APPENDIX D CO₂ CALCULATIONS

Table 1: Baseline GHG Quantification Project # 21-7833

Power Generation via Coal			
Parameter/Variable	Value	Unit	Comments
Quantity of Power Generated via Coal	212,580,037 kWh	/year	Based on 49% of electricity generated by NSPI in 2021
Emission Factors			
Parameter/Variable	Value	Unit	Comments
Coal Generated Electricity	1.0251 kg C	O ₂ e/kWh	[Source: USEIA, 2022]
Conversion Factor	0.001 t CO	₂ e/kWh	1 kg = 0.001 Tonnes
Emissions	217,919.83 t CO	₂ e/year	B5*B8*B9
Power Generation via Oil			
Parameter/Variable	Value	Unit	Comments
Quantity of Power Generated via Oil	47,722,049 kWh	/year	Based on 11% of electricity generated by NSPI in 2021
Emission Factors			
Parameter/Variable	Value	Unit	Comments
Oil Generated Electricity	1.1068 kg C	-	[Source: USEIA, 2022]
Conversion Factor	0.001 t CO	₂ e/kWh	1 kg = 0.001 Tonnes
Emissions	52,817.09 t CO	₂ e/year	B14*B17*B18
Power Generation via Natural Gas			
Parameter/Variable	Value	Unit	Comments
Quantity of Power Generated via Natrual Gas	47,722,049 kWh	/year	Based on 11% of electricity generated by NSPI in 2021
Emission Factors			
Parameter/Variable	Value	Unit	Comments
Natural Gas Generated Electricity	0.4400 kg C	-	[Source: USEIA, 2022]
Conversion Factor	0.001 t CO		1 kg = 0.001 Tonnes
Emissions	20,996.97 t CO	₂ e/year	B23*B26*B27
Power Generation via Wind			
Parameter/Variable	Value	Unit	Comments
Quantity of Power Generated via Wind	125,812,675 kWh	/year	Based on 29% of electricity generated by NSPI in 2021
Emission Factors			
Parameter/Variable	Value	Unit	Comments
Wind Generated Electricity	0 t CO	₂ e/kWh	
Emissions	0 t CO	₂ e/year	B32*B35
Total Emissions	291,733.90 t CO	₂e/year	B10+B19+B28
	,		

User input data Compiled data



Table 2: Construction Phase GHG Quantification Project # 21-7833

Turbine Fabrication			
Parameter/Variable	Value	Unit	Comments
Turbine Steel	540,000	kg/Turbine	Based on weights provided in NREL's 2015Report [NREL, 2017]
	540.00	tonne/Turbine	1 kg = 0.001 Tonnes
Emission Factors			
Parameter/Variable	Value	Unit	Comments
General Steel	1.5 kg (CO₂e/kg	Estimated from the UK's mixture of steel types, excluding stainless steel (Inventory of Carbon & Energy (ICE), Version 2.0).
Conversion Factor	0.001 t C	O ₂ e/kg	1 kg = 0.001 Tonnes
Emissions	26,730.00 t C	O₂e	B5*B9*B10*33(WT)
Turbine Transportation			
Parameter/Variable	Value	Unit	Comments
Transportation Vehicule			
Heavy Duty Truck (Diesel)	1 ea		
Distance Travelled	1,156,672.00 km		From Brighton, CO to Norfolk, VA and Brooklyn, NS to Wind Turbine Laydowns (includes all the wind turbine components for all wind turbines).
Freight Weight	45.00 ton	ne	Estimate of each component; 540 tonnes/12 components
Marine Cargo and Containers (Diesel)	1 ea		From Marfelli, VA to Provide MC (includes 22 wind bushings)
Distance Travelled Freight Weight	42,900 km 540.00 ton	ne	From Norfolk, VA to Brooklyn, NS (includes 33 wind turbines). Cell B6
Emission Factors	340.00 1011	ile .	Cerr Bo
Parameter/Variable	Value	Unit	Comments
Heavy Duty Truck		O ₂ e/tonne·km	Freight emissions for calculating GHGs from freight (materials delivery, shipment of product to market, etc.) [Source: GHGenius v5.0d]
Conversion Factor	0.000001 t C		
		_	1 g = 0.00001 Tonnes
Emissions	7,026.78 t C		B16*B17*B18*B24*B25
Marine Cargo and Containers (Diesel)		O ₂ e/tonne·km	Freight emissions for calculating GHGs from freight (materials delivery, shipment of product to market, etc.) [Source: GHGenius v5.0d]
Conversion Factor	0.000001 t Co	O₂e/tonne·km	1 g = 0.000001 Tonnes
Emissions	349.81 t C	O₂e/year	B20*B21*B27*B28
Concrete Tower Foundation and Pedestal			
Parameter/Variable	Value	Unit	Comments
Concrete Production Quantity	2,500,000 kg		Based on a volume of 1,000 m³ (per Wind Turbine Pad) and density of 2,500 kg/m³
	2,500 ton		1 kg = 0.001 Tonnes
0	18 ton	ne/Truck	B34/B37
Concrete Transportation	140		Source Venter 2017
Concrete Truck Distance Travelled (freight)	140 ea 633.23 km		[Source: Kenter, 2017] Based on one-way trip from Concrete Supplier to each Wind Turbine Pad
Distance Travelled (Ireignt) Distance Travelled (no freight)	633.23 km		Based on one-way trip from each Wind Turbine Pad to Concrete Supplier to each Wind Turbine Pad Based on one-way trip from each Wind Turbine Pad to Concrete Supplier
Emission Factors	000.20 KIII		David on one may also make the desire that to controlle dappines
Parameter/Variable	Value	Unit	Comments
Concrete Production	300 g C		0.3 kg CO ₂ e/kg [Source: GHGenius v5.0d].
Concrete Truck (freight)	-	O₂e/tonne·km	Freight emissions for calculating GHGs from freight (materials delivery, shipment of product to market, etc.) [Source: GHGenius v5.0d].
Concrete Truck (neight)	1,106 g C	_	Emissions for calculating GHGs where the volume of fuel consumed is unknown but the distance travelled is known [Source: GHGenius v5.0d].
Conversion Factor	0.000001 t C	-	1 q = 0.000001 Tonnes
		_	· ·
Concrete Production Emissions	24,750.00 t C		B33*B42*B45*33 (WT)
Concrete Truck (freight) Emissions	213.72 t C		B35*B37*B38*B43*B45
Concrete Truck (no freight) Emissions	98.05 t C	•	B37*B39*B44*B45
Total Concrete Tower Foundation and Pedestl	25,061.76 t C	O₂e/year	B46+B47+B48
Total Emissions (Construction Phase)	59,168.35 t Co	O ₂ e	B11+B26+B29+B49

User input data Compiled data



Table 3: Construction Phase GHG Quantification Project # 21-7833

Value	Unit	Comments 45MW 3/5days 34bayrs 1000kW
433,836,810 kV	/h/year	See Equation $kWh = 33Turbines \times \frac{4.5MW}{Turbine} \times \frac{365days}{year} \times \frac{24hours}{day} \times 0.3335 \times \frac{1000kW}{MW} = 433,836,810kWh/year$
		Turbine year day MW
Value	Unit	Comments
0 t C	O ₂ e/kWh	
0 t C	O₂e/year	B5*B8
Value	Unit	Comments
10,200 kg	/Turbine	15% of Nacelle [Source: Padey et al., 2012]; Based on Vestas V90, Nacell weight = 68,000 kg [National Wind Watch, u.d.]
12,100 kg	/Turbine	[Source: Padey et al., 2012] Based on Gamesa G87, Blade assembly weight = 38,100 kg [National Wind Watch, u.d.]
Value	Unit	Comments
1.5 kg	CO ₂ e/kg	Estimated from the UK's mixture of steel types, excluding stainless steel (Inventory of Carbon & Energy (ICE), Version 2.0).
0.001 t C	O ₂ e/kg	1 kg = 0.001 Tonnes
33.45 t C	O ₂ e/turbine	(B13+B14)*B17*B18
1103.85 t C	O₂e	(B9+B19)*33(WT)
	Value 0 t C 0 t C Value 10,200 kg 12,100 kg Value 1.5 kg 0.001 t C	Value Unit Value Unit 0 t CO ₂ e/kWh 0 t CO ₂ e/year Value Unit 10,200 kg/Turbine 12,100 kg/Turbine

