

**REFUGE'S ENHANCED WATER QUALITY PROGRAM  
MONTHLY SAMPLING**

*April through June, 2015 Data Update*  
Submitted July 23, 2015

*by:*

**Donatto Surratt**

**Everglades National Park  
c/o A.R.M. Loxahatchee National Wildlife Refuge**

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A.R.M. Loxahatchee National Wildlife Refuge  
Enhanced Water Quality Monitoring Network

Apr-15

Site	Sample Date	Full(F), Partial(P), None(N), Reanalyzer (R) Units	Depth <sup>1</sup> meter	Total Depth <sup>2</sup> meter	DCS <sup>3</sup> meter	Alkalinity mg/l	Calcium Dissolved mg/l	Carbon, Dissolved Organic mg/l	Carbon, Total Organic mg/l	Chloride mg/l	Conductivity (Field) µMHSO/cm	Nitrate + Nitrite as Nitrogen mg/l	Nitrogen, Total Kjeldahl mg/l	Ortho-phosphate as Phosphorus mg/l	Oxygen, Dissolved (Field) mg/l	pH (Field) pH units	Phosphorus, Total mg/l	Silica mg/l	Solids, Total Dissolv mg/l	Solids, Total Suspended (TSS) mg/l	Sulfate mg/l	Temperature (Field) DEG C	Turbidity NTU	
A101		N																						
A102		N																						
A103		N																						
A104	04/07/15	F	>1M	>1M	>1M	217	59	28	26	131	869	0.037	>1M	1.6	0.006	7.1	8.0	0.025	11.2	536	U	41.6	27.0	1.3
A105	04/07/15	P	0.05	0.11	0.20					46	327				1.5	6.7	0.006			U	2.1	21.8		
A106		N																						
A107		N																						
A108		N																						
A109	04/08/15	P	0.09	0.18	0.30					26	170				0.6	6.5	0.006			U	1.2	23.0		
A110	04/08/15	P	0.05	0.11	0.20					33	210				0.8	6.2	0.005			U	0.7	22.6		
A111		N																						
A112	04/08/15	P	0.07	0.14	0.32					21	150				0.8	6.5	0.005			U	0.8	23.0		
A113	04/08/15	P	0.08	0.16	0.29					26	150				1.9	6.3	0.007			U	U	23.4		
A114	04/08/15	P	0.07	0.13	0.31					26	140				4.3	6.3	0.008			U	U	24.3		
A115	04/07/15	F	>1M	>1M	>1M	155	45	25	23	91	615	U	1.3	0.007	6.2	7.7	0.018	9.1	380	U	26.8	26.3	0.8	
A117	04/09/15	P	0.11	0.12	0.29					35	240				1.2	6.5	0.009			U	2.3	23.8		
A118	04/09/15	F	0.10	0.20	0.35	43	12	21	19	23	170	U	0.8	0.003	0.4	6.4	0.013	4.6	121	U	1	23.1	0.7	
A119	04/09/15	F	0.11	0.22	0.32	34	9	22	21	22	140	U	1.1	0.006	2.8	6.5	0.005	4.8	115	U	U	24.6	0.6	
A120	04/09/15	F	0.12	0.24	0.37	31	9	26	25	31	160	U	1.5	0.029	2.2	6.5	0.006	9.2	141	U	U	24.7	0.7	
A122	04/09/15	P	0.05	0.10	0.26					44	310				0.9	6.3	0.012			U	1.9	25.2		
A124		N																						
A126	04/09/15	P	0.09	0.18	0.32					26	190				1.4	6.5	U			U	0.9	23.5		
A127	04/09/15	P	0.09	0.18	0.33					32	170				2.3	6.3	0.005			U	U	24.2		
A128	04/08/15	P	0.07	0.14	0.28					32	170				1.2	6.2	0.005			U	U	24.6		
A129	04/07/15	F	>1M	>1M	>1M	192	67	29	28	202	1090	0.011	1.5	0.004	5.7	7.6	0.018	5.1	638	U	40.8	26.7	1.0	
A130	04/06/15	P	0.08	0.17	0.28					80	447				0.8	6.6	0.069			U	1.4	23.1		
A131	04/06/15	F	0.10	0.20	0.29	62	20	40	37	46	272	U	2.5	0.007	2.9	6.7	0.008	2.1	219	U	0.8	23.7	0.8	
A132	04/07/15	F	>1M	>1M	>1M	199	71	28	27	218	1167	0.028	1.5	0.004	5.1	7.6	0.020	5.3	686	U	47.5	26.2	0.9	
A133	04/06/15	P	0.05	0.10	0.21					125	715				1.3	6.8	0.012			U	2	23.2		
A134	04/06/15	P	0.08	0.16	0.33					107	586				0.6	6.9	0.008			U	2.3	23.3		
A135	04/07/15	F	>1M	>1M	>1M	192	67	28	27	202	1102	0.033	1.6	0.003	5.2	7.7	0.020	4.7	651	U	42.6	26.5	1.3	
A136	04/06/15	P	0.05	0.11	0.49					123	733				0.9	6.8	0.061			U	3.3	23.6		
A137	04/06/15	P	0.06	0.12	0.21					92	535				1.9	6.8	0.006			U	2.7	24.9		
A138	04/06/15	P	0.05	0.10	0.19					68	399				6.1	7.0	0.016			U	1.1	27.1		
A139	04/06/15	P	0.05	0.10	0.23					59	298				6.5	6.8	0.012			U	0.8	26.0		
A140		N																						
A141	04/09/15	F	1.00	1.00	>1M	60	17	21	20	32	230	U	1.1	0.003	1.5	6.7	0.009	6.5	160	7	1.8	25.5	0.9	
Total																								
Full																								
Partial																								
None																								

