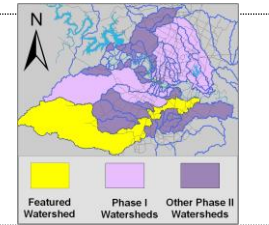


Onion Creek Watershed

Catchment	Total area	211 sq. miles				
	Area in recharge	24.6 sq. miles				
	Creek length	79 miles				
Demographics	Receiving water	Colorado River				
	2000 population	32,955				
Land Use	Impervious cover (2003 estimate)	3.3 %				
	Impervious cover (2013 estimate)	9.5 %				
Overall EII Scores	2001	2004	2007	2010	2012	2014
	82	80	79	86	80	80



Flow Regime* for Sample Sites on Onion Creek

Site	Site Name	2001		2002		2003		2004				2007				2010		2011		2012				2014																	
		Mar	Jun	Sep	Dec	Feb	Mar	Mar	Mar	Mar	May	May	Jun	Oct	Dec	Feb	May	Jun	Jul	Aug	Sep	Dec	Mar	May	May	Oct	Dec	Mar	Apr	May	Jul	Sep	Jan	Apr	May	Jun	Jul	Sep			
1118	S. Fk. @ HWY 12	B	B	B	n	B																																			
1365	Pfulman	B	B	B	B	B																																			
4595	Hudson																																								
612	Inr Driftwood						B																																		
1364	us HWY 150	B	B	B	B	B		B																																	
1494	Sky Ranch	B	B	B	n	B																																			
236	Twin Cks	B	B	B	B	B																																			
239	us IH35	B	B	B	B	B																																			
610	Buda																																								
220	Old Lockhart Hwy	B	B	B	B	B																																			
241	us Footbridge																																								
255	McKinney Falls	B	B	B	B	B																																			
1366	SAR	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 North Fork Dry Creek Sites by Year

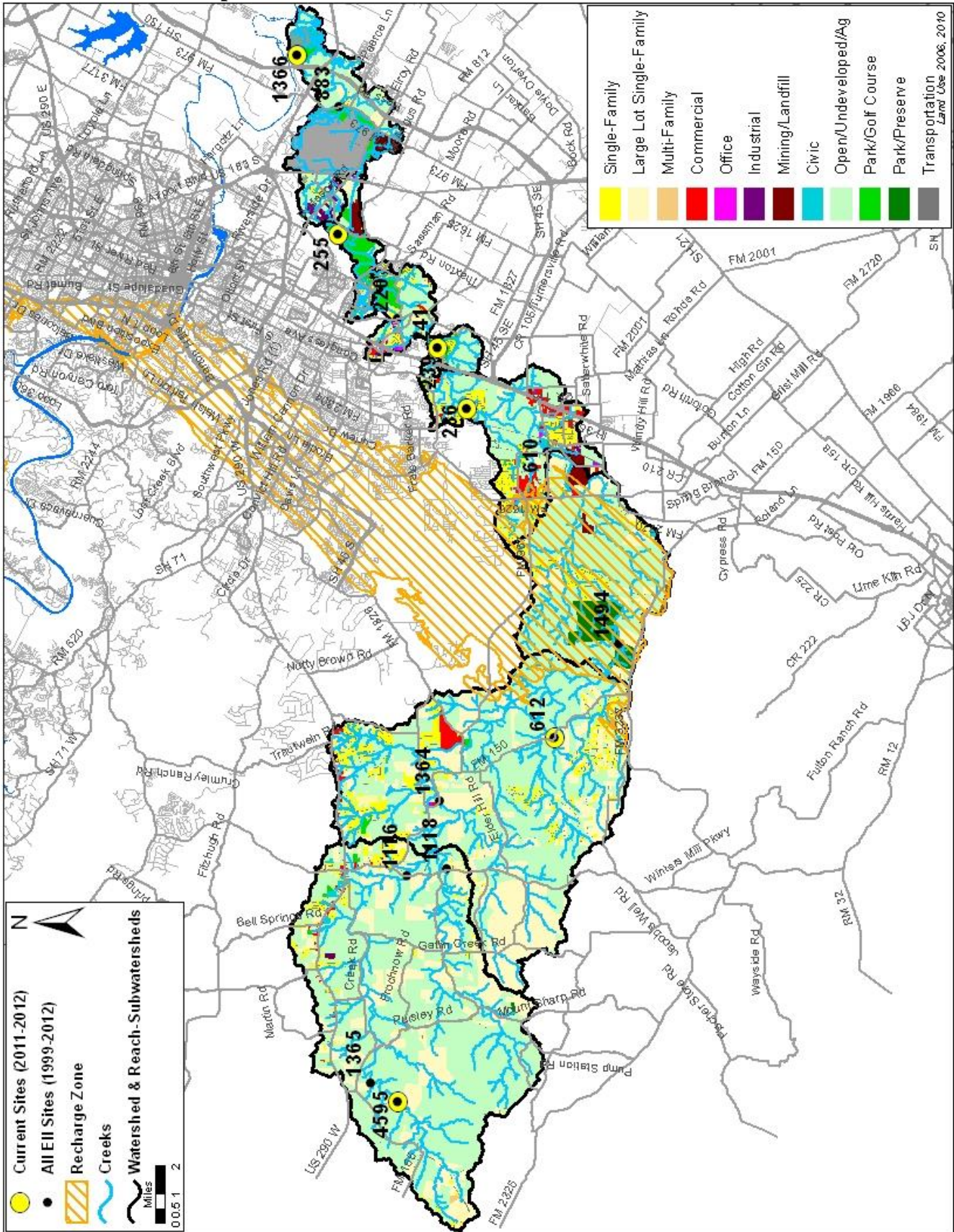
Reach	Site	Site Name	Year	Water Quality	Sediment**	Contact Rec.	Non-Contact Rec.	Physical Integrity	Aquatic Life	Benthic subindex	Diatom subindex	Total EII Score
ONI1	1366	Onion @ South Austin Regional WWTP	2001	46	88	84	88	82	68	91		72
ONI2	255	Onion @ McKinney Falls ds Lower Falls	2001	58	88	90	94	82	82	87	77	78
ONI3	220	Onion Creek @ Old Lockhart Hwy (ON4)	2001	60	88	86	84	87	66	61	70	74
ONI4	236	Onion @ Twin Creeks Road (OC1)	2001	65	88	88	93	84	72	60	83	78
ONI4	239	Onion Creek Upstream of IH35 (OC2)	2001	67	88	83	92	94	70	70	69	78
ONI5	1364	Onion @ Most US Hwy 150 Crossing	2001	71	88	89	100	86	73	70	76	81
ONI5	1494	Onion Creek @ Sky Ranch	2001	68	88	89	100	95	67	70	64	80
ONI6	1118	Onion Creek South Fork @ Hwy 12	2001	68	88	81	98	82	65	69	61	76
ONI6	1365	Onion Creek at Pfulman Ranch	2001	71	88	94	98	82	64	78	50	79
ONI1	1366	Onion @ South Austin Regional WWTP	2004	52	89	57	76	74	88	97	79	73
ONI2	255	Onion @ McKinney Falls DS Lower Falls	2004	59	89	58	85	82	89	94	83	77
ONI4	236	Onion @ Twin Creeks Road (OC1)	2004	77	89	66	87	84	80	74	85	81
ONI4	610	Onion Creek @ Buda (USGS)	2004	75	89	79	71	67	71	45	96	75
ONI5	612	Onion Creek near Driftwood (Hwy 150)	2004	77	89	60	100	92	97	100	93	86
ONI6	1365	Onion Creek at Pfulman Ranch	2004	85	89	72	99	97	88	99	77	88
ONI1	1366	Onion @ South Austin Regional WWTP	2007	52	82	59		89	75	100	50	71
ONI2	255	Onion @ McKinney Falls DS Lower Falls	2007	63	82	83	70	85	91	96	86	79
ONI3	241	Onion Creek US of Footbridge (OC3)	2007	62	82	70	83	69	91	100	81	76
ONI4	236	Onion @ Twin Creeks Road (OC1)	2007	70	82	63	89	78	95	96	94	80
ONI5	612	Onion Creek near Driftwood (Hwy 150)	2007	69	82	50	100	91	99	98	100	82
ONI6	1365	Onion Creek at Pfulman Ranch	2007	77	82	69	97	84	93	99	87	84
ONI1	1366	Onion @ South Austin Regional WWTP	2010	63	87	84	91	87	94	98	89	84
ONI2	255	Onion @ McKinney Falls DS Lower Falls	2010	72	87	87	91	89	95	95	95	87
ONI3	241	Onion Creek US of Footbridge (OC3)	2010	65	87	67	85	70	91	85	96	78
ONI4	236	Onion @ Twin Creeks Road (OC1)	2010	79	87	85	94	82	100	100	99	88
ONI5	612	Onion Creek near Driftwood (Hwy 150)	2010	80	87	83	97	97	96	92	100	90
ONI6	4595	Onion @ Hudson Tract	2010	82	87	93	100	89	89	91	87	90
ONI1	1366	Onion @ South Austin Regional WWTP	2012	54	86	60	93	91	90	100	80	79
ONI2	255	Onion @ McKinney Falls DS Lower Falls	2012	61	86	57	87	88	88	100	76	78
ONI3	241	Onion Creek US of Footbridge (OC3)	2012	55	86	35	97	74	98	100	95	74
ONI4	236	Onion @ Twin Creeks Road (OC1)	2012	64	86	42	81	89	96	97	95	76
ONI5	612	Onion Creek near Driftwood (Hwy 150)	2012	79	86	67	94	96	92	84	100	86
ONI6	4595	Onion @ Hudson Tract	2012	75	86	73	94	89	97	100	94	86
ONI1	1366	Onion @ South Austin Regional WWTP	2014	51	83	55	85	83	96	99	92	76
ONI2	255	Onion @ McKinney Falls DS Lower Falls	2014	64	83	59	89	72	91	86	95	76
ONI3	241	Onion Creek US of Footbridge (OC3)	2014	59	83	48	89	83	82	87	76	74
ONI4	236	Onion @ Twin Creeks Road (OC1)	2014	65	83	63	93	89	96	100	92	82
ONI5	612	Onion Creek near Driftwood (Hwy 150)	2014	81	83	88	98	87	88	92	84	88
ONI6	4595	Onion @ Hudson Tract	2014	79	83	71	95	82	91	92	90	84

