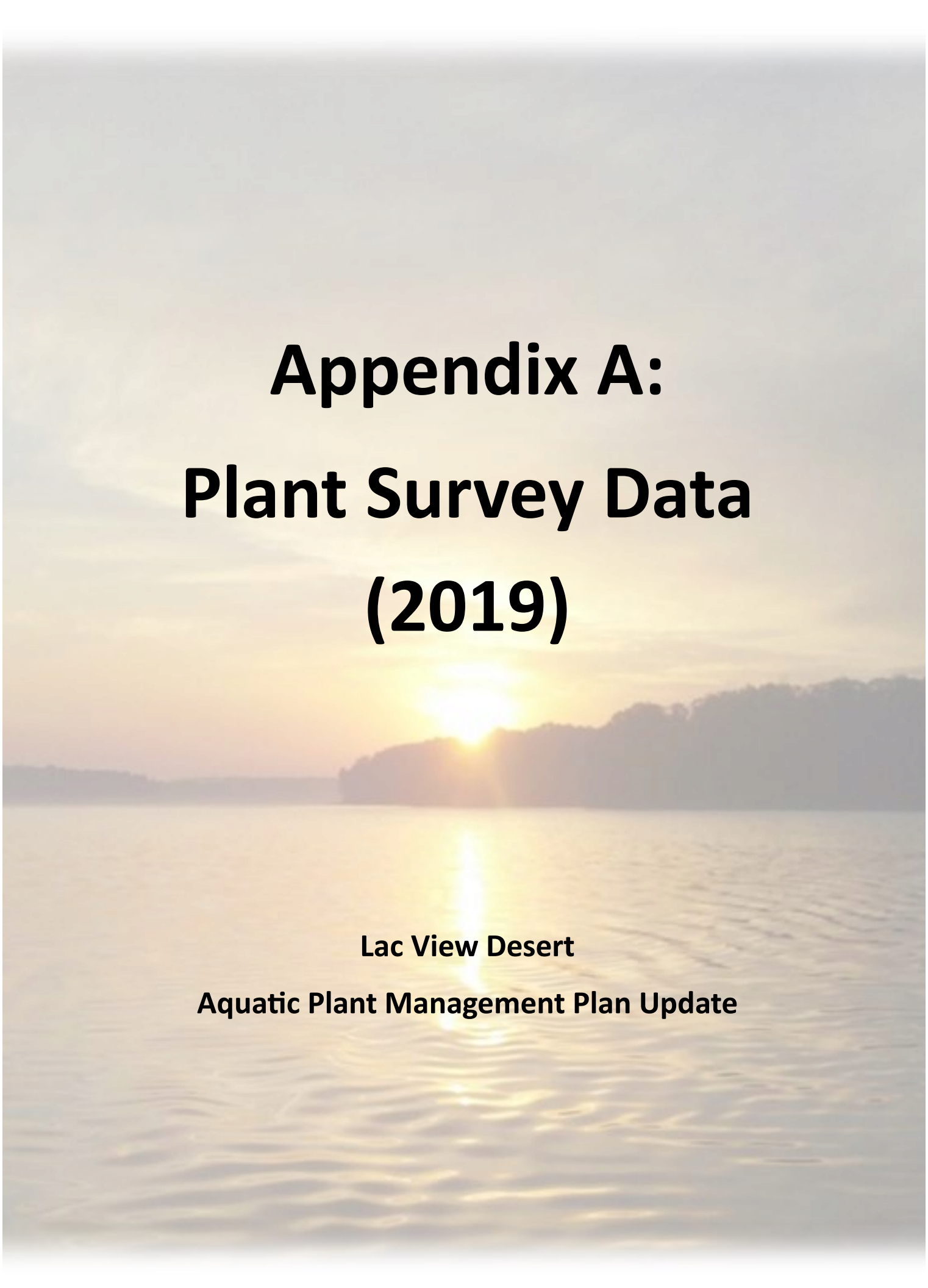


Appendix A:
Plant Survey Data (2019)

Lac View Desert

Aquatic Plant Management Plan Update

Entry	Total Number Species at Site (NO ENTRY!)	Total Number Species - veg sites only (NO ENTRY!)includes exotics	Total Number Species - veg sites only (NO ENTRY!) No exotics	Total Number Species at Site (shallower than max depth) (NO ENTRY!) includes exotics	Total Number Species at Site (shallower than max depth) (NO ENTRY!), no exotics	Depth with some plants (NO ENTRY!)	Depths within vegetated range(NO ENTRY!)	sampling point	Depth (ft)	Dominant sediment type (M=muck, S=Sand, R=Rock)	Sampled holding rake pole (P) or rake rope (R)?	comments	Total Rake Fullness	Myriophyllum spicatum, Eurasian water-milfoil or Hybrid water-milfoil	Potamogeton crispus,Curly-leaf pondweed	Bidens beckii (formerly Megalodonta),Water marigold	Brasenia schreberi, Watershield	Ceratophyllum demersum, Coontail	Chara sp., Muskgrasses	Eleocharis acicularis, Needle spikerush	Eleocharis palustris, Creeping spikerush	Elodea nuttallii, Slender waterweed	Heteranthera dubia, Water star-grass	Isoetes sp., Quillwort	Juncus pelocarpus f. submersus, Brown-fruited rush	Lemna trisulca, Forked duckweed	Myriophyllum alterniflorum, Alternate-flowered water-milfoil	Myriophyllum sibiricum, Northern water-milfoil	Myriophyllum tenellum, Dwarf water-milfoil	Najas flexilis, Slender naiad	Najas guadalupensis, Southern naiad	Nitella sp., Nitella	Nuphar variegata, Spatterdock	Nymphaea odorata, White water lily	Potamogeton amplifolius, Large-leaf pondweed	Potamogeton foliosus, Leafy pondweed	Potamogeton friesii, Fries' pondweed	Potamogeton gramineus, Variable pondweed	Potamogeton illinoensis, Illinois pondweed	Potamogeton praelongus, White-stem pondweed	Potamogeton pusillus, Small pondweed	Potamogeton richardsonii, Clasping-leaf pondweed	Potamogeton robbinsii, Fern pondweed	Potamogeton strictifolius, Stiff pondweed	Potamogeton zosteriformis, Flat-stem pondweed	Sagittaria graminea, Grass-leaved arrowhead	Schoenoplectus acutus, Hardstem bulrush	Sparganium sp., Bur-reed	Vallisneria americana, Wild celery	Filamentous algae
Lac Vieux Desert	0			0	0		1	1	4.5s	p																																			
Vilas, WI & Gogebic, MI	0							2			dock																																			
1631900	3	3	3	3	3	4	1	3	4s	p		1							1										1															1	
July 28th-Aug 14th 2019	4	4	4	4	4	3	1	4	3s	p		1						1											1					1										1	
Artwich/ Gajewski	2	2	2	2	2	3	1	5	3s	p		1							1										1																
	3	3	3	3	3	3	1	6	3s	p		1																	1															1	
	4	4	4	4	4	2	1	7	2s	p		1							1										1												1			v			
	4	4	4	4	4	4	1	8	4s	p		1						1											1						1									1	
	2	2	2	2	2	5	1	9	5m	p		1																															1				
	1	1	1	1	1	4.5	1	10	4.5m	p		1																															1				
	3	3	3	3	3	3	1	11	3s	p		1											1						1															v		1	
	2	2	2	2	2	4	1	12	4s	p		1																	1																	1	
	3	3	3	3	3	4	1	13	4s	p		1							1										1								1							v			
	5	5	5	5	5	5	1	14	5s	p		1							1					1					1								1							v			
	2	2	2	2	2	5.5	1	15	5.5s	p		1																	1								1							v		1	
	4	4	4	4	4	5.5	1	16	5.5s	p		1				1													1								1							v		1	
	3	3	3	3	3	6	1	17	6s	p		1																	1								1		1							
	4	4	4	4	4	6	1	18	6s	p		1																	1								1		1							1	
	2	2	2	2	2	7	1	19	7m	p		1																															1		1				
	1	1	1	1	1	7.5	1	20	7.5m	p		3																															3						
	1	1	1	1	1	7	1	21	7m	p		3																															3						
	3	3	3	3	3	5.5	1	22	5.5m	p		2					1																			v							2						
	4	4	4	4	4	5	1	23	5m	p		2					1																											1		1				
	2	2	2	2	2	4	1	24	4m	p		1																															1						

Entry	Total Number Species at Site (NO ENTRY!)	Total Number Species - veg sites only (NO ENTRY!) includes exotics	Total Number Species - veg sites only (NO ENTRY!) No exotics	Total Number Species at Site (shallower than max depth) (NO ENTRY!) includes exotics	Total Number Species at Site (shallower than max depth) (NO ENTRY!). no exotics	Depth with some plants (NO ENTRY!)	Depths within vegetated range(NO ENTRY!)	sampling point	Depth (ft)	Dominant sediment type (M=muck, S=Sand, R=Rock)	Sampled holding rake pole (P) or rake rope (R)?	comments	Total Rake Fullness	Myriophyllum spicatum, Eurasian water-milfoil or Hybrid water-milfoil	Potamogeton crispus,Curly-leaf pondweed	Bidens beckii (formerly Megalodonta), Water marigold	Brasenia schreberi, Watershield	Ceratophyllum demersum, Coontail	Chara sp., Muskgrasses	Eleocharis acicularis, Needle spikerush	Eleocharis palustris, Creeping spikerush	Elodea nuttallii, Slender waterweed	Heteranthera dubia, Water star-grass	Isoetes sp., Quillwort	Juncus pelocarpus f. submersus, Brown-fruited rush	Lemna trisulca, Forked duckweed	Myriophyllum alterniflorum, Alternate-flowered water-milfoil	Myriophyllum sibiricum, Northern water-milfoil	Myriophyllum tenellum, Dwarf water-milfoil	Najas flexilis, Slender naiad	Najas guadalupensis, Southern naiad	Nitella sp., Nitella	Nuphar variegata, Spatterdock	Nymphaea odorata, White water lily	Potamogeton amplifolius, Large-leaf pondweed	Potamogeton foliosus, Leafy pondweed	Potamogeton friesii, Fries' pondweed	Potamogeton gramineus, Variable pondweed	Potamogeton illinoensis, Illinois pondweed	Potamogeton praelongus, White-stem pondweed	Potamogeton pusillus, Small pondweed	Potamogeton richardsonii, Clasping-leaf pondweed	Potamogeton robbinsii, Fern pondweed	Potamogeton strictifolius, Stiff pondweed	Potamogeton zosteriformis, Flat-stem pondweed	Sagittaria graminea, Grass-leaved arrowhead	Schoenoplectus acutus, Hardstem bulrush	Sparganium sp., Bur-reed	Vallisneria americana, Wild celery	Filamentous algae
	2	2	2	2	2	4	1	24	4m	p		1																																				
	2	2	2	2	2	1.5	1	25	1.5s	p		1																					v	v				1	1							v				
	2	2	2	2	2	3.5	1	26	3.5s	p		1																			1						1								v				
	3	3	3	3	3	4.5	1	27	4.5s	p		1																			1			1		1									v				
	3	3	3	3	3	5	1	28	5s	p		1																			1							1							v				
	4	4	4	4	4	5	1	29	5s	p		1											1								1					1												1	
	3	3	3	3	3	5.5	1	30	5.5s	p		1							1												1																	1	
	3	3	3	3	3	6	1	31	6s	p		1																			1					1												1	
	4	4	4	4	4	6	1	32	6s	p		2																			2					1	1	1	1										
	6	6	6	6	6	7.5	1	33	7.5m	p		1			1															1									1		1	1	1						
	2	2	2	2	2	8.5	1	34	8.5m	p		1																															1		1					
	2	2	2	2	2	5.5	1	40	5.5m	p		2																			2																		
	7	7	7	7	7	3	1	41	3s	p		1								1				1							1								1							v		1		
	3	3	3	3	3	4	1	42	4s	p		1																			1								1								1		
	2	2	2	2	2	4	1	43	4s	p		1																						1						1						v				
	4	4	4	4	4	5	1	44	5s	p		1																			1			1					1								1		
	4	4	4	4	4	5	1	45	5s	p		1																			1			1			1									1	v			
	5	5	5	5	5	5.5	1	46	5.5s	p		1																			1						1									1			1	
	2	2	2	2	2	6	1	47	6s	p		1																			1								1										
	4	4	4	4	4	7	1	48	7s	p		1					1	1													1								1										
	6	6	5	6	5	8.5	1	49	8.5m	p		3	1															1			1											1	1	1					
	3	3	3	3	3	11	1	50	11m	p		3					1																									3			1					
	5	5	5	5	5	10	1	51	10m	p		2																															1	1		1				
	2	2	2	2	2	10	1	52	10m	p		1																															1			1				
	6	6	6	6	6	9	1	53	9m	p		3																						1									2	1	1	1				
	3	3	3	3	3	9	1	54	9m	p		3					1																											2		2				
	4	4	4	4	4	9	1	55	9m	p		3					2																									1		3		1				
	2	2	2	2	2	8.5	1	56	8.5m	p		3																																	3		1				
	4	4	4	4	4	7.5	1	57	7.5m	p		3																															1			3				
	0			0	0		1	58	14m	p																																								
	0			0	0		1	59	2s	p																																						v				
	1	1	1	1	1	4	1	60	4s	p		1																																			v				
	3	3	3	3	3	4	1	61	4s	p		1																															1					1			
	1	1	1	1	1	5	1	62	5s	p		1																																					1			
	2	2	2	2	2	5	1	63	5s	p		1																			1																	1			
	2	2	2	2	2	5	1	64	5s	p		1																			1						1									v				

Entry	Total Number Species at Site (NO ENTRY)	Total Number Species - veg sites only (NO ENTRY) includes exotics	Total Number Species - veg sites only (NO ENTRY) Noexotics	Total Number Species at Site (shallower than max depth) (NO ENTRY) includes exotics	Total Number Species at Site (shallower than max depth) (NO ENTRY) no exotics	Depth with some plants (NO ENTRY)	Depth within vegetated range(NO ENTRY)	sampling point	Depth (ft)	Dominant sediment type (M=muck, S=Sand, R=Rock)	Sampled holding rake pole (P) or rake rope (R)?	comments	Total Rake Fullness	Myriophyllum spicatum, Eurasian water-milfoil or hybrid water-milfoil	Potamogeton crispus,Curly-leaf pondweed	Bidens beckii (formerly Megalodonta), Water marigold	Brasenia schreberi, Watershield	Ceratophyllum demersum, Coontail	Chara sp., Muskgrasses	Eleocharis acicularis, Needle spikerush	Eleocharis palustris, Creeping spikerush	Elodea nuttallii, Slender waterweed	Heteranthera dubia, Water star-grass	Isoetes sp.,Quillwort	Juncus pelocarpus f. submersus, Brown-fruited rush	Lemna trisulca, Forked duckweed	Myriophyllum alterniflorum, Alternate-flowered water-milfoil	Myriophyllum sibiricum, Northern water-milfoil	Myriophyllum tenellum, Dwarf water-milfoil	Najas flexilis, Slender naiad	Najas guadalupensis, Southern naiad	Nitella sp., Nitella	Nuphar variegata, Spatterdock	Nymphaea odorata, White waterlily	Potamogeton amplifolius, Large-leaf pondweed	Potamogeton foliosus, Leafy pondweed	Potamogeton friesii, Fries' pondweed	Potamogeton gramineus, Variable pondweed	Potamogeton illinoensis, Illinois pondweed	Potamogeton praelongus, White-stem pondweed	Potamogeton pusillus, Small pondweed	Potamogeton richardsonii, Clasping-leaf pondweed	Potamogeton robbinsii, Fern pondweed	Potamogeton strictifolius, Stiff pondweed	Potamogeton zosteriformis, Flat-stem pondweed	Sagittaria graminea, Grass-leaved arrowhead	Schoenoplectus acutus, Hardstem bulrush	Sparganium sp., Bur-reed	Vallisneria americana, Wild celery	Filamentous algae
	5	5	5	5	5	6.5	1	65	6.5 s	p			1						1										1					1									
	2	2	2	2	2	9	1	66	9 s	p			1				1																												
	2	2	2	2	2	11	1	67	11 m	p			1																																
	4	4	4	4	4	11	1	68	11 m	p			3					1																											
	3	3	3	3	3	11	1	69	11 m	p			3					1																											
	4	4	3	4	3	11	1	70	11 m	p			2	1				1																											
	5	5	5	5	5	11	1	71	11 m	p			3					2										1																
	4	4	4	4	4	10	1	72	10 m	p			3					1																											
	4	4	4	4	4	10	1	73	10 m	p			3					1																											
	0							74			temporary obstacle (fisherman)																																				
	0							75			temporary obstacle (fisherman)																																				
	2	2	2	2	2	9	1	76	9 m	p			2																																
	2	2	2	2	2	8	1	77	8 m	p			3																																
	2	2	2	2	2	2	1	78	2 s	p			1					1																											
	1	1	1	1	1	3	1	79	3 s	p			1																																
	0			0	0		1	80	4.5 s	p																																			
	2	2	2	2	2	5	1	81	5 s	p			1					1									1																		
	4	4	4	4	4	5.5	1	82	5.5 s	p			1																																1
	7	7	7	7	7	8	1	83	8 s	p			1 v			1		1																											1
	3	3	3	3	3	11	1	84	11 m	p			2					1																											
	4	4	4	4	4	11	1	85	11 m	p			3					1										1																
	4	4	4	4	4	11	1	86	11 m	p			3					1																											
	2	2	2	2	2	11	1	87	11 m	p			2																																
	3	3	3	3	3	12	1	88	12 m	p			3					2																											
	2	2	2	2	2	11	1	89	11 m	p			2					1																											
	4	4	4	4	4	12	1	90	12 m	p			2					1																											
	5	5	5	5	5	11	1	91	11 m	p			3					1																											
	4	4	4	4	4	11	1	92	11 m	p			3					1																											
	4	4	4	4	4	11	1	93	11 m	p			1					1																											
	4	4	4	4	4	10	1	94	10 m	p			3					1																											
	4	4	4	4	4	9.5	1	95	9.5 m	p			3					1																											
	3	3	3	3	3	9	1	96	9 m	p			3																																
	1	1	1	1	1	11	1	97	11 r	p			1																																
	2	2	2	2	2	3	1	98	3 s	p			1					1																											
	2	2	2	2	2	4	1	99	4 s	p			1														1																		
	4	4	4	4	4	5	1	100	5 s	p			1														1																		1
	3	3	3	3	3	7	1	101	7 s	p			1					1									1																		
	5	5	5	5	5	10	1	102	10 m	p			1					1										1																
	4	4	4	4	4	11	1	103	11 m	p			2					1																											
	2	2	2	2	2	12	1	104	12 m	p			1																																
	6	6	6	6	6	12	1	105	12 m	p			1					1										1																
	3	3	3	3	3	11	1	106	11 m	p			3																																
	5	5	5	5	5	11	1	107	11 m	p			3					1																											
	4	4	4	4	4	11	1	108	11 m	p			3					1			1																							
	0							109			temporary obstacle (fisherman)																																				
	0							110			temporary obstacle (fisherman)																																				
	3	3	3	3	3	11	1	111	11 m	p			1					1										1																
	3	3	3	3	3	11	1	112	11 m	p			1					1										1																
	2	2	2	2	2	11	1	113	11 m	p			1															1																
	2	2	2	2	2	11	1	114	11 m	p			2																																
	3	3	3	3	3	10	1	115	10 m	p			2					1																											
	1	1	1	1	1	12	1	116	12 m	p			1																																
	1	1	1	1	1	2	1	117	2 s	p			1																																
	3	3	3	3	3	5	1	118	5 s	p			1					1																											
	2	2	2	2	2	6	1	119	6 s	p			1					1																											
	2	2	2	2	2	10	1	120	10 m	p			3																																
	2	2	2	2	2	11	1	121	11 m	p			1					1																											
	6	6	6	6	6	11	1	122	11 m	p			3					1			1																							
	4	4	4	4	4	11	1	123	11 m	p			3					1																											
	5	5	5	5	5	12	1	124	12 m	p			3					1																											

Entry	Total Number Species at Site (NO ENTRY)	Total Number Species - veg sites only (NO ENTRY) includes exotics	Total Number Species - veg sites only (NO ENTRY) No exotics	Total Number Species at Site (shallower than max depth) (NO ENTRY) includes exotics	Total Number Species at Site (shallower than max depth) (NO ENTRY) no exotics	Depth with some plants (NO ENTRY)	Depths within vegetated range(NO ENTRY)	sampling point	Depth (ft)	Dominant sediment type (M=muck, S=Sand, R=Rock)	Sampled holding rake pole (P) or rake rope (R)?	comments	Total Rake Fullness	Myriophyllum spicatum, Eurasian water-milfoil or Hybrid water-milfoil	Potamogeton crispus,Curly-leaf pondweed	Bidens beckii (formerly Megalodonta), Water marigold	Brasenia schreberi, Watershield	Ceratophyllum demersum, Coontail	Chara sp., Muskgrasses	Eleocharis acicularis, Needle spikerush	Eleocharis palustris, Creeping spikerush	Elodea nuttallii, Slender waterweed	Heteranthera dubia, Water star-grass	Isoetes sp., Quillwort	Juncus pelocarpus f. submersus, Brown-fruited rush	Lemna trisulca, Forked duckweed	Myriophyllum alterniflorum, Alternate-flowered water-milfoil	Myriophyllum sibiricum, Northern water-milfoil	Myriophyllum tenellum, Dwarf water-milfoil	Najas flexilis, Slender naiad	Najas guadalupensis, Southern naiad	Nitella sp., Nitella	Nuphar variegata, Spatterdock	Nymphaea odorata, White water lily	Potamogeton amplifolius, Large-leaf pondweed	Potamogeton foliosus, Leafy pondweed	Potamogeton friesii, Fries' pondweed	Potamogeton gramineus, Variable pondweed	Potamogeton illinoensis, Illinois pondweed	Potamogeton praelongus, White-stem pondweed	Potamogeton pusillus, Small pondweed	Potamogeton richardsonii, Clasping-leaf pondweed	Potamogeton robbinsii, Fern pondweed	Potamogeton strictifolius, Stiff pondweed	Potamogeton zosteriformis, Flat-stem pondweed	Sagittaria graminea, Grass-leaved arrowhead	Schoenoplectus acutus, Hardstem bulrush	Sparganium sp., Bur-reed	Vallisneria americana, Wild celery	Filamentous algae
	4	4	4	4	4	12	1	125	12m	p			3					2																			2		1							
	3	3	3	3	3	12	1	126	12m	p			2					1																			1									
	3	3	3	3	3	12	1	127	12m	p			2																							1		2						
	3	3	3	3	3	12	1	128	12m	p			3					1																			3								
	4	4	4	4	4	11	1	129	11m	p			3					1				1															2		1						
	1	1	1	1	1	12	1	130	12m	p			3																									3							
	4	4	4	4	4	11	1	131	11m	p			3					1																			3		1		1				
	4	4	4	4	4	11	1	132	11m	p			3					1																			1		2		1				
	3	3	3	3	3	11	1	133	11m	p			3					1																			1				1				
	2	2	2	2	2	12	1	134	12m	p			3																									3		1					
	3	3	3	3	3	14	1	135	14m	p			1																							1		3		1				
	2	2	2	2	2	8.5	1	136	8.5s	p			1						1												1													
	0							137				terrestrial																																		
	0				0	0		1	138	2s	p			1						v															v								v			
	3	3	3	3	3	2.5	1	139	2.5s	p			1						1																1		1								
	3	3	3	3	3	6	1	140	6m	p		EWM visual (greater than 6ft)	1					1																				1		1						
	4	4	4	4	4	12	1	141	12m	p			1					1																	1			1	1					
	3	3	3	3	3	11	1	142	11m	p			2					1																				2	1					
	2	2	2	2	2	11	1	143	11m	p			1					1																			1							
	3	3	3	3	3	12	1	144	12m	p			1					1																			1		1					
	2	2	2	2	2	11	1	145	11m	p			2																										2	1					
	2	2	2	2	2	12	1	146	12m	p			1					1																			1							
	4	4	4	4	4	12	1	147	12m	p			2					1								1												1	1					
	4	4	4	4	4	12	1	148	12m	p			3					1				1															1		1					
	4	4	4	4	4	11	1	149	11m	p			3					1				1															1		3					
	3	3	3	3	3	12	1	150	12m	p			1					1																			1		1					
	4	4	4	4	4	12	1	151	12m	p			2					1				1																1	1					
	3	3	3	3	3	11	1	152	11m	p			2					1																				1	2					
	3	3	3	3	3	11	1	153	11m	p			1					1																			1		1					
	4	4	4	4	4	10	1	154	10m	p			3					1																		1			1	3					
	2	2	2	2	2	11	1	155	11m	p			2																										2	1					
	3	3	3	3	3	10	1	156	10m	p			3					1																					1	2					
	0							157	17m	r																																				
	5	5	4	5	4	7	1	158	7s	p			1	1				1																	1						1				1	
	1	1	1	1	1	2.5	1	159	2.5s	p			1																						v								v			
	1	1	1	1	1	5	1	160	5s	p			1									1																								
	1	1	1	1	1	5	1	161	5s	p			1																													v			
	6	6	6	6	6	4	1	162	4s	p			1					1	1																											
	0			0	0		1	163	4s	p																																				
	0			0	0		1	164	15m	p																																				
	0			0	0		1	165	11m	p			1																																	
	4	4	4	4	4	11	1	166	11m	p			2					1								1											1		1					
	6	6	6	6	6	12	1	167	12m	p			2					1				1				1											1	1	1					
	4	4	4	4	4	12	1	168	12m	p			1					1				1															1		1					
	5	5	5	5	5	12	1	169	12m	p			2					1				1															1	1	1					
	4	4	4	4	4	12	1	170	12m	p			3					3																			1	1	2					
	2	2	2	2	2	12	1	171	12m	p			3																										2	1					
	1	1	1	1	1	13	1	172	13m	p			1																									1							
	3	3	3	3	3	12	1	173	12m	p			3					1																					3	1					
	1	1	1	1	1	12	1	174	12m	p			3																										3						

Entry	Total Number Species at Site (NO ENTRY)	Total Number Species - veg sites only (NO ENTRY) Includes exotics	Total Number Species - veg sites only (NO ENTRY) No exotics	Total Number Species at Site (shallower than max depth) (NO ENTRY) Includes exotics	Total Number Species at Site (shallower than max depth) (NO ENTRY) no exotics	Depth with some plants (NO ENTRY)	Depths within vegetated range(NO ENTRY)	sampling point	Depth (ft)	Dominant sediment type (M=muck, S=Sand, R=Rock)	Sampled holding rake pole (P) or rake rope (R)?	comments	Total Rake Fullness	Myriophyllum spicatum, Eurasianwater-milfoil or Hybrid water-milfoil	Potamogeton crispus,Curly-leaf pondweed	Bidens beckii (formerly Megalodonta), Water marigold	Brasenia schreberi, Watershield	Ceratophyllum demersum, Coontail	Chara sp., Muskgrasses	Eleocharis acicularis, Needle spikerush	Eleocharis palustris, Creeping spikerush	Elodea nuttallii, Slender waterweed	Heteranthera dubia, Water star-grass	Isoetes sp., Quillwort	Juncus pelocarpus f. submersus, Brown-fruited rush	Lemna trisulca, Forked duckweed	Myriophyllum alterniflorum, Alternate-flowered water-milfoil	Myriophyllum sibiricum, Northern water-milfoil	Myriophyllum tenellum, Dwarf water-milfoil	Najas flexilis, Slender naiad	Najas guadalupensis, Southern naiad	Nitella sp., Nitella	Nuphar variegata, Spatterdock	Nymphaea odorata, White water lily	Potamogeton amplifolius, Large-leaf pondweed	Potamogeton foliosus, Leafy pondweed	Potamogeton friesii, Fries' pondweed	Potamogeton gramineus, Variable pondweed	Potamogeton illinoensis, Illinois pondweed	Potamogeton praelongus, White-stem pondweed	Potamogeton pusillus, Small pondweed	Potamogeton richardsonii, Clasping-leaf pondweed	Potamogeton robbinsii, Fern pondweed	Potamogeton strictifolius, Stiff pondweed	Potamogeton zosteriformis, Flat-stem pondweed	Sagittaria graminea, Grass-leaved arrowhead	Schoenoplectus acutus, Hardstem bulrush	Sparganium sp., Bur-reed	Vallisneria americana, Wild celery	Filamentous algae
	5	5	5	5	5	11	1	175	11m	p			2					1				1																	1		1	1					
	2	2	2	2	2	11	1	176	11m	p			3					1																								3					
	4	4	4	4	4	11	1	177	11m	p			1					1																							1		1	1					
	1	1	1	1	1	11	1	178	11m	p			1					1																													
	2	2	2	2	2	12	1	179	12m	p			1					1																							1						
	2	2	2	2	2	11	1	180	11m	p			1																													1		1			
	0			0	0		1	181	14m	p																																					
	1	1	1	1	1	12	1	182	12m	p			1					1																													
	3	3	3	3	3	4	1	183	4s	p			1						1																										v		
	1	1	1	1	1	4	1	184	4s	p			1							1																										v		
	4	4	4	4	4	8	1	185	8m	p			2			v				1																									1	1	1			
	0			0	0		1	186	12m	p			1																																			
	3	3	3	3	3	13	1	187	13m	p			1					1																							1	1							
	3	3	3	3	3	15	1	188	15m	p			1					1																							1			1					
	3	3	3	3	3	13	1	189	13s	p			1					1																							1			1					
	3	3	3	3	3	12	1	190	12m	p			1					1																							1			1					
	2	2	2	2	2	11	1	191	11m	p			1					1																										1					
	6	6	5	6	5	12	1	192	12m	p			2	1				1																						1	1		1	1					
	3	3	3	3	3	12	1	193	12m	p			1					1																						1	1								
	4	4	4	4	4	12	1	194	12m	p			2					1																							1			1					
	3	3	3	3	3	12	1	195	12m	p			3					2				1																						1					
	2	2	2	2	2	12	1	196	12m	p			3					3																										1					
	3	3	3	3	3	12	1	197	12m	p			3					1																									2	1					
	4	4	4	4	4	12	1	198	12m	p			3					1																							1		1	1					
	1	1	1	1	1	11	1	199	11m	p			3																														3					
	5	5	5	5	5	10	1	200	10m	p			3					1				1																			1		1	2					
	2	2	2	2	2	11	1	201	11m	p			2					1																									2					
	4	4	4	4	4	9	1	202	9m	p			3					1																						1		1	1					
	5	5	5	5	5	11	1	203	11m	p			2					1																						1	1	1	1					
	2	2	2	2	2	12	1	204	12m	p			1					1																							1								
	0			0	0		1	205	11m	p			1																																			
	3	3	3	3	3	12	1	206	12m	p			1																												1		1	1					
	4	4	4	4	4	10	1	207	10m	p			2					1																							1		1	1					
	1	1	1	1	1	3	1	208	3s	p			1											1																					v		
	0							209			temporary obstactle (fisherman)																																							
	3	3	3	3	3	9	1	210	9m	p			3																	1													1	1					
	4	4	4	4	4	10	1	211	10m	p			1					1												1										1			1					
	2	2	2	2	2	11	1	212	11m	p			2																	1													1					
	0							213			temporary obstacle (fisherman)																																							
	0			0	0		1	214	16m	r																																					
	3	3	3	3	3	14	1	215	14m	p			1									1																			1			1					
	2	2	1	2	1	14	1	216	14m	p			1	1																											1								
	4	4	4	4	4	13	1	217	13m	p			1					1				1																			1			1					
	4	4	4	4	4	12	1	218	12m	p			1					1				1																			1			1					
	3	3	3	3	3	12	1	219	12m	p			2					1																							1			1					
	5	5	5	5	5	13	1	220	13m	p			1					1				1																			1	1							
	4	4	3	4	3	12	1	221	12m	p			1	1				1																										1					
	4	4	4	4	4	12	1	222	12m	p			2					1				1																			1			1					
	4	4	4	4	4	12	1	223	12m	p			2					1				1																			1			1					
	3	3	3	3	3	11	1	224	11m	p			2					1																							1			1					
	2	2	2	2	2	10	1	225	10m	p			3					1																									3					
	3	3	3	3	3	11	1	226	11m	p			2					1																									1	1					
	3	3	3	3	3	9	1	227	9m	p			3					1																									3	1					
	5	5	5	5	5	10	1	228	10m	p			3					1												1										1			1	1					
	3	3	3	3	3	12	1	229	12m	p			1					1																							1			1					