User input data Compiled data



APPENDIX E GROUNDWATER WELLS

Well Number	Address	Community	County	Date Inserted	Well Depth (m)	Casing Depth (m)	Bedrock Depth (m)	Static (m)	Yield (Lpm)	Elevation (m)	Well Type	Water Use	Easting	Northing
915	711 Milton, Highway #8	Milton	Queens	2000-09-21	44.15	6.09	4.26		10.22	37	Drilled	Domestic	357781	4882599
954	72 Glenwood Street	Milton	Queens	2000-11-29	50.24	6.09	3.04		4.54	25	Drilled	Domestic	359574	4881234
1177	359 West Street	Milton	Queens	2000-08-08	106.58				0.57	5	Drilled	Domestic	359444	4880058
1273	67 River Road	Milton	Queens	2000-11-28	77.65	12.18	3.65	1.52	6.81	25	Drilled	Domestic	357539	4882306
1274	Morton Street	Milton	Queens	2000-11-29	41.11			6.09	11.35	23	Drilled	Domestic	359500	4881500
11522	348 Main Street	Milton	Queens	2001-07-31	38.06	6.09	3.04		27.24	6	Drilled	Domestic	359400	4880365
11562	482 Main Street, Milton, Box 158	Milton	Queens	2001-09-13	105.05	6.09	4.57		0.57	17	Drilled	Domestic	358943	4881236
11584		Milton	Queens	2001-10-17	38.06	6.09	3.04		13.62	49	Drilled	Domestic	358500	4879500
11585	283 Main Street	Milton	Queens	2001-10-17	111.14	6.09	1.22		0.47	11	Drilled	Domestic	359500	4880500
11629	31 River Road	Milton	Queens	2001-12-19	56.33	6.09	4.57		38.59	26	Drilled	Domestic	357798	4882324
12295	471 West Milton, Liverpool	Milton	Queens	2001-10-19	85.26	9.74	6.09	0.04	18.16	6	Drilled	Domestic	358847	4880627
12504 12511	PO Box 220 Milton	Milton Milton	Queens Queens	2001-05-16 2001-07-30	77.65 18.27	12.18	3.96	0.91 3.04	13.62 22.70	11 9	Drilled Drilled	Domestic Domestic	359500 359270	4880500 4880071
20791	3 Oliver Street	Milton		2001-07-30	91.35	9.44	6.70	3.04	22.70	11	Drilled		359270	4880071
21567	39 Forrest Street, Liverpool	Milton	Queens Queens	2002-06-23	91.35	9.44	0.70	1.22	5.68		Drilled	Domestic Domestic	358763	4879374
21775	124 School Street	Milton	Queens	2002-06-04	80.69	6.09	4.26	1.22	5.68	42 17	Drilled	Domestic	359575	4880937
21779	20 Pleasant Street ACROSS FROM 368 West Street	Milton	Queens	2002-05-16	74.60	7.92	5.79		2.27	10	Drilled	Domestic	358500	4880500
21779		Milton	Queens	2002-06-12	44.15	7.92	5.48		11.35	11	Drilled	Domestic	359558	4880521
21833	15 FOREST Street	Milton	Queens	2002-08-21	38.06	6.09	1.22		18.16	6	Drilled	Domestic	358524	4880521
21835	553 West Street 321 Main Street	Milton	Queens	2002-08-22	74.60	6.09	2.44		9.08	5	Drilled	Domestic	358524	4880237
30597	372 West Street	Milton	Queens	2002-12-20	48.72	6.09	3.96		6.81	8	Drilled	Domestic	359340	4880032
30597	11 Oliver Street	Milton	Queens	2003-07-09	60.90	8.83	6.39		9.08	11	Drilled	Domestic	359233	4880026
31806	53 Moores Road	Milton	Queens	2003-07-10	98.96	6.09	1.52		9.00	36	Drilled	Domestic	352578	4883536
31834	99 Glenwood Street	Milton	Queens	2003-08-04	56.33	6.09	2.44		6.81	25	Drilled	Domestic	359755	4881293
31857	48 Pleasant Street	Milton	Queens	2003-09-30	31.97	6.09	1.52		54.48	13	Drilled	Domestic	359737	4880880
51679	2864 River Road, Big Falls, Milton	Milton	Queens	2005-11-12	38.06	9.14	7.92		63.56	41	Drilled	Domestic	346003	4888648
62010	199 Town Lake Road	Milton	Queens	2006-07-20	30.45	22.23	16.14		22.70	94	Drilled	Domestic	357914	4878874
62024	589 Highway #8	Milton	Queens	2006-09-01	97.44	22.23	10.14		2.27	23	Drilled	Domestic	358386	4881873
70343	465 Highway #8 (Main Street)	Milton	Queens	2007-05-15	68.51	8.22	6.09		18.16	21	Drilled	Domestic	359057	4881164
81403	Highway #8	Milton	Queens	2007-03-13	65.47	10.66	4.87	4.57	13.62	12	Drilled	Domestic	358746	4881332
90122	762 Highway #8	Milton	Queens	2009-05-05	38.06	6.09	4.87	4.57	20.43	36	Drilled	Domestic	357449	4882746
90407	442 West Street	Milton	Queens	2009-05-04	48.72	8.22	3.65		13.62	8	Drilled	Domestic	358875	4880246
100299	596 West Street, Milton	Milton	Queens	2010-09-08	60.29	6.09	3.04		10.22	10	Drilled	Domestic	358233	4881299
101112	490 West Street	Milton	Queens	2010-09-30	53.29	12.18	1.83	6.09	6.81	10	Drilled	Domestic	358694	4880673
101817	51 River Road	Milton	Queens	2010-07-21	85.26	8.22	7.61	3.04	4.54	25	Drilled	Domestic	357653	4882303
110697	629 Highway #8 (TRUNK #8)	Milton	Queens	2011-11-15	42.63	10.66	3.04		45.40	29	Drilled	Domestic	358167	4882104
120300	421 Main Street (Highway #8)	Milton	Queens	2012-08-17	50.24	6.09	4.57		36.32	18	Drilled	Domestic	359201	4880864
120602	310 (312) Highway #8, Milton, Box 246	Milton	Queens	2012-09-06	50.24	6.09	2.44		6.81	5	Drilled	Domestic	359548	4880139
130152	Glenwood Street	Milton	Queens	2013-07-18	3.04	3.04		1.22		20	Dug		359305	4880926
140330	552 Main Street (Highway #8)	Milton	Queens	2014-10-28	4.26	4.26		3.04		9	Dug		358565	4881590
140913	661 Main Street (Highway #8)	Milton	Queens	2014-09-18	54.81	12.18	9.14	6.09	18.16	31	Drilled	Domestic	358082	4882290
141198	14 River Road	Milton	Queens	2014-10-22	91.35	13.40	6.09	3.04	31.78	25	Drilled	Domestic	357898	4882203
150166	48 Woodworth Drive	Milton	Queens	2015-09-22	98.96				40.86	8	Drilled	Domestic	358866	4881086
160720	90 Glenwood Street	Milton	Queens	2016-09-07	79.17	12.18	4.57		6.81	28	Drilled	Domestic	359685	4881306
170202	168 Tupper Street	Milton	Queens	2017-05-22	97.44	12.18	4.57		9.08	10	Drilled	Domestic	359500	4879800
170752	3069 River Road	Indian Gardens	Queens	2017-07-13	73.08	8.53	4.57	6.09	3.40	45	Drilled	Domestic	345617	4889340
190114	10 Potanoc Street	Milton	Queens	2019-06-03	121.80	12.18	3.65		9.08	13	Drilled	Domestic	358822	4881245
190156	377 Highway 8	Milton	Queens	2019-07-24	36.54	12.18	4.57		22.70	14	Drilled	Domestic	359425	4880640
200764	343 Main Street	Milton	Queens	2020-07-23	79.17	6.09	1.22		49.94	6	Drilled	Domestic	359531	4880397
200841	390 West Street	Milton	Queens	2020-09-23	73.08	12.18	3.04		27.24	9	Drilled	Domestic	359218	4880128
640388		Milton	Queens	1964-12-31	27.40		1.83			9	Drilled	Domestic	359212	4880124
640389		Milton	Queens	1964-12-31	14.01		4.87			8	Drilled	Domestic	359637	4880500
650735			Queens	1965-07-26	41.11	5.79	1.83	2.44	9.08	52	Drilled	Industrial	345500	4889500
670050	1215 Manon Park, Lakewood Ohio USA		Queens	1967-02-28	39.28	6.39	1.52		18.16	52	Drilled	Domestic	345500	4889500
670396			Queens	1967-05-20	30.45	12.48		3.04	17.25	52	Drilled	Domestic	345500	4889500
670705			Queens	1967-03-03	35.02	6.39	5.18		9.08	52	Drilled	Domestic	345500	4889500
670767		Greenfield	Queens	1967-08-01	19.79	6.39	3.04	3.04	15.89	52	Drilled	Domestic	345500	4889500
700679			Queens	1970-01-02	24.97	4.87	3.35		18.16	52	Drilled	Domestic	345500	4889500
700844			Queens	1970-04-24	19.18	7.61	6.09		13.62	52	Drilled		345500	4889500
701381			Queens	1970-01-01	36.54	13.70	11.88		13.62	52	Drilled	Domestic	345500	4889500
721362	Glodes Falls	Riversdale	Queens	1972-12-20	29.54	5.48	3.35	3.04	11.35	52	Drilled	Domestic	345500	4889500



