	B	B	B	B	B	n	B	B	B	B	B	B	B	B	n	n	n	B	n	B	B	B	n	B	B	B	B	B	
227	B	B	B	S	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	n	n	n	B	B	n	B	n	B	B	B	B	n	B	
3294							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

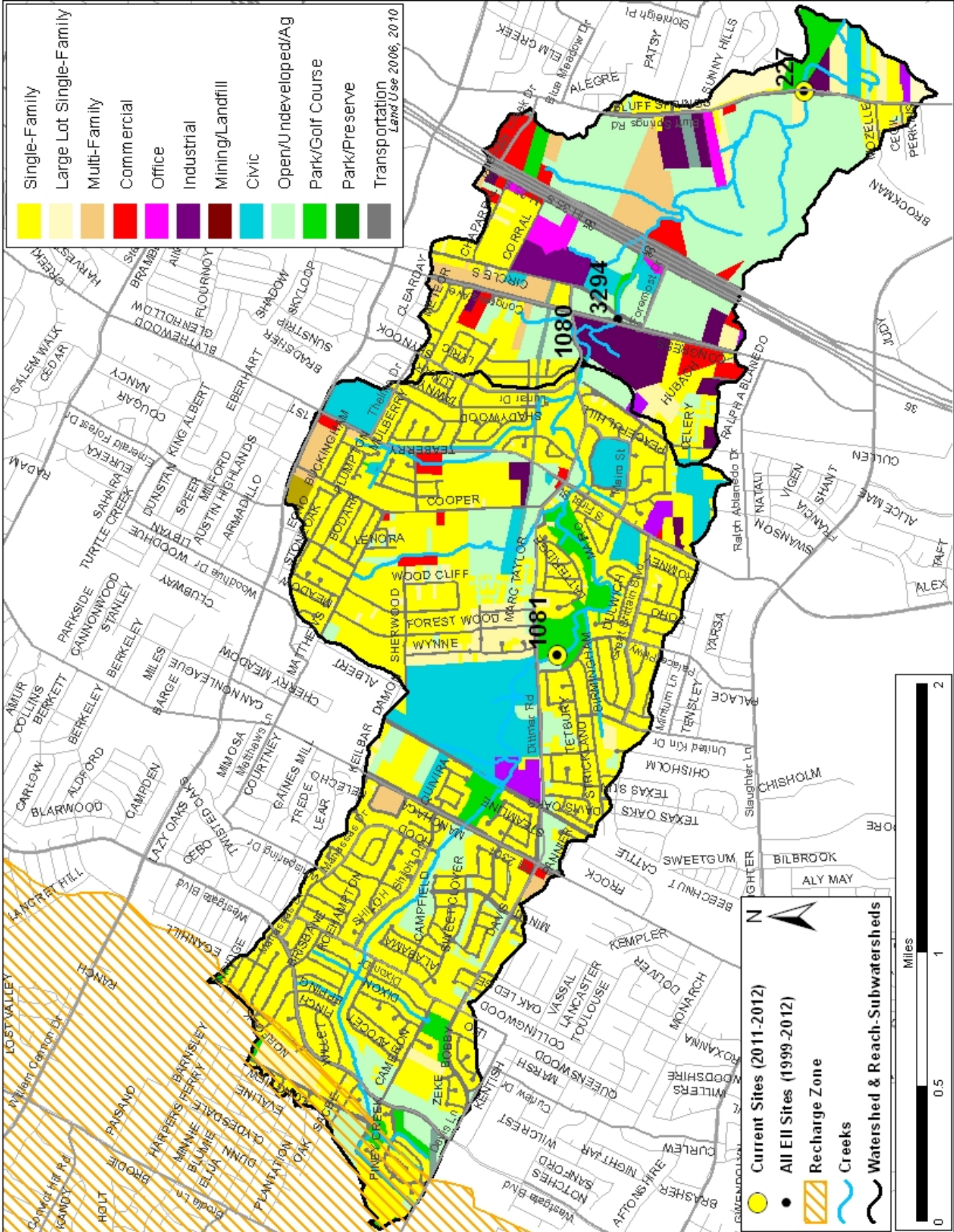
Index scores* for South Boggy Creek Sites by Year

Reach	Site	Site Name	Year	Water Quality	Sediment**	Contact Rec.	Non-Contact Rec.	Physical Integrity	Aquatic Life	Benthic subindex	Diatom subindex	Total EII Score
SBG1	227	South Boggy Creek @ Bluff Springs Road (BO1)	1998	55	73	50	73	63	41	46	26	59
SBG2	1080	South Boggy Creek @ Loganberry Drive	1998	49	73	48	74	68	53	63	43	61
SBG2	1081	South Boggy Creek @ W. Dittmar Rd	1998	52	73	78	76	53	32	46	18	61
SBG1	227	South Boggy Creek @ Bluff Springs Road (BO1)	2001	66	92	78	83	56	37	45	26	66
SBG2	1080	South Boggy Creek @ Loganberry Drive	2001	42	92	42	87	73	32	45	18	58
SBG2	1081	South Boggy Creek @ W. Dittmar Rd	2001	53	92	88	83	61	39	30	48	66
SBG1	227	South Boggy Creek @ Bluff Springs Road (BO1)	2004	73	72	55	77	70	58	53	63	68
SBG1	3294	South Boggy @ Congress Ave	2004	61	72	36	67	61	59	31	87	59
SBG2	1081	South Boggy Creek @ W. Dittmar Rd	2004	45	72	38	73	57	48	27	68	56
SBG1	227	South Boggy Creek @ Bluff Springs Road (BO1)	2007	63	72	59	77	59	66	68	64	66
SBG2	1081	South Boggy Creek @ W. Dittmar Rd	2007	59	72	49	78	58	71	67	74	65
SBG1	227	South Boggy Creek @ Bluff Springs Road (BO1)	2010	73	77	57	82	80	70	69	70	73
SBG2	1081	South Boggy Creek @ W. Dittmar Rd	2010	67	77	58	88	51	67	68	66	68
SBG1	227	South Boggy Creek @ Bluff Springs Road (BO1)	2012	69	71	47	54	68	64	83	44	62
SBG2	1081	South Boggy Creek @ W. Dittmar Rd	2012	57	71	40	78	59	49	61	37	59
SBG1	227	South Boggy Creek @ Bluff Springs Road (BO1)	2014	75	65	70	69	65	49	26	71	66
SBG2	1081	South Boggy Creek @ W. Dittmar Rd	2014	55	65	26	73	49	45	27	63	53
SBG1	227	South Boggy Creek @ Bluff Springs Road (BO1)	2016	75	80	75	83	71	87	92	82	79
SBG2	1081	South Boggy Creek @ W. Dittmar Rd	2016	57	80	33	83	69	62	55	69	64

