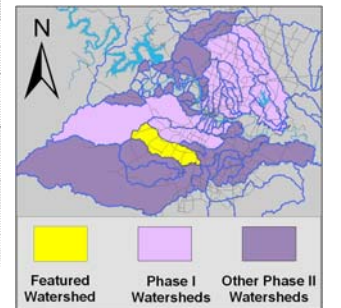


Slaughter Creek Watershed

Watershed Overview

Catchment	Total area	30.7 sq. miles					
	Area in recharge	10.7 sq. miles					
	Creek length	18 miles					
	Receiving water	Onion Creek					
Demographics	2000 population	33,471					
	2030 projected population	76,579					
	30 year projected % increase	129 %					
Land Use	Impervious cover (2003 estimate)	9.0 %					
	Impervious cover (2013 estimate)	19.4 %					
Overall EII Scores	2001	2004	2007	2010	2012	2014	2016
	75	65	77	79	70	77	83



Flow Regime* for Sample Sites on Slaughter 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	Jul	Sep	Jan	Apr	May	Jun	Jul	Sep	Jan	Apr	May	Jul	Sep
	WQ	Bio	WQ	Bio	WQ	WQ	WQ	WQ	WQ	Bio	WQ	WQ	WQ	WQ	WQ	Bio	WQ	WQ	WQ	WQ	Bio	WQ	WQ	WQ	Bio	WQ	WQ	WQ	WQ	Bio	Bio	WQ	WQ	WQ	WQ	WQ	WQ	
623								B				B	n	B	B	B	B	B	B	B	B	B	n	B	B	B	n	B	B	B		B	n	B	B	B	B	B
1086	B	B	B	S	n	n	B	B	B	B	B	n	B																									
1084	B	B	B	B	n	B	B	B	n			B	n	B																								
1085	B	B	B	B	n	n	B	n	n			n	n	B																								
1082	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	S	B	B	B	B	B	B	B	B	B	B	B	B	B		B	B	B	B	B	B	B	
1083	B	B	B	B	n	B	B	B	B	B	B	n	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 Slaughter Creek Sites by Year

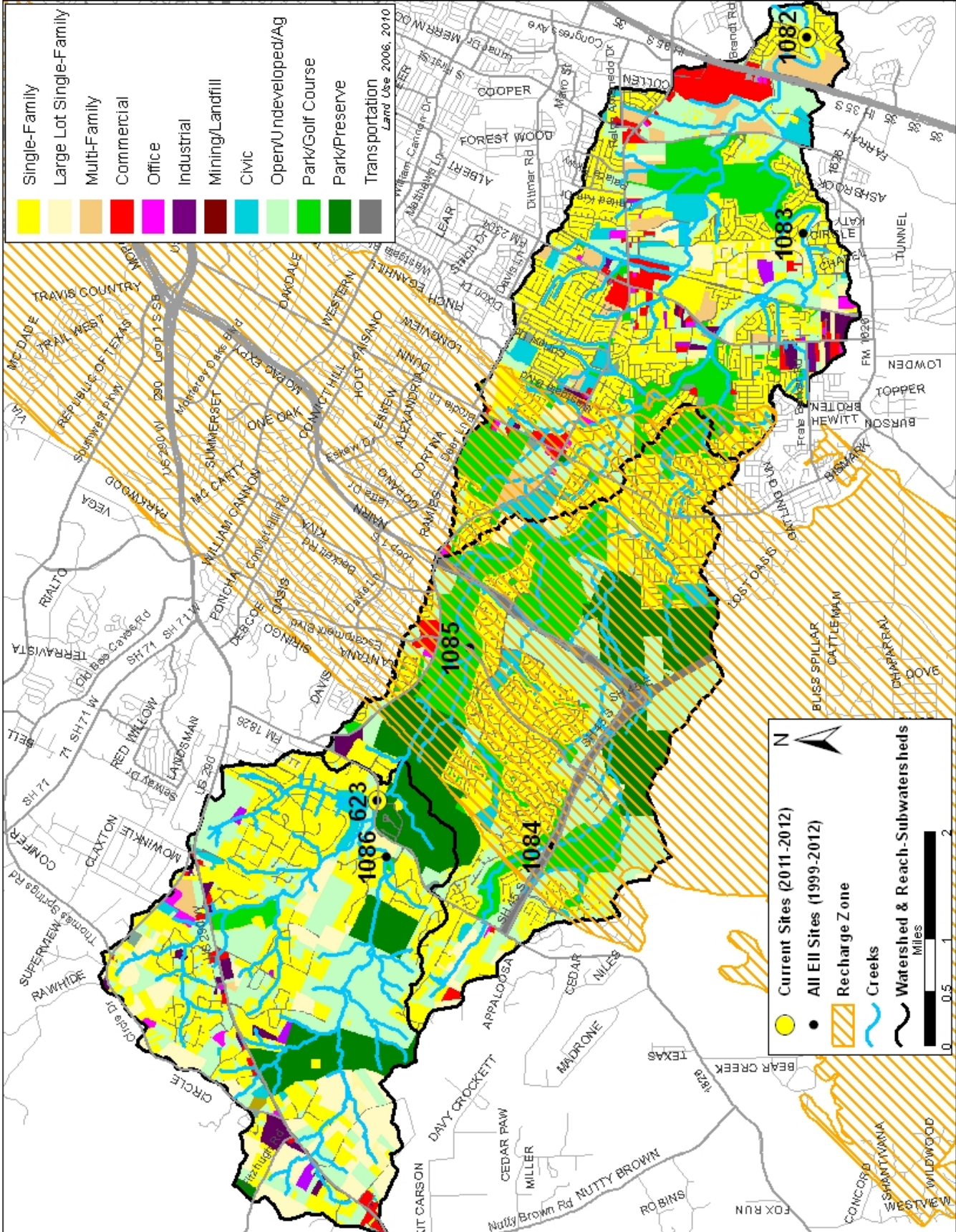
Reach	Site	Site Name	Year	Water Quality	Sediment**	Contact Rec.	Non-Contact Rec.	Physical Integrity	Aquatic Life	Benthic subindex	Diatom subindex	Total EII Score
SLA1	1082	Slaughter Creek @ Pine Valley Drive	1998	73	70	82	63	71	63	67	58	70
SLA1	1083	Slaughter Creek @ River Oaks Drive	1998	74	70	88	77	83	67	61	72	77
SLA2	1084	Slaughter Creek Branch @ Hwy 45 West	1998	70	70	86	46	74	62	72	52	68
SLA2	1085	Slaughter Creek @ Escarpment Blvd	1998	73	70	95	93	89	83	75	90	84
SLA3	1086	Slaughter Creek @ Young Lane	1998	75	70	87	96	80	68	67	68	79
SLA1	1082	Slaughter Creek @ Pine Valley Drive	2001	62	86	96	58	70	43	40	45	66
SLA1	1083	Slaughter Creek @ River Oaks Drive	2001	47	86	82	88	74	56	46	65	69
SLA2	1084	Slaughter Creek Branch @ Hwy 45 West	2001	67	86	87	80	72	59	57	61	72
SLA2	1085	Slaughter Creek @ Escarpment Blvd	2001	63	86	88	91	85	68	52	83	76
SLA3	1086	Slaughter Creek @ Young Lane	2001	75	86	48	100	96	75	70	80	75
SLA1	1082	Slaughter Creek @ Pine Valley Drive	2004	62	83	67	78	95	60	50	70	74
SLA1	1083	Slaughter Creek @ River Oaks Drive	2004	64	83	48	83	76	54	48	60	68
SLA2	1084	Slaughter Creek Branch @ Hwy 45 West	2004	60	83	62	78	43				54
SLA2	1085	Slaughter Creek @ Escarpment Blvd	2004	54	83	47	68	64				53
SLA3	1086	Slaughter Creek @ Young Lane	2004	67	83	51	93	82	82	80	84	76
SLA1	1082	Slaughter Creek @ Pine Valley Drive	2007	62	81	79	78	85	61	46	75	74
SLA3	623	Slaughter Creek @ FM 1826 (USGS)	2007	68	81	82	85	71	88	83	93	79
SLA1	1082	Slaughter Creek @ Pine Valley Drive	2010	74	80	77	79	78	70	61	78	76
SLA3	623	Slaughter Creek @ FM 1826 (USGS)	2010	74	80	89	86	68	91	95	87	81
SLA1	1082	Slaughter Creek @ Pine Valley Drive	2012	70	74	75	53	72	76	77	75	70
SLA3	623	Slaughter Creek @ FM 1826 (USGS)	2012	61	74	42	63	78	94	87	100	69
SLA1	1082	Slaughter Creek @ Pine Valley Drive	2014	76	75	81	79	82	81	79	83	79
SLA3	623	Slaughter Creek @ FM 1826 (USGS)	2014	66	75	75	78	65	84	78	90	74
SLA1	1082	Slaughter Creek @ Pine Valley Drive	2016	82	86	97	72	89	79	87	71	84
SLA2	623	Slaughter Creek @ FM 1826 (USGS)	2016	70	86	70	96	84	86	96	76	82

