Taylor Slough North Watershed

Summary Sheet

Catchment	Total area	1.4 square miles
	Area in recharge	1.1 square miles
	Creek length	2 miles
	Receiving water	Lake Austin
Demographics	2000 population	2,219
	2030 projected population	3,779
	30 year projected % increase	70 %
Land Use	Impervious cover (2003 estimate)	27.2 %
	Impervious cover (2013 estimate)	33.6 %

Overall EII Scores	2001	2004	2007	2010	2012	2014
	61	61	62	69	68	74

Featured Watershed | Phase I Watersheds | Other Phase II Watersheds
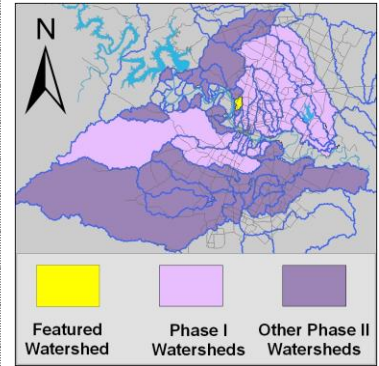
Flow Regime* for Sample Sites on Taylor Slough North

Site	Site Name	1999 Jan WQ	2001 Jan Bio	2001 Mar WQ	2001 Mar Bio	2001 Jun WQ	2001 Sep WQ	2001 Dec WQ	2004 Mar WQ	2004 May WQ	2004 May Bio	2004 Jun WQ	2004 Oct WQ	2004 Dec WQ	2007 Feb WQ	2007 May WQ	2007 Jun Bio	2007 Sep WQ	2007 Dec WQ	2010 Mar WQ	2010 May WQ	2010 May Bio	2010 Oct WQ	2011 Dec WQ	2012 Mar WQ	2012 Apr Bio	2012 Jul WQ	2012 Sep WQ	2014 Jan WQ	2014 Apr Bio	2014 May WQ	2014 Jul WQ	2014 Sep WQ
177	Pecos	B	B	B	B	n	n	B	B	B	B	n	n	B																			
1091	Old Bull Ck Rd	B	B	B	B	B	B	B	B	B	B	B	n	B																			
3969	Mayfield Pk														B	B	B	B	B	B	B	B	B	B	B	B	n	n	B	B	B	B	n

* B = baseflow   n = no flow   S = storm flow   blue = Samples were taken   light blue = Samples were not taken   blank = not visited
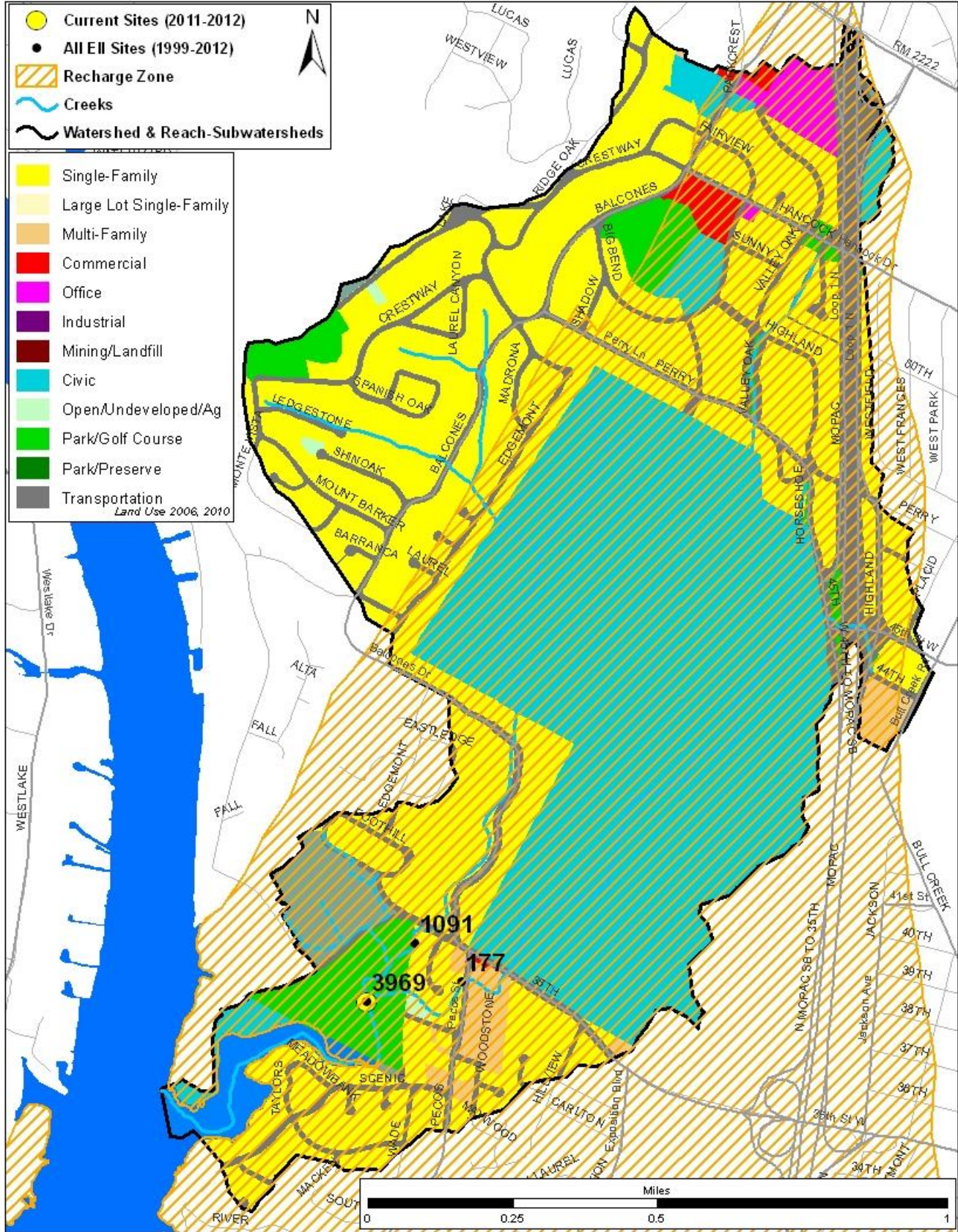
Index scores* for Taylor Slough North Sites by Year

