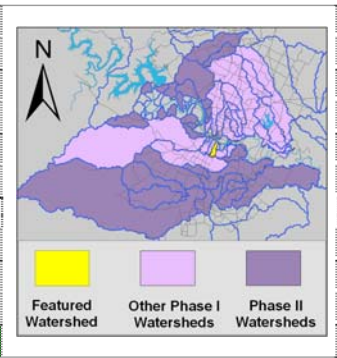


Blunn Creek Watershed

Watershed Overview

Catchment	Total area	1 square mile					
	Area in recharge	none					
	Creek length	3 miles					
	Receiving water	Town Lake					
Demographics	2000 population	6,000					
	2030 projected population	6,810					
	30 year projected % increase	14 %					
Land Use	Impervious cover (2003 estimate)	38.5 %					
	Impervious cover (2013 estimate)	48.1 %					
Overall EII Scores	2000	2003	2006	2009	2011	2013	2015
	57	61	61	59	56	63	59



Flow Regime* for Sample Sites on Blunn Creek

Site	2001		2003					2006					2009					2010		2011				2013					2015						
	Feb	Feb	Feb	Mar	Mar	May	Sep	Dec	Feb	May	Jul	Aug	Nov	Feb	May	Jun	Oct	Dec	Dec	Mar	Jun	Jun	Sep	Jan	Apr	May	Jun	Sep	Jan	Apr	May	Jul	Sep		
	WQ	Bio	WQ	WQ	Bio	WQ	WQ	WQ	WQ	WQ	Bio	WQ	WQ	WQ	WQ	Bio	WQ	WQ	WQ	WQ	WQ	Bio	WQ	WQ	WQ	Bio	WQ	WQ	WQ	WQ	WQ	WQ	WQ		
362	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	B	B	B	B	B	B	B	B	
363	B	B																																	
364	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	B	B	B	B	B	B	B	B	B	
180	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	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 Blunn Creek Sites by Year

Reach	Site	Site Name	Year	Water Quality	Sediment**	Contact Recreation	Non-Contact Rec.	Physical Integrity	Aquatic Life	Benthic subindex	Diatom subindex	Total EII Score
BLU1	180	Blunn Creek @ Riverside Drive	2000	49	69	45	66	40	31	31	31	50
BLU2	364	Blunn Creek Upstream of Big Stacy	2000	51	69	80	68	41	55	35	74	61
BLU3	362	Blunn Creek @ Long Bow	2000	47	69	78	73	47	44	29	58	60
BLU3	363	Blunn Creek @ Willow Run	2000	49	69	90	49	28	48	38	58	56
BLU1	180	Blunn Creek @ Riverside Drive	2003	47	71	73	63	67	37	44	30	60
BLU2	364	Blunn Creek Upstream of Big Stacy	2003	51	71	48	72	47	40	43	37	55
BLU3	362	Blunn Creek @ Long Bow	2003	49	71	66	86	85	46	54	37	67
BLU1	180	Blunn Creek @ Riverside Drive	2006	47	67	44	79	51	60	45	74	58
BLU2	364	Blunn Creek Upstream of Big Stacy	2006	52	67	35	73	72	57	44	70	59
BLU3	362	Blunn Creek @ Long Bow	2006	55	67	39	94	79	70	53	87	67
BLU1	180	Blunn Creek @ Riverside Drive	2009	58	63	37	63	50	45	24	66	53
BLU2	364	Blunn Creek Upstream of Big Stacy	2009	53	63	31	81	43	69	53	85	57
BLU3	362	Blunn Creek @ Long Bow	2009	59	63	33	88	75	78	60	95	66
BLU1	180	Blunn Creek @ Riverside Drive	2011	61	72	68	50	57	40	31	48	58
BLU2	364	Blunn Creek Upstream of Big Stacy	2011	62	72	35	53	61	20	20		51
BLU3	362	Blunn Creek @ Long Bow	2011	50	72	36	80	66	52	37	67	64
BLU1	180	Blunn Creek @ Riverside Drive	2013	49	69	25	85	67	67	63	70	60
BLU2	364	Blunn Creek Upstream of Big Stacy	2013	50	69	25	83	65	64	44	83	59
BLU3	362	Blunn Creek @ Long Bow	2013	56	69	31	97	83	79	62	95	69
BLU1	180	Blunn Creek @ Riverside Drive	2015	49	61	29	80	77	73	77	69	62
BLU2	364	Blunn Creek US of Big Stacy Pool	2015	48	61	27	82	54	53	37	68	54
BLU3	362	Blunn Creek @ Long Bow	2015	51	61	37	89	77	52	45	58	61

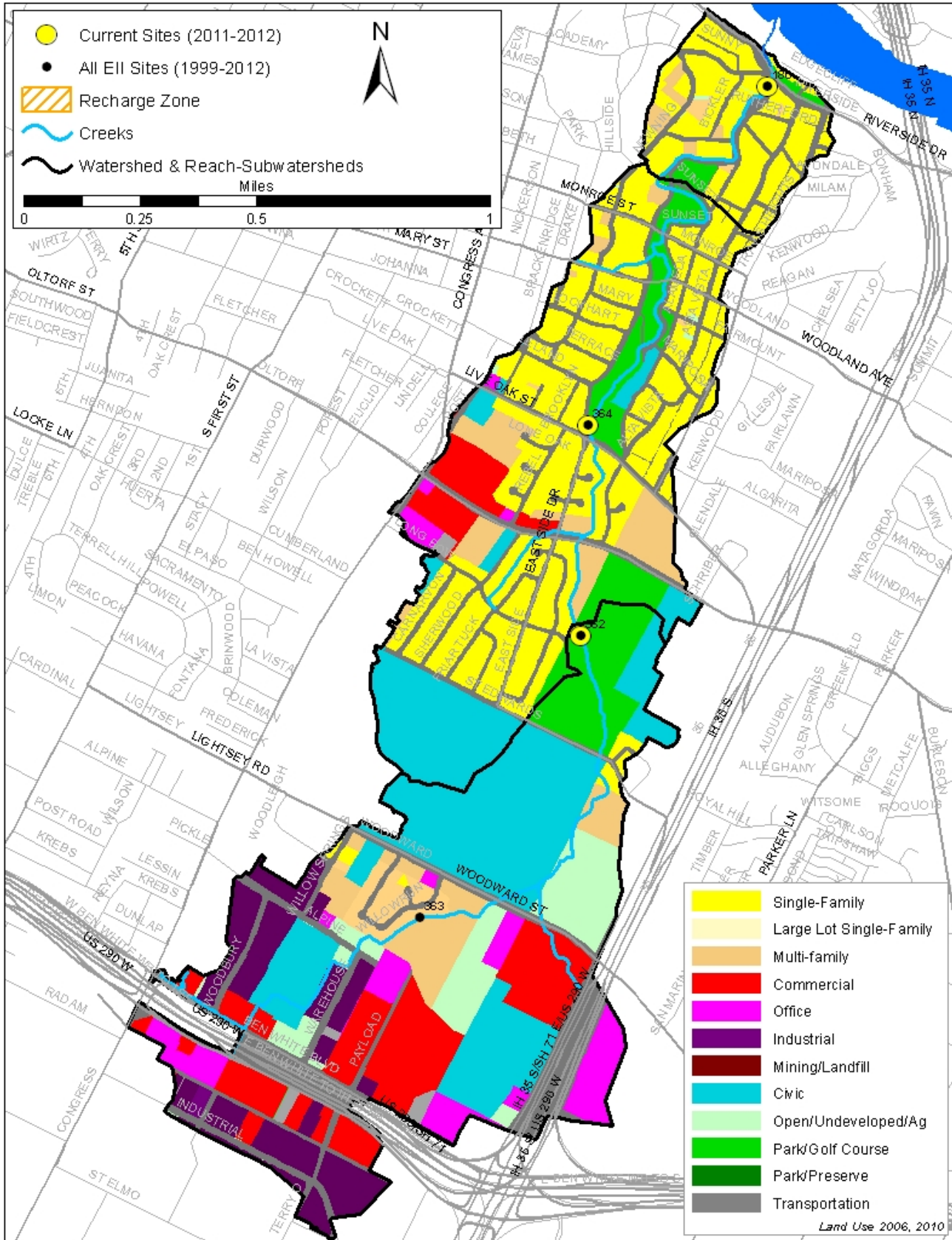
* blank cells indicate parameter was not collected, blank row indicate site was dropped