Well Number	Address	Community	County	Date Inserted	Well Depth (m)	Casing Depth (m)	Bedrock Depth (m)	Static (m)	Yield (Lpm)	Elevation (m)	Well Type	Water Use	Easting	Northing
732315			Queens	1973-09-25	24.36	3 11 ()	7.92	4.57	22.70	52	Drilled	Domestic	345500	4889500
741078	Indian Fields		Queens	1974-05-07	53.29	10.66	9.44	9.14	18.16	54	Drilled	Domestic	344209	4889915
741108	malar Fiolas		Queens	1974-08-23	47.20	6.70	5.18	3.35	4.54	52	Drilled	Domestic	345500	4889500
741179			Queens	1974-10-15	22.53	3.04	0.91	2.44	9.08	52	Drilled	Domestic	345500	4889500
741223	Milton West	Milton	Queens	1974-07-04	41.11	4.26	2.13	1.83	13.62	10	Drilled	Domestic	359728	4880549
741234			Queens	1974-11-14	53.29	16.14	5.18	3.04	45.40	52	Drilled	Domestic	345500	4889500
741289			Queens	1974-05-08	22.53	4.26	3.04	2.74	45.40	52	Drilled	Domestic	345500	4889500
741298		South Brookfield	Queens	1974-10-15	41.11	13.09	11.57	10.66	13.62	52	Drilled	Domestic	345500	4889500
742335		New Grafton	Queens	1974-08-02	19.79	6.09	3.65	3.04	45.40	52	Drilled	Domestic	345500	4889500
751214			Queens	1975-05-27	35.02	3.96	1.22	3.04	9.08	52	Drilled	Domestic	345500	4889500
751229			Queens Queens	1975-11-13	53.29	5.79 6.09	1.22	3.04	227.00	52	Drilled Drilled	Domestic Domestic	345500	4889500 4889500
761256 762223		Caledonia	Queens	1976-08-30 1976-07-29	28.32 27.40	6.09	2.44 2.44	18.27 1.83	317.80 43.13	52 52	Drilled	Domestic	345500 345500	4889500 4889500
762832		Milton	Queens	1976-07-29	45.68	4.42	3.04	1.03	22.70	10	Drilled	Domestic	359728	4880549
762833		Milton	Queens	1976-07-15	30.45	4.57	3.65	1.83	13.62	10	Drilled	Domestic	359728	4880549
762835		Milton	Queens	1976-07-15	38.06	4.57	1.83	2.44	9.08	10	Drilled	Domestic	359728	4880549
762837		Milton	Queens	1976-06-15	30.45	5.79	3.65	3.04	6.81	10	Drilled	Domestic	359728	4880549
762838	Forest Street	Milton	Queens	1976-07-15	30.45	5.79	3.96	3.35	9.08	10	Drilled	Domestic	359728	4880549
762839		Milton	Queens	1976-06-15	30.45	5.18	3.65		13.62	10	Drilled	Domestic	359728	4880549
762841		Milton	Queens	1976-07-15	15.22	4.26	2.44	1.52	45.40	10	Drilled	Domestic	359728	4880549
762842		Milton	Queens	1976-07-15	38.06	5.48	3.65	2.13	6.81	10	Drilled	Domestic	359728	4880549
770832			Queens	1977-01-01	35.02	5.48	3.65		4.54	52	Drilled	Domestic	345500	4889500
770833			Queens	1977-01-01	25.88	7.92	6.09		27.24	52	Drilled	Domestic	345500	4889500
770834			Queens	1977-01-01	47.20	3.96	0.91	3.04	6.81	52	Drilled	Domestic	345500	4889500
770854		Beach Meadows	Queens	1977-01-01	24.36	2.13			36.32	52	Drilled	Domestic	345500	4889500
770856			Queens	1977-09-02	41.11	10.05	7.61	3.04	4.54	52	Drilled	Domestic	345500	4889500
770860			Queens	1977-01-01	39.58	39.58	19.79		36.32	52	Drilled	Domestic	345500	4889500
770863		Greenfield	Queens	1977-01-01	42.63	23.75	21.32		13.62	83	Drilled	Domestic	352299	4878924
770867		A 200	Queens	1977-01-01	22.84	6.70	4.57	4.00	27.24	52	Drilled	Domestic	345500	4889500
781528		Milton	Queens	1978-12-31	38.06	6.09		4.26	13.62	7	Drilled	Domestic	359007	4880321
781529 781530		Milton Milton	Queens Queens	1978-12-31 1978-12-31	28.93 35.02	4.87		2.44 2.13	18.16 18.16	7	Drilled Drilled	Domestic Domestic	359007 359007	4880321 4880321
781531		Milton	Queens	1978-12-31	49.33	6.70		2.13	13.62	7	Drilled	Domestic	359007	4880321
781532		Milton	Queens	1978-12-31	22.84	8.53			27.24	18	Drilled	Domestic	357372	4881900
821914	Liverpool	Milton	Queens	1982-05-01	42.63	6.70	3.04		13.62	10	Drilled	Domestic	359728	4880549
821995	Liverpoor	Milton	Queens	1982-05-28	73.08	12.79	10.66		3.18	35	Drilled	Domestic	359040	4881864
822034	482 Milton	Milton	Queens	1982-07-07	79.17	9.44	7.31		4.54	17	Drilled	Domestic	358943	4881236
822045	461 Main Street	Milton	Queens	1982-07-15	79.17	9.14	7.61		3.18	21	Drilled	Domestic	359097	4881153
822117	356 Main Street	Milton	Queens	1982-06-10	42.63	6.39	2.44		36.32	8	Drilled	Domestic	359425	4880002
831260	Great Hill Road #1	Milton	Queens	1983-04-26	30.45	6.70	4.87		6.81	7	Drilled	Domestic	359007	4880321
831330	481 West Street	Milton	Queens	1983-06-26	42.63	6.39	2.44		45.40	5	Drilled	Domestic	358791	4880664
841141	RR#1 Caledonia	Milton	Queens	1984-07-13	30.45	6.70	4.26	6.09	31.78	10	Drilled	Domestic	359728	4880549
851597		Milton	Queens	1985-05-13	36.54	6.09	2.74		9.08	49	Drilled	Domestic	358500	4879500
862297		Milton	Queens	1986-07-24	25.88	5.18	3.04	3.04	136.20	10	Drilled	Domestic	359728	4880549
862311	Milford Street	Milton	Queens	1986-07-23	41.11	4.26	1.83	1.83	13.62	11	Drilled	Domestic	359500	4880500
870303	550 West Street	Milton	Queens	1987-08-07	60.90	6.09	4.57		3.18	9	Drilled	Domestic	358471	4881075
870699	365 Main Street	Milton	Queens	1987-08-27	51.76 54.81	6.09	4.26 3.04		22.70 36.32	12 20	Drilled	Domestic	359500	4880623
870838 870854	131 River Road 356 Main Street	Milton Milton	Queens Queens	1987-11-05 1987-09-08	30.45	6.09 6.09	3.04 6.09		22.70	9	Drilled Drilled	Domestic Domestic	357125 359420	4882125 4880461
870854 870857	577 West Street	Milton	Queens	1987-09-08	30.45 54.81	6.09	2.44		5.45	8	Drilled	Domestic	359420	4880461
870858	438 West Street	Milton	Queens	1987-09-10	30.45	6.09	2.74		13.62	9	Drilled	Domestic	358935	4880317
871120	115 Glenwood Street	Milton	Queens	1987-10-05	28.32	10.66	9.14	3.04	27.24	30	Drilled	Domestic	359846	4881361
871181	TTO GIGHWOOD GROOT	Milton	Queens	1987-07-29	65.47	10.00	5	0.0.	227.00	39	Drilled	Other	356500	4880500
871244		Milton	Queens	1987-10-02	53.29	6.09	3.04	3.04	13.62	49	Drilled	Domestic	358500	4879500
880179	84 Glenwood	Milton	Queens	1988-05-05	60.90	6.09	4.26	2.01	3.18	28	Drilled	Domestic	359644	4881306
880180	361 Main Street	Milton	Queens	1988-05-06	42.63	6.09	3.04		22.70	10	Drilled	Domestic	359465	4880534
880197	531 West Street	Milton	Queens	1988-05-22	48.72	9.14	7.00		18.16	6	Drilled	Domestic	358661	4880992
880242	95 Main Street	Milton	Queens	1988-01-26	36.54	6.09	1.83		15.89	38	Drilled	Domestic	358863	4879530
880243	476 Main Street	Milton	Queens	1988-01-27	48.72	10.05	4.57		4.54	9	Drilled	Domestic	358887	4881061
880524	91 School Street	Milton	Queens	1988-07-23	24.36	6.09	3.65		18.16	32	Drilled	Domestic	358929	4879595
880690	91 School Street	Milton	Queens	1988-08-30	48.72	12.18	6.70		2.27	32	Drilled	Domestic	358929	4879595



