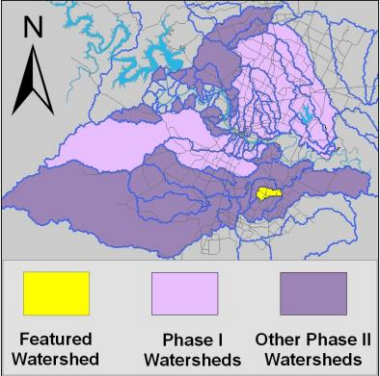


North Fork Dry Creek Watershed

Summary Sheet

Catchment	Total area	4 sq. miles						
	Area in recharge	0						
	Creek length	9 miles						
	Receiving water	Dry Creek						
Demographics	2000 population	590						
	2030 projected population	3,058						
	30 year projected % increase	418 %						
Land Use	Impervious cover (2003 estimate)	6.5 %						
	Impervious cover (2013 estimate)	6.5 %						
Overall EII Scores	1999	54	62	44	54	61	73	57



Flow Regime* for Sample Sites on North Fork Dry Creek

Site	Site Name	2002		2005					2008					2010				2011			2012				2014					
		Feb	Feb	May	Aug	Nov	Mar	Jun	Jun	Sep	Dec	Feb	May	Jun	Sep	Dec	Mar	May	May	Oct	Dec	Mar	May	Jul	Sep	Jan	Apr	May	Jul	Sep
		WQ	Bio	WQ	WQ	WQ	WQ	WQ	Bio	WQ	WQ	WQ	WQ	Bio	WQ	WQ	WQ	WQ	Bio	WQ	WQ	WQ	Bio	WQ	WQ	WQ	WQ	WQ	WQ	Bio
1217	FM 812	B	B	n	n	B	B	n	n	n	n	B	n	n	n	n	B	B	B	n	n	B	n	n	n	B	B	n	n	n
1218	US183	B		n	n	B																								

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

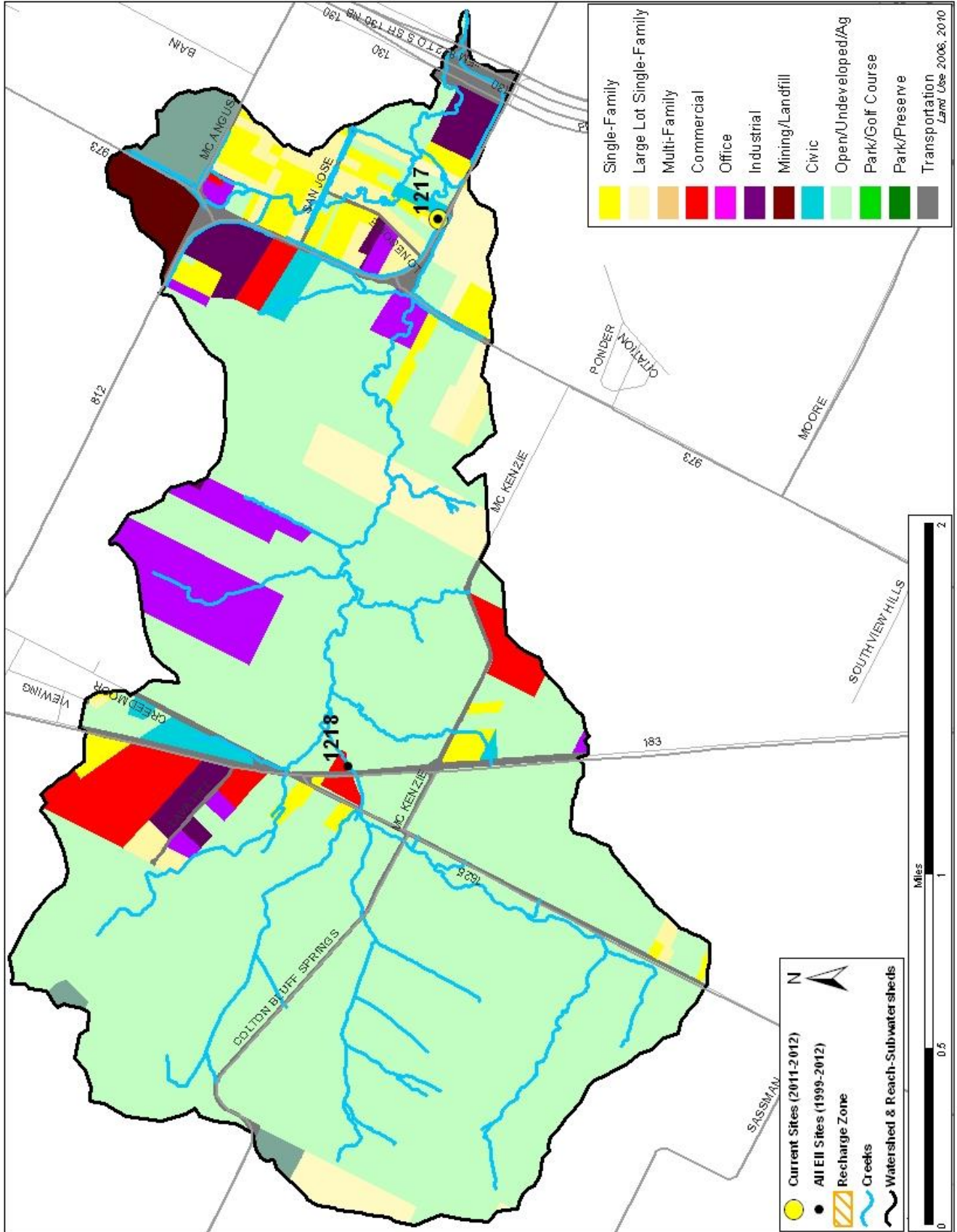
Index Scores* for North Fork Dry Creek Sites by Year

Reach	Site	Site Name	Year	Water Quality	Sediment**	Contact Rec.	Non-Contact Rec.	Physical Integrity	Aquatic Life	Benthic subindex	Diatom subindex	Total EII Score
NFD1	1217	North Fork Dry Creek @ FM812	1999	54	77	97	58	43				55
NFD1	1218	North Fork Dry Creek @ US183	1999	55	77	86	51	40				52
NFD1	1217	North Fork Dry Creek @ FM812	2002	58	83	99	77	52	48	36	60	70
NFD1	1218	North Fork Dry Creek @ US183	2002	48	83	85	65	41				54
NFD1	1217	North Fork Dry Creek @ FM812	2005	57	81	25	56	42				44
NFD1	1217	North Fork Dry Creek @ FM812	2008	58	79	51	43	35	60	60		54
NFD1	1217	North Fork Dry Creek @ FM812	2010	59	80	71	70	47	41	33	49	61
NFD1	1217	North Fork Dry Creek @ FM812	2012	74	83	98	54	48	79	77	80	73
NFD1	1217	North Fork Dry Creek @ FM812	2014	62	76	68	53	36	48	33	63	57