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

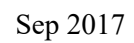
**sediment samples only collected at the downstream site

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

Land Use Map



Aerial Map



Slaughter 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
Slaughter	1082	SLA1	01/12/2016		11.1			474			7.93						2.0	
Slaughter	1082	SLA1	04/12/2016		21.3			495			8.09			10.3			3.1	
Slaughter	1082	SLA1	05/06/2016		23.7			436			8.12			8.7				
Slaughter	1082	SLA1	07/12/2016		31.2			474			9.97			6.7			7.5	
Slaughter	1082	SLA1	09/13/2016		29.2			508			8.06			8.6			13.2	
SLA1 Mean					23.3			477			8.03			8.6			6.4	
Slaughter	623	SLA2	01/12/2016		10.3			835			7.88			9.9			67.0	
Slaughter	623	SLA2	04/12/2016		20.7			851			7.77			7.4			67.0	
Slaughter	623	SLA2	05/06/2016		23.9			780			7.71			8.3				
Slaughter	623	SLA2	07/12/2016		26.9			762			7.76			6.1			7.5	
Slaughter	623	SLA2	09/13/2016		24.9			757			7.72			6.4			38.3	
SLA2 Mean					21.4			797			7.77			7.6			45.0	
Slaughter Mean					22.3			637			7.90			8.0			25.7	

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	

Slaughter 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
Slaughter	1082	SLA1	01/12/2016	<J 0.008	0.08	<J 0.004	1.1	1.5 R
Slaughter	1082	SLA1	04/12/2016	<J 0.008	<J 0.01	<J 0.004	2.1	1.4
Slaughter	1082	SLA1	05/06/2016					
Slaughter	1082	SLA1	07/12/2016	0.029	0.08	<J 0.004	3.1	6.9 R
Slaughter	1082	SLA1	09/13/2016	0.022	0.08	<J 0.004	1.9	2.9
SLA1 Mean				0.016	0.06	0.004	2.0	3.2
Slaughter	623	SLA3	01/12/2016	<J 0.008	0.18	<J 0.004	<J 1.1	0.9 R
Slaughter	623	SLA3	04/12/2016	<J 0.008	0.10	<J 0.004	1.1	1.9
Slaughter	623	SLA3	05/06/2016					
Slaughter	623	SLA3	07/12/2016	<J 0.008	<J 0.01	<J 0.004	1.7	1.6 R
Slaughter	623	SLA3	09/13/2016	<J 0.008	0.07	<J 0.004	<J 1.0	2.8
SLA3 Mean				0.008	0.09	0.004	1.2	1.8
Slaughter Mean				0.012	0.08	0.004	1.6	2.5