* 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

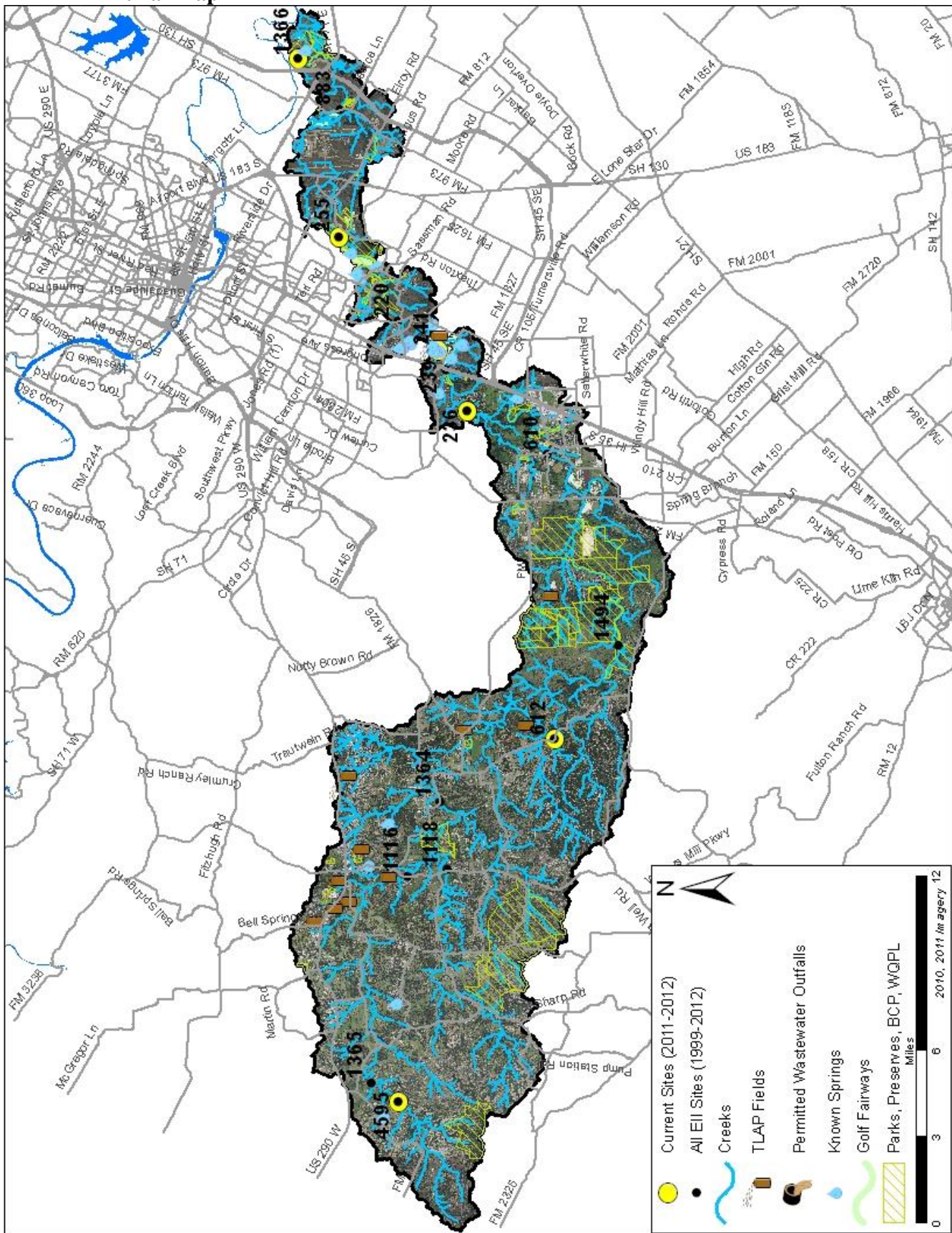
Onion Creek Watershed

Land Use Map



Onion Creek Watershed

Aerial Map



Onion Creek Watershed

Water Quality Data – Temperature, Conductivity, pH, Dissolved Oxygen & *E. coli* for 2014 Sample Sites (Downstream to Upstream)

Qualifiers to the left of value:	>	greater than	Qualifiers to the right of value:	(blank)	Useable
	<	less than		S	Exceeds standard range
	< J	less than detection limit		R	Rejected, failed QC
	J	Estimated			

Site Name	Site #	Reach	Date	Temp.		Cond.		pH		D.O.		E.coli		
				<>	Value	flag	<>	Value	flag	<>	Value	flag	<>	Value
Onion @ SAR WWTP	1366	ONI1	01/15/2014		12.1			778		8.13		9.6		59.4
Onion @ SAR WWTP	1366	ONI1	04/17/2014		17.9			580		8.15		7.5		83.6
Onion @ SAR WWTP	1366	ONI1	05/07/2014		22.8			738		7.58		6.3		
Onion @ SAR WWTP	1366	ONI1	07/02/2014											261.0
Onion @ SAR WWTP	1366	ONI1	09/10/2014		27.7			641		7.84		6.1		42.2
Site 1366 Mean					20.1			684		7.93		7.4		111.6
Onion @ McKinney Falls	255	ONI2	01/15/2014		13.4			660		8.31				35.5
Onion @ McKinney Falls	255	ONI2	04/17/2014		16.9			526		8.04		8.8		172.0
Onion @ McKinney Falls	255	ONI2	05/07/2014		25.2			693		7.92		10.2		
Onion @ McKinney Falls	255	ONI2	07/02/2014		27.5			524		7.90		7.9		37.7
Onion @ McKinney Falls	255	ONI2	09/10/2014											214.0
Site 255 Mean					20.8			601		8.04		8.9		114.8
Onion us Footbridge	241	ONI3	01/15/2014		13.4			649		8.02		10.6		52.1
Onion us Footbridge	241	ONI3	04/17/2014		18.0			629		7.49		7.3		114.0
Onion us Footbridge	241	ONI3	06/12/2014		26.1			533		7.66		6.2		
Onion us Footbridge	241	ONI3	07/02/2014		27.3			621		7.41		7.0		201.0
Onion us Footbridge	241	ONI3	09/10/2014											313.0
Site 241 Mean					21.2			608		7.65		7.8		170.0
Onion @ Twin Creeks Rd	236	ONI4	01/15/2014		13.4			617		8.16		12.3		18.9
Onion @ Twin Creeks Rd	236	ONI4	04/17/2014		19.2			616		7.92		9.8		83.6
Onion @ Twin Creeks Rd	236	ONI4	05/12/2014		23.9			576		7.49		4.3		
Onion @ Twin Creeks Rd	236	ONI4	07/02/2014		30.4			536		7.74		9.3		22.6
Onion @ Twin Creeks Rd	236	ONI4	09/10/2014											1990.0
Site 236 Mean					21.7			586		7.83		8.9		528.8
Onion @ HWY 150	612	ONI5	01/15/2014		11.7			566		8.08		10.5		31.7
Onion @ HWY 150	612	ONI5	04/17/2014		18.0			649		7.86		7.9		18.5
Onion @ HWY 150	612	ONI5	06/11/2014		25.0			564		8.29		6.5		
Onion @ HWY 150	612	ONI5	07/02/2014		27.9			601		7.79		6.7		17.3
Onion @ HWY 150	612	ONI5	09/10/2014											13.4
Site 612 Mean					20.6			595		8.01		7.9		20.2
Onion @ Hudson Tract	4595	ONI6	01/15/2014		9.7			362		8.16		10.6		2.0
Onion @ Hudson Tract	4595	ONI6	04/17/2014		17.0			513		8.07		8.3		34.5
Onion @ Hudson Tract	4595	ONI6	06/11/2014		25.1			448		7.97		6.1		
Onion @ Hudson Tract	4595	ONI6	07/02/2014		28.0			441		8.15		8.4		74.3
Onion @ Hudson Tract	4595	ONI6	09/10/2014											57.1
Site 4595 Mean					20.0			441		8.09		8.4		42.0
Watershed Mean					20.7			586		7.92		8.2		164.6