* 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

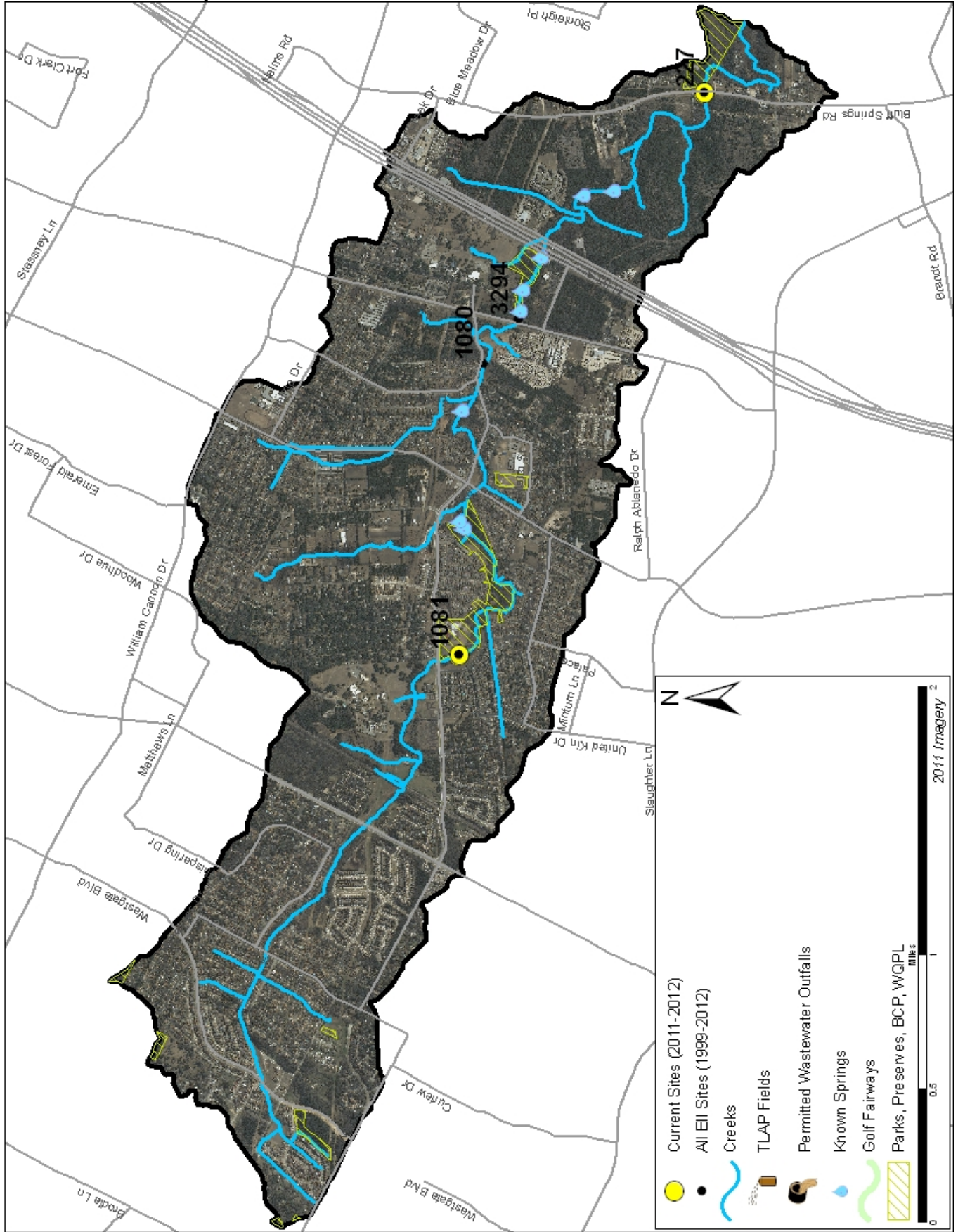
South Boggy Watershed

Land Use Map



South Boggy Watershed

Aerial Map



South Boggy 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
South Boggy	227	SGB1	01/12/2016	7.16	706	7.97	11.2 R	19.7
South Boggy	227	SGB1	04/12/2016	21.6	626	7.50	3.5	23.8
South Boggy	227	SGB1	05/10/2016	24.8	676	7.89	8.7 R	
South Boggy	227	SGB1	09/13/2016	25.7	560	7.59	4.0	71.7
SGB1 Mean				19.8	642	7.74	6.8	38.4
South Boggy	1081	SGB2	01/12/2016	10.9	734	7.45	7.4 R	79.8
South Boggy	1081	SGB2	05/13/2016	22.7	381	7.38	5.7	
South Boggy	1081	SGB2	07/12/2016	25.2	814	7.58	4.2 R	816.4
South Boggy	1081	SGB2	09/13/2016	23.8	748	7.35	4.3	980.4
SGB2 Mean				20.6	669	7.44	5.4	625.5
South Boggy Mean				20.2	656	7.59	6.1	332.0

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
<i>E. Coli</i> (col/100ml)	316.1	1.0	2420.0	883.7	

South Boggy 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	
South Boggy	227	SGB1	01/12/2016	<J	0.008		0.62	<J	0.004	<J	1.1		0.6	R
South Boggy	227	SGB1	04/12/2016	<J	0.008		0.05	<J	0.004	<J	1.0		0.4	
South Boggy	227	SGB1	05/10/2016											
South Boggy	227	SGB1	09/13/2016	<J	0.008		0.02	<J	0.004		2.2		5.9	
SGB1 Mean					0.008		0.23		0.004		1.4		2.3	
South Boggy	1081	SGB2	01/12/2016	<J	0.008		0.79	<J	0.004	<J	1.0		1.0	R
South Boggy	1081	SGB2	05/13/2016											
South Boggy	1081	SGB2	07/12/2016	<J	0.008	<J	0.01	<J	0.004	<J	1.0		4.1	R
South Boggy	1081	SGB2	09/13/2016	<J	0.008		0.17		0.027		34.2		2.8	
SGB2 Mean					0.008		0.32		0.012		12.1		2.6	
South Boggy Mean					0.008		0.28		0.008		6.8		2.4	

