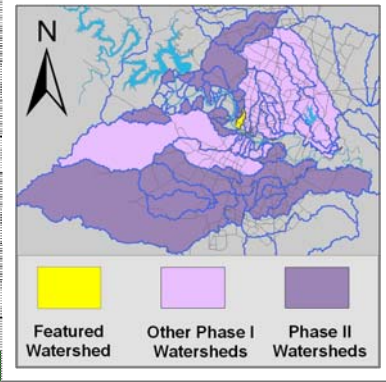


Johnson Creek Watershed

Watershed Overview

Catchment	Total area	2 square miles						
	Area in recharge	1.9 square miles						
	Creek length	3 miles						
	Receiving water	Town Lake						
Demographics	2000 population	7,655						
	2030 projected population	10,820						
	30 year projected % increase	41 %						
Land Use	Impervious cover (2003 estimate)	44.2 %						
	Impervious cover (2013 estimate)	47.3 %						
Overall EII Scores	2000	2003	2006	2009	2011	2013	2015	
	53	56	47	51	35	52	50	



Flow Regime* for Sample Sites on Johnson 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	May	Oct	Dec	Dec	Mar	Jun	Jun	Sep	Jan	Apr	Jun	Jun	Sep	Jan	Apr	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	WQ	WQ	Bio	WQ	WQ	WQ	WQ
847	B	B	B	B	B	B	B	B																								
897			n	B	B	n	n	n	n	B	B	n	B	B	B	B	B	n	n	n	n	n	B	n	n	n	n	B	n	n	n	

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

Index Scores* for Johnson 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
JOH1	489	Johnson Creek @ Stephen F Austin Drive	2000		82		65	23				43
JOH1	847	Johnson Creek @ South Tarrytown	2000	43	82	70	87	43	34	47	20	60
JOH1	1357	Unnamed (Possum Trot) Trib US of West 7th St	2000		82		78	30				48
JOH1	847	Johnson Creek @ South Tarrytown	2003	49	60	53	71	57	39	61	16	55
JOH1	897	Johnson Creek @ Woodmont Avenue	2003		60		75	57	33	37	28	56
JOH1	897	Johnson Creek @ Woodmont Avenue	2006	44	65	24	49	45	55	36	73	47
JOH1	897	Johnson Creek @ Woodmont Avenue	2009	49	73	27	59	41	59	59	58	51
JOH1	897	Johnson Creek @ Woodmont Avenue	2011				60	48				36
JOH1	897	Johnson Creek @ Woodmont Avenue	2013	37	70	43	83	39	37	19	54	52
JOH1	897	Johnson Creek @ Woodmont Avenue	2015	45	71	28	77	33	47	41	53	50

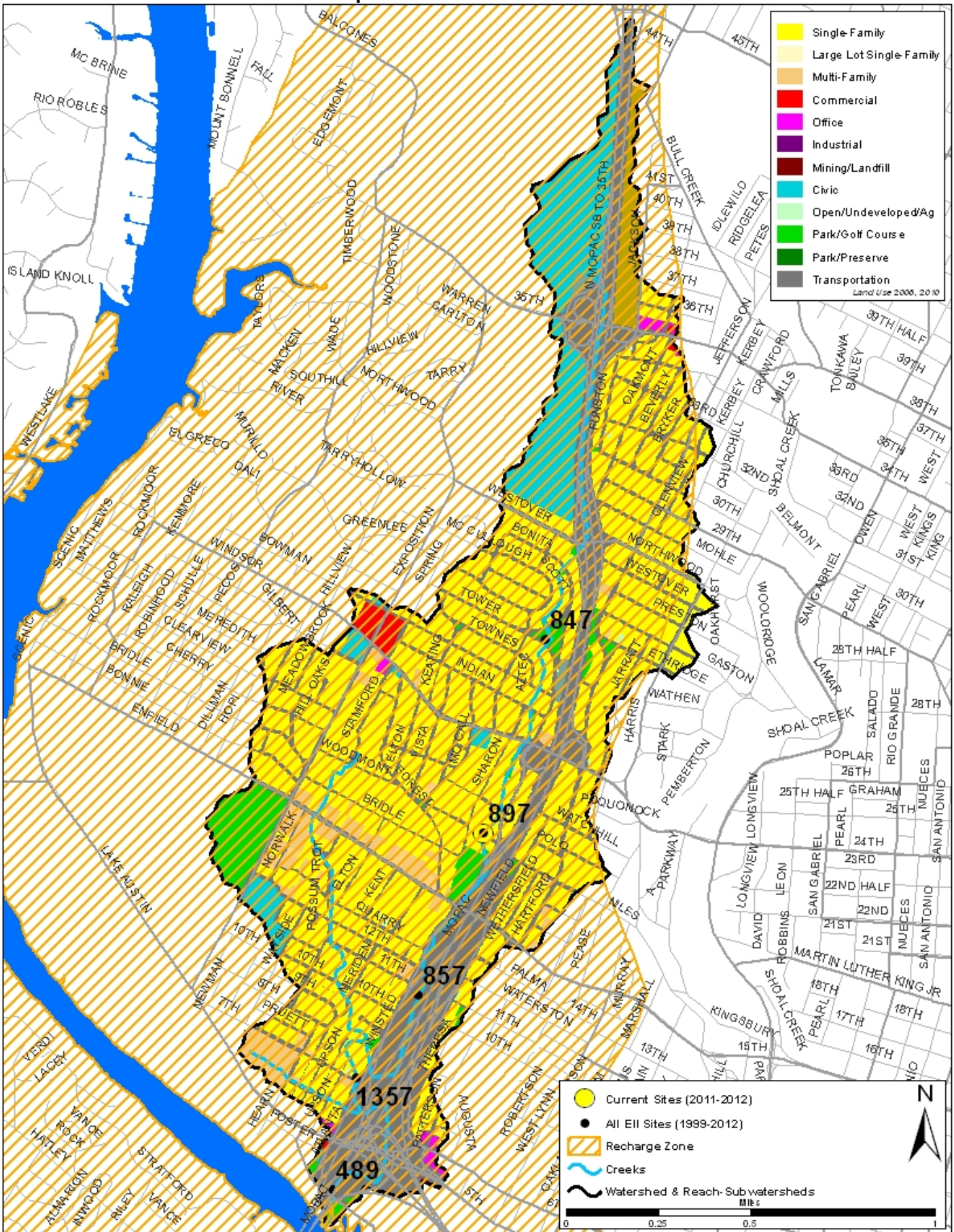
* blank cells indicate parameter was not collected, blank row indicate site was dropped