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

Summary Statistics for all 2013 – 2014 E.I.I. Sites Combined.					
Parameter	2013-2014 Average	2013-2014 Minimum	2013-2014 Maximum	1 Standard Deviation Above	1 Standard Deviation Below
Temperature (C°)	19.6	8.6	34.0	25.8	
Conductivity (uS/cm)	711	107	1783	942	
pH (Standard units)	7.86	6.96	8.97	8.19	7.52
D.O. (mg/l)	8.1	1.2	30.5	11.4	4.8
<i>E.coli.</i> (col/100ml)	435	1	4840	1127	

Onion Creek Watershed

Water Quality Data – Ammonia, Nitrate / Nitrite, Ortho-Phosphorus, Total Suspended Solids & Turbidity for 2014 Sample Sites (Downstream to Upstream)

Qualifiers to the left of value:	>	greater than	Qualifiers to the right of value:	(blank)	Useable
	<	less than		S	Exceeds standard range
	< J	less than detection limit		R	Rejected, failed QC
	J	Estimated			

Site Name	Site #	Reach	Date	NH3-N	NO3/NO2	Ortho-P	T.S.S.	Turb.
				<> Value flag	<> Value flag	<> Value flag	<> Value flag	<> Value flag
Onion @ SAR WWTP	1366	ONI1	01/15/2014	<J 0.008	1.34	<J 0.004	2.16	2.8 R
Onion @ SAR WWTP	1366	ONI1	04/17/2014	0.048	0.39	<J 0.004	8.53	12.3 R
Onion @ SAR WWTP	1366	ONI1	05/07/2014					
Onion @ SAR WWTP	1366	ONI1	07/02/2014	0.024	0.46	<J 0.004	6.15	5.0
Onion @ SAR WWTP	1366	ONI1	09/10/2014	0.060	0.36	<J 0.004	4.92	6.7 R
Site 1366 Mean				0.035	0.64	0.004	5.44	6.7
Onion @ McKinney Falls	255	ONI2	01/15/2014	<J 0.008	1.66	<J 0.004	3.47	3.6 R
Onion @ McKinney Falls	255	ONI2	04/17/2014	0.133	0.24	<J 0.004	6.27	8.5 R
Onion @ McKinney Falls	255	ONI2	05/07/2014					
Onion @ McKinney Falls	255	ONI2	07/02/2014	<J 0.008	0.07	<J 0.004	2.94	4.0
Onion @ McKinney Falls	255	ONI2	09/10/2014	<J 0.008	0.05	<J 0.004	8.63	10.7 R
Site 255 Mean				0.039	0.50	0.004	5.33	6.7
Onion us Footbridge	241	ONI3	01/15/2014	<J 0.008	1.96	<J 0.004	<J 1.09	1.0 R
Onion us Footbridge	241	ONI3	04/17/2014	0.096	0.31	<J 0.004	1.08	1.0 R
Onion us Footbridge	241	ONI3	06/12/2014					
Onion us Footbridge	241	ONI3	07/02/2014	0.017	0.51	<J 0.004	1.69	1.3
Onion us Footbridge	241	ONI3	09/10/2014	0.025	0.75	<J 0.004	1.25	3.1 R
Site 241 Mean				0.036	0.88	0.004	1.28	1.6
Onion @ Twin Creeks Rd	236	ONI4	01/15/2014	<J 0.008	1.08	<J 0.004	<J 1.03	0.7 R
Onion @ Twin Creeks Rd	236	ONI4	04/17/2014	0.032	0.21	<J 0.004	<J 2.22	0.7 R
Onion @ Twin Creeks Rd	236	ONI4	05/12/2014					
Onion @ Twin Creeks Rd	236	ONI4	07/02/2014	<J 0.008	<J 0.01	<J 0.004	12.80	1.1
Onion @ Twin Creeks Rd	236	ONI4	09/10/2014	<J 0.008	0.29	<J 0.004	2.35	3.6 R
Site 236 Mean				0.014	0.40	0.004	4.60	1.5
Onion @ HWY 150	612	ONI5	01/15/2014	<J 0.008	0.39	<J 0.004	<J 1.08	0.8 R
Onion @ HWY 150	612	ONI5	04/17/2014	<J 0.008	<J 0.01	<J 0.004	<J 1.03	1.0 R
Onion @ HWY 150	612	ONI5	06/11/2014					
Onion @ HWY 150	612	ONI5	07/02/2014	0.103	0.01	<J 0.004	1.38	1.1
Onion @ HWY 150	612	ONI5	09/10/2014	<J 0.008	<J 0.01	<J 0.004	<J 1.19	0.7 R
Site 612 Mean				0.032	0.10	0.004	1.17	0.9
Onion @ Hudson Tract	4595	ONI6	01/15/2014	<J 0.008	0.11	<J 0.004	<J 1.03	0.7 R
Onion @ Hudson Tract	4595	ONI6	04/17/2014	0.105	<J 0.01	<J 0.004	<J 2.17	3.6 R
Onion @ Hudson Tract	4595	ONI6	06/11/2014					
Onion @ Hudson Tract	4595	ONI6	07/02/2014	0.010	0.04	<J 0.004	1.04	0.9
Onion @ Hudson Tract	4595	ONI6	09/10/2014	<J 0.008	<J 0.01	<J 0.004	4.52	4.4
Site 4595 Mean				0.033	0.04	0.004	2.19	2.4
Watershed Mean				0.031	0.43	0.004	3.33	3.3

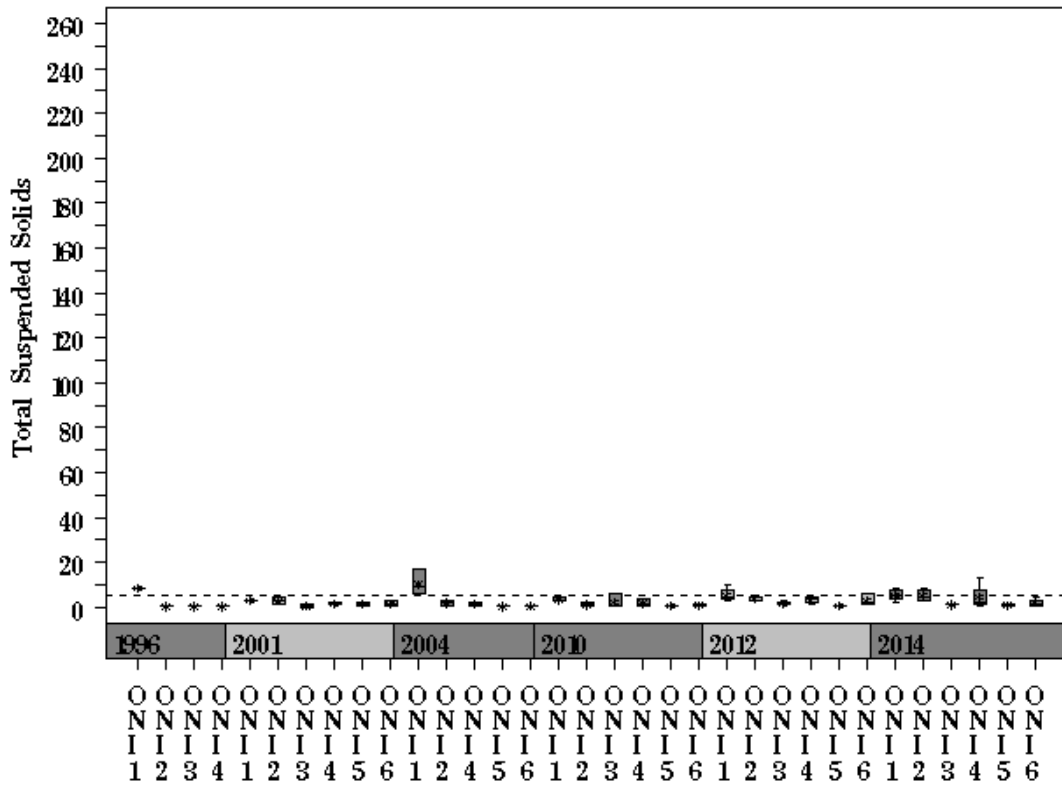
Orange highlighting indicates that the value exceeds one standard deviation from the mean of all E.I.I. sites combined.