Entry	Total Number Species at Site (NO ENTRY!)	Total Number Species - veg sites only (NO ENTRY!)Includes exotics	Total Number Species - veg sites only (NO ENTRY!) No exotics	Total Number Species at Site (shallower than maxdepth) (NO ENTRY!) Includes exotics	Total Number Species at Site (shallower than maxdepth) (NO ENTRY!), no exotics	Depth with some plants (NO ENTRY!)	Depths within vegetated range(NO ENTRY!)	sampling point	Depth (ft)	Dominant sediment type (M=muck, S=Sand, R=Rock)	Sampled holding rake pole (P) or rake rope (R)?	comments	Total Rake Fullness	Myriophyllum spicatum, Eurasian water-milfoil or Hybrid water-milfoil	Potamogeton crispus,Curly leaf pondweed	Bidens beckii (formerly Megalodonia), Water marigold	Brasenia schreberi, Watershield	Ceratophyllum demersum, Coontail	Chara sp., Muskgrasses	Eleocharis acicularis, Needle spikerush	Eleocharis palustris, Creeping spikerush	Elodea nuttallii, Slender waterweed	Heteranthera dubia, Water star-grass	Isoetes sp., Quillwort	Juncus pelocarpus f. submersus, Brown-fruited rush	Lemna trisulca, Forked duckweed	Myriophyllum alterniflorum, Alternate-flowered water-milfoil	Myriophyllum sibiricum, Northern water-milfoil	Myriophyllum tenellum, Dwarf water-milfoil	Najas flexilis, Slender naiad	Najas guadalupensis, Southern naiad	Nitella sp., Nitella	Nuphar variegata, Spatterdock	Nymphaea odorata, White water lily	Potamogeton amplifolius, Large-leaf pondweed	Potamogeton foliosus, Leafy pondweed	Potamogeton friesii, Fries' pondweed	Potamogeton gramineus, Variable pondweed	Potamogeton illinoensis, Illinois pondweed	Potamogeton praelongus, White-stem pondweed	Potamogeton pusillus, Small pondweed	Potamogeton richardsonii, Clasping-leaf pondweed	Potamogeton robbinsii, Fern pondweed	Potamogeton strictifolius, Stiff pondweed	Potamogeton zosteriformis, Flat-stem pondweed	Sagittaria graminea, Grass-leaved arrowhead	Schoenoplectus acutus, Hardstem bulrush	Sparganium sp., Bur-reed	Vallisneria americana, Wild celery	Filamentous algae
	3	3	3	3	3	12	1	230	12m	p			1																																			
	2	2	2	2	2	11	1	231	11m	p			1					1																															
	0			0	0		1	232	16m	r																																						
	0			0	0		1	233	16m	r																																					
	1	1	1	1	1	1.5	1	234	1.5s	p			1							1																					v							
	3	3	3	3	3	9	1	235	9m	p			3				1	1																										3			
	2	2	2	2	2	9.5	1	236	9.5m	p			3																														1		3			
	3	3	3	3	3	11	1	237	11m	p			1					1																									1	1				
	2	2	2	2	2	13	1	238	13m	p			1																														1					
	2	2	2	2	2	13	1	239	13m	p			1					1																										1			
	1	1	1	1	1	15	1	240	15m	p			1																														1					
	1	1	1	1	1	16	1	241	16m	r			1																														1					
	1	1	1	1	1	16	1	242	16m	p			1									1																										1
	1	1	1	1	1	15	1	243	15m	p			1																														1					
	4	4	4	4	4	14	1	244	14m	p			1					1																									1	1		1			
	3	3	3	3	3	13	1	245	13m	p			1					1																									1						
	3	3	3	3	3	12	1	246	12m	p			1					1																									1			1			
	3	3	3	3	3	12	1	247	12m	p			1					1																									1						
	4	4	4	4	4	12	1	248	12m	p			2					1				1																								1			
	4	4	4	4	4	11	1	249	11m	p			3					1				1																								2		2	
	3	3	3	3	3	11	1	250	11m	p			3					1																												1		3	
	3	3	3	3	3	10	1	251	10m	p			3					1																												1		3	
	4	4	4	4	4	10	1	252	10m	p			3					1																												1		3	1	
	2	2	2	2	2	14	1	253	14m	p			1																															1			1			
	1	1	1	1	1	15	1	254	15m	p			1																															1						
	5	5	5	5	5	15	1	255	15m	p			1					1																											1		1	1			
	0			0	0		1	256	12m	p																																							
	0			0	0		1	257	14m	p																																							
	0			0	0		1	258	16m	r																																							
	0							259	17m	r																																							
	0			0	0		1	260	12s	p																																							
	0							261			dock																																						
	2	2	2	2	2	8	1	262	8m	p			1																																1		1			
	4	4	4	4	4	10	1	263	10m	p			3																															1		2	1			
	2	2	2	2	2	12	1	264	12m	p			1																															1			1			
	1	1	1	1	1	13	1	265	13m	p			1																															1						
	1	1	1	1	1	14	1	266	14m	p			1																															1						
	2	2	2	2	2	14	1	267	14m	p			1					1																										1						
	0			0	0		1	268	15m	p																																							
	1	1	1	1	1	16	1	269	16m	r			1																															1						
	0			0	0		1	270	15m	p																																							
	2	2	2	2	2	15	1	271	15m	p			1					1																														1			
	1	1	1	1	1	14	1	272	14m	p			1																															1						
	3	3	3	3	3	14	1	273	14m	p			1					1																										1	1					
	4	4	3	4	3	11	1	274	11m	p			1	1																																1		1			
	2	2	2	2	2	13	1	275	13m	p			1					1																										1						
	0			0	0		1	276	13m	p																																							
	3	3	3	3	3	12	1	277	12m	p			1																																1						
	3	3	3	3	3	11	1	278	11m	p			1					1																										1						
	2	2	2	2	2	13	1	279	13m	p			1																																1						
	1	1	1	1	1	16	1	280	16m	p			1																																1						
	0							281	18																																							
	0							282	19m	r																																							
	0							283	20		deep																																						
	0							284	22		deep																																						
	0							285	25		deep																																						
	0							286	20		deep																																						
	0							287	20m	r																																							
	0			0	0		1	288	8s	p																																							
	4	4	4	4	4	6.5	1	289	6.5m	p			3																															1	1	1	1			
	3	3	3	3	3	9.5	1	290	9.5m	p			2																															1		1	1			
	2	2	2	2	2	11	1	291	11m	p			1																																	1	1			
	2	2	2	2	2	13	1	292	13m	p			1																															1		1			
	3	3	3	3	3	14	1	293	14m	p			1					1																									1		1			
	0			0	0		1	294	14m	p																																							

Entry	Total Number Species at Site (NO ENTRY)	Total Number Species - veg sites only (NO ENTRY)(includes exotics	Total Number Species - veg sites only (NO ENTRY) No exotics	Total Number Species at Site (shallower than maxdepth) (NO ENTRY) includes exotics	Total Number Species at Site (shallower than maxdepth) (NO ENTRY), no exotics	Depth with some plants (NO ENTRY)	Depths within vegetated range(NO ENTRY)	sampling point	Depth (ft)	Dominant sediment type (M=muck, S=Sand, R=Rock)	Sampled holding rake pole (P) or rake rope (R)?	comments	Total Rake Fullness	Myriophyllum spicatum,Eurasian water-milfoil or Hybrid water-milfoil	Potamogeton crispus,Curly-leaf pondweed	Ilidens beckii (formerlyMegaladonta), Water marigold	Brasenia schreberi, Watershield	Ceratophyllum demersum, Coontail	Chara sp., Muskgrasses	Eleocharis acicularis, Needle spikerush	Eleocharis palustris, Creeping spikerush	Elodea nuttallii, Slender waterweed	Heteranthera dubia, Water star-grass	Isoetes sp., Quillwort	Juncus pelocarpus f. submersus, Brown-fruited rush	Lemna trisulca, Forked duckweed	Myriophyllum alterniflorum, Alternate-flowered water-milfoil	Myriophyllum sibiricum, Northern water-milfoil	Myriophyllum tenellum, Dwarf water-milfoil	Najas flexilis, Slender naiad	Najas guadalupensis, Southern naiad	Nitella sp., Nitella	Nuphar variegata, Spatterdock	Nymphaea odorata, White water lily	Potamogeton amplifolius, Large-leaf pondweed	Potamogeton foliosus, Leafy pondweed	Potamogeton friesii, Fries' pondweed	Potamogeton gramineus, Variable pondweed	Potamogeton illinoensis, Illinois pondweed	Potamogeton praelongus, White-stem pondweed	Potamogeton pusillus, Small pondweed	Potamogeton richardsonii, Clasping-leaf pondweed	Potamogeton robbinsii, Fern pondweed	Potamogeton strictifolius, Stiff pondweed	Potamogeton zosteriformis, Flat-stem pondweed	Sagittaria graminea, Grass-leaved arrowhead	Schoenoplectus acutus, Hardstem bulrush	Sparganium sp., Bur-reed	Vallisneria americana, Wild celery	Filamentous algae
	1	1	1	1	1	15	1	295	15m	p			1																										1								
	1	1	1	1	1	15	1	296	15m	p			1																										1								
	1	1	1	1	1	16	1	297	16m	p			1																										1								
	0			0	0		1	298	15m	p																																					
	0			0	0		1	299	16m	p																																					
	2	2	2	2	2	15	1	300	15m	p			1																										1						1				
	0			0	0		1	301	14m	p																																					
	2	2	2	2	2	14	1	302	14m	p			1																										1						1				
	3	3	3	3	3	13	1	303	13m	p			1					1																				1						1				
	3	3	3	3	3	12	1	304	12m	p			1					1																				1						1				
	2	2	2	2	2	13	1	305	13m	p			1																										1						1				
	0			0	0		1	306	13m	p																																					
	0			0	0		1	307	15m	p																																					
	0			0	0		1	308	16m	r																																					
	0							309	18		deep																																				
	0			0	0		1	310	16m	r																																					
	0							311	19m	r																																					
	0							312	22		deep																																				
	0							313	25		deep																																				
	0							314	26		deep																																				
	0							315	21m	r																																					
	0			0	0		1	316	6.5m	p																																					
	1	1	1	1	1	9	1	317	9m	p			1																															1				
	3	3	2	3	2	10	1	318	10m	p			2	1																									1						1				
	1	1	1	1	1	13	1	319	13m	p			1																															1				
	0			0	0		1	320	14m	p																																					
	0			0	0		1	321	14m	p																																					
	0			0	0		1	322	15m	p																																					
	1	1	1	1	1	15	1	323	15m	p			1																									1										
	0			0	0		1	324	15m	p																																					
	2	2	2	2	2	15	1	325	15m	p			1					1																				1										
	1	1	1	1	1	15	1	326	15m	p			1																										1										
	0			0	0		1	327	16m	p																																					
	0			0	0		1	328	16m	p																																					
	1	1	1	1	1	15	1	329	15m	r			1																										1										
	0			0	0		1	330	16m	p																																					
	2	2	2	2	2	14	1	331	14m	p			1					1																				1										
	2	2	2	2	2	12	1	332	12m	p			1					1																				1										
	4	4	4	4	4	12	1	333	12m	p			1					1																				1	1				1					
	0			0	0		1	334	15m	p																																					
	1	1	1	1	1	15	1	335	15m	p			1																										1										
	0			0	0		1	336	16m	p																																					
	1	1	1	1	1	16	1	337	16m	p			1																										1										
	3	3	3	3	3	16	1	338	16m	p			1					1																				1						1				
	0			0	0		1	339	12m	p																																					
	0							340	20m	r																																					
	0							341	20m	r																																					
	0							342	25		deep																																				
	0							343	17m	r																																					
	0			0	0		1	344	5r	p																																					
	2	2	2	2	2	2	1	345	2s	p			1																								1								1			
	4	4	4	4	4	7	1	346	7s	p			1																								1				1					1	
	3	3	3	3	3	12	1	347	12m	p			1					1																				1						1				
	0			0	0		1	348	12m	p																																					
	0			0	0		1	349	15m	r																																					
	0			0	0		1	350	16m	r																																					
	0			0	0		1	351	16m	r																																					
	1	1	1	1	1	16	1	352	16m	r			1																										1										
	0							353	17m	r																																					
	0							354	17m	r																																					

Entry	Total Number Species at Site (NO ENTRY=1)	Total Number Species - veg sites only (NO ENTRY=1)Includes exotics	Total Number Species - veg sites only (NO ENTRY=1) No exotics	Total Number Species at Site (shallower than maxdepth) (NO ENTRY=1) includes exotics	Total Number Species at Site (shallower than maxdepth) (NO ENTRY=1), no exotics	Depth with some plants (NO ENTRY=1)	Depths within vegetated range(NO ENTRY=1)	sampling point	Depth (ft)	Dominant sediment type (M=muck, S=Sand, R=Rock)	Sampled holding rake pole (P) or rake rope (R)?	comments	Total Rake Fullness	Myriophyllum spicatum, Eurasian water-milfoil or myhrid water-milfoil	Potamogeton crispus,Curly-leaf pondweed	Bidens beckii (formerlyMegalodonta), Water-marigold	Brasenia schreberi, Watershield	Ceratophyllum demersum, Coontail	Chara sp., Muskgrasses	Eleocharis acicularis, Needle spikerush	Eleocharis palustris, Creeping spikerush	Elodea nuttallii,Slender waterweed	Heteranthera dubia, Water star-grass	Isoetes sp., Quillwort	Juncus pelocarpus f. submersus, Brown-fruited rush	Lemna trisulca, Forked duckweed	Myriophyllum alterniflorum, Alternate-flowered water-milfoil	Myriophyllum sibiricum, Northern water-milfoil	Myriophyllum tenellum, Dwarf water-milfoil	Najas flexilis, Slender naiad	Najas guadalupensis, Southern naiad	Nitella sp., Nitella	Nuphar variegata, Spatterdock	Nymphaea odorata, White water lily	Potamogeton amplifolius, Large-leaf pondweed	Potamogeton foliosus, Leafy pondweed	Potamogeton friesii, Fries' pondweed	Potamogeton gramineus, Variable pondweed	Potamogeton illinoensis, Illinois pondweed	Potamogeton praelongus, White-stem pondweed	Potamogeton pusillus, Small pondweed	Potamogeton richardsonii, Clasping-leaf pondweed	Potamogeton robbinsii, Fern pondweed	Potamogeton strictifolius, Stiff pondweed	Potamogeton zosteriformis, Flat-stem pondweed	Sagittaria graminea, Grass-leaved arrowhead	Schoenoplectus acutus, Hardstem bulrush	Sparganium sp., Bur-reed	Vallisneria americana, Wild celery	Filamentous algae
	3	3	3	3	3	16	1	355	16m	r			1					1																			1			1					
	0			0	0		1	356	15m	p																																					
	2	2	2	2	2	16	1	357	16m	p			1																										1			1					
	2	2	2	2	2	16	1	358	16m	p			1																										1			1					
	1	1	1	1	1	16	1	359	16m	p			1					1																													
	1	1	1	1	1	15	1	360	15m	p			1																										1								
	2	2	2	2	2	16	1	361	16m	p			1																										1								
	2	2	2	2	2	15	1	362	15m	p			1																										1			1					
	0			0	0		1	363	15m	p																																					
	0			0	0		1	364	14m	p																																					
	3	3	3	3	3	14	1	365	14m	p			1					1																				1								
	2	2	2	2	2	14	1	366	14m	p			1																										1			1					
	1	1	1	1	1	15	1	367	15m	p			1																										1								
	2	2	2	2	2	15	1	368	15m	p			1																										1			1					
	0							369	17m	p																																					
	1	1	1	1	1	15	1	370	15r	p			1																										1								
	0							371	21m	r																																					
	0							372	20m	r																																					
	0			0	0		1	373	10s	p																																					
	3	3	3	3	3	5	1	374	5s	p			1																										1			1			v		1
	1	1	1	1	1	7	1	375	7s	p			1																																		
	1	1	1	1	1	16	1	376	16m	p			1																										1								
	0			0	0		1	377	16m	r																																					
	0			0	0		1	378	16m	r																																					
	0			0	0		1	379	16m	r																																					
	0							380	17m	r																																					
	0							381	17m	r																																					
	0							382	17m	r																																					
	0							383	18m	r																																					
	0							384	18m	r																																					
	0							385	19m	r																																					
	0			0	0		1	386	15m	r																																					
	2	2	2	2	2	15	1	387	15m	r			1																										1			1					
	1	1	1	1	1	15	1	388	15m	r			1																										1								
	2	2	2	2	2	15	1	389	15m	r			1																										1								1
	0							390	18m	r																																					
	0							391	17m	r																																					
	1	1	1	1	1	13	1	392	13m	p			1																										1								
	2	2	1	2	1	13	1	393	13m	p			1	1																									1								
	2	2	2	2	2	14	1	394	14m	p			1																										1			1					
	1	1	1	1	1	14	1	395	14m	p			1																										1								
	1	1	1	1	1	14	1	396	14m	p			1																										1								
	0			0	0		1	397	15m	p																																					
	0							398	18m	r																																					
	0			0	0		1	399	14m	p																																					
	2	2	2	2	2	12	1	400	12m	p			1																										1			1					
	0							401	40		deep																																				
	0			0	0		1	402	11s	p																																					
	1	1	1	1	1	5	1	403	5s	p			1																																		
	0			0	0		1	404	16m	p																																					
	0			0	0		1	405	16m	r																																					
	0							406	17m	r																																					
	0							407	17m	r																																					
	0							408	17m	r																																					
	0							409	17m	r																																					
	0							410	17m	r																																					
	0							411	17m	r																																					
	0							412	17m	r																																					
	0							413	19m	r																																					
	0							414	21m	r																																					

Entry	Total Number Species at Site (NO ENTRY)	Total Number Species - veg sites only (NO ENTRY) includes exotics	Total Number Species - veg sites only (NO ENTRY) No exotics	Total Number Species at Site (shallower than max depth) (NO ENTRY) includes exotics	Total Number Species at Site (shallower than max depth) (NO ENTRY) no exotics	Depth with some plants (NO ENTRY)	Depth's within vegetated range(NO ENTRY)	sampling point	Depth (ft)	Dominant sediment type (M=muck, S=Sand, R=Rock)	Sampled hooking rake pole (P) or rake rope (R)?	comments	Total Rake Fullness	Myriophyllum spicatum, Eurasian water-milfoil or Hybrid water-milfoil	Potamogeton crispus,Curly-leaf pondweed	Bidens beckii (formerlyMegalodonta), Water marigold	Brasenia schreberi, Watershield	Ceratophyllum demersum, Coontail	Chara sp., Muskgrasses	Eleocharis acicularis, Needle spikerush	Eleocharis palustris, Creeping spikerush	Elodea nuttallii, Slender waterweed	Heteranthera dubia, Water star-grass	Isoetes sp, Quillwort	Juncus pelocarpus f. submersus, Brown-fruited rush	Lemna trisulca, forked duckweed	Myriophyllum alterniflorum, Alternate-flowered water-milfoil	Myriophyllum sibiricum, Northern water-milfoil	Myriophyllum tenellum, Dwarf water-milfoil	Najas flexilis, Slender naiad	Najas guadalupensis, Southern naiad	Nitella sp., Nitella	Nuphar variegata, Spatterdock	Nymphaea odorata, White waterlily	Potamogeton amplifolius, Large-leaf pondweed	Potamogeton foliosus, Leafy pondweed	Potamogeton friesii, Fries' pondweed	Potamogeton gramineus, Variable pondweed	Potamogeton illinoensis, Illinois pondweed	Potamogeton praelongus, White-stem pondweed	Potamogeton pusillus, Small pondweed	Potamogeton richardsonii, Clasping-leaf pondweed	Potamogeton robbinsii, Fern pondweed	Potamogeton strictifolius, Stiff pondweed	Potamogeton zosteriformis, Flat-stem pondweed	Sagittaria graminea, Grass-leaved arrowhead	Schoenoplectus acutus, Hardstem bulrush	Sparganium sp., Bur-reed	Vallisneria americana, Wild celery	Filamentous algae
	0							415	22m	r																																			
	1	1	1	1	1	15	1	416	15m	p		1																																	
	1	1	1	1	1	15	1	417	15m	p		1																																	
	1	1	1	1	1	13	1	418	13m	p		1																																	
	2	2	2	2	2	11	1	419	11m	p		2																																	
	2	2	2	2	2	11	1	420	11m	p		1																																	
	2	2	2	2	2	13	1	421	13m	p		1																																	
	3	3	3	3	3	10	1	422	10m	p		2																																	
	2	2	2	2	2	11	1	423	11m	p		2																																	
	2	2	2	2	2	11	1	424	11m	p		3																																	
	1	1	1	1	1	14	1	425	14m	p		1																																	
	2	2	2	2	2	14	1	426	14m	p		1																																	
	4	4	4	4	4	11	1	427	11m	p		1																																	
	1	1	1	1	1	15	1	428	15m	p		1																																	
	4	4	4	4	4	12	1	429	12m	p		1					1																											
	0			0	0		1	430	9s	p																																		
	0							431	20m	r																																			
	4	4	4	4	4	2	1	432	2s	p		1							1				1																					1	
	1	1	1	1	1	15	1	433	15m	p		1																																	
	8	8	7	8	7	2.5	1	434	2.5s	p		1	1					1									1																1	
	1	1	1	1	1	3.5	1	435	3.5s	p		1																																1	
	0							436	17m	r																																		
	0							437	18m	r																																			
	0							438	18m	r																																			
	0							439	18m	r																																			
	0							440	18m	r																																			
	0							441	18m	r																																			
	3	3	3	3	3	7	1	442	7s	p		1																															1	
	1	1	1	1	1	7	1	443	7s	p		1																															1	
	2	2	2	2	2	7	1	444	7s	p		1																															1	
	4	4	4	4	4	10	1	445	10r	p		1																																	
	2	2	2	2	2	12	1	446	12m	p		1																																	
	1	1	1	1	1	12	1	447	12m	p		1																																	
	1	1	1	1	1	12	1	448	12m	p		1																																	
	3	3	3	3	3	11	1	449	11m	p		3					1																											
	3	3	3	3	3	12	1	450	12m	p		3					1																											
	2	2	2	2	2	10	1	451	10m	p		2																																	
	4	4	4	4	4	10	1	452	10m	p		3					1																											
	1	1	1	1	1	14	1	453	14m	p		1																																	
	2	2	2	2	2	12	1	454	12m	p		1																																	
	1	1	1	1	1	15	1	455	15m	p		1																																	
	6	6	5	6	5	8	1	456	8s	p		1	1														1	1																
	0			0	0		1	457	14m	p																																		
	0							458	34																																				
	0			0	0		1	459	9s	p																																		
	0							460			nonnavigable (plants)																																		
	0			0	0		1	461	11m	p																																		
	0							462			temporary obstacle (fisherman)																																		
	2	2	2			0		463			temporary obstacle (fisherman)						1																											1	
	2	2	2	2	2	5	1	464	5s	p		1															1																
	1	1	1	1	1	10	1	465	10s	p		1																															1	
	3	3	3	3	3	6	1	466	6s	p		1															1							1									
	2	2	2	2	2	6	1	467	6s	p		1																															1	
	0			0	0		1	468	4s	p																																		
	0			0	0		1	469	4s	p																																		
	0			0	0		1	470	5s	p		1																																
	2	2	2	2	2	5	1	471	5s	p		1																																
	1	1	1	1	1	5.5	1	472	5.5s	p		1																															1	
	2	2	2	2	2	6	1	473	6s	p		1																															1	
	0			0	0		1	474	11s	p																																		
	1	1	1	1	1	12	1	475	12m	p		1																															1	
	1	1	1	1	1	11	1	476	11m	p		2																															2	
	0			0	0		1	477	12m	p																																		
	3	3	3	3	3	11	1	478	11m	p		2					1																									1	
	3	3	3	3	3	12	1	479	12m	p		2					1																									2	

Entry	Total Number Species at Site (NO ENTRY=0)	Total Number Species - veg sites only (NO ENTRY)(includes exotics	Total Number Species - veg sites only (NO ENTRY=0) No exotics	Total Number Species at Site (shallower than maxdepth) (NO ENTRY=0) includes exotics	Total Number Species at Site (shallower than maxdepth) (NO ENTRY=0), no exotics	Depth with some plants (NO ENTRY=0)	Depths within vegetated range(NO ENTRY=0)	sampling point	Depth (ft)	Dominant sediment type (M=muck, S=Sand, R=Rock)	Sampled holding rake pole (P) or rake rope (R)?	comments	Total Rake Fullness	Myriophyllum spicatum, Eurasian water-milfoil or hybrid water-milfoil	Potamogeton crispus,Curly-leaf pondweed	Bidens beckii (formerly Megalodonta), Water marigold	Brasenia schreberi, Watershield	Ceratophyllum demersum, Coontail	Chara sp., Muskgrasses	Eleocharis acicularis, Needle spikerush	Eleocharis palustris, Creeping spikerush	Elodea nuttallii, Slender waterweed	Heteranthera dubia, Water star-grass	Isoetes sp., Quillwort	Juncus pelocarpus f. submersus, Brown-fruited rush	Lemna trisulca, Forked duckweed	Myriophyllum alterniflorum, Alternate-flowered water-milfoil	Myriophyllum sibiricum, Northern water-milfoil	Myriophyllum tenellum, Dwarf water-milfoil	Najas flexilis, Slender naiad	Najas guadalupensis, Southern naiad	Nitella sp., Nitella	Nuphar variegata, Spatterdock	Nymphaea odorata, White water lily	Potamogeton amplifolius, Large-leaf pondweed	Potamogeton foliosus, Leafy pondweed	Potamogeton friesii, Fries' pondweed	Potamogeton gramineus, Variable pondweed	Potamogeton illinoensis, Illinois pondweed	Potamogeton praelongus, White-stem pondweed	Potamogeton pusillus, Small pondweed	Potamogeton richardsonii, Clasping-leaf pondweed	Potamogeton robbinsii, Fern pondweed	Potamogeton strictifolius, Stiff pondweed	Potamogeton zosteriformis, Flat-stem pondweed	Sagittaria graminea, Grass-leaved arrowhead	Schoenoplectus acutus, Hardstem bulrush	Sparganium sp., Bur-reed	Vallisneria americana, Wild celery	Filamentous algae
	1	1	1	1	1	12	1	480	12m	p			1																																	
	3	3	3	3	3	12	1	481	12m	p			2					1																													
	1	1	1	1	1	12	1	482	12s	p			1																																	
	2	2	2	2	2	6	1	483	6s	p			1																																	1
	3	3	3	3	3	12	1	484	12m	p			1																																	
	0							485	39																																				
	0			0	0		1	486	13s	p																																			
	0							487				nonnavigable (plants)																																		
	1	1	1	1	1	12	1	488	12m	p			1																																	
	4	4	4	4	4	7	1	489	7m	p			2																																	
	2	2	2	2	2	12	1	490	12s	p			1																																	1
	2	2	2	2	2	2.5	1	491	2.5s	p			1																																	1
	0			0	0		1	492	2s	p																																			
	2	2	2	2	2	2.5	1	493	2.5s	p			1								1																								1	
	1	1	1	1	1	2.5	1	494	2.5s	p			1																																1	
	1	1	1	1	1	4	1	495	4s	p			1																																1	
	0			0	0		1	496	4s	p																																			
	0			0	0		1	497	4.5s	p																																			
	0			0	0		1	498	5s	p																																			
	2	2	2	2	2	6	1	499	6s	p			1																																	1
	1	1	1	1	1	6	1	500	6s	p			1																																	1
	5	5	5	5	5	6	1	501	6s	p			1																																	1
	3	3	3	3	3	12	1	502	12m	p			1																																	
	2	2	2	2	2	12	1	503	12m	p			1																																	
	4	4	4	4	4	11	1	504	11m	p			2																																	
	3	3	3	3	3	11	1	505	11m	p			3					3																											
	5	5	5	5	5	12	1	506	12m	p			3					2																											
	2	2	2	2	2	9	1	507	9m	p			1																																	
	5	5	5	5	5	5	1	508	5s	p			1					1																											
	0			0	0		1	509	12m	p			1																																	
	0							510	22			deep																																	
	0			0	0		1	511	8s	p																																			
	0							512				nonnavigable (stumps/plants)																																		
	0			0	0		1	513	2s	p			1																																	
	1	1	1	1	1	4	1	514	4s	p			1																																1	
	2	2	2	2	2	4	1	515	4s	p			1																																	
	1	1	1	1	1	4	1	516	4s	p			1																																	1
	2	2	2	2	2	5	1	517	5s	p			1																																	1
	2	2	2	2	2	6	1	518	6s	p			1																																	1
	1	1	1	1	1	12	1	519	12m	p			1																																	
	4	4	4	4	4	11	1	520	11m	p			1																																	
	4	4	4	4	4	10	1	521	10m	p			3					3																											
	2	2	2	2	2	10	1	522	10m	p			3																																	
	3	3	3	3	3	10	1	523	10m	p			3					3																											
	3	3	3	3	3	12	1	524	12m	p			1					1																											
	3	3	3	3	3	6	1	525	6s	p			1									1																							1
	0			0	0		1	526	2.5																																				
	0							527	19m	r																																			
	0			0	0		1	528	5r	p																																			
	4	4	4	4	4	3	1	529	3s	p			1						1	1								1		1															
	2	2	2	2	2	5	1	530	5s	p			1															1																	
	3	3	3	3	3	4	1	531	4s	p			1																																	1
	2	2	2	2	2	5.5	1	532	5.5s	p			1						1																											
	4	4	4	4	4	11	1	533	11m	p			2																																	1
	2	2	2	2	2	12	1	534	12m	p			1																																	
	4	4	4	4	4	11	1	535	11m	p			1					1																											
	1	1	1	1	1	10	1	536	10m	p			3																																	
	2	2	2	2	2	9	1	537	9m	p			2																																	
	0			0	0		1	538	13m	p																																			
	1	1	1	1	1	12	1	539	12m	p			3																																	