* 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

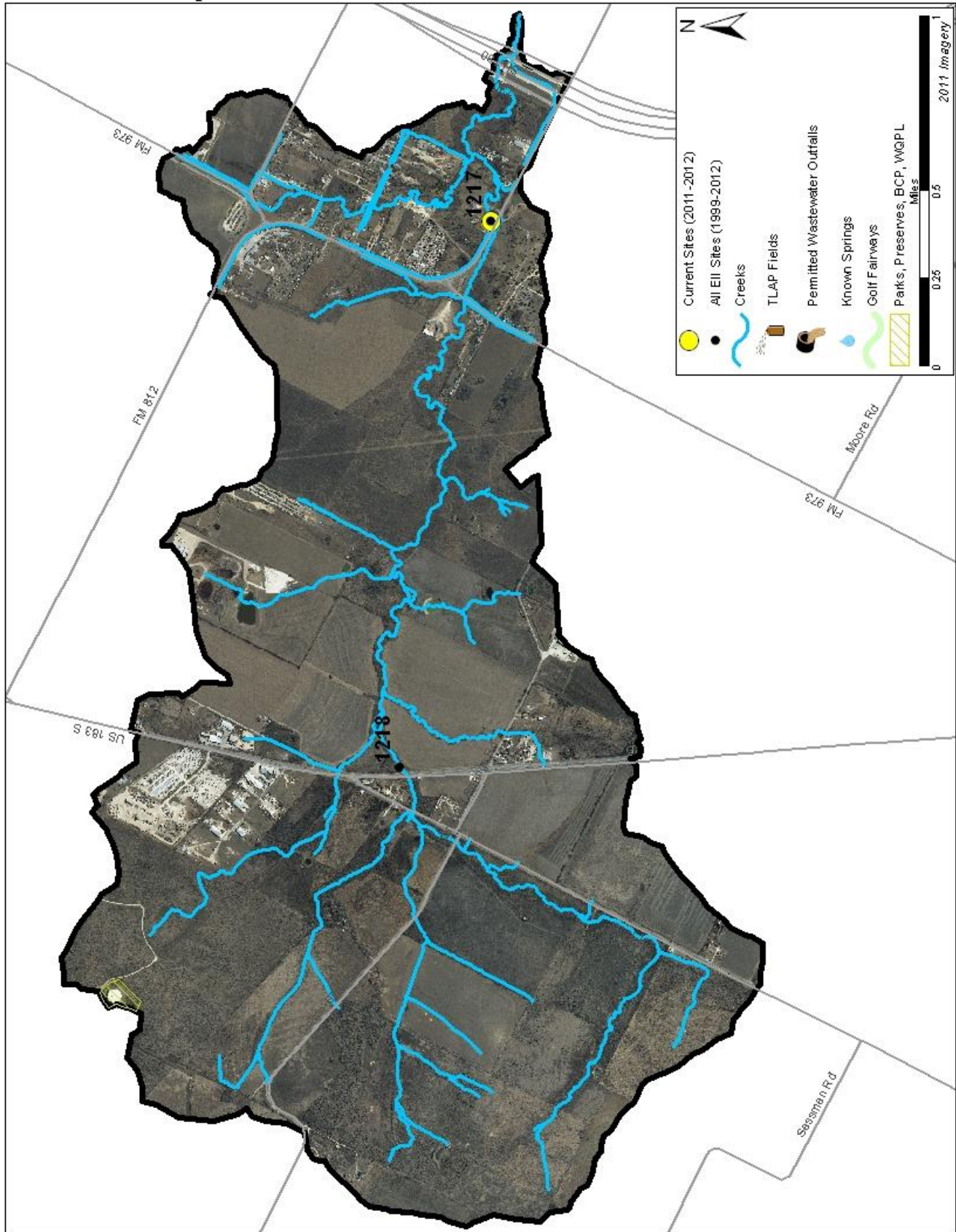
North Fork Dry Creek Watershed

Land Use Map



North Fork Dry Creek Watershed

Aerial Map



North Fork Dry 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	flag	<> Value	flag
North Fork Dry East @ FM812	1217	NFD1	01/15/2014	12.4		731		8.25				21.1	
North Fork Dry East @ FM812	1217	NFD1	04/17/2014	16.9		915		8.02		5.3		86.2	
Site 1217 Mean				14.7		823		8.14		5.3		53.7	
Watershed Mean				14.7		823		8.14		5.3		53.7	

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
E.coli. (col/100ml)	435	1	4840	1127	