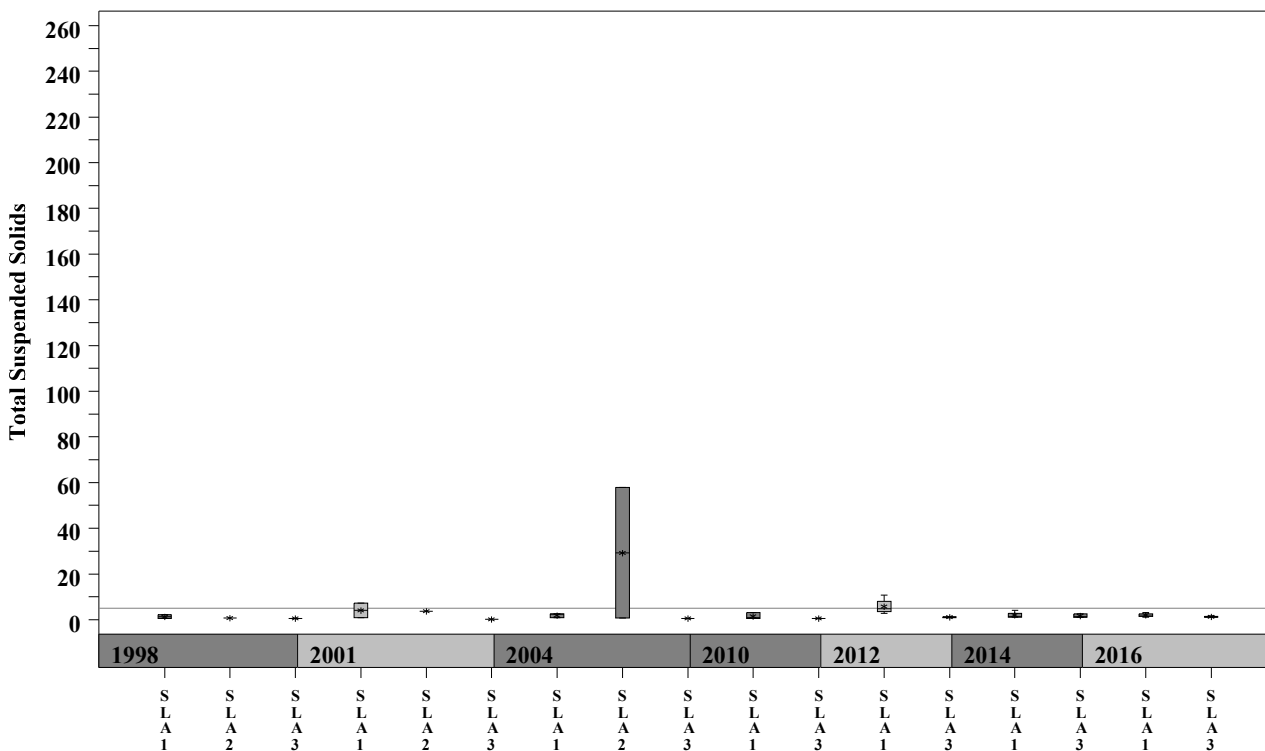
Gray highlighting indicates that the value exceeds one standard deviation from the mean of all E.I.I. sites combined.