(1) Sample depth

(2) Total depth is depth of the clear water column

(3) Depth to consolidated substrate

U indicates that the compound was analyzed for but not detected; see "LOXA\_Parameter\_Info" tab for table of MDLs.

*The analyte was detected in both the sample and the associated method blank*

Additional information on the Enhanced Water Quality Monitoring Network can be found at:

[http://sofia.usgs.gov/lox\\_monitor\\_model/wq\\_network.html](http://sofia.usgs.gov/lox_monitor_model/wq_network.html)

Data from June 2004 to May 2006 available on DBHYDRO:

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Field notes are maintained by the Everglades Program Team at the A.R.M. Loxahatchee National Wildlife Refuge.

A.R.M. Loxahatchee National Wildlife Refuge  
Enhanced Water Quality Monitoring Network

May-15

Site	Sample Date	Full(F), Partial(P), None(N), Reanalyzer (R) Units	Depth <sup>1</sup> meter	Total Depth <sup>2</sup> meter	DCS <sup>3</sup> meter	Alkalinity mg/l	Calcium Dissolved mg/l	Carbon, Dissolved Organic mg/l	Carbon, Total Organic mg/l	Chloride mg/l	Conductivity (Field) µMHSO/cm	Nitrate + Nitrite as Nitrogen mg/l	Nitrogen, Total Kjeldahl mg/l	Ortho-phosphate as Phosphorus mg/l	Oxygen, Dissolved (Field) mg/l	pH (Field) pH units	Phosphorus, Total mg/l	Silica mg/l	Solids, Total Dissolv mg/l	Solids, Total Suspended (TSS) mg/l	Sulfate mg/l	Temperature (Field) DEG C	Turbidity NTU
A101		N																					
A102		N																					
A103		N																					
A104	05/12/15	F	>1M	>1M	>1M	181	55	25	25	139	882	0.040	1.5	0.005	6.5	8.0	0.026	11.5	526	U	42.3	29.1	1.0
A105		N																					
A106		N																					
A107		N																					
A108		N																					
A109		N																					
A110		N																					
A111		N																					
A112		N																					
A113		N																					
A114	05/13/15	P	0.05	0.11	0.25					27	167				6.9	6.4	0.012			U	0.7	28.2	
A115	05/12/15	F	>1M	>1M	>1M	150	41	22	23	88	603	0.015	1.2	0.020	5.8	7.8	0.020	7.9	366	U	26.7	28.3	0.9
A117		N																					
A118		N																					
A119	05/13/15	P	0.07	0.15	0.27					30	184				3.7	6.7	0.015			U	0.7	27.0	
A120	05/13/15	P	0.09	0.18	0.33					29	187				2.6	6.6	0.016			U	1	27.4	
A122		N																					
A124		N																					
A126	05/13/15	P	0.07	0.15	0.27					36	220				3.0	6.4	0.015			U	U	27.0	
A127	05/13/15	P	0.06	0.12	0.27					33	155				2.3	6.1	0.009			U	U	27.3	
A128		N																					
A129	05/12/15	F	>1M	>1M	>1M	135	47	22	22	188	952	0.002	1.3	U	5.6	7.7	0.023	6.7	556	U	33.5	28.8	1.2
A130	05/11/15	P	0.06	0.13	0.25					81	509				1.7	6.9	0.013			U	1.5	26.8	
A131	05/11/15	P	0.08	0.16	0.21					50	292				2.4	6.9	0.006			U	0.9	26.5	
A132	05/12/15	F	>1M	>1M	>1M	139	50	22	22	189	960	0.008	1.3	U	5.1	7.6	0.022	6.5	554	U	33	28.7	1.3
A133		N																					
A134	05/11/15	F	0.05	0.11	0.22					80	489				1.5	6.9	0.010			U	1.6	27.6	
A135	05/12/15	F	>1M	>1M	>1M	154	55	22	22	180	961	0.017	1.3	0.003	4.7	7.6	0.018	7.8	561	U	39.3	28.2	0.9
A136		N																					
A137		N																					
A138		N																					
A139		N																					
A140		N																					
A141	05/13/15	F	>1M	>1M	>1M	57	17	18	19	31	222	0.003	1.4	0.009	3.4	6.6	0.042	6.9	159	22	1.7	26.5	4.5
Total			37																				
Full			7																				
Partial			7																				
None			23																				

