

Appendix 3A-1: Summary of Water Year 2010 Water Quality Monitoring Results

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Table 1. Summary of water quality monitoring results from Water Year 2010 (April 1, 2009–May 30, 2010). Only water quality variables analyzed during the water year for a given region and site class are included. Excursion categories of concern, potential concern, minimal concern, and no concern are denoted by "C," "PC," "MC," and "NC," respectively. For sulfate, the excursion category is given as "NA" because no numeric criterion applies.

Parameter	Units	Area	Class	Arithmetic Mean	Standard Deviation	25 th Percentile	Median	75 th Percentile	Min.	Max.	Sample Size (n)	Percent Excursions	Exceedance Category
Alkalinity	mg/L	ENP	Interior	166.0	38.1	142.0	164.0	192.0	78.0	261.0	73	0 ± 0	NC
Alkalinity	mg/L	Refuge	Inflow	241.3	53.7	198.0	238.5	279.5	122.0	360.0	130	0 ± 0	NC
Alkalinity	mg/L	Refuge	Interior	39.6	38.2	14.5	27.0	44.5	7.0	200.0	161	34.2 ± 6.1	MC
Alkalinity	mg/L	Refuge	Outflow	134.9	43.1	103.5	128.0	173.0	51.0	222.0	53	0 ± 0	NC
Alkalinity	mg/L	Refuge	Rim	176.5	54.4	117.8	180.5	228.0	117.0	244.0	10	0 ± 0	NC
Alkalinity	mg/L	WCA-2	Inflow	210.0	72.8	157.5	213.0	263.0	51.0	385.0	113	0 ± 0	NC
Alkalinity	mg/L	WCA-2	Interior	209.0	44.1	176.0	207.0	234.3	116.0	330.0	146	0 ± 0	NC
Alkalinity	mg/L	WCA-2	Outflow	188.6	46.1	154.5	202.5	223.8	86.0	253.0	54	0 ± 0	NC
Alkalinity	mg/L	WCA-3	Inflow	210.5	38.9	185.5	215.0	239.0	107.0	307.0	125	0 ± 0	NC
Alkalinity	mg/L	WCA-3	Interior	161.3	32.8	134.3	162.0	184.8	100.0	229.0	96	0 ± 0	NC
Total Iron	µg/L	Refuge	Interior	56.3	62.5	19.8	33.0	79.3	1.5	334.0	42	0 ± 0	NC
Total Iron	µg/L	Refuge	Outflow	19.8	12.4	9.5	18.0	26.5	5.0	48.0	17	0 ± 0	NC
Total Iron	µg/L	WCA-2	Inflow	18.4	9.0	11.0	19.0	26.0	5.0	37.0	19	0 ± 0	NC
Total Iron	µg/L	WCA-2	Interior	11.5	5.8	6.0	11.0	17.5	4.0	22.0	25	0 ± 0	NC
Total Iron	µg/L	WCA-2	Outflow	21.4	21.1	13.0	14.0	18.5	10.0	91.0	14	0 ± 0	NC
Total Iron	µg/L	WCA-3	Inflow	65.1	85.6	15.0	29.0	78.0	12.0	366.0	23	0 ± 0	NC
Total Iron	µg/L	WCA-3	Interior	77.0	82.3	9.0	45.0	121.0	1.5	345.0	31	0 ± 0	NC
pH, Field	Units	ENP	Inflow	7.3	0.3	7.2	7.3	7.4	6.9	8.3	289	0 ± 0	NC

Table 1. Continued.