Summary Statistics for all 2013 – 2014 E.I.I. Sites Combined.				
Parameter	2013-2014 Mean	2013-2014 Minimum	2013-2014 Maximum	1 Standard Deviation Above
NH3-M (mg/l)	0.031	0.008	2.250	0.150
NO3-N (mg/l)	1.16	0.01	16.30	4.02
Ortho-P (mg/l)	0.041	0.004	1.360	0.164
TSS (mg/l)	5.6	1.0	70.0	15.3
Turbidity (NTU)	4.5	0.0	97.1	13.2

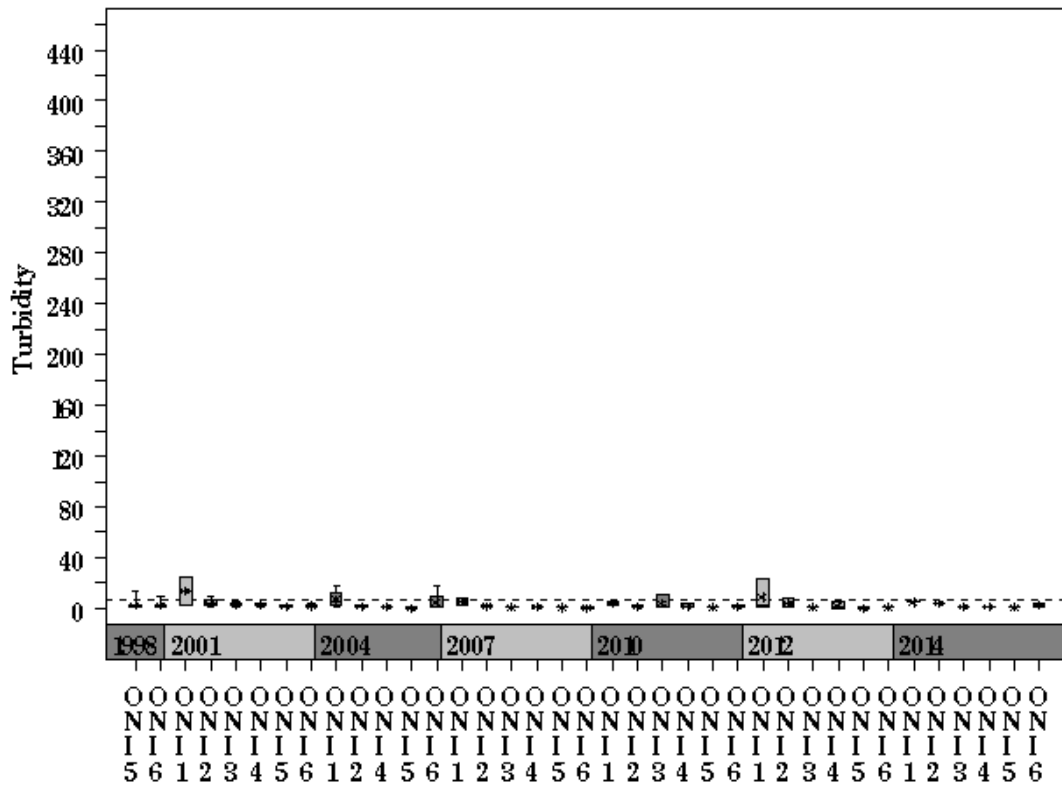
Onion Creek Watershed

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

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



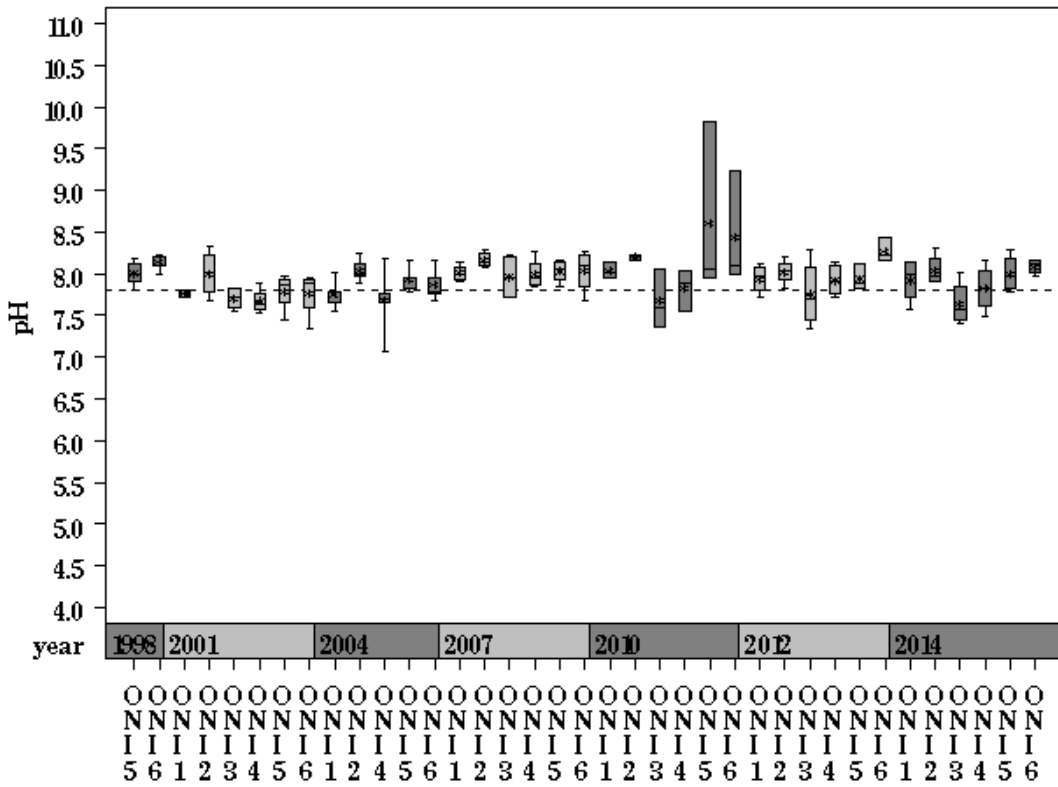
Parameter= TURBIDITY Unit= NTU Watershed= Onion