Entry	Total Number Species at Site (NO ENTRY)	Total Number Species - veg sites only (NO ENTRY) Includes exotics	Total Number Species - veg sites only (NO ENTRY) No exotics	Total Number Species at Site (shallower than max depth) (NO ENTRY) Includes exotics	Total Number Species at Site (shallower than max depth) (NO ENTRY), no exotics	Depth with some plants (NO ENTRY)	Depths within vegetated range(NO ENTRY)	sampling point	Depth (ft)	Dominant sediment type (M=muck, S=Sand, R=Rock)	Sampled holding rake pole (P) or rake rope (R)?	comments	Total Rake Fullness	Myriophyllum spicatum, Eurasian water-milfoil or Hybrid water-milfoil	Potamogeton crispus,Curly-leaf pondweed	Bidens beckii (formerly Megalodonta), Water-marigold	Brasenia schreberi, Watershield	Ceratophyllum demersum, Coontail	Chara sp., Muskgrasses	Blockharis sicularis, Needle spikerush	Eleocharis palustris, Creeping spikerush	Elodea nuttallii, Slender waterweed	Heteranthera dubia, Water star-grass	Isoetes sp., Quillwort	Juncus pelocarpus f. submersus, Brown-fruited rush	Lemna trisulca, Forked duckweed	Myriophyllum alterniflorum, Alternate-flowered water-milfoil	Myriophyllum sibiricum, Northern water-milfoil	Myriophyllum tenellum, Dwarf water-milfoil	Najas flexilis, Slender naiad	Najas guadalupensis, Southern naiad	Nitella sp., Nitella	Nuphar variegata, Spatterdock	Nymphaea odorata, White waterlily	Potamogeton amplifolius, Large-leaf pondweed	Potamogeton foliosus, Leafy pondweed	Potamogeton friesii, Fries' pondweed	Potamogeton gramineus, Variable pondweed	Potamogeton illinoensis , Illinois pondweed	Potamogeton praelongus, White-stem pondweed	Potamogeton pusillus, Small pondweed	Potamogeton richardsonii, Clasping-leaf pondweed	Potamogeton robbinsii, Fern pondweed	Potamogeton strictifolius, Stiff pondweed	Potamogeton zosteriformis, Flat-stem pondweed	Sagittaria graminea, Grass-leaved arrowhead	Schoenoplectus acutus, Hardstem bulrush	Sparganium sp., Bur-reed	Vallisneria americana, Wild celery	Filamentous algae
	0			0	0		1	540	26		deep																																
	1	1	1	1	1	13	1	541	13s	p		1																																
	1	1	1	1	1	5	1	542	5s	p		1																																
	3	3	3	3	3	4	1	543	4s	p		1														1			1														
	0			0	0		1	544	15m	p																																	
	3	3	3	3	3	11	1	545	11m	p		2																	1														
	0			0	0		1	546	12m	p																																	
	2	2	2	2	2	11	1	547	11m	p		2																																
	3	3	3	3	3	10	1	548	10m	p		2																																
	2	2	2	2	2	11	1	549	11m	p		2																																
	2	2	2	2	2	13	1	550	13m	p		1																																
	0			0	0		1	551	15m	p																																	
	0							552	19m	r																																	
	0			0	0		1	553	4s	p																																	
	2	2	2	2	2	1.5	1	554	1.5s	p		1								1																							
	3	3	3	3	3	4	1	555	4s	p		1																																
	3	3	3	3	3	10	1	556	10m	p		1						1																										
	2	2	2	2	2	11	1	557	11m	p		1																																
	1	1	1	1	1	11	1	558	11m	p		1																																
	3	3	3	3	3	9.5	1	559	9.5r	p	EWM visual (greater than 6ft)	1						1																										
	1	1	1	1	1	12	1	560	12m	p		1																																
	1	1	1	1	1	13	1	561	13m	p		1																																
	5	5	5	5	5	12	1	562	12m	p		1						1																										
	0							563	23		deep																																	
	0							564	17m	r																																	
	4	4	4	4	4	3	1	565	3s	p		1			1																												
	1	1	1	1	1	3	1	566	3s	p		1																																
	5	5	5	5	5	3.5	1	567	3.5s	p		1v			1																												
	0							568			temporary obstacle (fisherman)																																		
	3	3	3	3	3	12	1	569	12m	p		1						1																										
	3	3	3	3	3	11	1	570	11m	p		1																																
	2	2	2	2	2	11	1	571	11m	p		1																																
	4	4	4	4	4	13	1	572	13m	p		1																																
	5	5	5	5	5	11	1	573	11m	p		3						1																										
	1	1	1	1	1	12	1	574	12m	p		3																																
	1	1	1	1	1	14	1	575	14m	p		1																																
	0							576	23m	r																																	
	0			0	0		1	577	16m	r																																	
	5	5	5	5	5	4	1	578	4s	p		3						1																										
	4	4	4	4	4	4	1	579	4s	p		1							1																									
	1	1	1	1	1	5	1	580	5m	p		3																																
	3	3	3	3	3	6	1	581	6m	p		3																																
	5	5	5	5	5	6	1	582	6m	p		2						1																										
	2	2	2	2	2	6.5	1	583	6.5m	p		3						1																										
	2	2	2	2	2	9	1	584	9m	p		2																																
	0			0	0		1	585	14m	p																																	
	2	2	2	2	2	12	1	586	12m	p		1						1																										
	1	1	1	1	1	9	1	587	9s	p		1			1																												
	5	5	5	5	5	7.5	1	588	7.5r	p		1			1		1																											
	4	4	4	4	4	4	1	589	4r	p		1																																
	4	4	4	4	4	11	1	590	11m	p		3						1																										
	3	3	3	3	3	13	1	591	13m	p		3						1																										
	2	2	2	2	2	14	1	592	14m	p		1																																
	0							593	22m	r																																	
	0			0	0		1	594	15m	r																																	
	3	3	3	3	3	2	1	595	2s	p		1											1		1																		
	2	2	2	2	2	5.5	1	596	5.5m	p		3																	1														
	2	2	2	2	2	6	1	597	6m	p		3																	1														
	1	1	1	1	1	6	1	598	6m	p		3																																
	6	6	6	6	6	7	1	599	7m	p		2						1											1														
	3	3	3	3	3	7.5	1	600	7.5m	p		3																																
	1	1	1	1	1	9	1	601	9m	p		3																																
	4	4	4	4	4	11	1	602	11m	p		2						1											1														
	1	1	1	1	1	3	1	603	3r	p		1																																
	0			0	0		1	604	4r	p																																	

Entry	Total Number Species at Site (NO ENTRY)1	Total Number Species - veg sites only (NO ENTRY)Includes exotics	Total Number Species - veg sites only (NO ENTRY) No exotics	Total Number Species at Site (shallower than max depth) (NO ENTRY) Includes exotics	Total Number Species at Site (shallower than max depth) (NO ENTRY) no exotics	Depth with some plants (NO ENTRY)1	Depths within vegetated range(NO ENTRY)1	sampling point	Depth (ft)	Dominant sediment type (M=muck, S=Sand, R=Rock)	Sampled holding rake pole (P) or rake rope (R)?	comments	Total Rake Fullness	Myriophyllum spicatum, Eurasian water-milfoil or Hybrid water-milfoil	Potamogeton crispus,Curly-leaf pondweed	Bidens beckii (formerly Megalodonta), Water marigold	Brasenia schreberi, Watershield	Ceratophyllum demersum, Coontail	Chara sp., Muskgrasses	Eleocharis acicularis, Needle spikerush	Eleocharis palustris, Creeping spikerush	Elodea nuttallii, Slender waterweed	Heteranthera dubia, Water star-grass	Isoetes sp., Quillwort	Juncus pelocarpus f. submersus, Brown-fruited rush	Lemna trisulca, Forked duckweed	Myriophyllum alterniflorum, Alternate-flowered water-milfoil	Myriophyllum sibiricum, Northern water-milfoil	Myriophyllum tenellum, Dwarf water-milfoil	Najas flexilis, Slender naiad	Najas guadalupensis, Southern naiad	Nitella sp., Nitella	Nuphar variegata, Spatterdock	Nymphaea odorata, White water lily	Potamogeton amplifolius, Large-leaf pondweed	Potamogeton foliosus, Leafy pondweed	Potamogeton friesii, Fries' pondweed	Potamogeton gramineus, Variable pondweed	Potamogeton illinoensis, Illinois pondweed	Potamogeton praelongus, White-stem pondweed	Potamogeton pusillus, Small pondweed	Potamogeton richardsonii, Clasping-leaf pondweed	Potamogeton robbinsii, Fern pondweed	Potamogeton strictifolius, Stiff pondweed	Potamogeton zosteriformis, Flat-stem pondweed	Sagittaria graminea, Grass-leaved arrowhead	Schoenoplectus acutus, Hardstem bulrush	Sparganium sp., Bur-reed	Vallisneria americana, Wild celery	Filamentous algae
	3	3	3	3	3	2	1	605	2r	p			2										1			1																			
	0			0	0		1	606	2r	p															v									v	v										
	1	1	1	1	1	14	1	607	14m	p																																	1			
	1	1	1	1	1	11	1	608	11m	p			2																														2			
	0							609	23		deep																																			
	0							610	19m	r																																					
	0			0	0		1	611	4.5r	p																																				
	5	5	5	5	5	3.5	1	612	3.5s	p			1							1						1										1						1		1			
	3	3	3	3	3	6	1	613	6m	p			2													1																2					
	3	3	3	3	3	6	1	614	6m	p			2													1																2		1			
	2	2	2	2	2	7	1	615	7m	p			3																													3		1			
	2	2	2	2	2	7	1	616	7m	p			2																													2					
	4	4	4	4	4	7.5	1	617	7.5m	p			3					3								1																1		2			
	3	3	3	3	3	9	1	618	9m	p			3																													3		1			
	2	2	2	2	2	10	1	619	10m	p			1																													1		1			
	2	2	2	2	2	7	1	620	7r	p			3													3																		1			
	2	2	2	2	2	9.5	1	621	9.5m	p			3																													3		1			
	2	2	2	2	2	11	1	622	11m	p			2																													1		2			
	1	1	1	1	1	11	1	623	11m	p			2																													2	v				
	1	1	1	1	1	13	1	624	13m	p			1													1																					
	0							625	25		deep																																			
	0			0	0		1	626	4r	p																																				
	4	4	4	4	4	4	1	627	4s	p			1							1																						1			1		
	1	1	1	1	1	7	1	628	7m	p			3																													3	v				
	1	1	1	1	1	6.5	1	629	6.5m	p			1																													1	v				
	4	4	4	4	4	7	1	630	7m	p			2					1																							2				1		
	1	1	1	1	1	8	1	631	8m	p			3																													3	v				
	1	1	1	1	1	8.5	1	632	8.5m	p			3																													3					
	3	3	3	3	3	9	1	633	9m	p			2					1																		v					1		1			
	1	1	1	1	1	6.5	1	634	6.5m	p			3													3																					
	2	2	2	2	2	4.5	1	635	4.5s	p			1															1																		1		
	2	2	2	2	2	10	1	636	10m	p			3																													1	3					
	1	1	1	1	1	9.5	1	637	9.5m	p			3																															3				
	2	2	2	2	2	13	1	638	13m	p			1																													1		1			
	0			0	0		1	639	13m	p																																					
	0			0	0		1	640	15m	p																																					
	0							641	25m	r																																					
	3	3	3	3	3	3	1	642	3s	p			1										1					1																	1		
	4	4	4	4	4	7	1	643	7m	p			3					1								1																3					
	4	4	4	4	4	7	1	644	7m	p			1												1															1		1	v				
	3	3	3	3	3	7	1	645	7m	p			3																							2						1		1			
	2	2	2	2	2	7.5	1	646	7.5m	p			2																													2					
	3	3	3	3	3	8	1	647	8m	p			3																							1						3					
	1	1	1	1	1	8.5	1	648	8.5m	p			3																													3					
	3	3	3	3	3	8	1	649	8m	p			3																													3		1			
	2	2	2	2	2	9	1	650	9m	p			3					1																								3					
	2	2	2	2	2	10	1	651	10m	p			3																													3		1			
	3	3	3	3	3	11	1	652	11m	p			2																												1	2		1			
	2	2	2	2	2	11	1	653	11m	p			2																													1		2			
	3	3	3	3	3	13	1	654	13m	p			2													2																		1			
	1	1	1	1	1	15	1	655	15m	p			1																													1					1
	0			0	0		1	656	15m	p																																					
	0			0	0		1	657	15m	p																																					
	0							658	18m	r																																					
	2	2	2	2	2	7	1	659	7s	p			1																																		

Entry	Total Number Species at Site (NO ENTRY)	Total Number Species - veg sites only (NO ENTRY) (includes exotics	Total Number Species - veg sites only (NO ENTRY) (no exotics	Total Number Species at Site (shallower than max depth) (NO ENTRY) (includes exotics	Total Number Species at Site (shallower than max depth) (NO ENTRY) (no exotics	Depth with some plants (NO ENTRY)	Depths within vegetated range(NO ENTRY)	sampling point	Depth (ft)	Dominant sediment type (Muncuck, S=Sand, R=Rock)	Sampled holding rake pole (P) or rake rope (R)?	comments	Total Rake Fullness	Myriophyllum spicatum, Eurasian water-milfoil or hybrid water-milfoil	Potamogeton crispus,Curly-leaf pondweed	Bidens beckii (formerly Megadroba), Water marigold	Brasenia schreberi, Watershield	Ceratophyllum demersum, Coontail	Chara sp., Muskgrasses	Eleocharis acicularis, Needle spikerush	Eleocharis palustris, Creeping spikerush	Elodea nuttallii, Slender waterweed	Heteranthera dubia, Water star-grass	Isoetes sp., Quillwort	Juncus pelocarpus f. submersus, Brown-fruited rush	Lemna trisulca, Forked duckweed	Myriophyllum alterniflorum, Alternate-flowered water-milfoil	Myriophyllum sibiricum, Northern water-milfoil	Myriophyllum tenellum, Dwarf water-milfoil	Najas flexilis, Slender naiad	Najas guadalupensis, Southern naiad	Nitella sp., Nitella	Nuphar variegata, Spatterdock	Nymphaea odorata, White water lily	Potamogeton amplifolius, Large-leaf pondweed	Potamogeton foliosus, Leafy pondweed	Potamogeton friesii, Fries' pondweed	Potamogeton gramineus, Variable pondweed	Potamogeton illinoensis, Illinois pondweed	Potamogeton pusillus, Small pondweed	Potamogeton richardsonii, Clasping-leaf pondweed	Potamogeton robbinsii, Fern pondweed	Potamogeton strictifolius, Stiff pondweed	Potamogeton zosteriformis, Flat-stem pondweed	Sagittaria graminea, Grass-leaved arrowhead	Schoenoplectus acutus, Hardstem bulrush	Sparganium sp., Bur-reed	Vallisneria americana, Wild celery	Filamentous algae
	3	3	3	3	3	5	1	660	5s	p			1											1																			1	
	5	5	5	5	5	7	1	661	7m	p			1												1									1							1					
	2	2	2	2	2	7.5	1	662	7.5m	p			1																			v									1					
	4	4	4	4	4	8	1	663	8m	p			2																				1							2		1				
	4	4	4	4	4	7.5	1	664	7.5m	p			3					1															1							3		1				
	3	3	3	3	3	8	1	665	8m	p			2																	1										2						
	2	2	2	2	2	6	1	666	6s	p			3																	3												1				
	3	3	3	3	3	9	1	667	9m	p			3																	1										3		1				
	2	2	2	2	2	10	1	668	10m	p			2																											2		1				
	2	2	2	2	2	12	1	669	12m	p			1																											1		1				
	0			0	0		1	670	14m	p																																					
	1	1	1	1	1	16	1	671	16m	r			1																									1									
	0			0	0		1	672	16m	r																																					
	0			0	0		1	673	15m	p																																					
	0			0	0		1	674	14m	p																																					
	1	1	1	1	1	14	1	675	14m	p			1																													1					
	3	3	3	3	3	11	1	676	11m	p			3					1															1									3					
	1	1	1	1	1	4	1	677	4s	p			1																													1					
	5	5	5	5	5	6.5	1	678	6.5m	p			2					1															1							1		1					
	2	2	2	2	2	8	1	679	8m	p			2																			v									2						
	5	5	5	5	5	7.5	1	680	7.5m	p			3					1																1							3		1				
	3	3	3	3	3	8	1	681	8m	p			2																												2		1				
	4	4	4	4	4	7	1	682	7m	p			3					1															1							3						
	1	1	1	1	1	7	1	683	7m	p			3																											3						
	5	5	5	5	5	6	1	684	6s	p	EWM visual (greater than 6ft)		1					1															1							1		1				1	
	3	3	3	3	3	9.5	1	685	9.5m	p			2									1																			2		1				
	2	2	2	2	2	11	1	686	11m	p			3																												3		1				
	1	1	1	1	1	14	1	687	14m	p			1																	1																
	1	1	1	1	1	16	1	688	16m	r			1																													1				
	0							689	17m	r																																					
	0			0	0		1	690	16m	r																																					
	0			0	0		1	691	15m	p																																					
	2	2	2	2	2	12	1	692	12m	p			2																	1												1				
	3	3	3	3	3	14	1	693	14m	p			1																	1												1				
	4	4	4	4	4	12	1	694	12m	p			1					1												1											1		1				
	3	3	2	3	2	11	1	695	11s	p			1	1				1												1																	
	3	3	3	3	3	4	1	696	4s	p			1											1																			1				
	3	3	3	3	3	7	1	697	7m	p			3																												3		1				
	5	5	5	5	5	8	1	698	8m	p			2																	1											1	2		1				
	4	4	4	4	4	8	1	699	8m	p			3																												2	2		1				
	2	2	2	2	2	8	1	700	8m	p			2																			v									2	v					
	2	2	2	2	2	5.5	1	701	5.5m	p			2					1																							2						
	1	1	1	1	1	6.5	1	702	6.5m	p			2																												2	v					
	2	2	2	2	2	9.5	1	703	9.5m	p			3																												3		1				
	3	3	3	3	3	10	1	704	10m	p			3																	1											3		1				
	0			0	0		1	705	12m	p																																					
	0			0	0		1	706	14m	p																																					
	0			0	0		1	707	15m	p																																					
	0			0	0		1	708	16m	r																																					
	0			0	0		1	709	15m	p																																					
	0			0	0		1	710	14m	p																																					
	2	2	2	2	2	12	1	711	12m	p			1																												1		1				
	2	2	2	2	2	12	1	712	12m	p			1																												1		1				
	3	3	3	3	3	11	1	713	11m	p			1																	1											1		1				1
	5	5	4	5	4	8	1	714	8s	p			1	1				1												1																1	
	2	2	2	2	2	6	1	715	6m	p			1																	1											1						
	3	3	3	3	3	6.5	1	716	6.5m	p			3																												3		1				
	5	5	5	5	5	8	1	717	8m	p			2					1																							1		1				
	2	2	2	2	2	8.5	1	718	8.5m	p			2																												2						
	3	3	3	3	3	8	1	719	8m	p			3																												3		1				
	4	4	4	4	4	7.5	1	720	7.5m	p			2					1												1											1						
	2	2	2	2	2	9.5	1	721	9.5m	p			1																												1		1				
	2	2	2	2	2	11	1	722	11m	p			2																												1		1				
	2	2	2	2	2	13	1	723	13m	p			1																	1													1				
	1	1	1	1	1	14	1	724	14m	p			1																														1				

Entry	Total Number Species at Site (NO ENTRY)	Total Number Species - veg sites only (NO ENTRY) includes exotics	Total Number Species - veg sites only (NO ENTRY) No exotics	Total Number Species at Site (shallower than max depth) (NO ENTRY) includes exotics	Total Number Species at Site (shallower than max depth) (NO ENTRY) no exotics	Depth, with some plants (NO ENTRY)	Depths within vegetated range(NO ENTRY)	sampling point	Depth (ft)	Dominant sediment type (M=muck, S=Sand, R=Rock)	Sampled holding rake pole (P) or rake rope (R)?	comments	Total # Rake Fullness	Myriophyllum spicatum, Eurasian water-milfoil or Hybrid water-milfoil	Potamogeton crispus,Curly-leaf pondweed	Bidens beckii (formerly Megalodonta), Water marigold	Brasenia schreberi, Watershield	Ceratophyllum demersum, Coontail	Chara sp., Muskgrasses	Eleocharis palustris, Creeping spikerush	Elodea nuttallii, Slender waterweed	Heteranthera dubia, Water star-grass	Isoetes sp., Quillwort	Juncus pelocarpus f. submersus, Brown-fruited rush	Lemna trisulca, Forked duckweed	Myriophyllum alterniflorum, Alternate-flowered water-milfoil	Myriophyllum sibiricum, Northern water-milfoil	Myriophyllum tenellum, Dwarf water-milfoil	Najas flexilis, Slender naiad	Najas guadalupensis, Southern naiad	Nitella sp., Nitella	Nuphar variegata, Spatterdock	Nymphaea odorata, White waterlily	Potamogeton amplifolius, Large-leaf pondweed	Potamogeton foliosus, Leafy pondweed	Potamogeton friesii, Fries' pondweed	Potamogeton gramineus, Variable pondweed	Potamogeton illinoensis, Illinois pondweed	Potamogeton praelongus, White-stem pondweed	Potamogeton pusillus, Small pondweed	Potamogeton richardsonii, Clasping-leaf pondweed	Potamogeton robbinsii, Fern pondweed	Potamogeton strictifolius, Stiff pondweed	Potamogeton zosteriformis, Flat-stem pondweed	Sagittaria graminea, Grass-leaved arrowhead	Schoenoplectus acutus, hardstem bulrush	Sparganium sp., Bur-reed	Vallisneria americana, Wild celery	Filamentous algae
	2	2	2	2	2	12	1	725	12m	p			2															3												1				
	1	1	1	1	1	14	1	726	14m	p			3															3																
	0			0	0		1	727	12m	p																																			
	0			0	0		1	728	13m	p																																			
	2	2	2	2	2	11	1	729	11m	p			2																												1	2				
	2	2	2	2	2	10	1	730	10m	p			2																												2	1				
	6	6	6	6	6	8	1	731	8s	p	EWM visual (greater than 6ft)		1					1							1				1											1	1			1	
	2	2	2	2	2	3	1	732	3m	p			2															1												2					
	2	2	2	2	2	6	1	733	6m	p			2																												2	1				
	1	1	1	1	1	7	1	734	7m	p			3																												3					
	3	3	3	3	3	8	1	735	8m	p			1																												1	1				
	3	3	3	3	3	8.5	1	736	8.5m	p			2																												2	1				
	2	2	2	2	2	8	1	737	8m	p			3																												3					
	2	2	2	2	2	6	1	738	6m	p			3															3																
	2	2	2	2	2	12	1	739	12m	p			1															1												1					
	0							740	24		deep																																		
	0							741	23m																																					
	2	2	2	2	2	12	1	742	12m	p			3																												1	3				
	3	3	3	3	3	11	1	743	11m	p			2																												2	1			1	
	3	3	3	3	3	11	1	744	11m	p			2															1												1	2				
	5	5	5	5	5	13	1	745	13m	p			3					1										1												1	3				
	2	2	2	2	2	11	1	746	11m	p			3																												1	3				
	3	3	3	3	3	11	1	747	11m	p			3																												1	1				
	2	2	2	2	2	10	1	748	10m	p			2																												1	2				
	2	2	2	2	2	11	1	749	11m	p			2																												1	2				
	2	2	2	2	2	10	1	750	10m	p			2																												1	2				
	2	2	2	2	2	9.5	1	751	9.5m	p			2																												2	1				
	2	2	2	2	2	11	1	752	11m	p			1															1													1				
	2	2	2	2	2	7	1	753	7m	p			3																												3					
	2	2	2	2	2	6.5	1	754	6.5m	p			2																												2					
	5	5	5	5	5	7	1	755	7m	p			3					1																						1	2	1				
	4	4	4	4	4	8	1	756	8m	p			2					1																							1	1				
	1	1	1	1	1	7	1	757	7m	p			2																												2					
	0			0	0		1	758	15m	p																																			
	3	3	3	3	3	9	1	759	9m	p			2					1																							2	1				
	3	3	3	3	3	8.5	1	760	8.5m	p			3																												2	1				
	2	2	2	2	2	9	1	761	9m	p			2																												2	1				
	2	2	2	2	2	10	1	762	10m	p			2																												2	1				
	2	2	2	2	2	11	1	763	11m	p			1																												1	1				
	2	2	2	2	2	11	1	764	11m	p			2																												2	1				
	3	3	3	3	3	11	1	765	11m	p			3					2										1													2				
	0			0	0		1	766	16m	r																																			
	0			0	0		1	767	13r	p																																			
	0			0	0		1	768	6.5r	p																																			
	2	2	2	2	2	9	1	769	9m	p			2																												2	1				
	2	2	2	2	2	9	1	770	9m	p			3																												3	1				
	2	2	2	2	2	7.5	1	771	7.5m	p			2																												2	1				
	1	1	1	1	1	12	1	772	12m	p			1																													1				1
	4	4	4	4	4	5.5	1	773	5.5m	p			2															1												1	1			1	
	2	2	2	2	2	6	1	774	6m	p			1																												1					
	5	5	5	5	5	7	1	775	7m	p			2					1																						1	2	1				
	4	4	4	4	4	7	1	776	7m	p			3					1																							2	1				
	2	2	2	2	2	6.5	1	777	6.5m	p			3																												3	1				
	0							778	21		deep																																		
	2	2	2	2	2	7	1	779	7m	p			2														1													2				
	2	2	2	2	2	9	1	780	9m	p			3																												3	1				
	1	1	1	1	1	9.5	1	781	9.5m	p			3																												3					
	2	2	2	2	2	10	1	782	10m	p			3																												2	3				
	0			0	0		1	783	13m	p																																			
	0			0	0		1	784	3r	p																																			
	4	4	4	4	4	9	1	785	9m	p			2					1																							2	1				
	1	1	1	1	1	8	1	786	8m	p			3																												3					
	2	2	2	2	2	9	1	787	9m	p			2					1																							2					
	2	2	2	2	2	6	1	788	6m	p			3																												3	1				
	3	3	3	3	3	6	1	789	6m	p			2																												2	1				

Entry	Total Number Species at Site (NO ENTRY)	Total Number Species - veg sites only (NO ENTRY) Includes exotics	Total Number Species – veg sites only (NO ENTRY) No exotics	Total number species at site (NO ENTRY) Includes exotics	Total number species at site (NO ENTRY) No exotics	Depth with some plants (NO ENTRY)	Depths within vegetated range(NO ENTRY)	sampling point	Depth (ft)	Dominant sediment type (Muck, Silt, Sand, Rock)	Sampled holding rake pole (P) or rake rope (R)?	comments	Total Rake Fullness	Myriophyllum spicatum, Eurasian water-milfoil	Myriophyllum spicatum, Eurasian water-milfoil or Hybrid water-milfoil	Potamogeton crispus,Curly-leaf pondweed	Bidens beckii (formerly Megadonta), Water marigold	Brasenia schreberi, Watershield	Ceratophyllum demersum, Coontail	Chara sp., Muskgrasses	Eleocharis acicularis, Needle spikerush	Eleocharis palustris, Creeping spikerush	Elodea nuttallii, Slender waterweed	Heteranthera dubia, Water star-grass	Isoetes sp., Quillwort	Juncus pelocarpus f. submarsus, Brown-fruited rush	Lemna trisulca, Forked duckweed	Myriophyllum alterniflorum, Alternate-flowered water-milfoil	Myriophyllum sibiricum, Northern water-milfoil	Myriophyllum tenellum, Dwarf water-milfoil	Najas flexilis, Slender naiad	Najas guadalupensis, Southern naiad	Nitella sp., Nitella	Nuphar variegata, Spatterdock	Nymphaea odorata, White water lily	Potamogeton amplifolius, Large-leaf pondweed	Potamogton foliosus, Leafy pondweed	Potamogeton friesii, Fries' pondweed	Potamogeton gramineus, Variable pondweed	Potamogeton illinoensis, Illinois pondweed	Potamogeton praelongus, White-stem pondweed	Potamogeton pusillus, Small pondweed	Potamogeton richardsonii, Clasping-leaf pondweed	Potamogeton robbinsii, Fern pondweed	Potamogeton strictifolius, Stiff pondweed	Potamogeton zosteriformis, Flat-stem pondweed	Sagittaria graminea, Grass-leaved arrowhead	Schoenoplectus acutus, Hard-stem bulrush	Spirogyra sp., Bur-reed	Vallisneria americana, Wild celery	Filamentous algae
	1	1	1	1	1	6	1	790	6m	p			2																													2				
	3	3	3	3	3	6	1	791	6m	p			2																													2	1			
	3	3	3	3	3	6	1	792	6m	p			2																													2	1			
	2	2	2	2	2	5	1	793	5m	p			2																													1				
	0			0	0		1	794	16m	r																																					
	5	5	4	5	4	7	1	795	7m	p			1	1															1		1											1	1			
	3	3	3	3	3	9	1	796	9m	p			3																1													3	1			
	1	1	1	1	1	12	1	797	12m	p			1																	1																
	0							798				temporary obstacle (fisherman)																																					
	0							799				temporary obstacle (fisherman)																																					
	1	1	1	1	1	8	1	800	8m	p			3																													3				
	1	1	1	1	1	7	1	801	7m	p			1																													1				
	3	3	3	3	3	4	1	802	4m	p			3																													1				
	2	2	2	2	2	5	1	803	5m	p			2						1																							2				
	1	1	1	1	1	5	1	804	5m	p			2																													2				
	2	2	2	2	2	5	1	805	5m	p			1																													1	1			
	1	1	1	1	1	5.5	1	806	5.5m	p			1																													1				
	1	1	1	1	1	5	1	807	5m	p			1																													1				
	1	1	1	1	1	5	1	808	5m	p			3																													3				
	0			0	0		1	809	15r	p																																					
	2	2	2	2	2	6	1	810	6m	p			3																													3				
	2	2	2	2	2	7	1	811	7m	p			3																	1												3				
	4	4	4	4	4	7	1	812	7m	p			1	v					1																							1	1	1			
	1	1	1	1	1	4	1	813	4m	p			2																													2				
	1	1	1	1	1	6	1	814	6m	p			3																													3				
	2	2	2	2	2	6.5	1	815	6.5m	p			1																													1	1			
	1	1	1	1	1	5.5	1	816	5.5m	p			1																													1					1
	3	3	3	3	3	4.5	1	817	4.5m	p			1					1																							1					
	2	2	2	2	2	5	1	818	5m	p			2																													2				
	2	2	2	2	2	5	1	819	5m	p			1																													1				
	3	3	3	3	3	5	1	820	5m	p			1																													1				
	1	1	1	1	1	5	1	821	5m	p			1																													1				
	1	1	1	1	1	7	1	822	7m	p			1																													1				
	0							823	22			deep																																			
	5	5	5	5	5	3	1	824	3s	p			1					1																							1					
	9	9	9	9	9	3.5	1	825	3.5s	p			1					1		1					1		1		1													1				
	2	2	2	2	2	5	1	826	5m	p			2																	2												1				
	1	1	1	1	1	8.5	1	827	8.5m	p			2																													2				
	2	2	2	2	2	5	1	828	5m	p			3																													3				
	1	1	1	1	1	5	1	829	5m	p			1																													1				
	1	1	1	1	1	5	1	830	5m	p			1																													1					1
	1	1	1	1	1	5	1	831	5m	p			3																													3				
	2	2	2	2	2	5	1	832	5m	p			2																													2	1			
	3	3	3	3	3	5	1	833	5m	p			2																													2					1
	2	2	2	2	2	5	1	834	5m	p			3																													3				
	1	1	1	1	1	4.5	1	835	4.5m	p			3																													3				
	1	1	1	1	1	5	1	836	5m	p			1																													1				
	3	3	3	3	3	6	1	837	6s	p			1																													1					1
	0							838				nonnavigable (plants)																																					
	0							839				nonnavigable (plants)																																					
	3	3	3	3	3	4	1	840	4m	p			3																	1												3				
	1	1	1	1	1	5	1	841	5m	p			3																													3				
	3	3	3	3	3	5	1	842	5m	p			3																													3				
	2	2	2	2	2	5	1	843	5m	p			3																													3				
	1	1	1	1	1	5	1	844	5m	p			1																													1				
	2	2	2	2	2	5.5	1	845	5.5m	p			3																													3				
	3	3	3	3	3	5	1	846	5m	p			2																													2				
	2	2	2	2	2	5	1	847	5m	p			1																													1				
	1	1	1	1	1	6	1	848	6m	p			3																													3				
	3	3	3	3	3	5	1	849	5m	p			3						1																							3				
	4	4	4	4	4	7	1	850	7m	p			3						1																							3				
	0							851				nonnavigable (plants)																																					
	0							852				nonnavigable (plants)																																					
	2	2	2	2	2	4.5	1	853	4.5m	p			3																													3				
	2	2	2	2	2	4.5	1	854	4.5m	p			3																													3				
	3	3	3	3	3	4.5	1	855	4.5m	p			2					1																							2	1			
	0							856				nonnavigable (plants)																																					
	0							857				nonnavigable (plants)																																					
	0							858				nonnavigable (plants)																																					
	2	2	2	2	2	5.5	1	859	5.5m	p			3																													3				
	0							860				nonnavigable (plants)																																					