Reach	Site	Site Name	Year	Water Quality	Sediment**	Contact Rec.	Non-Contact Rec.	Physical Integrity	Aquatic Life	Benthic subindex	Diatom subindex	Total EII Score
TYN1	177	Taylor Slough North @ Pecos St	1998	57	52	86	73	48	32	38	25	58
TYN1	1091	Taylor Slough North @ Old Bull Creek Rd	1998	61	52	88	67	58	42	34	50	61
TYN1	177	Taylor Slough North @ Pecos St	2001	68	49	65	84	70	32	45	19	57
TYN1	1091	Taylor Slough North @ Old Bull Creek Rd	2001	50	49	75	63	64	63	48	77	57
TYN1	177	Taylor Slough North @ Pecos St	2004	62	60	43	78	76	62	44	79	64
TYN1	1091	Taylor Slough North @ Old Bull Creek Rd	2004	60	60	36	78	60	49	32	66	57
TYN1	3969	Taylor Slough North @ Mayfield Park	2007	53	61	37	89	71	60	43	77	62
TYN1	3969	Taylor Slough North @ Mayfield Park	2010	63	62	53	93	72	73	64	82	69
TYN1	3969	Taylor Slough North @ Mayfield Park	2012	62	61	70	77	73	66	53	79	68
TYN1	3969	Taylor Slough North @ Mayfield Park	2014	68	71	83	73	81	67	61	73	74

* 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
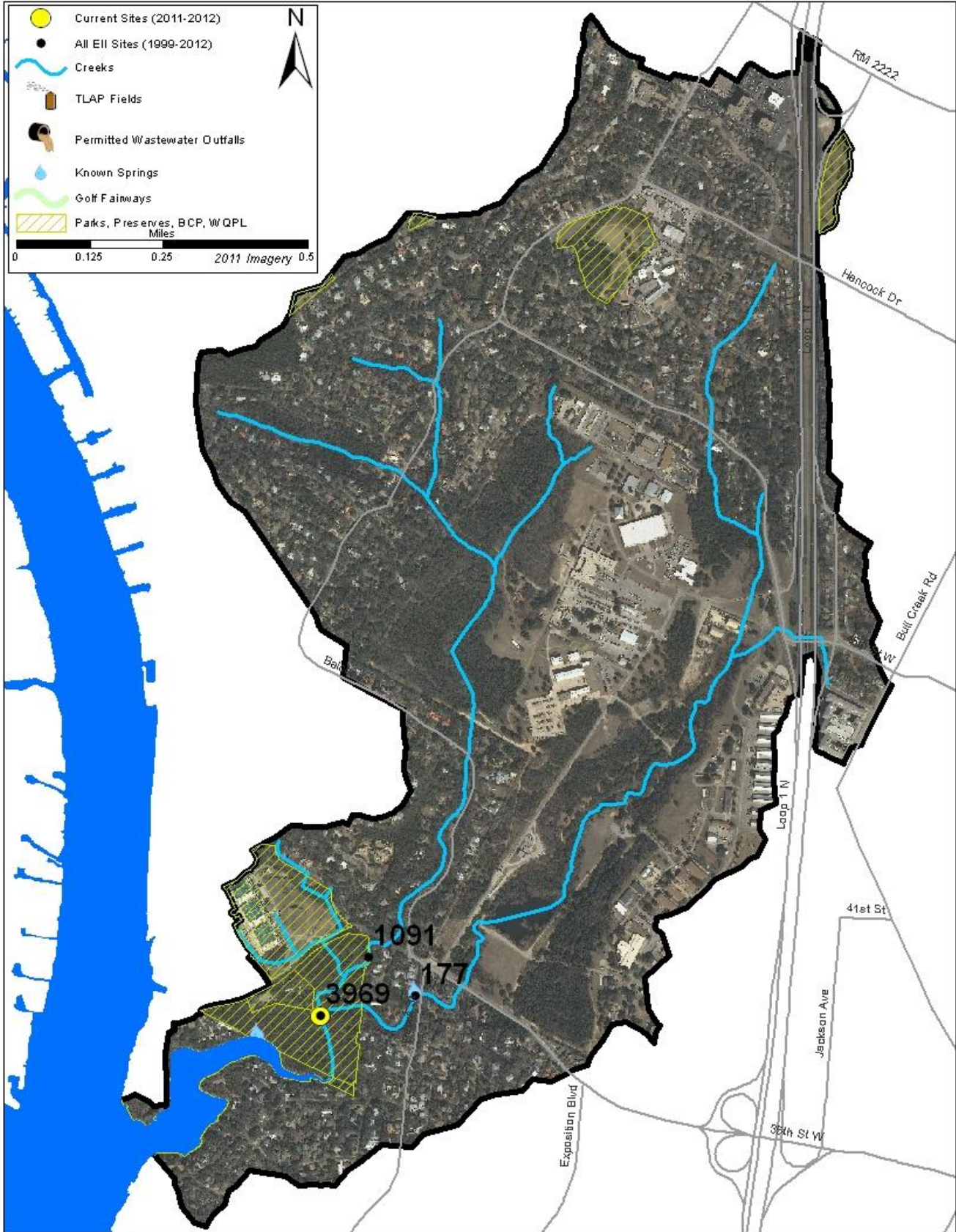
Taylor Slough North Watershed
Land Use Map

Legend:
- Current Sites (2011-2012)
- All EII Sites (1999-2012)
- Recharge Zone
- Creeks
- Watershed & Reach-Subwatersheds

- Single-Family
- Large Lot Single-Family
- Multi-Family
- Commercial
- Office
- Industrial
- Mining/Landfill
- Civic
- Open/Undeveloped/Ag
- Park/Golf Course
- Park/Preserve
- Transportation

Land Use 2006, 2010

1091
177
3969

Taylor Slough North Watershed
Aerial Map

Legend:
- Current Sites (2011-2012)
- All Ell Sites (1999-2012)
- Creeks
- TLAP Fields
- Permitted Wastewater Outfalls
- Known Springs
- Golf Fairways
- Parks, Preserves, BCP, WQPL