**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

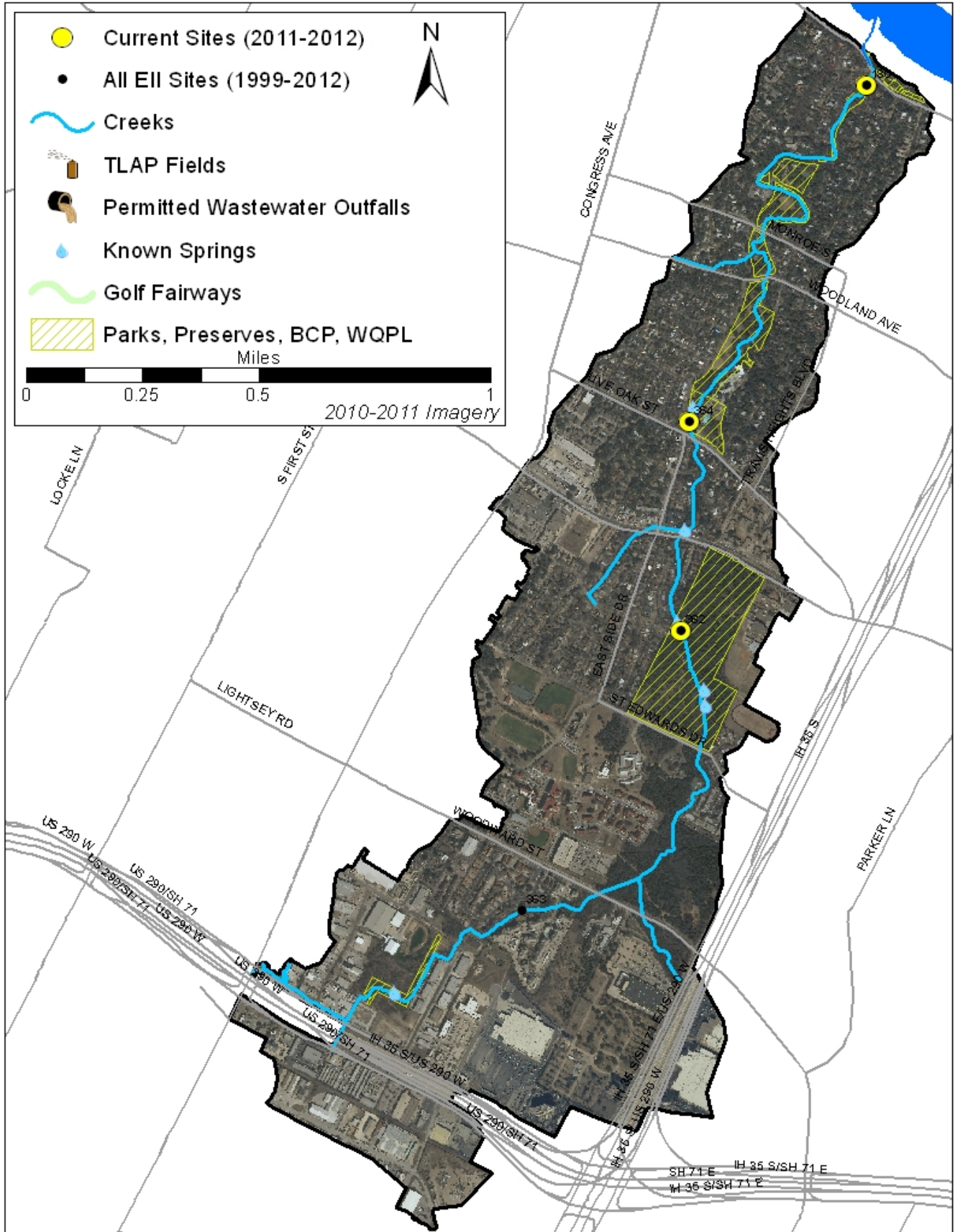
Blunn Creek Watershed

Land Use Map



Blunn Creek Watershed

Aerial Map



Blunn Creek Watershed

Water Quality Data – Temperature, Conductivity, pH, Dissolved Oxygen & *E. coli* for 2015 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	E.I.I. Reach	Date	Temp. flag	Cond. flag	pH flag	D.O. flag	E. Coli flag
Blunn	180	BLU1	01/14/2015	10.7	1070	7.80	8.8	190.4
Blunn	180	BLU1	04/15/2015	18.4	874	7.53	4.0	1413.6
Blunn	180	BLU1	05/04/2015	23.3	845	8.07	8.9	
Blunn	180	BLU1	07/14/2015	24.7	802	7.58	5.2 R	980.4
Blunn	180	BLU1	09/09/2015	25.1	1048	7.06	3.1	488.4
BLU1 Mean				20.4	928	7.61	6.0	768.2
Blunn	364	BLU2	01/14/2015	9.4	707	7.93	10.5	461.1
Blunn	364	BLU2	04/15/2015	17.8	775	7.83	6.8	579.4
Blunn	364	BLU2	07/09/2015	24.4	710	7.89	9.7	
Blunn	364	BLU2	07/14/2015	24.4	684	7.90	7.2 R	> 2419.6
Blunn	364	BLU2	09/09/2015	25.6	746	7.36	3.6	387.3
BLU2 Mean				20.3	725	7.78	7.6	961.8
Blunn	362	BLU3	01/14/2015	9.5	708	7.98	9.9	260.3
Blunn	362	BLU3	04/15/2015	17.3	728	7.88	7.0	155.3
Blunn	362	BLU3	07/09/2015	24.3	614	7.79		
Blunn	362	BLU3	07/14/2015	24.4	650	7.80	5.8 R	410.6
Blunn	362	BLU3	09/09/2015	26.1	652	7.72	4.6	344.8
BLU3 Mean				20.3	670	7.83	6.8	292.8
Blunn Mean				20.4	774	7.74	6.8	674.3

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	

Blunn Creek Watershed

Water Quality Data – Ammonia, Nitrate / Nitrite, Ortho-Phosphorus, Total Suspended Solids & Turbidity for 2015 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				
Blunn	180	BLU1	01/14/2015	<J	0.008		0.80	0.012	R	<J	1.0		1.8	R	
Blunn	180	BLU1	04/15/2015		0.020		0.56		0.015		2.2		1.5		
Blunn	180	BLU1	05/04/2015												
Blunn	180	BLU1	07/14/2015	<J	0.008		1.50	<J	0.004		1.1		2.8	R	
Blunn	180	BLU1	09/09/2015		0.030		0.14		0.011		2.0		1.0	R	
BLU1 Mean					0.016		0.75		0.010		1.6				
Blunn	364	BLU2	01/14/2015	<J	0.008		1.55		0.027	R	2.7		2.3	R	
Blunn	364	BLU2	04/15/2015	<J	0.008		1.68		0.023		1.2		1.0		
Blunn	364	BLU2	07/09/2015												
Blunn	364	BLU2	07/14/2015	<J	0.008		2.72	<J	0.004		<J	1.0		0.8	R
Blunn	364	BLU2	09/09/2015	<J	0.008		0.70	<J	0.004		3.6		2.5	R	
BLU2 Mean					0.008		1.66		0.014		2.1		1.6		
Blunn	362	BLU3	01/14/2015	<J	0.008		1.80	<J	0.004		<J	1.1		1.9	R
Blunn	362	BLU3	04/15/2015		0.023		1.14	<J	0.004		1.3		2.1		
Blunn	362	BLU3	07/09/2015												
Blunn	362	BLU3	07/14/2015	<J	0.008		2.05	<J	0.004		5.2		4.0	R	
Blunn	362	BLU3	09/09/2015		0.021		0.87	<J	0.004		7.5		7.9	R	
BLU3 Mean					0.015		1.47		0.004		3.8		3.9		
Blunn Mean					0.013		1.29		0.010		2.5		2.5		

