Background data on
Potential Wild Rice Field Survey Sites for 2013

Note: data are preliminary and may be revised.

MPCA June 7, 2013

Map #	Site Name	Location ID	Date	Nuphar Cover (%)	Nymphaea Cover (%)	Zizania Cover (%)	Sulfate in surface water (mg/L)	Sulfide in porewater (mg/L)	Fe in porewater (mg/L)	MPCA past survey(s)	# of 2013 Field Surveys	lat	lon	Wild Rice Level *	SO4 level **	Sulfide Level ***	Iron in Pore-water ****	Site selection notes (* Wild Rice Levels: Z=none observed; L=0.25 to 10; M=10 to 20; H >20 mg/L) (** SO4 Levels: L <10; M=10 to 20; H > 20 mg/L) (*** Sulfide Levels: L < 0.2; M=0.20 to 0.75; H=0.75 to 16 mg/L) (**** Iron in porewater: L=0.01 to 0.25; M=0.25 to 1.00; H= 1.0 to 85.0 mg/L)
20	Christina L.	21-0375-00-314	5/21/2012				9.66		R-104	1		46.07180	-95.77100		L			Low sulfate. Need to check current water level status.
1	Clearwater R. at CR 96	S002-121	8/28/2012	0	0	2.00	23.80	0.1170	1.760 FS-189	3		47.93670	-95.68980	L	H	L	H	High sulfate, but low sulfide; rice observed. Iron is high.
21	Clearwater R. at Schilling Rd	S004-204	8/24/2012	0	22.5	61.00	2.04	0.0488	5.770 FS-88	1		47.51770	-95.39020	H	L	L	H	Low sulfate & sulfide; rice observed. High iron.
2	Eighteen L.	60-0199-00-202	8/22/2012	2.5	0	24.00	4.29	0.1640	4.270 FS-86	3		47.63952	-96.06021	M	L	L	H	Low sulfate & sulfide; rice present. High iron.
22	Embarrass L.	69-0496-00-203	9/14/2012	14.25	0	0.00	18.80	0.0298	9.790 FS-95	1		47.53339	-92.29790	Z	M	L	H	Medium sulfate and low sulfide. Rice not observed by field crew but seen by others in past. High iron.
23	Geneva L. North	24-0015-00-209	7/24/2012	0	43	0.00	15.60	1.5400	0.010 FS-176	1		43.78757	-93.27095	Z	M	H	L	Medium sulfate; high sulfide; no rice observed in 2012. Low iron.
24	Geneva L. South	24-0015-00-208	7/24/2012	93.75	0	0.00	14.10	3.1900	0.010 FS-177	1		43.77086	-93.28506	Z	M	H	L	Medium sulfate; high sulfide; no rice observed in 2012. Low iron.
25	Hay L. (Itasca Cty)	31-0037-00-202	9/6/2012	0	3	53.75	31.70	0.0738	16.600 FS-130	1		47.28737	-93.10201	H	H	L	H	High sulfate, but low sulfide; rice observed. Iron is high.
3	Height of Land L.	03-0195-00-210	8/21/2012	3.75	0	70.00	0.50	0.0112	6.750 FS-127	3		46.91326	-95.60953	H	L	L	H	Low sulfate & sulfide; rice present. Iron is high.
3	Height of Land L.	03-0195-00-209	8/22/2011			28.00	0.24	0.0530	P-1	3		46.91326	-95.60953	M	L	L		Low sulfate & sulfide; rice present.
26	Holman L.	31-0227-00-202	9/13/2012	35	0	0.00	24.20	1.0100	0.132 FS-218	1		47.30052	-93.34449	Z	H	H	L	High sulfate & sulfide. Low iron. No rice observed in 2012.
4	Little Round L.	03-0302-00-203	8/22/2012			93.00	0.50		RE-161	3		46.97251	-95.73507	H	L			Low sulfate & sulfide; rice present. Seed source for hydroponic assays.
4	Little Round L.	03-0302-00-203	9/20/2012			46.00	0.50	0.1280	3.970 FS-138	3		46.97251	-95.73507	H	L	L	H	Low sulfate & sulfide; rice present. Iron is high. Seed source for hydroponic assays.
4	Little Round L.	03-0302-00-202	8/24/2011			25.00	0.46	0.0320	P-3	3		46.97392	-95.73608	M	L	L		Low sulfate & sulfide; rice present. Seed source
27	Middle Mahnomen L.	18-0126-02-201	9/17/2012	52.5	0	0.00	16.90	0.3080	5.870 FS-133	1		46.49849	-93.99583	Z	M	M	H	Medium sulfate & sulfide; no rice observed in 2012. High iron.