Miles
0   0.125   0.25   0.5
2011 Imagery

1091
177
3969

Taylor Slough North Watershed

Water Quality Data – <u>Temperature, Conductivity, pH, Dissolved Oxygen & *E. coli*</u>
<u>for 2014 Sample Sites</u> (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. < >	Temp. Value	Temp. flag	Cond. < >	Cond. Value	Cond. flag	pH < >	pH Value	pH flag	D.O. < >	D.O. Value	D.O. flag	*E.coli* < >	*E.coli* Value	flag
Taylor Slough North @ Mayfield Park	3969	TYN1	01/15/2014		12.2			798			7.56			8.6			12.0	
Taylor Slough North @ Mayfield Park	3969	TYN1	04/17/2014		17.8			729			7.92			7.7			54.8	
Taylor Slough North @ Mayfield Park	3969	TYN1	05/09/2014		22.8			755			7.63			8.5				
Taylor Slough North @ Mayfield Park	3969	TYN1	07/02/2014		25.2			704			7.27			3.3			15.6	
Site 3969 Mean					19.5			747			7.60			7.0			27.5	
Watershed Mean					19.5			747			7.60			7.0			27.5	

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 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	

Taylor Slough North Watershed

Water Quality Data – <u>Ammonia, Nitrate / Nitrite, Ortho-Phosphorus, Total Suspended Solids & Turbidity for 2014 Sample Sites</u> (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 < >	Value	flag	NO3/NO2 < >	Value	flag	Ortho-P < >	Value	flag	T.S.S. < >	Value	flag	Turb. < >	Value	flag
Taylor Slough North @ Mayfield Park	3969	TYN1	01/15/2014	<J	0.008			0.08		<J	0.004		<J	1.05			1.0	R
Taylor Slough North @ Mayfield Park	3969	TYN1	04/17/2014		0.057			0.16		<J	0.004		<J	1.16			1.3	R
Taylor Slough North @ Mayfield Park	3969	TYN1	05/09/2014															
Taylor Slough North @ Mayfield Park	3969	TYN1	07/02/2014	<J	0.008			0.12			0.015			5.04			1.8	
Site 3969 Mean					0.024			0.12			0.008			2.42			1.3	
Watershed Mean					0.024			0.12			0.008			2.42			1.3	

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

Taylor Slough North Watershed

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

Parameter= TOTAL SUSPENDED SOLIDS Unit= mg/L Watershed= Taylor Slou

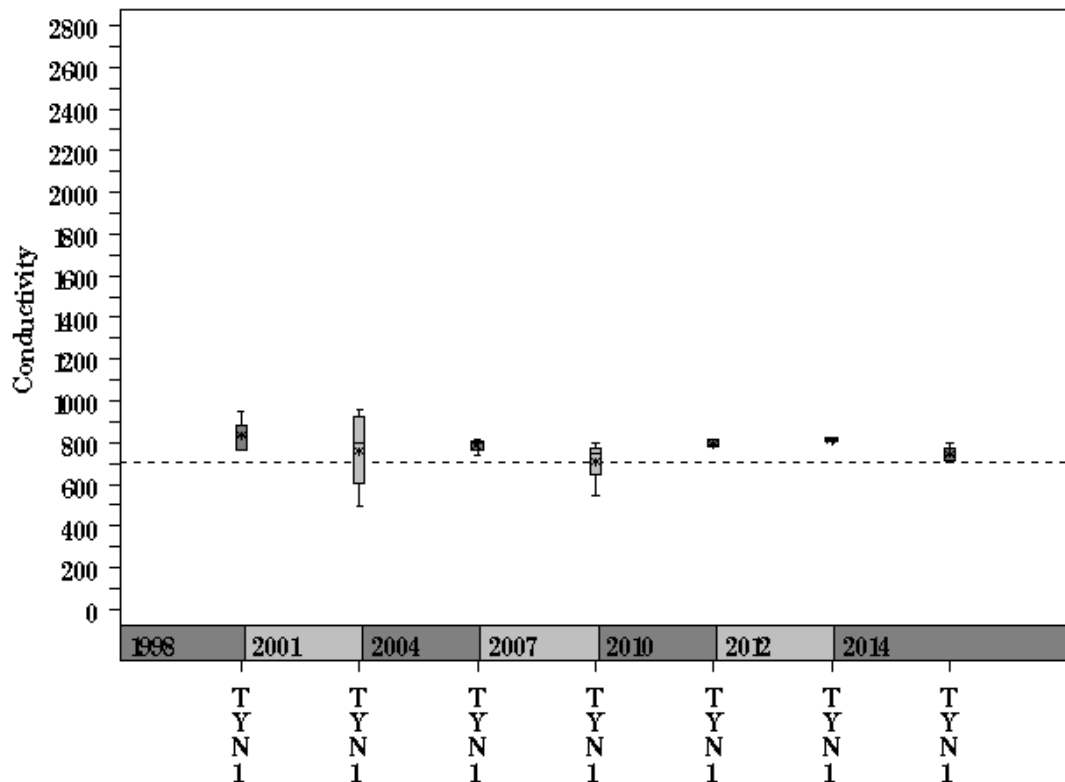Parameter= TURBIDITY Unit= NTU Watershed= Taylor Slough North
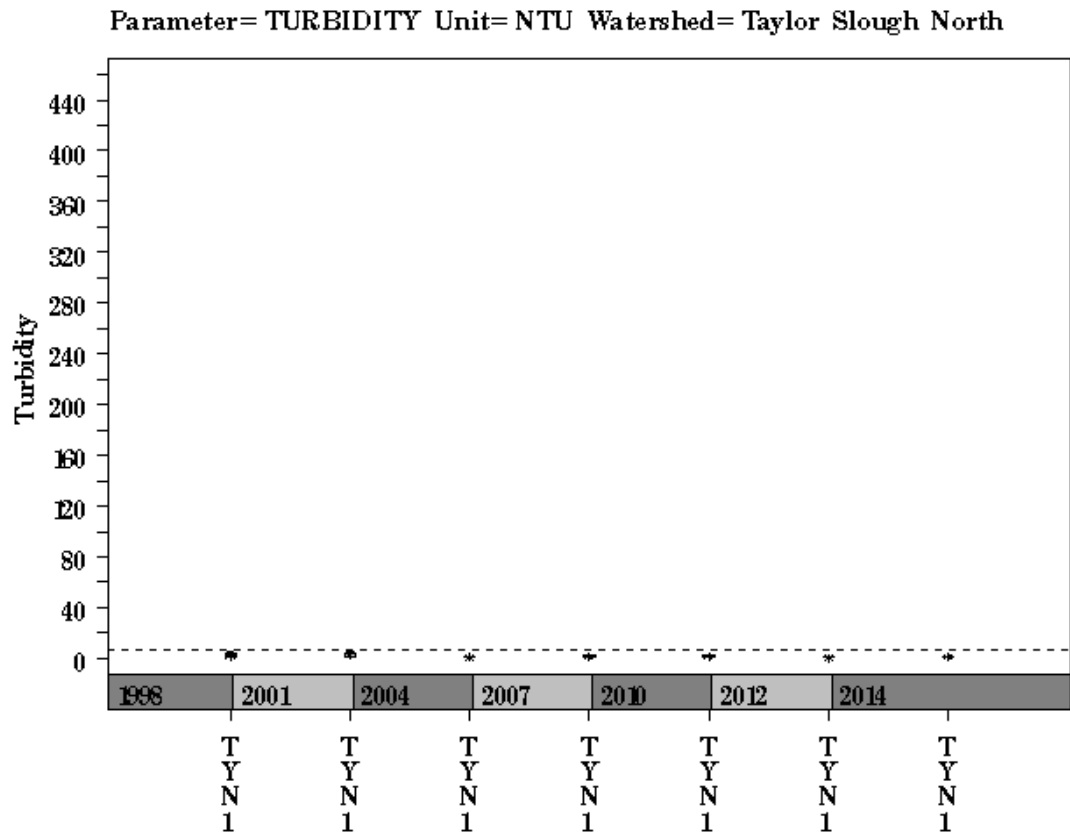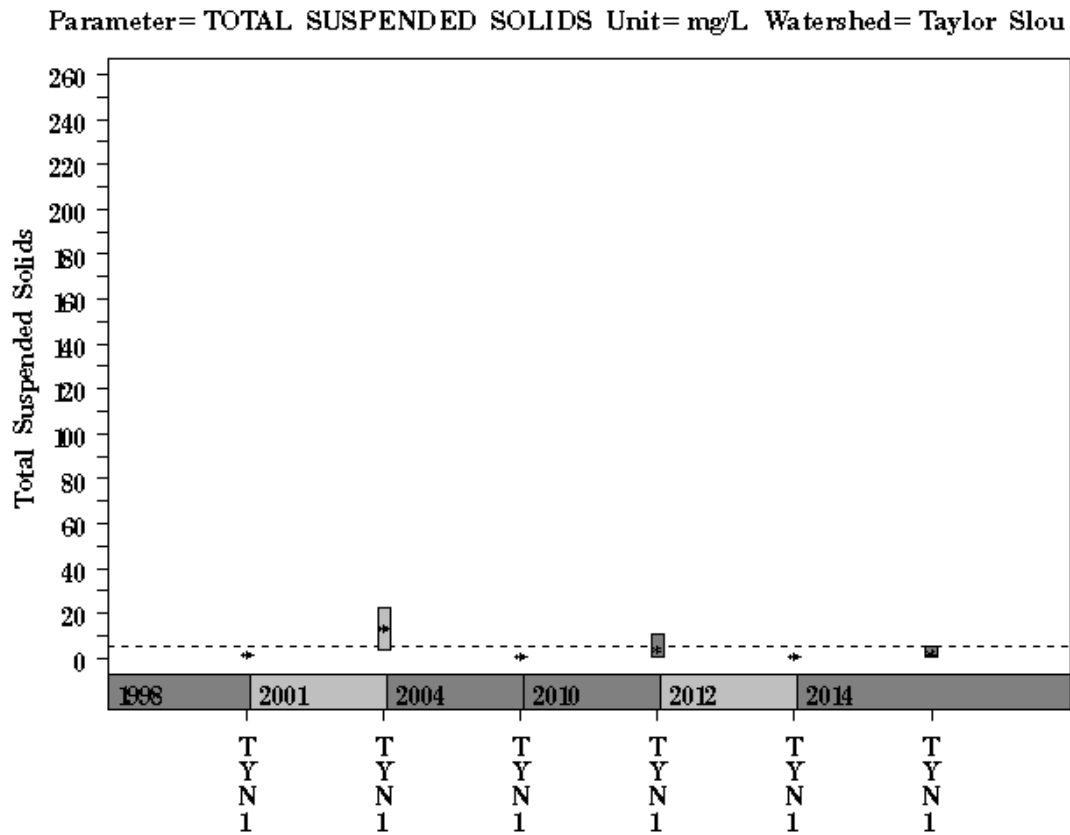
Taylor Slough North Watershed