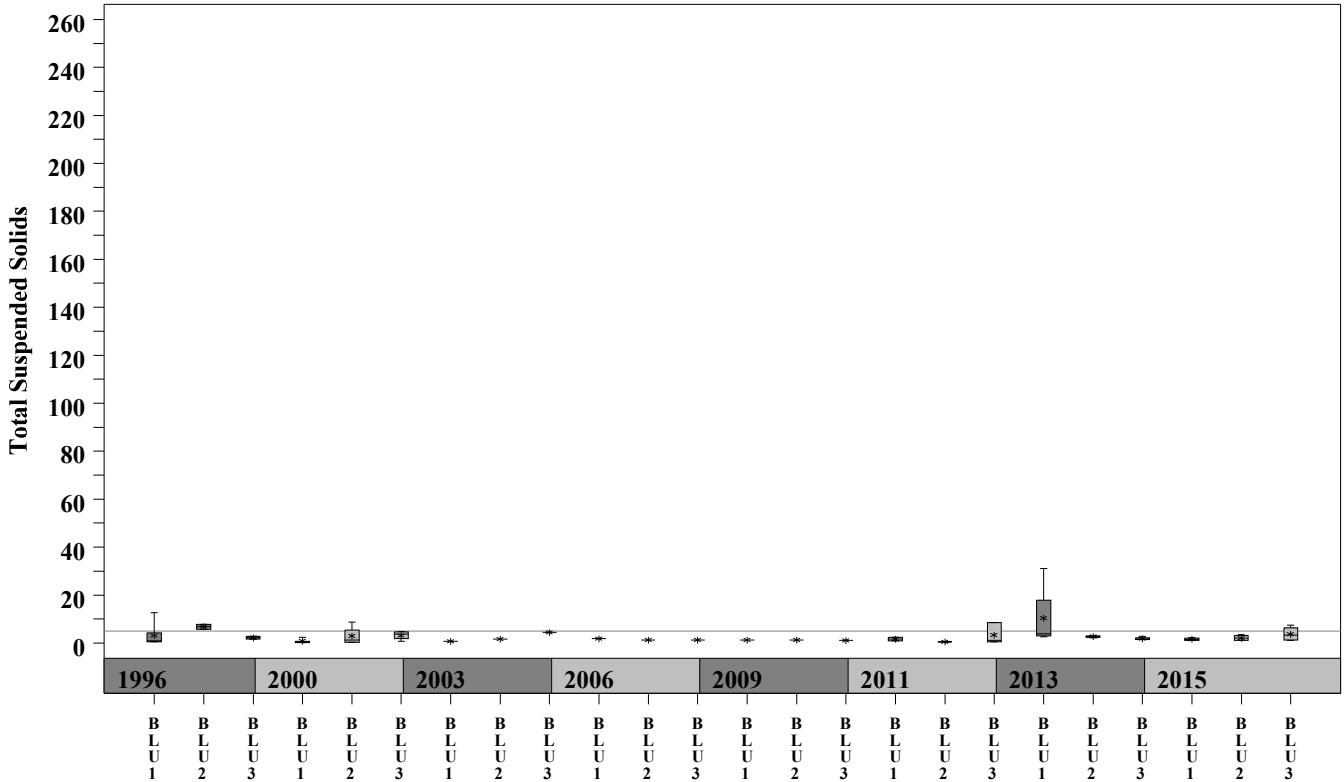
Gray highlighting indicates that the value exceeds one standard deviation from the mean of all E.I.I. sites combined.