Well Number	Address	Community	County	Date Inserted	Well Depth (m)	Casing Depth (m)	Bedrock Depth (m)	Static (m)	Yield (Lpm)	Elevation (m)	Well Type	Water Use	Easting	Northing
880732	15 Pleasant Street	Milton	Queens	1988-08-11	91.35	18.27	15.22		0.91	18	Drilled	Domestic	359445	4880851
880864	361 Main Street	Milton	Queens	1988-09-19	54.81	12.18	6.09		13.62	10	Drilled	Domestic	359465	4880534
882297		Beech Hill Farms	Queens	1988-10-31	25.88	10.35	8.53		45.40	104	Drilled	Domestic	355500	4871500
890118		Milton	Queens	1989-01-24	44.15	6.70	4.26		68.10	11	Drilled	Domestic	359500	4880500
890251	688 Main Street	Milton	Queens	1989-06-02	36.54	6.09	4.87		4.54	32	Drilled	Domestic	357852	4882420
890252		Mersey Point	Queens	1989-06-03	36.54	6.09	4.57		13.62	98	Drilled	Domestic	355500	4875500
890253		Mersey Point	Queens	1989-06-05	39.58	6.09	4.57		22.70	98	Drilled	Domestic	355500	4875500
890377	422 West Street	Milton	Queens	1989-07-27	30.45	6.09	2.44		13.62	8	Drilled	Domestic	359017	4880254
890660	15 Pleasant Street	Milton	Queens	1989-08-01		22.84				18	Drilled	Domestic	359445	4880851
891703	559 Westside Road	Milton	Queens	1989-11-02	56.33	6.09	3.04		4.54	7	Drilled		358487	4881179
891969	Glenwood Street	Milton	Queens	1989-08-02	35.02	6.09	4.57	3.04	36.32	11	Drilled		359500	4880500
892298		Milton	Queens	1989-12-06	91.35	21.92	7.61		4.54	10	Drilled		359728	4880549
900725	River Road	Milton	Queens	1990-09-14	30.45	6.09	3.04		90.80	10	Drilled		359728	4880549
901633		Milton	Queens	1990-05-22	114.19	10.35	2.13	2.13	0.45	49	Drilled		358500	4879500
903074	34 Forrest Street	Milton	Queens	1990-07-14	44.15	6.09			6.81	13	Drilled		359607	4880672
910192	31 Forrest Street	Brooklyn	Queens	1991-02-02	97.44	10.66			3.18	11	Drilled		359500	4880500
910551	RR#1 Hunts Point	Milton	Queens	1991-07-24	24.36	6.09	5.48		18.16	11	Drilled	Domestic	359500	4880500
911073	357 Main Street, Milton - Grey	Milton	Queens	1991-10-31	79.17	30.45	3.65		9.08	10	Drilled	Domestic	359467	4880493
911295	River Road, Guzzel	Milton	Queens	1991-09-30	89.83	6.70	3.96	4.57	4.54	64	Drilled	Domestic	348500	4886500
911730		Milton	Queens	1991-02-02	97.44	10.66			3.18	23	Drilled	Domestic	359500	4881500
911734	335 West Street	Milton	Queens	1991-07-29	69.73	6.09			13.62	5	Drilled	Domestic	359554	4879969
911750	638 Main Street	Moose Hill	Queens	1991-11-06	86.78	9.14	7.00		11.35	23	Drilled	Domestic	357914	4882155
911780	353 West Street	Milton	Queens	1991-10-01	76.12	17.05	14.31		9.08	7	Drilled	Domestic	359462	4880020
911788	105 Morton Street	Milton	Queens	1991-06-20	111.14	7.61			1.36	11	Drilled	Domestic	359500	4880500
920038	595 Main Street	Milton	Queens	1992-03-09	42.63	6.09	3.65		2.27	23	Drilled	Domestic	358383	4881849
921547	53 River Road	Milton	Queens	1992-06-20	50.24	8.53	6.39		11.35	25	Drilled	Domestic	357632	4882296
931650	23 Morley Street	Milton	Queens	1993-10-21	65.47	13.09	6.09	3.04	9.08	17	Drilled	Domestic	358747	4881646
931870	591 West Street	Milton	Queens	1993-09-01	92.87	6.09	2.44		1.36	10	Drilled	Domestic	358296	4881369
942371		Milton	Queens	1994-11-14	36.54	6.09	0.61	4.57	36.32	31	Drilled	Domestic	352500	4883500
943101	School Street, Corner Main Street	Milton	Queens	1994-07-03	79.17				2.27	8	Drilled	Domestic	359425	4880002
951493	463 Milton	Milton	Queens	1995-05-23	79.17	10.35	2.44	4.57	9.08	23	Drilled	Domestic	359149	4881230
961070	90 School Street	Milton	Queens	1996-07-26	48.72	12.18	3.04		7.72	34	Drilled	Domestic	359006	4879525
961116	503 West Street	Liverpool	Queens	1996-04-11	54.81	6.09	4.26		22.70	5	Drilled	Domestic	358707	4880799
961539	50 Forest Street	Milton	Queens	1996-09-17	77.65	9.74	4.57	5.48	13.62	11	Drilled	Domestic	359500	4880500
970288		Milton	Queens	1997-01-28	48.72	12.18	6.09	6.09	36.32	29	Drilled	Domestic	357500	4882500
970308	680 Main Street	Milton	Queens	1997-05-14	66.99			12.18	2.27	29	Drilled	Domestic	357925	4882379
970443	30 Glenwood Street	Milton	Queens	1997-07-09	48.72	9.14	2.44		6.81	24	Drilled	Domestic	359315	4881019
970780	408 West Street	Milton	Queens	1997-10-03	48.72	6.09	0.61	3.04	9.08	10	Drilled	Domestic	359108	4880203
970783	West Street	Milton	Queens	1997-10-07	60.90	6.09	0.91		4.54	10	Drilled	Domestic	358500	4880500
971519	46 Pleasant Street	Milton	Queens	1997-10-30	74.60	6.09	1.22	4.00	5.45	13	Drilled	Domestic	359713	4880893
971743	506 Milton West	Milton	Queens	1997-06-24	50.24	8.83		1.83	9.08	7	Drilled	Domestic	358655	4880765
981434	School Street	Milton	Queens	1998-05-05	108.10	9.44	0.61	4.57	4.54	10	Drilled	Domestic	359728	4880549
981717	355 Milton West	Milton	Queens	1998-07-11	54.81	0.00	4.00	2.00	2.27	6	Drilled	Domestic	359460	4880048
990429		Milton	Queens	1999-07-12	66.99	6.09	4.26	3.96	4.54	10	Drilled	Domestic	358500	4880500
990430		Milton	Queens	1999-07-13	79.17	6.09	4.57	1	4.54	10	Drilled	Domestic	358500	4880500
990725		Beech Hill Farms	Queens	1999-12-09	6.09	6.09	0.05	4.50	04.70	71	Dug	Domestic	355500	4872500
992235	West Street	Milton	Queens	1999-05-17	47.20	10.35	3.35	1.52	31.78	10	Drilled	Domestic	358500	4880500
992307	176 Tupper Street	Milton	Queens Minimum	1999-07-26	53.29	7.61	3.04	3.04	45.40	8	Drilled	Domestic	359508	4879879
	Ot-st-st			1964-12-31	3.04	2.13	0.61	0.91	0.45	5.00				
	Statistics	Maximum	2020-09-23	121.80 52.13	39.58 8.42	21.32 4.60	18.27 3.84	317.80 21.73	104.00 26.80					
			Average	n/a	52.13	8.42	4.60	3.84	21.73	26.80				



APPENDIX F WATERBODIES AND WATERCOURSES

Table 1: Watercourse Characteristics - Mersey River Wind Farm Project

Watercourse ID	Watercourse Type	Bank Full Width (m)	Wetted Width (m)	Water Depth (cm)	Dominant Substrate Type	Drainage Direction	Aquatic Habitat	In Stream Cover/ Vegetation	Dominant Riparian Habitat	Fish Bearing Potential	Evidence of Alteration	Other Observations
WC1	Ephemeral	1.24	0.86	18	Rubble	South	Riffles with intermittent subterranean flow	Boudlers = Moderate Overhanging vegetation = Moderate Small woody debris = Abundant Deep pools = None Undercut banks = Trace Instream vegetation = Trace	Softwood	Unlikely due to the nature of the feature. Many barriers to fish passage. Culvert blocked by organic material.	Yes, plastic culvert installation for road crossing.	This watercourse transitions into a subterranean channel 10-15 m on either side of road. A culvert has been installed at the road crossing.
WC2	Small permanent	4.23	3.11	13	Rubble	East	Areas of riffles and flats			,	Yes, plastic culvert installation for road crossing.	A culvert has been installed to allow watercourse to pass under the road. Upstream of culvert the flow runs parallel to road, and downstream flow runs perpendicular to road and disperses into a wetland area outside of the road boundary.
WC3	Large permanent	12.3	9.86	42	Boulder	East	Areas of riffles, flats, pools	Boudlers = Trace Overhanging vegetation = Moderate Small woody debris = Trace Deep pools = Moderate Undercut banks = Moderate Instream vegetation = Trace	nanging vegetation = Moderate mall woody debris = Trace Deep pools = Moderate Indercut banks = Moderate		Yes, wooden bridge spanning crossing.	This was a large watercourse that flowed through a nearby wetland. Lots of large overhanging trees, as well as historic beaver activity.
WC4	Intermittent	5.72	4.63	23	Boulder	North	Areas of riffles, runs	Boudlers = Moderate Overhanging vegetation = Trace Small woody debris = Moderate Deep pools = Trace Undercut banks = Trace Instream vegetation = Trace	rhanging vegetation = Trace all woody debris = Moderate Deep pools = Trace Undercut banks = Trace		No, watercourse was located in an undisturbed area.	This watercourse was intermittently subterranean. Flow dissipates below ground both upstream and downstram. Likely the headwaters for a treed swamp downstream.
WC5	Small permanent	3.79	3.03	12	Boulder	North	Areas of riffles, flats	Boudlers = Moderate Overhanging vegetation = Moderate Small woody debris = Trace Deep pools = Trace Undercut banks = Trace Instream vegetation = Trace	Softwood	Potentially. Adequate depth with traces of macrophytic vegetation. Intermittently subterranean.	Yes, two metal culverts installed for road crossing. One culvert seemed older than the other.	
WC6	Small permanent	4.22	3.38	27	Fines	North	Flats	Boudlers = None Overhanging vegetation = Moderate Small woody debris = Moderate Deep pools = Trace Undercut banks = Trace Instream vegetation = Trace	Softwood	Potentially. Many barriers to fish passage. Low water levels, but channel suggests higher levels ephemerally.	Yes, plastic culvert installation for road crossing.	This watercourse was located along the south side of the access road. Likely a drainage channel, becoming subterranean within metres of the road.
WC7	Small permanent	1.87	0.48	11	Fines	North	Runs	Boudlers = Moderate Overhanging vegetation = Moderate Small woody debris = Moderate Deep pools = None Undercut banks = Trace Instream vegetation = Trace		Unlikely due to the nature of the feature. Many barriers to fish passage. Culvert elevated and blocked by large rocks on one side.	Yes, plastic culvert installation for road crossing.	The watercourse passes under the roadway via two culverts. Dissipates into subterranean flow near the study boundary.
WC8	Large permanent	6.48	5.24	13	Bedrock	North	Areas of riffles, flats, pools	Boudlers = Abundant Overhanging vegetation = Abundant Small woody debris = Trace Deep pools = Moderate Undercut banks = None Instream vegetation = Trace		Likely fish-bearing. Adequate water levels, plenty of refuge areas.	Yes, wooden bridge spanning across.	A large watercourse feature with boulder- laden banks.
WC9	Small permanent	1.12	1.01	18	Boulder	South	Areas of flats, pools	Boudlers = Moderate Overhanging vegetation = Moderate Small woody debris = Moderate Deep pools = None Undercut banks = Trace Instream vegetation = None	Softwood	Unlikely due to the nature of the feature. Many barriers to fish passage. Inadequate water levels.	No, watercourse was located in an undisturbed area.	A small watercourse with low water levels and minimal flow.





Photo 1. A representative photo of WC1.



Photo 2. Evidence of alteration along WC1.



Photo 3. A representative photo of WC2.



Photo 4. Evidence of alteration along WC2.

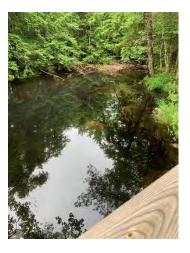


Photo 5. A representative photo of WC3.



Photo 6. Evidence of alteration along WC3.





Photo 7. A representative photo of WC4.



Photo 8. A representative photo of WC5.



Photo 9. Evidence of alteration along WC5.



Photo 10. A representative photo of WC6.



Photo 11. Evidence of alteration along WC6.



Photo 12. A representative photo of WC7.





Photo 13. Evidence of alteration along WC7.



Photo 14. A representative photo of WC8.



Photo 15. Evidence of alteration along WC8.



Photo 16. A representative photo of WC9.