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

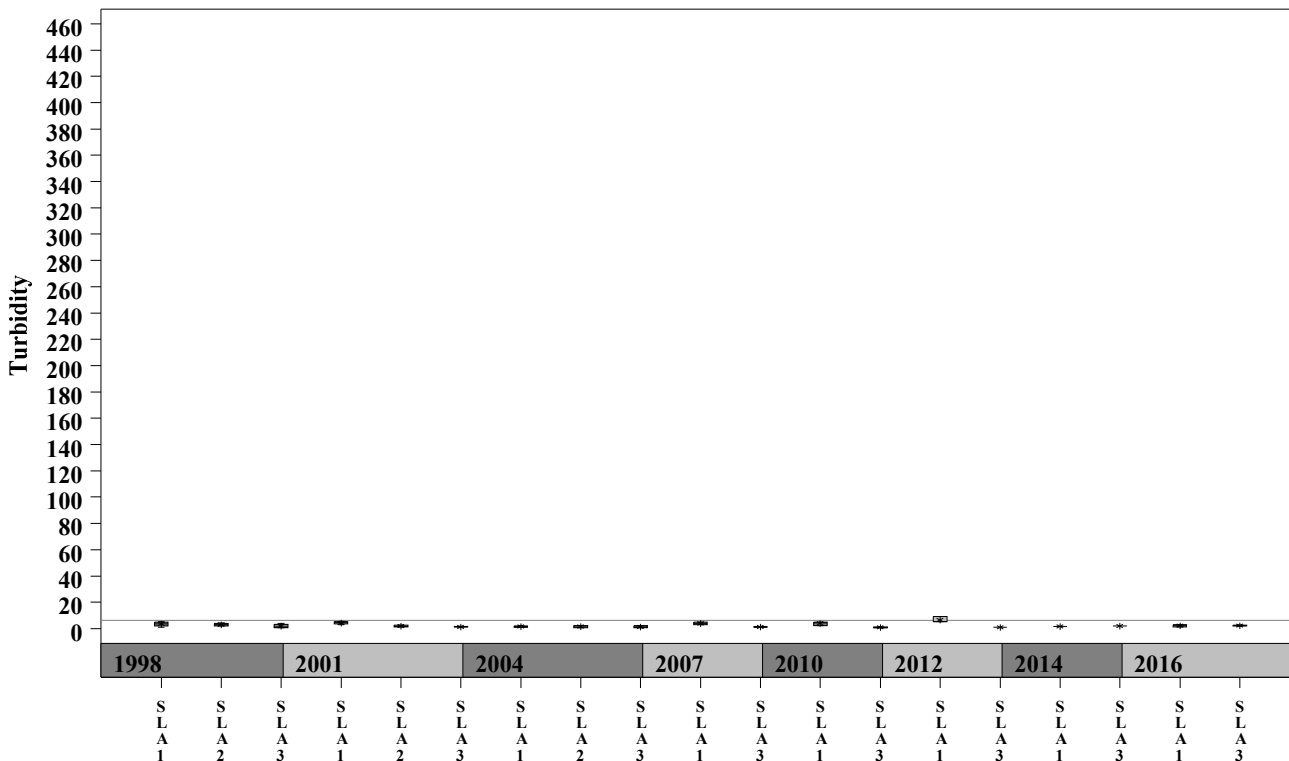
Slaughter Creek Watershed

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

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



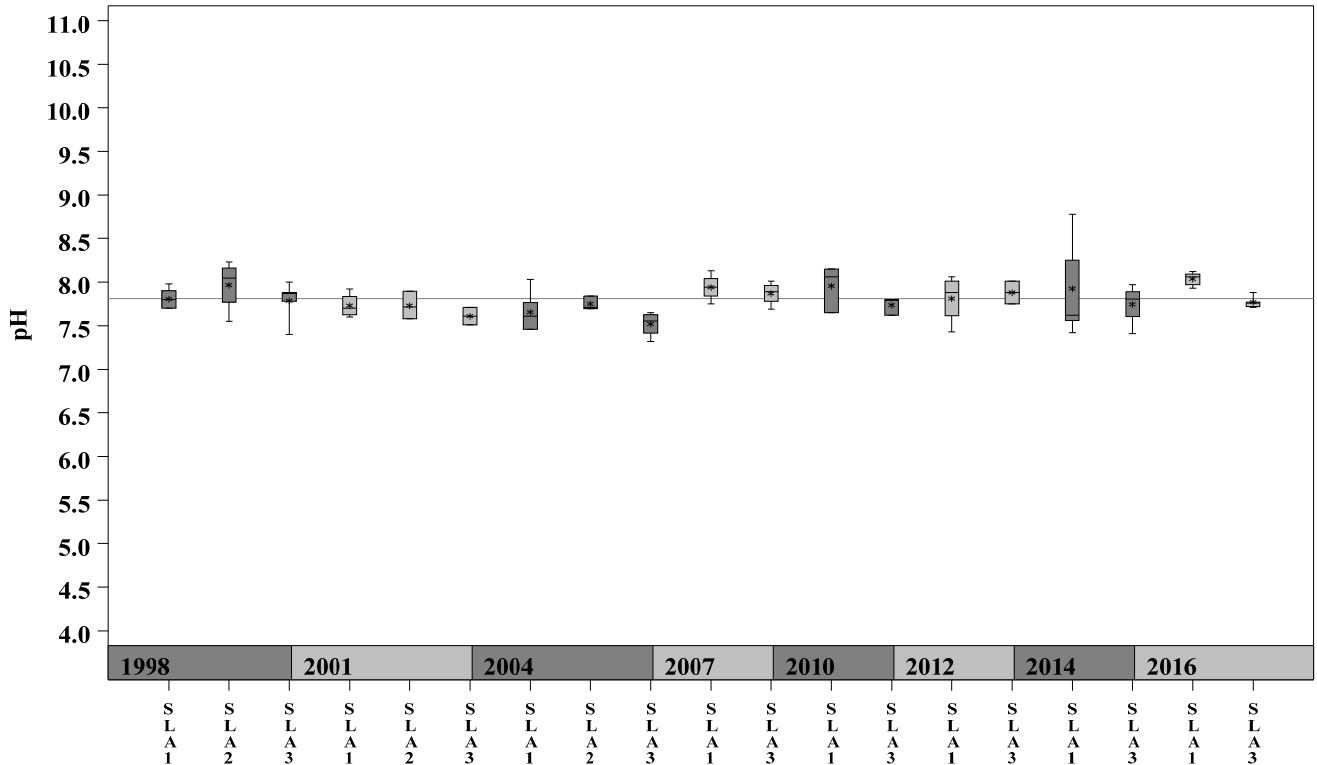
Parameter = TURBIDITY Unit = NTU Watershed = Slaughter