Boat Survey

Lake	Lac Vieux Desert						
County	Vilas, WI & Gogebic, MI						
WBIC	1631900						
Date of Survey	July 28th-Aug 14th						
Field Crew	Bill Artwich/Barb						
Nearest Point	**Species**						
1	ELPAV	NUVA2	SCTA2	TYPHA SP.			
2	SCAC3	TYPHA SP.					
3	TYPHA SP.	TYAN	SCTA2	NUVA2			
4	TYAN	ELPAV	NUVA2				
5	SCTA2	SPAR FLOAT-ING	NUVA2	ELPAV			
6	NUVA2						
7	SPAR FLOATING						
8	NUVA2	NYOD	SPAR ERECT	TYAN	SPAR FLOAT-ING		
9	TYAN	NUVA2	SPAR ERECT				
10	NUVA2	NYOD	SPAR ERECT				
11	ELPAV	SCAC3					
12	SCAC3						
13	SCAC3						
24	NUVA2	NYOD	CAPA				
25	SCPU10	SCAC3	ELPAV	NUVA2	NYOD		
26	SCAC3	TYPHA SP.	NUVA2	NYOD	ELPAV		
41	SCAC3	NUVA2	NYOD	TYPHA SP.			
42	SCAC3	NUVA2					
59	NUVA2	SCAC3	TYLA	SCPU10			
60	NUVA2	SCAC3	TYLA				
78	NUVA2	ELPAV	TYPHA SP.				
98	SCAC3	UNKNOWN RUSH					
117	ELPAV	NUVA2	SCAC3				
137	SCAC3	NUVA2	NYOD				
138	SCAC3	NUVA2	NYOD				
139	SCAC3	TYPHA SP.					
159	SCAC3	NYOD	NUVA2	UNKNOWN RUSH			
162	SCAC3	ELPAV					
163	SCAC3	TYPHA SP.					
183	NYOD	SCAC3	SPAR ERECT				

208	NYOD	NUVA2					
234	NYOD	NUVA2					
261	NUVA2						
289	TYPHA SP.	SCAC3					
317	TYPHA SP.	SCAC3					
345	SCAC3	TYPHA SP.	POAMC	PHRAG SP.			
374	SCAC3						
403	SCAC3						
432	SPAR ERECT	SCAC3	TYLA	NYOD	NYVA2		
434	TYPHA SP.						
435	DEVE	SCAC3?					
460	NYOD	ZIPA3					
468	SCAC3						
469	SCAC3						
487	NYOD	ZIPA3					
490	SCAC3						
491	ELPAV	TYPHA SP.					
492	SPAR FLOATING	SAG. SP.					
493	TYLA	TYAN					
494	ELPAV	SCAC3	UN-KNOWN RUSH				
495	SCAC3	UNKNOWN RUSH					
496	SCAC3						
497	SCAC3						
513	PHRAG SP.	SCAC3					
529	SCAC3						
530	SCAC3						
554	TYPHA SP.	ELPAV	SCAC3				
565	NUVA2	SPAR ERECT					
566	SCAC3	SPAR ERECT					
567	NYOD	NUVA2	SCAC3	TYPHA SP.			
578	NYOD	NUVA2	SPAR FLOAT-ING	SPAR ERECT			
579	NYOD	SPAR ERECT					
583	SPAR ERECT	TYLA	TYAN				
584	SPAR ERECT	TYLA	TYAN				
595	NYOD	NUVA2	SCAC3				
604	SCAC3						
605	TYPHA SP.	SCAC3					
612	SCAC3	SAG. SP.	NUVA2	TYPHA SP.			
619	SPAR ERECT						
620	SCAC3						
627	SCAC3	TYPHA SP.					
634	SPAR ERECT						
643	SCAC3						
651	NUVA2	TYPHA SP.	SCAC3				
660	SCAC3	NUVA2					

666	SPAR ERECT						
696	SCAC3	NUVA2					
701	SCAC3	SPAR ERECT					
715	SCAC3	ELPAV					
719	SPAR ERECT						
732	SPAR ERECT	SCAC3	NUVA2	TYPHA SP.			
740	NYOD						
752	TYLA	TYAN					
759	TYPHA SP.	SCAC3					
760	SCAC3						
773	TYPHA SP.	SCAC3					
778	TYPHA SP.						
779	NUVA2	SCAC3					
787	NYOD	NUVA2	PO-CO14	TYPHA SP.			
788	SCAC3	NYOD	TYPHA SP.				
794	TYPHA SP.	SCAC3					
795	SCAC3	TYPHA SP.					
801	NYOD						
802	ZIPA3	NYODO	NYODT				
810	NYOD	TYPHA SP.					
811	SCAC3	TYPHA SP.	NYOD				
813	NYODO	NYODT					
816	NYOD						
817	TYPHA SP.	NYODO	NYODT				
826	TYPHA SP.	NYOD					
826	NYODO	NYODT					
827	SCAC3	NUVA2					
830	NYOD						
831	NYOD						
838	NYOD						
839	NYOD						
840	NYOD						
846	NYODO	NYODT	TYPHA SP.				
850	NYOD	TYPHA SP.					
851	NYODO	NYODT	ZIPA3				
852	NYODO	NYODT	BRSC				
855	NYODO	NYODT	BRSC				
856	NYODO	NYODT	BRSC				
859	NYODO	NYODT	ZIPA3	SPAR ERECT	TYPHA SP.		
860	NYODO	NYODT	BRSC				

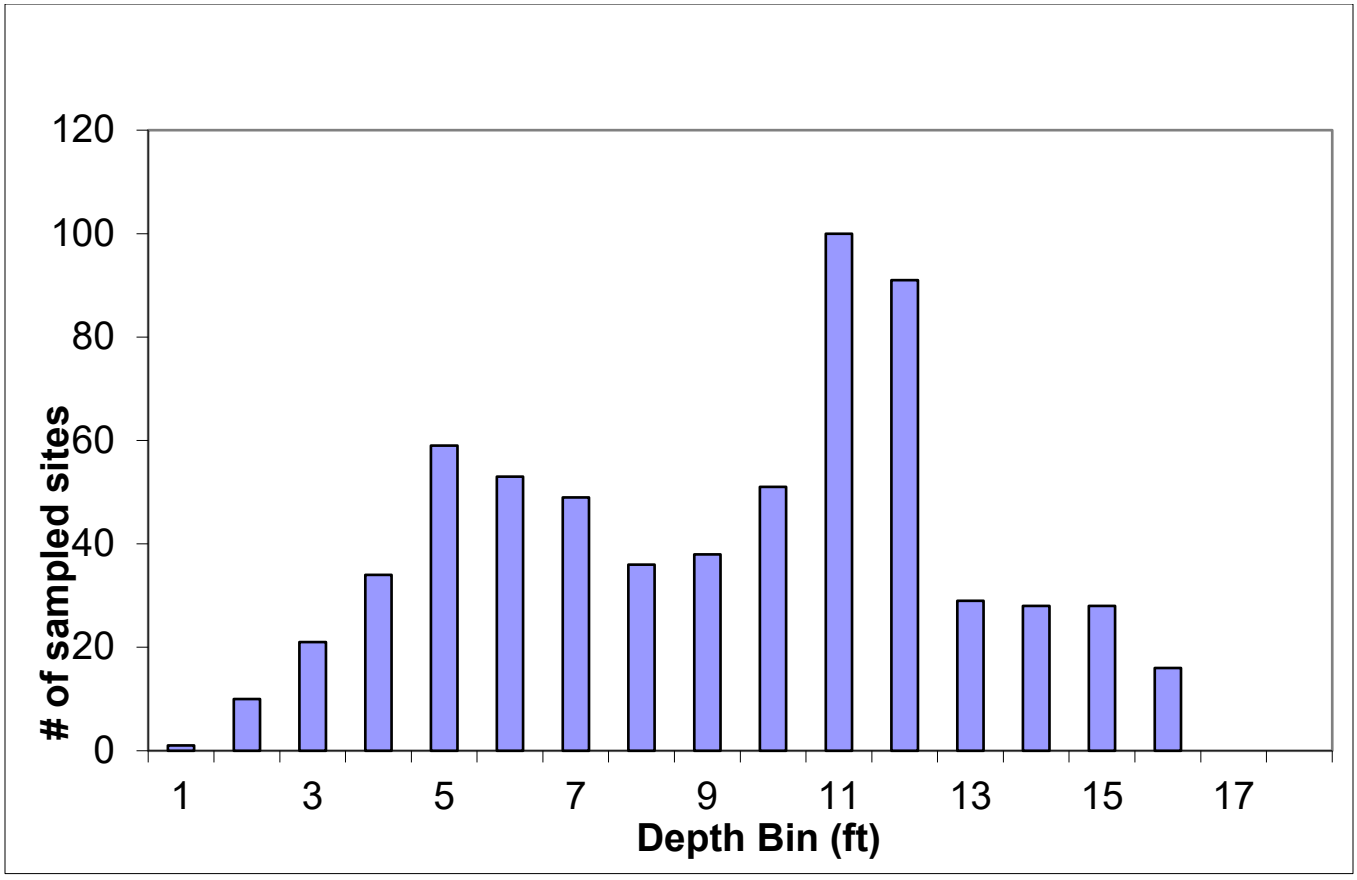
		STATS	Total vegetation	*Myriophyllum spicatum*, Eurasian water milfoil	Bidens beckii (formerly Megalodonta), Water marigold	Brasenia schreberi, Watershield	Ceratophyllum demersum, Coontail	Chara sp., Muskgrasses	Eleocharis acicularis, Needle spikerush	Eleocharis palustris, Creeping spikerush	Elodea canadensis, Common waterweed	Elodea nuttallii, Slender waterweed	Heteranthera dubia, Water star-grass	Isoetes sp., Quillwort	Juncus pelocarpus f. submersus, Brown-fruited rush	Lemna trisulca, Forked duckweed	Myriophyllum alterniflorum, Alternate-flowered water-milfoil	Myriophyllum sibiricum, Northern water-milfoil	Myriophyllum tenellum, Dwarf water-milfoil	Najas flexilis, Slender naiad	Najas guadalupensis, Southern naiad	Nitella sp., Nitella	Nuphar variegata, Spatterdock	Nymphaea odorata, White water lily	Potamogeton amplifolius, Large-leaf pondweed	Potamogeton foliosus, Leafy pondweed	Potamogeton friesii, Fries' pondweed	Potamogeton gramineus, Variable pondweed	Potamogeton illinoensis, Illinois pondweed	Potamogeton praelongus, White-stem pondweed	Potamogeton pusillus, Small pondweed	Potamogeton richardsonii, Clasping-leaf pondweed	Potamogeton robbinsii, Fern pondweed	Potamogeton strictifolius, Stiff pondweed	Potamogeton zosteriformis, Flat-stem pondweed	Sagittaria graminea, Grass-leaved arrowhead	Sagittaria sp., Arrowhead	Schoenoplectus acutus, Hardstem bulrush	Vallisneria americana, Wild celery	Aquatic moss	Filamentous algae
Lake	Lac Vieux Desert																																									
County	Vilas, WI & Gogebic, MI																																									
WBIC	1631900																																									
Survey Da	July 28th-Aug 14th 2019																																									
	INDIVIDUAL SPECIES STATS:																																									
	Frequency of occurrence within vegetated areas (%)		2.16	1.39	0.15	30.05	3.54	1.85	0.31	13.87	3.39	0.92	0.92	0.31	0.92	1.23	4.47	0.15	9.40	13.71	0.15	1.08	0.62	2.77	2.16	0.15	7.40	0.77	4.01	32.36	4.62	48.23	0.15	52.54	0.46	0.62	2.77	10.32	0.15	0.92
	Frequency of occurrence at sites shallower than maximum depth of plants		1.83	1.18	0.13	25.52	3.01	1.57	0.26	11.78	2.88	0.79	0.79	0.26	0.79	1.05	3.80	0.13	7.98	11.65	0.13	0.92	0.52	2.36	1.83	0.13	6.28	0.65	3.40	27.49	3.93	40.97	0.13	44.63	0.39	0.52	2.36	8.77	0.13	0.79
	Relative Frequency (%)		0.8	0.5	0.1	11.6	1.4	0.7	0.1	5.3	1.3	0.4	0.4	0.1	0.4	0.5	1.7	0.1	3.6	5.3	0.1	0.4	0.2	1.1	0.8	0.1	2.8	0.3	1.5	12.4	1.8	18.6	0.1	20.2	0.2	0.2	1.1	4.0		
	Relative Frequency (squared)	0.12	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.03	0.00	0.04	0.00	0.00	0.00	0.00		
	Number of sites where species found		14	9	1	195	23	12	2	90	22	6	6	2	6	8	29	1	61	89	1	7	4	18	14	1	48	5	26	210	30	313	1	341	3	4	18	67	1	6
	Average Rake Fullness	1.72	1.00	1.00	1.00	1.10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.02	1.26	1.00	1.00	1.25	1.06	1.00	1.00	1.00	1.04	1.12	1.00	1.78	1.00	1.19	1.00	1.00	1.00	1.00	1.00	1.00
	#visual sightings		3	1				1								1						4	6	7			2	1	1					8			23			
	present (visual or collected)		prese	pres	pres	present	prese	prese	prese	prese	prese	prese	prese	pres	pres	prese	prese	pres	prese	prese	prese	prese	prese	prese	prese	prese	prese	prese	prese	prese	prese	prese	prese	prese	prese	prese	prese	prese	prese	present

SUMMARY STATS:

Total number of sites visited	**835**
Total number of sites with vegetation	**649**
Total number of sites shallower than maximum depth of plants	**764**
Frequency of occurrence at sites shallower than maximum depth of plants	**84.95**
Simpson Diversity Index	**0.88**
Maximum depth of plants (ft)**	**16.00**
Number of sites sampled using rake on Rope (R)	**79**
Number of sites sampled using rake on Pole (P)	**733**
Average number of all species per site (shallower than max depth)	**2.21**
Average number of all species per site (veg. sites only)	**2.60**
Average number of native species per site (shallower than max depth)	**2.19**
Average number of native species per site (veg. sites only)	**2.58**
Species Richness	**36**
Species Richness (including visuals)	**39**
****SEE "MAX DEPTH GRAPH" WORKSHEET TO CONFIRM**	
ADDITIONAL SPECIES OBSERVED BUT NOT SAMPLED OR INCLUDED ON BOAT SURVEY: P. natans, L. minor	

MAX DEPTH GRAPH

DEPTH BIN (FT)	# SITES (NO ENTRY)
1	1
2	10
3	21
4	34
5	59
6	53
7	49
8	36
9	38
10	51
11	100
12	91
13	29
14	28
15	28
16	16
17	0
18	0
19	0
20	0
21	0
22	0
23	0
24	0
25	0
26	0
27	0
28	0
29	0
30	0
31	0
32	0
33	0
34	0
35	0
36	0
37	0
38	0
39	0
40	0


120
100
80
60
40
20
0
# of sampled sites
1
3
5
7
9
11
13
15
17
Depth Bin (ft)

Calculate FQI

Lake	Lac Vieux Desert
County	Vilas, WI & Gogebic, MI
Date	July 28th-Aug 14th 2019

Species	Common Name	C	species present=1	
Acorus americanus	Sweet-flag	7	0	0
Alisma triviale	Northern water-plantain	4	0	0
Bidens beckii	Water marigold	8	1	8
Bolboschoenus fluviatilis	River bulrush	6	0	0
Brasenia schreberi	Watershield	6	1	6
Calla palustris	Wild calla	9	0	0
Callitriche hermaphroditica	Autumnal water-starwort	9	0	0
Callitriche heterophylla	Large water-starwort	9	0	0
Callitriche palustris	Common water-starwort	8	0	0
Carex comosa	Bottle brush sedge	5	0	0
Catabrosa aquatica	Brook grass	10	0	0
Ceratophyllum demersum	Coontail	3	1	3
Ceratophyllum echinatum	Spiny hornwort	10	0	0
Chara	Muskgrasses	7	1	7
Dulichium arundinaceum	Three-way sedge	9	0	0
Elatine minima	Waterwort	9	0	0
Elatine triandra	Greater waterwort	9	0	0
Eleocharis acicularis	Needle spikerush	5	1	5
Eleocharis erythropoda	Bald spikerush	3	0	0
Eleocharis palustris	Creeping spikerush	6	1	6
Elodea canadensis	Common waterweed	3	1	3
Elodea nuttallii	Slender waterweed	7	1	7
Equisetum fluviatile	Water horsetail	7	0	0
Eriocaulon aquaticum	Pipewort	9	0	0
Glyceria borealis	Northern manna grass	8	0	0
Gratiola aurea	Golden hedge-hyssop	10	0	0
Heteranthera dubia	Water star-grass	6	1	6
Isoetes echinospora	Spiny-spored quillwort	8	0	0
Isoetes lacustris	Lake quillwort	8	0	0
Isoetes sp.	Quillwort	8	1	8
Juncus pelocarpus f. submersus	Brown-fruited rush	8	1	8
Juncus torreyi	Torrey's rush	4	0	0
Lemna minor	Small duckweed	4	0	0
Lemna perpusilla	Least duckweed	10	0	0
Lemna trisulca	Forked duckweed	6	1	6
Littorella uniflora	Littorella	10	0	0
Lobelia dortmanna	Water lobelia	10	0	0

Ludwigia palustris	Marsh purslane	4	0	0
Myriophyllum alterniflorum	Alternate-flowered water-milfoil	10	1	10
Myriophyllum farwellii	Farwell's water-milfoil	8	0	0
Myriophyllum heterophyllum	Various-leaved water-milfoil	7	0	0
Myriophyllum sibiricum	Northern water-milfoil	6	1	6
Myriophyllum tenellum	Dwarf water-milfoil	10	1	10
Myriophyllum verticillatum	Whorled water-milfoil	8	0	0
Najas flexilis	Slender naiad	6	1	6
Najas gracillima	Northern naiad	7	0	0
Najas guadalupensis	Southern naiad	8	1	8
Nelumbo lutea	American lotus	7	0	0
Nitella	Nitella	7	1	7
Nuphar advena	Yellow pond lily	8	0	0
Nuphar microphylla	Small pond lily	9	0	0
Nuphar X rubrodisca	Intermediate pond lily	9	0	0
Nuphar variegata	Spatterdock	6	1	6
Nymphaea odorata	White water lily	6	1	6
Phragmites australis	Common reed	1	0	0
Polygonum amphibium	Water smartweed	5	0	0
Polygonum punctatum	Dotted smartweed	5	0	0
Pontederia cordata	Pickerelweed	8	0	0
Potamogeton alpinus	Alpine pondweed	9	0	0
Potamogeton amplifolius	Large-leaf pondweed	7	1	7
Potamogeton bicupulatus	Snail-seed pondwwed	9	0	0
Potamogeton confervoides	Algal-leaved pondweed	10	0	0
Potamogeton diversifolius	Water-thread pondweed	8	0	0
Potamogeton epihydrus	Ribbon-leaf pondweed	8	0	0
Potamogeton foliosus	Leafy pondweed	6	1	6
Potamogeton friesii	Fries' pondweed	8	1	8
Potamogeton gramineus	Variable pondweed	7	1	7
Potamogeton hillii	Hill's pondweed	9	0	0
Potamogeton illinoensis	Illinois pondweed	6	1	6
Potamogeton natans	Floating-leaf pondweed	5	0	0
Potamogeton nodosus	Long-leaf pondweed	7	0	0
Potamogeton oakesianus	Oakes' pondweed	10	0	0
Potamogeton obtusifolius	Blunt-leaf pondweed	9	0	0
Potamogeton praelongus	White-stem pondweed	8	1	8
Potamogeton pulcher	Spotted pondweed	10	0	0
Potamogeton pusillus	Small pondweed	7	1	7
Potamogeton richardsonii	Clasping-leaf pondweed	5	1	5
Potamogeton robbinsii	Fern pondweed	8	1	8
Potamogeton spirillus	Spiral-fruited pondweed	8	0	0
Potamogeton strictifolius	Stiff pondweed	8	1	8
Potamogeton vaseyi	Vasey's pondweed	10	0	0
Potamogeton zosteriformis	Flat-stem pondweed	6	1	6
Ranunculus aquatilis	White water crowfoot	8	0	0
Ranunculus flabellaris	Yellow water crowfoot	8	0	0
Ranunculus flammula	Creeping spearwort	9	0	0

Riccia fluitans	Slender riccia	7	0	0
Ruppia cirrhosa	Ditch grass	8	0	0
Sagittaria brevirostra	Midwestern arrowhead	9	0	0
Sagittaria cuneata	Arum-leaved arrowhead	7	0	0
Sagittaria graminea	Grass-leaved arrowhead	9	1	9
Sagittaria latifolia	Common arrowhead	3	0	0
Sagittaria rigida	Sessile-fruited arrowhead	8	0	0
Schoenoplectus acutus	Hardstem bulrush	6	1	6
Schoenoplectus heterochaetus	Slender bulrush	10	0	0
Schoenoplectus pungens	Three-square bulrush	5	0	0
Schoenoplectus subterminalis	Water bulrush	9	0	0
Schoenoplectus tabernaemontani	Softstem bulrush	4	0	0
Sparganium americanum	American bur-reed	8	0	0
Sparganium androcladum	Branched bur-reed	8	0	0
Sparganium angustifolium	Narrow-leaved bur-reed	9	0	0
Sparganium emersum	Short-stemmed bur-reed	8	0	0
Sparganium eurycarpum	Common bur-reed	5	0	0
Sparganium fluctuans	Floating-leaf bur-reed	10	0	0
Sparganium natans	Small bur-reed	9	0	0
Spirodela polyrhiza	Large duckweed	5	0	0
Stuckenia filiformis	Fine-leaved pondweed	8	0	0
Stuckenia pectinata	Sago pondweed	3	0	0
Stuckenia vaginata	Sheathed pondweed	9	0	0
Typha angustifolium	Narrow-leaved cattail	1	0	0
Typha latifolia	Broad-leaved cattail	1	0	0
Typha sp.	Cattail	1	0	0
Utricularia cornuta	Horned bladderwort	10	0	0
Utricularia geminiscapa	Twin-stemmed bladderwort	9	0	0
Utricularia gibba	Creeping bladderwort	9	0	0
Utricularia intermedia	Flat-leaf bladderwort	9	0	0
Utricularia minor	Small bladderwort	10	0	0
Utricularia purpurea	Large purple bladderwort	9	0	0
Utricularia resupinata	Small purple bladderwort	9	0	0
Utricularia vulgaris	Common bladderwort	7	0	0
Vallisneria americana	Wild celery	6	1	6
Wolffia borealis	Northern watermeal	6	0	0
Wolffia columbiana	Common watermeal	5	0	0
Zannichellia palustris	Horned pondweed	7	0	0
Zizania aquatica	Southern wild rice	8	0	0
Zizania palustris	Northern wild rice	8	0	0
Zizania sp.	Wild rice	8	0	0

N	34	
mean C		6.74
FQI		39.3

CITATION: **Nichols, SA. 1999. Floristic Quality Assessment of Wisconsin Lake Plant Communities with Example Applications. Journal of Lake and Reservoir Management, 15(2):133-141.**

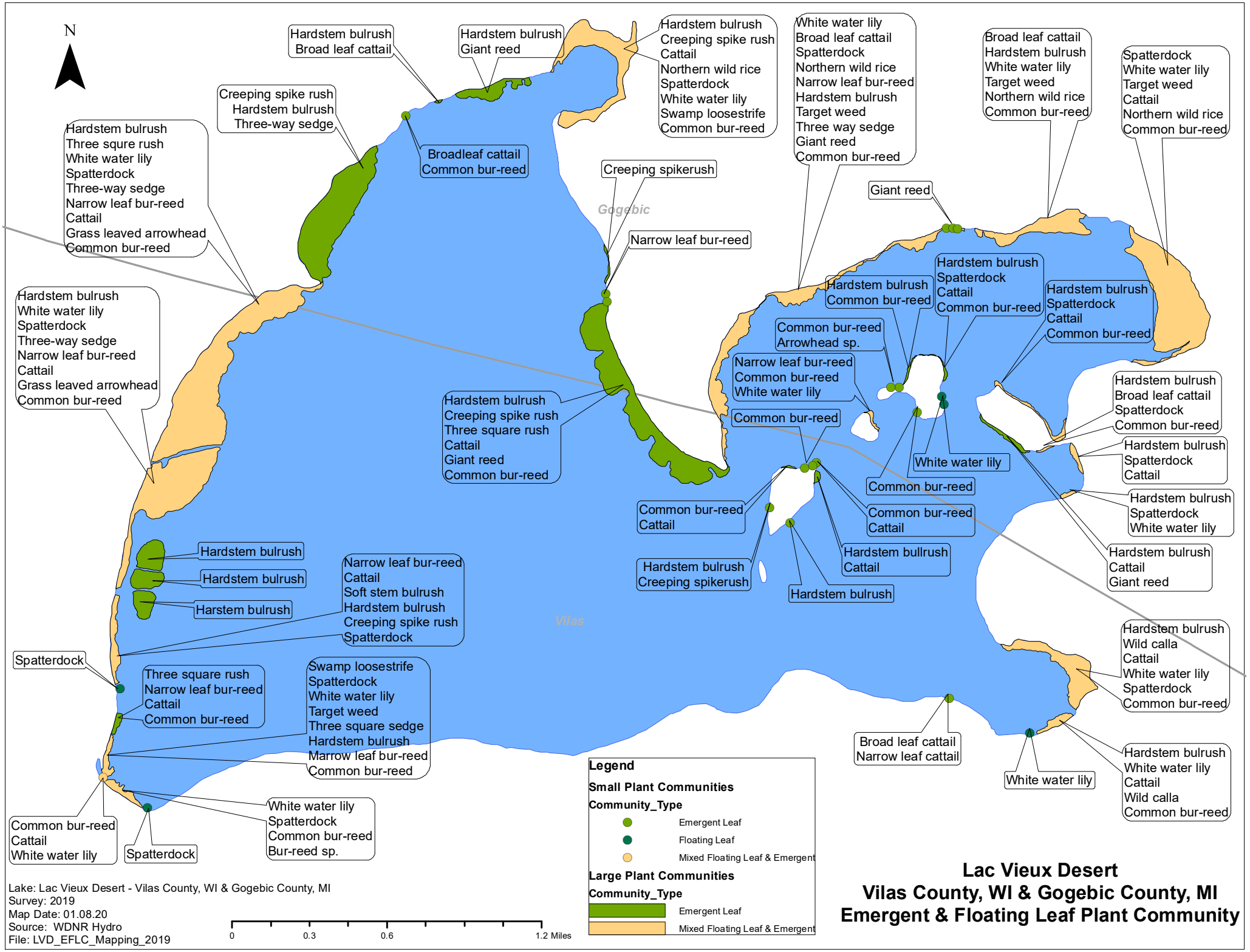
CITATION: **University of Wisconsin-Madison, 2001. Wisconsin Floristic Quality Assessment (WFQA). Retrived October 27, 2009 from: http://www.botany.wisc.edu/WFQA.asp**

Appendix B:

Emergent & Floating Leaf Plant Community Mapping (2019)

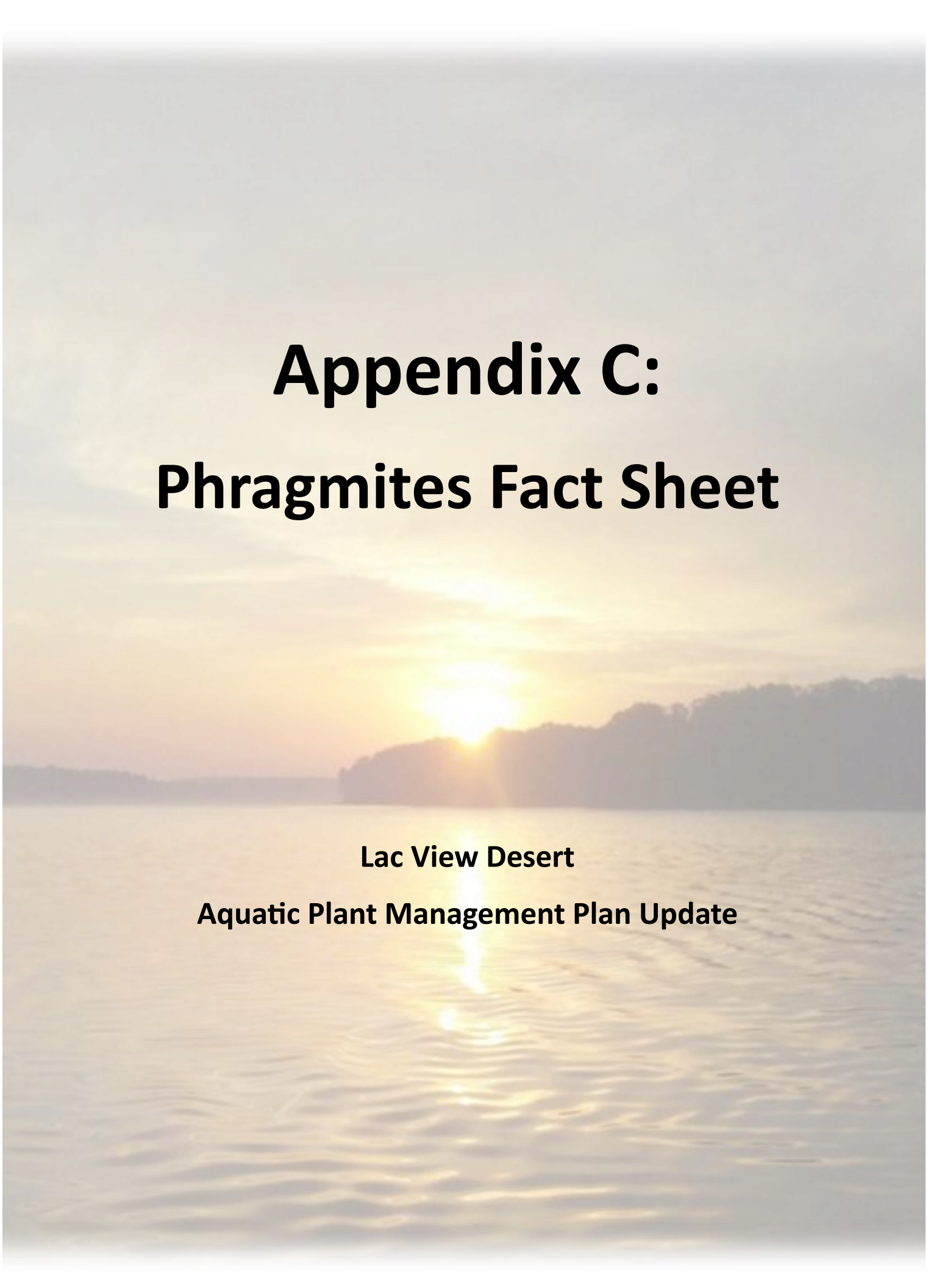
Lac View Desert

Aquatic Plant Management Plan Update



Lake: Lac Vieux Desert - Vilas County, WI & Gogebic County, MI
Survey: 2019
Map Date: 01.08.20
Source: WDNR Hydro
File: LVD_EFLC_Mapping_2019

Lac Vieux Desert
Vilas County, WI & Gogebic County, MI
Emergent & Floating Leaf Plant Community



Appendix C:

Phragmites Fact Sheet

Lac View Desert

Aquatic Plant Management Plan Update

PHRAGMITES: Questions and Answers

What is Phragmites?
(Phragmites australis)

Non-native Phragmites, also known as common reed, is a perennial, aggressive wetland grass that outcompetes native plants and displaces native animals. Because of its height and its distinctive, fluffy seedheads, Phragmites is easy to spot, even by traveling motorists.

