

REFUGE'S ENHANCED WATER QUALITY PROGRAM MONTHLY SAMPLING

April through June, 2014 Data Update
Submitted July 28, 2014

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-14

Site	Sample Date	Full(F), Partial(P), None(N), Reanalyzer (R)	Depth ¹	Total Depth ²	DCS ³	Alkalinity	Calcium Dissolved	Carbon, Total Organic	Chloride	Conductivity (Field)	Nitrate + Nitrite as Nitrogen	Nitrogen, Total Kjeldahl	Ortho-phosphate as Phosphorus	Oxygen, Dissolved (Field)	pH (Field)	Phosphorus, Total	Solids, Total Dissolv	Solids, Total Suspended (TSS)	Sulfate	Temperature (Field)	Turbidity	
		Units	meter	meter	meter	mg/l	mg/l	mg/l	mg/l	µMHSO/cm	mg/l	mg/l	mg/l	pH units	mg/l	mg/l	mg/l	mg/l	mg/l	DEG C	NTU	
A101		N																				
A102		N																				
A103		N																				
A104	04/08/14	F	>1M	>1M	>1M	196	58	26	26	141	861	0.066	1.5	0.006	5.4	7.8	0.017	6.9	532	U	33.1	25.9
A105		N																				
A106		N																				
A107		N																				
A108		N																				
A109	04/09/14	F	0.10	0.20	0.30	55	18	19	19	50	282	0.003	1.2	0.002	1.5	6.3	0.003	3.4	197	U	1.6	21.2
A110		N																				
A111	04/09/14	P	0.05	0.11	0.23					28	165				3.9	6.2	0.003		U	0.5	20.3	
A112	04/09/14	P	0.07	0.15	0.25					33	144				1.3	6.4	U		U	1.1	20.5	
A113	04/09/14	P	0.05	0.10	0.23					32	177				6.4	6.5	0.004		U	0.5	20.3	
A114	04/09/14	P	0.05	0.11	0.25					30	164				5.8	6.5	U		U	0.5	20.6	
A115	04/08/14	F	>1M	>1M	>1M	156	49	25	23	117	749	0.017	1.5	U	5.9	7.7	0.011	8.0	473	U	37.5	25.5
A117	04/10/14	P	0.05	0.11	0.24					81	454				1.5	6.4	0.005		U	4.9	20.1	
A118	04/10/14	F	0.10	0.20	0.27	46	15	17	17	38	239	0.002	0.9	U	2.1	6.3	U	2.8	156	U	1.6	20.2
A119	04/10/14	F	0.10	0.20	0.29	36	11	21	21	27	161	0.022	1.3	U	5.1	6.5	0.003	3.9	138	U	0.5	19.3
A120	04/10/14	F	0.10	0.20	0.30	29	9	22	22	31	165	U	1.6	U	5.2	6.4	0.003	5.9	144	U	U	19.0
A122	04/10/14	P	0.05	0.11	0.25					77	458				2.0	6.6	0.008		U	2.7	20.8	
A124		N																				
A126	04/10/14	P	0.09	0.18	0.30					56	339				1.4	6.4	0.038		5	1.9	19.9	
A127	04/10/14	P	0.08	0.16	0.28					29	152				2.4	6.4	0.006		U	U	19.9	
A128	04/09/14	P	0.06	0.12	0.28					34	162				5.9	6.4	0.005		U	U	21.8	
A129	04/08/14	F	>1M	>1M	>1M	170	55	24	24	143	830	0.030	1.6	0.003	5.3	7.6	0.042	5.6	501	5.5	21.4	27.2
A130	04/07/14	P	0.09	0.19	0.31					73	409				1.0	6.5	0.002		U	1.7	26.4	
A131	04/07/14	P	0.06	0.13	0.28					36	217				9.1	6.7	U		U	U	30.1	
A132	04/08/14	F	>1M	>1M	>1M	187	62	26	25	171	975	0.058	1.7	0.003	5.2	7.7	0.030	5.0	583	U	32.6	27.2
A133		N																				
A134		N																				
A135	04/08/14	F	>1M	>1M	>1M	194	67	26	26	183	1032	0.074	1.7	0.007	5.0	7.7	0.034	4.5	630	U	38.1	27.3
A136	04/07/14	P	0.07	0.18	0.48					93	548				0.3	6.8	0.032		16.5	4	27.9	
A137		N																				
A138		N																				
A139		N																				
A140		N																				
A141	04/10/14	F	0.15	0.31	0.55	79	26	19	19	52	328	U	1.1	0.003	0.9	6.5	0.005	9.4	223	U	2.1	21.3
Total			37																			
Full			10																			
Partial			12																			
None			15																			

(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_mode/wq_network.html

Data from June 2004 to May 2006 available on DBHYDRO:

<http://www.sfwmd.gov/org/ema/dbhydro/>

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-14

Site	Sample Date	Full(F), Partial(P), None(N), Reanalyzer (R)	Depth ¹	Total Depth ²	DCS ³	Alkalinity	Calcium Dissolved	Carbon, Total Organic	Chloride	Conductivity (Field)	Nitrate + Nitrite as Nitrogen	Nitrogen, Total Kjeldahl	Ortho-phosphate as Phosphorus	Oxygen, Dissolved (Field)	pH (Field)	Phosphorus, Total	Silica	Solids, Total Dissolv	Solids, Total Suspended (TSS)	Sulfate	Temperature (Field)	Turbidity	
		Units	meter	meter	meter	mg/l	mg/l	mg/l	mg/l	µMHSO/cm	mg/l	mg/l	mg/l	pH units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	DEG C	NTU	
A101		N																					
A102		N																					
A103		N																					
A104	05/13/14	F	>1M	>1M	>1M	164	52	27	28	139	845	U	2.2	0.004	5.8	7.7	0.014	9.9	524	U	47.1	28.1	4.9
A105		N																					
A106		N																					
A107		N																					
A108		N																					
A109		N																					
A110		N																					
A111		N																					
A112		N																					
A113		N																					
A114		N																					
A115	05/13/14	F	>1M	>1M	>1M	127	41	23	23	102	651	U	1.4	0.004	6.4	7.4	U	8.6	400	U	32.8	28.0	3.5
A117		N																					
A118	05/13/14	P	0.05	0.11	0.15					43	301				1.5	6.6	0.008		U	1.1	25.4		
A119	05/13/14	P	0.05	0.11	0.23					37	246				4.2	6.5	U		U	0.8	27.1		
A120	05/13/14	P	0.06	0.13	0.45					44	237				2.2	6.4	U		U	0.6	28.0		
A122		N																					
A124		N																					
A126		N																					
A127		N																					
A128		N																					
A129	05/13/14	F	>1M	>1M	>1M	157	53	23	24	135	777	U	2.0	U	6.3	7.8	0.032	1.2	461	8	19.3	28.4	4.8
A130		N																					
A131		N																					
A132	05/13/14	F	>1M	>1M	>1M	196	68	25	25	201	1102	0.089	1.9	0.003	6.1	7.7	0.024	3.1	634	5.5	45.4	27.9	5.4
A133		N																					
A134		N																					
A135	05/13/14	F	>1M	>1M	>1M	225	81	26	26	252	1352	0.139	2.1	0.009	5.2	7.6	0.025	5.3	776	U	66.6	27.7	3.2
A136		N																					
A137		N																					
A138		N																					
A139		N																					
A140		N																					
A141	05/13/14	P	0.08	0.17	0.40					59	375				0.9	6.8	U		U	2	24.2		
Total			37																				
Full			5																				
Partial			4																				
None			28																				

(1) Sample depth

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

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

Jun-14

Site	Sample Date	Full(F), Partial(P), None(N), Reanalyzer (R)	Depth ¹ meter	Total Depth ² meter	DCS ³ meter	Alkalinity mg/l	Calcium Dissolved 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 (TSS) mg/l	Sulfate mg/l	Temperature (Field) DEG C	Turbidity NTU	
		Units																					
A101		N																					
A102		N																					
A103		N																					
A104	06/10/14	F	>1M	>1M	>1M	192	66	32	32	205	1152	U	1.9	0.002	6.3	7.8	0.031	7.0	678	U	54.9	29.5	2.5
A105		N																					
A106		N																					
A107		N																					
A108		N																					
A109		N																					
A110		N																					
A111		N																					
A112		N																					
A113		N																					
A114		N																					
A115	06/10/14	F	>1M	>1M	>1M	146	47	27	27	118	756	0.026	1.5	0.002	5.9	7.6	0.022	9.0	469	U	40.2	29.3	1.9
A117		N																					
A118		N																					
A119	06/10/14	P	0.05	0.10	0.20															7.5	1.1	26.0	
A120		N																					
A122		N																					
A124		N																					
A126		N																					
A127		N																					
A128		N																					
A129	06/10/14	F	>1M	>1M	>1M	157	59	20	20	109	749	0.128	1.5	0.004	6.5	7.7	0.033	9.0	453	U	41.7	29.7	2.8
A130		N																					
A131		N																					
A132	06/10/14	F	>1M	>1M	>1M	159	60	20	20	110	759	U	1.3	0.003	6.4	7.7	0.029	8.7	469	U	41.7	29.9	1.7
A133		N																					
A134		N																					
A135	06/10/14	F	>1M	>1M	>1M	160	59	20	20	113	773	0.025	1.3	0.003	4.3	7.5	0.031	9.7	471	U	43.4	30.2	1.5
A136		N																					
A137		N																					
A138		N																					
A139		N																					
A140		N																					
A141		N																					
Total			37																				
Full			5																				
Partial			1																				
None			31																				

(1) Sample depth

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Enhanced Water Quality Monitoring Network**