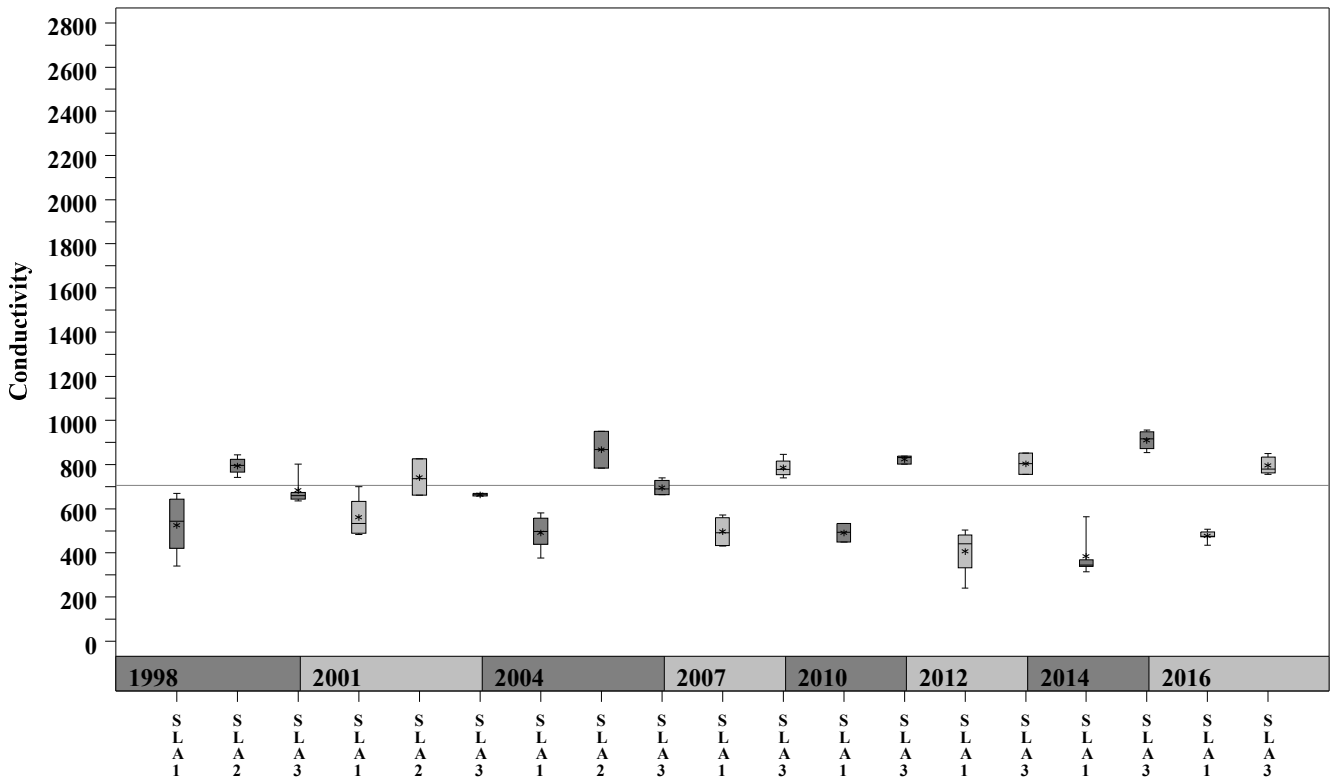
Slaughter Creek Watershed

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