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

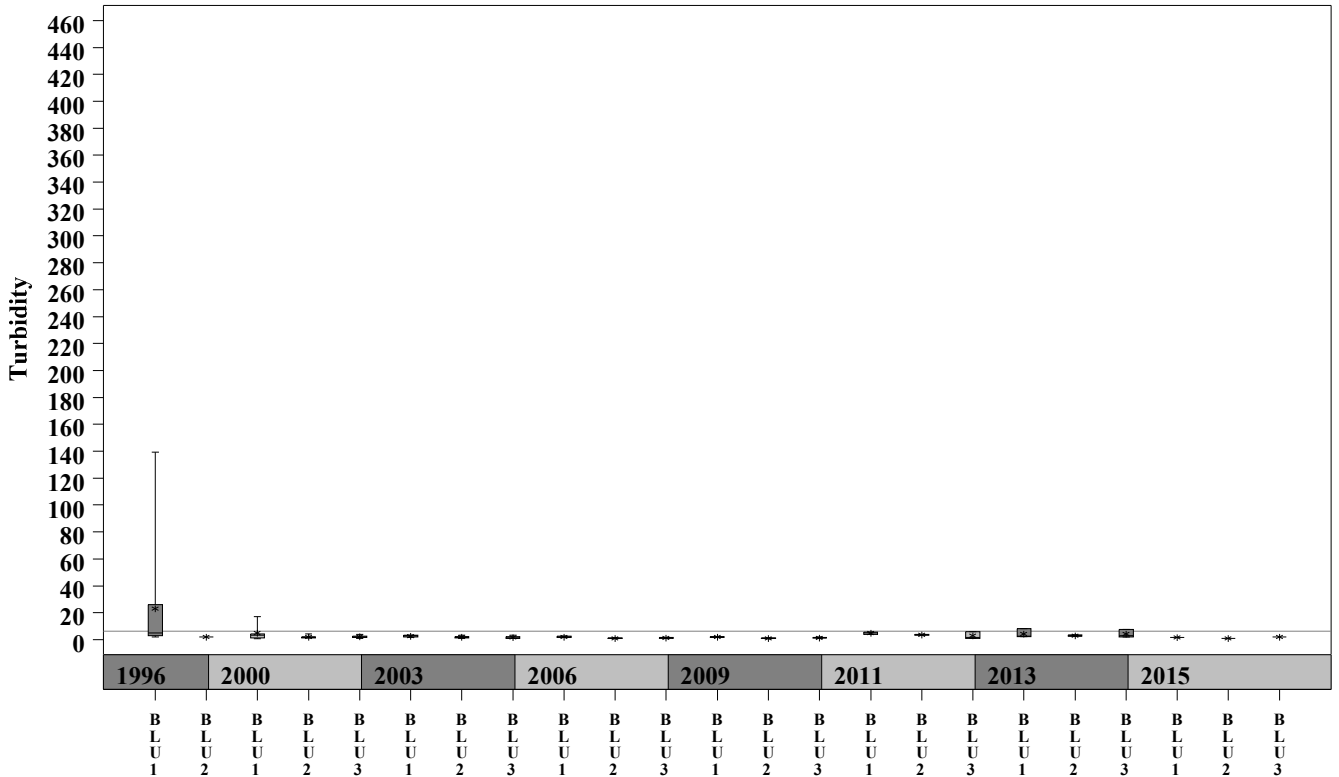
Blunn Creek Watershed

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

Parameter = TOTAL SUSPENDED SOLIDS Unit = mg/L Watershed = Blunn



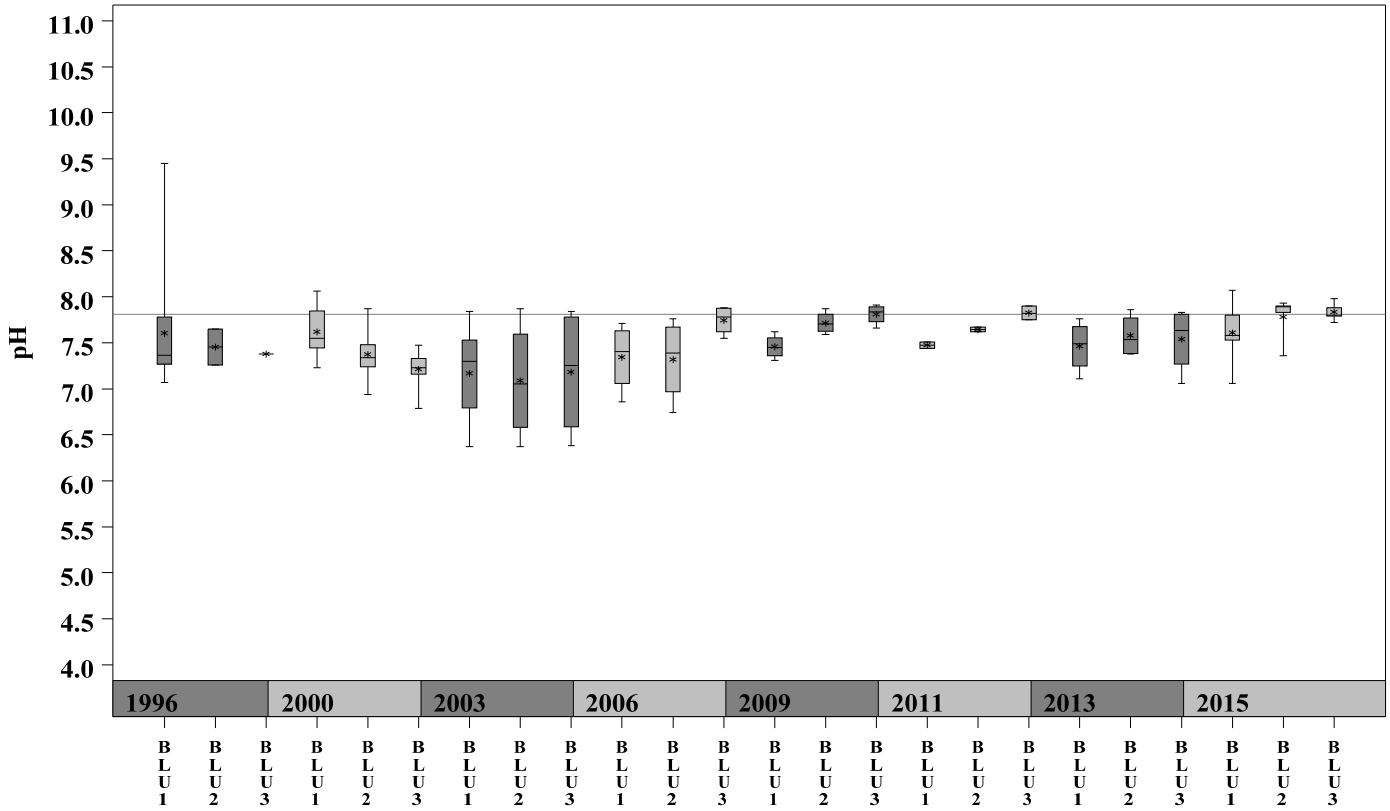
Parameter = TURBIDITY Unit = NTU Watershed = Blunn