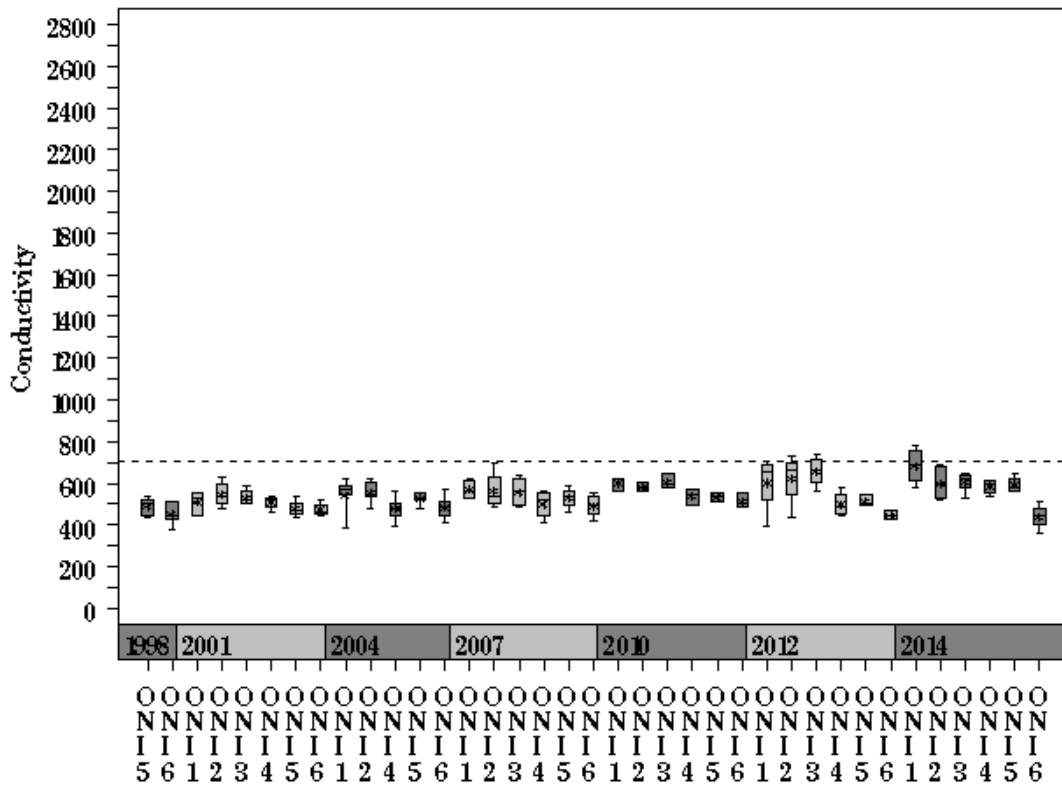
Onion Creek Watershed

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

Parameter= PH Unit= Standard units Watershed= Onion



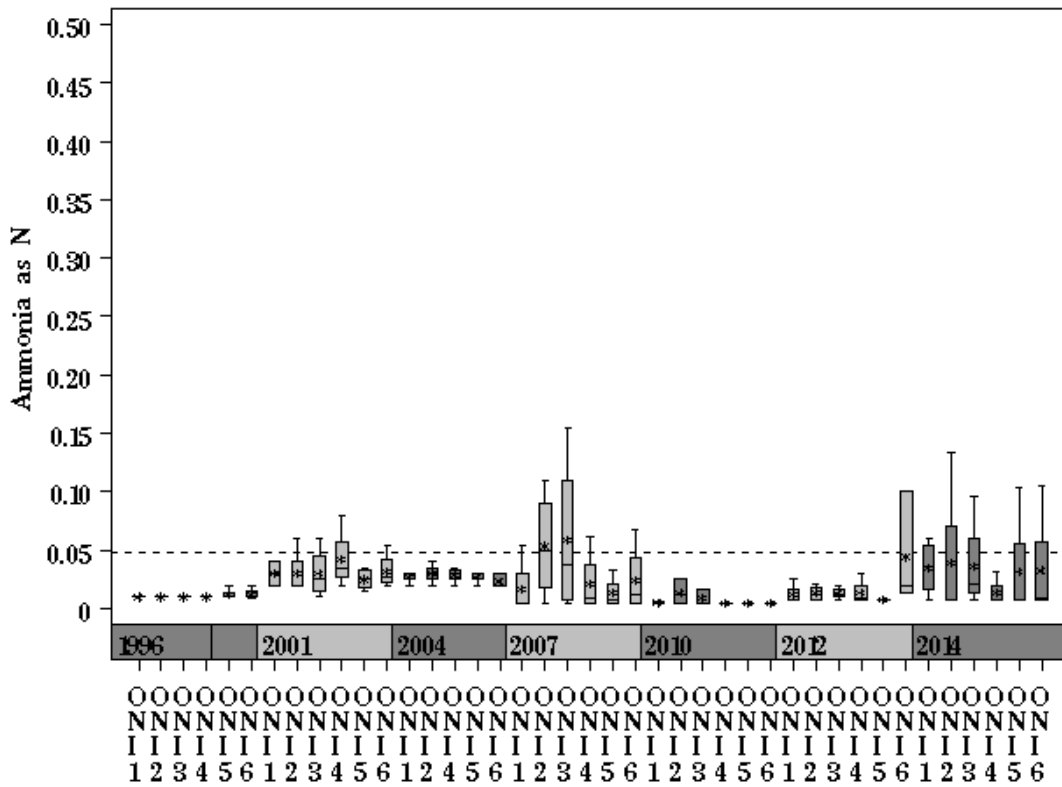
Parameter= CONDUCTIVITY Unit= uS/cm Watershed= Onion



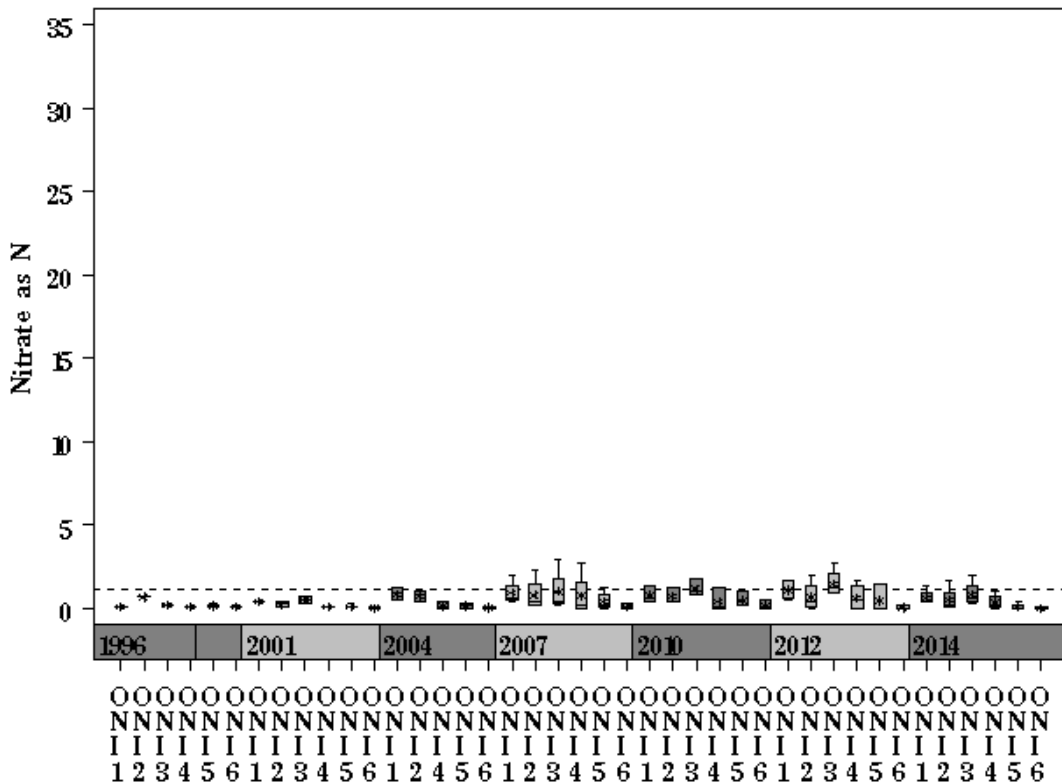
Onion Creek Watershed

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

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



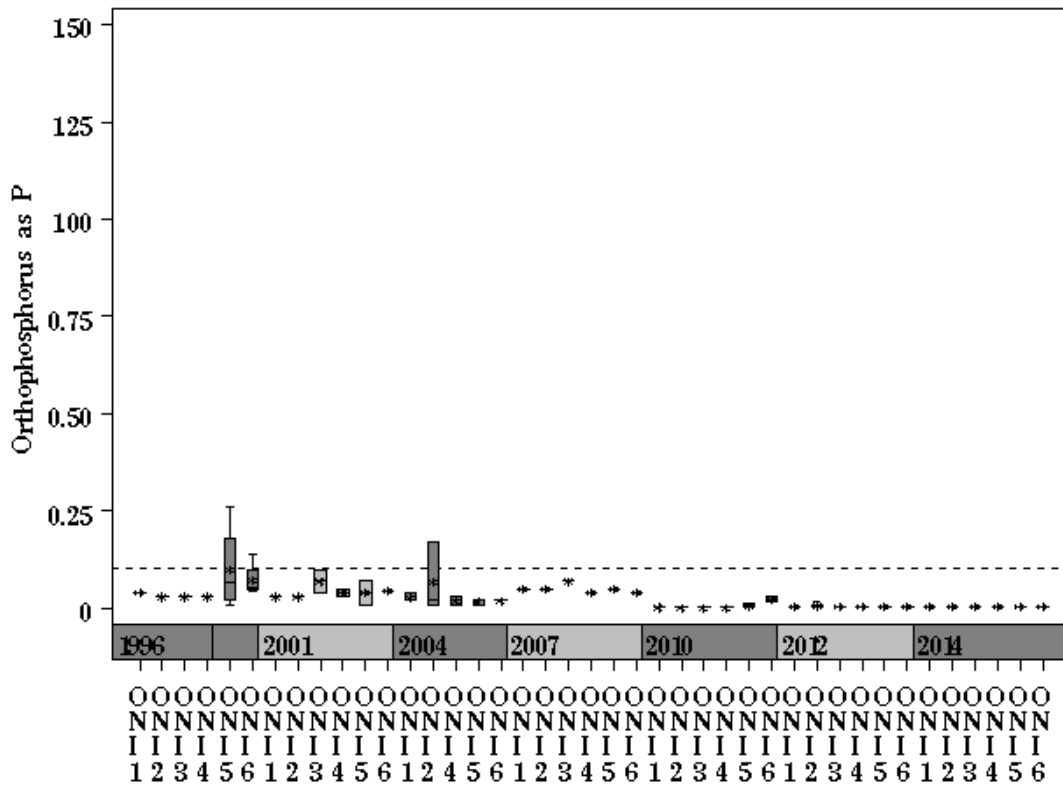
Parameter= NITRATE AS N Unit= mg/L Watershed= Onion