Data Summary Graphs – <u>pH</u> and <u>Conductivity</u> (Downstream to Upstream by Year)

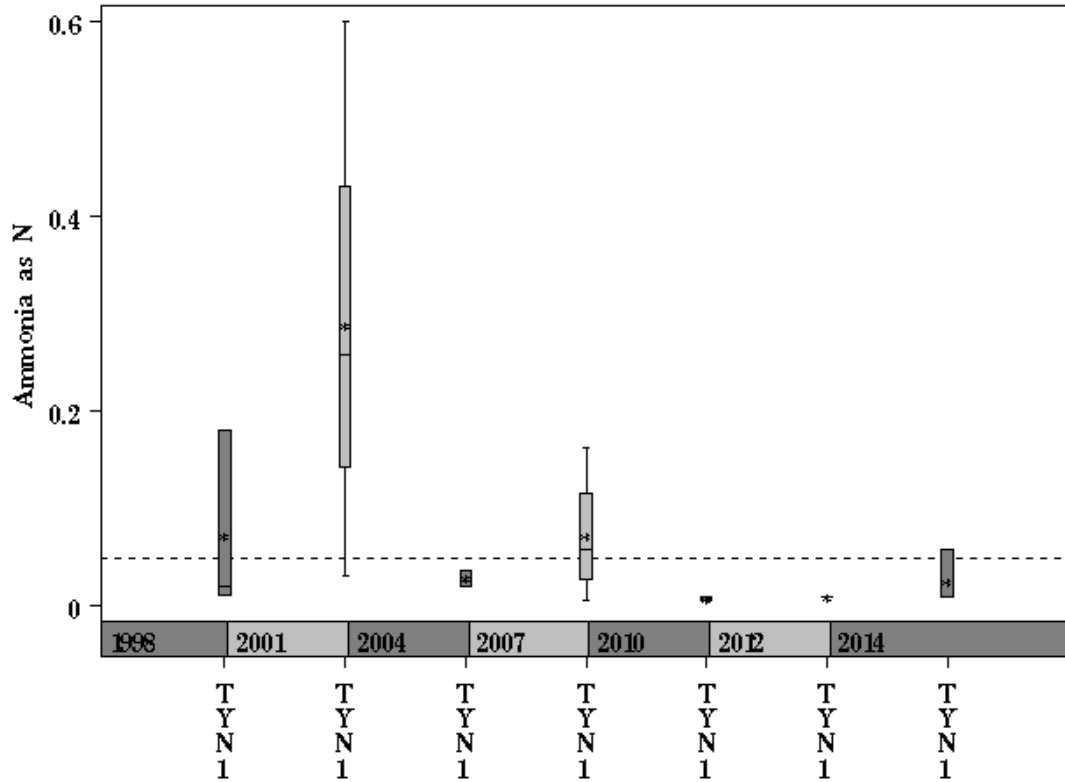Parameter= P H Unit= Standard units Watershed= Taylor Slough North
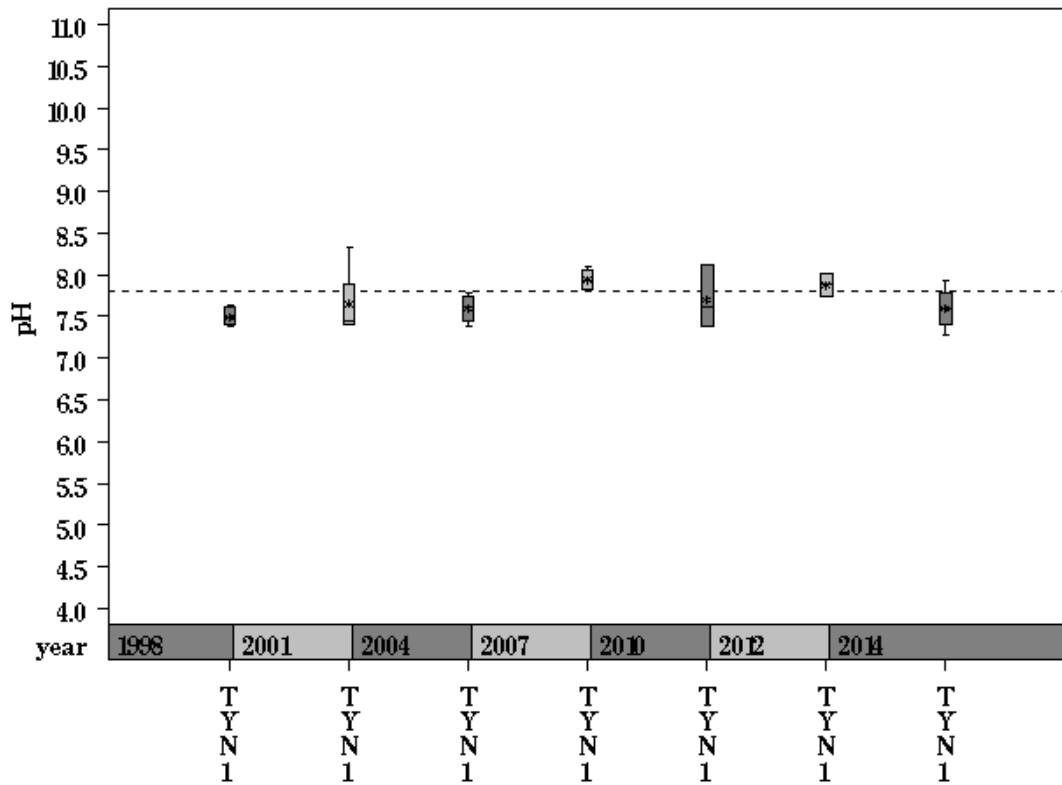
Parameter=CONDUCTIVITY Unit= uS/cm Watershed= Taylor Slough North