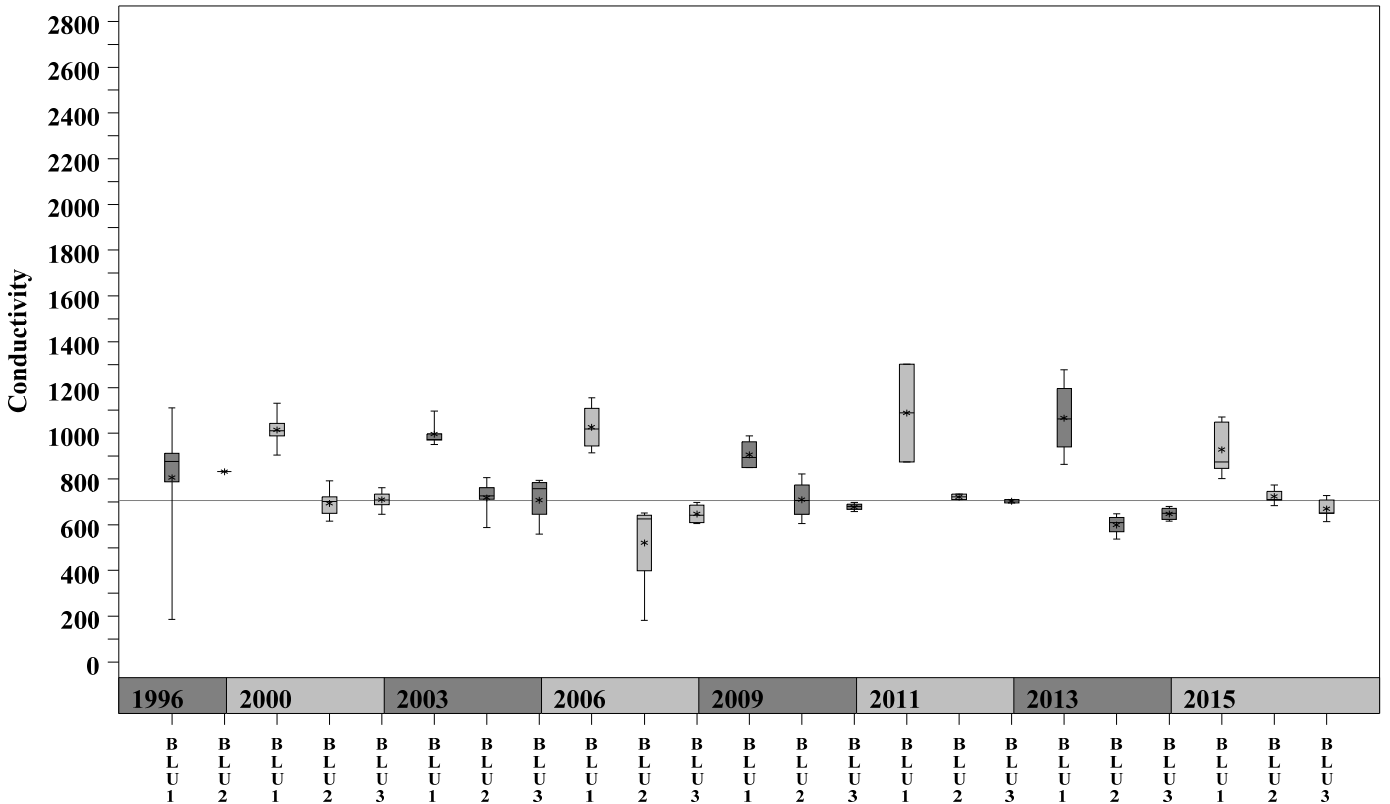
Blunn Creek Watershed

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

Parameter = pH Unit = Standard Units Watershed = Blunn



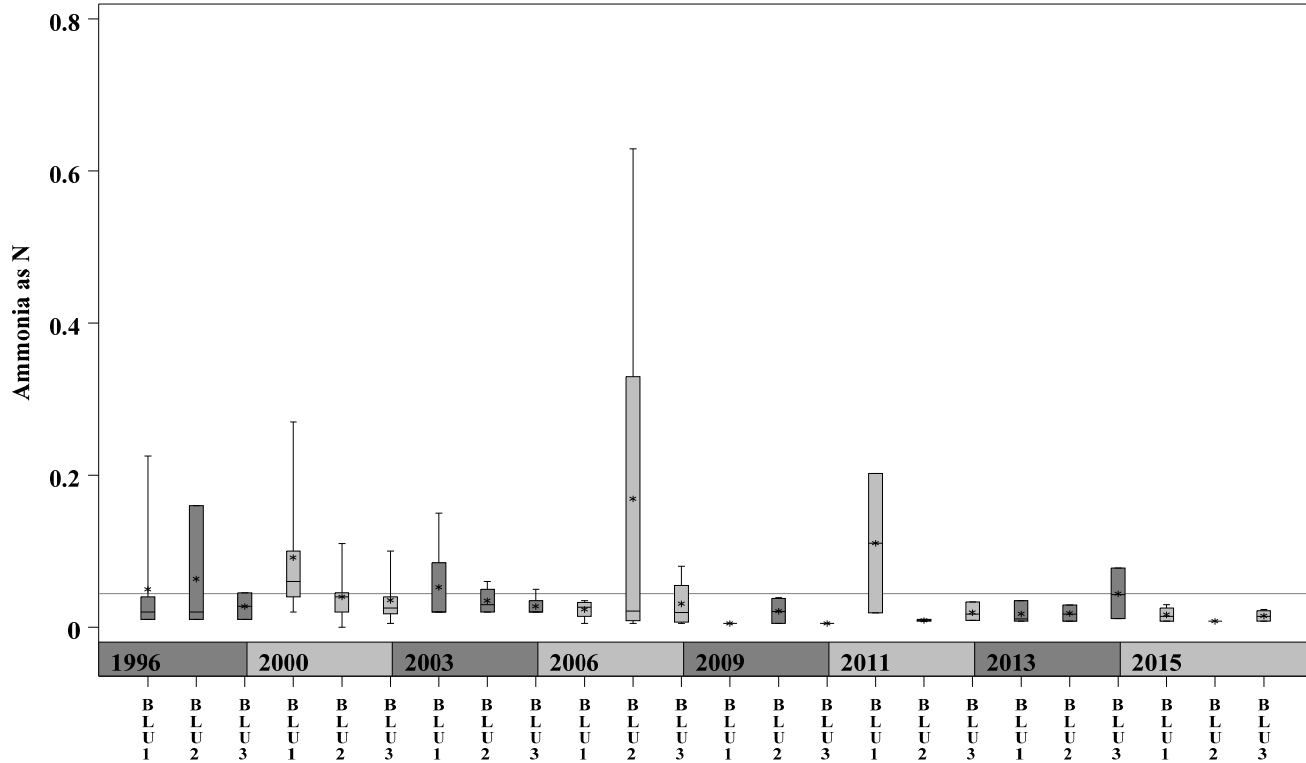
Parameter = CONDUCTIVITY Unit = uS/cm Watershed = Blunn