Genetic studies have confirmed that there IS a native variety of Phragmites along the Eastern seaboard of the United States. Native Phragmites stands have been found in a few New England marshes. However, native Phragmites has always been a rare, non-invasive species that grows in mixed wetland plant communities.

Today, invasive Phragmites can be found across North America and dominates along the Atlantic coast where few native Phragmites populations remain. For specific information on distinguishing native from non-native Phragmites, **view the Powerpoint presentation at http://www.nps.gov/plants/alien/fact/pdf/phau1-powerpoint.pdf**

The rest of the information in this fact sheet refers specifically to non-native Phragmites.

How did Phragmites get here?

In the early 19th century, the non-native variety, most likely European in origin, appeared in coastal ports in the eastern United States. The rapid spread of Phragmites in the 20th century was probably related to the construction of railroads and major roadways, habitat disturbance, shoreline development, pollution and eutrophication.

For futher information, please contact:
U.S. Fish and Wildlife Service
Gulf of Maine Program
4R Fundy Road
Falmouth, Maine 04105
Phone: 207-781-8364
FAX:207-781-8369
e-mail:r5es_gomp@fws.gov
http://www.fws.gov/northeast/gulfofmaine

11/07

Why is Phragmites a problem?

Visual impacts: Phragmites can grow up to eighteen feet tall, obscuring views for landowners, nearby residents and visitors.

Recreational impacts:

Walking even a few feet into a stand of non-native Phragmites can be difficult because the growth can be exceptionally dense and tall, and the vegetation can cut your skin. Phragmites can also reduce native fish and wildlife populations, limiting recreational values for birdwatchers, walkers, naturalists, boaters and hunters.

Fire danger for nearby residents:

Phragmites grows rapidly, and each fall, plant material dies back, creating large concentrations of tinder-dry vegetation that increase the potential for fast-spreading fires that can threaten residential and commercial developments on surrounding uplands.

Biological impacts:

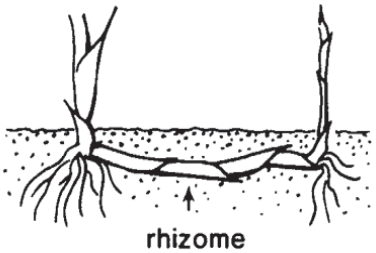
Phragmites outcompetes and blocks out native salt marsh vegetation and provides little or no food or shelter for most saltmarsh-dependent wildlife. Phragmites can also eliminate small intertidal channels and obliterate pool habitat that offers natural refuge and feeding grounds for invertebrates, fish and waterbirds. Phragmites can create a dense jungle of vegetation that native salt marsh birds, furbearing mammals and even deer cannot penetrate. In addition, decomposing Phragmites can raise the surface elevation of the marsh more rapidly than would occur with slower-growing native salt marsh vegetation. Higher elevations reduce saltwater flooding, depriving the marsh of vital nutrients and salinity needed by native salt marsh plants and animals. A higher and drier marsh leads to less vigorous growth of native salt marsh vegetation, allowing Phragmites to gain a stronger foothold and continue its spread over the marsh.

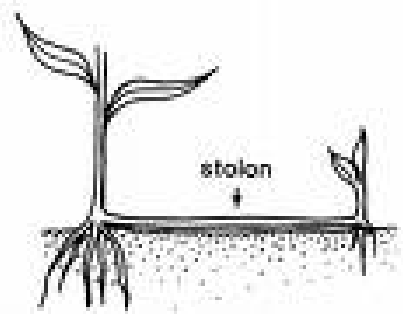
Where does Phragmites grow?

Phragmites grows readily in disturbed wetland areas, such as degraded salt and freshwater marshes and swamps, along streams, lakes, ponds and roadside ditches. Phragmites is usually an indicator of a wetland ecosystem that is out of balance. Undersized culverts, man-made ditches, remnant dikes, abandoned hay roads, transportation corridors and other large berms or fill on the marsh can alter the natural tidal regime and limit saltwater influence.

In addition, when commercial and residential landowners expand paved roadways and parking areas, establish large grass lawns, apply fertilizers, herbicides and pesticides, or destroy streamside buffers of native trees and shrubs, negative impacts can also be felt in downstream wetlands. Any of these seemingly small-scale individual management decisions by developers, landowners and recreational users throughout the watershed can cumulatively reduce tidal influence, increase runoff, reduce water quality and encourage the establishment and spread of Phragmites.

How does Phragmites spread?





Phragmites can be spread by wind or animal-born seeds, or by intentional introduction by people. Most commonly however, Phragmites spreads by horizontal above-ground stolons and underground rhizomes. (Stolons grow from an existing stem and are are thin, horizontal structures that grow above-ground, sprouting new plants. Rhizomes are underground horizontal stems that also send out roots and shoots to start new plants). Stolons can grow dozens of feet annually, and new plants can sprout at nodes located every few inches along the stolon. Rhizomes, which create thick underground mats, can expand at the rate of 30 feet per year, with new plants sprouting all along the rhizome. In addition, tidal ice can scour and move live rhizomes to establish new stands of Phragmites. Maintenance equipment used in a wetland with Phragmites must be carefully cleaned to avoid transporting Phragmites to new locations; it only takes a small piece of rhizome to start new plants. Phragmites has also been unintentionally introduced by people planting it as a garden ornamental, using it for floral displays, or camouflage for duck blinds. Even Phragmites that appears to be dead is likely to have viable seeds and rhizomes. Once well-established, Phragmites is difficult to control or eradicate.

Is there anything good about Phragmites?

Some birds, such as yellowthroat, marsh wren, salt marsh sparrow and least bittern roost in Phragmites. Red-winged blackbirds and some wading birds have been documented to nest in Phragmites. Other studies suggest that due to its high productivity, limited ability to export litter, and slow decay rates, Phragmites might offset problems that rapid sea level rise could pose to many coastal marshes.

How can we control the spread of Phragmites?

Landowners, locally-based conservation groups, and municipal, state and federal government staff can work in partnership to restore natural conditions by:

- removing undersized culverts and other tidal restrictions,
- breaching berms and old hay roads that cross wetlands,
- reducing the negative hydrological impacts of man-made drainage ditches,
- removing fill material dumped on wetlands,
- treating and removing Phragmites from wetlands, and
- helping people understand the importance of coastal wetland restoration activities, the negative impacts of invasive species, and the opportunities for individuals and communities to help limit the spread of Phragmites and other invasives.

Landowners can:

- eliminate or reduce fertilizer, herbicide and pesticide use,
- increase the width of riparain buffers by maintaining or planting native trees and shrubs,
- reduce pavement and lawn size,
- avoid planting Phragmites,
- avoid transporting Phragmites -- dead or alive, and
- educate friends and neighbors about best management practices in your watershed.

To control Phragmites, mowing or burning is generally unsuccessful, unless the work is repeated for multiple years. Physical removal of the entire plant, including the dense mat of underground rhizomes can also be tried, but it tends to be costly, the heavy machinery required to 'scalp' the marsh surface can have other negative impacts, and great care must be taken in disposing of the Phragmites to avoid introducing it elsewhere. Restoring full tidal flow to an impacted section of marsh may be effective in controlling Phragmites. However, once Phragmites is well established, it may be able to withstand restored high salinity levels. In addition, restoring full tidal flow can be impractical at locations where lowland development was allowed after tidal restrictions were installed. To-date, biological control has not proven to be successful, but continuing research into biological control agents holds promise for the future.

Careful and targeted application of specific herbicides by licensed applicators has proven relatively successful, especially when combined with other restoration techniques — restoring tidal flow, improving upland conditions to reduce negative marsh impacts, and mowing and mulching the dead Phragmites after herbicide application.

Tell me more about using herbicides to control Phragmites

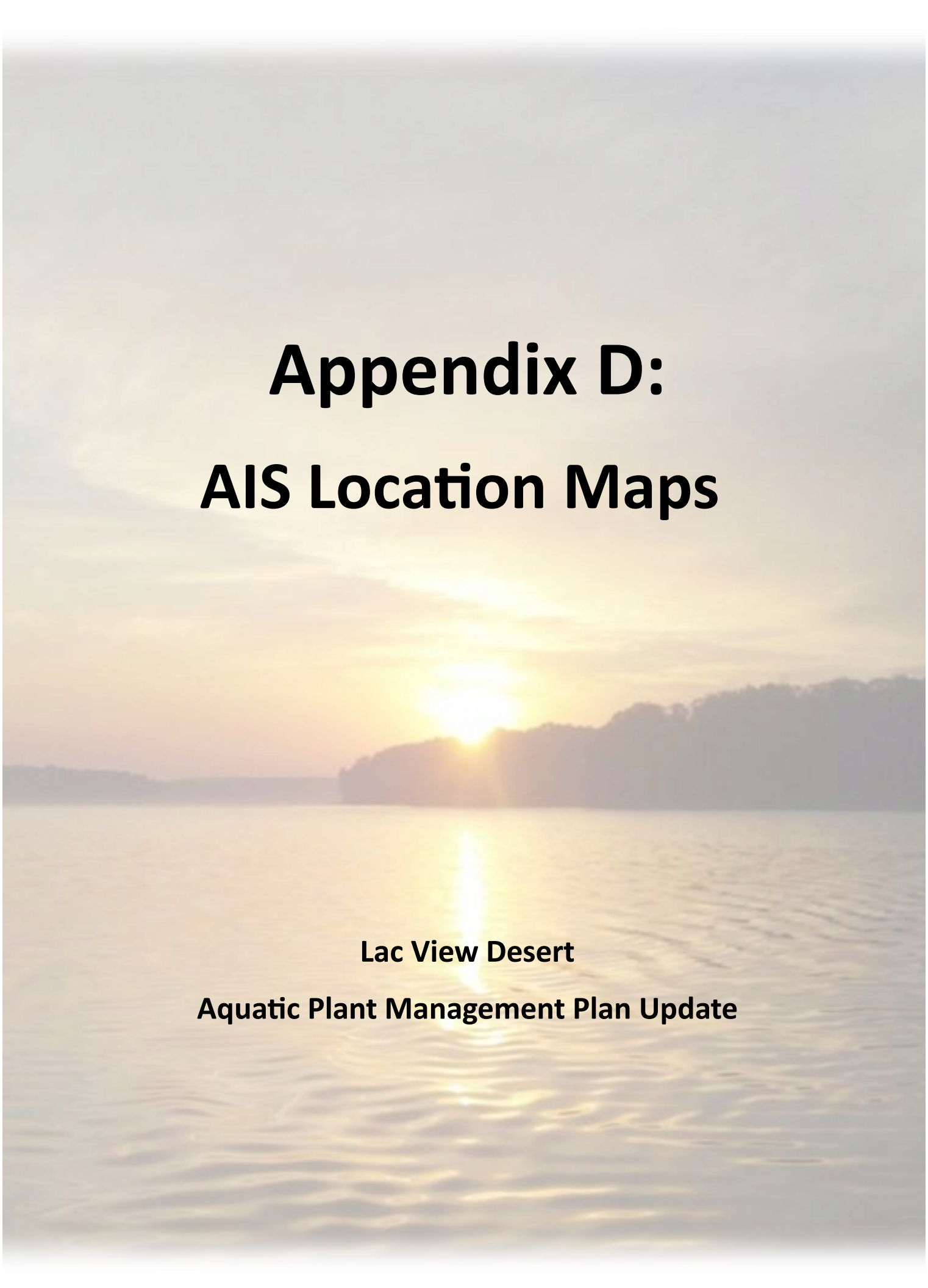
Licensed applicators apply approved herbicide directly to green Phragmites foliage, and the active ingredient moves through the plant tissues, where it kills Phragmites by de-activating a protein found only in plants. Treated plants will begin to yellow, turn brown and eventually die. The herbicide works by translocating the the toxin throughout the plant, particularly into the stolons and nutrient-rich rhizomes, where vegetative reproductive capacity is stored. In most instances, a repeat application or two is needed to ensure that nearly all of the Phragmites is treated and killed. Herbidice application is generally most effective when combined with other control strategies that target landscape issues that caused the Phragmites to invade in the first place.

Herbicides used to treat Phramites specifically target plants. Applicators must therefore be careful to spray only Phragmites, because the herbicide can kill all green plants. The effects of the herbicides on birds, fish, mammals and invertebrates have been found to be minimal. Moreover, the herbicide has low run-off potential because it quickly breaks down into non-toxic compounds that are absorbed onto soil particles and microorganisms in both water and sediment. Therefore, the Environmental Protection Agency has approved application of specific herbicides by licensed applicators to control Phragmites on sensitive aquatic sites.

How can I learn more about Phragmites?

Visit the following website for many links to additional information on Phragmites:

http://www.invasiveplants.net/phragmites/Default.htm

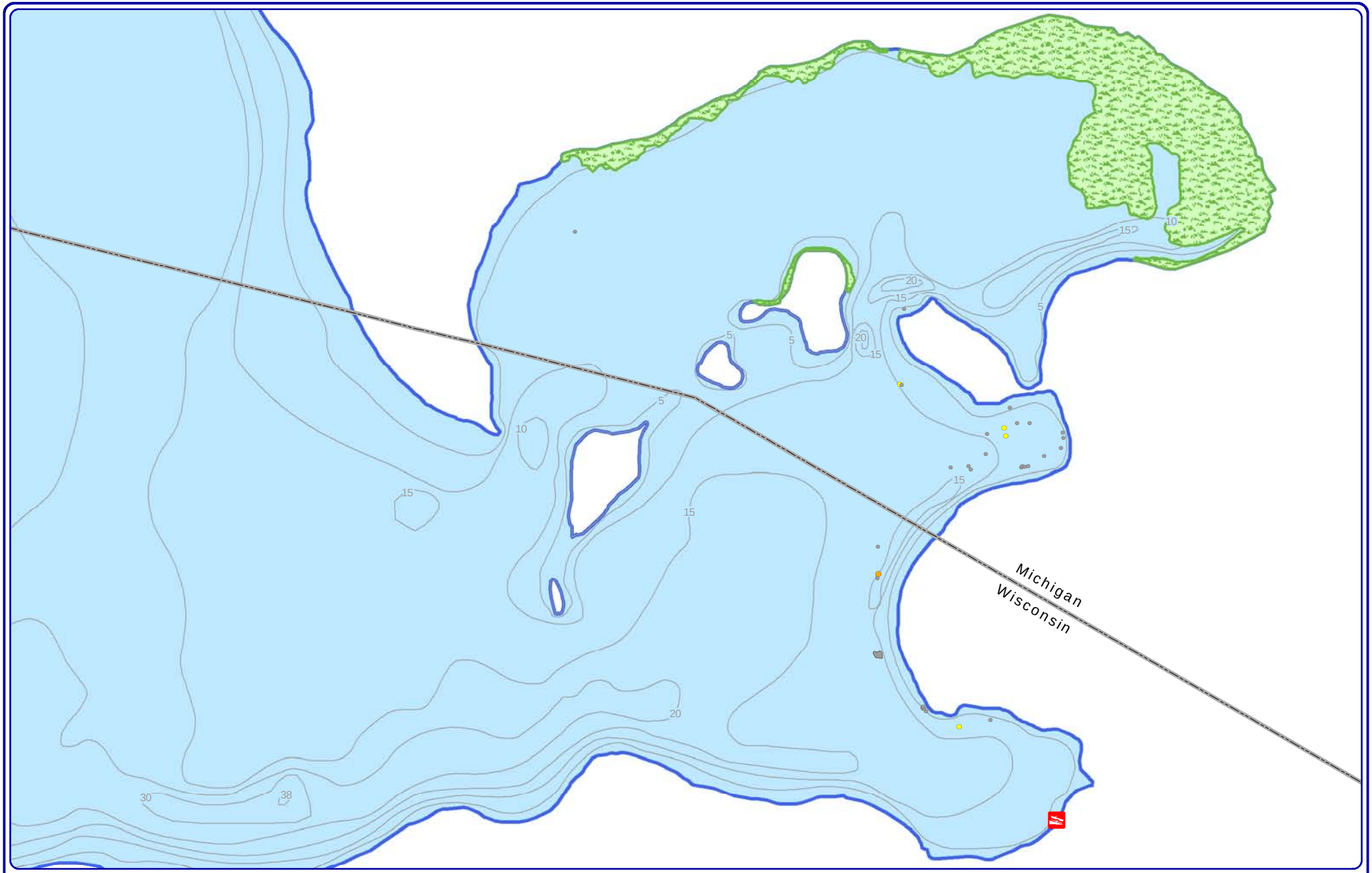


Appendix D:

AIS Location Maps

Lac View Desert

Aquatic Plant Management Plan Update

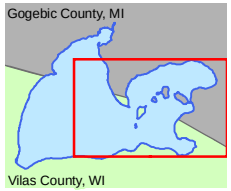


N
W E
S

1,700
Feet

Onterra LLC
Lake Management Planning
815 Prosper Road
De Pere, WI 54115
920.338.8860
www.onterra-eco.com

Sources:
Roads and Hydro: WDNR
EWM Survey: Onterra, 2012
Emergent Plants: Onterra, 2009
Bathymetry: WDNR - Digitized by Onterra
Map Date: October 31, 2012



Extent of large map shown in red.

Legend

EWM (October 2012)

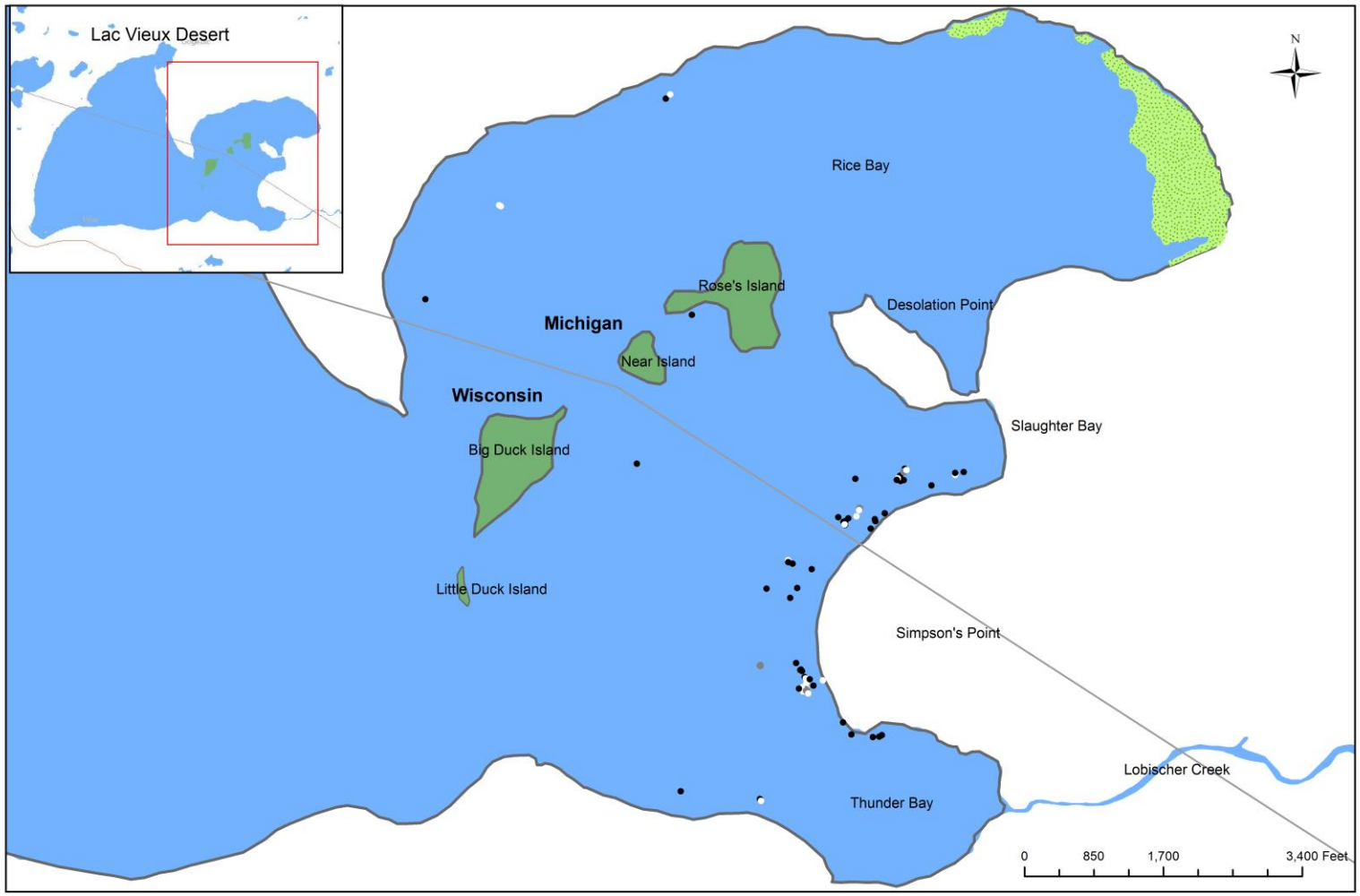
- Highly Scattered (None)
- Scattered
- Dominant (None)
- Highly Dominant (None)
- Surface Matting (None)
- Single or Few Plants
- Clumps of Plants
- Small Plant Colony
- Emergent Plant Community Containing Wild Rice
- Public Access

Lac Vieux Desert

Vilas County, Wisconsin
& Gogebic County, Michigan

October 2012 EWM Survey Results

2013 EWM Locations - Lac Vieux Desert (Vilas County, WI & Gogebic County, MI)



Many Waters

Created By: Many Waters, LLC, Iron River, MI

Lake: Lac Vieux Desert, Gogebic Co, MI & Vilas Co, WI

Survey Date: October 14th 2013

Source: MiGDL Lake_polygons_200403, WDNR_Hydro_shapefiles

ESRI USA Base Maps, manoomin_lvd (GLIFWC)

Density Ranking
1 Plant
2 to 8 Plants
10 to 20 Plants

○ EWM

Wild Rice (2012 GLIFWC Mapping)

Over View
Post Hand Removal Evaluation

EWM Density

- Very Sparse
- Sparse
- Moderate
- Moderate-Dense
- Dense (none)

Wild Rice (2013)

Lake: Lac Vieux Desert – Vilas Co., WI & Gogebic Co., MI
Map Date & Creator: 2.6.2015, Many Waters, LLC
Source: MiGDL Lake_polygon_200403, WI Hydro, ESRI base maps, GLIFWC manoomin_lvd_wgs84, MiGDL allroads_miv13a
File: LVD_2014_EW_MS_Mapping

Lac Vieux Desert
2014 End of the Year EWM Locations Overview

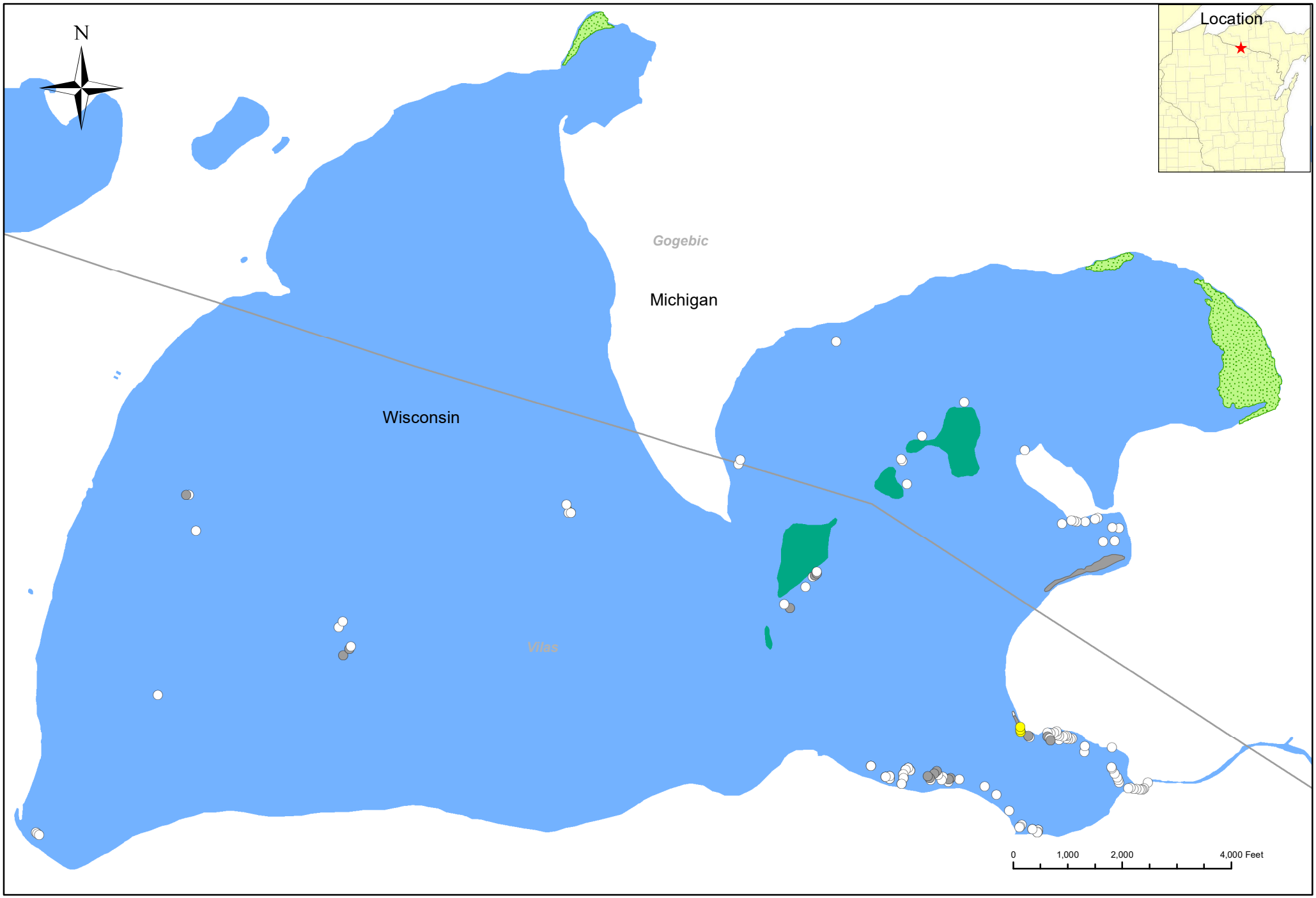
Lake: Lac Vieux Desert - Vilas Co, WI & Gogebic Co, MI
Map Date & Creator: 4.25.2015, Many Waters, LLC
Source: MiGDLake_polygons_200403, WI Hydro
File: LVD_2014_ES_MS_Mapping

EWM Relative Abundance

- Very Sparse
- Sparse
- Moderate
- Moderate-Dense
- Dense

Wild Rice (2013)

Lac Vieux Desert
2015 Post Management Assessment Overview



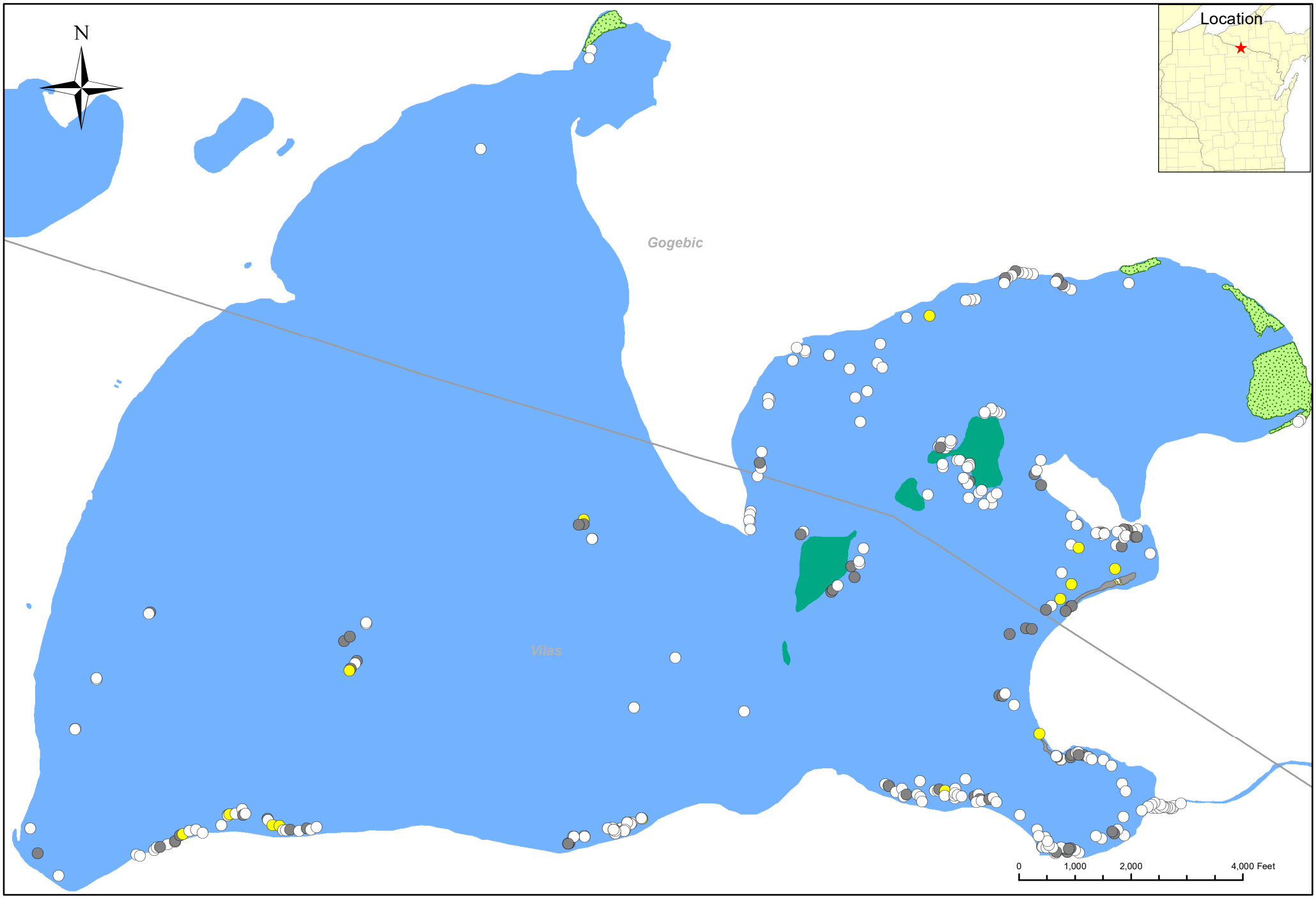
EWM Relative Abundance

- Very Sparse
- Sparse
- Moderate
- Moderate-Dense
- Dense

Wild Rice (2013)