(1) Sample depth

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(3) Depth to consolidated substrate

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Jun-15

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A101		N																					
A102		N																					
A103		N																					
A104	06/09/15	F	>1M	>1M	>1M	163	54	23	24	153	908	0.027	1.6	0.003	5.8	7.8	0.018	7.0	536	U	40.1	29.6	1.7
A105		N																					
A106		N																					
A107		N																					
A108		N																					
A109		N																					
A110		N																					
A111		N																					
A112		N																					
A113		N																					
A114	06/10/15	P	0.06	0.12	0.20					17	123				7.2	6.3	0.013			U	0.7	27.5	
A115	06/09/15	F	>1M	>1M	>1M	137	42	23	23	90	621	0.004	1.4	0.012	5.0	7.6	0.022	8.4	387	U	27.2	28.8	1.3
A117		N																					
A118		N																					
A119		N																					
A120	06/10/15	P	0.05	0.10	0.23					49	288				4.0	6.4	0.023			U	0.9	31.1	
A122		N																					
A124		N																					
A126		N																					
A127		N																					
A128		N																					
A129	06/09/15	F	>1M	>1M	>1M	142	49	26	26	203	1059	0.007	1.6	0.005	4.5	7.6	0.020	6.3	615	U	48	29.0	2.2
A130	06/08/15	P	0.06	0.12	0.21					63	442				1.6	6.9	0.025			U	2.2	27.1	
A131	06/08/15	F	0.05	0.11	0.21					39	256				3.3	6.8	0.013			6	1	27.1	
A132	06/09/15	F	>1M	>1M	>1M	157	51	31	32	234	1195	0.032	2.0	0.007	3.8	7.6	0.024	9.2	700	U	47.8	29.2	1.5
A133		N																					
A134		N																					
A135	06/09/15	F	>1M	>1M	>1M	168	57	33	33	246	1279	0.053	2.1	0.006	3.8	7.5	0.021	10.6	744	U	48.6	29.4	1.5
A136		N																					
A137		N																					
A138		N																					
A139		N																					
A140		N																					
A141	06/10/15	F	>1M	>1M	>1M	75	20	21	22	36	260	U	1.3	0.009	1.7	6.5	0.017	8.8	186	10	1.4	27.5	4.1
Total			37																				
Full			7																				
Partial			3																				
None			27																				

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(3) Depth to consolidated substrate