North Fork Dry 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			

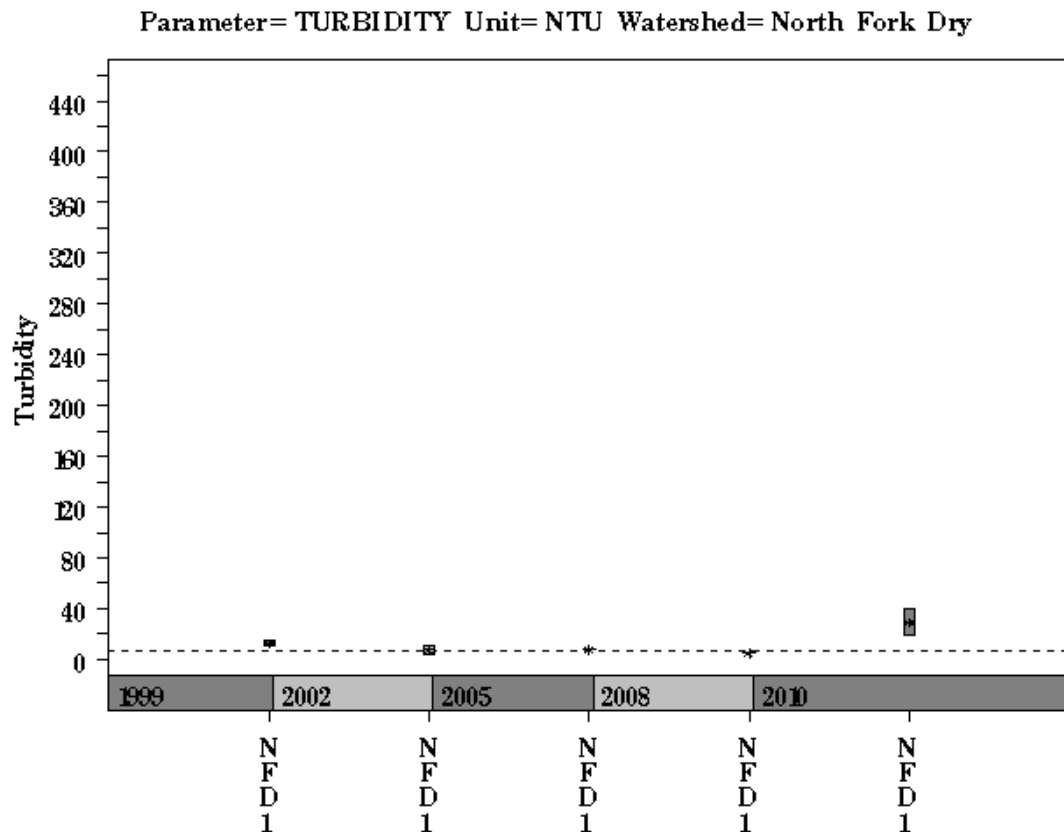
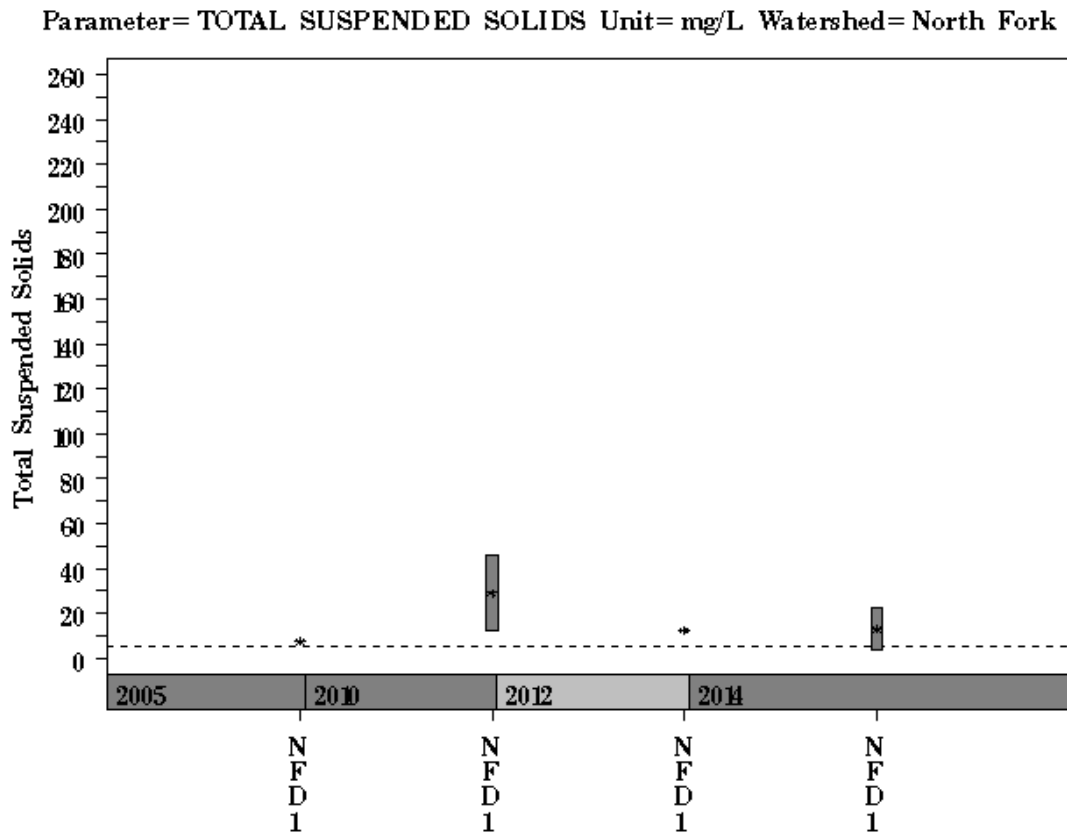
Site Name	Site #	Reach	Date	NH3-N		NO3/NO2		Ortho-P		T.S.S.		Turb.		
				<> Value	flag	<> Value	flag	<> Value	flag	<> Value	flag			
North Fork Dry East @ FM812	1217	NFD1	01/15/2014	<J	0.008	<J	0.01	<J	0.004		3.85		10.1	R
North Fork Dry East @ FM812	1217	NFD1	04/17/2014		0.039	<J	0.01	<J	0.004		22.30		27.0	R
Site 1217 Mean					0.024		0.01		0.004		13.08		18.5	
Watershed Mean					0.024		0.01		0.004		13.08		18.5	