Taylor Slough North Watershed

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

Parameter= AMMONIA AS N Unit= mg/L Watershed= Taylor Slough North
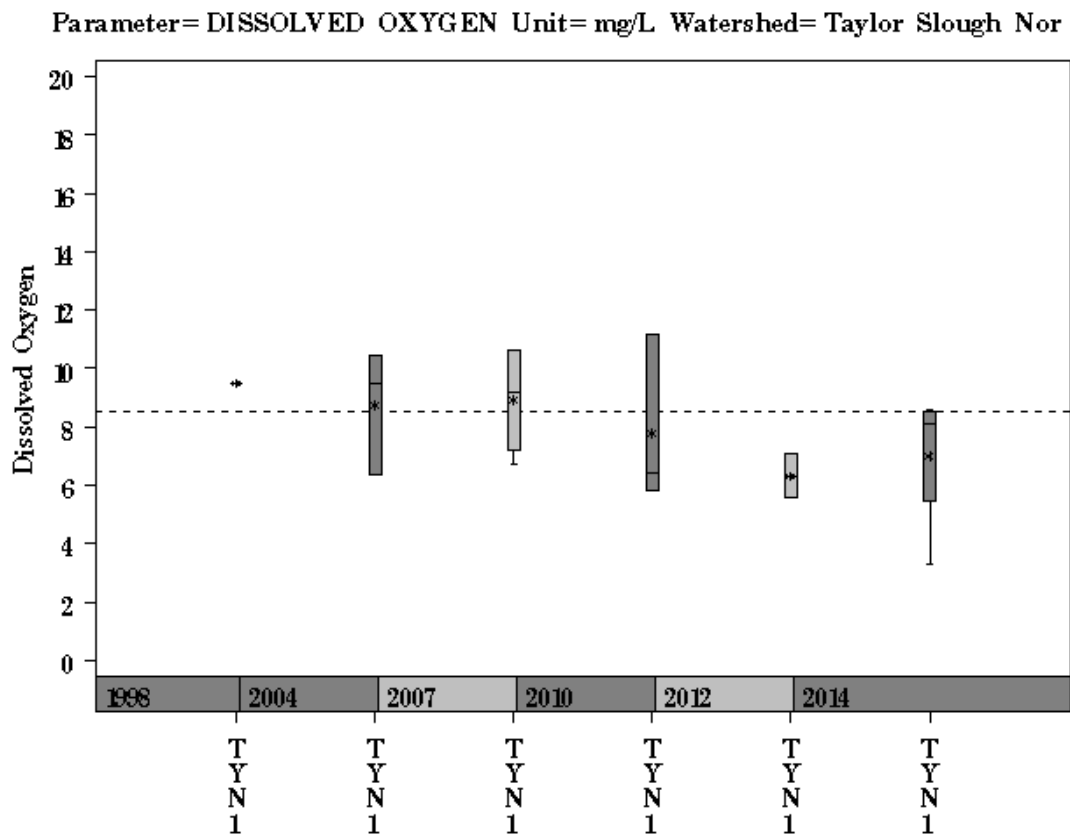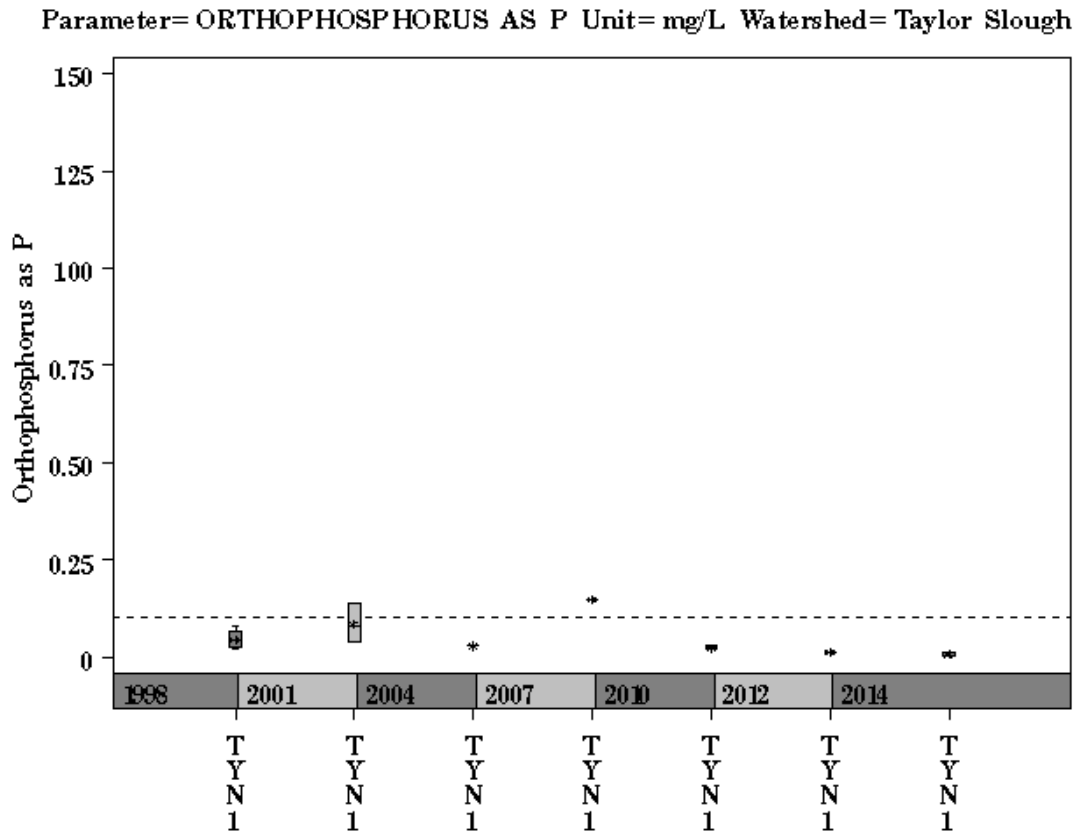

Parameter= NITRATE AS N Unit= mg/L Watershed= Taylor Slough North
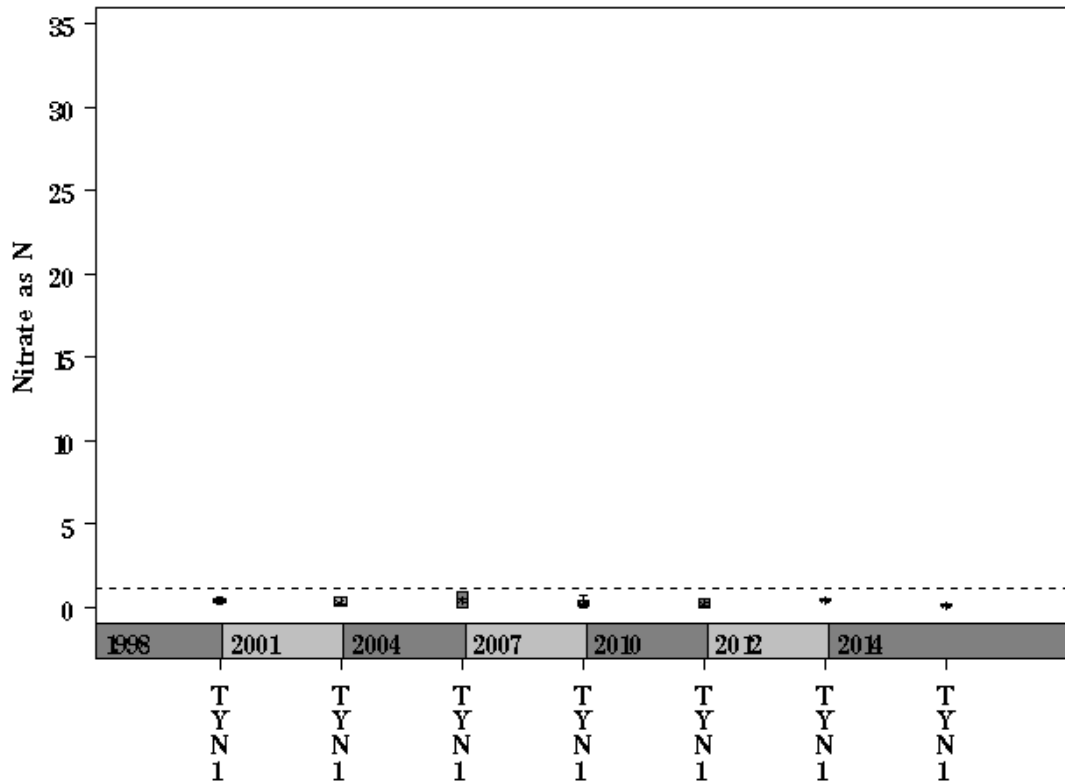
Taylor Slough North Watershed