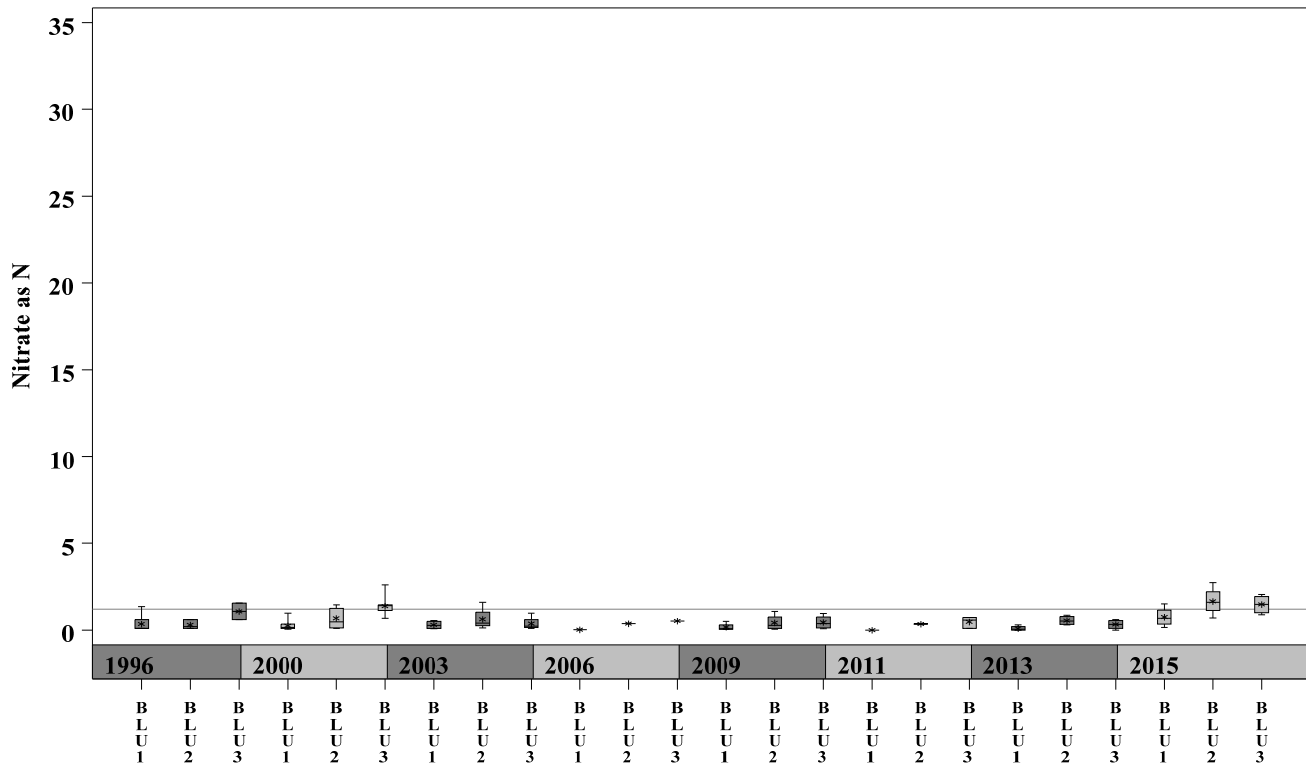
Blunn Creek Watershed

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

Parameter=AMMONIA AS N Unit=mg/L Watershed=Blunn



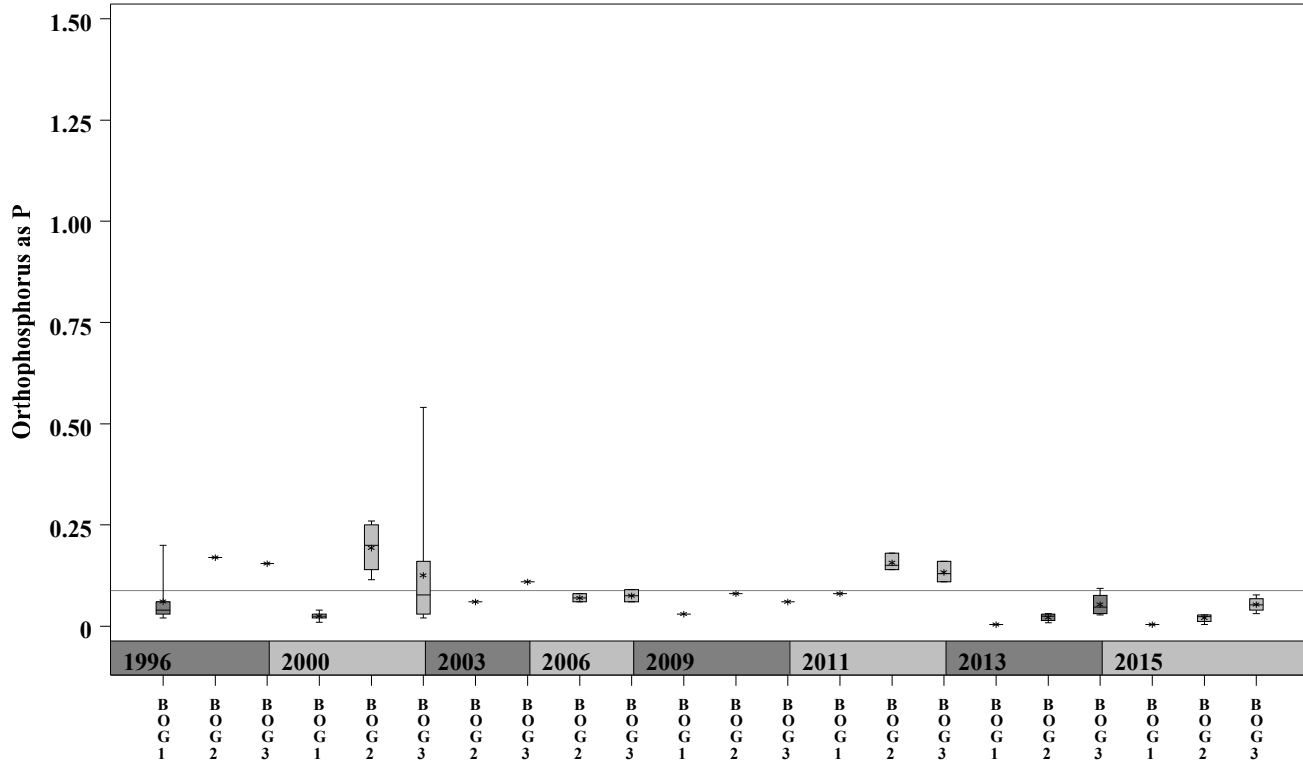
Parameter=NITRATE AS N Unit=mg/L Watershed=Blunn



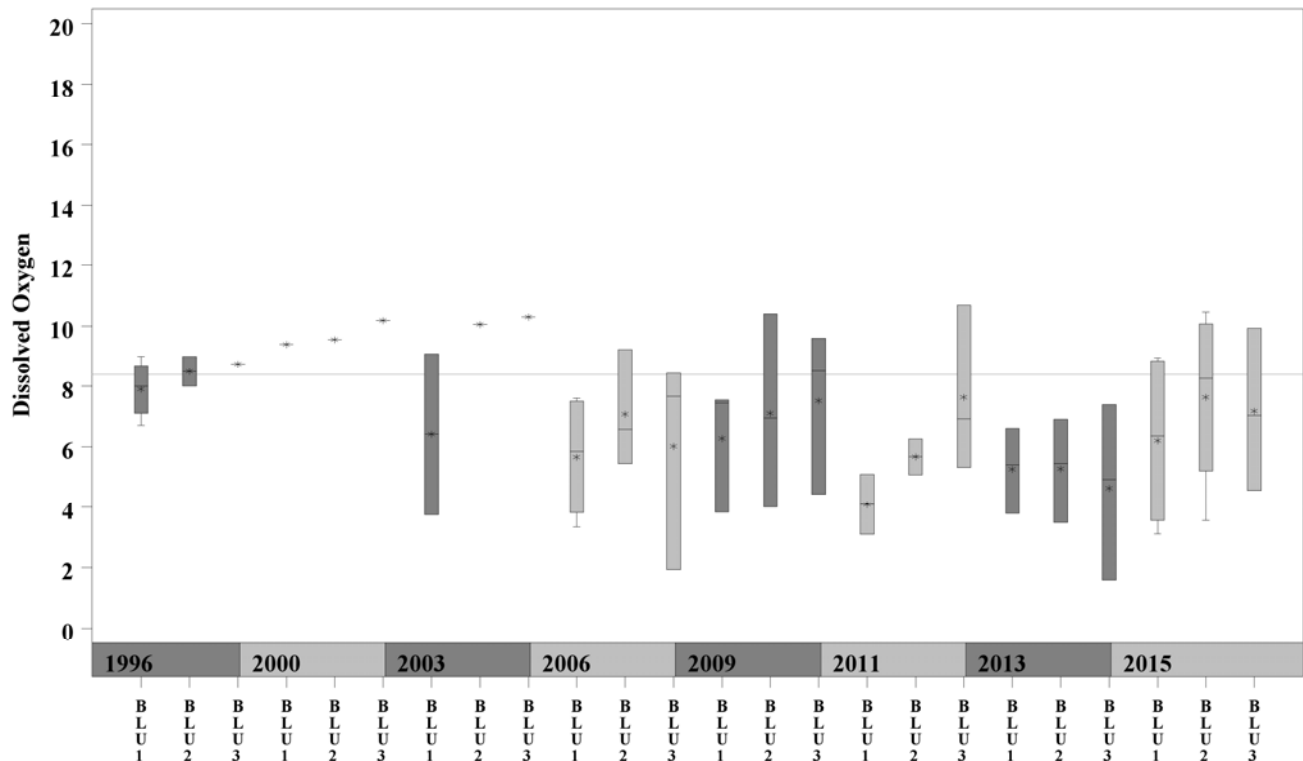
Blunn Creek Watershed

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

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



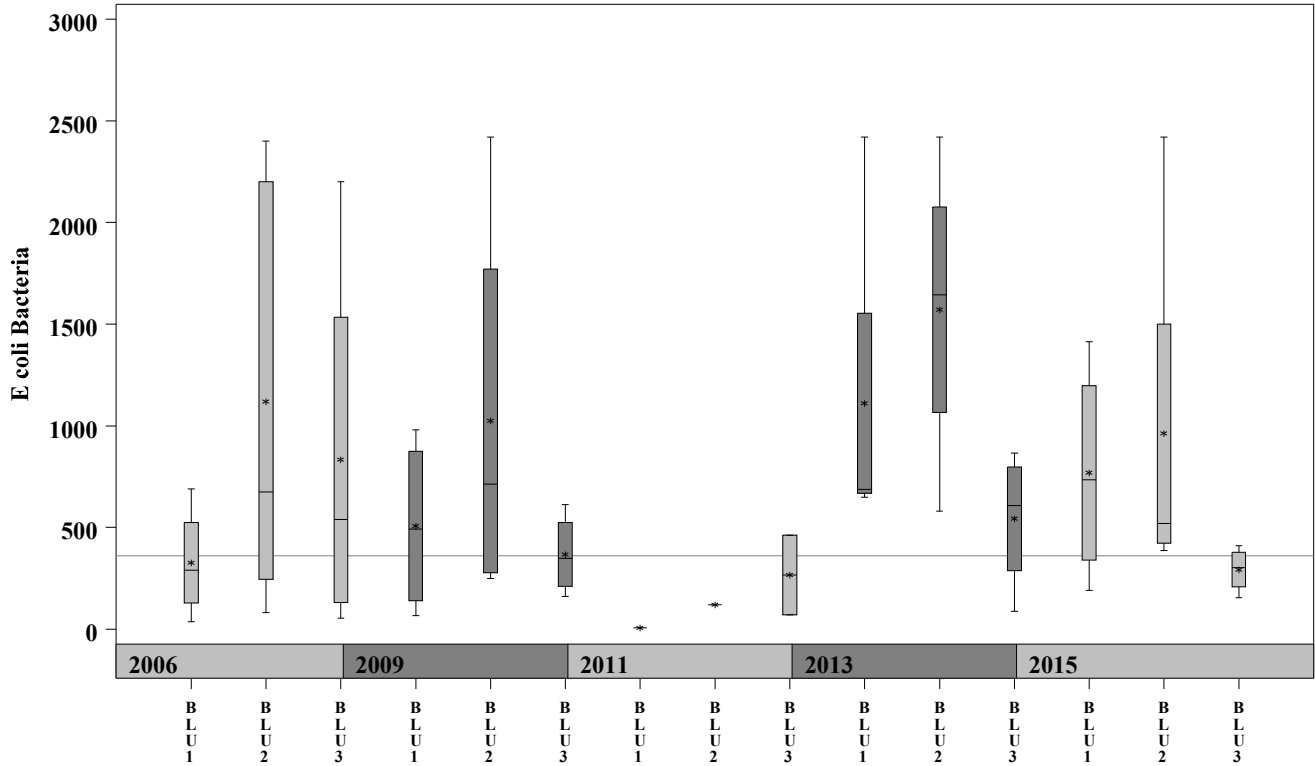
Parameter = DISSOLVED OXYGEN Unit = mg/L Watershed = Blunn