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

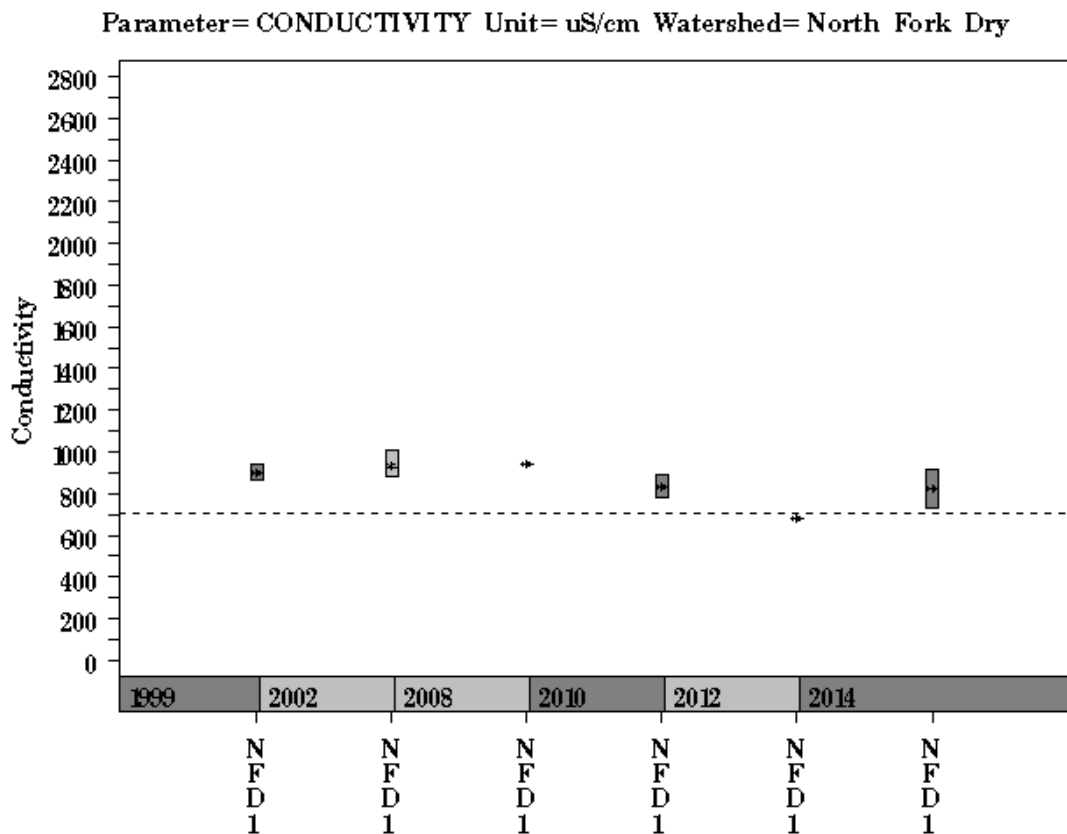
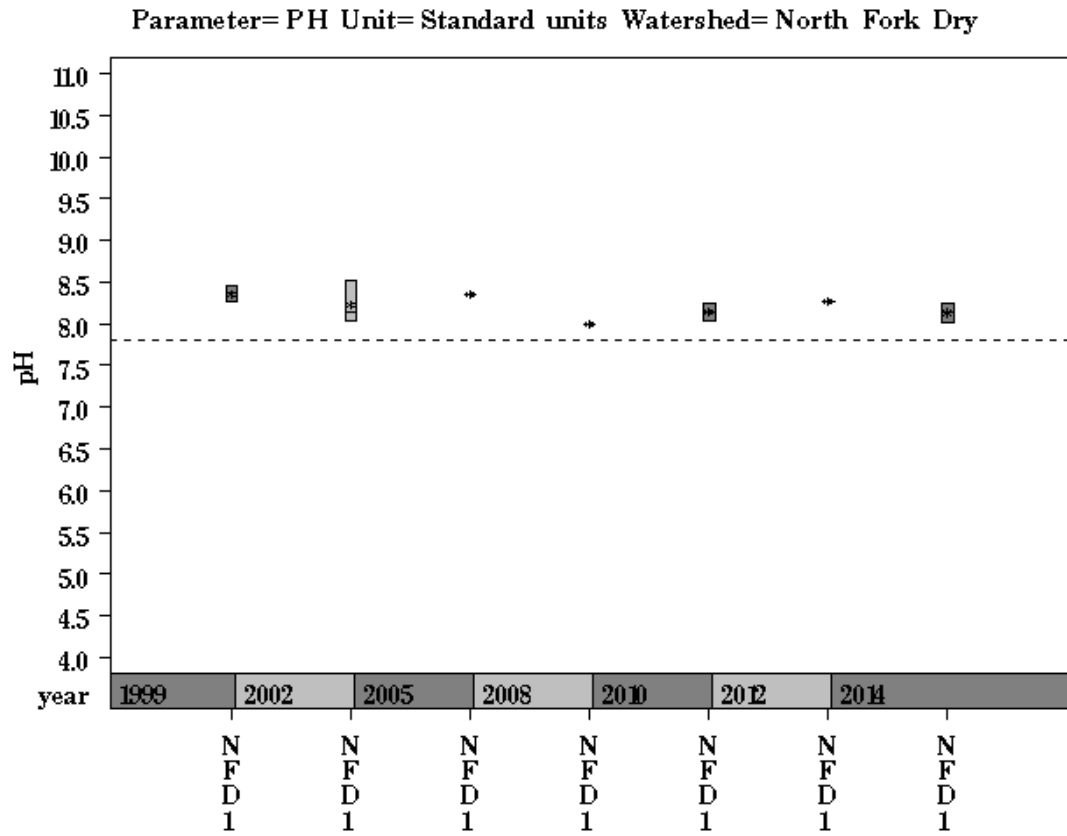
North Fork Dry Creek Watershed

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



North Fork Dry Creek Watershed

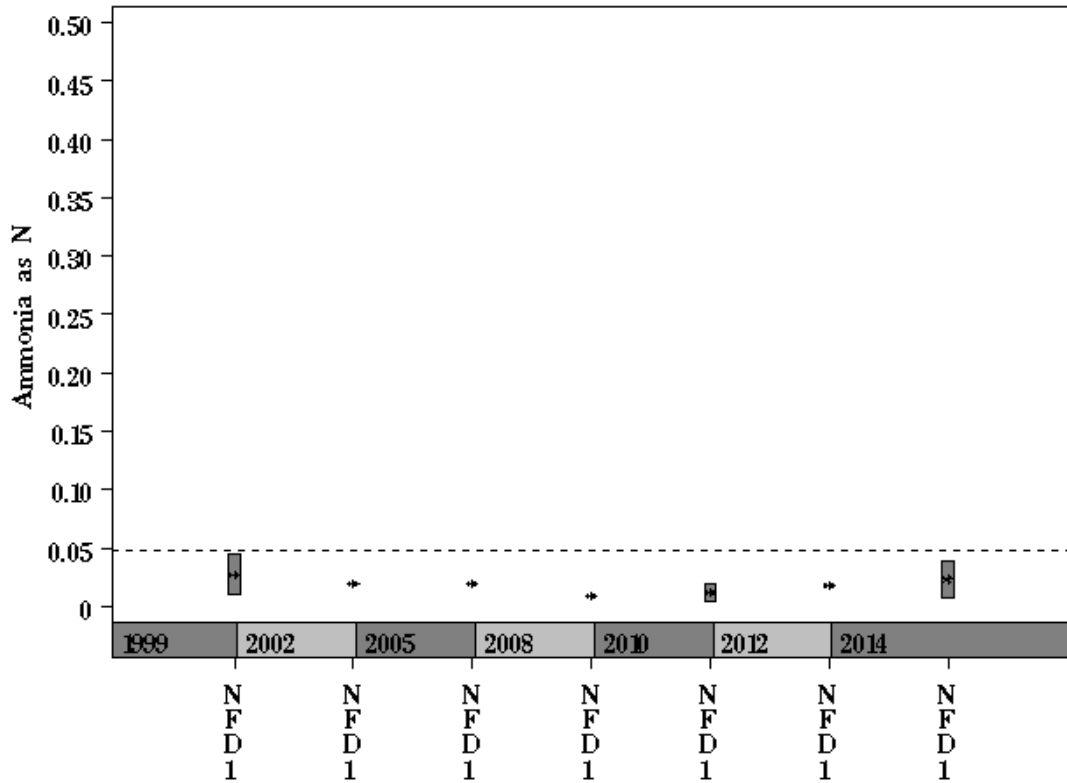
Data Summary Graphs – pH and Conductivity (Downstream to Upstream by Year)