Data Summary Graphs – <u>Orthophosphate</u> and <u>Dissolved Oxygen</u> (Downstream to Upstream by Year)
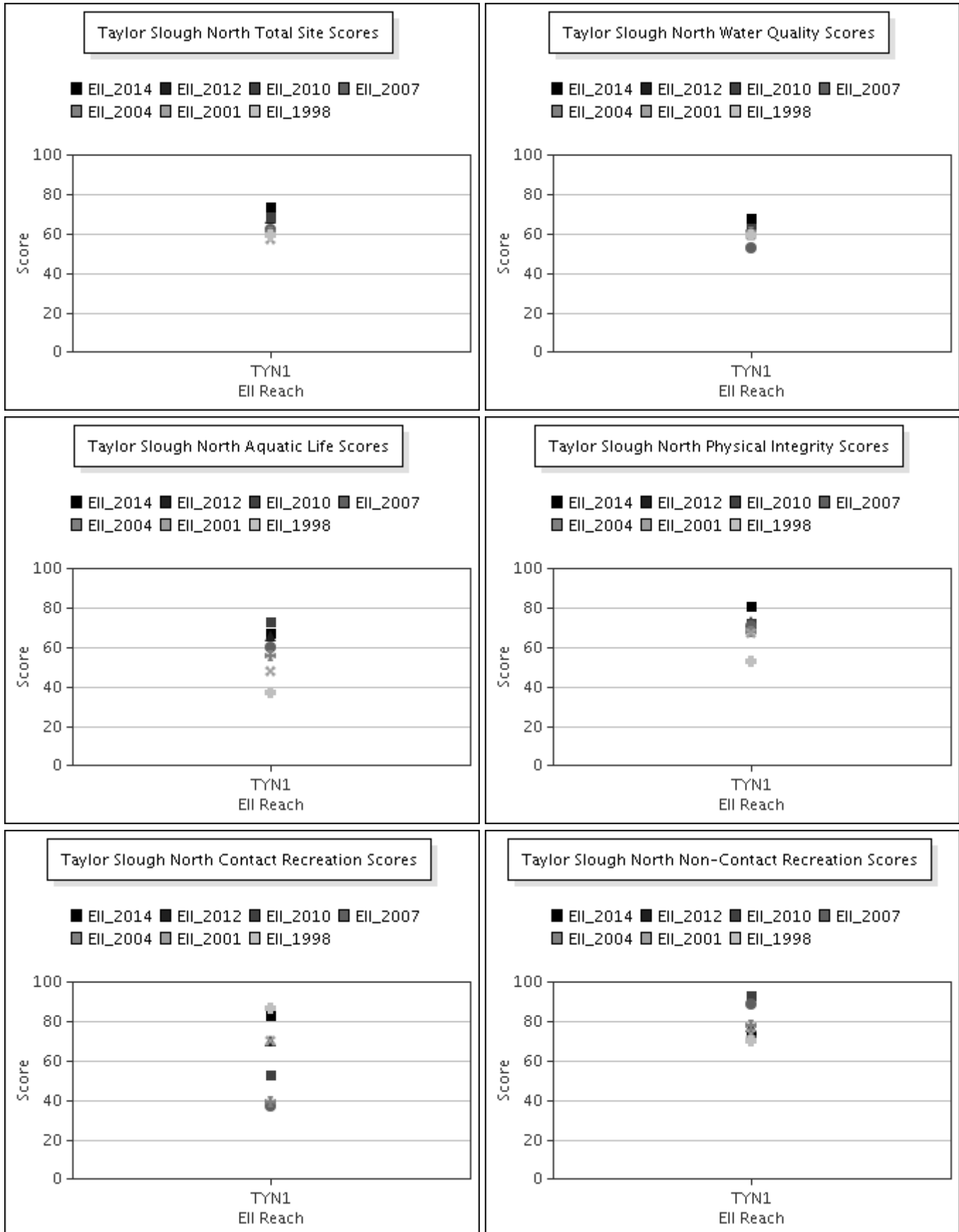
Parameter= ORTHOPHOSPHORUS AS P Unit= mg/L Watershed= Taylor Slough

Parameter= DISSOLVED OXYGEN Unit= mg/L Watershed= Taylor Slough Nor

Taylor Slough North Watershed

Data Summary Graphs – _E.coli_ (Downstream to Upstream by Year)

Parameter= E COLI BACTERIA Unit= MPN/100mL Watershed= Taylor Slough
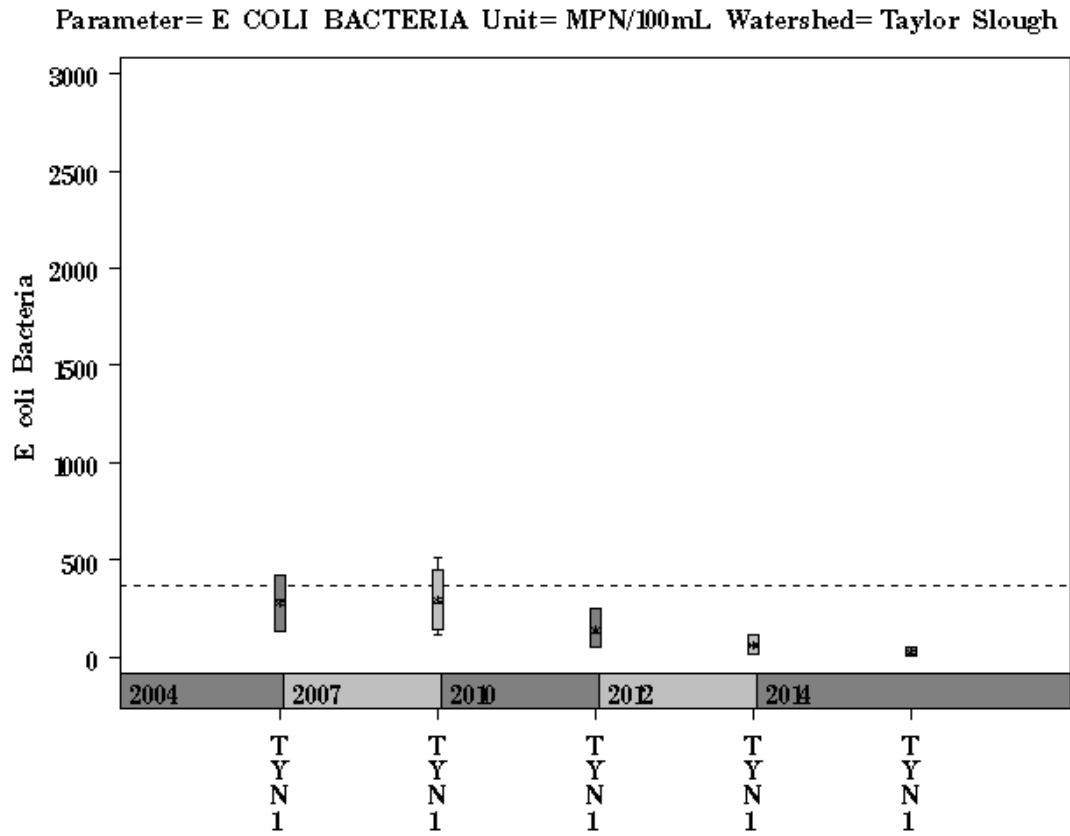
Taylor Slough North Watershed