Parameter = pH Unit = Standard Units Watershed = Slaughter

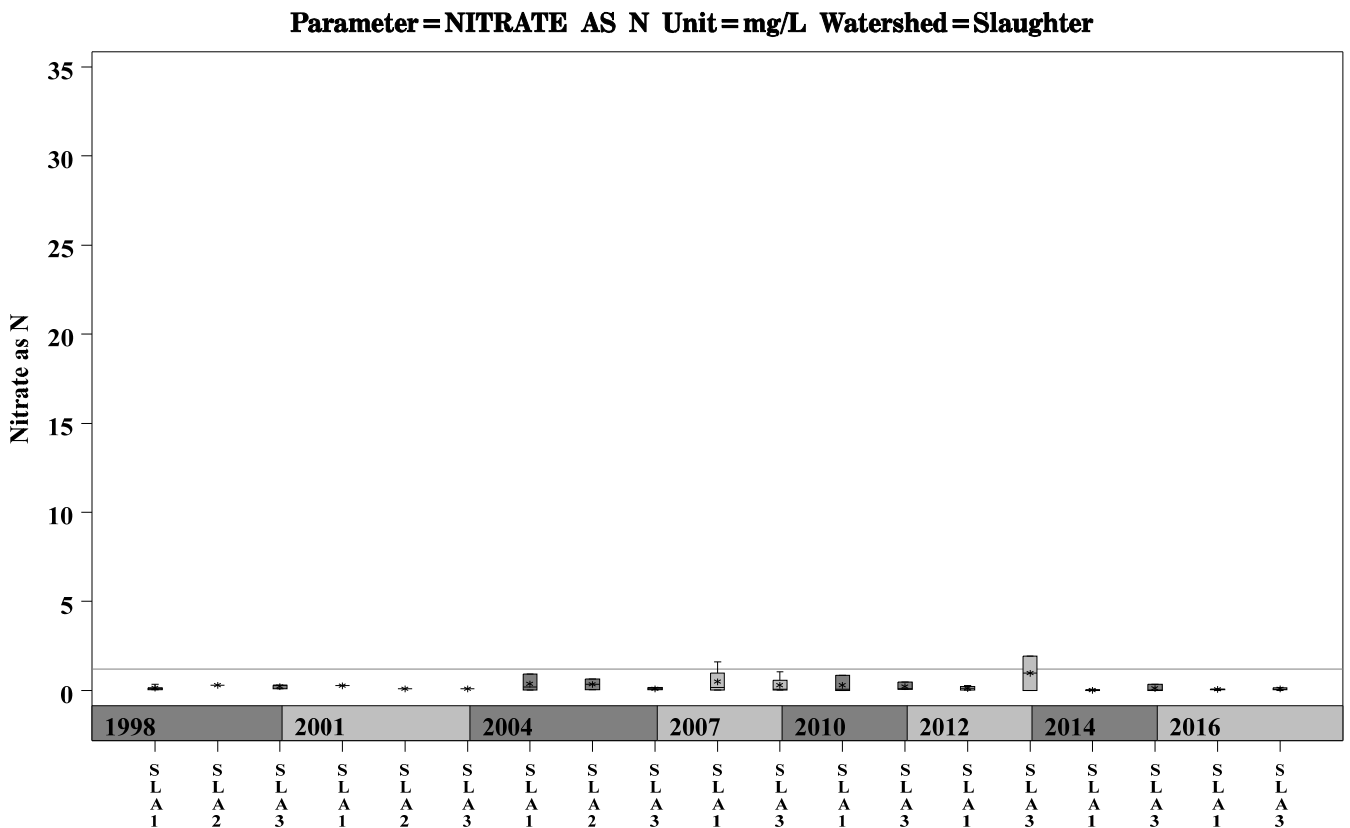
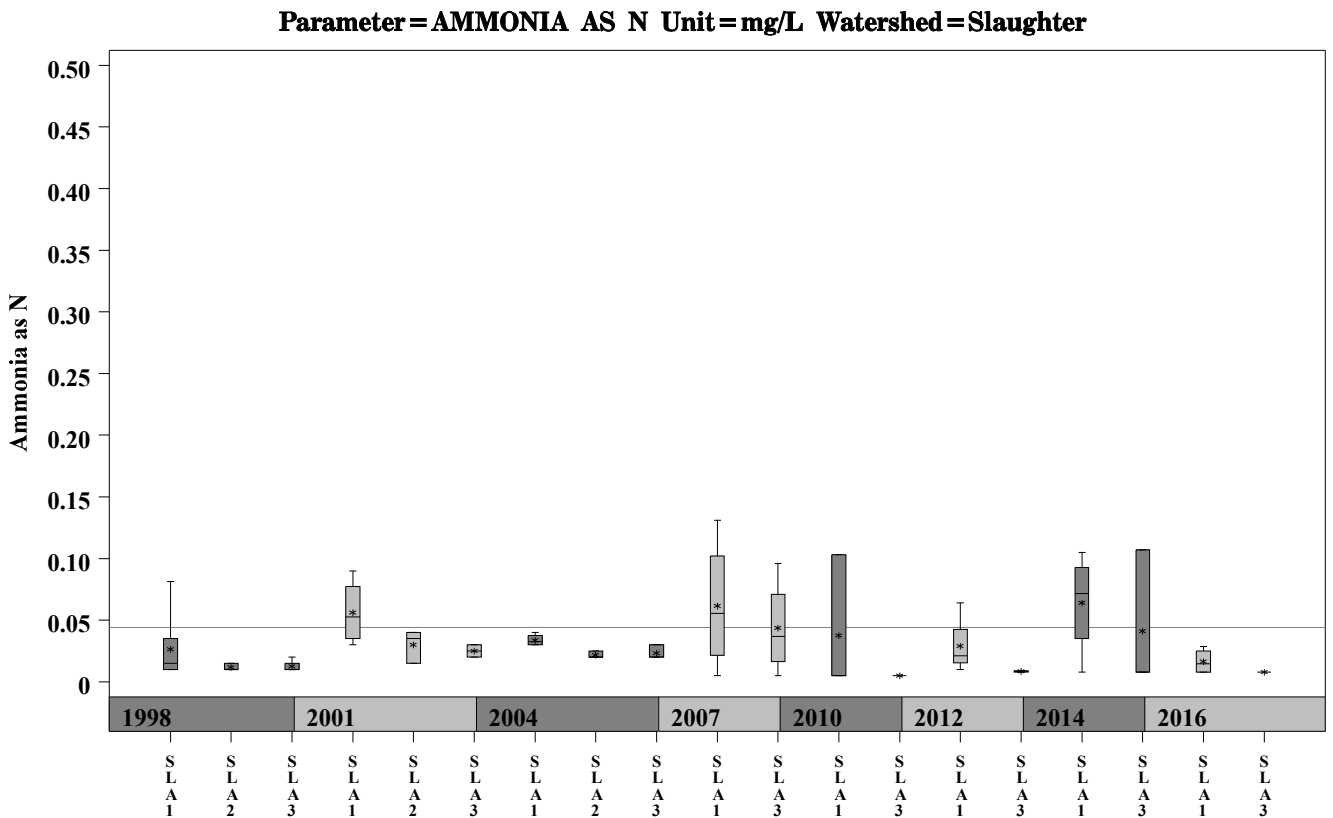