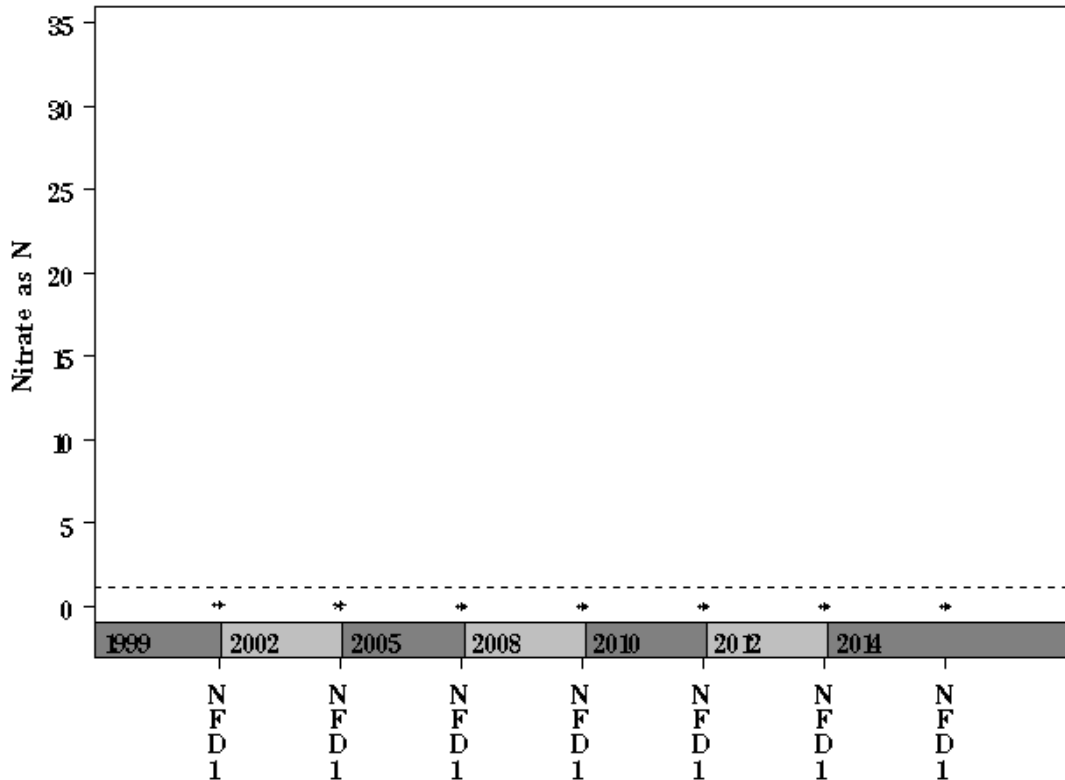
North Fork Dry Creek Watershed

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

Parameter= AMMONIA AS N Unit= mg/L Watershed= North Fork Dry



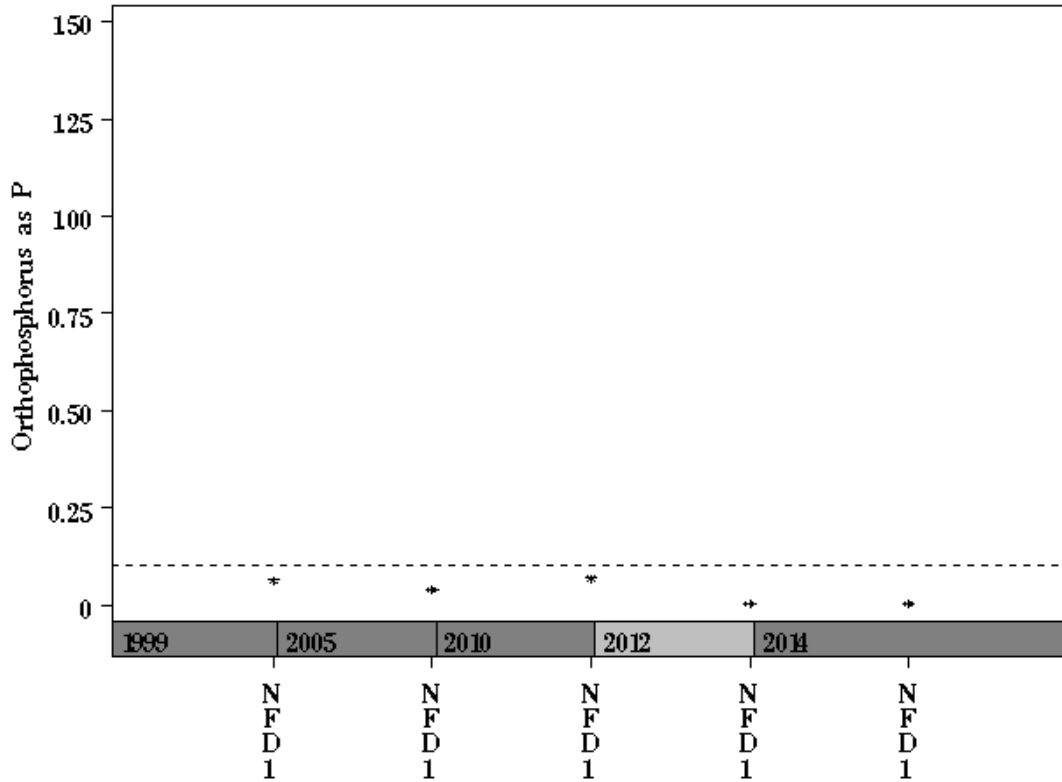
Parameter= NITRATE AS N Unit= mg/L Watershed= North Fork Dry