APPENDIX G ACCDC REPORT



DATA REPORT 7534: Milton, NS

Prepared 3 January 2023 by J. Churchill, Conservation Data Analyst

CONTENTS OF REPORT

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- 3.1 Managed Areas
- 3.2 Significant Areas

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5.0 Rare Species within 100 km

5.1 Source Bibliography



Map 1. A 100 km buffer around the study area

1.0 PREFACE

The Atlantic Canada Conservation Data Centre (AC CDC; www.accdc.com) is part of a network of NatureServe data centres and heritage programs serving 50 states in the U.S.A, 10 provinces and 1 territory in Canada, plus several Central and South American countries. The NatureServe network is more than 30 years old and shares a common conservation data methodology. The AC CDC was founded in 1997, and maintains data for the jurisdictions of New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador. Although a non-governmental agency, the AC CDC is supported by 6 federal agencies and 4 provincial governments, as well as through outside grants and data processing fees.

Upon request and for a fee, the AC CDC queries its database and produces customized reports of the rare and endangered flora and fauna known to occur in or near a specified study area. As a supplement to that data, the AC CDC includes locations of managed areas with some level of protection, and known sites of ecological interest or sensitivity.

1.1 DATA LIST

Included datasets:

<u> 'ilename</u>		<u>Contents</u>
Lilton NIC	75240110	Domo on 1000

MiltonNS_7534ob.xls Rare or legally-protected Flora and Fauna in your study area

MiltonNS_7534ob.100lcm via

A list of Plans and legally-protected Flora and Flora and Flora within 14

MiltonNS_7534ob100km.xls A list of Rare and legally protected Flora and Fauna within 100 km of your study area

MiltonNS 7534msa.xls Managed and Biologically Significant Areas in your study area

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1.2 RESTRICTIONS

The AC CDC makes a strong effort to verify the accuracy of all the data that it manages, but it shall not be held responsible for any inaccuracies in data that it provides. By accepting AC CDC data, recipients assent to the following limits of use:

- a) Data is restricted to use by trained personnel who are sensitive to landowner interests and to potential threats to rare and/or endangered flora and fauna posed by the information provided.
- b) Data is restricted to use by the specified Data User; any third party requiring data must make its own data request.
- c) The AC CDC requires Data Users to cease using and delete data 12 months after receipt, and to make a new request for updated data if necessary at that time.
- d) AC CDC data responses are restricted to the data in our Data System at the time of the data request.
- e) Each record has an estimate of locational uncertainty, which must be referenced in order to understand the record's relevance to a particular location. Please see attached Data Dictionary for details.
- f) AC CDC data responses are not to be construed as exhaustive inventories of taxa in an area.
- g) The absence of a taxon cannot be inferred by its absence in an AC CDC data response.

1.3 ADDITIONAL INFORMATION

The accompanying Data Dictionary provides metadata for the data provided.

Please direct any additional questions about AC CDC data to the following individuals:

Plants, Lichens, Ranking Methods, All other Inquiries	Sean Blaney	Senior Scientist / Executive Director	(506) 364-2658	sean.blaney@accdc.ca
Animals (Fauna)	John Klymko	Zoologist	(506) 364-2660	john.klymko@accdc.ca
Data Management, GIS	Data Management, GIS James Churchill			james.churchill@accdc.ca
Billing	Jean Breau	Financial Manager / Executive Assistant	(506) 364-2657	jean.breau@accdc.ca

Questions on the biology of Federal Species at Risk can be directed to AC CDC: (506) 364-2658, with questions on Species at Risk regulations to: Samara Eaton, Canadian Wildlife Service (NB and PE): (506) 364-5060 or Julie McKnight, Canadian Wildlife Service (NS): (902) 426-4196.

New Brunswick. For information about rare taxa, protected areas, game animals, deer yards, old growth forests, archeological sites, fish habitat etc., or to determine if location-sensitive species (section 4.3) occur near your study site, please contact Hubert Askanas, Energy and Resource Development: (506) 453-5873.

Nova Scotia. For information about Species at Risk or general questions about Nova Scotia location-sensitive species please contact the Biodiversity Program at <u>biodiversity@novascotia.ca</u>. For questions about protected areas, game animals, deer yards, old growth forests, archeological sites, fish habitat etc., or to determine if location-sensitive species (section 4.3) occur near your study site please contact a Regional Biologist:

DIGB, ANNA, KING	Emma Vost	(902) 670-8187	Emma.Vost@novascotia.ca
SHEL, YARM	Sian Wilson	(902) 930-2978	Sian.Wilson@novascotia.ca
QUEE, LUNE	Peter Kydd	(902) 523-0969	Peter.Kydd@novascotia.ca
HALI, HANT	Shavonne Meyer	(902) 893-0816	Shavonne.Meyer@novascotia.ca
Central Region	Jolene Laverty	(902) 324-8953	Jolene.Laverty@novascotia.ca
COLC, CUMB	Kimberly George	(902) 890-1046	Kimberly.George@novascotia.ca
ANTI, GUYS	Harrison Moore	(902) 497-4119	Harrison.Moore@novascotia.ca
INVE, VICT	Maureen Cameron-MacMillan	(902) 295-2554	Maureen.Cameron-MacMillan@novascotia.ca
CAPE, RICH, PICT	Elizabeth Walsh	(902) 563-3370	Elizabeth.Walsh@novascotia.ca

Prince Edward Island. For information about rare taxa, protected areas, game animals, fish habitat etc., please contact Garry Gregory, PEI Department of Environment, Energy and Climate Action: (902) 569-7595.

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2.0 RARE AND ENDANGERED SPECIES

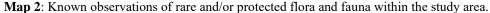
2.1 FLORA

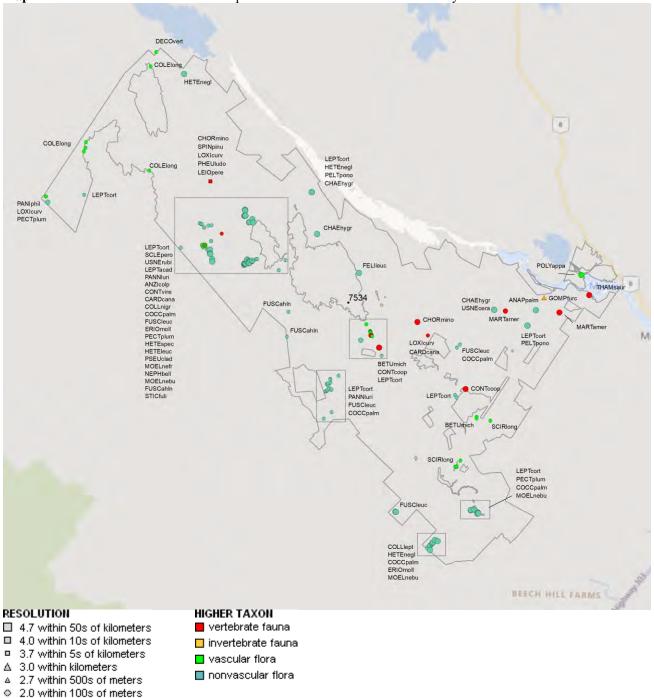
The study area contains 24 records of 6 vascular and 127 records of 26 nonvascular flora (Map 2 and attached: *ob.xls), excluding 'location-sensitive' species.

2.2 FAUNA

1.7 within 10s of meters

The study area contains 18 records of 10 vertebrate and 1 record of 1 invertebrate fauna (Map 2 and attached data files - see 1.1 Data List), excluding 'location-sensitive' species. Please see section 4.3 to determine if 'location-sensitive' species occur near your study site.





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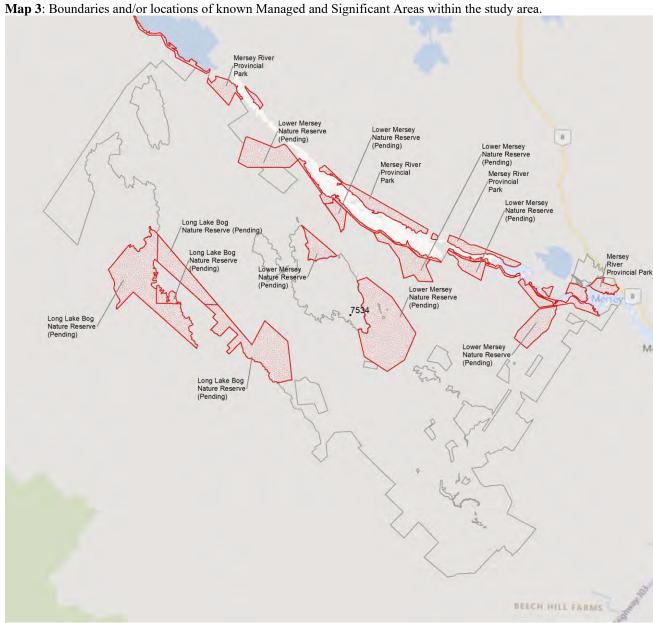
3.0 SPECIAL AREAS

3.1 MANAGED AREAS

The GIS scan identified 4 managed areas in the vicinity of the study area (Map 3 and attached file: *msa.xls).

3.2 SIGNIFICANT AREAS

The GIS scan identified no biologically significant sites in the vicinity of the study area (Map 3).



Managed Area Significant Area

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4.0 RARE SPECIES LISTS

Rare and/or endangered taxa (excluding "location-sensitive" species, section 4.3) within the study area listed in order of concern, beginning with legally listed taxa, with the number of observations per taxon and the distance in kilometers from study area centroid to the closest observation (\pm the precision, in km, of the record). [P] = vascular plant, [N] = nonvascular plant, [A] = vertebrate animal, [I] = invertebrate animal, [C] = community. Note: records are from attached files *ob.xls/*ob.shp only.