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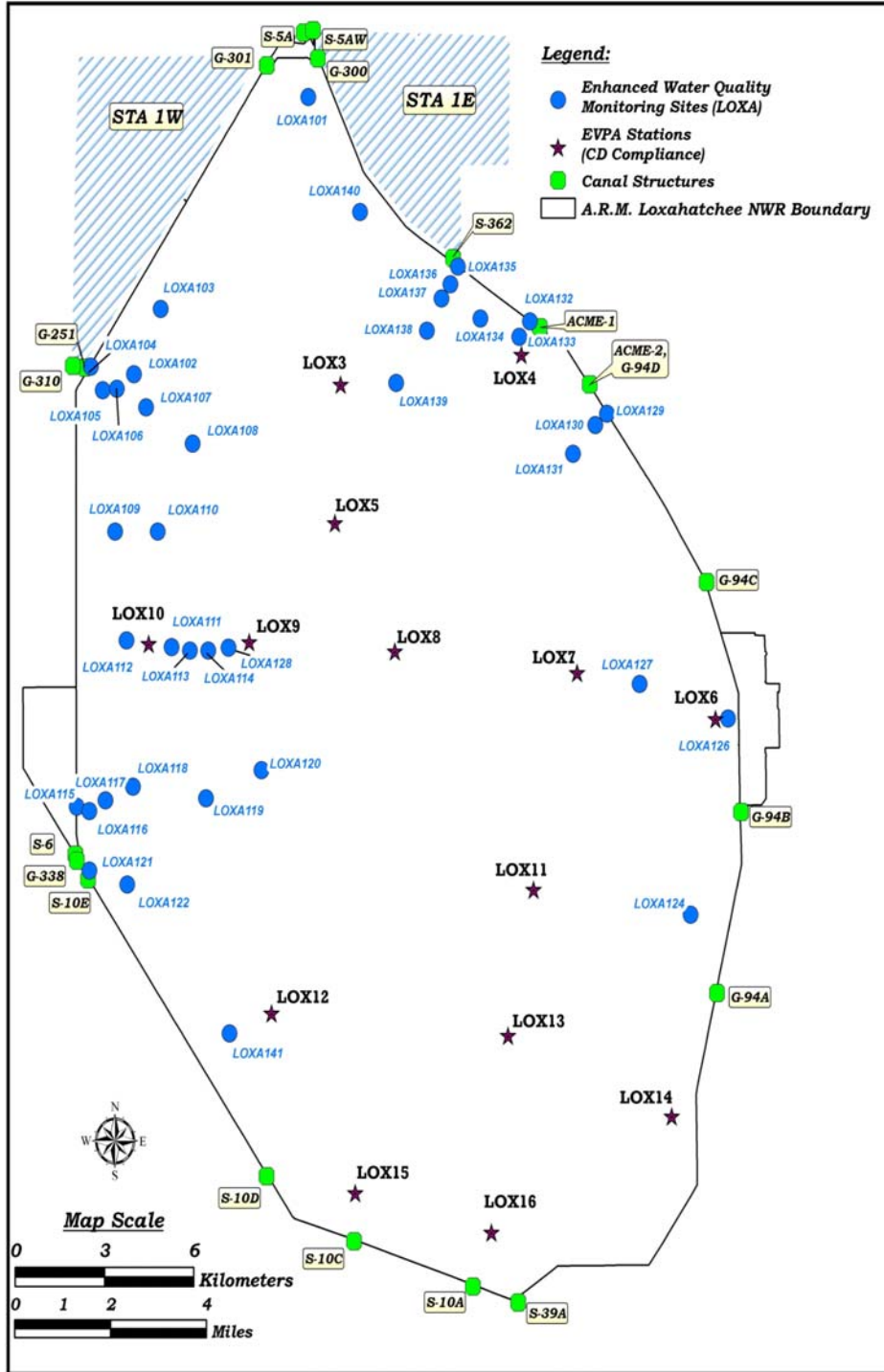
Parameter Information:

<b>Parameter</b>	<b>Units</b>	<b>Analysis Method</b>	<b>MDL</b>
Alkalinity as CaCO <sub>3</sub> , Total	mg/L	310.1	5
Calcium Dissolved	mg/L	200.7	0.02 - 0.03
Carbon, Dissolved Organic	mg/L	415.1	0.1 - 0.3
Carbon, Total Organic	mg/L	415.1	0.1 - 0.3
Chloride	mg/L	300.0	0.1
Conductivity (field)	μMHOS/cm	120.1 (field)	-
Nitrate + Nitrite as Nitrogen	mg/L	300.0	0.003 - 0.009
Nitrogen, Total Kjeldahl (TKN)	mg/L	351.2	0.06 - 0.07
Ortho-phosphate as Phosphorus	mg/L	365.1	0.002 - 0.003
Oxygen, Dissolved (Field)	mg/L	360.1	1
pH (Field)	pH units	150.1	-
Phosphorus, Total	mg/L	365.3	0.003
Silica	mg/L	370.1	0.14
Solids, Total Dissolved (TDS)	mg/L	160.1	10
Solids, Total Suspended (TSS)	mg/L	160.2	5
Sulfate	mg/L	300.0	0.1
Temperature (Field)	DEG C	170.1	-
Turbidity	NTU	180.1	0.1

Note: Nitrate and Nitrite not analyzed after June 2006

**A.R.M. Loxahatchee National Wildlife Refuge  
Enhanced Water Quality Monitoring Network**

Map of sites:



**A.R.M. Loxahatchee National Wildlife Refuge  
Enhanced Water Quality Monitoring Network**

August 2006

**Coordinates of sites:**

Name	Latitude	Longitude	X_DMS*	Y_DMS*	X_DM**	Y_DM**
LOXA101	26.66739249	-80.36636475	80° 21' 58.91" W	26° 40' 2.61" N	80° 21.9818333' W	26° 40.0435' N
LOXA102	26.59598877	-80.42553769	80° 25' 31.94" W	26° 35' 45.56" N	80° 25.532333' W	26° 35.7593333333333' N
LOXA103	26.61285142	-80.41643631	80° 24' 59.17" W	26° 36' 46.27" N	80° 24.98616667' W	26° 36.7711666666667' N
LOXA104	26.59798188	-80.44004508	80° 26' 24.16" W	26° 35' 52.73" N	80° 26.4026667' W	26° 35.8788333333333' N
LOXA105	26.59189923	-80.43609407	80° 26' 9.94" W	26° 35' 30.84" N	80° 26.1656667' W	26° 35.514' N
LOXA106	26.59220622	-80.43128096	80° 25' 52.61" W	26° 35' 31.94" N	80° 25.876833' W	26° 35.5323333333333' N
LOXA107	26.58739046	-80.42144468	80° 25' 17.20" W	26° 35' 14.61" N	80° 25.286667' W	26° 35.2435' N
LOXA108	26.5779601	-80.40585344	80° 24' 21.07" W	26° 34' 40.66" N	80° 24.35116667' W	26° 34.6776666666667' N
LOXA109	26.55528865	-80.43205157	80° 25' 55.39" W	26° 33' 19.04" N	80° 25.92316667' W	26° 33.3173333333333' N
LOXA110	26.55523973	-80.41769154	80° 25' 3.69" W	26° 33' 18.86" N	80° 25.0615' W	26° 33.3143333333333' N
LOXA111	26.52533583	-80.41314705	80° 24' 47.33" W	26° 31' 31.21" N	80° 24.7888333' W	26° 31.5201666666667' N
LOXA112	26.52712473	-80.42837332	80° 25' 42.14" W	26° 31' 37.65" N	80° 25.702333' W	26° 31.6275' N
LOXA113	26.52442784	-80.40699875	80° 24' 25.20" W	26° 31' 27.94" N	80° 24.42' W	26° 31.4656666666667' N
LOXA114	26.52439258	-80.40083965	80° 24' 3.02" W	26° 31' 27.81" N	80° 24.050333' W	26° 31.4635' N
LOXA115	26.48422578	-80.44533675	80° 26' 43.21" W	26° 29' 3.21" N	80° 26.7201667' W	26° 29.0535' N
LOXA116	26.4830586	-80.441098	80° 26' 27.95" W	26° 28' 59.01" N	80° 26.4658333' W	26° 28.9835' N
LOXA117	26.48580427	-80.4356858	80° 26' 8.47" W	26° 29' 8.90" N	80° 26.14116667' W	26° 29.1483333333333' N
LOXA118	26.48928924	-80.42639091	80° 25' 35.01" W	26° 29' 21.44" N	80° 25.5835' W	26° 29.3573333333333' N
LOXA119	26.48621462	-80.40180845	80° 24' 6.51" W	26° 29' 10.37" N	80° 24.1085' W	26° 29.1728333333333' N
LOXA120	26.49341054	-80.38307987	80° 22' 59.09" W	26° 29' 36.28" N	80° 22.9848333' W	26° 29.6046666666667' N
LOXA121	26.46767673	-80.44113231	80° 26' 28.08" W	26° 28' 3.64" N	80° 26.468' W	26° 28.0606666666667' N
LOXA122	26.46404297	-80.42843367	80° 25' 42.36" W	26° 27' 50.55" N	80° 25.706' W	26° 27.8425' N
LOXA123	26.42675307	-80.40036372	80° 24' 1.31" W	26° 25' 36.31" N	80° 24.0218333' W	26° 25.6051666666667' N
LOXA124	26.45535397	-80.23875455	80° 14' 19.52" W	26° 27' 19.27" N	80° 14.325333' W	26° 27.3211666666667' N
LOXA126	26.50601148	-80.22585171	80° 13' 33.07" W	26° 30' 21.64" N	80° 13.55116667' W	26° 30.3606666666667' N
LOXA127	26.51513474	-80.25555976	80° 15' 20.02" W	26° 30' 54.49" N	80° 15.3336667' W	26° 30.9081666666667' N
LOXA128	26.52516286	-80.3940121	80° 23' 38.44" W	26° 31' 30.59" N	80° 23.6406667' W	26° 31.5098333333333' N
LOXA129	26.58500726	-80.26608256	80° 15' 57.90" W	26° 35' 6.03" N	80° 15.965' W	26° 35.1005' N
LOXA130	26.58211881	-80.27005531	80° 16' 12.20" W	26° 34' 55.63" N	80° 16.20333' W	26° 34.9271666666667' N
LOXA131	26.57474791	-80.27764653	80° 16' 39.53" W	26° 34' 29.09" N	80° 16.6588333' W	26° 34.4848333333333' N
LOXA132	26.60900561	-80.29189939	80° 17' 30.84" W	26° 36' 32.42" N	80° 17.514' W	26° 36.5403333333333' N
LOXA133	26.6050896	-80.29557491	80° 17' 44.07" W	26° 36' 18.32" N	80° 17.7345' W	26° 36.3053333333333' N
LOXA134	26.60985664	-80.30860325	80° 18' 30.97" W	26° 36' 35.48" N	80° 18.51616667' W	26° 36.5913333333333' N
LOXA135	26.62335538	-80.31612276	80° 18' 58.04" W	26° 37' 24.08" N	80° 18.967333' W	26° 37.4013333333333' N
LOXA136	26.61879302	-80.31866688	80° 19' 7.20" W	26° 37' 7.65" N	80° 19.12' W	26° 37.1275' N
LOXA137	26.61510337	-80.32170327	80° 19' 18.13" W	26° 36' 54.37" N	80° 19.30216667' W	26° 36.9061666666667' N
LOXA138	26.60681693	-80.32666537	80° 19' 36.00" W	26° 36' 24.54" N	80° 19.6' W	26° 36.409' N
LOXA139	26.59332525	-80.33715389	80° 20' 13.75" W	26° 35' 35.97" N	80° 20.22916667' W	26° 35.5995' N
LOXA140	26.63760323	-80.34909432	80° 20' 56.74" W	26° 38' 15.37" N	80° 20.9456667' W	26° 38.2561666666667' N
LOXA141	26.42708333	80.3942	80° 23' 39.12" W	26° 38' 37.5" N	80° 23.652' W	26° 25.625' N

\* DMS = Degrees Minutes Seconds

\*\* DM = Degrees Minutes Decimal Minutes

Additional information on the coordinates for the Enhanced Water Quality Monitoring Network can be found at:

[http://sofia.usgs.gov/lox\\_monitor\\_model/workplans/EnhancedWQsamplingStations\\_.pdf](http://sofia.usgs.gov/lox_monitor_model/workplans/EnhancedWQsamplingStations_.pdf)