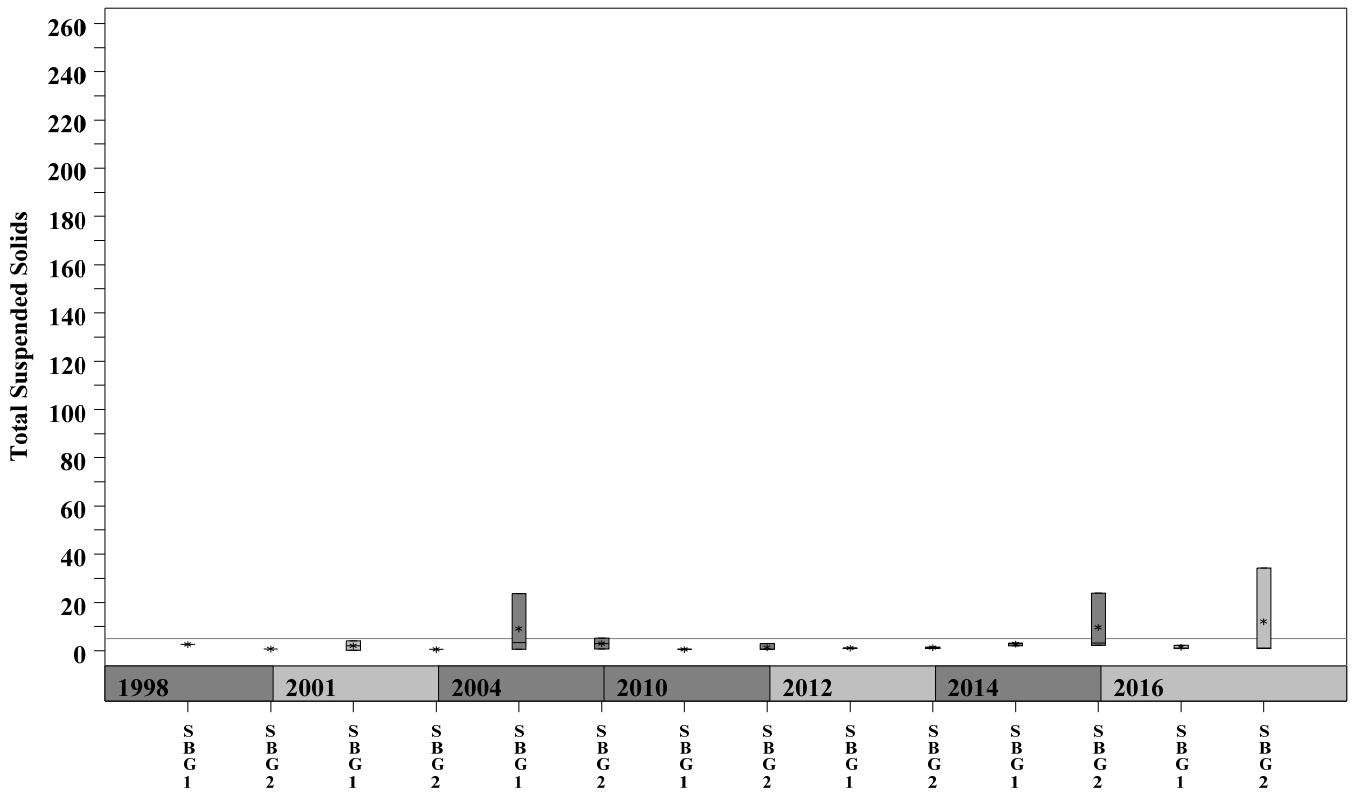
Gray highlighting indicates that the value exceeds one standard deviation from the mean of all E.I.I. sites combined.

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
NH3-N (mg/l)	0.018	0.008	0.881	0.085
NO3-N (mg/l)	1.14	0.01	12.0	3.16
Ortho-P (mg/l)	0.016	0.004	0.661	0.08
T.S.S. (mg/l)	3.7	1.0	58.2	9.7
Turbidity (NTU)	4.4	0.2	98.6	11.7