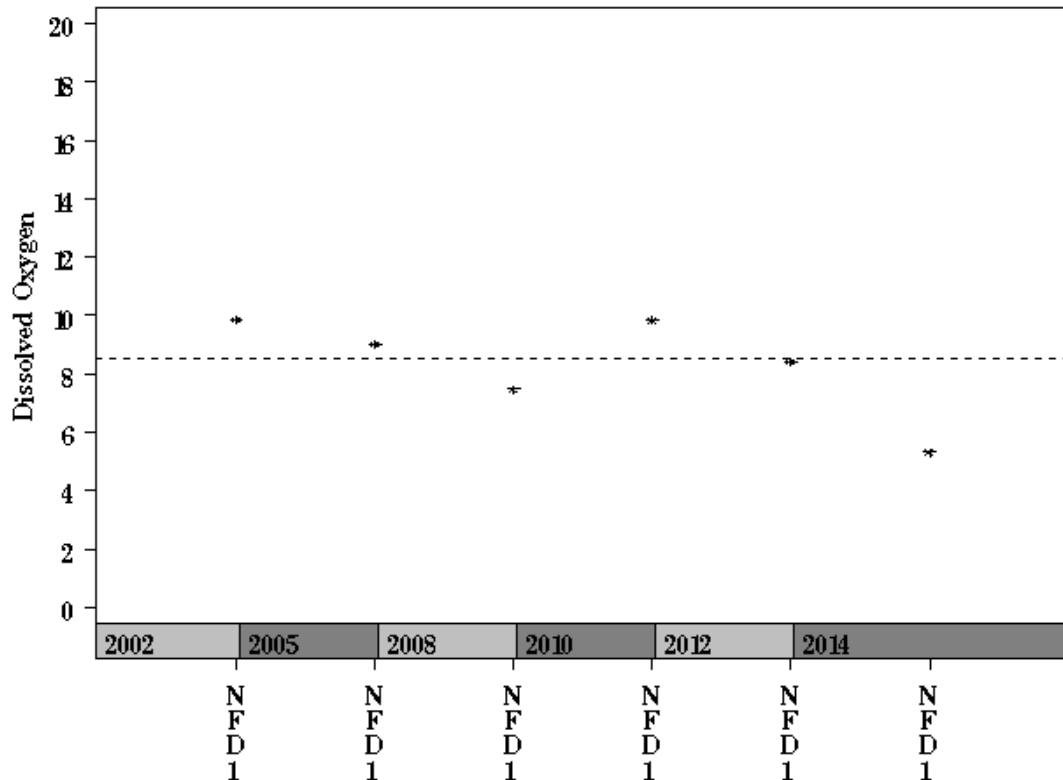
North Fork Dry Creek Watershed

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

Parameter= ORTHOPHOSPHORUS AS P Unit= mg/L Watershed= North Fork Dr

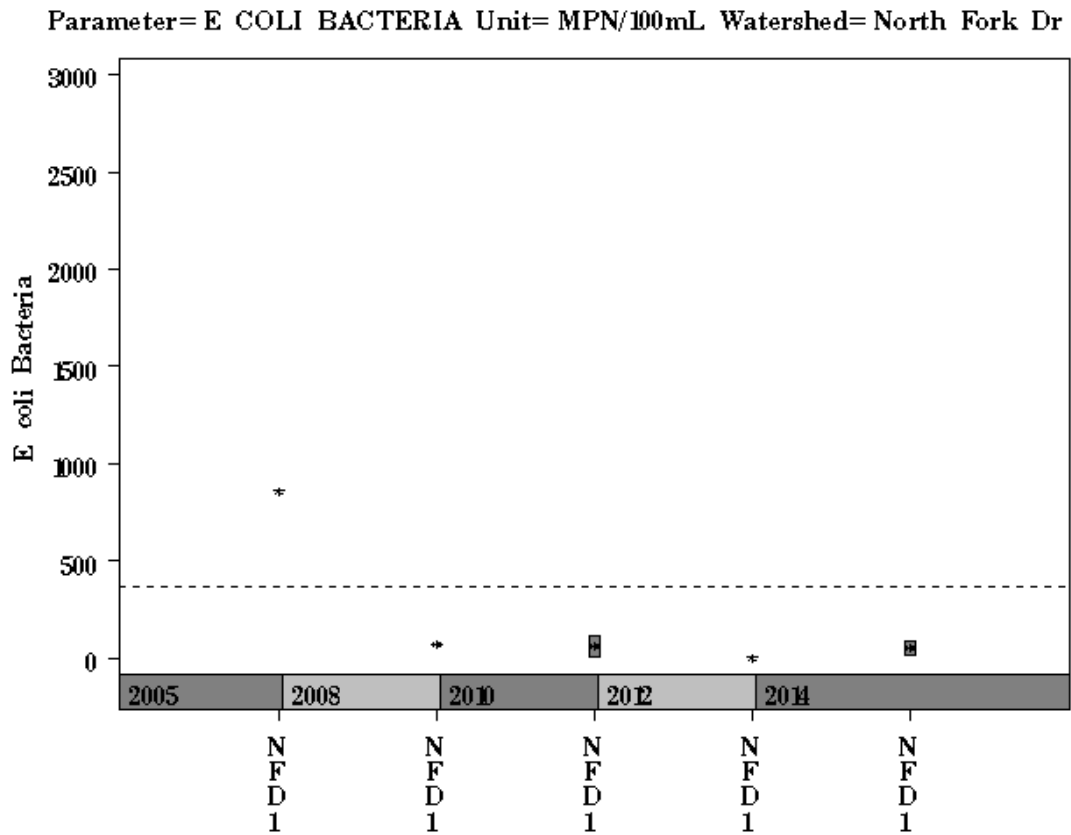


Parameter= DISSOLVED OXYGEN Unit= mg/L Watershed= North Fork Dry