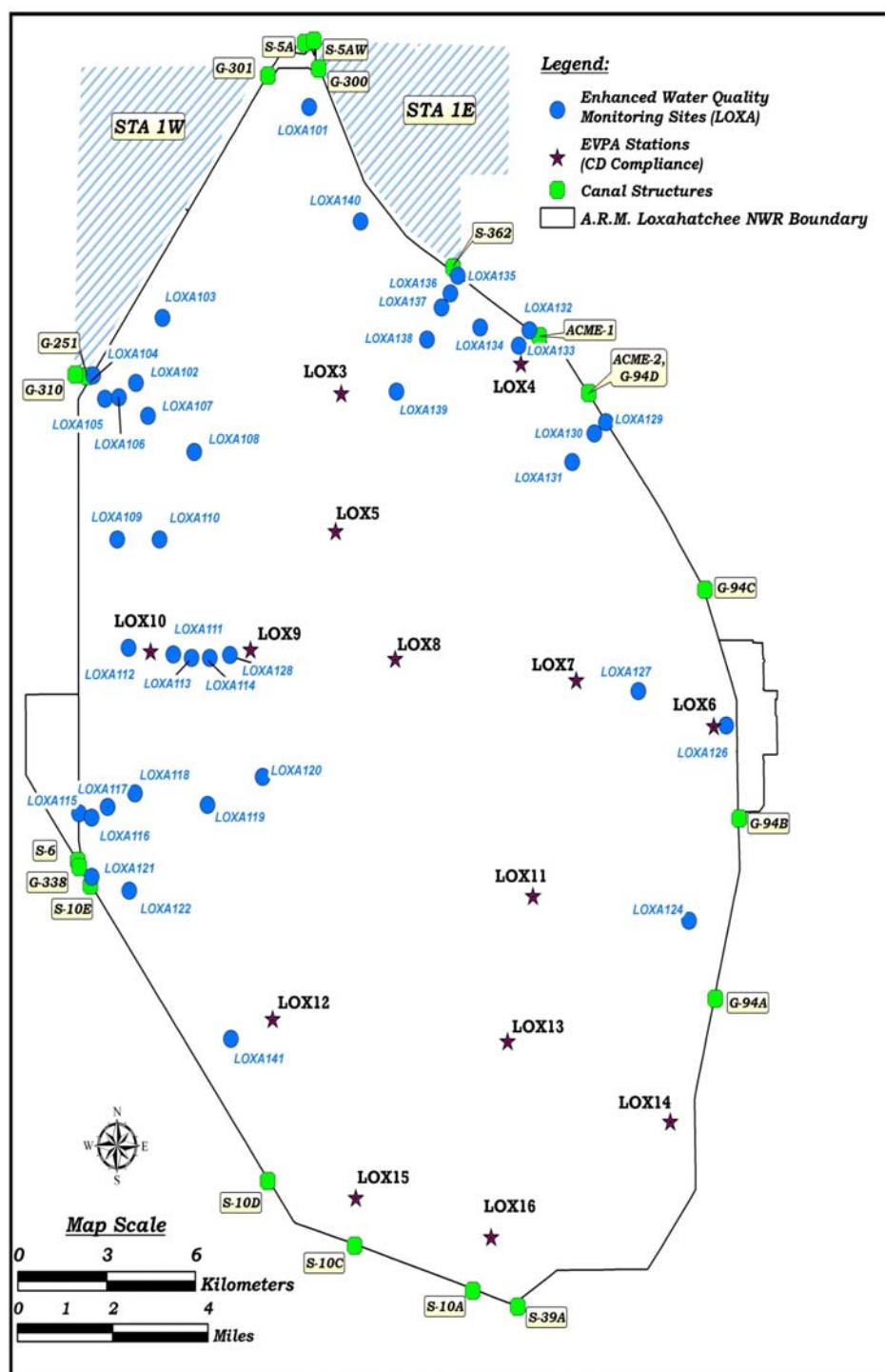
Parameter Information:

Parameter	Units	Analysis Method	MDL
Alkalinity as CaCO ₃ , 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° 35.759333333333' 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° 35.878833333333' 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° 35.532333333333' 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° 33.317333333333' N
LOXA110	26.55523973	-80.41769154	80° 25' 3.69" W	26° 33' 18.86" N	80° 25.0615' W	26° 33.314333333333' 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° 29.148333333333' N
LOXA118	26.48928924	-80.42639091	80° 25' 35.01" W	26° 29' 21.44" N	80° 25.5835' W	26° 29.357333333333' N
LOXA119	26.48621462	-80.40180845	80° 24' 6.51" W	26° 29' 10.37" N	80° 24.1085' W	26° 29.172833333333' 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° 31.509833333333' 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° 34.484833333333' N
LOXA132	26.60900561	-80.29189939	80° 17' 30.84" W	26° 36' 32.42" N	80° 17.514' W	26° 36.540333333333' N
LOXA133	26.6050896	-80.29557491	80° 17' 44.07" W	26° 36' 18.32" N	80° 17.7345' W	26° 36.305333333333' N
LOXA134	26.60985664	-80.30860325	80° 18' 30.97" W	26° 36' 35.48" N	80° 18.51616667' W	26° 36.591333333333' N
LOXA135	26.62335538	-80.31612276	80° 18' 58.04" W	26° 37' 24.08" N	80° 18.967333' W	26° 37.401333333333' 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