Parameter = CONDUCTIVITY Unit = uS/cm Watershed = Slaughter



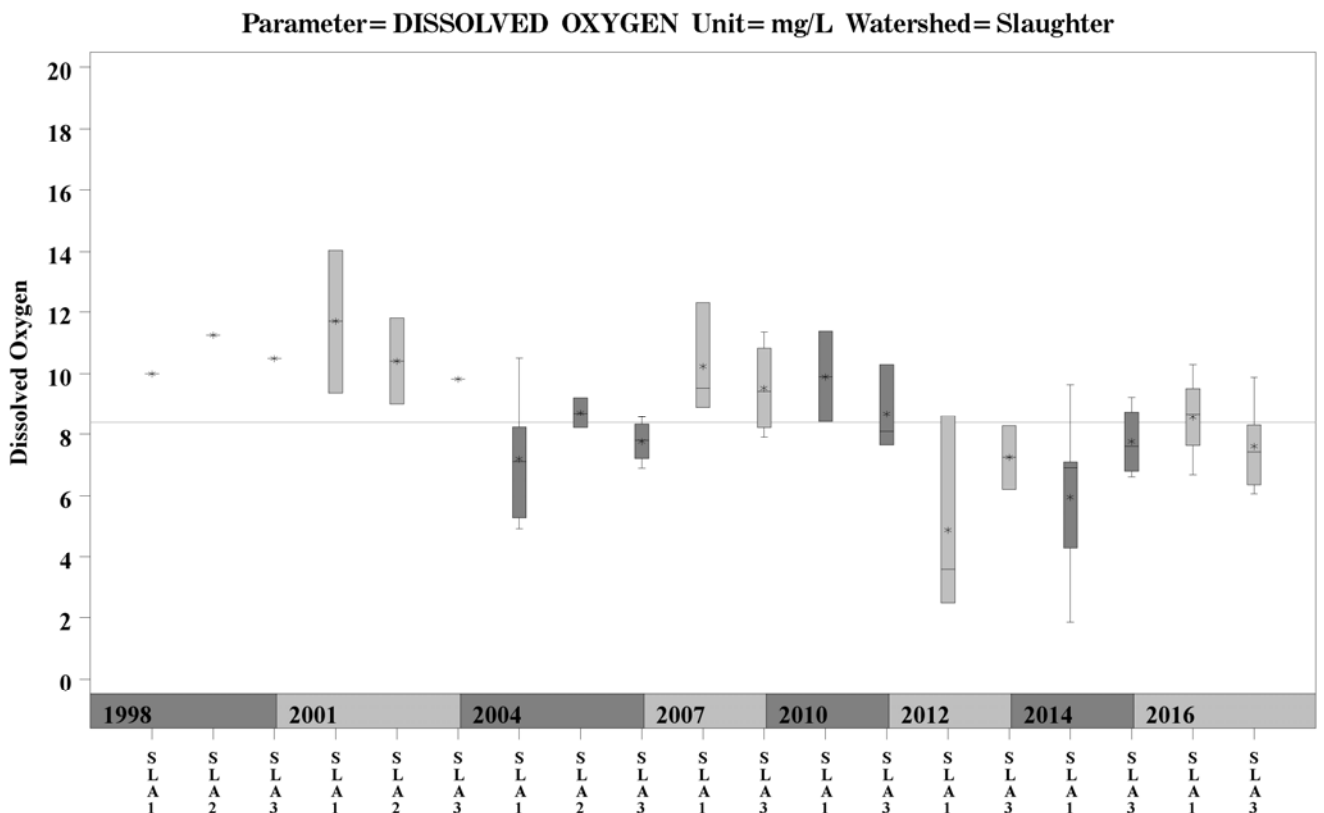
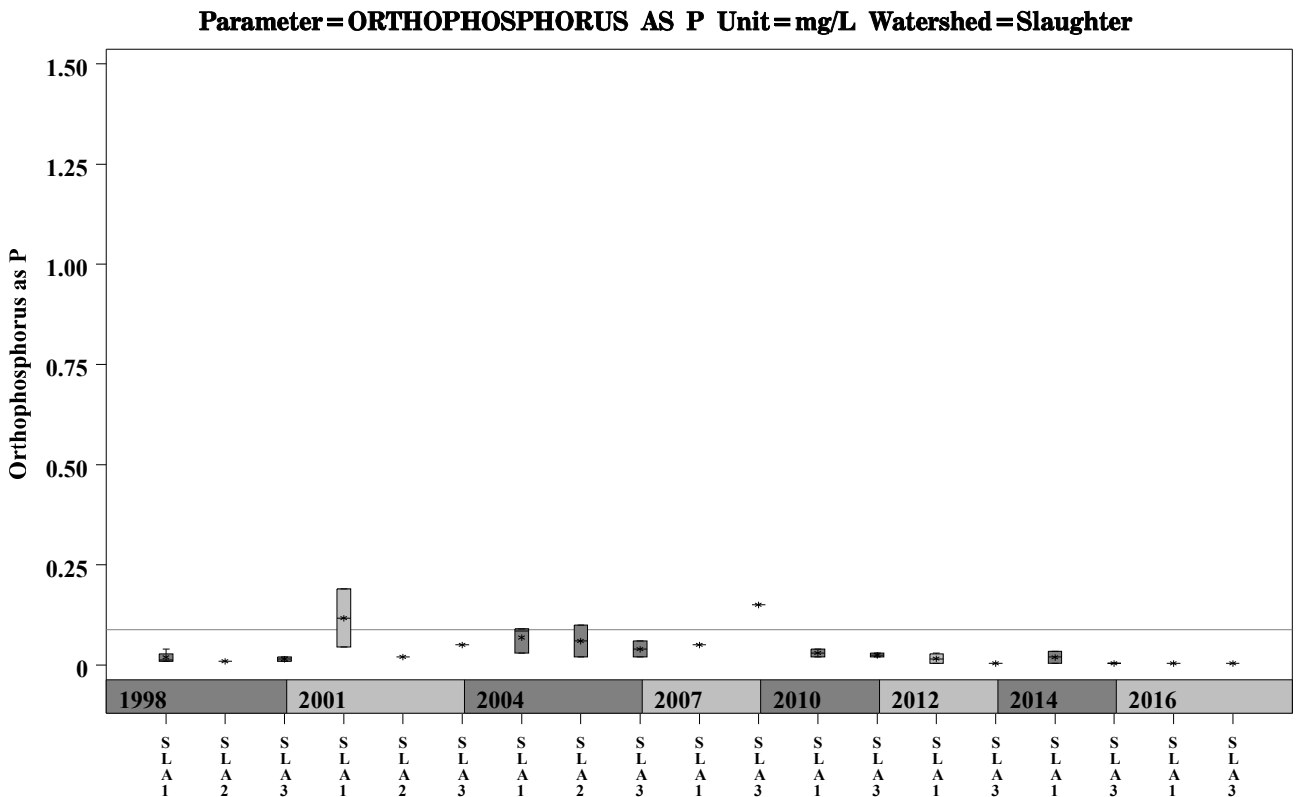
Slaughter Creek Watershed