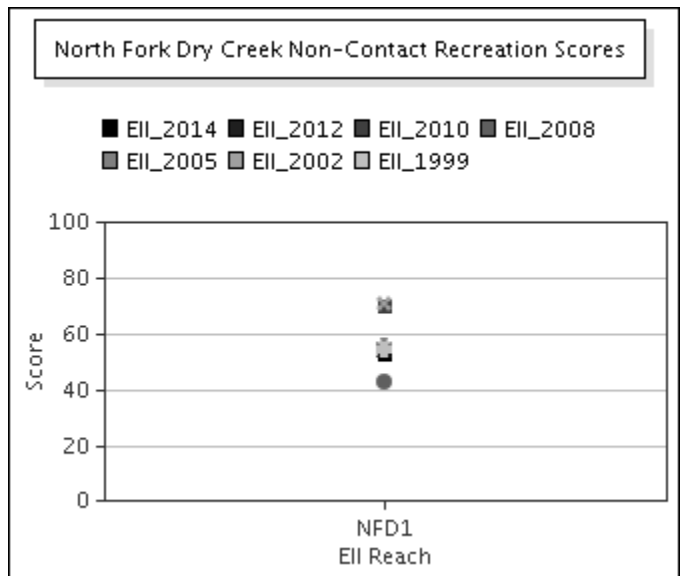
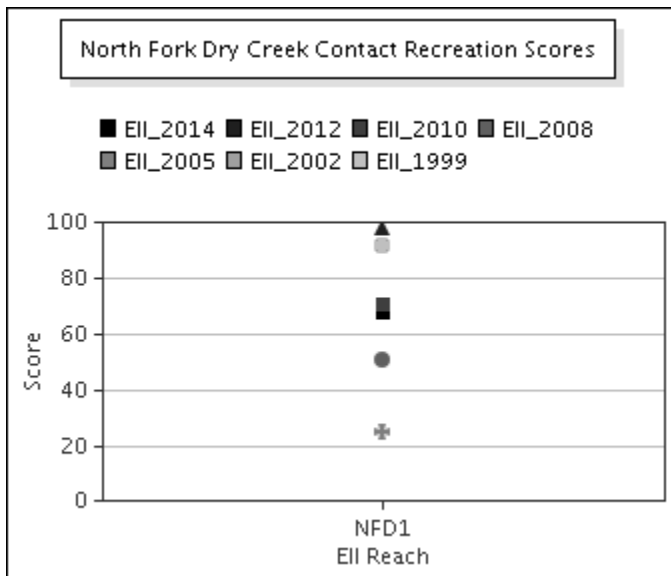
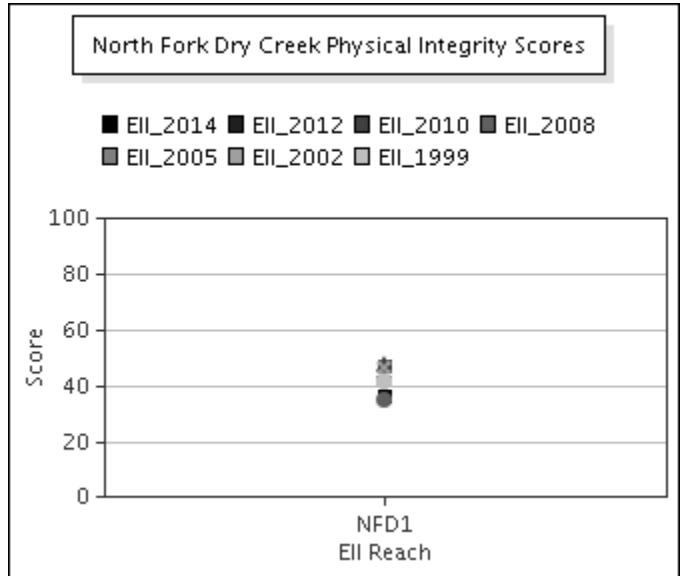
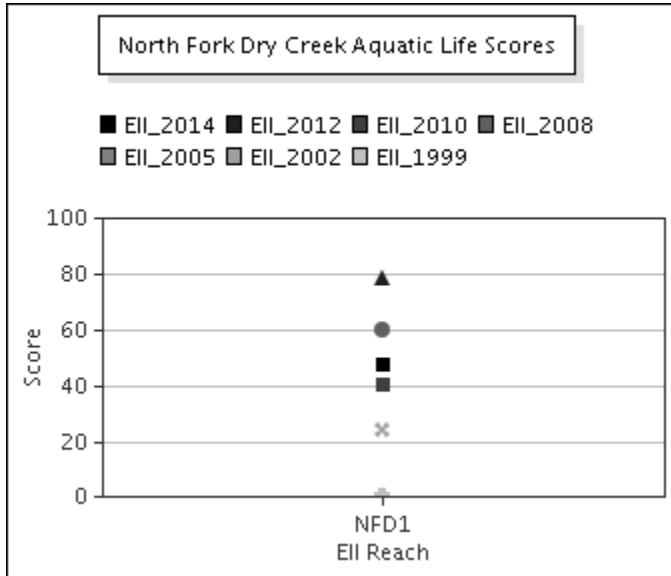
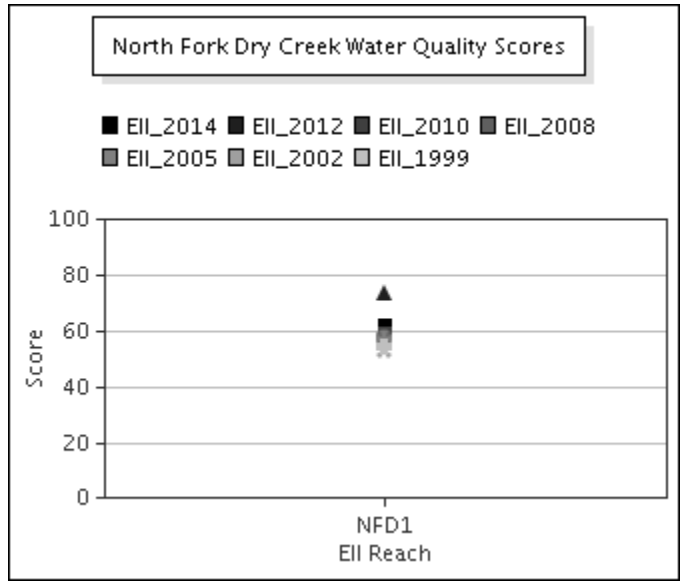
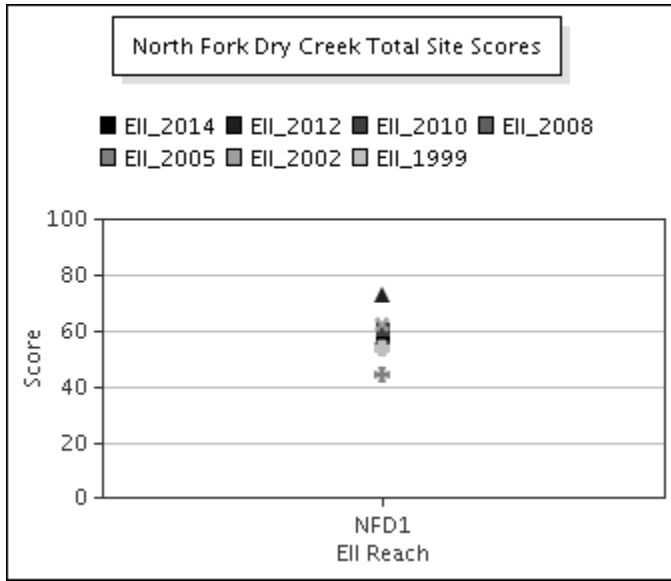
North Fork Dry Creek Watershed