28	Mississippi R downstr of power plant	S006-923	9/1/2011			44.00	3.65	0.0350	P-15	1		47.25493	-93.63383	H	L	L		Rice observed in 2011; low sulfate. Site of historical sulfate & wild rice interest.
28	Mississippi R downstr of power plant	S006-923	8/28/2012	0	0	0.00	10.30	0.1340	8.160 FS-57	1		47.25493	-93.63383	Z	M	L	H	Zero rice in 2012 probably due to high water. Site of historical sulfate & wild rice interest.
29	Mississippi R upstr of power plant	S007-163	9/1/2011			71.00	1.09	0.0530	P-14	1		47.23790	-93.72000	H	L	L		Low sulfate and low sulfide.
29	Mississippi R upstr of power plant	S007-163	8/28/2012				1.19	0.0806	10.700 FS-58	1		47.23836	-93.71935	Z	L	L	H	Zero rice in 2012 probably due to high water. Site of historical sulfate & wild rice interest.
5	Mississippi R. near Genoa WI	S007-222	8/14/2012	0	0	44.00	18.00	0.1760	2.950 FS-208	3		43.57581	-91.23340	M	M	L	H	Medium sulfate, but low sulfide. Rice observed. High iron.
6	Mississippi R. Pool 5 Spring L.	S007-221	8/17/2012			18	17.20	0.0224	11.800 FS-212	3		44.19930	-91.84600	H	M	L	H	Medium sulfate, but low sulfide. Rice observed. High iron.
7	Monongalia L. at CR 9	34-0158-02-204	7/26/2012	0	0	39.00	21.70	1.3700	0.059 FS-77	3		45.33308	-94.92678	H	H	H	L	Outlier in plots: Rice observed in presence of high
30	N Branch Turtle River, ND	new	new			medium?				1		47.99523	-97.62759	M?	H			Wild rice growing in presence of elevated sulfate.
8	North Bay of St. Louis R.	new	new			medium?				3		46.65257	-92.23690	M?	M?			Likely rice growing in presence of elevated sulfate. Sediment obtained for lab incrubation experiment.
31	Ox Hide L.	31-0106-00-203	9/7/2012	42.5	7.5	0.25	26.40	0.0751	9.730 FS-198	1		47.33503	-93.21338	L	H	L	H	High sulfate, but low sulfide; rice observed. Iron is high.
31	Ox Hide L.	31-0106-00-203	9/7/2012	38.75	13.75	4.00	26.40	0.0420	20.900 FS-132	1		47.33502	-93.21339	L	H	L	H	High sulfate, but low sulfide; rice observed. Iron is high.

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Map #	Site Name	Location ID	Date	Nuphar Cover (%)	Nymphaea Cover (%)	Zizania Cover (%)	Sulfate in surface water (mg/L)	Sulfide in porewater (mg/L)	Fe in porewater (mg/L)	MPCA past survey(s)	# of 2013 Field Surveys	lat	lon	Wild Rice Level *	SO4 level **	Sulfide Level ***	Iron in Pore-water ****	Site selection notes (* Wild Rice Levels: Z=none observed; L=0.25 to 10; M=10 to 20; H >20 mg/L) (** SO4 Levels: L <10; M=10 to 20; H > 20 mg/L) (*** Sulfide Levels: L < 0.2; M=0.20 to 0.75; H=0.75 to 16 mg/L) (**** Iron in porewater: L=0.01 to 0.25; M=0.25 to 1.00; H= 1.0 to 85.0 mg/L)
32	Padua L.	73-0277-00-202	9/13/2011			2.00	0.76	0.1300	2.630	P-29	1	45.62020	-95.01900	L	L	L	H	Low sulfate and sulfide. Some wild rice noted Un-successful WR restoration attempt. High iron.
32	Padua L.	73-0277-00-202	8/7/2012			0.00	0.86	0.2300	2.580	FS-220	1	45.62300	-95.01862	Z	L	M	H	Low sulfate. Un-successful WR restoration attempt. High iron.
33	Panasa L., Lower	31-0112-00-202	8/29/2012	10.75	0	0.00	33.60	0.2430	5.300	FS-60	1	47.30334	-93.25690	Z	H	M	H	High sulfate and medium sulfide; no rice observed in 2012. High iron.
34	Panasa L., Upper	31-0111-00-202	8/29/2012	10.5	0	0.00	29.60	0.1260	6.470	FS-59	1	47.30604	-93.26517	Z	H	L	H	High sulfate but low sulfide; no rice observed in 2012. Iron is high.
9	Partridge R. downstr of Cty 110	new	new			low?					3	47.51398	-92.18950	L?	H?			Likely rice growing in presence of elevated sulfate.