**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

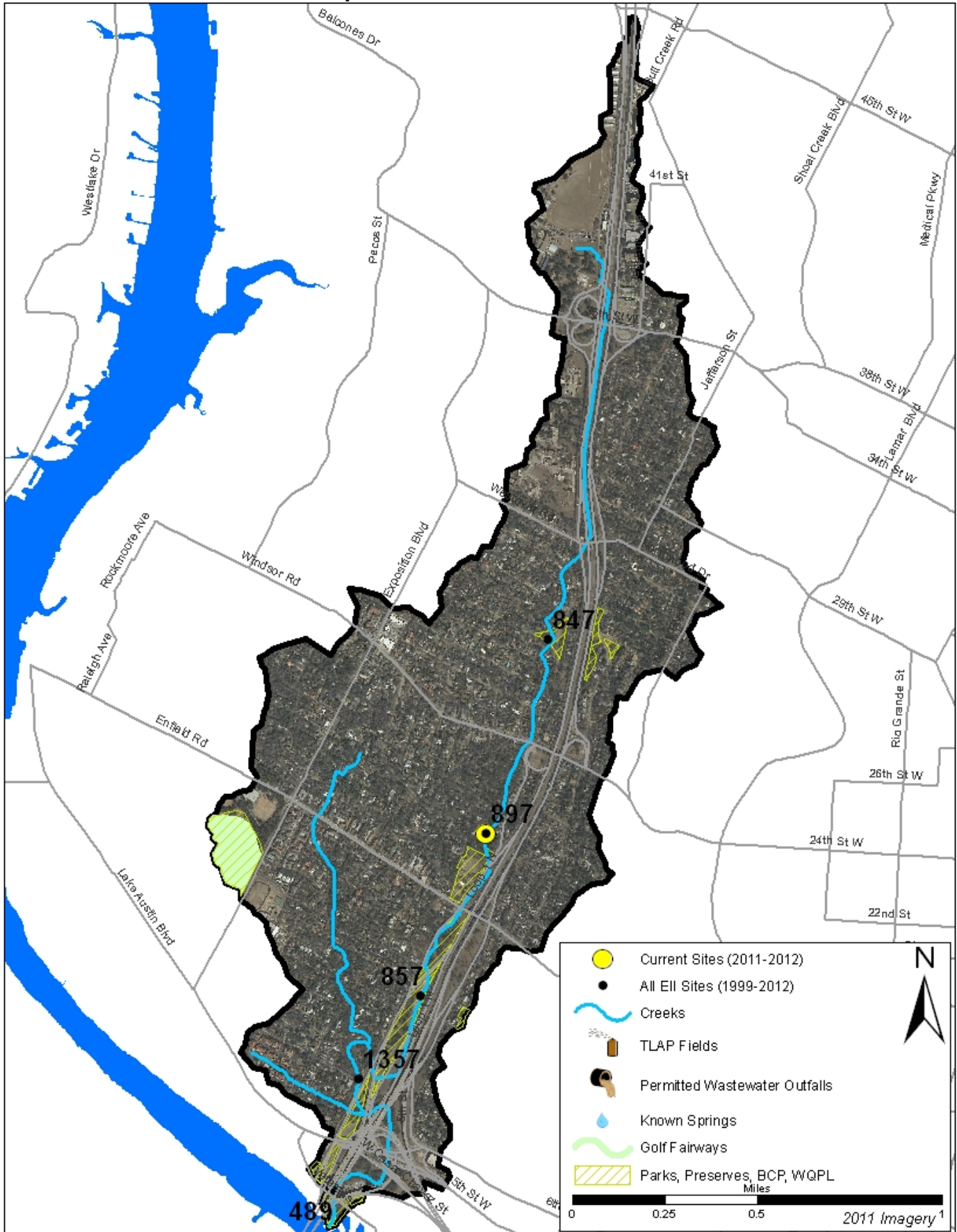
Johnson Creek Watershed

Land Use Map



Johnson Creek Watershed

Aerial Map



Johnson 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	EII Reach	Date	<> Temp. flag	<> Cond. flag	<> pH flag	<> D.O. flag	<> E. Coli flag
Johnson	897	JOH1	01/14/2015	7.0	893	8.22	11.7	435.2
JOH1 Mean				7.0	893	8.22	11.7	435.2
Johnson Mean				7.0	893	8.22	11.7	435.2

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	

Johnson 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	<>	flag
Johnson	897	JOH1	01/14/2015	<J	0.008	<>	1.1	<>	0.053	<J	1.0	<>	2.7
JOH1 Mean					0.008		1.1		0.053		1.0		2.7
Johnson Mean					0.008		1.1		0.053		1.0		2.7

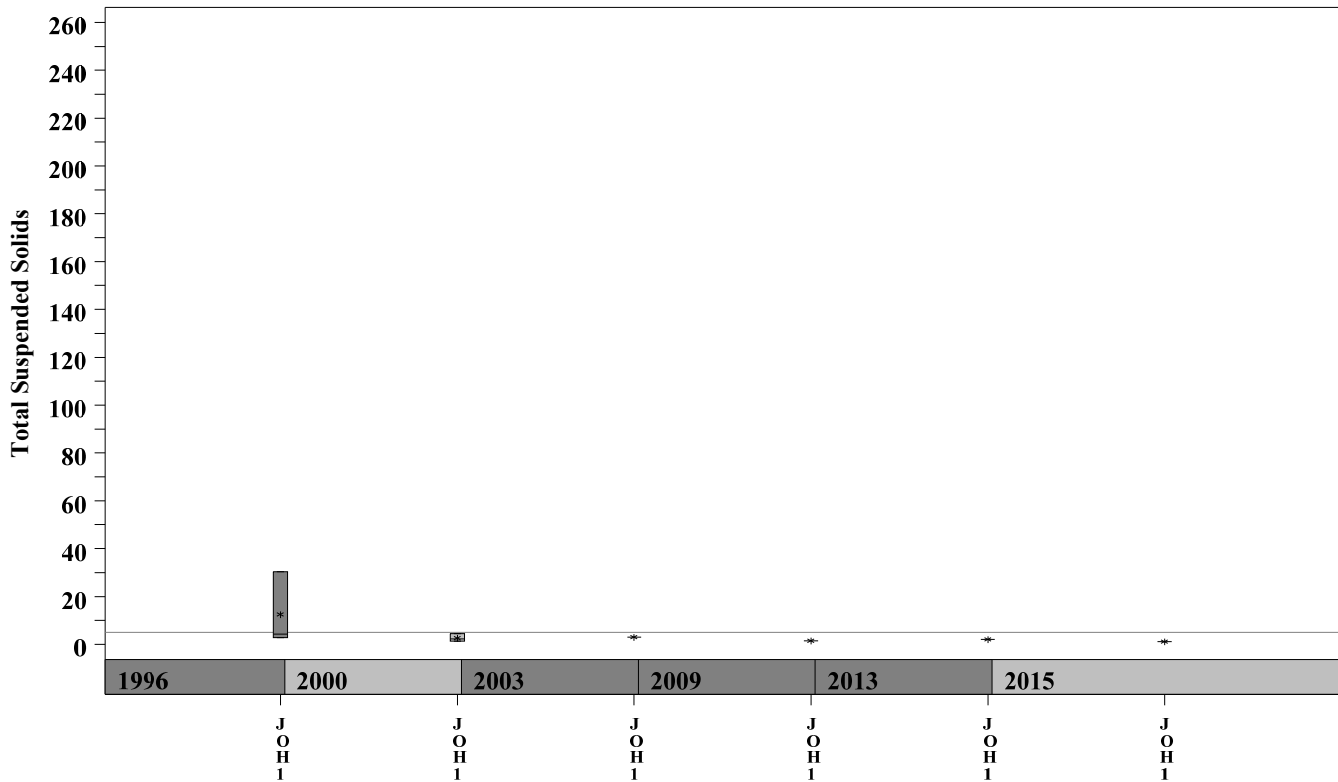
Gray highlighting indicates that the value exceeds one standard deviation from the mean of all E.I.I. sites combined.