4.1 FLORA

	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)
Ν	Erioderma mollissimum	Graceful Felt Lichen	Endangered	Endangered	Endangered	S1	5	4.8 ± 0.0
Ν	Pannaria lurida	Wrinkled Shingle Lichen	Threatened	Threatened	Threatened	S2S3	16	2.7 ± 0.0
Ν	Anzia colpodes	Black-foam Lichen	Threatened	Threatened	Threatened	S3	1	5.3 ± 0.0
Ν	Fuscopannaria leucosticta	White-rimmed Shingle Lichen	Threatened			S3	23	2.5 ± 0.0
Ν	Pectenia plumbea	Blue Felt Lichen	Special Concern	Special Concern	Vulnerable	S3	4	10.3 ± 0.0
Ν	Sclerophora peronella (Atlantic pop.)	Frosted Glass-whiskers (Atlantic population)	Special Concern	Special Concern		S3S4	3	3.6 ± 0.0
N	Pseudevernia cladonia	Ghost Antler Lichen	Not At Risk			S2S3	1	3.5 ± 0.0
Ν	Heterodermia leucomela	Elegant Fringe Lichen				S1	1	3.5 ± 0.0
Ν	Peltigera ponojensis	Pale-bellied Pelt Lichen				S1S2	2	3.8 ± 0.0
Ν	Chaenotheca hygrophila	a lichen				S1S3	3	2.5 ± 0.0
Ν	Moelleropsis nebulosa	Blue-gray Moss Shingle Lichen				S2S3	4	4.4 ± 0.0
Ν	Moelleropsis nebulosa ssp. frullaniae	Blue-gray Moss Shingle Lichen				S2S3	1	3.4 ± 0.0
Ν	Collema leptaleum	Crumpled Bat's Wing Lichen				S2S3	1	8.2 ± 0.0
Ν	Usnea ceratina	Warty Beard Lichen				S2S3	1	4.7 ± 0.0
Ν	Usnea rubicunda	Red Beard Lichen				S2S3	2	5.4 ± 0.0
Ν	Collema nigrescens	Blistered Tarpaper Lichen				S3	5	2.5 ± 0.0
Ν	Fuscopannaria ahlneri	Corrugated Shingles Lichen				S3	4	2.0 ± 0.0
Ν	Nephroma bellum	Naked Kidney Lichen				S3	1	3.6 ± 0.0
Ν	Sticta fuliginosa	Peppered Moon Lichen				S3S4	7	3.6 ± 0.0
Ν	Leptogium acadiense	Acadian Jellyskin Lichen				S3S4	1	4.1 ± 0.0
Ν	Felipes leucopellaeus					S3S4	1	1.0 ± 0.0
Ν	Heterodermia speciosa	Powdered Fringe Lichen				S3S4	1	4.8 ± 0.0
Ν	Leptogium corticola	Blistered Jellyskin Lichen				S3S4	15	1.3 ± 0.0
Ν	Coccocarpia palmicola	Salted Shell Lichen				S3S4	20	3.4 ± 0.0
Ν	Anaptychia palmulata	Shaggy Fringed Lichen				S3S4	1	6.1 ± 0.0
Ν	Heterodermia neglecta	Fringe Lichen				S3S4	3	3.8 ± 0.0
Ρ	Scirpus longii	Long's Bulrush	Special Concern		Vulnerable	S3	5	6.0 ± 0.0
Ρ	Betula michauxii	Michaux's Dwarf Birch				S3	11	0.9 ± 0.0
Ρ	Polypodium appalachianum	Appalachian Polypody				S3	1	7.6 ± 0.0
Р	Decodon verticillatus	Swamp Loosestrife				S3S4	1	10.3 ± 0.0
Р	Coleataenia longifolia	Long-leaved Panicgrass				S3S4	5	10.0 ± 0.0
Р	Panicum philadelphicum	Philadelphia Panicgrass				S3S4	1	10.4 ± 0.0

4.2 FAUNA

	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)
Α	Thamnophis saurita	Eastern Ribbonsnake	Threatened	Threatened	Threatened	S2S3	1	7.8 ± 0.0
Α	Cardellina canadensis	Canada Warbler	Special Concern	Threatened	Endangered	S3B	3	2.8 ± 0.0
Α	Chordeiles minor	Common Nighthawk	Special Concern	Threatened	Threatened	S3B	2	2.3 ± 0.0
Α	Contopus cooperi	Olive-sided Flycatcher	Special Concern	Threatened	Threatened	S3B	3	1.3 ± 0.0
Α	Contopus virens	Eastern Wood-Pewee	Special Concern	Special Concern	Vulnerable	S3S4B	1	4.7 ± 0.0
Α	Martes americana	American Marten			Endangered	S2S3	2	5.1 ± 0.0
Α	Spinus pinus	Pine Siskin				S3	1	6.0 ± 7.0
Α	Pheucticus Iudovicianus	Rose-breasted Grosbeak				S3B	1	6.0 ± 7.0
Α	Loxia curvirostra	Red Crossbill				S3S4	3	10.4 ± 0.0

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	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)
Α	Leiothlypis peregrina	Tennessee Warbler				S3S4B,S5M	1	6.0 ± 7.0
- 1	Gomphaeschna furcillata	Harlequin Darner				S3S4	1	6.4 ± 1.0

4.3 LOCATION SENSITIVE SPECIES

The Department of Natural Resources in each Maritimes province considers a number of species "location sensitive". Concern about exploitation of location-sensitive species precludes inclusion of precise coordinates in this report. Those intersecting your study area are indicated below with "YES".

Nova Scotia

Scientific Name	Common Name	SARA	Prov Legal Prot	Known within the Study Site?
Fraxinus nigra	Black Ash		Threatened	No
Emydoidea blandingii	Blanding's Turtle - Nova Scotia pop.	Endangered	Endangered	No
Glyptemys insculpta	Wood Turtle	Threatened	Threatened	No
Falco peregrinus pop. 1	Peregrine Falcon - anatum/tundrius pop.	Special Concern	Vulnerable	No
Bat hibernaculum or ba	t species occurrence	[Endangered] ¹	[Endangered]1	No

¹ Myotis lucifugus (Little Brown Myotis), Myotis septentrionalis (Long-eared Myotis), and Perimyotis subflavus (Tri-colored Bat or Eastern Pipistrelle) are all Endangered under the Federal Species at Risk Act and the NS Endangered Species Act.

4.4 SOURCE BIBLIOGRAPHY

The recipient of these data shall acknowledge the AC CDC and the data sources listed below in any documents, reports, publications or presentations, in which this dataset makes a significant contribution.

# recs	CITATION
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1	Neily, T.H. & Pepper, C.; Toms, B. 2020. Nova Scotia lichen database [as of 2020-05-25]. Mersey Tobeatic Research Institute, 668 recs.
1	Toms, Brad. 2011. Species at Risk data from 2011 field surveys. Mersey Tobeatic Research Institute, 17 recs.

5.0 RARE SPECIES WITHIN 100 KM

Tavonomic

A 100 km buffer around the study area contains 50912 records of 149 vertebrate and 822 records of 53 invertebrate fauna; 19668 records of 211 vascular and 6145 records of 166 nonvascular flora (attached: *ob100km.xls).

Taxa within 100 km of the study site that are rare and/or endangered in the province in which the study site occurs (including "location-sensitive" species). All ranks correspond to the province in which the study site falls, even for out-of-province records. Taxa are listed in order of concern, beginning with legally listed taxa, with the number of observations per taxon and the distance in kilometers from study area centroid to the closest observation (± the precision, in km, of the record).