Score Summary – Reach scores for each sample year

Taylor Slough North Total Site Scores

Legend: EII_2014, EII_2012, EII_2010, EII_2007, EII_2004, EII_2001, EII_1998

Y-axis: Score (0–100)
X-axis: TYN1, EII Reach

Taylor Slough North Water Quality Scores

Legend: EII_2014, EII_2012, EII_2010, EII_2007, EII_2004, EII_2001, EII_1998

Y-axis: Score (0–100)
X-axis: TYN1, EII Reach

Taylor Slough North Aquatic Life Scores

Legend: EII_2014, EII_2012, EII_2010, EII_2007, EII_2004, EII_2001, EII_1998

Y-axis: Score (0–100)
X-axis: TYN1, EII Reach

Taylor Slough North Physical Integrity Scores

Legend: EII_2014, EII_2012, EII_2010, EII_2007, EII_2004, EII_2001, EII_1998

Y-axis: Score (0–100)
X-axis: TYN1, EII Reach

Taylor Slough North Contact Recreation Scores

Legend: EII_2014, EII_2012, EII_2010, EII_2007, EII_2004, EII_2001, EII_1998

Y-axis: Score (0–100)
X-axis: TYN1, EII Reach

Taylor Slough North Non-Contact Recreation Scores

Legend: EII_2014, EII_2012, EII_2010, EII_2007, EII_2004, EII_2001, EII_1998

Y-axis: Score (0–100)
X-axis: TYN1, EII Reach

Taylor Slough North Watershed

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

Benthic Macroinvertebrate ID	PTI	FFG	Taylor Slough North @ Mayfield Park (Site 3969)
Fallceon quilleri	4	SC,CG	28
Argia sp.	6	P	4
Cheumatopsyche sp.	6	FC	9
Chironomidae	6	P,FC	1
Physella sp.	9	SC	7
Trepobates sp.	10	P	1
Dugesia sp.		P,CG	2

Taylor Slough North Watershed

Benthic Macroinvertebrates – <u>Metric Summary for 2014 Sample Sites</u> (Downstream to Upstream)

Scoring Metric	Taylor Slough North @ Mayfield Park (Site 3969)
Number of Taxa *	7
Hilsenhoff Biotic Index *	5.4
Number of Ephemeroptera Taxa *	1
Percent of Total as Chironomidae *	2
Number of EPT Taxa *	2
Percent of Total as EPT *	71
Percent of Total as Predator *	15
Number of Intolerant Taxa *	1
Percent Dominance (Top 3 Taxa) *	85
EPT / EPT + Chironomidae	1
Number of Diptera Taxa	1
Number of Non-Insect Taxa	2
Number of Organisms	52
Percent Dominance (Top 1 Taxa)	54
Percent of Total as Collector / Gatherer	58
Percent of Total as Dominant Guild (FFG)	67
Percent of Total as Elmidae	0
Percent of Total as Filterers	19
Percent of Total as Grazers (PI & SC)	67
Percent of Total as Tolerant Organisms	15
Percent of Trichoptera as Hydropsychidae	100
Ratio of Intolerant : Tolerant Organisms	1.27
TCEQ Qualitative Aquatic Life Use Score	18
TCEQ Quantitative Aquatic Life Use Score	27

> *** 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%.

Taylor Slough North Watershed

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

Diatom Species Name	PTI	Taylor Slough North @ Mayfield Park (Site 3969)
Amphora inariensis	4	26
Diploneis oblongella	4	1
Achnanthidium minutissimum	3	21
Amphora ovalis	3	5
Amphora pediculus	3	237
Cocconeis pediculus	3	41
Denticula kuetzingii	3	5
Navicula radiosa	3	11
Reimeria sinuata	3	24
Rhoicosphenia abbreviata	3	8
Tabularia fasciculata	3	1
Achnantheiopsis lanceolata	2	6
Cyclotella meneghiniana	2	1
Nitzschia amphibia	2	8
Amphora copulata		3
Cocconeis placentula var. *euglypta*		81
Eolimna minima		1
Gomphonema augur var. *sphaerophorum*		2
Ulnaria ulna		24

Taylor Slough North Watershed

Diatoms – <u>Metric Summary for 2014 Sample Sites</u> (Downstream to Upstream)

Scoring Metric	Taylor Slough North @ Mayfield Park (Site 3969)
Cymbella Richness	1
Number of organisms	506
Number of taxa	19
Percent motile taxa	4
Percent similarity to reference condition	27
Pollution tolerance index	3.03

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*   **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.

177_t00-us-05_17_2004

177_t00-ds-05_17_2004

177_t00-ur-05_17_2004

1091_t00-ur-05_17_2004

1091_t00-us-05_17_2004
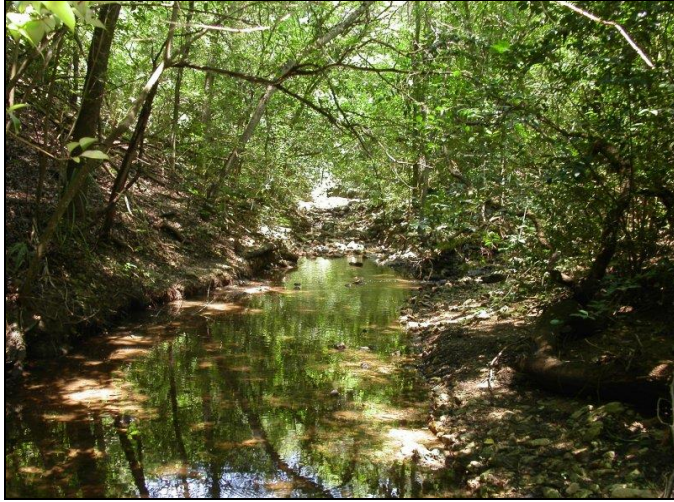
3969_ds_06_18_2007

3969_ur_06_18_2007

3969_us_06_18_2007

3969_00-us-05_17_2010

3969_00-ur-05_17_2010

3969_00-ds-05_17_2010

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