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
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

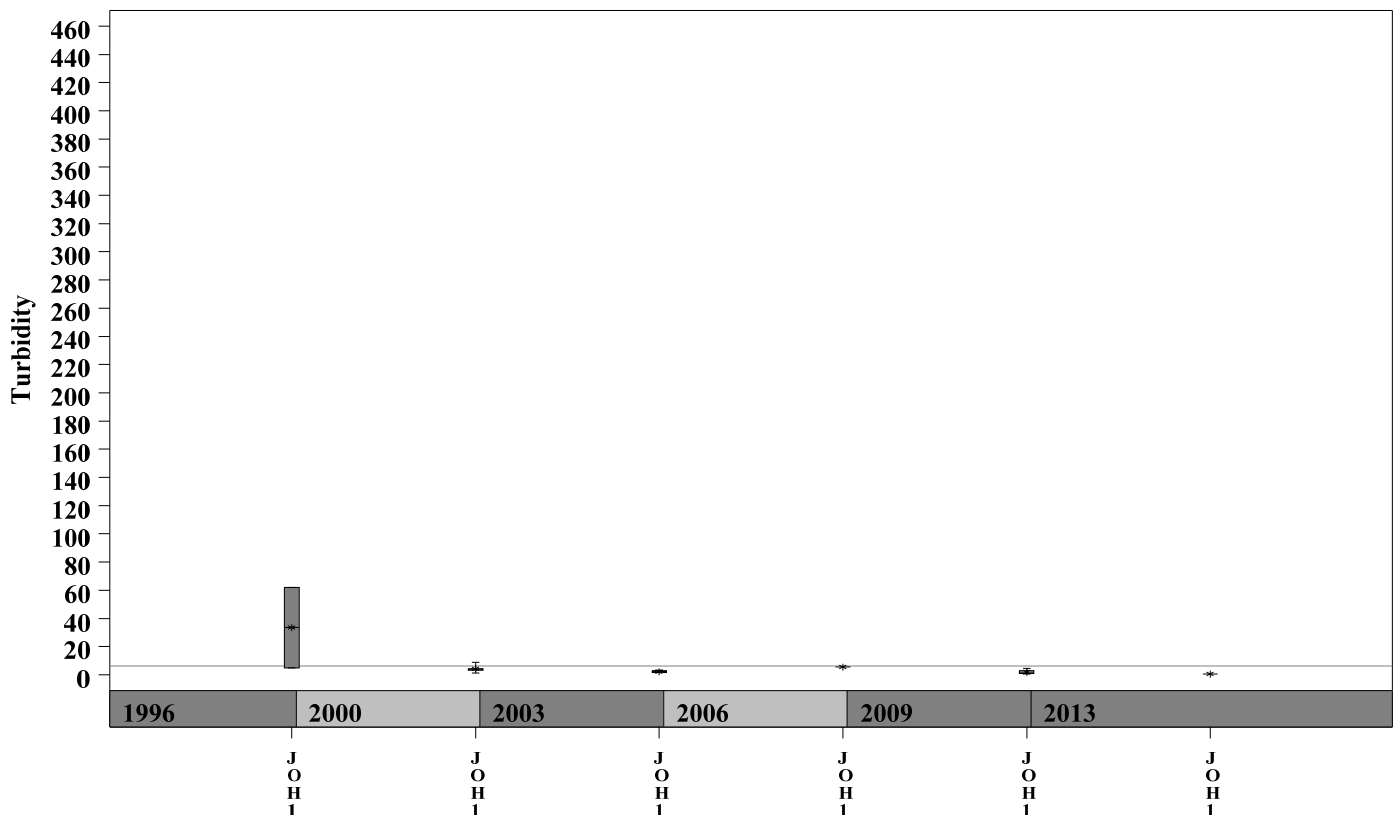
Johnson Creek Watershed

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

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



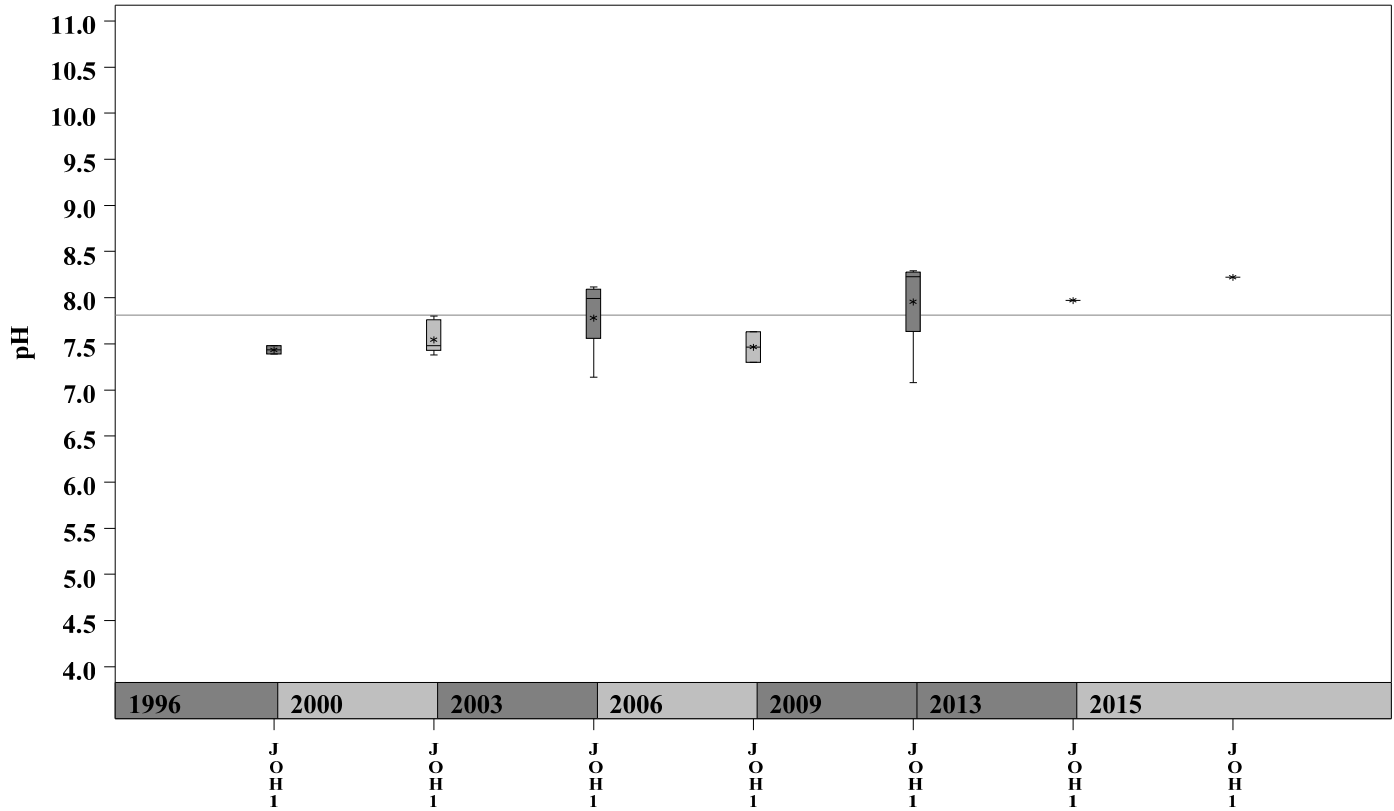
Parameter = TURBIDITY Unit = NTU Watershed = Johnson