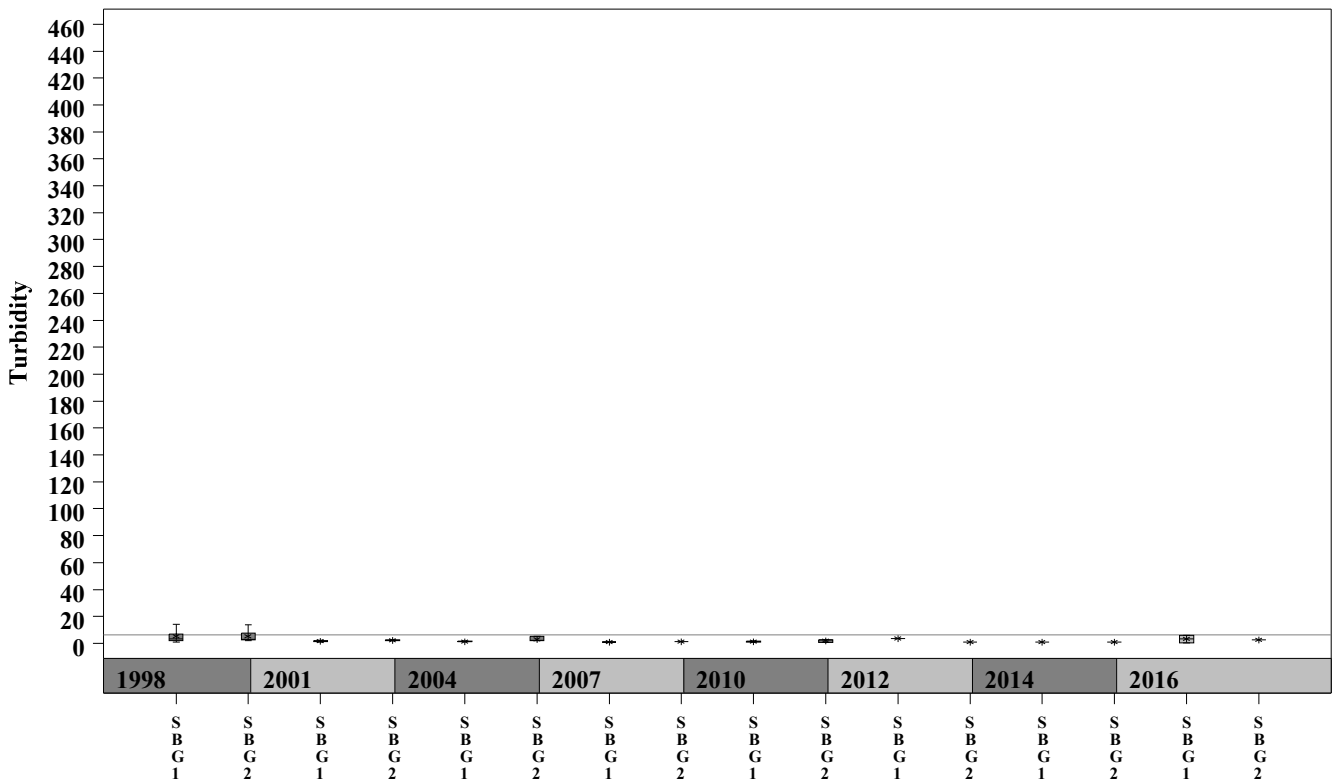
South Boggy Watershed

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

Parameter=TOTAL SUSPENDED SOLIDS Unit=mg/L Watershed=South Boggy



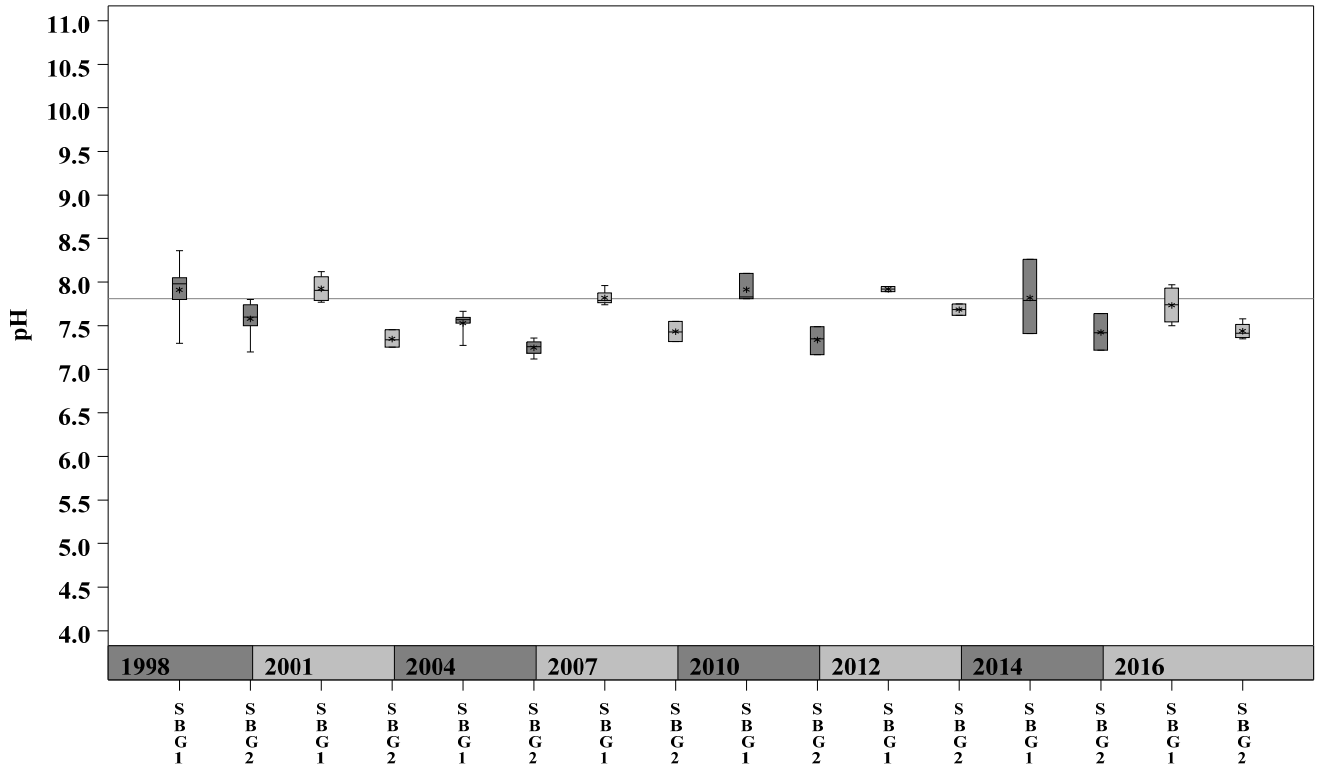
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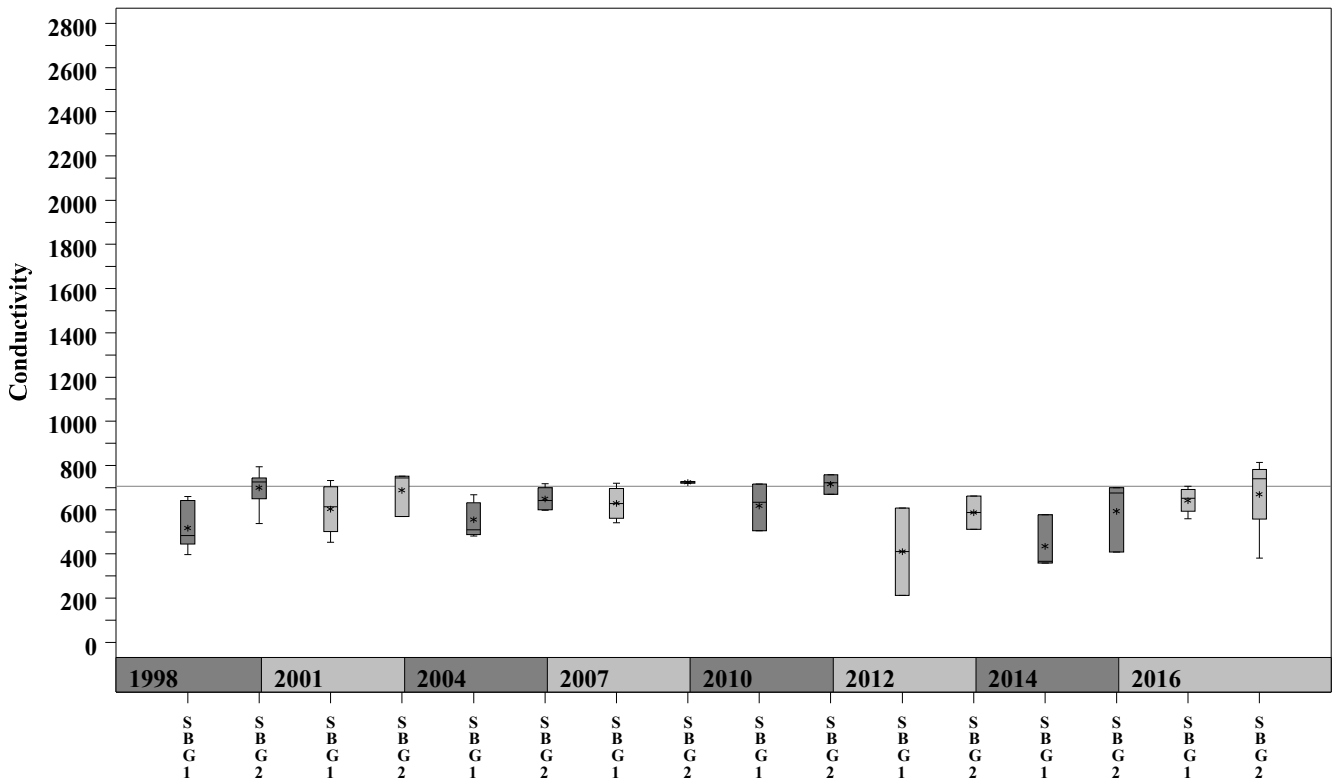
South Boggy Watershed