10	Partridge R. upstr of Second Ck	S002-599	9/12/2012	0	25	2.00	36.30	0.0741	29.800	FS-92	3	47.52021	-92.19101	L	H	L	H	High sulfate, but low sulfide; rice observed. Iron is high. Sediment obtained for lab incrubation
10	Partridge R. upstr of Second Ck	S002-599	8/31/2011			29.00	10.39	0.075		P-13	3	47.52021	-92.19101	M	H	L		High sulfate but low sulfide; rice observed.
35	Pond with reported wild rice	new	new			medium?					1	47.69215	-95.72807	M?				Likely rice growing in presence of elevated sulfate.
36	Raymond L.	73-0285-00-203	8/2/2012			19.00	0.50	0.0787	1.420	FS-53	1	45.62860	-95.02200	M	L	L	H	Low sulfate and sulfide. High iron. Successful WR restoration attempt.
36	Raymond L.	73-0285-00-203	9/12/2011			30.00	0.82	0.0940	5.110	P-28	1	45.62900	-95.02300	M	L	L	H	Low sulfate and sulfide. High iron. Successful WR restoration attempt.
11	Rice L. (Crow Wing Cty)	18-0053-00-203	8/27/2012	0	78.25	4.00	0.50	0.0259	84.600	FS-56	3	46.33887	-93.89151	L	L	L	H	Low sulfate & sulfide; rice present. High iron. Potential seed source for hydroponic assays.
11	Rice L. (Crow Wing Cty)	18-0053-00-202	9/27/2011			19.00	0.23	0.0210	28.823	P-69	3	46.33956	-93.89005	M	L	L	H	Low sulfate & sulfide; rice present. High iron. Potential seed source for hydroponic assays.
37	Rice L. (Stearns Cty)	73-0196-00-216	7/30/2012	35	0	0.00	2.58	2.9700	0.025	FS-184	1	45.38640	-94.63087	Z	L	H	L	Low sulfate yet high sulfide; rice not observed. Low iron.
38	Rice Paddy 2	WT00024	6/6/2012			high	23.80			RE-46	1	47.85159	-95.49449	H	H			High sulfate in productive wild rice paddy.
12	Rice Paddy 6	WT00028	6/26/2012	0	0	24.00	279	0.732	1.120	FS-103	3	47.80534	-95.67319	M	H	M	H	Very high sulfate in productive wild rice paddy. Sulfide is medium, and iron is high.
39	Robinson L.	79-0005-02-201	8/16/2012	0	1.25	51.00	17.70	0.0714	12.000	FS-211	1	44.36106	-91.98969	H	M	L	H	Medium sulfate, but low sulfide. Rice observed. High iron.
39	Robinson L.	79-0005-02-202	8/16/2012	0	5	21.00	15.70	0.0700	27.800	FS-210	1	44.35926	-91.98808	M	M	L	H	Medium sulfate, but low sulfide. Rice observed. High iron.
13	Sandy L., at lake outlet	69-0730-00-203	9/21/2012			1.00	3.05	0.1230	12.500	FS-251	3	47.62539	-92.58856	L	L	L	H	Site potentially affected by inflowing stream: low sulfate & low sulfide. Iron is high.
14	Sandy L., main basin	69-0730-00-202	5/22/2012			low	169.00			RE-9	3	47.61823	-92.59346	L	H			Main basin: high sulfate and low rice abundance.
15	Second Creek	new	new			low?					3	47.52050	-92.19255	L?	H?			Likely rice growing in presence of elevated sulfate.
40	Snowball L.	31-0108-00-202	9/4/2012	0	77.5	0.00	8.40	0.0936	19.100	FS-197	1	47.33545	-93.24397	Z	L	L	H	Low sulfate & sulfide; no rice observed in 2012.
41	Stella L.	47-0068-00-203	9/14/2011			14.00	7.59	0.0800	2.971	P-30	1	45.06750	-94.42900	M	L	L	H	Low sulfate & low sulfide in 2011; rice present. High iron.
41	Stella L.	47-0068-00-204	8/27/2012	0	0	0.25	18.10	1.7900	0.270	FS-188	1	45.06828	-94.43335	L	M	H	M	Medium sulfate & high sulfide in 2012; rice observed.
42	Trout L.	31-0216-00-212	9/13/2012	17.5	25	0.00	38.60	0.1170	18.400	FS-219	1	47.25915	-93.39419	Z	H	L	H	High sulfate but low sulfide; no rice observed in 2012. Iron is high.
43	Westport L.	61-0029-00-204	8/1/2012	0	76	0.00	7.11	1.7900	0.029	FS-186	1	45.68974	-95.21696	Z	L	H	L	Low sulfate yet high sulfide; rice not observed. Low iron.