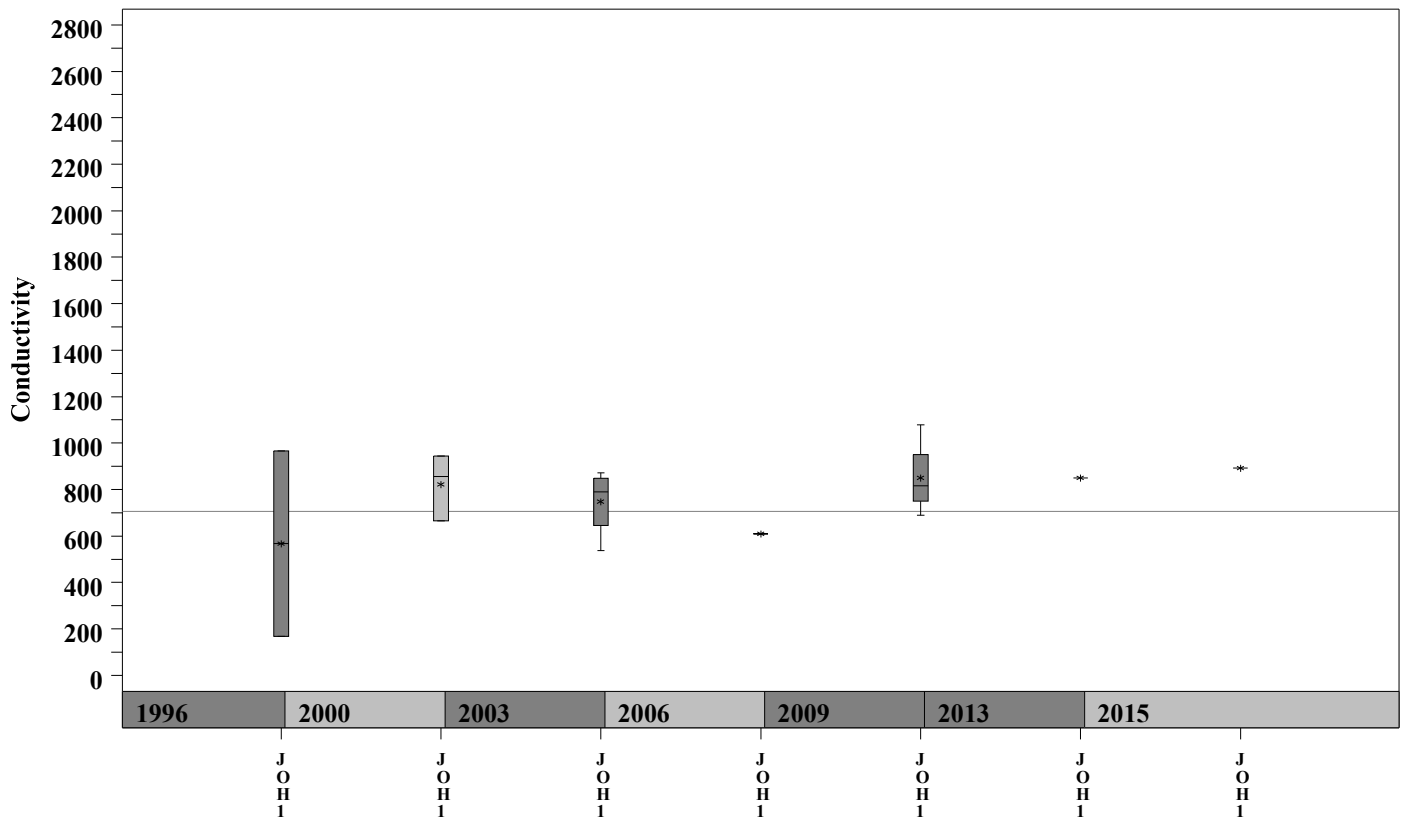
Johnson Creek Watershed

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

Parameter=pH Unit=Standard Units Watershed=Johnson



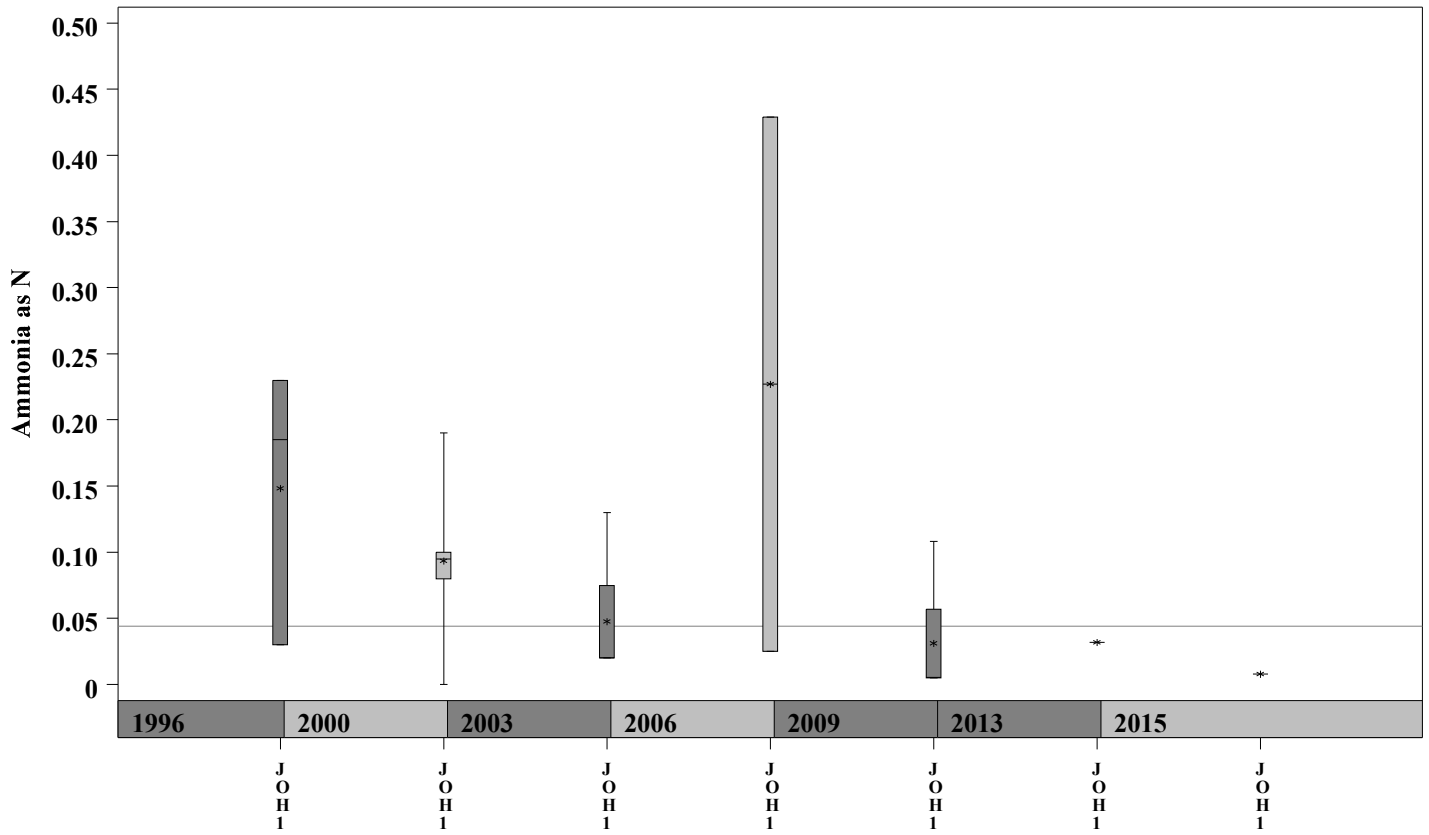
Parameter=CONDUCTIVITY Unit=uS/cm Watershed=Johnson