Parameter	Units	Area	Class	Arithmetic Mean	Standard Deviation	25 th Percentile	Median	75 th Percentile	Min.	Max.	Sample Size (n)	Percent Excursions	Exceedance Category
pH, Field	Units	ENP	Interior	7.7	0.3	7.5	7.7	7.8	6.8	8.4	89	0 ± 0	NC
pH, Field	Units	Refuge	Inflow	7.6	0.3	7.4	7.6	7.8	7.1	8.7	255	0.4 ± 0.6	MC
pH, Field	Units	Refuge	Interior	6.6	0.5	6.2	6.5	6.9	5.4	8.3	271	7 ± 2.6	MC
pH, Field	Units	Refuge	Outflow	7.5	0.3	7.3	7.5	7.8	6.8	8.1	75	0 ± 0	NC
pH, Field	Units	Refuge	Rim	7.5	0.3	7.2	7.5	7.7	6.9	8.0	31	0 ± 0	NC
pH, Field	Units	WCA-2	Inflow	7.6	0.3	7.4	7.6	7.8	7.0	8.4	159	1.3 ± 1.5	MC
pH, Field	Units	WCA-2	Interior	7.3	0.3	7.1	7.3	7.5	6.6	8.0	168	0 ± 0	NC
pH, Field	Units	WCA-2	Outflow	7.6	0.3	7.4	7.6	7.8	7.0	8.1	95	0 ± 0	NC
pH, Field	Units	WCA-3	Inflow	7.5	0.3	7.3	7.5	7.7	6.4	8.3	402	0 ± 0	NC
pH, Field	Units	WCA-3	Interior	7.3	0.3	7.1	7.2	7.5	6.6	8.0	119	0 ± 0	NC
pH, Field	Units	WCA-3	Outflow	7.3	0.2	7.2	7.3	7.4	6.9	8.3	265	0 ± 0	NC
SP Conductivity, Field	µmhos/cm	ENP	Inflow	538.8	128.0	438.3	552.0	622.8	241.0	847.0	290	0 ± 0	NC
SP Conductivity, Field	µmhos/cm	ENP	Interior	520.4	155.1	406.0	523.5	621.8	202.0	1166.0	98	0 ± 0	NC
SP Conductivity, Field	µmhos/cm	Refuge	Inflow	1044.6	223.9	873.0	1055.0	1175.8	432.9	1683.0	260	14.2 ± 3.6	MC
SP Conductivity, Field	µmhos/cm	Refuge	Interior	217.4	195.0	103.2	138.0	220.8	66.1	1008.0	245	0 ± 0	NC
SP Conductivity, Field	µmhos/cm	Refuge	Outflow	599.6	220.6	413.0	589.0	731.0	229.0	1073.0	75	0 ± 0	NC
SP Conductivity, Field	µmhos/cm	Refuge	Rim	824.8	239.1	683.0	855.0	985.0	425.7	1315.0	31	3.2 ± 5.2	MC

Table 1. Continued.

Parameter	Units	Area	Class	Arithmetic Mean	Standard Deviation	25 th Percentile	Median	75 th Percentile	Min.	Max.	Sample Size (n)	Percent Excursions	Exceedance Category
SP Conductivity, Field	µmhos/cm	WCA-2	Inflow	907.8	280.9	714.0	949.0	1105.0	235.0	1549.0	159	6.9 ± 3.3	MC
SP Conductivity, Field	µmhos/cm	WCA-2	Interior	900.0	239.9	750.0	877.0	1024.5	443.0	2047.0	165	4.8 ± 2.8	MC
SP Conductivity, Field	µmhos/cm	WCA-2	Outflow	731.3	180.4	586.0	731.0	869.0	345.0	1058.0	95	0 ± 0	NC
SP Conductivity, Field	µmhos/cm	WCA-3	Inflow	706.2	175.0	574.0	716.0	817.3	117.0	1295.0	402	0.2 ± 0.4	MC
SP Conductivity, Field	µmhos/cm	WCA-3	Interior	561.0	168.0	418.5	552.5	670.8	258.8	1072.0	110	0 ± 0	NC
SP Conductivity, Field	µmhos/cm	WCA-3	Outflow	547.9	146.5	421.0	555.5	653.0	241.0	975.0	264	0 ± 0	NC
Turbidity (NTU) (EPA)	NTU	ENP	Inflow	1.4	0.9	1.0	1.1	1.6	0.6	4.2	24	0 ± 0	NC
Turbidity (NTU) (EPA)	NTU	ENP	Interior	1.4	1.1	0.8	1.0	1.8	0.4	7.6	73	0 ± 0	NC
Turbidity (NTU) (EPA)	NTU	Refuge	Interior	0.7	0.2	0.6	0.7	0.8	0.4	1.3	121	0 ± 0	NC
Turbidity (NTU) (EPA)	NTU	Refuge	Outflow	2.1	1.2	1.1	2.1	2.8	0.6	5.9	35	0 ± 0	NC
Turbidity (NTU) (EPA)	NTU	WCA-2	Inflow	1.7	0.8	1.2	1.5	2.2	0.1	4.0	45	0 ± 0	NC
Turbidity (NTU) (EPA)	NTU	WCA-2	Interior	1.0	0.7	0.6	0.8	1.0	0.2	5.4	86	0 ± 0	NC
Turbidity (NTU) (EPA)	NTU	WCA-2	Outflow	1.6	1.2	0.9	1.2	1.8	0.3	8.0	94	0 ± 0	NC
Turbidity (NTU) (EPA)	NTU	WCA-3	Inflow	2.2	1.5	1.1	1.7	2.7	0.3	9.1	243	0 ± 0	NC
Turbidity (NTU) (EPA)	NTU	WCA-3	Interior	0.7	0.3	0.5	0.6	0.8	0.4	2.3	88	0 ± 0	NC
Turbidity (NTU) (EPA)	NTU	WCA-3	Outflow	2.1	1.7	1.0	1.2	2.9	0.6	6.8	44	0 ± 0	NC

Table 1. Continued.