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



North Fork Dry Creek Watershed

Score Summary – Reach scores for each sample year



North Fork Dry Creek Watershed

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

Benthic Macroinvertebrate ID	PTI	FFG	North Fork Dry East @ FM812 (Site 1217)
<i>Hydrometra</i> sp.	4	P	1
<i>Rheumatobates</i> sp.	5	P	2
<i>Trichocorixa</i> sp.	5	P,CG	1
Hydracarina	6		20
<i>Microvelia</i> sp.	6	P	1

North Fork Dry Creek Watershed

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

Scoring Metric	North Fork Dry East @ FM812 (Site 1217)
Number of Taxa *	5
Hilsenhoff Biotic Index *	5.8
Number of Ephemeroptera Taxa *	0
Percent of Total as Chironomidae *	0
Number of EPT Taxa *	0
Percent of Total as EPT *	0
Percent of Total as Predator *	20
Number of Intolerant Taxa *	1
Percent Dominance (Top 3 Taxa) *	92
EPT / EPT + Chironomidae	0
Number of Diptera Taxa	0
Number of Non-Insect Taxa	1
Number of Organisms	25
Percent Dominance (Top 1 Taxa)	80
Percent of Total as Collector / Gatherer	4
Percent of Total as Dominant Guild (FFG)	20
Percent of Total as Elmidae	0
Percent of Total as Filterers	0
Percent of Total as Grazers (PI & SC)	0
Percent of Total as Tolerant Organisms	0
Percent of Trichoptera as Hydropsychidae	0
Ratio of Intolerant : Tolerant Organisms	0.19
TCEQ Qualitative Aquatic Life Use Score	17
TCEQ Quantitative Aquatic Life Use Score	15

*** 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%.

North Fork Dry Creek Watershed

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

Diatom Species Name	PTI	North Fork Dry East @ FM812 (Site 1217)
<i>Diploneis oblongella</i>	4	1
<i>Neidium ampliatum</i>	4	1
<i>Achnantheidium minutissimum</i>	3	12
<i>Caloneis bacillum</i>	3	12
<i>Caloneis schumanniana</i>	3	6
<i>Caloneis ventricosa</i>	3	38
<i>Cymatopleura elliptica</i>	3	1
<i>Diploneis puella</i>	3	83
<i>Encyonema silesiacum</i>	3	8
<i>Encyonema triangulum</i>	3	11
<i>Eunotia bilunaris</i>	3	6
<i>Gomphonema affine</i>	3	4
<i>Gomphonema pumilum</i>	3	1
<i>Halamphora montana</i>	3	1
<i>Hantzschia amphioxys</i>	3	2
<i>Navicula cryptotenella</i>	3	6
<i>Navicula reichardtiana</i>	3	5
<i>Nitzschia nana</i>	3	4
<i>Nitzschia vermicularis</i>	3	2
<i>Placoneis pseudanglica</i>	3	2
<i>Rhopalodia gibba</i>	3	13
<i>Tryblionella angustata</i>	3	1
<i>Bacillaria paradoxa</i>	2	4
<i>Craticula buderi</i>	2	1
<i>Fallacia monoculata</i>	2	17
<i>Gomphonema angustatum</i>	2	2
<i>Gyrosigma acuminatum</i>	2	1
<i>Navicula recens</i>	2	1
<i>Navicula veneta</i>	2	8
<i>Nitzschia amphibia</i>	2	4
<i>Nitzschia clausii</i>	2	3
<i>Nitzschia filiformis</i>	2	22
<i>Nitzschia frustulum</i>	2	15
<i>Nitzschia paleacea</i>	2	26
<i>Sellaphora laevissima</i>	2	2
<i>Sellaphora pupula</i>	2	8
<i>Tryblionella apiculata</i>	2	26
<i>Tryblionella calida</i>	2	3
<i>Nitzschia palea</i>	1	23
<i>Tryblionella punctata</i>	1	26
<i>Amphora copulata</i>		6
<i>Biremis circumtexta</i>		18
<i>Craticula ambigua</i>		1
<i>Fallacia lenzii</i>		2
<i>Fallacia tenera</i>		5
<i>Gomphonema lagenula</i>		1
<i>Navicula cryptotenelloides</i>		2
<i>Navicula lanceolata</i>		13
<i>Nitzschia angustatula</i>		29
<i>Ulnaria acus</i>		4
<i>Ulnaria ulna</i>		7

North Fork Dry Creek Watershed

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

Scoring Metric	North Fork Dry East @ FM812 (Site 1217)
<i>Cymbella</i> Richness	2
Number of organisms	500
Number of taxa	51
Percent motile taxa	44
Percent similarity to reference condition	12
Pollution tolerance index	2.42

* **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.**

1. *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.
2. % 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%.
3. % 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%.
4. 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.

North Fork Dry Creek Watershed

Site Photographs



1217_t00-us-03_28_2002



1217_t00-ds-03_28_2002



1217_t00-ds-06_16_2005



1217_t0-ds-06_27_2008



1217_00-us-05_18_2010



1217_00-ds-05_18_2010

North Fork Dry Creek Watershed

Site Photographs



1218_t00-us-06_21_2000



1218_t00-ds-06_21_2000



1218_t00-us-03_28_2002



1218_t00-ds-03_28_2002



1218_t00-ur-03_28_2002

This page left intentionally blank