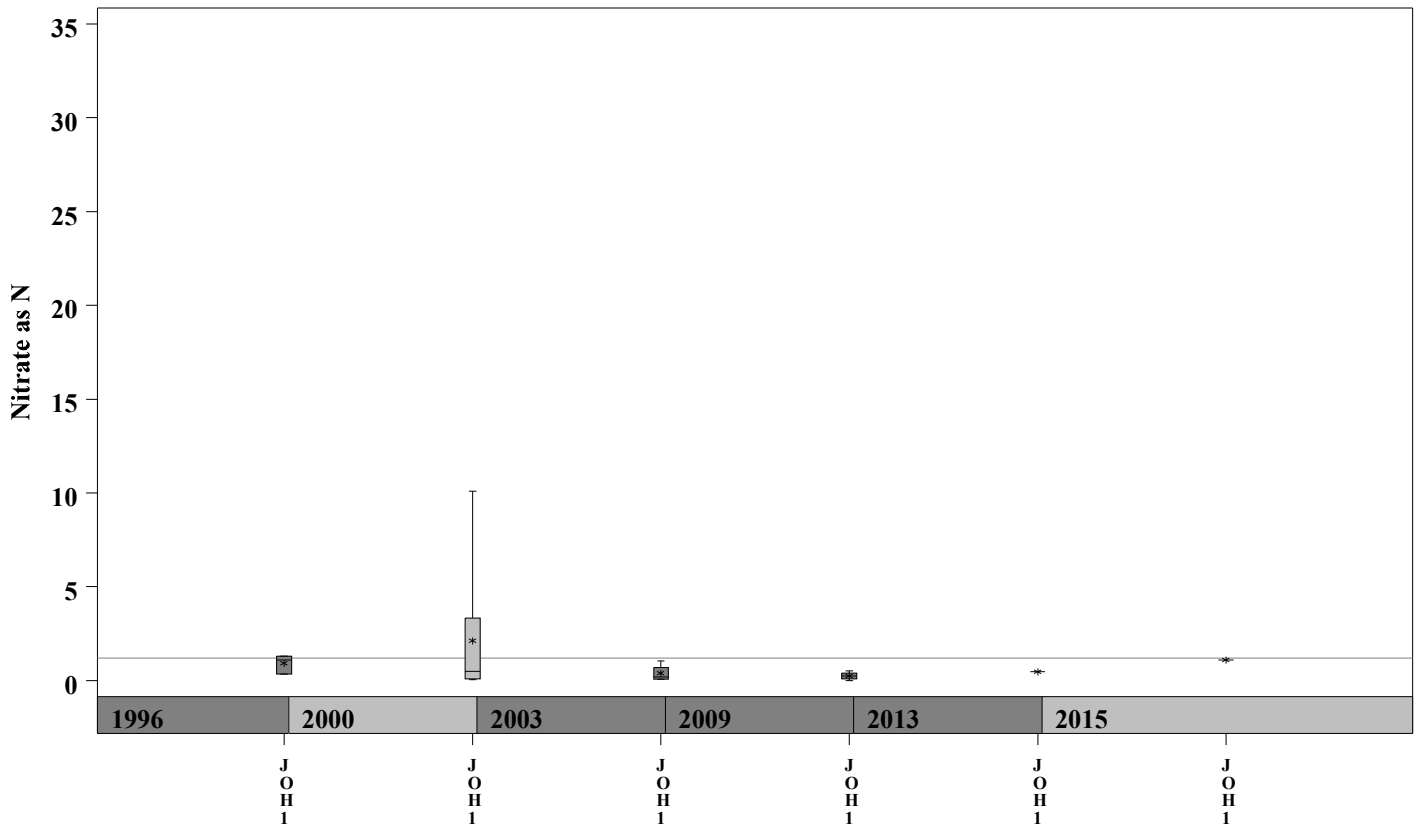
Johnson Creek Watershed

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

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



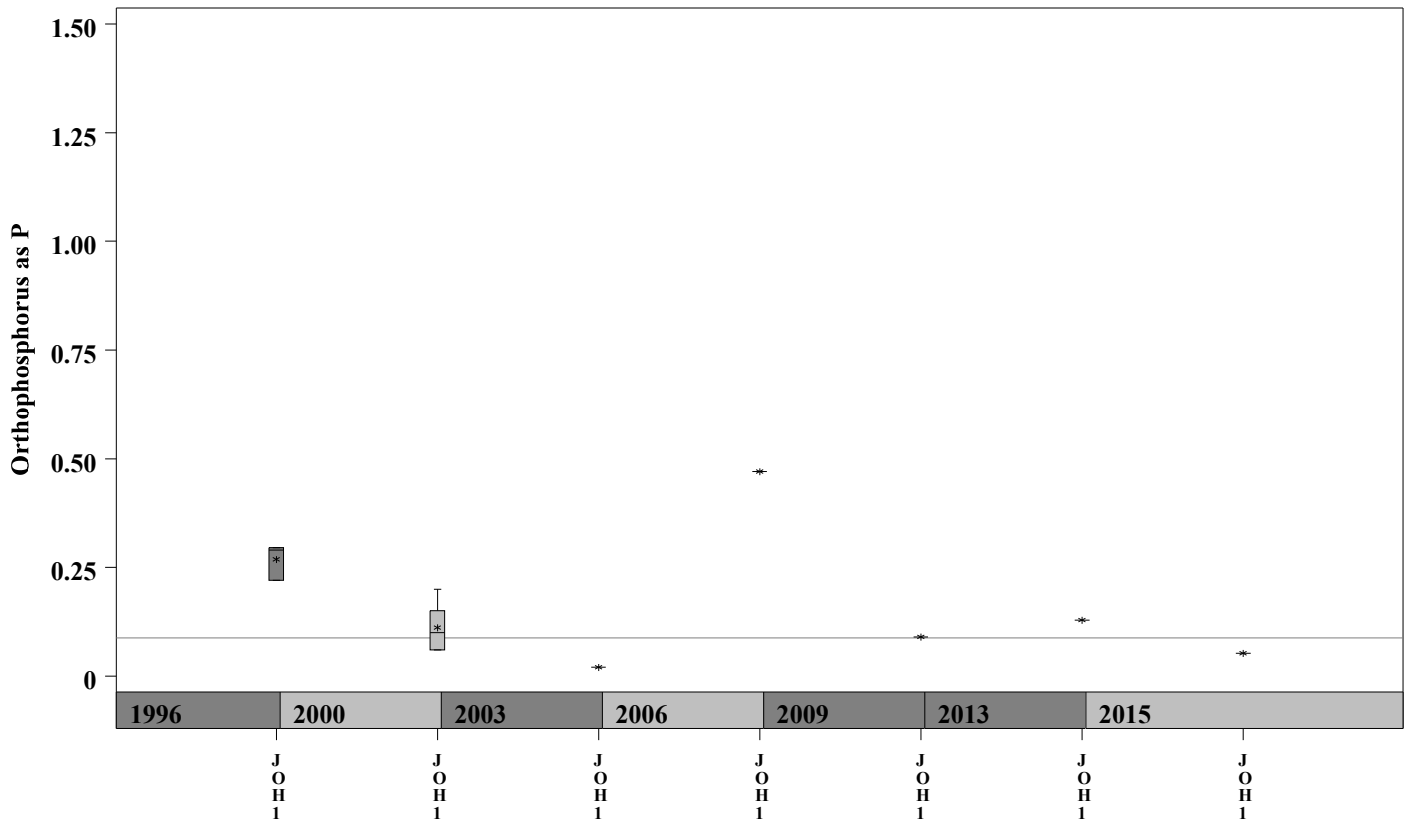
Parameter = NITRATE AS N Unit = mg/L Watershed = Johnson