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

Parameter = pH Unit = Standard Units Watershed = South Boggy



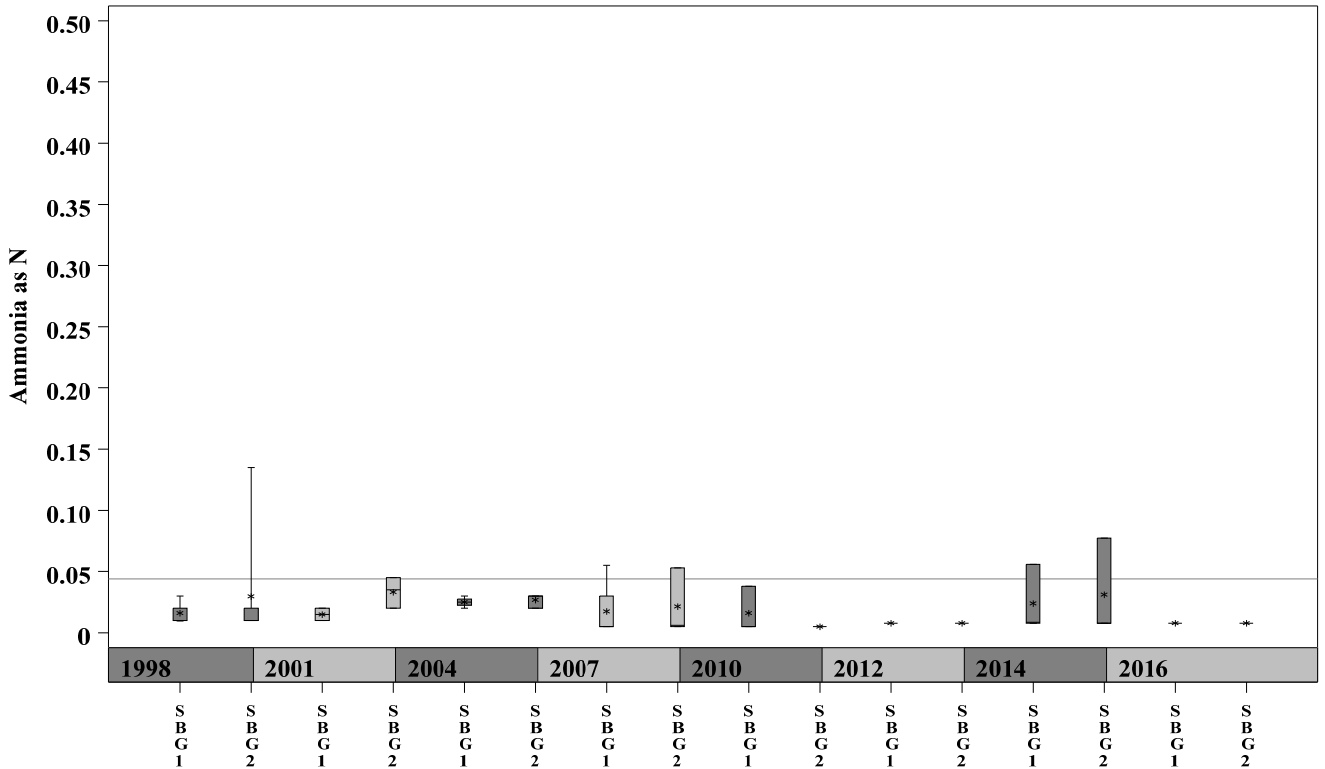
Parameter = CONDUCTIVITY Unit = uS/cm Watershed = South Boggy