Parameter	Units	Area	Class	Arithmetic Mean	Standard Deviation	25 th Percentile	Median	75 th Percentile	Min.	Max.	Sample Size (n)	Percent Excursions	Exceedance Category
Un-ionized Ammonia	µg/L	ENP	Interior	1.58	2.55	0.53	1.04	1.68	0.13	16.77	63	0 ± 0	NC
Un-ionized Ammonia	µg/L	Refuge	Inflow	6.20	6.79	3.03	4.36	6.38	0.93	50.49	68	2.9 ± 3.4	MC
Un-ionized Ammonia	µg/L	Refuge	Interior	0.08	0.22	0.01	0.02	0.07	0.00	2.51	146	0 ± 0	NC
Un-ionized Ammonia	µg/L	Refuge	Outflow	0.90	0.53	0.54	0.84	1.21	0.12	2.52	46	0 ± 0	NC
Un-ionized Ammonia	µg/L	Refuge	Rim	0.50	0.28	0.29	0.41	0.80	0.27	0.97	8	0 ± 0	NC
Un-ionized Ammonia	µg/L	WCA-2	Inflow	2.50	2.90	0.83	1.38	2.96	0.03	16.80	97	0 ± 0	NC
Un-ionized Ammonia	µg/L	WCA-2	Interior	0.49	0.50	0.21	0.31	0.69	0.03	3.14	141	0 ± 0	NC
Un-ionized Ammonia	µg/L	WCA-2	Outflow	1.00	0.81	0.45	0.82	1.31	0.05	4.31	49	0 ± 0	NC
Un-ionized Ammonia	µg/L	WCA-3	Inflow	2.16	2.78	0.74	1.33	2.31	0.03	18.84	114	0 ± 0	NC
Un-ionized Ammonia	µg/L	WCA-3	Interior	0.29	0.30	0.11	0.19	0.39	0.02	2.11	90	0 ± 0	NC
Sulfate	mg/L	ENP	Inflow	7.3	10.3	0.125	1.85	10.6	0.05	34.2	24	0 ± 0	NA
Sulfate	mg/L	ENP	Interior	9.5	30.28	0.75	1.6	5.4	0.05	239.0	73	0 ± 0	NA
Sulfate	mg/L	Refuge	Inflow	52.44	23.1	34.7	47.4	62.6	16.4	136.0	82	0 ± 0	NA
Sulfate	mg/L	Refuge	Interior	3.1	8.5	0.05	0.2	0.9	0.05	50.2	192	0 ± 0	NA
Sulfate	mg/L	Refuge	Outflow	31.42	20.2	15.6	27.2	45.4	4.0	76.2	62	0 ± 0	NA
Sulfate	mg/L	Refuge	Rim	48.55	26.9	18.4	63.1	70.4	14.7	77.4	10	0 ± 0	NA
Sulfate	mg/L	WCA-2	Inflow	43.3	17.6	30.2	46.4	55.5	5.1	76.3	107	0 ± 0	NA

Table 1. Continued.

Parameter	Units	Area	Class	Arithmetic Mean	Standard Deviation	25 th Percentile	Median	75 th Percentile	Min.	Max.	Sample Size (n)	Percent Excursions	Exceedance Category
Sulfate	mg/L	WCA-2	Interior	39.3	21.8	20.8	37.5	53.6	7.5	149.0	148	0 ± 0	NA
Sulfate	mg/L	WCA-2	Outflow	31.0	17.9	13.8	34.9	46.7	4.2	60.6	46	0 ± 0	NA
Sulfate	mg/L	WCA-3	Inflow	30.9	18.8	12.9	36.0	46.7	0.6	67.2	94	0 ± 0	NA
Sulfate	mg/L	WCA-3	Interior	14.8	17.5	0.9	4.6	30.5	0.05	73.5	96	0 ± 0	NA
Sulfate	mg/L	WCA-3	Outflow	7.9	11.2	0.05	1.9	10.8	0.05	39.3	32	0 ± 0	NA

Refuge – Arthur R. Marshall Loxahatchee National Wildlife Refuge

ENP – Everglades National Park

WCA-2 – Water Conservation Area 2

WCA-3 – Water Conservation Area 3

µg/L – micrograms per liter

mg/L – milligrams per liter

NTU – nephelometric turbidity unit

µmhos/cm – micromhos per centimeter