Blunn Creek Watershed

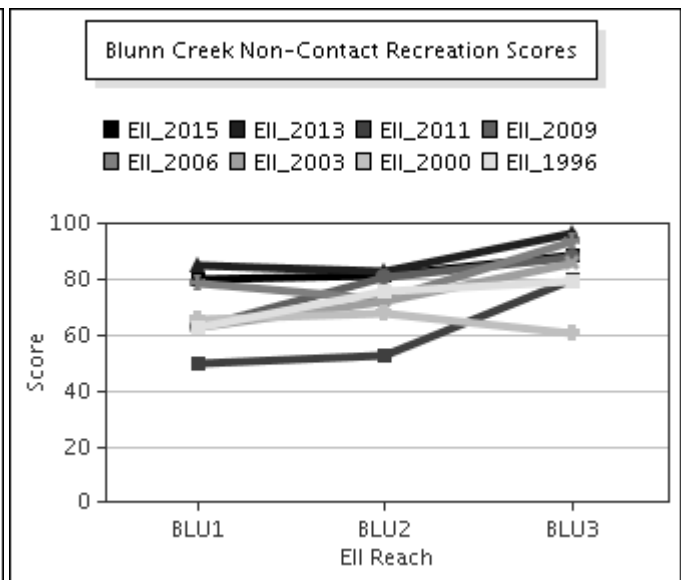
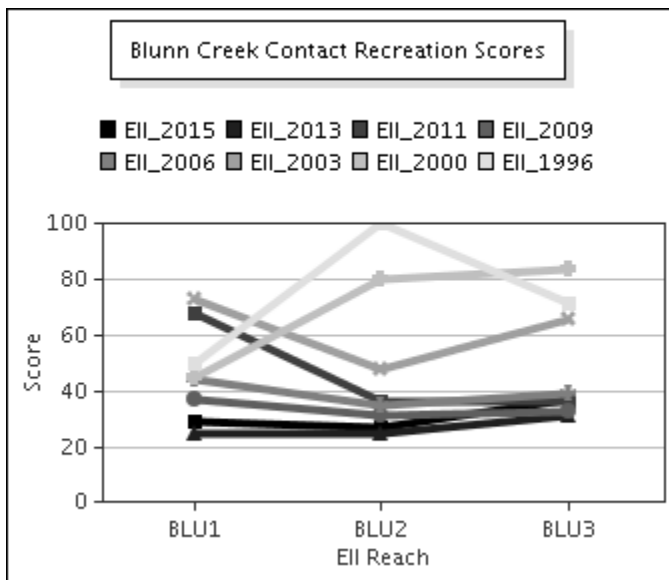
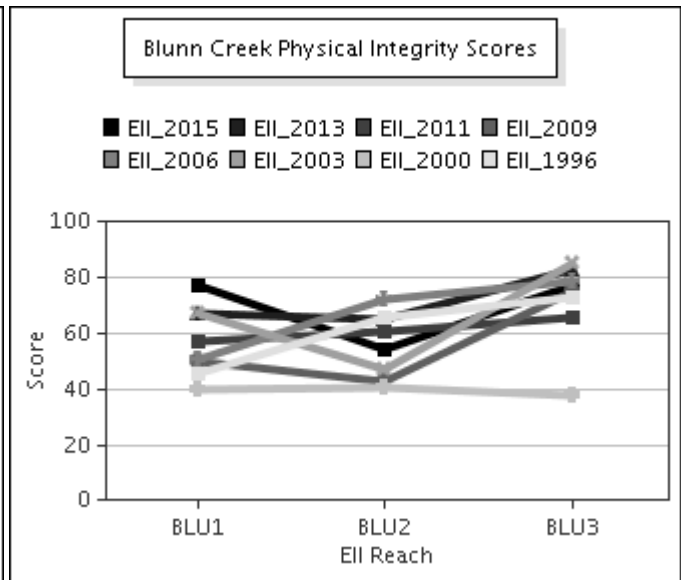
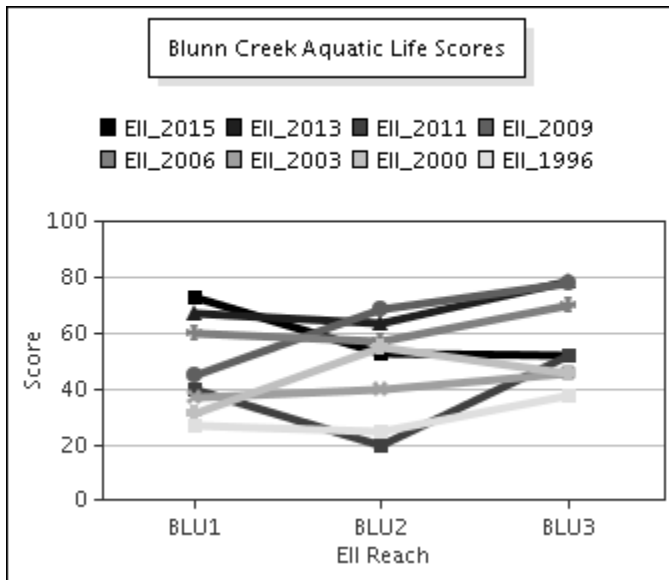
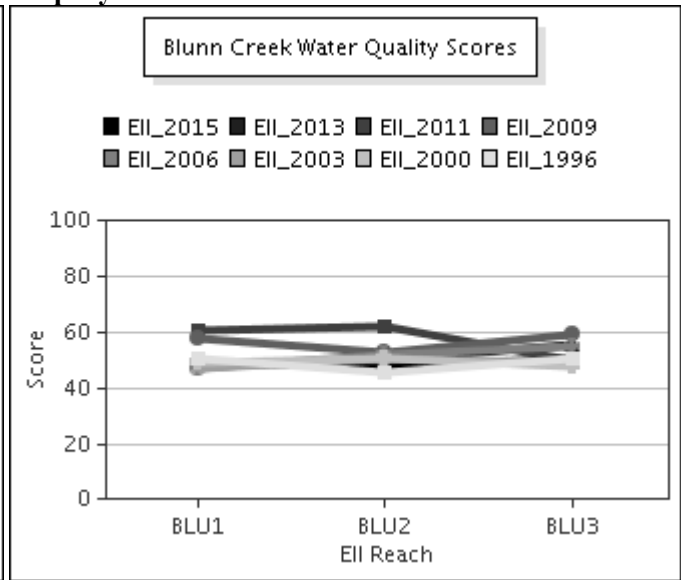
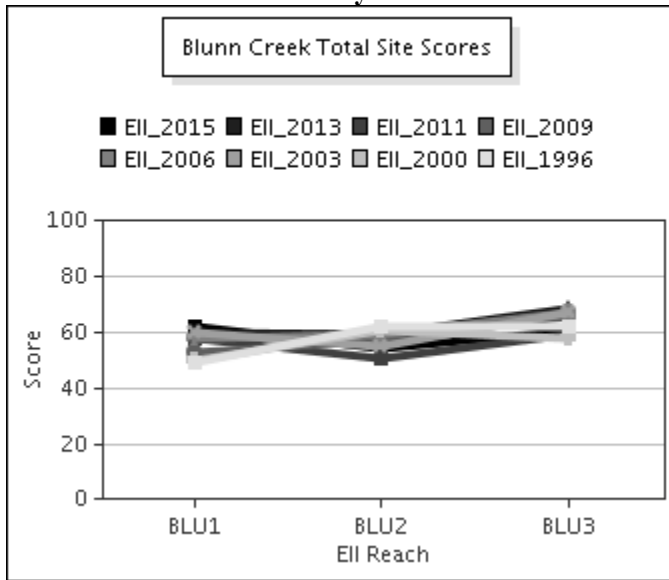
Data Summary Graphs – *E.coli* (Downstream to Upstream by Year)