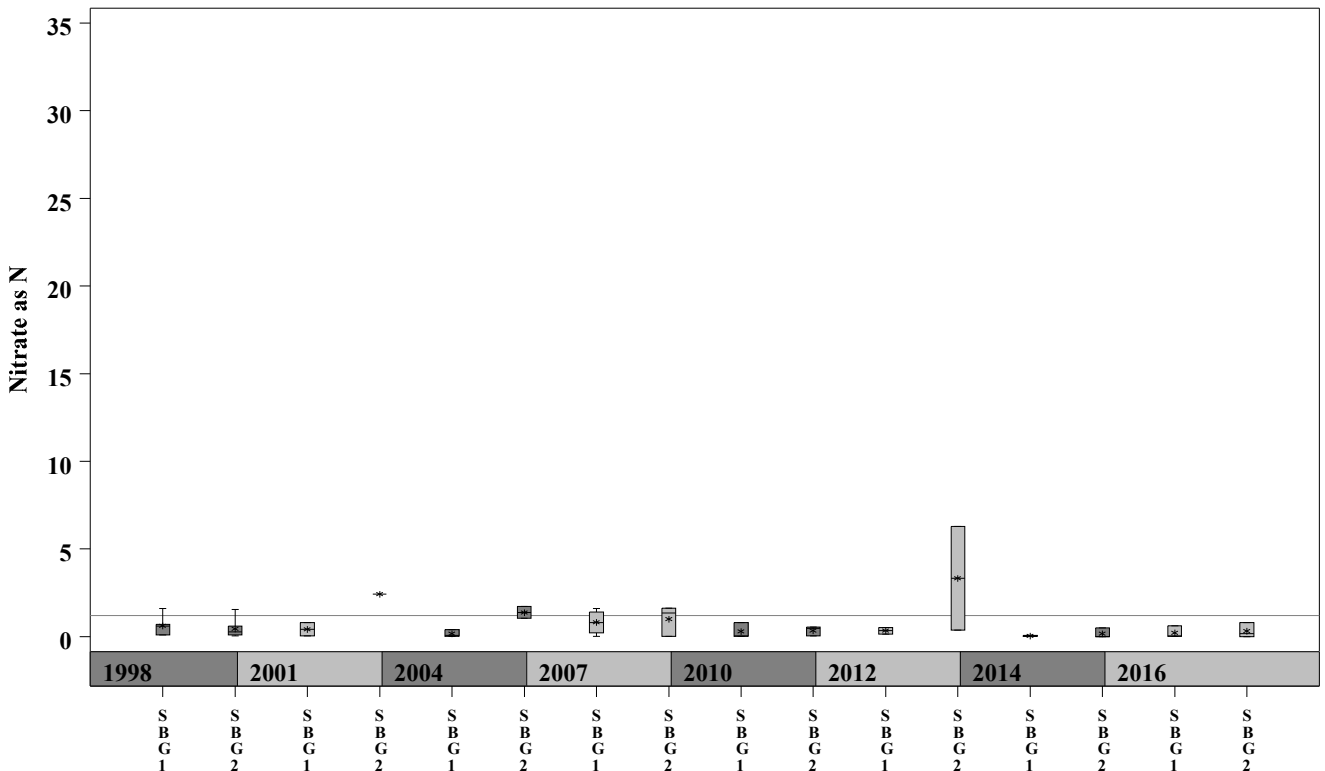
South Boggy Watershed

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

Parameter = AMMONIA AS N Unit = mg/L Watershed = South Boggy



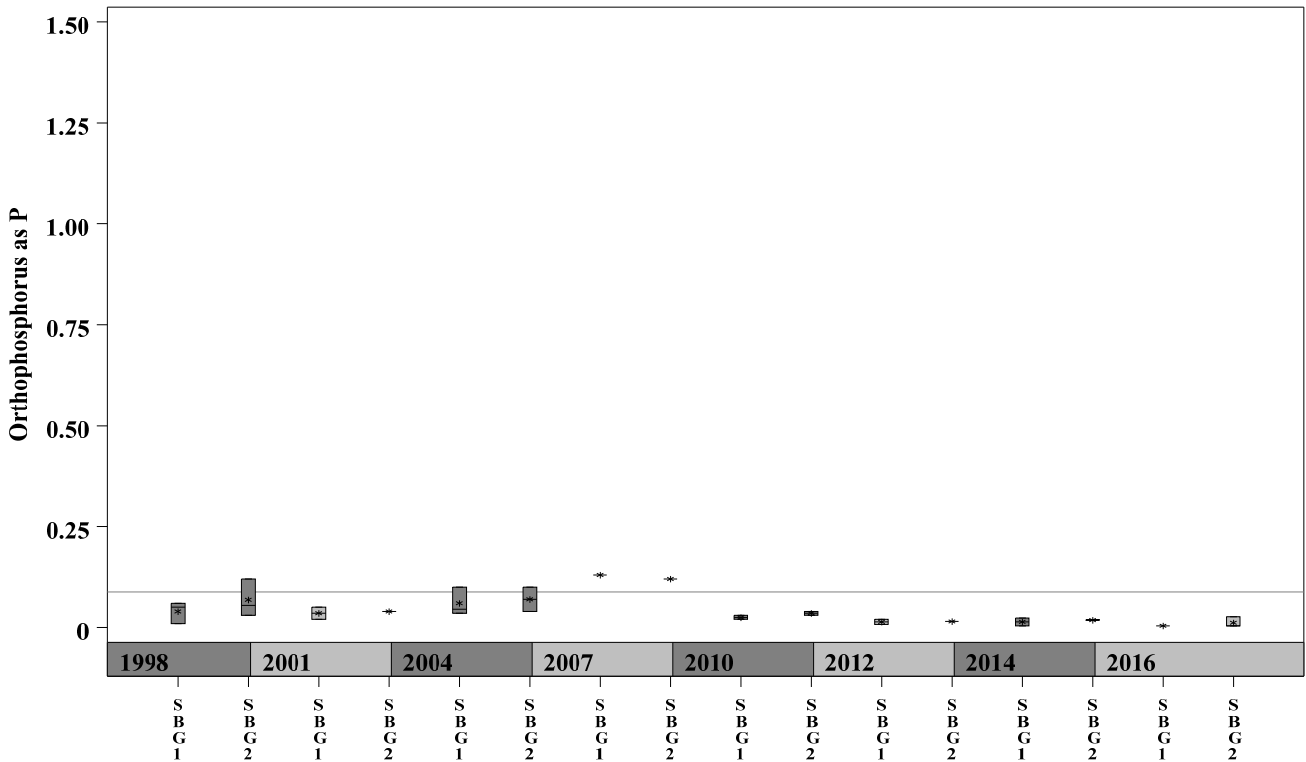
Parameter = NITRATE AS N Unit = mg/L Watershed = South Boggy