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



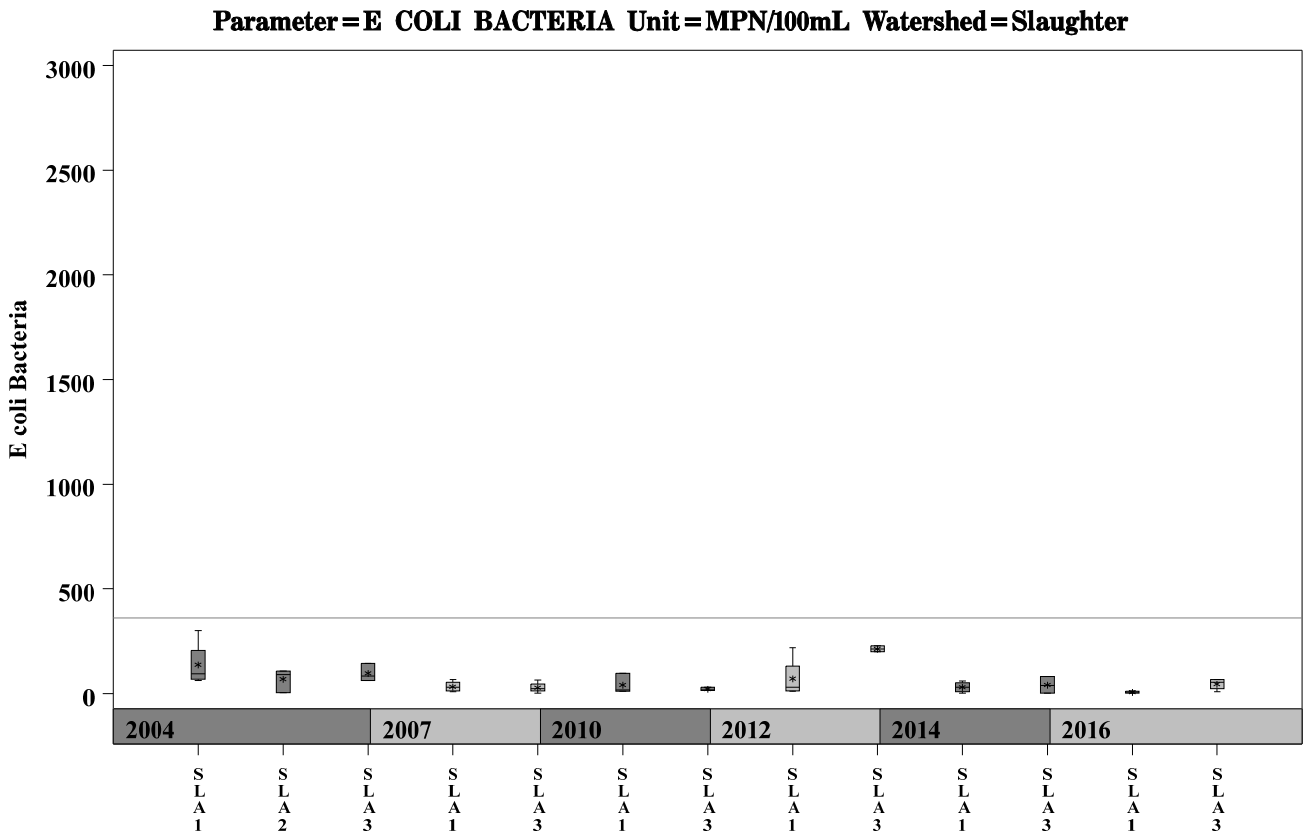
Slaughter Creek Watershed

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



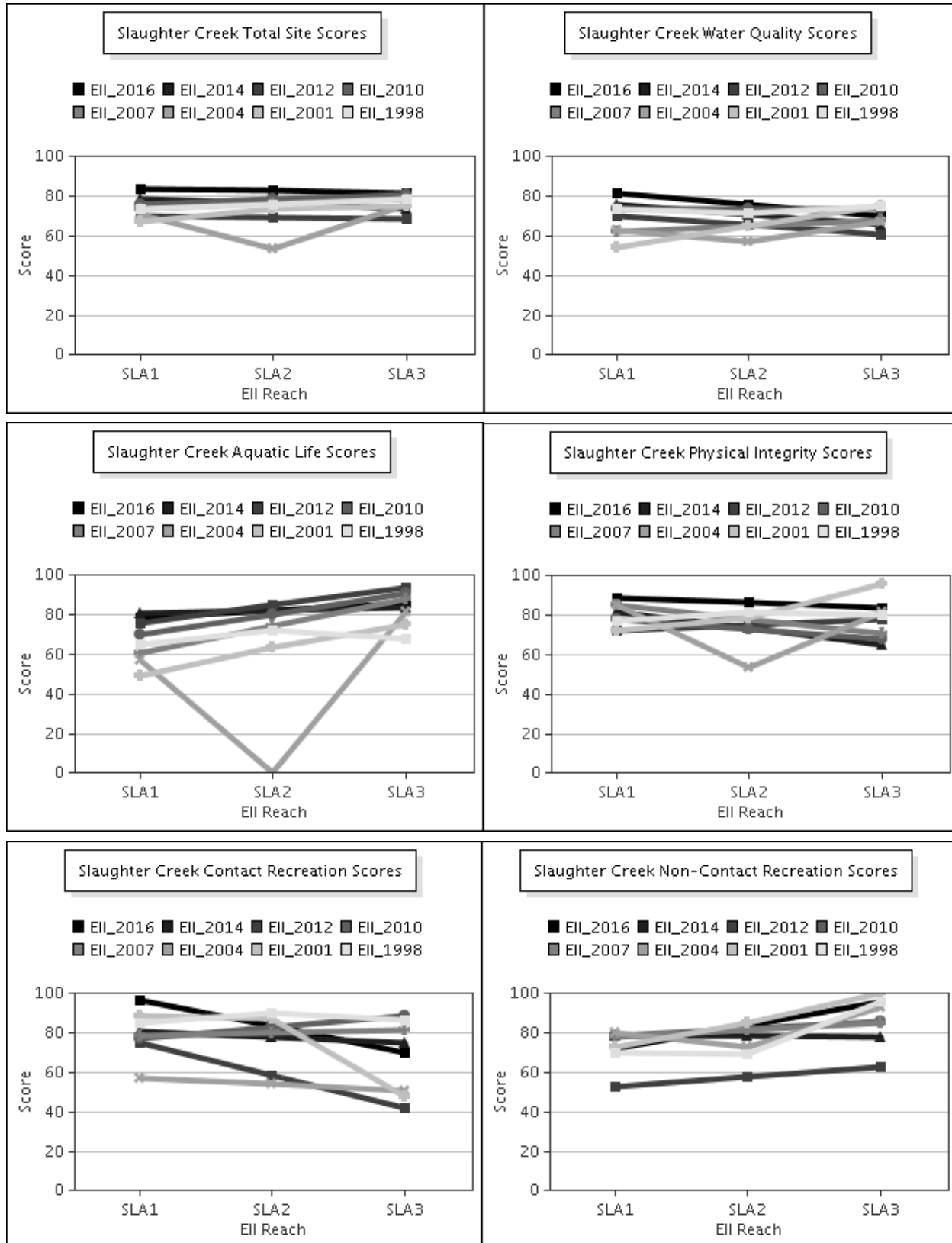
Slaughter Creek Watershed

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



Slaughter Creek Watershed

Score Summary – Reach scores for each sample year



Slaughter Creek Watershed

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

Benthic Macroinvertebrates - Slaughter Creek			SLA @ FM 1826 (623) 05/13/2016 (WRE)	SLA @ Pine Vly (1082) 05/06/2016 (WRE)
Benthic Macroinvertebrate ID	PTI	FFG		
Chimarra	2	FC	19	28
Hydroptila	2	PI,SC		1
Microcylloepus Pusillus	2	CG,SC		1
Callibaetis	4	CG	1	
Camelobaetidius	4	CG	4	1
Fallceon	4	CG,SC	47	87
Ostracoda	4	CG,FC	1	
Simulium	4	FC	6	38
Cincinnati Cincinnatiensis	5	SC		3
Tricorythodes	5	CG		2
Sphaerium (Clam)	5	FC		7
Argia	6	P	28	
Brechmorhoga Mendax	6	P	1	
Cheumatopsyche	6	FC	20	206
Chironomidae	6	FC,P	7	91
Hetaerina	6	P	2	
Hydracarina	6		1	
Stenonema Femoratum	6	CG,SC	14	
Tanypodinae	6	P	2	1
Bezzia / Palpomyia	7	CG,P		2
Gyraulid	7	SC	3	
Scirtidae	7	CG,SC,S H	1	
Stenelmis	7	CG,SC	5	13
Hirudinea	8	P		1
Hyaella	8	CG,SH	7	
Physella	9	SC	17	
Dugesia		CG,P		61

Slaughter Creek Watershed

Site Photographs



1082_ds_07_13_2007



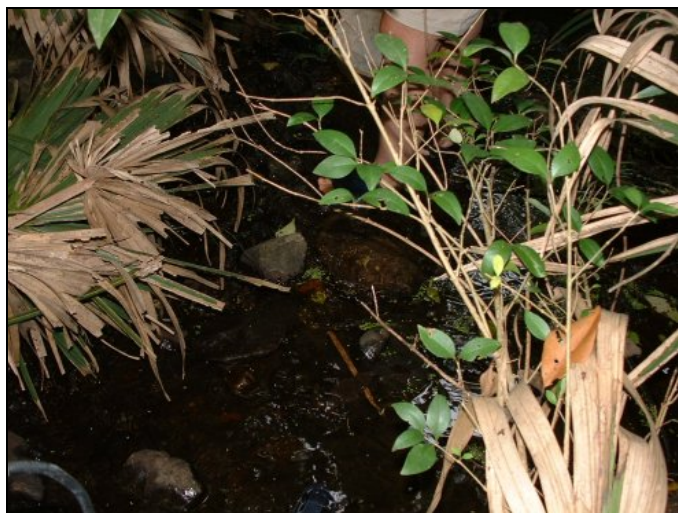
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1082_00-ds-05_27_2010



1082_00-us-05_27_2010



1083_t00-ur-05_24_2004



1083_t00-us-05_24_2004

Slaughter Creek Watershed

Site Photographs



1084_t00-ds-05_17_2004



1084_t00-us-05_17_2004



623_ds_06_20_2007



623_us_06_20_2007



623_00-ds-05_28_2010



623_00-us-05_28_2010