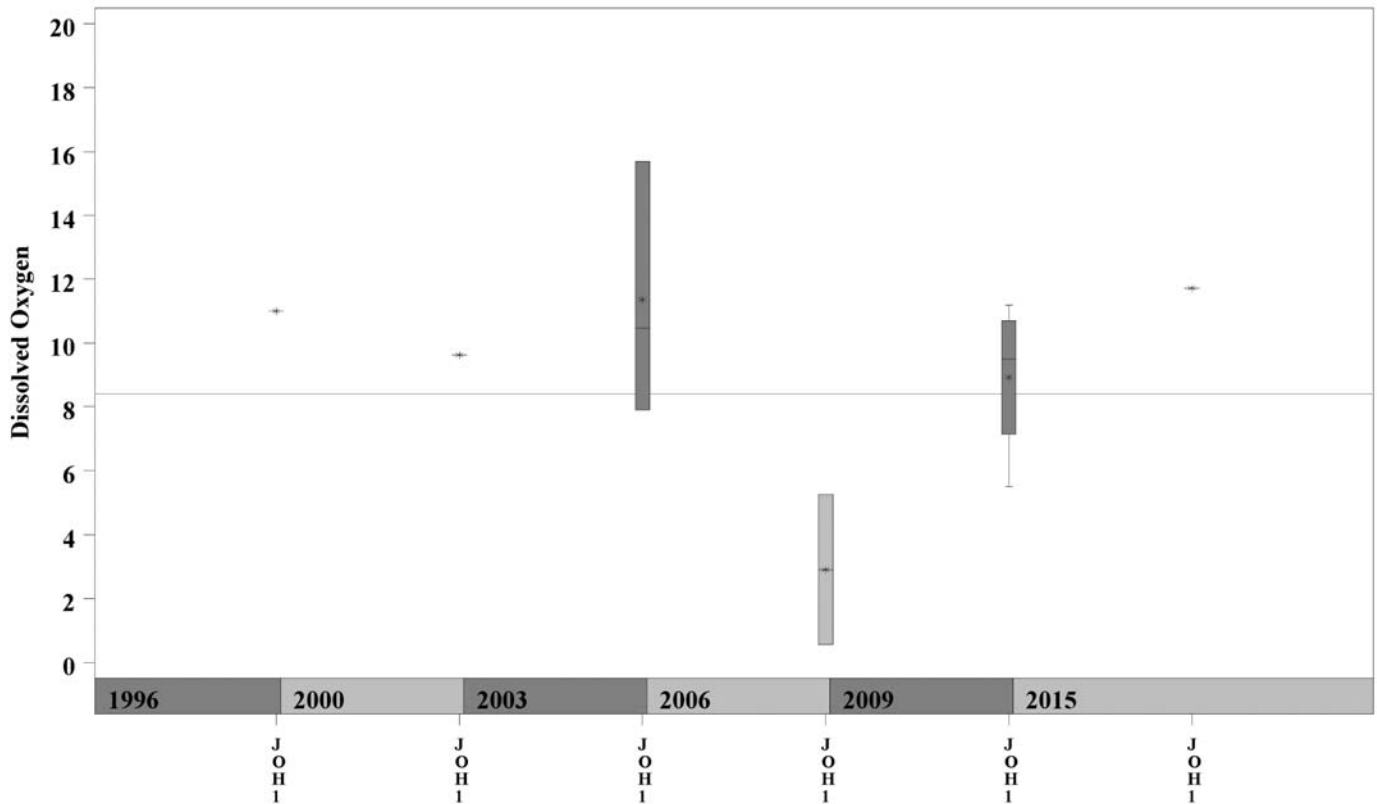
Johnson Creek Watershed

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

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



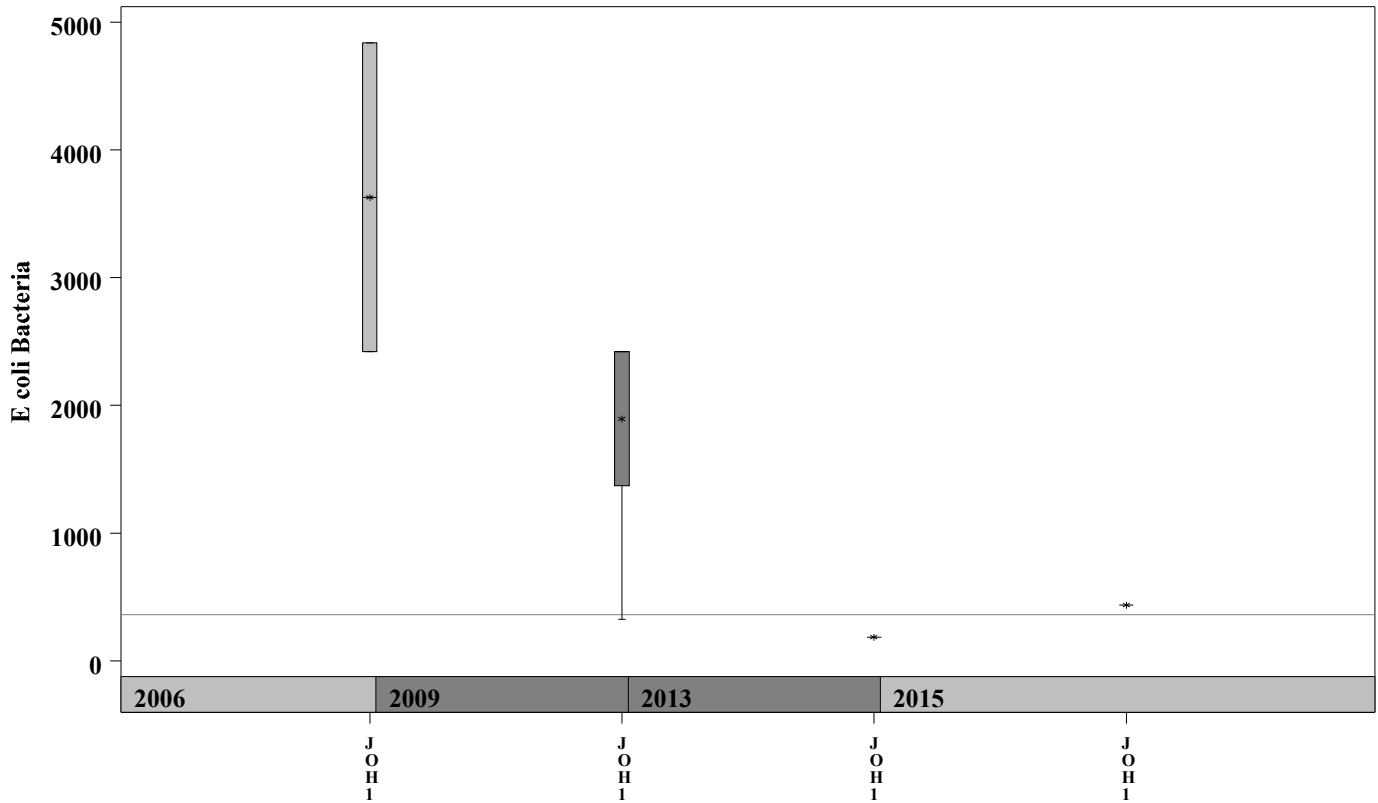
Parameter = DISSOLVED OXYGEN Unit = mg/L Watershed = Johnson