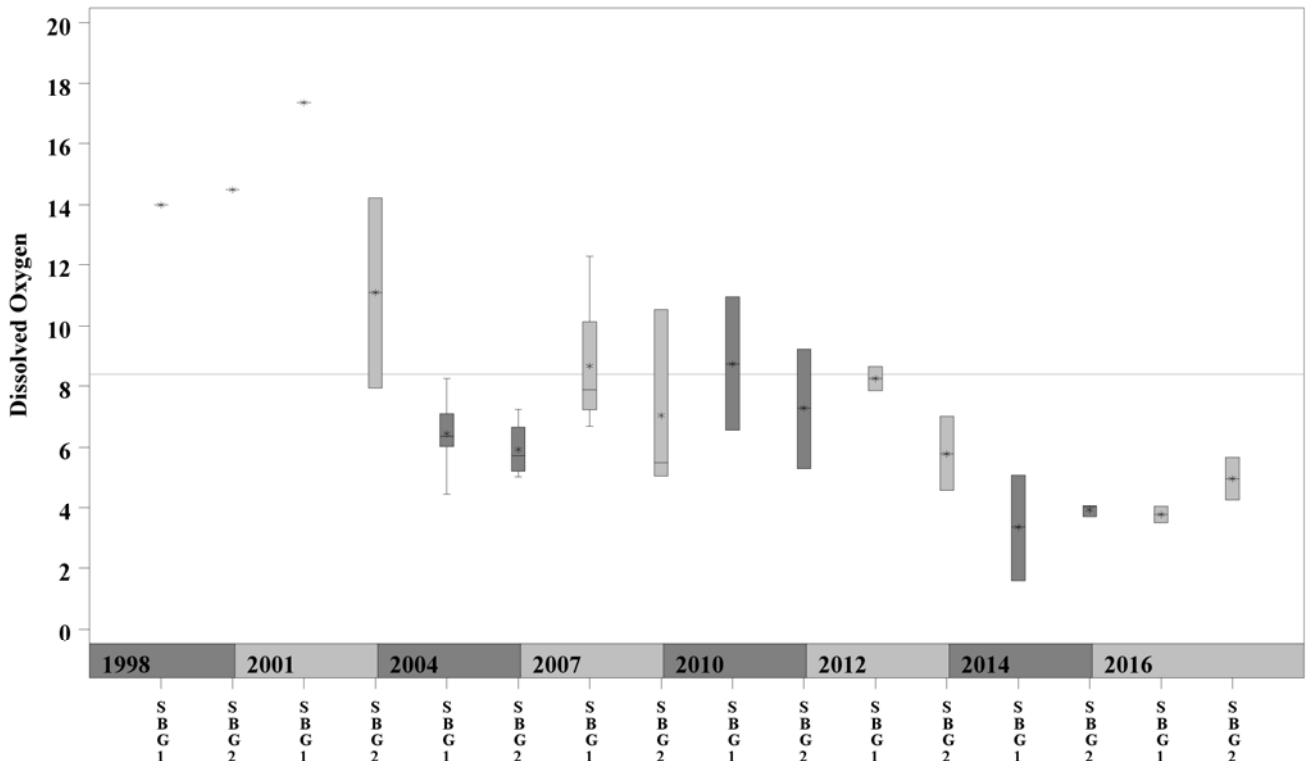
South Boggy Watershed

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

Parameter = ORTHOPHOSPHORUS AS P Unit = mg/L Watershed = South Boggy



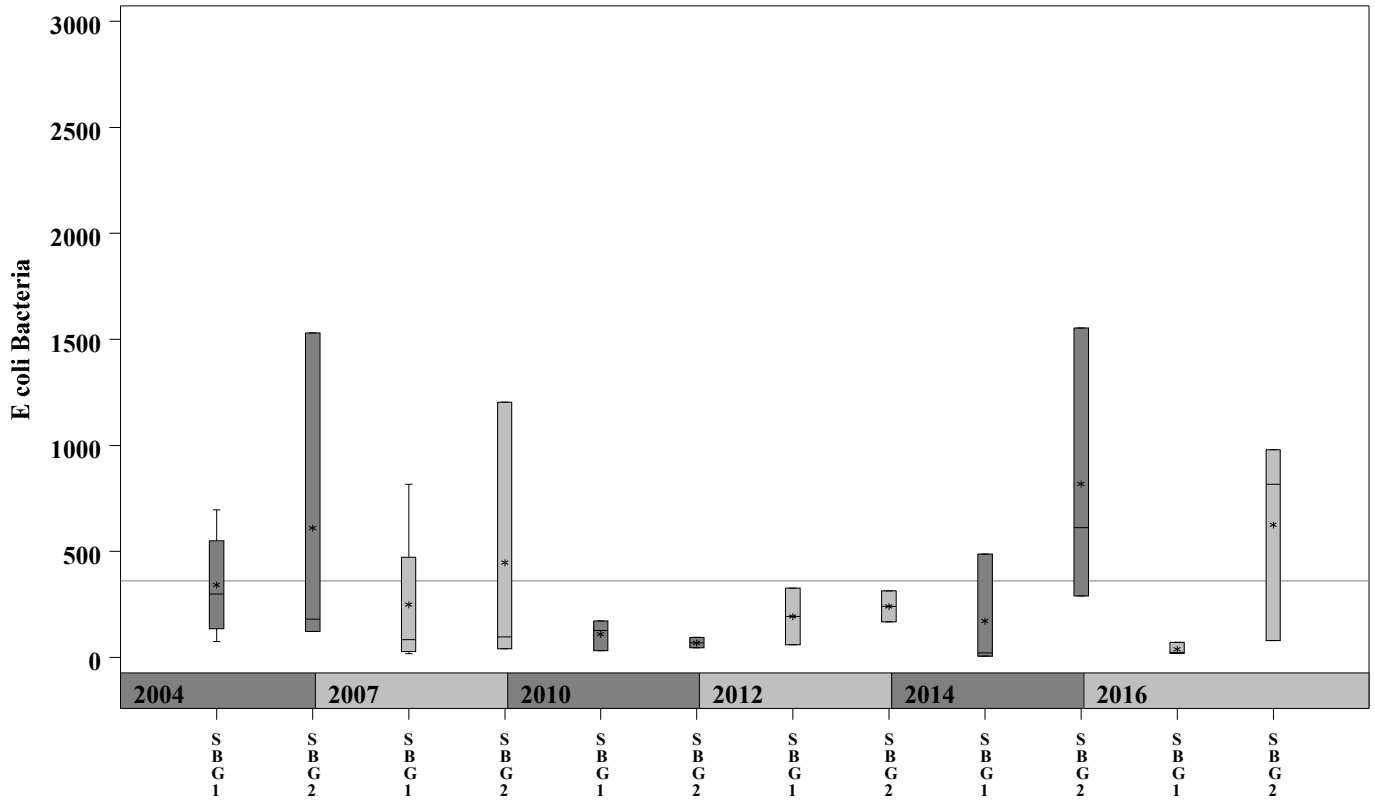
Parameter = DISSOLVED OXYGEN Unit = mg/L Watershed = South Boggy