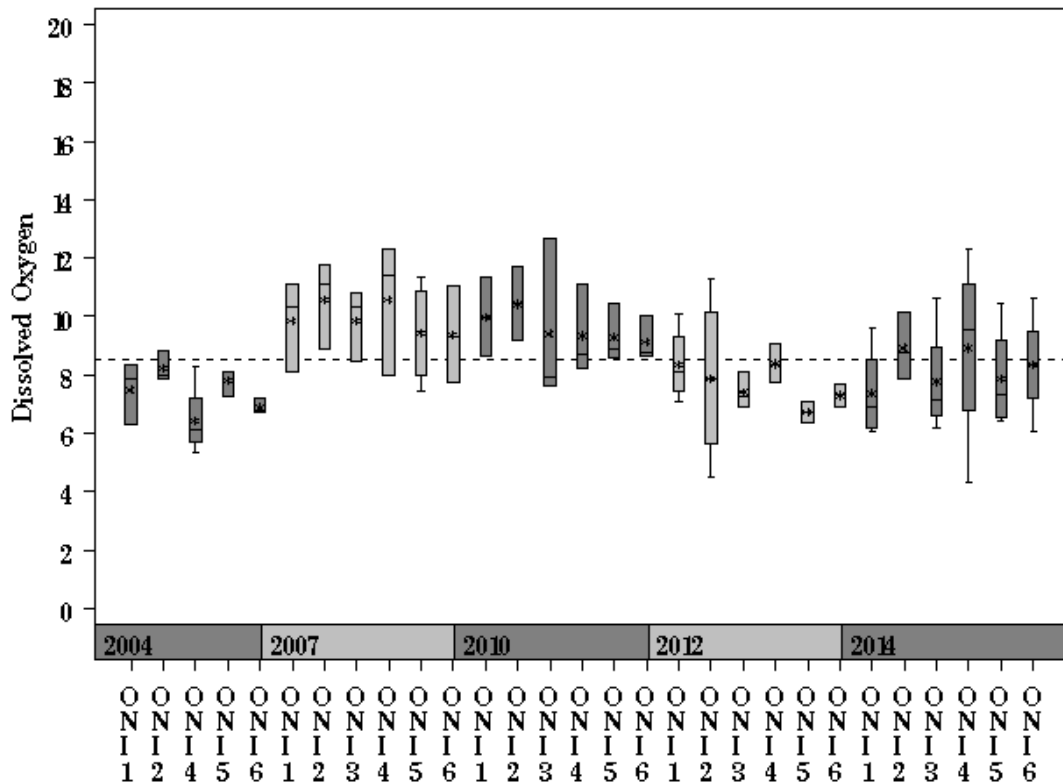
Onion Creek Watershed

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

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



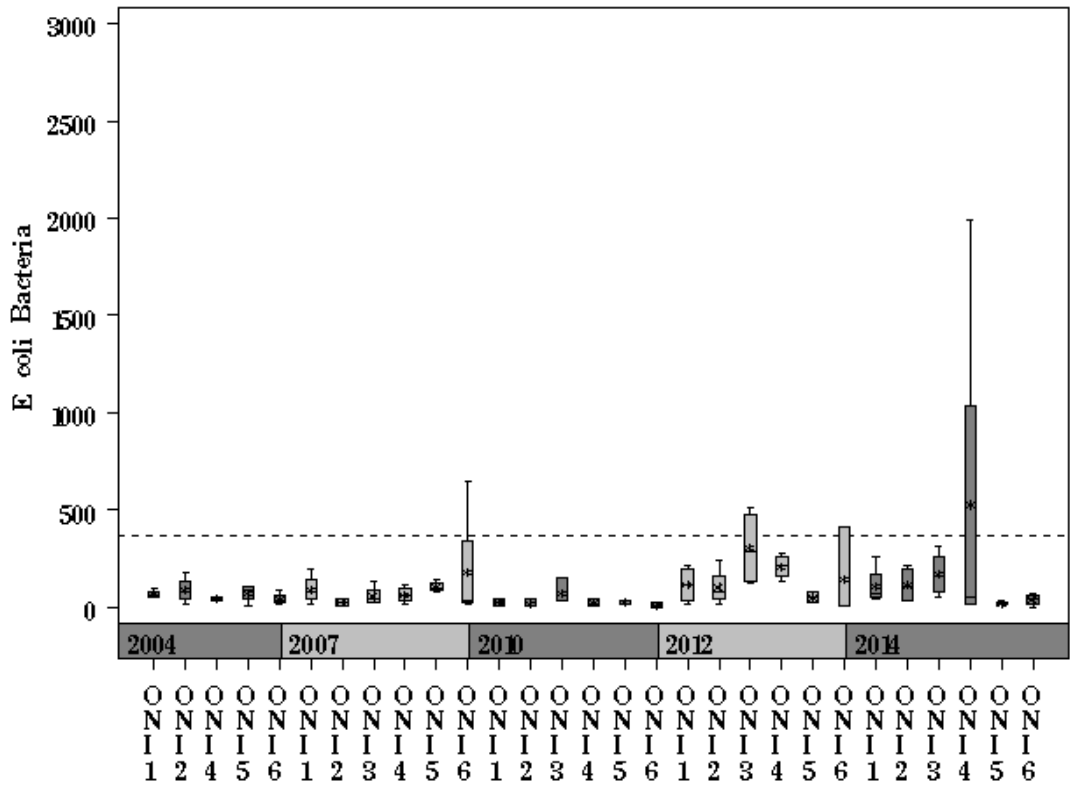
Parameter= DISSOLVED OXYGEN Unit= mg/L Watershed= Onion



Onion Creek Watershed

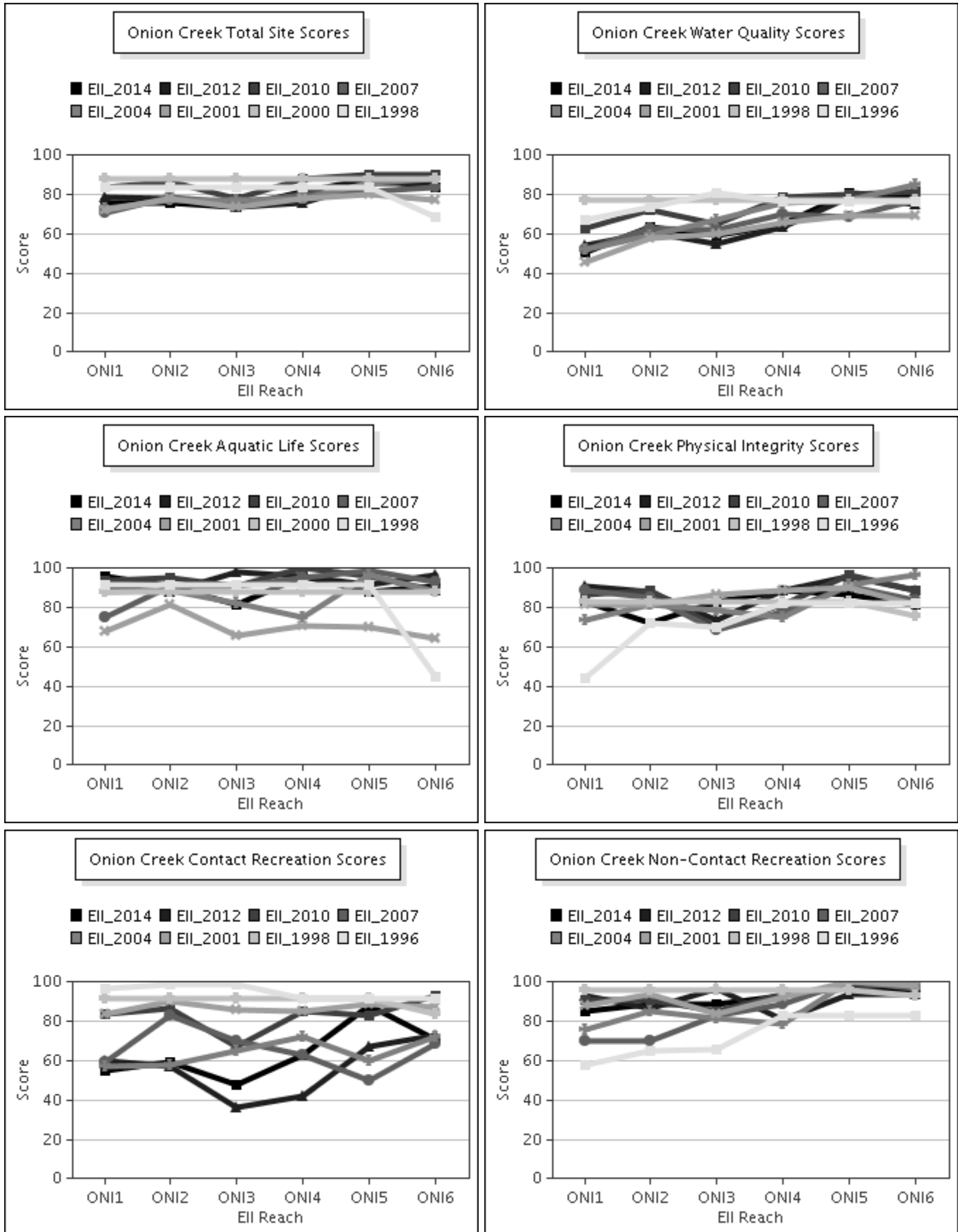
Data Summary Graphs – *E.coli* (Downstream to Upstream by Year)

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



Onion Creek Watershed

Score Summary – Reach scores for each sample year



Onion Creek Watershed

Benthic Macroinvertebrates – Taxa List, Pollution Tolerance Index & Functional Feeding Group for 2014 Sample Sites (Downstream to Upstream)