Lake: Lac Vieux Desert - Vilas Co, WI & Gogebic Co, MI
Map Date & Creator: 3.30.2017, Many Waters, LLC
Source: MiGDLake_polygons_200403, WI Hydro
File: LVD_2016_ES_MLSS_EOY

Lac Vieux Desert 2016 EWM Locations End of the Year OverView



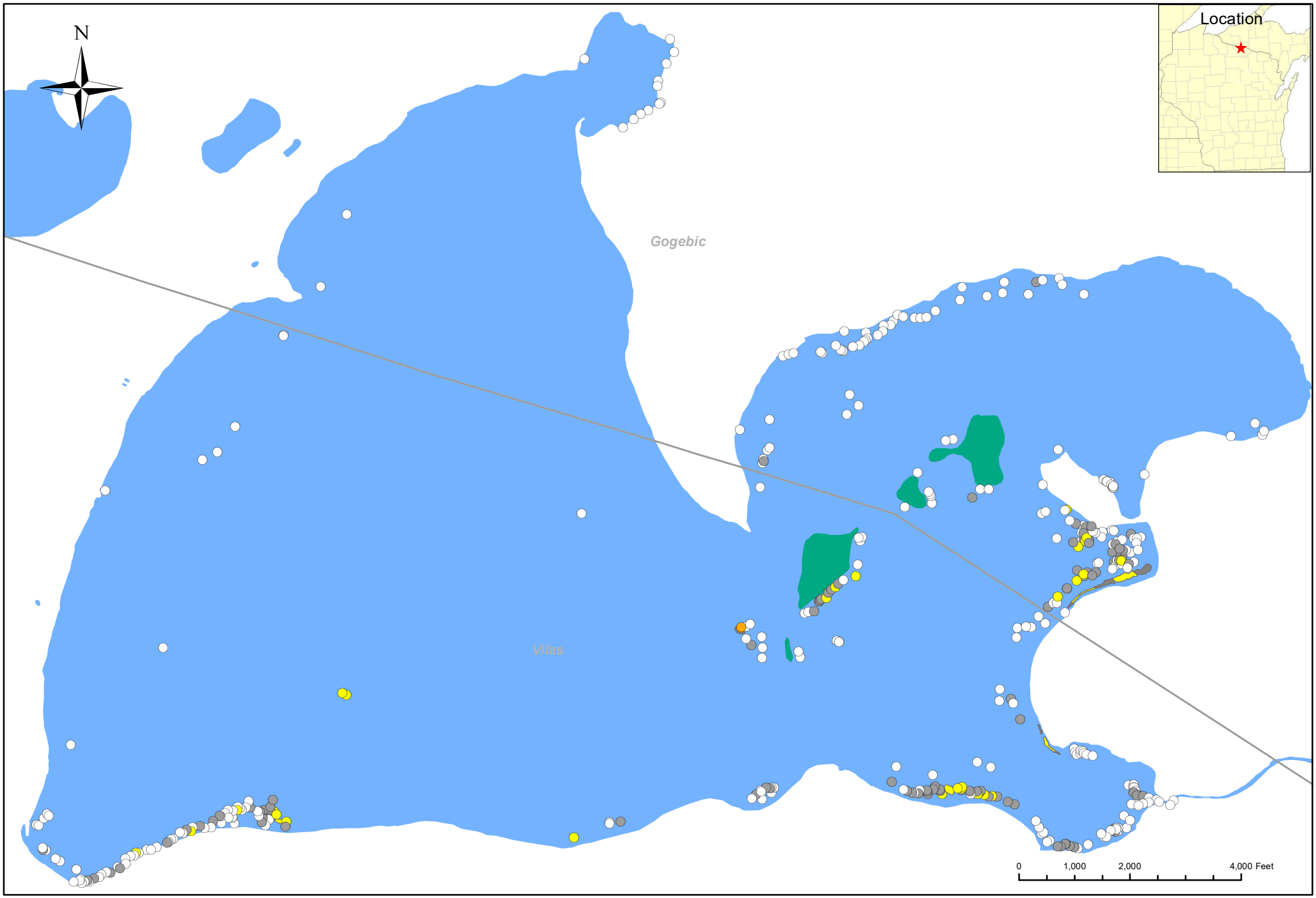
Lake: Lac Vieux Desert - Vilas Co, WI & Gogebic Co, MI
Map Date & Creator: 4.24.2018, Many Waters, LLC
Source: MiGDLake_polygons_200403,
WI Hydro, EWM Many Waters & GLIFWC,
ManoominBeds - GLIFWC
File: LVD_2017_ES_MLSS_EOY

EWM Density

- Very Sparse
- Sparse
- Moderate (none)
- Moderate-Dense (none)
- Dense (none)

Wild Rice
(2017-GLIFWC)

Lac Vieux Desert
Vilas County, WI & Gogebic County, MI
2017 End of the Year EWM Locations

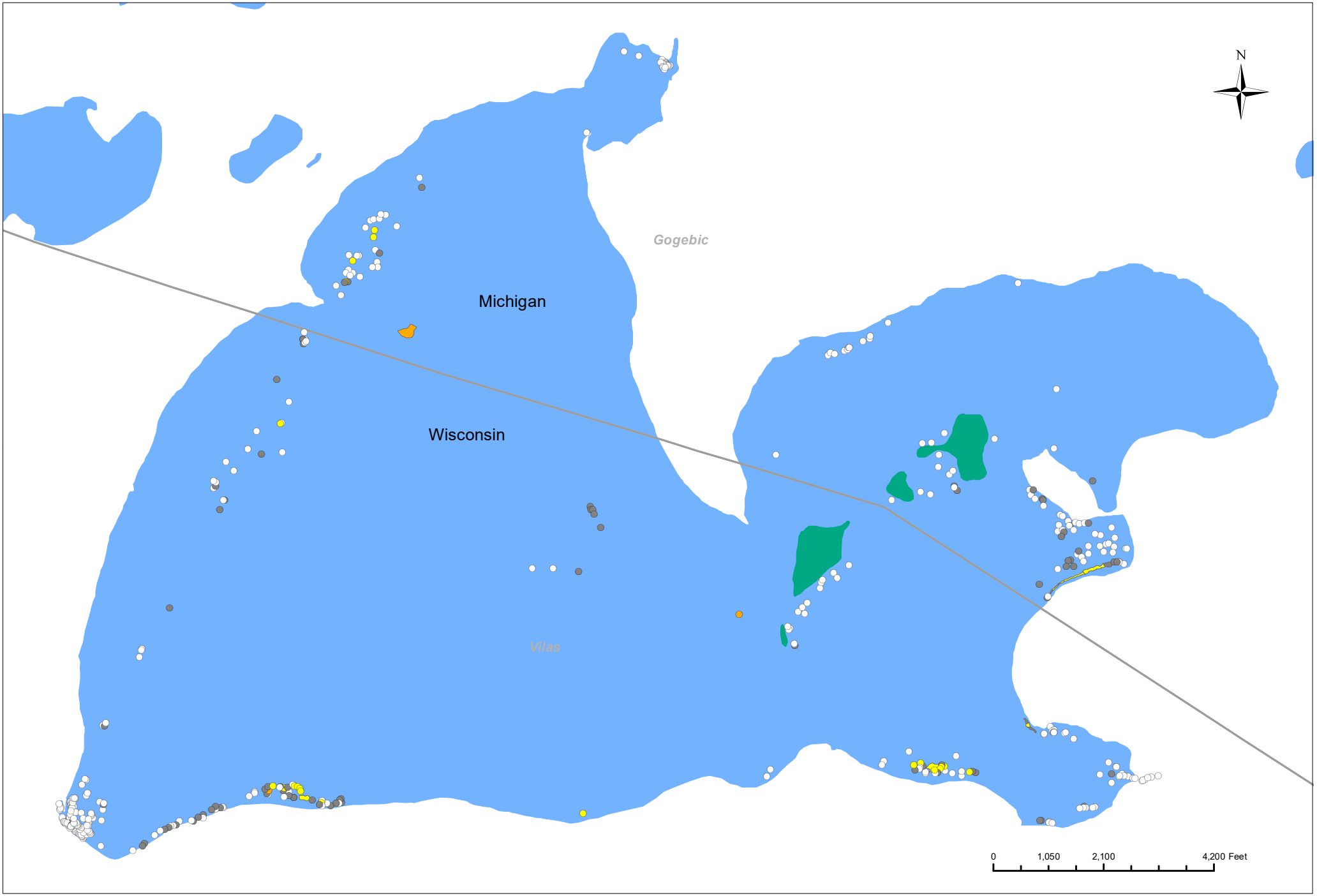


Lake: Lac Vieux Desert - Vilas Co, WI & Gogebic Co, MI
Map Date & Creator: 1.8.2019, Many Waters, LLC
Source: MiGDLake_polygons_200403,
WI Hydro, EWM Many Waters
File: LVD_2018_EOY

EWM Relative Abundance

- Very Sparse
- Sparse
- Moderate
- Moderate-Dense
- Dense

Lac Vieux Desert
Vilas County, WI & Gogebic County, MI
End of the Year EWM Locations
2018

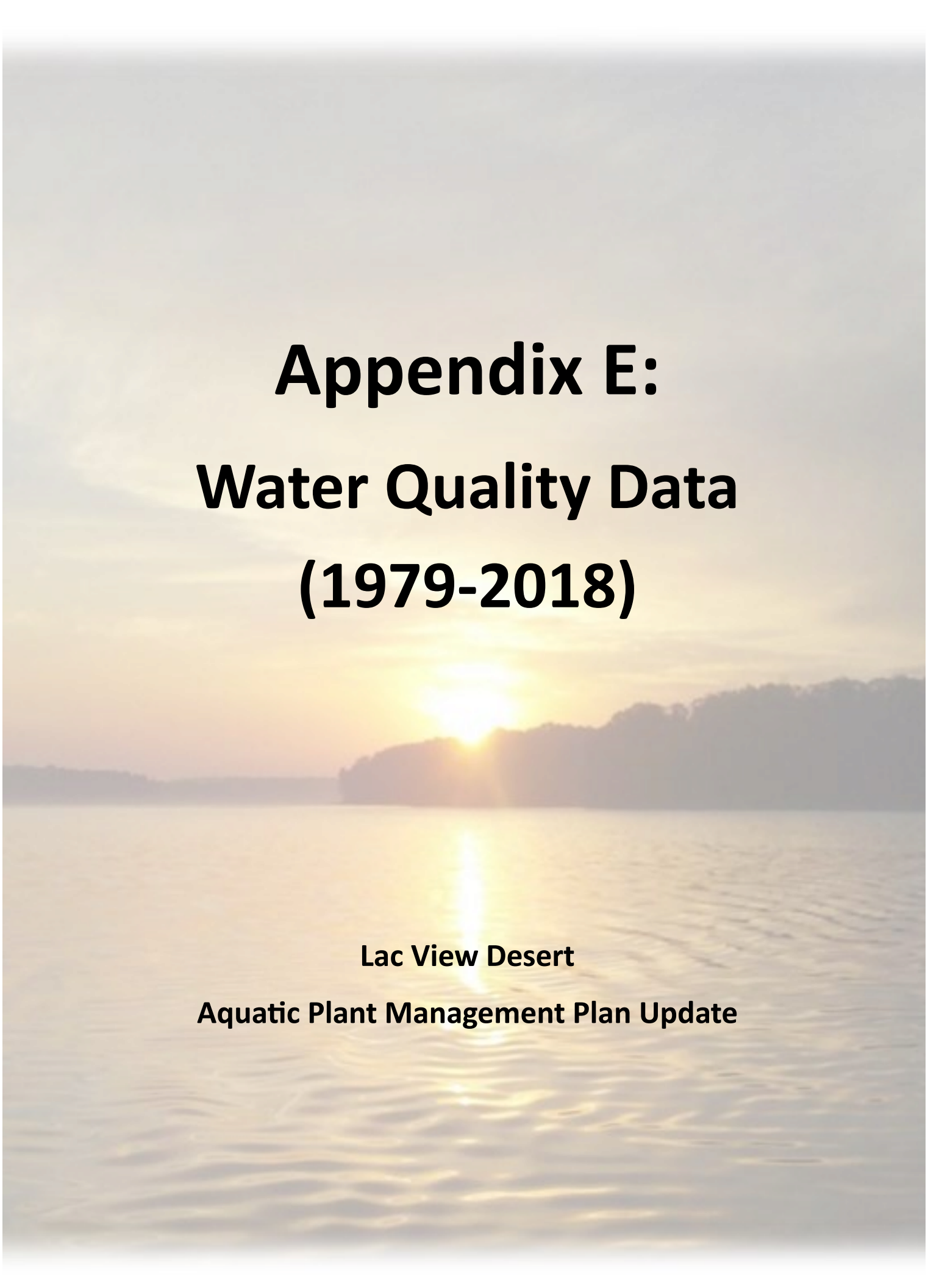


EWM Relative Abundance

- Very Sparse
- Sparse
- Moderate
- Moderate-Dense
- Dense

Lake: Lac Vieux Desert - Vilas, Co, WI & Gogebic Co, MI
Map Date & Creator: 12.17.19 Many Waters, LLC
Source: MiGDLake_polygons_200403, WI Hydro
Survey: 2019 EWM
File: LVD_AIS_2019

Lac Vieux Desert
Vilas County, WI & Gogebic County, MI
2019 EWM Survey



Appendix E:

Water Quality Data (1979-2018)

Lac View Desert

Aquatic Plant Management Plan Update

WDNR Group Seq No	Start Date	Total Phosphorus(ug/l)	Total Phosphorus TSI	Data Source
	3/20/1996	30		1998 USGS Report 98-4051
	10/8/1996	<10		1998 USGS Report 98-4051
1	6/6/2000	18	51	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
1	7/7/2000	28	54	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
1	8/2/2000	30	54	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
1	10/10/2000	30	54	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7000068	6/5/2001	36	56	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7000068	7/2/2001	26	53	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7000068	8/14/2001	44	57	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7000068	10/11/2001	46	58	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
	5/15/2002	35		SIR2005-5237 Site 5A (near deep hole-sample taken 22ft, unfiltered P result)
7000068	6/12/2002	19	51	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7000068	7/16/2002	22	52	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7000068	8/18/2002	45	58	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
	9/25/2002	44		SIR2005-5237 Site 5A (near deep hole-sample taken 19ft, unfiltered P result)
7000068	10/16/2002	37	56	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
	5/15/2003	38		SIR2005-5237 Site 5A (near deep hole-sample taken 19ft, unfiltered P result)
	9/9/2003	46		SIR2005-5237 Site 5A (near deep hole-sample taken 20ft, unfiltered P result)
	5/11/2004	22		SIR2005-5237 Site 5A (near deep hole-sample taken 20ft, unfiltered P result)
	8/3/2004	31		SIR2005-5237 Site 5A (near deep hole,unfiltered P result)
16073539	4/23/2009	26	53	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
1	6/24/2009	23	52	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
16073539	7/21/2009	27	54	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
1	8/25/2009	30	54	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
16073539	10/15/2009	22	52	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
16073539	2/23/2010	14	49	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
43061320	6/21/2010	19	51	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
43061320	7/12/2010	18	51	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
43061320	8/9/2010	28	54	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
43061320	11/1/2010	31	55	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
43061320	6/7/2011	34	55	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
43061320	7/12/2011	22	52	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
43061320	8/8/2011	37	56	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
43061320	10/18/2011	47	58	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
58058836	6/13/2012	25	53	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
58058836	7/2/2012	25	53	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
58058836	8/2/2012	29	54	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
58058836	10/24/2012	24	53	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
89214715	6/25/2014	21	52	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
89214715	6/28/2016	27.3	54	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
	5/18/2018	32.8		https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
	7/19/2018	30.3		https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
	8/29/2018	34.6		https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
	9/13/2018	29		https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217

Total Phosphorous Seasonal Ave. (July 15th-Sept 15th)	Year	Notes
40.8	1979	Estimated from 2012 LVD Lake Management Plan
40	1980	Estimated from 2012 LVD Lake Management Plan
17	1981	Estimated from 2012 LVD Lake Management Plan
37	1983	Estimated from 2012 LVD Lake Management Plan

30	2000	One sample within data range (July 15th-Sept 15th)
44	2001	One sample within data range (July 15th-Sept 15th)
33.5	2002	Two samples within data range (July 15th-Sept 15th)
46	2003	One sample within data range (July 15th-Sept 15th)
31	2004	One sample within data range (July 15th-Sept 15th)
28.5	2009	Two samples within data range (July 15th-Sept 15th)
28	2010	One sample within data range (July 15th-Sept 15th)
37	2011	One sample within data range (July 15th-Sept 15th)
29	2012	One sample within data range (July 15th-Sept 15th)
31.3	2018	Three samples within data range (July 15th-Sept 15th)

WDNR Group Seq No	Start Date	Chlorophyll a (ug/l)	Chlorophyll a TSI	Data Source
1	6/6/2000	1	35	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
1	7/7/2000	5	47	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
1	8/2/2000	4	45	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
1	10/10/2000	7	50	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7000068	6/5/2001	4	45	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7000068	7/2/2001	6.3	49	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7000068	8/14/2001	7.2	50	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7000068	10/11/2001	12	54	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
	5/15/2002	10.7		SIR2005-5237 Site 5A (near deep hole-sample depth 22ft)
7000068	6/12/2002	3.89	45	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7000068	7/16/2002	4.59	46	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7000068	8/18/2002	15.9	56	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
	9/25/2002	8.9		SIR2005-5237 Site 5A (near deep hole-sample depth 19ft)
7000068	10/16/2002	14.9	55	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
	5/15/2003	5.9		SIR2005-5237 Site 5A (near deep hole-sample depth 19ft)
	9/9/2003	5.9		SIR2005-5237 Site 5A (near deep hole-sample depth 20ft)
	5/11/2004	8.2		SIR2005-5237 Site 5A (near deep hole)
16073539	4/23/2009	8.06	51	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
1	6/24/2009	3.05	43	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
16073539	7/21/2009	4.44	46	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
1	8/25/2009	3.19	44	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
16073539	10/15/2009	3.5	44	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
43061320	6/21/2010	2.83	43	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
43061320	7/12/2010	2.5	42	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
43061320	8/9/2010	11.2	53	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
43061320	11/1/2010	17.3	56	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
43061320	6/7/2011	1.97	40	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
43061320	7/12/2011	5.58	48	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
43061320	8/8/2011	9	51	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
43061320	10/18/2011	19.2	57	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
58058836	6/13/2012	6.72	49	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
58058836	7/2/2012	6.56	49	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
58058836	8/2/2012	8.58	51	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
58058836	10/24/2012	6.3	49	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
89214715	6/25/2014	4.47	46	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
89214715	6/28/2016	8.51	51	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
	7/19/2018	2.96		2018 WSLH Sample: 395727001
	8/29/2018	10.4		2018 WSLH Sample: 404345001
	9/13/2018	10.3		2018 WSLH Sample: 407639001

Chl a (ug/l) Seasonal Ave. (July 15th-Sept 15th)	Year	Notes
13.50	1979	Estimated from 2012 LVD Lake Management Plan
4.00	2000	One sample within data range (July 15th-Sept 15th)
7.20	2001	One sample within data range (July 15th-Sept 15th)
10.25	2002	Two samples within data range (July 15th-Sept 15th)
5.90	2003	One sample within data range (July 15th-Sept 15th)
3.82	2009	Two samples within data range (July 15th-Sept 15th)
11.20	2010	One sample within data range (July 15th-Sept 15th)
9.00	2011	One sample within data range (July 15th-Sept 15th)
8.58	2012	One sample within data range (July 15th-Sept 15th)
7.89	2018	Three samples within data range (July 15th-Sept 15th)

Start Date	Secchi (Ft)	Secchi (Meters)	Source Aquired
6/13/1993	11	3.3	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/21/1993	9	2.7	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/28/1993	9.5	2.9	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/8/1993	9.5	2.9	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/16/1993	6.25	1.9	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/28/1993	7	2.1	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
8/7/1993	5.5	1.7	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
8/11/1993	5	1.5	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
8/28/1993	5.0	1.5	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
9/2/1993	4.8	1.4	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
9/6/1993	4.0	1.2	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
9/8/1993	4.0	1.2	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
9/15/1993	4.0	1.2	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/6/2000	12.1	3.7	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/7/2000	9.2	2.8	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
8/2/2000	7.5	2.3	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
10/10/2000	5.2	1.6	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/5/2001	11.8	3.6	WVIC P-2113_Wqreport_TSI_2001
7/2/2001	5.6	1.7	WVIC P-2113_Wqreport_TSI_2001
8/14/2001	3.6	1.1	WVIC P-2113_Wqreport_TSI_2001
10/11/2001	3.6	1.1	WVIC P-2113_Wqreport_TSI_2001
5/15/2002	4.4	4.3	SIR2005-5237 Site5A (deep hole area)
6/12/2002	11.5	3.5	WVIC P-2113_Wqreport_TSI_2002
7/16/2002	7.5	2.3	WVIC P-2113_Wqreport_TSI_2002
8/18/2002	3.6	1.1	WVIC P-2113_Wqreport_TSI_2002
9/25/2002	4.4	1.3	SIR2005-5237 Site5A (deep hole area)
10/16/2002	5.2	1.6	WVIC P-2113_Wqreport_TSI_2002
5/15/2003	4.5	1.4	SIR2005-5237 Site5A (deep hole area)
9/9/2003	4.0	1.2	SIR2005-5237 Site5A (deep hole area)
5/11/2004	6.5	2	SIR2005-5237 Site5A (deep hole area)
8/3/2004	7.0	2.1	SIR2005-5237 Site5A (deep hole area)
4/23/2009	9.1	2.8	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/24/2009	10.6	3.2	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/21/2009	6.8	2.1	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
8/25/2009	9.0	2.7	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
10/15/2009	9.7	2.9	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
2/23/2010	6.9	2.1	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/21/2010	11.8	3.6	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2010	12.5	3.8	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
8/9/2010	7.5	2.3	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
11/1/2010	6.6	2.0	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/7/2011	8.9	2.7	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2011	9.5	2.9	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
8/8/2011	6.6	2.0	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217

10/18/2011	6.2	1.9	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/13/2012	8.2	2.5	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/2/2012	7.2	2.2	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
8/2/2012	7.2	2.2	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
10/24/2012	10.8	3.3	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
5/18/2018	6.0	1.8	2018 WQ Monitoring - AIS Planning Project
7/19/2018	7.1	2.2	2018 WQ Monitoring - AIS Planning Project
8/29/2018	6.3	1.9	2018 WQ Monitoring - AIS Planning Project
9/13/2018	6.8	2.1	2018 WQ Monitoring - AIS Planning Project

Secchi (ft) Seasonal Ave. (July 15th-Sept 15th)	**Year**	**Notes**
5.1	1979	Estimated from 2012 LVD Lake Management Plan
4.9	1980	Estimated from 2012 LVD Lake Management Plan
7.5	1981	Estimated from 2012 LVD Lake Management Plan
5.75	1983	Estimated from 2012 LVD Lake Management Plan
5.1	1993	Nine samples within data range (July 15th-Sept 15th)
7.5	2000	One sample within data range (July 15th-Sept 15th)
3.6	2001	One sample within data range (July 15th-Sept 15th)
5.6	2002	Two samples within data range (July 15th-Sept 15th)
4	2003	One sample within data range (July 15th-Sept 15th)
7	2004	One sample within data range (July 15th-Sept 15th)
7.9	2009	Two samples within data range (July 15th-Sept 15th)
7.5	2010	One sample within data range (July 15th-Sept 15th)
6.6	2011	One sample within data range (July 15th-Sept 15th)
7.2	2012	One sample within data range (July 15th-Sept 15th)
6.7	2018	Three samples within data range (July 15th-Sept 15th)

Start Date	Depth	Depth Units	Temperature	Temperature Units	Dissolved Oxygen	Dissolved Oxygen Units	Data Source
4/23/2009			3.6	C	11.8	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/24/2009			14.7	C	5.4	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/21/2009			17.0	C	8.9	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
8/25/2009			18.0	C	7.6	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
10/15/2009			5.7	C	11.1	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
2/23/2010			0.7	C	0.2	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/21/2010	1.0	METERS	21.1	DEGREES C	10.1	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/21/2010	2.0	METERS	19.5	DEGREES C	9.9	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/21/2010	3.0	METERS	18.9	DEGREES C	8.7	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/21/2010	4.0	METERS	18.3	DEGREES C	8.4	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/21/2010	5.0	METERS	18.1	DEGREES C	7.8	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/21/2010	6.0	METERS	17.8	DEGREES C	7.1	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/21/2010	7.0	METERS	17.5	DEGREES C	7.2	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/21/2010	8.0	METERS	17.3	DEGREES C	6.9	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/21/2010	9.0	METERS	17.2	DEGREES C	6.7	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/21/2010	10.0	METERS	17.0	DEGREES C	6.3	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/21/2010	10.6	METERS	16.8	DEGREES C	5.4	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/21/2010	11.1	METERS	16.5	DEGREES C	0.2	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/21/2010	11.5	METERS	16.6	DEGREES C	0.2	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/21/2010			19.3	C	9.7	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2010	1.0	METERS	23.8	DEGREES C	8.5	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2010	2.0	METERS	23.8	DEGREES C	8.4	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2010	3.0	METERS	23.6	DEGREES C	8.5	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2010	4.0	METERS	23.3	DEGREES C	8.3	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2010	5.0	METERS	22.7	DEGREES C	6.8	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2010	6.0	METERS	21.1	DEGREES C	3.8	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2010	7.0	METERS	20.6	DEGREES C	3.6	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2010	8.0	METERS	20.1	DEGREES C	3.1	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2010	9.0	METERS	18.5	DEGREES C	2.2	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2010	10.0	METERS	16.6	DEGREES C	1	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2010	11.1	METERS	15.9	DEGREES C	0.1	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2010	11.6	METERS	15.6	DEGREES C	0.1	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2010	12.0	METERS	15.5	DEGREES C	0.2	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2010			23.8	C	8.5	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
8/9/2010	1.0	METERS	23.4	DEGREES C	9.1	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
8/9/2010	2.0	METERS	23.1	DEGREES C	9.1	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
8/9/2010	3.0	METERS	22.6	DEGREES C	8	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
8/9/2010	4.0	METERS	22.3	DEGREES C	6.4	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
8/9/2010	5.0	METERS	22.2	DEGREES C	6.3	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
8/9/2010	6.0	METERS	22.2	DEGREES C	6.2	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
8/9/2010	7.0	METERS	22.1	DEGREES C	6.1	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
8/9/2010	8.0	METERS	22.1	DEGREES C	5.8	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
8/9/2010	9.0	METERS	22.0	DEGREES C	5.7	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
8/9/2010	10.0	METERS	22.0	DEGREES C	5.5	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
8/9/2010	11.3	METERS	21.9	DEGREES C	5.2	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
8/9/2010	11.8	METERS	21.9	DEGREES C	4.8	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
8/9/2010	12.2	METERS	21.8	DEGREES C	0.2	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
8/9/2010			23.1	C	9	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
11/1/2010	1.0	METERS	5.6	DEGREES C	11.9	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
11/1/2010	2.0	METERS	5.5	DEGREES C	11.9	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
11/1/2010	3.0	METERS	5.5	DEGREES C	11.8	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
11/1/2010	4.0	METERS	5.5	DEGREES C	11.8	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
11/1/2010	5.0	METERS	5.5	DEGREES C	11.7	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
11/1/2010	6.0	METERS	5.5	DEGREES C	11.7	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
11/1/2010	7.0	METERS	5.5	DEGREES C	11.6	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
11/1/2010	8.0	METERS	5.5	DEGREES C	11.5	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
11/1/2010	9.0	METERS	5.4	DEGREES C	11.4	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
11/1/2010	10.0	METERS	5.4	DEGREES C	11.3	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
11/1/2010	11.3	METERS	5.4	DEGREES C	11	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
11/1/2010	11.8	METERS	5.4	DEGREES C	10.4	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
11/1/2010	12.2	METERS	5.9	DEGREES C	0.8	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
11/1/2010			5.5	C	11.9	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/7/2011	1.0	METERS	21.2	DEGREES C	9.2	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/7/2011	2.0	METERS	18.6	DEGREES C	9.4	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/7/2011	3.0	METERS	18.0	DEGREES C	9	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/7/2011	4.0	METERS	17.5	DEGREES C	8	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/7/2011	5.0	METERS	17.2	DEGREES C	7.4	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/7/2011	6.0	METERS	17.2	DEGREES C	7.2	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/7/2011	7.0	METERS	17.2	DEGREES C	7.2	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/7/2011	8.0	METERS	17.2	DEGREES C	7.1	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/7/2011	9.0	METERS	17.2	DEGREES C	6.8	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/7/2011	9.7	METERS	17.1	DEGREES C	0.5	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/7/2011	10.3	METERS	17.0	DEGREES C	0.5	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/7/2011	10.6	METERS	16.7	DEGREES C	0.5	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/7/2011			18.6	C	9.4	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2011	1.0	METERS	24.1	DEGREES C	8.5	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2011	2.0	METERS	24.0	DEGREES C	8.4	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2011	3.0	METERS	23.6	DEGREES C	7.7	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217

7/12/2011	4.0	METERS	23.4	DEGREES C	7.9	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2011	5.0	METERS	23.1	DEGREES C	7.6	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2011	6.0	METERS	19.3	DEGREES C	2.3	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2011	7.0	METERS	18.8	DEGREES C	1.8	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2011	8.0	METERS	18.6	DEGREES C	1.7	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2011	9.0	METERS	18.3	DEGREES C	1.7	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2011	10.0	METERS	18.2	DEGREES C	1.5	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2011	11.0	METERS	18.1	DEGREES C	1.5	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2011	11.5	METERS	18.1	DEGREES C	1.5	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2011	12.0	METERS	18.0	DEGREES C	1.4	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2011	12.4	METERS	18.0	DEGREES C	1.2	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/12/2011			24.1	C	8.5	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
8/8/2011			24.2	C	9.3	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
10/18/2011			8.8	C	10.2	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
6/13/2012			19.8	C	8.3	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
7/2/2012			23.6	C	8.7	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
8/2/2012			24.6	C	8.3	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217
10/24/2012			9.0	C	10.6	MG/L	https://dnr.wi.gov/lakes/waterquality/Station.aspx?id=217

Start Date	Group Name	Project Name	Fieldwork Comments
6/13/1993	Dan Kretz	Citizen Lake Monitoring - Water Quality - Lac Vieux Desert - Max Depth	Mostly sunny- surface water temp 63- flat calm day
6/21/1993	Dan Kretz	Citizen Lake Monitoring - Water Quality - Lac Vieux Desert - Max Depth	Sunny- air temp 80- W wind 5 mph- bloom in water today
6/28/1993	Dan Kretz	Citizen Lake Monitoring - Water Quality - Lac Vieux Desert - Max Depth	Weed bloom in water- mostly sunny- calm water- 3 days of strong W winds.
7/8/1993	Dan Kretz	Citizen Lake Monitoring - Water Quality - Lac Vieux Desert - Max Depth	Partly sunny- air temp 76- light SW wind
7/16/1993	Dan Kretz	Citizen Lake Monitoring - Water Quality - Lac Vieux Desert - Max Depth	Calm- partly cloudy- air temp 78
7/28/1993	Dan Kretz	Citizen Lake Monitoring - Water Quality - Lac Vieux Desert - Max Depth	Have had several days of high winds. Grass weeds are dying and pulled out by wind.
8/7/1993	Dan Kretz	Citizen Lake Monitoring - Water Quality - Lac Vieux Desert - Max Depth	Weed growth in lake is beginning to die. Large areas of floating weeds. 4 days of strong winds. Water is dark and hard to see through.
8/11/1993	Dan Kretz	Citizen Lake Monitoring - Water Quality - Lac Vieux Desert - Max Depth	Hot flat calm day. Sunny and 86 degrees. Weed bloom on top. Many floating weeds around the lake.
8/28/1993	Dan Kretz	Citizen Lake Monitoring - Water Quality - Lac Vieux Desert - Max Depth	
9/2/1993	Dan Kretz	Citizen Lake Monitoring - Water Quality - Lac Vieux Desert - Max Depth	
9/6/1993	Dan Kretz	Citizen Lake Monitoring - Water Quality - Lac Vieux Desert - Max Depth	
9/8/1993	Dan Kretz	Citizen Lake Monitoring - Water Quality - Lac Vieux Desert - Max Depth	
9/15/1993	Dan Kretz	Citizen Lake Monitoring - Water Quality - Lac Vieux Desert - Max Depth	Weeds are all dying and water is very dark.