Johnson Creek Watershed

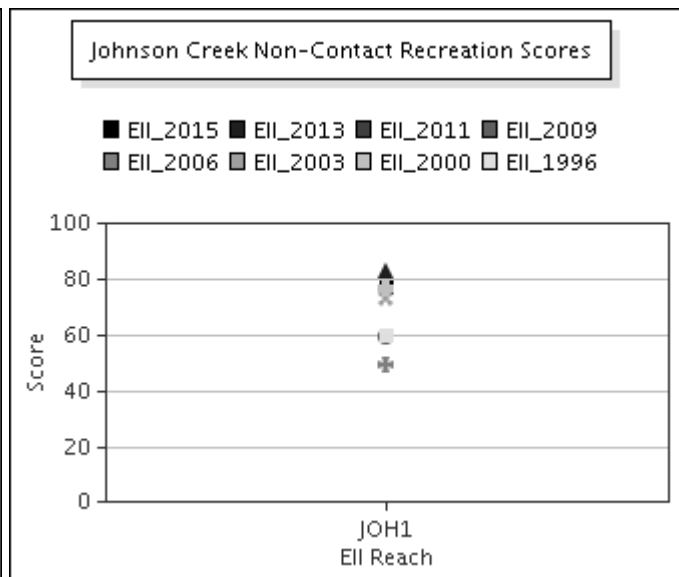
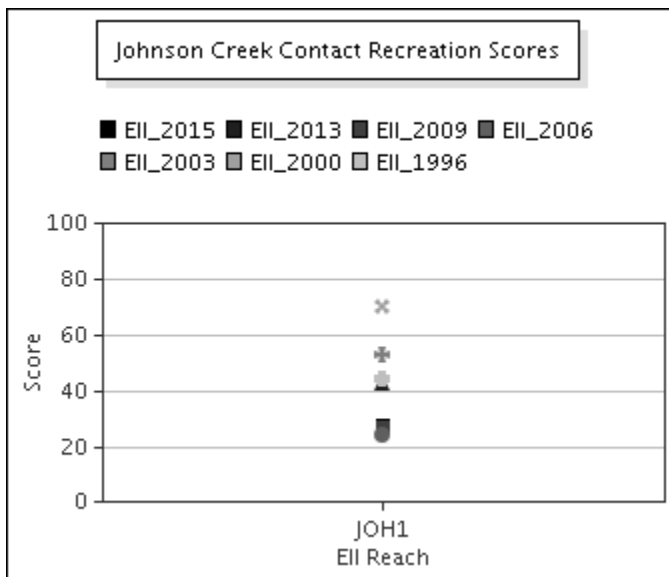
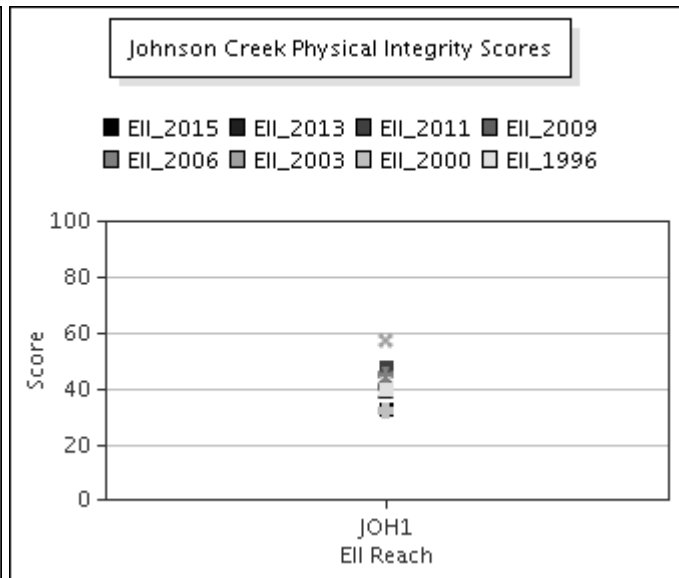
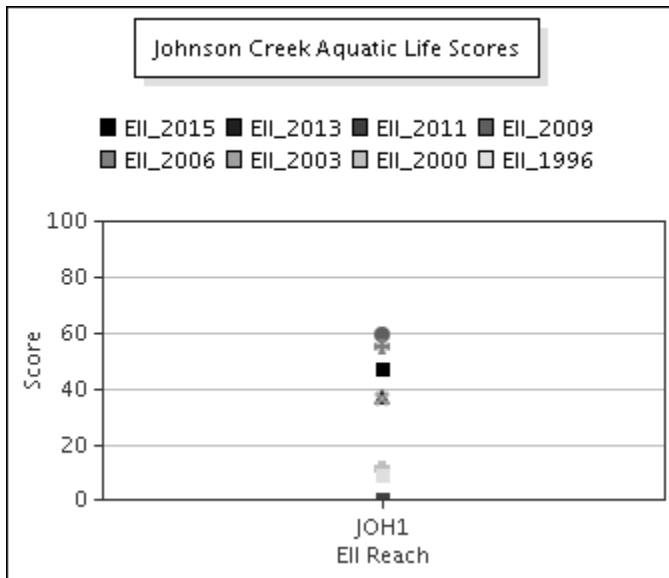
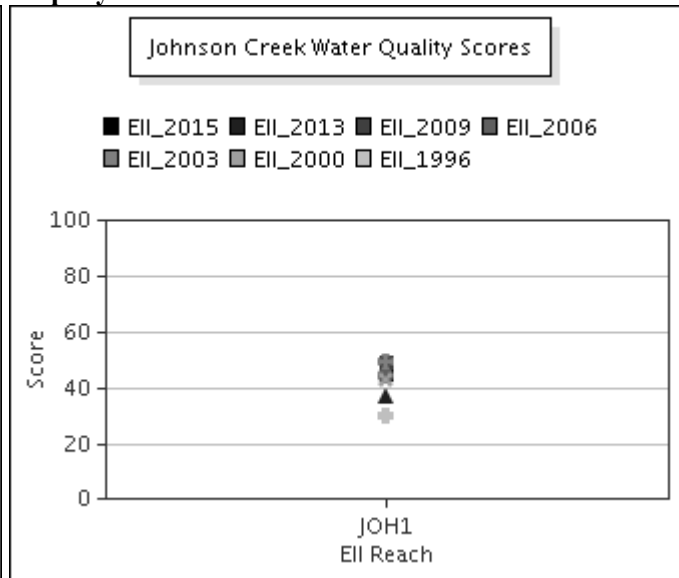
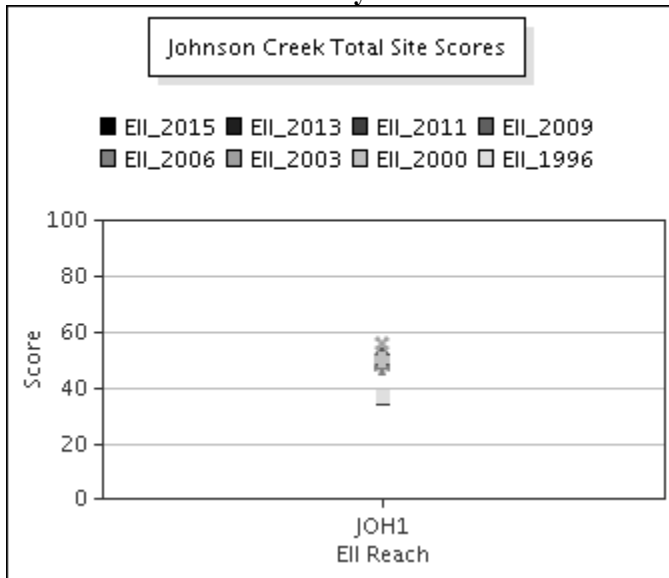
Data Summary Graphs – *E.coli* (Downstream to Upstream by Year)

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



Johnson Creek Watershed

Score Summary – Reach scores for each sample year



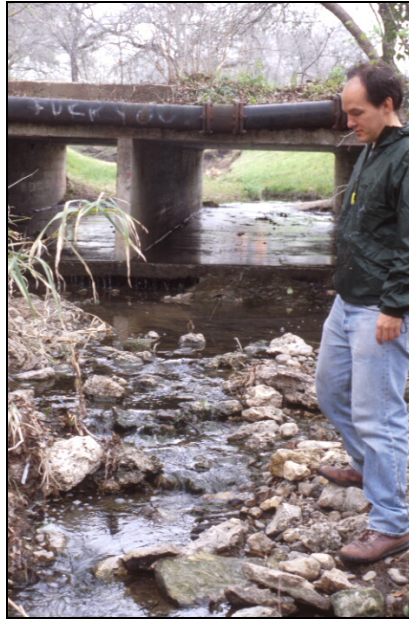
Johnson Creek Watershed

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

Benthic Macroinvertebrates - Johnson Creek			JOH @ Woodmont (897) 07/10/2015 (WRE)
Benthic Macroinvertebrate ID	PTI	FFG	
Copepoda	4	SC	1
Fallceon	4	CG,SC	1
Gerridae	5	P	1
Notonectidae	5	P	2
Uvarus	5	P	1
Archilestes	6	P	7
Argia	6	P	13
Chironomidae	6	FC,P	5
Microvelia	6	P	3
Tanypodinae	6	P	1
Anopheles	8	FC	1
Hirudinea	8	P	2
Tipula	8	CG,SH	1
Libellulidae	9	P	2
Physella	9	SC	68
Belostoma	10	P	3
Cambaridae		CG	1

Johnson Creek Watershed

Site Photographs



847_t00-us-03_10_2003



847_t00-ur-03_10_2003



847_t00-us-02_12_2001



847_t00-ds-02_12_2001



489_t00-us-02_12_2001



489_t00-ds-02_12_2001

Johnson Creek Watershed

Site Photographs



897_t00-us-02_13_2001



897_t00-ds-02_13_2001



897_t00-ds-07_07_2006



897_t00-us1-07_07_2006



897-t00-us-05-28-2009



897-t00-ds-05-28-2009