Benthic Macroinvertebrate ID	PTI	FFG	Onion @ SAR WWTP (Site 1366)	Onion @ McKinney Falls (Site 255)	Onion us Footbridge (Site 241)	Onion @ Twin Creeks Rd (Site 236)	Onion @ HWY 150 (Site 612)	Onion @ Hudson Tract (Site 4595)
<i>Marilia</i> sp.	0	SH						3
<i>Perlesta</i> sp.	0	P	1			6		
<i>Chimarra</i> sp.	2	FC	15	9	39	142	89	27
<i>Farrodes texanus</i>	2	SC,CG	1					1
<i>Helicopsyche</i> sp.	2	SC			2			
<i>Hexacylloepus ferrugineus</i>	2	SC,CG	1					
<i>Hydroptila</i> sp.	2	SC,PI	2		2	2		
<i>Thraulodes gonzalesi</i>	2	SC,CG		2				
<i>Gammarus</i> sp.	3	SH,CG				12		
<i>Neotrichia</i> sp.	3	SC					1	
<i>Camelobaetidius</i> sp.	4	CG					3	1
<i>Fallicon quilleri</i>	4	SC,CG	49	17	10	18	13	23
<i>Neochoroterpes</i> sp.	4	CG	13					
Ostracoda	4	FC,CG			1			
<i>Psephenus</i> sp.	4	SC		3	21	15		
<i>Simulium</i> sp.	4	FC	4	1			23	69
<i>Oecetis</i> sp.	5	SH,P	2					
<i>Tricorythodes</i> sp.	5	CG			3	1		1
<i>Argia</i> sp.	6	P			23	74	4	79
<i>Brechmorhoga mendax</i>	6	P	1					4
<i>Cheumatopsyche</i> sp.	6	FC	37	28	142	200	54	21
Chironomidae	6	P,FC	20	11	2	7		
<i>Hetaerina</i> sp.	6	P		1				2
Hydracarina	6				3			
<i>Rhagovelia</i> sp.	6	P		1				
<i>Stenonema femoratum</i>	6	SC,CG				4	3	1
Tanypodinae	6	P	5	6	1			
<i>Bezzia</i> sp. / <i>Palpomyia</i> sp.	7	P,CG			1			
<i>Caenis</i> sp.	7	SC,CG				3		
<i>Ferrissia</i> sp.	7	SC			1			
<i>Helisoma</i> sp.	7	SC			1			
<i>Helisoma anceps</i>	7	SC						1
<i>Pisidium</i> sp.	7	FC		1		30		
<i>Ranatra</i> sp.	7	P						1
<i>Stenelmis</i> sp.	7	SC,CG	4	10		11		1
<i>Eupera cubensis</i>	8	SC			2			
<i>Hyalella</i> sp.	8	SH,CG				3		
Oligochaeta	8	CG		2		8		
<i>Tipula</i> sp.	8	SH,CG						1
<i>Berosus</i> sp.	9	CG		1				
<i>Physella</i> sp.	9	SC				16		1
Cambaridae		CG				1		
<i>Dugesia</i> sp.		P,CG	3	10	116	9	3	6

Onion Creek Watershed

Benthic Macroinvertebrates – Metric Summary for 2014 Sample Sites (Downstream to Upstream)

Scoring Metric	Onion @ SAR WWTP (Site 1366)	Onion @ McKinney Falls (Site 255)	Onion us Footbridge (Site 241)	Onion @ Twin Creeks Rd (Site 236)	Onion @ HWY 150 (Site 612)	Onion @ Hudson Tract (Site 4595)
Number of Taxa *	14	13	15	18	9	18
Hilsenhoff Biotic Index *	4.6	5.3	5.1	4.8	3.7	4.7
Number of Ephemeroptera Taxa *	3	2	2	4	3	5
Percent of Total as Chironomidae *	16	17	1	1	0	0
Number of EPT Taxa *	8	4	6	8	6	8
Percent of Total as EPT *	76	55	54	71	84	32
Percent of Total as Predator *	20	28	39	18	4	38
Number of Intolerant Taxa *	8	5	6	6	5	6
Percent Dominance (Top 3 Taxa) *	67	55	81	78	86	72
EPT / EPT + Chironomidae	1	1	1	1	1	1
Number of Diptera Taxa	2	2	2	1	1	2
Number of Non-Insect Taxa	1	2	5	6	1	3
Number of Organisms	158	102	368	532	193	243
Percent Dominance (Top 1 Taxa)	31	27	39	38	46	33
Percent of Total as Collector / Gatherer	45	41	36	13	11	14
Percent of Total as Dominant Guild (FFG)	51	54	50	66	86	48
Percent of Total as Elmidae	3	10	0	2	0	0
Percent of Total as Filterers	51	54	50	66	86	48
Percent of Total as Grazers (PI & SC)	36	31	10	13	9	12
Percent of Total as Tolerant Organisms	0	1	0	3	0	0
Percent of Trichoptera as Hydropsychidae	66	76	77	58	38	41
Ratio of Intolerant : Tolerant Organisms	1.31	0.53	0.44	0.60	2.11	1.11
TCEQ Qualitative Aquatic Life Use Score	26	24	24	33	23	25
TCEQ Quantitative Aquatic Life Use Score	31	31	25	21	21	25

* **EII scoring parameter: Nine metric parameters are used in the calculation of the EII Benthic Subindex score. Other metrics are shown to supplement evaluation.**

1. # of Taxa: Higher diversity (number of taxa) correlates with greater biological integrity. The average number of taxa per site for 2013/2014 samples was 15; the lowest value was 5 and the highest value was 30.
2. Hilsenhoff Biotic Index (HBI): HBI values range from 0 to 10. Low HBI values reflect a higher abundance of taxa that are sensitive to organic (nutrient) pollution, thus a lower level of this type of pollution. The average HBI per site for 2013/2014 samples was 5.4; the lowest value was 3.7 and the highest value was 8.1.
3. # of Ephemeroptera taxa: A higher number of Ephemeroptera (mayfly) taxa correlates with greater biological integrity. The average number of taxa per site for 2013/2014 samples was 2; the lowest value was 0 and the highest value was 7.
4. % of total as Chironomidae: The percentage of the sample represented by the Dipteran family Chironomidae will increase with a decrease in biological integrity. The average percent Chironomidae per site for 2013/2014 samples was 16%; the lowest value was 0% and the highest value was 77%.
5. # of EPT Taxa: A higher number of Ephemeroptera (mayfly), Plecoptera (stonefly) and Trichoptera (caddisfly) taxa correlates with greater biological integrity. The average number of EPT taxa per site for 2013/2014 samples was 4; the lowest value was 0 and the highest value was 12.
6. % of total as EPT: The percentage of the sample represented by the insect orders Ephemeroptera (mayfly), Plecoptera (stonefly) and Trichoptera (caddisfly) will decrease with a decrease in biological integrity. The average percent EPT taxa per site for 2013/2014 samples was 46%; the lowest value was 0% and the highest value was 89%.
7. % of total as Predator: The percentage of the sample represented by predators is variable with regard to biological integrity. The average percent predator per site for 2013/2014 samples was 31%; the lowest value was 3% and the highest value was 82%.
8. # of Intolerant Taxa: A higher number of pollution intolerant taxa correlates with greater biological integrity. The average number of intolerant taxa per site for 2013/2014 samples was 5; the lowest value was 0 and the highest value was 15.
9. % Dominance (top 3 taxa): The percentage of the sample represented by the three most abundant taxa will increase with a decrease in biological integrity. The average percent of sample dominated by the top three taxa per site for 2013/2014 samples was 72%; the lowest value was 39% and the highest value was 96%.

Onion Creek Watershed

Diatoms – Taxa List & Pollution Tolerance Index for 2014 Sample Sites (Downstream to Upstream)