6/6/2000	Data Collectors	FERC WQ Monitoring - Wisconsin River Lac Vieux Desert Reservoir-P-2113A (Wisconsin Valley Improvement Company / WVIC)	
6/6/2000	Data Collectors	Lake Baseline Monitoring- DNR (1970s-2006)	
7/7/2000	Data Collectors	FERC WQ Monitoring - Wisconsin River Lac Vieux Desert Reservoir-P-2113A (Wisconsin Valley Improvement Company / WVIC)	INTEGRATED
7/7/2000	Data Collectors	Lake Baseline Monitoring- DNR (1970s-2006)	
8/2/2000	Data Collectors	FERC WQ Monitoring - Wisconsin River Lac Vieux Desert Reservoir-P-2113A (Wisconsin Valley Improvement Company / WVIC)	INTEGRATED SAMPLE 0-5M
8/2/2000	Data Collectors	Lake Baseline Monitoring- DNR (1970s-2006)	
10/10/2000	Data Collectors	FERC WQ Monitoring - Wisconsin River Lac Vieux Desert Reservoir-P-2113A (Wisconsin Valley Improvement Company / WVIC)	
10/10/2000	Data Collectors	Lake Baseline Monitoring- DNR (1970s-2006)	
6/5/2001	JENNIFER WUDI	FERC WQ Monitoring - Wisconsin River Lac Vieux Desert Reservoir-P-2113A (Wisconsin Valley Improvement Company / WVIC)	AT POINT OF MAXIMUM DEPTH-INTEGRATED SAMPLE 0-9.2M
6/5/2001	JENNIFER WUDI	Lake Baseline Monitoring- DNR (1970s-2006)	
7/2/2001	JENNIFER WUDI	FERC WQ Monitoring - Wisconsin River Lac Vieux Desert Reservoir-P-2113A (Wisconsin Valley Improvement Company / WVIC)	AT POINT OF MAXIMUM DEPTH-INTEGRATED 0-9.2M
7/2/2001	JENNIFER WUDI	Lake Baseline Monitoring- DNR (1970s-2006)	
8/14/2001	JENNIFER WUDI	FERC WQ Monitoring - Wisconsin River Lac Vieux Desert Reservoir-P-2113A (Wisconsin Valley Improvement Company / WVIC)	AT POINT OF MAXIMUM DEPTH-INTEGRATED 0-9.2M
8/14/2001	JENNIFER WUDI	Lake Baseline Monitoring- DNR (1970s-2006)	
10/11/2001	JENNIFER WUDI	FERC WQ Monitoring - Wisconsin River Lac Vieux Desert Reservoir-P-2113A (Wisconsin Valley Improvement Company / WVIC)	AT POINT OF MAXIMUM DEPTH-INTEGRATED 0-2M
10/11/2001	JENNIFER WUDI	Lake Baseline Monitoring- DNR (1970s-2006)	AT POINT OF MAXIMUM DEPTH-INTEGRATED 0-9.2M

6/12/2002	JENNIFER WUDI	FERC WQ Monitoring - Wisconsin River Lac Vieux Desert Reservoir- P-2113A (Wisconsin Valley Improvement Company / WVIC)	AT POINT OF MAXIMUM DEPTH- INTEGRATED 0-7M
6/12/2002	JENNIFER WUDI	Lake Baseline Monitoring- DNR (1970s-2006)	
7/16/2002	JENNIFER WUDI	FERC WQ Monitoring - Wisconsin River Lac Vieux Desert Reservoir- P-2113A (Wisconsin Valley Improvement Company / WVIC)	AT POINT OF MAXIMUM DEPTH- INTEGRATED 0-2M
8/18/2002	JENNIFER WUDI	FERC WQ Monitoring - Wisconsin River Lac Vieux Desert Reservoir- P-2113A (Wisconsin Valley Improvement Company / WVIC)	AT POINT OF MAXIMUM DEPTH- INTEGRATED 0-9M
10/16/2002	JENNIFER WUDI	FERC WQ Monitoring - Wisconsin River Lac Vieux Desert Reservoir- P-2113A (Wisconsin Valley Improvement Company / WVIC)	AT POINT OF MAXIMUM DEPTH- INTEGRATED 0-2M, AT POINT OF MAXIMUM DEPTH- INTEGRATED 0-9.2M
4/23/2009	Tim Hoyman - Onterra- LLC	LAC VIEUX DESERT LAKE ASSOCIATION- INC: Lac Vieux Desert Lake Management Planning Project- Phase 1	
6/24/2009	Data Collectors	LAC VIEUX DESERT LAKE ASSOCIATION- INC: Lac Vieux Desert Lake Management Planning Project- Phase 1	
7/21/2009	Tim Hoyman - Onterra- LLC	LAC VIEUX DESERT LAKE ASSOCIATION- INC: Lac Vieux Desert Lake Management Planning Project- Phase 1	
8/25/2009	Data Collectors	LAC VIEUX DESERT LAKE ASSOCIATION- INC: Lac Vieux Desert Lake Management Planning Project- Phase 1	
10/15/2009	Tim Hoyman - Onterra- LLC	LAC VIEUX DESERT LAKE ASSOCIATION- INC: Lac Vieux Desert Lake Management Planning Project- Phase 1	
2/23/2010	Tim Hoyman - Onterra- LLC	LAC VIEUX DESERT LAKE ASSOCIATION- INC: Lac Vieux Desert Lake Management Planning Project- Phase 1	
6/21/2010	Cathy Wendt	FERC WQ Monitoring - Wisconsin River Lac Vieux Desert Reservoir- P-2113A (Wisconsin Valley Improvement Company / WVIC)	
6/21/2010	Cathy Wendt	WVIC - WI Valley Improvement Corp. Monitoring - NOR_21_10	

7/12/2010	Cathy Wendt	FERC WQ Monitoring - Wisconsin River Lac Vieux Desert Reservoir-P-2113A (Wisconsin Valley Improvement Company / WVIC)	
7/12/2010	Cathy Wendt	WVIC - WI Valley Improvement Corp. Monitoring - NOR_21_10	
8/9/2010	Cathy Wendt	FERC WQ Monitoring - Wisconsin River Lac Vieux Desert Reservoir-P-2113A (Wisconsin Valley Improvement Company / WVIC)	
8/9/2010	Cathy Wendt	WVIC - WI Valley Improvement Corp. Monitoring - NOR_21_10	
11/1/2010	Cathy Wendt	FERC WQ Monitoring - Wisconsin River Lac Vieux Desert Reservoir-P-2113A (Wisconsin Valley Improvement Company / WVIC)	
11/1/2010	Cathy Wendt	WVIC - WI Valley Improvement Corp. Monitoring - NOR_21_10	
6/7/2011	Cathy Wendt	FERC WQ Monitoring - Wisconsin River Lac Vieux Desert Reservoir-P-2113A (Wisconsin Valley Improvement Company / WVIC)	
6/7/2011	Cathy Wendt	WVIC - WI Valley Improvement Corp. Monitoring - NOR_21_10	
7/12/2011	Cathy Wendt	FERC WQ Monitoring - Wisconsin River Lac Vieux Desert Reservoir-P-2113A (Wisconsin Valley Improvement Company / WVIC)	
7/12/2011	Cathy Wendt	WVIC - WI Valley Improvement Corp. Monitoring - NOR_21_10	
8/8/2011	Cathy Wendt	FERC WQ Monitoring - Wisconsin River Lac Vieux Desert Reservoir-P-2113A (Wisconsin Valley Improvement Company / WVIC)	
8/8/2011	Cathy Wendt	WVIC - WI Valley Improvement Corp. Monitoring - NOR_21_10	
10/18/2011	Cathy Wendt	FERC WQ Monitoring - Wisconsin River Lac Vieux Desert Reservoir-P-2113A (Wisconsin Valley Improvement Company / WVIC)	
10/18/2011	Cathy Wendt	WVIC - WI Valley Improvement Corp. Monitoring - NOR_21_10	

6/13/2012	Ben Niffenegger	FERC WQ Monitoring - Wisconsin River Lac Vieux Desert Reservoir-P-2113A (Wisconsin Valley Improvement Company / WVIC)	
6/13/2012	Ben Niffenegger	WVIC - WI Valley Improvement Corp. Monitoring - NOR_21_10	
7/2/2012	Ben Niffenegger	FERC WQ Monitoring - Wisconsin River Lac Vieux Desert Reservoir-P-2113A (Wisconsin Valley Improvement Company / WVIC)	
7/2/2012	Ben Niffenegger	WVIC - WI Valley Improvement Corp. Monitoring - NOR_21_10	
8/2/2012	Ben Niffenegger	FERC WQ Monitoring - Wisconsin River Lac Vieux Desert Reservoir-P-2113A (Wisconsin Valley Improvement Company / WVIC)	
8/2/2012	Ben Niffenegger	WVIC - WI Valley Improvement Corp. Monitoring - NOR_21_10	
10/24/2012	Ben Niffenegger	FERC WQ Monitoring - Wisconsin River Lac Vieux Desert Reservoir-P-2113A (Wisconsin Valley Improvement Company / WVIC)	
10/24/2012	Ben Niffenegger	WVIC - WI Valley Improvement Corp. Monitoring - NOR_21_10	
6/25/2014	DANIELA GURLIN	Optical Properties of WI Lakes 2011 - 2016	
6/28/2016	DANIELA GURLIN	Optical Properties of WI Lakes 2011 - 2016	

Start Date	Depth (m)	Temp C	% D.O.	D.O. (mg/l)	Calibration	84.5% DO, 24.8 C, 720.1mmHg
5/18/2018	0	15.8	92.7	9.33		
5/18/2018	1	15.2	94.1	9.50		
5/18/2018	2	14.9	93.7	9.48		
5/18/2018	3	14.7	92.3	9.38		
5/18/2018	4	14.6	91.4	9.30		
5/18/2018	5	13.4	89.2	9.11		
5/18/2018	6	14.1	97.7	9.02		
5/18/2018	7	13.9	86.5	8.92		
5/18/2018	8	13.8	85.9	8.89		
5/18/2018	9	13.8	85.5	8.86		

Start Date	Depth (m)	Temp C	% D.O.	D.O. (mg/l)	Calibration	99.9% DO, 25 C, 716.3 mmHg
7/19/2018	0	23.6	93.1	7.89		
7/19/2018	1	23.3	91.5	7.80		
7/19/2018	2	23.2	88.9	7.57		
7/19/2018	3	23.2	87.2	7.45		
7/19/2018	4	23.2	86.5	7.40		
7/19/2018	5	23.1	85.7	7.33		
7/19/2018	6	23.1	85.5	7.33		
7/19/2018	7	23.0	86.0	7.38		
7/19/2018	8	23.0	86.2	7.40		
7/19/2018	9	22.9	86.1	7.39		
7/19/2018	10	22.9	85.3	7.33		
7/19/2018	11	22.8	77.4	6.68		
7/19/2018	12	22.3	27.1	2.41		

Start Date	Depth (m)	Temp C	% D.O.	D.O. (mg/l)	Calibration	95.4 % DO, 18.9 C, 721.18 mmHg
8/29/2018	0	19.9	87.1	7.87		
8/29/2018	1	20.3	85.5	7.72		
8/29/2018	2	20.5	84.6	7.61		
8/29/2018	3	20.5	83.3	7.51		
8/29/2018	4	20.5	83.2	7.49		
8/29/2018	5	20.5	82.9	7.46		
8/29/2018	6	20.5	82.5	7.43		
8/29/2018	7	20.5	81.9	7.37		
8/29/2018	8	20.4	81.6	7.36		
8/29/2018	9	20.4	80.6	7.27		
8/29/2018	10	20.3	80.3	7.26		

Start Date	Depth (m)	Temp C	% D.O.	D.O. (mg/l)	Calibration	95.8% DO, 27.6 C, 720.7 mmHg
9/13/2018	0	20.3	95.4	8.63		
9/13/2018	1	20.0	94.8	8.61		

9/13/2018	2	19.5	90.4	8.30
9/13/2018	3	19.4	88.0	8.11
9/13/2018	4	19.3	88.0	8.12
9/13/2018	5	19.2	82.6	7.63
9/13/2018	6	19.1	80.8	7.47
9/13/2018	7	19.0	77.0	7.13
9/13/2018	8	18.7	70.2	6.54
9/13/2018	9	18.6	67.7	6.36

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Laboratory Report

D.F. Kurtycz, M.D., Medical Director - Prof. James J. Schauer, Ph.D., Director

Environmental Health Division

WDNR LAB ID: 113133790 NELAP LAB ID: E37658 EPA LAB ID: WI00007, WI00008 WI DATCP ID: 105-415

WSLH Sample: 387071001

Report To:

BARB GAJEWSKI
MANY WATERS LLC
2527 LAKE OTTAWA RD
IRON RIVER, MI 49935

Invoice To:

ROB ANDERSEN
LAC VIEUX DESERT LAKE ASSOCIATION
PO BOX 432
LAND O LAKES, WI 54540
Customer ID: 352673

Field #: DEEP HOLE-LVD
Project No:
Collection End: 5/18/2018 10:05:00 AM
Collection Start: 05/18/18 10:00
Collected By: NATN GAJEWSKI
Date Received: 6/7/2018
Date Reported: 6/15/2018
Sample Reason:

ID#: 643206
Sample Location: LAC VIEUX DESERT - MAX DEPTH
Sample Description: 2 METER INTEGRATED SAMPLER
Sample Type: SU-SURFACE WATER
Waterbody: 1631900
Point or Outfall:
Sample Depth: 2M
Program Code: WT
Region Code: NOR
County: 64

Sample Comments

ACID TRACEABILITY INFORMATION NOT SUBMITTED WITH TEST REQUEST FORM

Inorganic Chemistry

Analyte		Analysis Method	Result	Units	LOD	LOQ
Prep Date	06/13/18 Analysis Date	06/13/18				
Phosphorus		EPA 365.1	0.0328	mg/L	0.00500	0.0160

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Laboratory Report

D.F. Kurtycz, M.D., Medical Director - Prof. James J. Schauer, Ph.D., Director

Environmental Health Division

WDNR LAB ID: 113133790 NELAP LAB ID: E37658 EPA LAB ID: WI00007, WI00008 WI DATCP ID: 105-415

WSLH Sample: 387071001

List of Abbreviations:

LOD = Level of detection
LOQ = Level of quantification
ND = None detected. Results are less than the LOD
F next to result = Result is between LOD and LOQ
Z next to result = Result is between 0 (zero) and LOD
if LOD=LOQ, Limits were not statistically derived

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Results relate only to the items tested.

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Responsible Party

Microbiology: Sharon Kluender, Lab Manager, 608-224-6262
Inorganic Chemistry: DeWayne Kennedy-Parker, Lab Manager, 608-224-6282
Metals: DeWayne Kennedy-Parker, Lab Manager, 608-224-6282
Organic Chemistry: Al Spallato, Lab Manager, 608-224-6269
Emergency Chemical Response: Noel Stanton, Lab Manager, 608-224-6251
Environmental Toxicology: Tracy Hanke, Lab Manager, 608-224-6270

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Laboratory Report

D.F. Kurtycz, M.D., Medical Director - Prof. James J. Schauer, Ph.D., Director

Environmental Health Division

WDNR LAB ID: 113133790 NELAP LAB ID: 2091 EPA LAB ID: WI00007, WI00008 WI DATCP ID: 105-415

WSLH Sample: 395727001

Report To:

BARB GAJEWSKI
MANY WATERS LLC
2527 LAKE OTTAWA RD
IRON RIVER, MI 49935

Invoice To:

ROB ANDERSEN
LAC VIEUX DESERT LAKE ASSOCIATION
PO BOX 432
LAND O LAKES, WI 54540
Customer ID: 352673

Field #: LVD DEEP HOLE
Project No: AEPP54618
Collection End: 7/19/2018 10:35:00 AM
Collection Start: 07/19/18 10:30
Collected By: BARB GAJEWSKI
Date Received: 7/20/2018
Date Reported: 8/13/2018
Sample Reason:

ID#: 643206
Sample Location: LAC VIEUX DESERT - MAX DEPTH
Sample Description: 2 METER INTEGRATED
Sample Type: SU-SURFACE WATER
Waterbody: 1631900
Point or Outfall:
Sample Depth: 2M
Program Code: WT
Region Code: NOR
County: 64

Sample Comments

ACID TRACEABILITY INFORMATION NOT SUBMITTED WITH TEST REQUEST FORM

Inorganic Chemistry

Analyte		Analysis Method	Result	Units	LOD	LOQ
Prep Date	07/24/18	Analysis Date	08/07/18			
Chlorophyll A		EPA 445	2.96	ug/L	0.260	0.870
Prep Date	07/26/18	Analysis Date	07/27/18			
Phosphorus		EPA 365.1	0.0303	mg/L	0.00500	0.0160

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D.F. Kurtycz, M.D., Medical Director - Prof. James J. Schauer, Ph.D., Director

Environmental Health Division

WDNR LAB ID: 113133790 NELAP LAB ID: 2091 EPA LAB ID: WI00007, WI00008 WI DATCP ID: 105-415

WSLH Sample: 395727001

List of Abbreviations:

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LOQ = Level of quantification
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Responsible Party

Microbiology: Sharon Kluender, Lab Manager, 608-224-6262
Inorganic Chemistry: DeWayne Kennedy-Parker, Lab Manager, 608-224-6282
Metals: DeWayne Kennedy-Parker, Lab Manager, 608-224-6282
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Emergency Chemical Response: Noel Stanton, Lab Manager, 608-224-6251
Environmental Toxicology: Tracy Hanke, Lab Manager, 608-224-6270

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Laboratory Report

D.F. Kurtycz, M.D., Medical Director - Prof. James J. Schauer, Ph.D., Director

Environmental Health Division

WDNR LAB ID: 113133790 NELAP LAB ID: 2091 EPA LAB ID: WI00007, WI00008 WI DATCP ID: 105-415

WSLH Sample: 404345001

Report To:
BARB GAJEWSKI
MANY WATERS LLC
2527 LAKE OTTAWA RD
IRON RIVER, MI 49935

Invoice To:
ROB ANDERSEN
LAC VIEUX DESERT LAKE ASSOCIATION
PO BOX 432
LAND O LAKES, WI 54540
Customer ID: 352673

Field #: LVD DEEP HOLE
Project No: AEPP54618
Collection End: 8/29/2018 8:05:00 AM
Collection Start: 08/29/18 0800
Collected By: BARB GAJEWSKI
Date Received: 8/30/2018
Date Reported: 9/25/2018
Sample Reason:

ID#: 643206
Sample Location: LAC VIEUX DESERT - MAX DEPTH
Sample Description: 2 METER INTEGRATED
Sample Type: SU-SURFACE WATER
Waterbody: 1631900
Point or Outfall:
Sample Depth: 0-2M
Program Code: WT
Region Code: NOR
County: 64

Sample Comments

ACID TRACEABILITY INFORMATION NOT SUBMITTED WITH TEST REQUEST FORM

Inorganic Chemistry

Analyte			Analysis Method	Result	Units	LOD	LOQ
Prep Date	09/10/18	Analysis Date	09/10/18				
Conductivity			SM2510B,EPA150.1, SM2320B	85.4	uS/cm	10.0	10.0
pH			SM2510B,EPA150.1, SM2320B	7.56	SU		
Alkalinity			SM2510B,EPA150.1, SM2320B	38.1	mg/L	2.55	2.55
Prep Date	09/05/18	Analysis Date	09/18/18				
Chlorophyll A			EPA 445	10.4	ug/L	0.520	1.74
Prep Date	08/31/18	Analysis Date	08/31/18				
Color, True			SM2120B	15	SU	5.0	5.0

Metals, Total Recoverable

Analyte			Analysis Method	Result	Units	LOD	LOQ
Prep Date	09/10/18	Analysis Date	09/11/18				
Calcium			EPA 200.7	10.1	mg/L	0.100	0.300

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Environmental Health Division

WDNR LAB ID: 113133790 NELAP LAB ID: 2091 EPA LAB ID: WI00007, WI00008 WI DATCP ID: 105-415

WSLH Sample: 404345001

Metals, Total Recoverable

Analyte		Analysis Method	Result	Units	LOD	LOQ
Prep Date	09/10/18	Analysis Date	09/11/18			
Magnesium		EPA 200.7	3.28	mg/L	0.100	0.300

Inorganic Chemistry

Analyte		Analysis Method	Result	Units	LOD	LOQ
Prep Date	09/17/18	Analysis Date	09/19/18			
Phosphorus		EPA 365.1	0.0346	mg/L	0.00500	0.0160

Inorganic Chemistry, Dissolved

Analyte		Analysis Method	Result	Units	LOD	LOQ
Prep Date	08/31/18	Analysis Date	09/13/18			
Nitrate + Nitrite (as N)		EPA 353.2	ND	mg/L	0.0360	0.120

Inorganic Chemistry

Analyte		Analysis Method	Result	Units	LOD	LOQ
Prep Date	09/17/18	Analysis Date	09/20/18			
Total Kjeldahl Nitrogen		EPA 351.2	0.820	mg/L	0.110	0.360

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Laboratory Report

D.F. Kurtycz, M.D., Medical Director - Prof. James J. Schauer, Ph.D., Director

Environmental Health Division

WDNR LAB ID: 113133790 NELAP LAB ID: 2091 EPA LAB ID: WI00007, WI00008 WI DATCP ID: 105-415

WSLH Sample: 404345001

Responsible Party

Microbiology: Sharon Kluender, Lab Manager, 608-224-6262
Inorganic Chemistry: DeWayne Kennedy-Parker, Lab Manager, 608-224-6282
Metals: DeWayne Kennedy-Parker, Lab Manager, 608-224-6282
Organic Chemistry: Al Spallato, Lab Manager, 608-224-6269
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Laboratory Report

D.F. Kurtycz, M.D., Medical Director - Prof. James J. Schauer, Ph.D., Director

Environmental Health Division

WDNR LAB ID: 113133790 NELAP LAB ID: 2091 EPA LAB ID: WI00007, WI00008 WI DATCP ID: 105-415

WSLH Sample: 407639001

Report To:

BARB GAJEWSKI
MANY WATERS LLC
2527 LAKE OTTAWA RD
IRON RIVER, MI 49935

Invoice To:

ROB ANDERSEN
LAC VIEUX DESERT LAKE ASSOCIATION
PO BOX 432
LAND O LAKES, WI 54540
Customer ID: 352673

Field #: LVD DEEP HOLE
Project No: AEPP54618
Collection End: 9/13/2018 12:38:00 PM
Collection Start: 09/13/18 1236
Collected By: BARB GAJEWSKI
Date Received: 9/14/2018
Date Reported: 10/11/2018
Sample Reason:

ID#: 643206
Sample Location: LAC VIEUX DESERT - MAX DEPTH
Sample Description: 2 METER INTEGRATED
Sample Type: SU-SURFACE WATER
Waterbody: 1631900
Point or Outfall:
Sample Depth: 0M
Program Code: WT
Region Code: NOR
County: 64

Inorganic Chemistry

Analyte			Analysis Method	Result	Units	LOD	LOQ
Prep Date	09/18/18	Analysis Date	10/04/18				
Chlorophyll A			EPA 445	10.3	ug/L	0.520	1.74
Prep Date	10/01/18	Analysis Date	10/02/18				
Phosphorus			EPA 365.1	0.0290	mg/L	0.00500	0.0160

List of Abbreviations:

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Laboratory Report

D.F. Kurtycz, M.D., Medical Director - Prof. James J. Schauer, Ph.D., Director

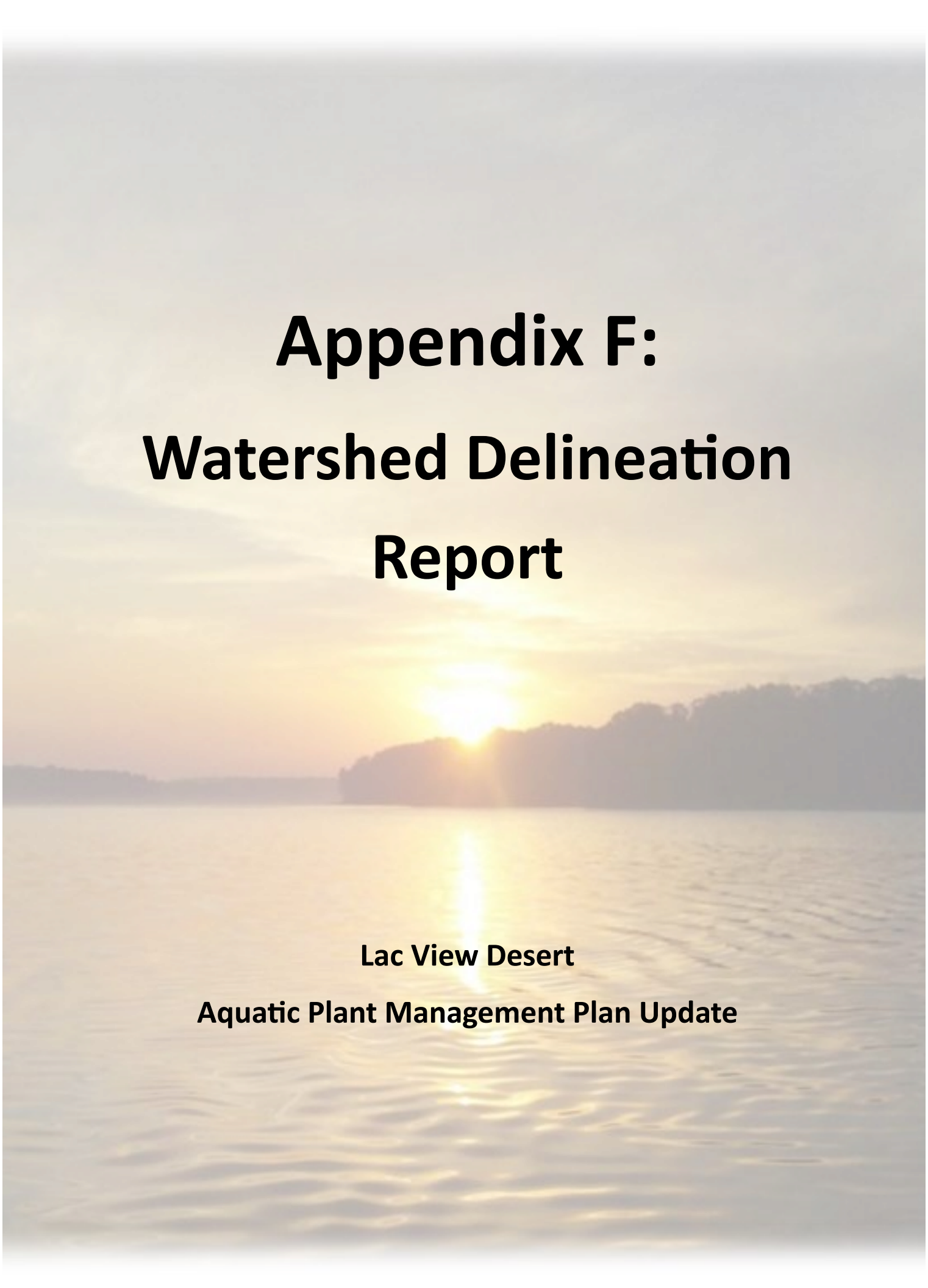
Environmental Health Division

WDNR LAB ID: 113133790 NELAP LAB ID: 2091 EPA LAB ID: WI00007, WI00008 WI DATCP ID: 105-415

WSLH Sample: 407639001

Responsible Party

Inorganic chemistry: Graham Anderson 608-224-6281
Metals: Graham Anderson 608-224-6280
Organics: Erin Mani 608-224-6269
Environmental Toxicology: David Webb 608-224-6230
Water microbiology: Martin Collins 608-224-6239
Radiochemistry: David Webb 608-224-6227



Appendix F:

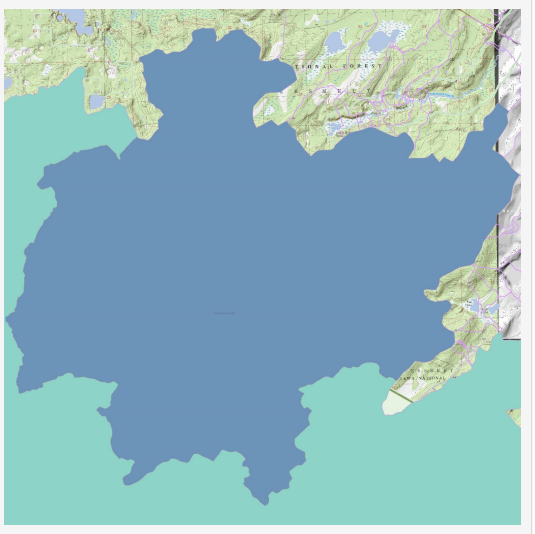
Watershed Delineation Report

Lac View Desert

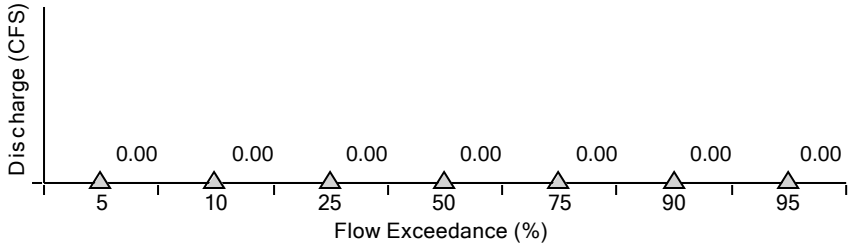
Aquatic Plant Management Plan Update

PRESTO-Lite Watershed Delineation Report

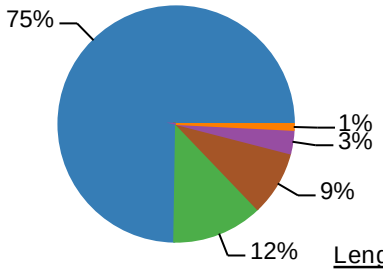
Reach ID: 600005784
Watershed Name: Lac Vieux Desert-Wisconsin River
Waterbody Name: Lac Vieux Desert
HUC08: Upper Wisconsin
Watershed Area: 31.56 mi²
Average Annual Precipitation: 33.23in