Taxonomic									
Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
Α	Coregonus huntsmani	Atlantic Whitefish	Endangered	Endangered	Endangered	S1	150	32.5 ± 1.0	NS
Α	Myotis lucifugus	Little Brown Myotis	Endangered	Endangered	Endangered	S1	693	6.7 ± 0.0	NS
Α	Myotis septentrionalis	Northern Myotis	Endangered	Endangered	Endangered	S1	102	8.8 ± 0.0	NS
Α	Perimyotis subflavus	Tricolored Bat	Endangered	Endangered	Endangered	S1	200	6.7 ± 0.0	NS
Α	Emydoidea blandingii	Blanding's Turtle	Endangered	Endangered	Endangered	S1	10188	6.8 ± 1.0	NS
Α	Salmo salar pop. 1	Atlantic Salmon - Inner Bay of Fundy population Atlantic Salmon - Nova	Endangered	Endangered		S1	9	79.2 ± 1.0	NS NS
Α	Salmo salar pop. 6	Scotia Southern Upland population	Endangered			S1	22	5.1 ± 1.0	INO
Α	Eubalaena glacialis	North Atlantic Right Whale	Endangered	Endangered		S1	1	92.1 ± 50.0	NS
Α	Charadrius melodus melodus	Piping Plover melodus subspecies	Endangered	Endangered	Endangered	S1B	2579	13.8 ± 0.0	NS
Α	Sterna dougallii	Roseate Tern	Endangered	Endangered	Endangered	S1B	140	29.0 ± 0.0	NS
Α	Dermochelys coriacea pop. 2	Leatherback Sea Turtle - Atlantic population	Endangered	Endangered		S1S2N	3	58.1 ± 1.0	NS NS
Α	Morone saxatilis pop. 2	Striped Bass - Bay of Fundy population	Endangered			S2S3B,S2S3N	3	85.3 ± 1.0	NS
Α	Melanerpes erythrocephalus	Red-headed Woodpecker	Endangered	Threatened		SNA	1	99.9 ± 0.0	NS
Α	Protonotaria citrea	Prothonotary Warbler	Endangered	Endangered		SNA	4	89.1 ± 0.0	NS
Α	Icteria virens	Yellow-Breasted Chat	Endangered	Endangered		SNA	1	88.1 ± 0.0	NS
Α	Brosme brosme	Cusk	Endangered		Endangered	SNR	1	66.2 ± 0.0	NS
Α	Colinus virginianus	Northern Bobwhite	Endangered	Endangered			12	42.8 ± 7.0	NS
Α	Catharus bicknelli	Bicknell's Thrush	Threatened	Threatened	Endangered	S1B	1	98.1 ± 7.0	NS
Α	Asio flammeus	Short-eared Owl	Threatened	Special Concern		S1B	10	78.2 ± 0.0	NS
Α	Glyptemys insculpta	Wood Turtle	Threatened	Threatened	Threatened	S2	113	15.0 ± 10.0	NS
Α	Riparia riparia	Bank Swallow	Threatened	Threatened	Endangered	S2B	676	13.6 ± 0.0	NS
Α	Thamnophis saurita	Eastern Ribbonsnake	Threatened	Threatened	Threatened	S2S3	2255	6.2 ± 0.0	NS
Α	Chaetura pelagica	Chimney Swift	Threatened	Threatened	Endangered	S2S3B,S1M	890	5.5 ± 0.0	NS
Α	Limosa haemastica	Hudsonian Godwit	Threatened			S2S3M	241	19.3 ± 0.0	NS
Α	Hydrobates leucorhous	Leach's Storm-Petrel	Threatened			S3B	51	36.3 ± 0.0	NS
Α	Tringa flavipes	Lesser Yellowlegs	Threatened			S3M	718	15.8 ± 0.0	NS
Α	Anguilla rostrata	American Eel	Threatened			S3N	262	18.3 ± 1.0	NS
Α	Sturnella magna	Eastern Meadowlark	Threatened	Threatened		SHB	4	78.9 ± 7.0	NS
Α	Ixobrychus exilis	Least Bittern	Threatened	Threatened		SUB	1	88.1 ± 0.0	NS
Α	Hylocichla mustelina	Wood Thrush	Threatened	Threatened		SUB	22	16.6 ± 7.0	NS
Α	Antrostomus vociferus	Eastern Whip-Poor-Will	Special Concern	Threatened	Threatened	S1?B	8	31.4 ± 0.0	NS
Α	Passerculus sandwichensis princeps	lpswich Sparrow	Special Concern	Special Concern		S1B	4	88.1 ± 0.0	NS
Α	Bucephala islandica	Barrow's Goldeneye	Special Concern	Special Concern		S1N,SUM	1	91.1 ± 0.0	NS
Α	Euphagus carolinus	Rusty Blackbird	Special Concern	Special Concern	Endangered	S2B	256	14.2 ± 0.0	NS
Α	Balaenoptera physalus	Fin Whale	Special Concern	Special Concern		S2S3	1	56.8 ± 0.0	NS
Α	Phalaropus lobatus	Red-necked Phalarope	Special Concern	Special Concern		S2S3M	8	23.4 ± 0.0	NS
Α	Histrionicus histrionicus pop. 1	Harlequin Duck - Eastern population	Special Concern	Special Concern	Endangered	S2S3N,SUM	47	18.7 ± 8.0	NS
Α	Chelydra serpentina	Snapping Turtle	Special Concern	Special Concern	Vulnerable	S3	480	3.5 ± 0.0	NS

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Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
Α	Hirundo rustica	Barn Swallow	Special Concern	Threatened	Endangered	S3B	1012	6.8 ± 7.0	NS
Α	Cardellina canadensis	Canada Warbler	Special Concern	Threatened	Endangered	S3B	612	2.8 ± 0.0	NS
Α	Chordeiles minor	Common Nighthawk	Special Concern	Threatened	Threatened	S3B	504	2.3 ± 0.0	NS
Α	Contopus cooperi	Olive-sided Flycatcher	Special Concern	Threatened	Threatened	S3B	930	1.3 ± 0.0	NS
Α	Dolichonyx oryzivorus	Bobolink	Special Concern	Threatened	Vulnerable	S3B	929	16.0 ± 7.0	NS
A	Coccothraustes vespertinus	Evening Grosbeak	Special Concern	Special Concern	Vulnerable	S3B,S3N,S3M	665	6.8 ± 7.0	NS
A	Podiceps auritus	Horned Grebe	Special Concern	Special Concern		S3N.SUM	13	18.2 ± 0.0	NS
A	Contopus virens	Eastern Wood-Pewee	Special Concern	Special Concern	Vulnerable	S3S4B	1045	4.7 ± 0.0	NS
A	Phocoena phocoena	Harbour Porpoise	Special Concern	Opediai Condenii	Valificiable	S4	23	49.4 ± 1.0	NS
Ä	Chrysemys picta	Painted Turtle	Special Concern	Special Concern		S4	2	38.5 ± 0.0	NS
A		Eastern Painted Turtle	Special Concern	Special Concern		S4	625	3.5 ± 0.0	NS
	Chrysemys picta picta								NS NS
A	Calidris subruficollis	Buff-breasted Sandpiper	Special Concern	Special Concern	0	SNA	89	30.5 ± 0.0	
A	Anarhichas lupus	Atlantic Wolffish	Special Concern	Special Concern	Special Concern	SNR	3	66.3 ± 0.0	NS
A	Accipiter cooperii	Cooper's Hawk	Not At Risk			S1?B,SUN,SUM	2	84.8 ± 0.0	NS
Α	Fulica americana	American Coot	Not At Risk			S1B	4	86.3 ± 7.0	NS
Α	Falco peregrinus pop. 1	Peregrine Falcon - anatum/tundrius	Not At Risk	Special Concern	Vulnerable	S1B,SUM	12	54.7 ± 0.0	NS
Α	Lynx canadensis	Canada Lynx	Not At Risk		Endangered	S2S3	3	46.6 ± 1.0	NS
Α	Hemidactylium scutatum	Four-toed Salamander	Not At Risk			S3	23	18.3 ± 0.0	NS
Α	Sterna hirundo	Common Tern	Not At Risk			S3B	369	0.8 ± 0.0	NS
Α	Sialia sialis	Eastern Bluebird	Not At Risk			S3B	20	26.4 ± 7.0	NS
Α	Buteo lagopus	Rough-legged Hawk	Not At Risk			S3N	1	88.1 ± 1.0	NS
A	Accipiter gentilis	Northern Goshawk	Not At Risk			S3S4	50	24.6 ± 7.0	NS
A	Glaucomys volans	Southern Flying Squirrel	Not At Risk			S3S4	9	38.7 ± 0.0	NS
Ä	Lagenorhynchus acutus	Atlantic White-sided Dolphin	Not At Risk			S3S4	3	23.7 ± 2.0	NS
A			Not At Risk			S3S4B	114	16.0 ± 7.0	NS
	Ammospiza nelsoni	Nelson's Sparrow		Fadangarad	Endangered	S2M	798	19.3 ± 0.0	NS NS
A	Calidris canutus rufa	Red Knot rufa subspecies	E,SC	Endangered	Endangered				
A	Morone saxatilis	Striped Bass	E,SC			S2S3B,S2S3N	7	5.1 ± 1.0	NS
Α	Gadus morhua	Atlantic Cod	E,SC,DD			SNR	1	90.3 ± 0.0	NS
		Atlantic Walrus - Nova							NS
Α	Odobenus rosmarus pop. 5	Scotia - Newfoundland - Gulf of St Lawrence population	X			SX	1	91.9 ± 5.0	
Α	Alces alces americana	Moose			Endangered	S1	123	12.8 ± 0.0	NS
Α	Uria aalge	Common Murre				S1?B	1	88.1 ± 0.0	NS
Α	Passerina cyanea	Indigo Bunting				S1?B,SUM	26	14.6 ± 7.0	NS
Α	Nycticorax nycticorax	Black-crowned Night-heron				S1B	20	85.1 ± 0.0	NS
Α	Oxyura jamaicensis	Ruddy Duck				S1B	4	86.3 ± 7.0	NS
A	Gallinula galeata	Common Gallinule				S1B	6	86.3 ± 7.0	NS
A	Myiarchus crinitus	Great Crested Flycatcher				S1B	32	6.8 ± 7.0	NS
A	Cistothorus palustris	Marsh Wren				S1B	5	51.4 ± 7.0	NS
A	Mimus polyglottos	Northern Mockingbird				S1B	18	16.0 ± 7.0	NS
A	Toxostoma rufum	Brown Thrasher				S1B S1B	8	17.0 ± 7.0	NS NS
						S1B,S4M	1835	17.0 ± 7.0 13.8 ± 0.0	NS NS
A	Charadrius semipalmatus	Semipalmated Plover							
A	Calidris minutilla	Least Sandpiper				S1B,S4M	1341	14.0 ± 0.0	NS
A	Anas acuta	Northern Pintail				S1B,SUM	16	25.8 ± 7.0	NS
A	Vireo gilvus	Warbling Vireo				S1B,SUM	11	23.9 ± 0.0	NS
Α	Vespertilionidae sp.	bat species				S1S2	324	8.8 ± 0.0	NS
Α	Pooecetes gramineus	Vesper Sparrow				S1S2B,SUM	2	28.5 ± 7.0	NS
Α	Vireo philadelphicus	Philadelphia Vireo				S2?B,SUM	20	31.1 ± 0.0	NS
Α	Alca torda	Razorbill				S2B	24	44.2 ± 0.0	NS
Α	Fratercula arctica	Atlantic Puffin				S2B	32	44.2 ± 0.0	NS
Α	Empidonax traillii	Willow Flycatcher				S2B	46	15.0 ± 7.0	NS
A	Molothrus ater	Brown-headed Cowbird				S2B	130	6.8 ± 7.0	NS
A	Spatula clypeata	Northern Shoveler				S2B,SUM	56	86.3 ± 7.0	NS
A	Mareca strepera	Gadwall				S2B,SUM	73	86.3 ± 7.0	NS
A	Piranga olivacea	Scarlet Tanager				S2B,SUM	50	34.2 ± 7.0	NS
A	Calidris alba	Sanderling				S2N,S3M	1665	19.3 ± 0.0	NS NS
A	Martes americana	American Marten			Endangered	S2S3	30	5.1 ± 0.0	NS NS
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Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
A	Asio otus	Long-eared Owl				S2S3	11	28.0 ± 7.0	NS
A	Rallus limicola	Virginia Rail				S2S3B	14	54.4 ± 0.0	NS
Α	Rissa tridactyla	Black-legged Kittiwake				S2S3B	8	73.8 ± 7.0	NS
Α	Petrochelidon pyrrhonota	Cliff Swallow				S2S3B	195	6.8 ± 7.0	NS
Α	Phalacrocorax carbo	Great Cormorant				S2S3B.S2S3N	38	17.0 ± 7.0	NS
Α	Cathartes aura	Turkey Vulture				S2S3B,S4S5M	30	31.5 ± 1.0	NS
Α	Setophaga pinus	Pine Warbler				S2S3B,S4S5M	17	36.3 ± 1.0	NS
A	Bucephala clangula	Common Goldeneye				S2S3B.S5N.S5M	108	16.3 ± 7.0	NS
A	Icterus galbula	Baltimore Oriole				S2S3B,SUM	59	6.8 ± 7.0	NS
A	Pluvialis dominica	American Golden-Plover				S2S3M	295	25.5 ± 0.0	NS
A	Numenius phaeopus hudsonicus	Whimbrel				S2S3M	533	15.8 ± 0.0	NS
^		Pod Pholoropo				S2S3M	4	42.3 ± 0.0	NS
A	Phalaropus fulicarius	Red Phalarope							
A	Perisoreus canadensis	Canada Jay				S3	358	7.3 ± 0.0	NS
A	Poecile hudsonicus	Boreal Chickadee				S3	282	7.5 ± 7.0	NS
A	Spinus pinus	Pine Siskin				S3	279	6.0 ± 7.0	NS
A	Salvelinus fontinalis	Brook Trout				S3	18	38.5 ± 0.0	NS
A	Sorex maritimensis	Maritime Shrew				S3	1	90.6 ± 0.0	NS
Α	Pekania pennanti	Fisher				S3	10	10.3 ± 5.0	NS
Α	Calcarius Iapponicus	Lapland Longspur				S3?N,SUM	3	83.5 ± 0.0	NS
Α	Spatula discors	Blue-winged Teal				S3B	77	25.8 ± 7.0	NS
Α	Charadrius vociferus	Killdeer				S3B	353	6.8 ± 7.0	NS
Α	Tringa semipalmata	Willet				S3B	2325	14.0 ± 0.0	NS
Α	Sterna paradisaea	Arctic Tern				S3B	122	16.6 ± 7.0	NS
Α	Coccyzus erythropthalmus	Black-billed Cuckoo				S3B	53	14.6 ± 7.0	NS
Α	Tyrannus tyrannus	Eastern Kingbird				S3B	150	6.8 ± 7.0	NS
Α	Pheucticus Iudovicianus	Rose-breasted Grosbeak				S3B	262	6.0 ± 7.0	NS
Α	Alosa pseudoharengus	Alewife				S3B	16	27.0 ± 1.0	NS
Α	Somateria mollissima	Common Eider				S3B,S3M,S3N	545	16.0 ± 7.0	NS
A	Tringa melanoleuca	Greater Yellowlegs				S3B.S4M	1739	15.8 ± 0.0	NS
A	Falco sparverius	American Kestrel				S3B,S4S5M	104	6.0 ± 0.0	NS
A	Gallinago delicata	Wilson's Snipe				S3B.S5M	354	14.6 ± 7.0	NS
A	Setophaga striata	Blackpoll Warbler				S3B,S5M	48	25.8 ± 7.0	NS
A	Cardellina pusilla	Wilson's Warbler				S3B,S5M	44	28.5 ± 7.0	NS
A	Pinicola enucleator	Pine Grosbeak				S3B,S5N,S5M	85	7.5 ± 7.0	NS
A	Setophaga tigrina	Cape May Warbler				S3B.SUM	50	23.7 ± 0.0	NS
A	Branta bernicla	Brant				S3M	7	71.1 ± 12.0	NS
		Black-bellied Plover				S3M	2069	71.1 ± 12.0 15.8 ± 0.0	NS NS
A	Pluvialis squatarola								
A	Arenaria interpres	Ruddy Turnstone				S3M	969	15.8 ± 0.0	NS
A	Calidris pusilla	Semipalmated Sandpiper				S3M	1739	13.8 ± 0.0	NS
A	Calidris melanotos	Pectoral Sandpiper				S3M	385	26.1 ± 0.0	NS
Α	Limnodromus griseus	Short-billed Dowitcher				S3M	1275	14.0 ± 0.0	NS
A	Chroicocephalus ridibundus	Black-headed Gull				S3N	3	88.1 ± 1.0	NS
Α	Picoides arcticus	Black-backed Woodpecker				S3S4	47	7.0 ± 0.0	NS
Α	Loxia curvirostra	Red Crossbill				S3S4	238	2.8 ± 0.0	NS
Α	Botaurus lentiginosus	American Bittern				S3S4B,S4S5M	237	28.0 ± 7.0	NS
Α	Setophaga castanea	Bay-breasted Warbler				S3S4B,S4S5M	215	5.5 ± 0.0	NS
Α	Actitis macularius	Spotted Sandpiper				S3S4B,S5M	746	0.7 ± 0.0	NS
Α	Leiothlypis peregrina	Tennessee Warbler				S3S4B,S5M	117	6.0 ± 7.0	NS
Α	Passerella iliaca	Fox Sparrow				S3S4B,S5M	66	15.0 ± 7.0	NS
A	Mergus serrator	Red-breasted Merganser				S3S4B,S5M,S5N	65	16.3 ± 7.0	NS
A	Calidris maritima	Purple Sandpiper				S3S4N	194	15.8 ± 0.0	NS
A	Lanius borealis	Northern Shrike				S3S4N	2	79.5 ± 0.0	NS
A	Morus bassanus	Northern Gannet				SHB	11	19.5 ± 0.0	NS
A	Leucophaeus atricilla	Laughing Gull				SHB	7	30.1 ± 0.0	NS NS
									NS NS
A	Progne subis	Purple Martin				SHB	3	65.6 ± 7.0	
A	Eremophila alpestris	Horned Lark	Fades: 1	Fade: 1	Forder 1	SHB,S4S5N,S5M	2	88.1 ± 0.0	NS
1	Bombus bohemicus	Ashton Cuckoo Bumble Bee	Endangered	Endangered	Endangered	S1	7	22.7 ± 5.0	NS