Diatom Species Name	PTI	Onion @ SAR WWTP (Site 1366)	Onion @ McKinney Falls (Site 255)	Onion us Footbridge (Site 241)	Onion @ Twin Creeks Rd (Site 236)	Onion @ HWY 150 (Site 612)	Onion @ Hudson Tract (Site 4595)
<i>Amphora inariensis</i>	4		6	1	4		
<i>Cymbella cymbiformis</i>	4						2
<i>Eucocconeis flexella</i>	4					3	
<i>Eunotia arcus</i>	4				2		12
<i>Neidium ampliatum</i>	4				1		
<i>Pinnularia interrupta</i>	4			2		2	
<i>Achnantheidium affine</i>	3	6	2		4		
<i>Achnantheidium alteragracillimum</i>	3		21		42	105	16
<i>Achnantheidium minutissimum</i>	3	66	118		168		302
<i>Achnantheidium pyrenaicum</i>	3				4		
<i>Amphora ovalis</i>	3				1		
<i>Amphora pediculus</i>	3		8		5		
<i>Caloneis bacillum</i>	3	2		6			
<i>Cocconeis pediculus</i>	3	38	12	5	67		
<i>Cymatopleura elliptica</i>	3				2		
<i>Cymbella hustedtii</i>	3						1
<i>Cymbella laevis</i>	3	2				8	
<i>Denticula kuetzingii</i>	3		62	17	30	56	7
<i>Diploneis parma</i>	3	3					
<i>Diploneis puella</i>	3	8					
<i>Encyonema evergladianum</i>	3		10		2	18	16
<i>Encyonema silesiacum</i>	3	4	1	24			
<i>Encyonopsis microcephala</i>	3	4	12				
<i>Eunotia bilunaris</i>	3				12		
<i>Fragilaria capucina</i>	3	10	3				
<i>Fragilaria delicatissima</i>	3	16	2		10		
<i>Geisslera decussis</i>	3		6				
<i>Gomphonema acuminatum</i>	3				2		
<i>Gomphonema affine</i>	3			16			
<i>Gomphonema clavatum</i>	3			16	2		
<i>Gomphonema gracile</i>	3			9			
<i>Gomphonema intricatum</i> var. <i>vibrio</i>	3					3	2
<i>Gomphonema truncatum</i>	3			2			
<i>Navicula cryptotenella</i>	3	10	20		8		
<i>Navicula oblonga</i>	3			3			
<i>Navicula radiosa</i>	3	14	13	50	2	3	3
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	3		74		14		
<i>Pinnularia gibba</i>	3			1			
<i>Pinnularia microstauron</i>	3			7			
<i>Reimeria sinuata</i>	3	20	21	92	48	1	
<i>Rhopalodia gibba</i>	3			1		1	
<i>Cyclotella meneghiniana</i>	2	9	2		4	1	
<i>Fragilaria capucina</i> var. <i>mesolepta</i>	2		1				
<i>Fragilaria radians</i>	2				6		
<i>Fragilaria vaucheriae</i>	2	22	10	17	4		15
<i>Gomphonema angustatum</i>	2		2	2	2		9
<i>Luticola mutica</i>	2			1			
<i>Mastogloia elliptica</i>	2					12	1
<i>Melosira varians</i>	2	3					
<i>Navicula capitatoradiata</i>	2	4					
<i>Navicula recens</i>	2	4	2				
<i>Navicula veneta</i>	2		2				
<i>Nitzschia amphibia</i>	2		20	5	15	8	
<i>Nitzschia amphibioides</i>	2			2			
<i>Nitzschia inconspicua</i>	2		5				
<i>Sellaphora laevis</i>	2		2		2		
<i>Tryblionella apiculate</i>	2	4	4				
<i>Gomphonema parvulum</i>	1				2		
<i>Navicymbula pusilla</i>	1		4				

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Onion Creek Watershed

Diatoms – Taxa List & Pollution Tolerance Index for 2014 Sample Sites (Downstream to Upstream)

----- This table is continued from the previous page -----

Diatom Species Name	PTI	Onion @ SAR WWTP (Site 1366)	Onion @ McKinney Falls (Site 255)	Onion us Footbridge (Site 241)	Onion @ Twin Creeks Rd (Site 236)	Onion @ HWY 150 (Site 612)	Onion @ Hudson Tract (Site 4595)
<i>Amphora copulata</i>		10		4		1	
<i>Cocconeis placentula</i> var. <i>euglypta</i>		32	8	7	16		
<i>Cymbella excisa</i>							14
<i>Delicata delicatula</i>						184	68
<i>Encyonema semilanceolatum</i>		44	16		3		
<i>Fragilaria sepes</i>		2					
<i>Gomphonema lagenula</i>				1			
<i>Gomphonema lateripunctatum</i>						52	22
<i>Gomphonema mclaughlinii</i>						30	2
<i>Navicula antonii</i>			2				
<i>Navicula cryptotenelloides</i>		8	16				
<i>Navicula lanceolata</i>			4				
<i>Sellaphora stroemii</i>			6		2		3
<i>Ulnaria acus</i>			2	23		10	4
<i>Ulnaria ulna</i>		155	1	186	14	2	1

Diatoms – Metric Summary for 2014 Sample Sites (Downstream to Upstream)

Scoring Metric	Onion @ SAR WWTP (Site 1366)	Onion @ McKinney Falls (Site 255)	Onion us Footbridge (Site 241)	Onion @ Twin Creeks Rd (Site 236)	Onion @ HWY 150 (Site 612)	Onion @ Hudson Tract (Site 4595)
<i>Cymbella</i> Richness	4	5	2	2	3	4
Number of organisms	500	500	500	500	500	500
Number of taxa	26	36	26	32	19	19
Percent motile taxa	7	30	12	8	2	1
Percent similarity to reference condition	43	51	21	52	37	39
Pollution tolerance index	2.82	2.88	2.91	2.94	2.93	2.97

* **EII scoring parameter: Four metric parameters are used in the calculation of the EII Diatom Subindex score: *Cymbella* richness, percent motile taxa, percent similarity to reference condition and pollution tolerance index. Number of taxa is non-scoring, but is shown to supplement evaluation. The number of organisms is typically a sample of 500, but occasionally differs due to sample conditions.**

- Cymbella* Richness: The Cymbelloid taxa include species in the genus *Cymbella*, in addition to some species belonging to the genera *Cymbellopsis*, *Cymbopleura*, *Encyonema*, *Encyonemopsis*, *Navicymbula* and *Reimeria*. Their presence highlights the presence of sensitive species, especially with regard to impervious cover, and this value increases with an increase in overall water quality. The average number of Cymbelloid taxa per site for 2013/2014 samples was 3; the lowest value was 0 and the highest value was 7.
- % Motile Taxa: This is a siltation index showing the relative abundance of genera that are able to move towards the surface if covered by silt. A higher percentage is indicative of a degraded condition caused by increased silt pollution. The average percent motile taxa per site for 2013/2014 samples was 16%; the lowest value was 0% and the highest value was 77%.
- % similarity to reference condition: This percentage compares a site to reference sites that are selected based on having low percent impervious cover. A higher percentage reflects greater biological integrity. The average percent similarity per site for 2013/2014 samples was 31%; the lowest value was 6% and the highest value was 57%.
- Pollution Tolerance Index (PTI): This is a total value for a sample, which is a function of the abundance of each taxon (usually species) in a sample and the individual PTI's for each of those taxa. Individual PTI's for each taxon range from 1 (most pollution tolerant) to 4 (most pollution sensitive), thus higher total PTI's for a site reflect greater biological integrity. The average PTI per site for 2013/2014 samples was 2.76; the lowest value was 1.70 and the highest value was 3.45.

Onion Creek Watershed

Site Photographs



4595_00-ds-05_25_2010



1365_t3-us-08_07_2007



612_00-ds-05_25_2010610



236_00-ur-05_25_2010



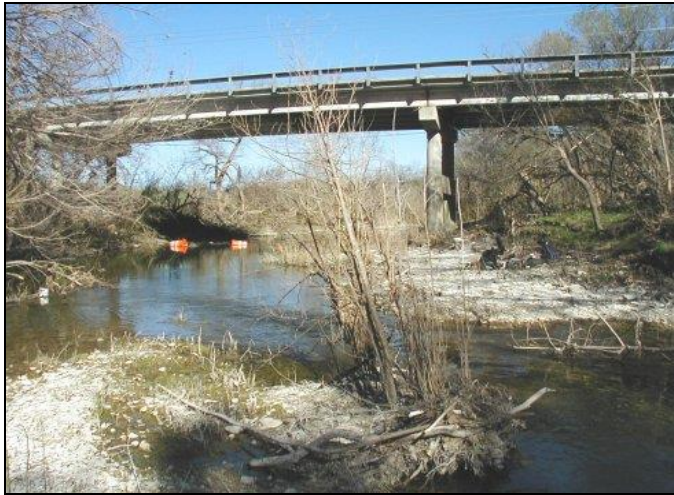
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Onion Creek Watershed

Site Photographs



220_t00-ds-03_04_2002



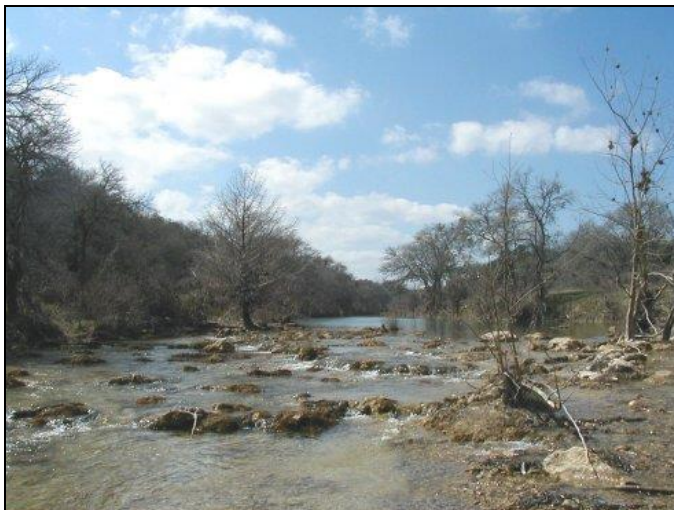
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1364_t00-ds-03_17_2003



1366_00-us-05_28_2010



1494_t00-us-03_06_2002



610_t00-us-05_20_2004

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