Stream Flow

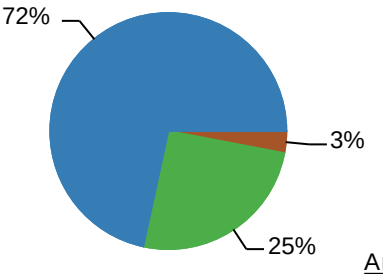


Tributary Stream Type



Type	Length
Cold Headwater	15770 ft
Cool-Cold Headwater	2620 ft
Warm Headwater	1865 ft
Macroinvertebrates	678 ft
Coldwater	167 ft
Cool-Cold Mainstem	0 ft
Cold Mainstem	0 ft
Large River	0 ft
Warm Mainstem	0 ft

Landcover



Type	Area
Forest	17.12 mi²
Wetland	6.08 mi²
Urban	0.72 mi²
Grassland	0.17 mi²
Agriculture	0.06 mi²
Barren	0.01 mi²

PRESTO Phosphorus Load Estimate

Avg. Annual Nonpoint Phosphorous Load (80% Confidence Interval)	640 (319 - 1,287) lbs
Number of Facilities (Individual Facility Information below)	0
Avg. Annual Point-source Phosphorous Load (2010 - 2012 total of all facilities)	0lbs
Most Likely Point : Nonpoint Phosphorous Ratio	0% : 100%
Low Estimate Point : Nonpoint Phosphorous Ratio (Adaptive Management)	0% : 100%

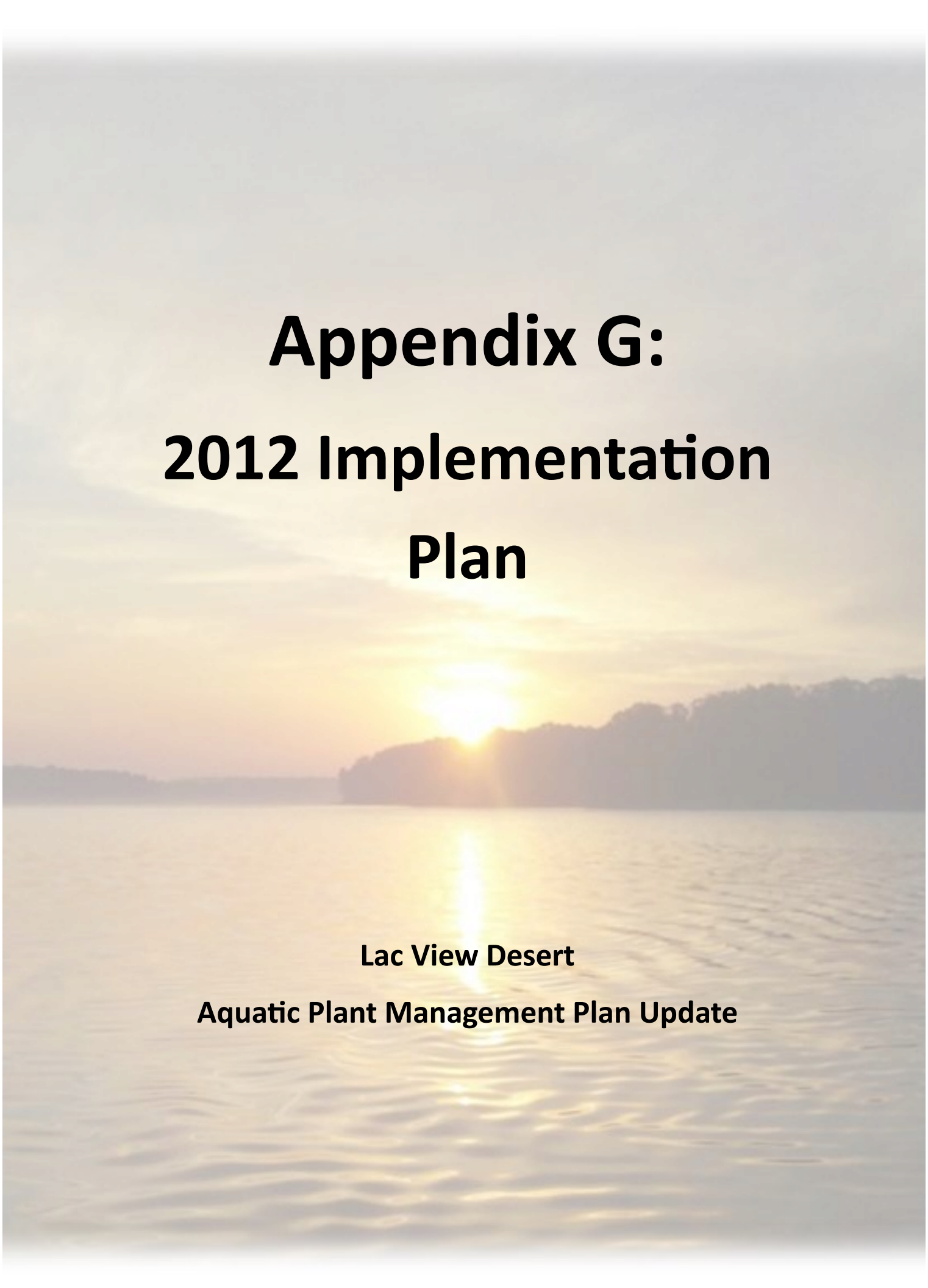
Adaptive Management Results

Facilities Discharging to the Lac Vieux Desert-Wisconsin River Watershed:

Facility Name	Permit #	Outfall #	Waste Type	Receiving Water	Avg. Phosphorus Load (lbs.) (2010 - 2012)
No Facilities Found	-	-	-	-	-

Watershed Analysis Limitations

- This analysis relies on pre-defined catchments from the Wisconsin Hydrography Data-Plus and may not delineate from the exact location required. When assessing phosphorus loads for specific facility in support of efforts such as adaptive management, care should be taken to ensure that additional downstream point sources do not exist. For adaptive management information related to specific facilities please reference the PRESTO website http://dnr.wi.gov/topic/surfacewater/presto.html
- Delineation of watersheds is based on a topographic assessment and therefore do not account for modified drainage networks such as stormwater sewer systems and ditched agriculture.
- If a watershed requires delineation from an exact location the user may use the desktop version of PRESTO that requires ESRI ArcGIS. The PRESTO tool and default datasets can be downloaded at http://dnr.wi.gov/topic/surfacewater/presto.html
- Data sources for this report originate from the WDNR's Wisconsin Hydrography Data-Plus value-added dataset and the point and non-point source loading information including in the WDNR's PRESTO model.
- If you have questions about the report generated from the PRESTO-Lite application please contact: DNRWATERQUALITYMODELING@wisconsin.gov



Appendix G:

2012 Implementation Plan

Lac View Desert

Aquatic Plant Management Plan Update

5.0 IMPLEMENTATION PLAN

The intent of this project was to complete a *comprehensive* management plan for Lac Vieux Desert Lake. As described in the proceeding sections, a great deal of study and analysis were completed involving many aspects of the ecosystem. This section stands as the actual "plan" portion of this document as it outlines the steps the LVDLA will follow in order to manage Lac Vieux Desert Lake, its watershed, and the association itself.

The implementation plan is broken into individual *Management Goals*. Each management goal has one or more management actions that if completed, will lead to the specific management goal being met. Each management action contains a timeframe for which the action will be taken, a facilitator that will initiate or carry out the action, a description of the action, and if applicable, a list of prospective funding sources and specific actions steps.

Management Goal 1: Increase Lac Vieux Desert Lake Association's Capacity to Communicate with Lake Stakeholders

Management Action: Support an Education Committee to promote safe boating, water quality, public safety, and quality of life on Lac Vieux Desert.

Timeframe: Begin summer 2011

Facilitator: Board of Directors to form Education Committee

Description: Education represents an effective tool to address issues that impact water quality such as lake shore development, lawn fertilization, and other issues such as air quality, noise pollution, and boating safety. An Education Committee will be created to promote lake protection through a variety of educational efforts.

Currently, the LVDLA periodically distributes newsletters to association members which allow for exceptional communication within the lake group. This level of communication is important within a management group because it builds a sense of community while facilitating the spread of important association news, educational topics, and even social happenings. It also provides a medium for the recruitment and recognition of volunteers. Perhaps most importantly, the dispersal of a well written newsletter can be used as a tool to increase awareness of many aspects of lake ecology and management among association members. By doing this, meetings can often be conducted more efficiently and misunderstandings based upon misinformation can be avoided. Educational pieces within the association newsletter may contain monitoring results, association management history, as well as other educational topics listed below.

In addition to creating a regularly published association newsletter a variety of educational efforts will be initiated by the Education Committee. These may include educational materials, awareness events and demonstrations for lake users as well as activities which solicit local and state government support. This committee will also investigate the creation of an association website and/or other social media such as Facebook. This will directly increase the association's ability to communicate with interested stakeholders by allowing them to post information and social messages.

Example Educational Topics:

Specific topics brought forth in other management actions
Aquatic invasive species monitoring updates
Boating safety and ordinances (slow-no-wake zones and hours)
Catch and release fishing
Noise, air, and light pollution
Shoreland restoration and protection
Septic system maintenance
Fishing Regulations

Action Steps:

1. Recruit volunteers to form Education Committee.
2. Investigate if WDNR small-scale Lake Planning Grant would be appropriate to cover initial setup costs.
3. The LVDLA Board will identify a base level of annual financial support for educational activities to be undertaken by the Education Committee.

Management Goal 2: Facilitate Partnerships with Other Management Entities

Management Action: Enhance LVDLA's involvement with other entities that have a hand in managing (management units) Lac Vieux Desert.

Timeframe: Begin summer 2011

Facilitator: Board of Directors to appoint LVDLA representatives

Description: The LVDLA's initial purpose was to create a group of interested lake owners to establish a fish stocking initiative for the lake. Over time, the Association expanded its purpose to preserve and protect the lake and its surroundings to enhance the water quality, fishery, safety, and aesthetic value of the lake as a public recreational facility for today and future generations. The waters of Wisconsin belong to everyone and therefore this goal of protecting and enhancing these shared resources is also held by other entities. Some of these entities are governmental while others organizations are similar to the LVDLA in that they rely on voluntary participation.

It is important that the LVDLA actively engage with all management entities to enhance the association's understanding of common management goals and to participate in the development of those goals. This also helps all management entities understand the actions that others are taking to reduce the duplication of efforts. While not an inclusive list, the primary management units regarding Lac Vieux Desert are the WDNR, MDNR, Michigan Department of Environmental Quality (MDEQ), Lac Vieux Desert Band of the Lake Superior Chippewa Indians (LVD Tribe), Vilas County Land and Water Conservation Department (VCLWCD), the Vilas County Lakes Association (VCLA), the Invasive Species Control Coalition of Watersmeet (ISCCW Lakeguards), the US Fish Forest Service (USFS – Ottawa National Forest in Michigan, Chequamegon-Nicolet

National Forest in Wisconsin), and the Wisconsin Valley Improvement Company (WVIC). Each entity will be specifically addressed below.

States of Wisconsin and Michigan The WDNR and MDNR/MDEQ are responsible for managing the natural resources of the State of Wisconsin and Michigan, respectively. Primary interaction with the WDNR and MDNR/MDEQ is from an advisory and regulatory perspective. The LVDLA has worked closely with the WDNR Regional Lakes Coordinator (Kevin Gauthier – 715.365.8937) and that relationship should continue. Lac Vieux Desert contains a highly valued fishery. The LVDLA should be in contact with the WDNR fisheries biologist (Steve Gilbert – 715.358.9229) and the MDNR fisheries biologist (George Madison – 906.353.6651) at least once a year to discuss fish stocking plans and other pertinent fisheries-related issues. As discussed within the Fisheries Section, Lac Vieux Desert falls within the ceded territory based on the Treaty of 1842 (Figure 3.4-1). This treaty grants specific off-reservation rights to the Native American community including a regulated spear fishery. The WDNR fisheries biologists are involved with this process and a direct link to GLIFWC biologists is not necessary.

County and County-wide Associations Lake conservation specialists at the VCLWCD (Mariquita Sheehan – 715.479.3721 or Ted Ritter – 715.479.3738) are available to discuss specific conservation projects applicable to Lac Vieux Desert. While it is important to foster a direct relationship with these entities, having LVDLA representatives participating in county-wide associations such as the VCLA and the ISCCW Lakeguards is the best way to ensure the association gains from this pooled knowledgebase of lake management and awareness. These representatives would attend all meetings and in their absence, an alternate would take their spot. Within every LVDLA newsletter (even if no meeting occurred), a permanent column (standing column) will be committed to a short summary of any meetings that occurred since the circulation of the last newsletter.

Tribe Coordination between the LVDLA and the LVD Tribe is critical to effectively manage this system. Likely the best way to keep continued contact with the LVD Tribe is through conversations with George Beck (906.358.4577) director of the Planning and Environmental Office of the LVD Tribe.

USFS Stretches of Lac Vieux Desert Lake's shoreline are part of the Ottawa National Forest (MI) and Chequamegon-Nicolet National Forest (WI). Ian Shackleford (906.932.1330 x-331), USFS biologist, is a great resource for invasive species issues. In March 2011, Mr. Shackleford was awarded with the National Invasive Species Award for Excellence in Washington D.C.

WVIC Lac Vieux Desert is operated under a Federal Energy Regulatory (FERC) License held by WVIC that requires the reservoir be operated between a maximum and minimum water level. WVIC has historical and ongoing reservoir operating data and environmental data that has been collected as a part of its FERC license requirements. WVIC could help "reduce the duplication of efforts" stated above, particularly as they relate to the collection of water quality data. The

WVIC could also assist in educating other entities as well as lake owners about the operation of the reservoir and the role it plays in the Wisconsin River system.

Management Goal 3: Maintain Current Water Quality Conditions

Management Action: Monitor water quality through WDNR Citizens Lake Monitoring Network.

Timeframe: Continuation and expansion of current effort.

Facilitator: Planning Committee

Description: Monitoring water quality is an import aspect of every lake management planning activity. Collection of water quality data at regular intervals aids in the management of the lake by building a database that can be used for long-term trend analysis. Early discovery of negative trends may lead to the reason as of why the trend is developing.

The Citizens Lake Monitoring Network (CLMN) is a WDNR program in which volunteers are trained to collect water quality information on their lake. At this time, there are no LVDLA members currently collecting data as a part of the CLMN. Volunteers trained by the WDNR as a part of the CLMN program begin by collecting Secchi disk transparency data for at least one year, then if the WDNR has availability in the program, the volunteer may enter into the *advanced program* and collect water chemistry data including chlorophyll-a, and total phosphorus. The Secchi disk readings and water chemistry samples are collected three times during the summer and once during the spring. Note: as a part of this program, these data are automatically added to the WDNR database and available through their Surface Water Integrated Monitoring System (SWIMS).

At a minimum, CLMN volunteers collecting Secchi disk data should be in place on Lac Vieux Desert. Currently, the advanced CLMN program is not accepting additional lakes to participate in the program. However, it is important to get volunteers on board with the base Secchi disk data CLMN program so that when additional spots open in the advanced monitoring program, volunteers from the Lac Vieux Desert will be ready to make the transition into more advanced monitoring.

It is the responsibility of the Planning Committee to coordinate new volunteers as needed. When a change in the collection volunteer occurs, it will be the responsibility of the Planning Committee to contact Sandra Wickman (715.365.8951) or the appropriate WDNR/UW Extension staff to ensure the proper training occurs and the necessary sampling materials are received by the new volunteer.

Action Steps:

Please see description above.

Management Action: Reduce phosphorus and sediment loads from shoreland watershed to Lac Vieux Desert.

Timeframe: Begin 2011

Facilitator: Education Committee

Description: As the watershed section discusses, the Lac Vieux Desert watershed is in good condition; however, watershed inputs still need to be focused upon, especially in terms of the lake's shoreland properties. These sources include faulty septic systems, shoreland areas that are maintained in an unnatural manner, impervious surfaces.

On April 14th, 2009, Governor Doyle signed the "Clean Lakes" bill (enacted as 2009 Wisconsin Act 9) which prohibits the use of lawn fertilizers containing phosphorus. Phosphorus containing fertilizers were identified as a major contributor to decreasing water quality conditions in lakes, fueling plant growth. This law went into effect in April 2010. While this law also bans the display and sale of phosphorus containing fertilizers, educating lake stakeholders about the regulations and their purpose is important to ensure compliance.

To reduce these negative impacts, the LVDLA will initiate an educational initiative aimed at raising awareness among shoreland property owners concerning their impacts on the lake. This will include newsletter articles and guest speakers at association meetings.

Topics of educational items may include benefits of proper septic system maintenance, methods and benefits of shoreland restoration, including reduction in impervious surfaces, and the options available regarding conservation easements and land trusts.

Action Steps:

1. Recruit facilitator.
2. Facilitator gathers appropriate information from WDNR, MDNR, UW-Extension, Vilas County, LVD Tribe, and other sources.
3. Facilitator summarizes information for newsletter articles and recruits appropriate speakers for association meetings.

Management Action: Complete Shoreland Condition Assessment as a part of next management plan update

Timeframe: Begin 2011

Facilitator: Board of Directors

Description: As discussed above, unnatural and developed shorelands can negatively impact the health of a lake, both by decreasing water quality conditions as well as removing valuable habitat for fish and other animal species that reside in and around the lake. Understanding the shoreland conditions around Lac Vieux Desert will serve as an educational tool for lake stakeholders as well as identify areas that would be suitable for restoration. Shoreland restorations would include both in-lake and shoreline habitat enhancements. In-lake enhancements would include the introduction of coarse woody debris in the littoral zone, a valuable

fisheries habitat component around the shores of Lac Vieux Desert. Shoreline enhancements would include leaving 35-foot no-mow zones to act as a buffer between residences and the lake or by planting native herbaceous, shrub, and tree species as appropriate for Vilas and Oneida Counties in this sensitive area. Ecologically high-value areas delineated during the survey would also be selected for protection, possibly through conservation easements or land trusts (www.northwoodslandtrust.org).

Projects that include shoreline condition assessment and restoration activities will be better qualified to receive state funding in the future. These activities could be completed as an amendment to this management plan and would be appropriate for funding through the WDNR small-scale Lake Planning Grant program.

Action Steps: See description above.

Management Goal 4: Control Existing AIS within Lac Vieux Desert Lake While Preventing Introduction of Other AIS.

Management Action: Continue Clean Boats Clean Waters watercraft inspections at Lac Vieux Desert Lake public access locations

Category: Prevention & Education

Timeframe: In progress

Facilitator: Planning Committee

Description: Lac Vieux Desert Lake is a popular destination by recreationists and anglers, making the lake vulnerable to new infestations of exotic species. The intent of the boat inspections would not only be to prevent additional invasives from entering the lake through its public access points, but also to prevent the infestation of other waterways with invasives that originated in Lac Vieux Desert Lake. The goal would be to cover the landings during the busiest times in order to maximize contact with lake users, spreading the word about the negative impacts of AIS on our lakes and educating people about how they are the primary vector of its spread.

While members of the LVDLA have been trained on Clean Boats Clean Waters (CBCW) protocols, low volunteerism has not provided a consistent monitoring program at the public landing. The LVDLA understands this limitation and in recent years has donated funds to the ISCCW Lakeguards through membership dues. The ISCCW Lakeguards aids in monitoring the Lac Vieux Desert Landing including operating a portable power wash station that were funded by the Great Lakes Restoration Initiative in 2010, 2011, and 2012. Fully understanding the importance of CBCW inspections, paid watercraft inspectors may be sought in the future to ensure monitoring occurs at the public boat landings.

In addition to continuing these efforts, an Education Initiative comprised of developing materials and programs that will promote clean boating and responsible use of these waters (See Management Goal #1) should be enacted.

Action Steps:

1. Members of association periodically (perhaps once every three years) attend Clean Boats Clean Waters training session coordinated through the WDNR volunteer AIS Coordinator (Erin McFarlane – 715.346.4978) to update their skills to current standards.
2. Training of additional volunteers completed by those trained during the summer of 2011.
3. Begin inspections during high-risk weekends
4. Enter data into SWIMS and report results to the LVDLA
5. Promote enlistment and training of new volunteers to keep program fresh.

Management Action: Coordinate annual monitoring for Aquatic Invasive Species
Timeframe: Initiate in 2012
Facilitator: Vilas County Invasive Species Coordinator
Description: In lakes without Eurasian water milfoil and other invasive species, early detection of pioneer colonies commonly leads to successful control and in cases of very small infestations, possibly even eradication. Even in lakes where these plants occur, monitoring for new colonies is essential to successful control.

In addition to surveys conducted by Onterra as a part of the current project, periodic monitoring of Lac Vieux Desert Lake for aquatic invasive species has been conducted by Invasive Species Control Coalition of Watersmeet (ISCCW) Lakeguards, GLIFWC, LVD Tribe, and USFS. While these entities anticipate they will continue their monitoring programs, uncertainty of resources (time and money) prohibit them from long-term commitment of their involvement.

In addition, volunteers from the LVDLA would monitor aquatic invasive species within Lac Vieux Desert Lake after receiving training through the VCLWCD, UW Extension, or ISCCW Lakeguards as appropriate. Initial training would include identification of target species and native look-a-likes and expand to proper use of GPS for recording aquatic plant occurrences, note taking, and transfer of spatial data. If this form of training is not available through the organizations listed above, the LVDLA may seek professional training on these tasks.

Coordination of these activities is important to limit duplication of efforts and ensure that Lac Vieux Desert Lake's entire littoral zone is monitored annually for aquatic invasive species, especially Eurasian water milfoil and curly-leaf pondweed. The Invasive Species Coordinator for Vilas County (Ted Ritter) has agreed to coordinate monitoring activities until the LVDLA is able to take over aspects of this role. Previous to each field season (March-April), the Vilas County Invasive Species Coordinator would reach out to ISSCW, GLIFWC, LVD Tribe, and USFS to understand each entity's monitoring plans for the upcoming year. This information would be shared with the LVDLA and a determination would be made by the association whether they can fill in any monitoring gaps or if they will need to hire professionals (either through the ISSCW or a private consulting firm) to complete these tasks.

Towards the end of the field season (August-September), the Vilas County Invasive Species Coordinator would receive each entity's results and make the compiled information available to all the entities and the LVDLA to formulate a monitoring and control strategy (if needed) for the following year. As the name suggests, the role of the Vilas County Invasive Species Coordinator is for coordinating these activities and providing general guidance to the LVDLA; not to provide recommendations or make decisions related to control strategies.

Over the course of the project, it is anticipated that a core group of LVDLA volunteers with considerable levels of dedication to the continued monitoring program would emerge. Once this occurs, a transition will be made where the LVDLA can assume the role previously carried out by the Vilas County Invasive Species Coordinator.

Action Steps:

1. See description above.

Management Action: Initiate aquatic invasive species rapid response plan upon new or recurring exotic infestation

Timeframe: Initiate upon exotic infestation

Facilitator: Planning Committee with professional help as needed

Description: In the event that an aquatic invasive species is located during the monitoring activities discussed in the previous Management Action, the areas would be marked using GPS and would serve as *focus areas* for professional ecologists. Those focus areas would be surveyed by professionals during that plant species peak growth phase (late summer for Eurasian water milfoil, early summer for curly-leaf pondweed) and the results would be used to create a prospective treatment strategy for the following spring. Eurasian water milfoil is the primary aquatic invasive species being managed in this region of the state and the following paragraphs will contain specific information pertaining to this species.

Small isolated infestations of Eurasian water milfoil can most appropriately be controlled using manual removal methods, likely through scuba or snorkeling efforts with scuba methodologies likely being more suitable for Lac Vieux Deser Lake. The responsible use of this technique is supported by LVDLA stakeholders as indicated by approximately 61% of stakeholder survey respondents indicating that they are at least moderately supportive of a manual removal program (Appendix B, Question #20). Currently this is the method of control for the Eurasian water milfoil located in Thunder Bay and the newly discovered occurrences in Slaughter Bay (Map 6 and Map 7). Hand-removal techniques were conducted in 2012 by the USFS (both Ottawa and Chequamegon-Nicolet National Forests) and a Lac Vieux Desert Tribal youth group. In order for this technique to be successful, the entire plant (including the root) needs to be removed from the lake. During manual extraction, careful attention would need to be paid to all plant fragments that may detach during the control effort.

If Eurasian water milfoil occurrences exceed the amount that can be manually removed, the plants need to be professionally surveyed and mapped. During the

fall/winter following the professional mapping survey, a control strategy would be developed. At this time, the most feasible method to control larger infestations is through herbicide applications, specifically early-spring treatments with 2,4-D. LVDLA stakeholders were supportive of an herbicide control program as indicate by almost 65% of respondents (Appendix B, Question #27).

Since the waters of Lac Vieux Desert Lake are located in both Wisconsin and Michigan, some unique questions were brought forth during the 2009 herbicide treatment in regards to obtaining the proper state permits. While coordination with both state agencies in advance of an herbicide treatment is necessary, herbicide application permits are likely only required by the state in which the herbicide is being applied but may be required by both states in some instances. Further, while riparian notification is required to conduct an herbicide treatment in both states, written permission is required for herbicide treatments conducted in Michigan due to the fact that the lakebed is owned by the riparian. These activities would be initiated by the LVDLA and their contracted herbicide applicator during the winter before the treatment. Please note that the permitting aspect may take considerable amounts of time so it's important that the permit process be started months in advance of a proposed treatment.

The presence of wild rice in proximity of potential herbicide treatments is also an issue that requires attention, as this species is also particularly vulnerable to early season herbicide treatments (Nelson et al., 2003). It remains unclear whether Eurasian water milfoil and/or curly-leaf pondweed have the ability to displace wild rice when populations overlap. Due to the cultural and ecological significance of wild rice, GLIWC and the LVD Tribe should be consulted well in advance of a potential herbicide treatment.

Approximately a week preceding the spring treatment, a refinement and verification survey would be conducted by professionals to ensure that the treatment areas adequately target the Eurasian water milfoil occurrences at the time of the treatment. Professionals would also visit the lake during the summer following the treatment to evaluate the control action and map the remaining Eurasian water milfoil to be used in developing the following year's control strategy.

As indicated within Management Goal 2, there are a number of agencies involved in the management of Lac Vieux Desert Lake. Successful partnerships between all stakeholders are important to formulate and implement a successful response and control program.

Action Steps:

1. Engage all stakeholders in the process.
2. Retain consultant to map aquatic invasive species occurrences.
3. Determine control strategy based upon professional findings.
4. Initiate hand-removal methods as applicable with guidance from the Hand Removal Pamphlet co-authored by the Lumberjack Resource Conservation & Development (RC&D) Council, Inc. & Golden Sands RC&D Council, Inc (2012)

5. Association, with help from an herbicide applicator if applicable, obtains the proper permits to implement management action.
   a. WDNR Plant Management and Protection Program: www.dnr.state.wi.us/lakes/plants
   b. MDEQ Aquatic Nuisance Control website: www.michigan.gov/deq/0,4561,7-135-3313_3681_3710---,00.html
   c. The UW Extension Lake List is a great resource for locating an herbicide applicator: www.uwsp.edu/cnr/uwexlakes/lakelist/businessSearch.asp
6. Association updates management plan to reflect changes in control strategy.

Management Action: Reduce occurrence of purple loosestrife on Lac Vieux Desert shorelands
Timeframe: Begin 2011
Facilitator: Planning Committee
Description: Purple loosestrife can be found in low occurrence along the shorelands of Lac Vieux Desert Lake's islands (Map 2). The purple loosestrife occurrences on Lac Vieux Desert appear to be at an early stage of development with only a few individual plants observed. As with any invasive species, early control strategies are more effective on the population. In regards to purple loosestrife, this hardy perennial is more resilient the longer it is allowed to grow in one location as its root crown becomes more robust. It also produces a large seed bank which germinates years after the parent plant is controlled and requires continued management.

Manually removing isolated purple loosestrife plants is likely the best control strategy at this time. Once the property owner grants permission to remove the plant, it should be dug out of the ground, roots and all. If flowers or seeds are present at the time of the extraction, the flower heads should be carefully cut off and bagged to make sure seeds don't inadvertently get spread around during removal. Plants and seed heads should either be burned or bagged and put into the garbage.

Information sources, such as the WDNR, MDNR, UW-Extension, VCLWCD, ISCCW Lakeguards, and GLIFWC will be used to properly identify purple loosestrife and provide guidance on the proper time to perform management actions.

Important aspects of this management action will be the monitoring and record keeping that will occur in association with the control efforts. These records will include maps indicating infested areas and associated documentation regarding the actions that were used to control the areas, the timing of those actions, and the results of the actions. These maps and records will be used to track and document the successfulness of the program and to keep the LVDLA and all management entities listed in Management Goal 2 updated.

Please Note: As indicated within the Aquatic Plant Section, populations of giant reed were also located on the shorelands of Lac Vieux Desert (Map 2). Based upon morphologic verification by the UW Steven's Point Herbarium, the giant

reed occurrences are thought to be a native strain and therefore a control strategy is not included here. As indicated within that section, continued monitoring of these populations will be important to determine if the plant is acting invasively and if a more comprehensive understanding of this species and its occurrence within Lac Vieux Desert Lake is required.

Action Steps:

1. Recruit members to begin monitoring and control efforts
2. Group completes field surveys to identify infested areas
3. Initiate manual removal control methods
4. Monitor results and reapply control as necessary
5. Keep stakeholders and managers informed regarding program results

Management Goal 5: Improve Fishery Resource and Fishing

Management Action: Work with fisheries managers to enhance the walleye fishery on Lac Vieux Desert Lake

Timeframe: Ongoing

Facilitator: Rob Andersen

Description: As stated within the Fisheries Section, Lac Vieux Desert Lake stakeholders and fisheries managers would like to see an increase in the walleye populations. The WDNR fisheries biologist faults the lack of walleye recruitment, which cause remains unknown, and is not convinced that stocking of walleye will significantly affect the walleye population in Lac Vieux Desert Lake. Being founded on the idea of improving the fishery of the lake, the LVDLA feels that stocking of walleye is vital to the success of the lake's fishery. In spite of these differences, the WDNR and the LVDLA have entered an informal agreement where the lake association will be permitted to fund the stocking of the lake every-other year ***if*** fall recruitment surveys continually show low results. Pulse or every-other year stocking can lead to an understanding of natural reproduction versus stocking.

As a part of the Lac Vieux Desert Lake Wild Rice Plan, intense fish surveys have been completed in 2000, 2006, and 2009; and a future survey is scheduled for 2012. These surveys are aimed at evaluating whether the altered water level regime is impacting the fisheries. Once all this data is analyzed, the fisheries biologists will likely come forth with solid recommendations for the future management of the lake.

The LVDLA would like to continue its relationship with the WDNR, stocking walleye consistent with their informal agreement until a formal plan is reached. The LVDLA would also like to foster a relationship with the LVD Tribe where fish can be stocked into Lac Vieux Desert Lake from the tribe's nearby rearing ponds.

Action Steps:

1. See description above.