South Boggy Watershed

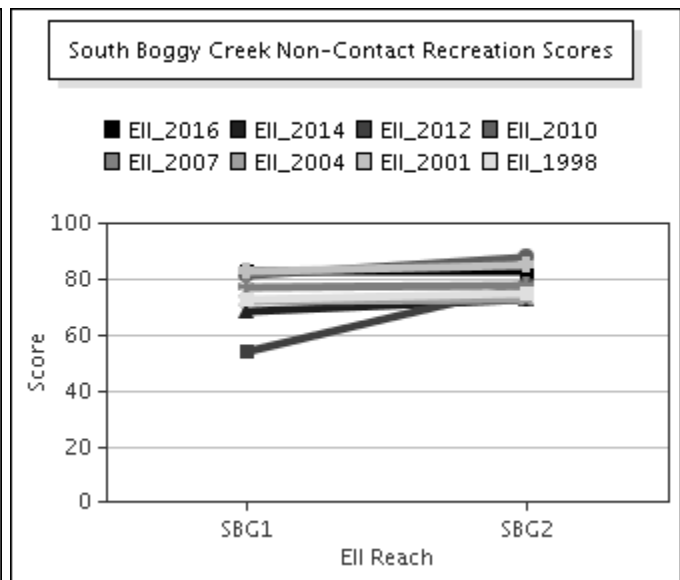
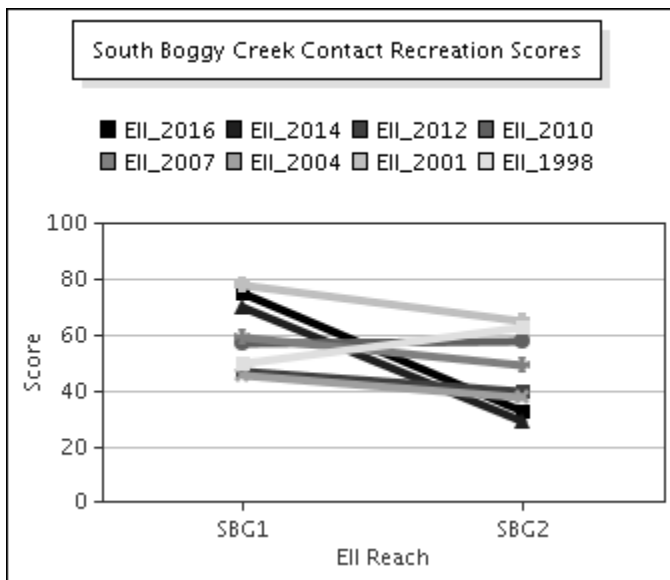
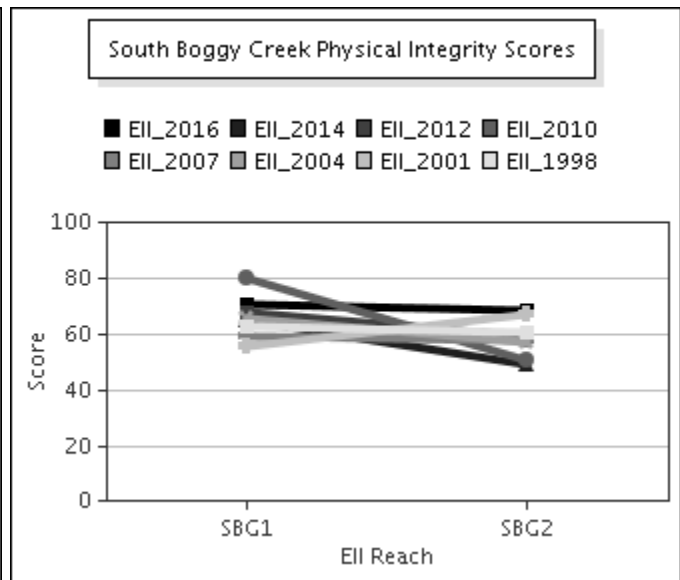
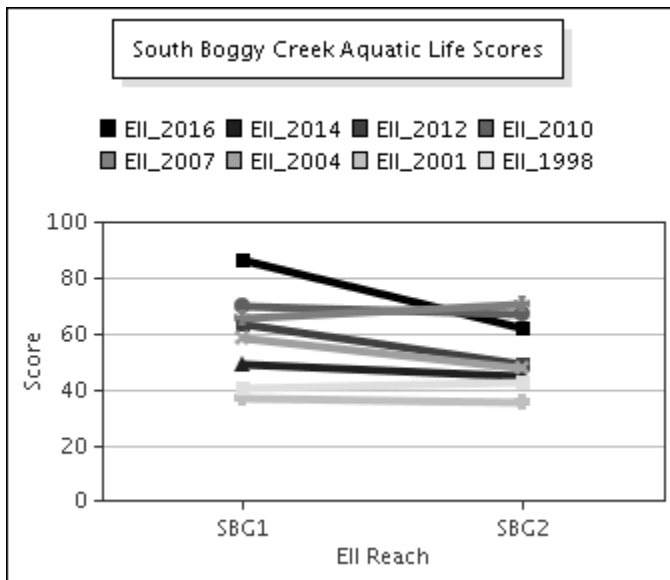
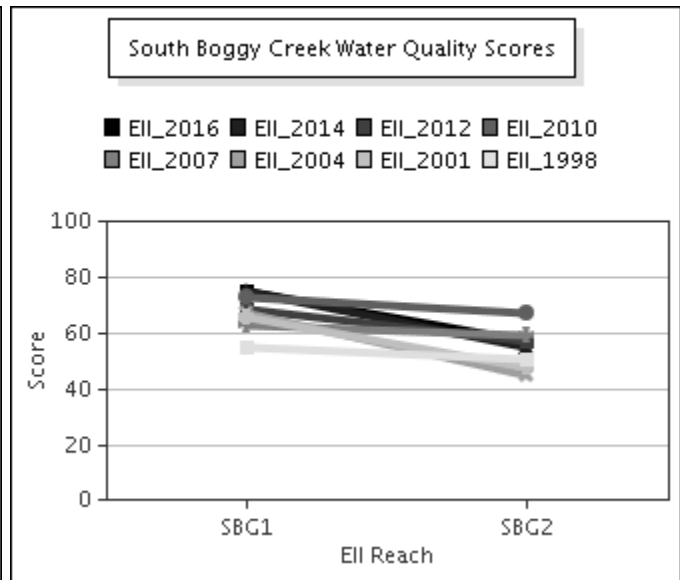
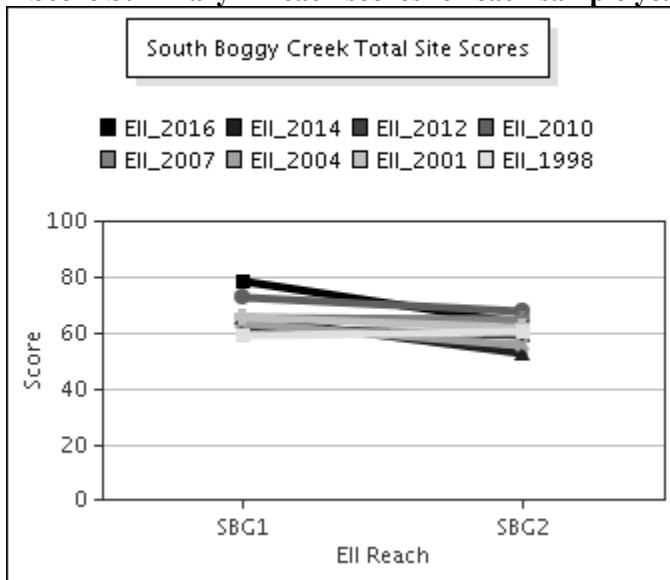
Data Summary Graphs – *E.coli* (Downstream to Upstream by Year)

Parameter = E COLI BACTERIA Unit = MPN/100mL Watershed = South Boggy



South Boggy Watershed

Score Summary – Reach scores for each sample year



South Boggy Watershed

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

Benthic Macroinvertebrates - South Boggy Creek			SBG @ W Dittmar (1081) 05/13/2016 (WRE)	SBG @ Bluff Spgs (227) 05/10/2016 (WRE)
Benthic Macroinvertebrate ID	PTI	FFG		
Chimarra	2	FC		15
Hydroptila	2	PI,SC		3
Neelms Caesa	2	CG,SC		1
Camelobaetidius	4	CG		1
Fallceon	4	CG,SC	73	307
Simulium	4	FC	7	28
Agabus	5	P	1	
Uvarus	5	P		1
Argia	6	P	3	1
Cheumatopsyche	6	FC	2	53
Chironomidae	6	FC,P	29	23
Hydracarina	6			4
Tanypodinae	6	P	6	29
Caenis	7	CG,SC		1
Hyalella	8	CG,SH	1	1
Oligochaeta	8	CG		1
Tipula	8	CG,SH	1	
Physella	9	SC	24	17
Dugesia		CG,P	14	4

South Boggy Watershed

Site Photographs



1081_t00-na2-05_18_2004



1081_t00-na1-05_18_2004



06.25.2007

1081_ur_06_25_2007



06.25.2007

1081_ds_06_25_2007



1081_00-ur-05_18_2010



1081_00-ds-05_18_2010

South Boggy Watershed

Site Photographs



3294_t00-ds-05_18_2004



3294_t00-us-05_18_2004



227_ds_06_29_2007



227_t00-ur-05_18_2004



227_00-ds-05_18_2010



227_00-us-05_18_2010