Parameter = E COLI BACTERIA Unit = MPN/100mL Watershed = Blunn



Blunn Creek Watershed

Score Summary – Reach scores for each sample year



Blunn Creek Watershed

Benthic Macroinvertebrates – Taxa List, Pollution Tolerance Index & Functional Feeding Group for 2015 Sample Sites (Downstream to Upstream)

Benthic Macroinvertebrates - Blunn Creek			BLU @ Long Bow (362) 07/09/2015 (WRE)	BLU us Stacy Pool (364) 07/09/2015 (WRE)	BLU @ Riverside Dr (180) 05/04/2015 (WRE)
Benthic Macroinvertebrates ID	PTI	FFG			
Chimarra	2	FC			11
Hydroptila	2	PI,SC			3
Fallceon	4	CG,SC	34	7	61
Simulium	4	FC			8
Aquarius	5	P			1
Archilestes	6	P			1
Argia	6	P	58	11	
Brechmorhoga Mendax	6	P	3	1	
Cheumatopsyche	6	FC	2		147
Chironomidae	6	FC,P	13	3	34
Hydracarina	6				2
Rhagovelia	6	P	3		
Tanypodinae	6	P	1		14
Caenis	7	CG,SC			1
Oligochaeta	8	CG		1	
Tipula	8	CG,SH	1		1
Physella	9	SC			1
Dugesia		CG,P	20	20	3
Melanoides Tuberculatus		SC	1		1

Blunn Creek Watershed

Site Photographs



180_t00-ds-02_22_2001



180_t00-ds-07_11_2006



180_t00-us-02_22_2001



180-t00-us-06-01-2009



362_t00-us-07_11_2006



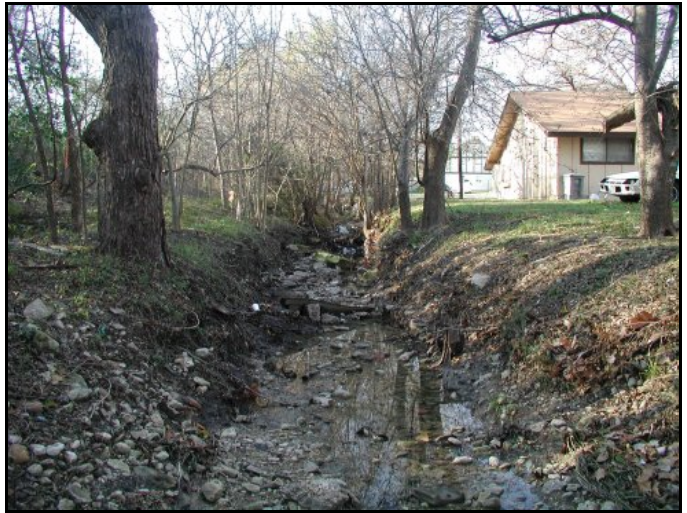
362-t00-ur-06-01-2009

Blunn Creek Watershed

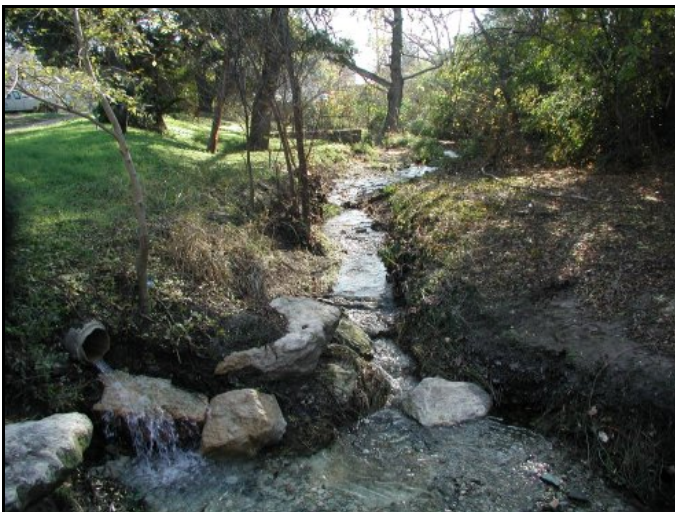
Site Photographs



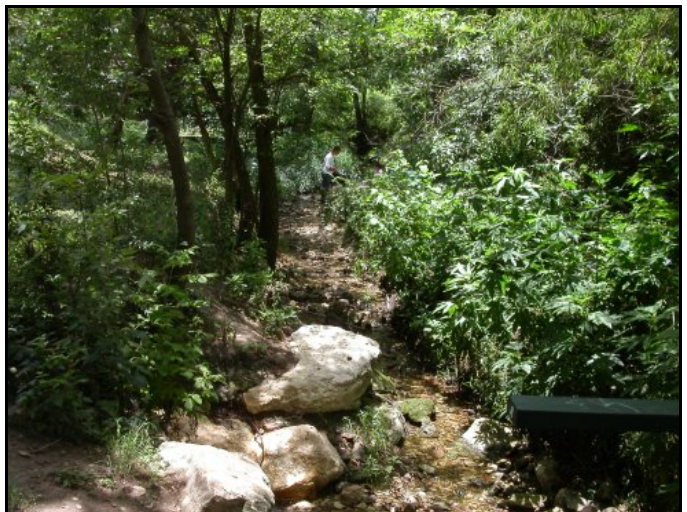
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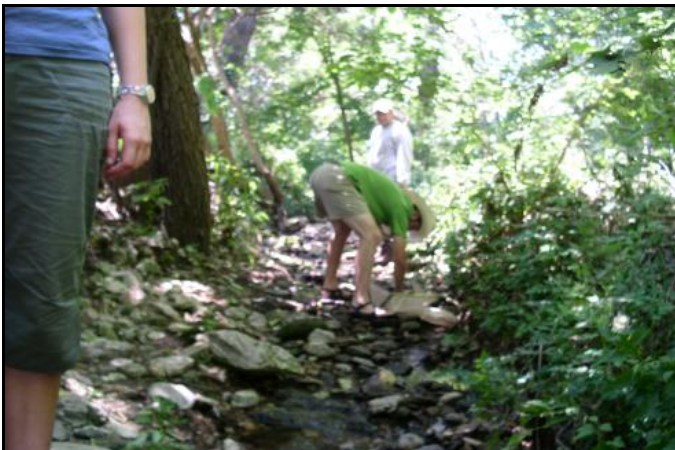
363_t00-us-12_18_2000



364_t00-us- 12_18_2000



364_t00-us1-07_05_2006



364-t00-ur-06-01-2009



364-t00-us-06-01-2009