Taxonomic

	Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
Bombus suickeys Suckeys Cuckoo Bumble Endangered Special Concern Threatened SH 2	1	Epeoloides pilosulus	Macropis Cuckoo Bee	Endangered	Endangered	Endangered	S1	2	99.2 ± 5.0	NS
Alexandricots united Suckley's Cuckoo Bumble Bander	1	Danaus plexippus	Monarch	Endangered	Special Concern	Endangered	S2?B,S3M	402	5.4 ± 0.0	NS
Manifestra unicosa Birothy's Cuckoo Bumble Treatment Special Concern Speci	1	Danaus plexippus plexippus	Monarch	Endangered	Special Concern		S2?B,S3M	1	97.1 ± 0.0	NS
Babmidinta variocoas Brook Floater Babmidis Babmidis Politica Pol	1			Threatened	•		SH	2	46.7 ± 5.0	NS
Bombus serencial Vellow-banded Bumble Bex Special Concern Vulnerable S3 52 22.7 ± 0.0 NS	1	•			Special Concern	Threatened				NS
Coccinella transversogutation fictor aleata fictor aleat	i									
Erora laota				•						
Dehotypingherins Extra-Striped Snaketial St. Respubliques in St. Respubliques	1	richardsoni	•	Special Concern		Endangered				
Pachydipics kongipenins	1									
Adaniconcha ochracea	!									
Polygonia comma	!									
Margarifilera margarifilera Satura	1							-		
Paralata hymonaea Spot-Winged Gilder S278 2	1									
Parlata hymenaea Spot-Winged Gilder Spot-Wing	I									
Nymphais lablum	I	0								
Aglias milberti	1									
Somatochlora kennedy Kennedy's Emerald Williamsonia fisticheri Schory Böghaunter Schory Böghaunte	I									
Williamsonia fleicheri	I									
Enalagma geminatum Skimming Bluet SZS3 4 44.2±0.0 NS	1									
Sylvirus scudder Zebra Clubtal	1	Williamsonia fletcheri								
Hippodamia parenthesis Parenthesis Lady Beetle Sa	1	Enallagma geminatum	Skimming Bluet					4	44.2 ± 0.0	NS
Neimia seriata	1	Stylurus scudderi	Zebra Clubtail						91.1 ± 0.0	NS
Chilocorus stigma	1	Hippodamia parenthesis	Parenthesis Lady Beetle						53.4 ± 0.0	NS
Myzia pullata	1	Naemia seriata	Seaside Lady Beetle				S3	6	88.2 ± 1.0	NS
Dicerca tenebrosa	1	Chilocorus stigma	Twice-stabbed Lady Beetle				S3	4	29.7 ± 0.0	NS
Astylopsis sexguttata Six-speckled Long-horned Beetle Beetle Six Six-speckled Long-horned Beetle Six Six-speckled Long-horned Beetle Six Six-speckled Long-horned Six-speckled Long-horn	1	Myzia pullata	Streaked Lady Beetle				S3	1	94.5 ± 0.0	NS
Satyrium calanus	1	Dicerca tenebrosa	Dark Jewel Beetle				S3	1	88.9 ± 0.0	NS
Satyrium calanus	1	Astylopsis sexauttata					S3	1	18.6 ± 0.0	NS
Caliophrys lanoraieensis Bog Elfin Stymon melinus Gray Hairstreak Stymon melinus Gray Hairstreak Stymon melinus	1									NS
Strymori melinus	i									
Ophiogomphus aspersus	i		0							
Ophlogomphus mainensis	i									
Discrimination Common Co	i									
Finite Captinice Frince	i									
Somatochlora forcipata For	1									
Polygonia interrogationis Question Mark S3B 26 9.2 ± 0.0 NS Amblyscirtes hegon Pepper and Salt Skipper S3S4 1 84.0 ± 2.0 NS Cupido comyntas Eastern Tailed Blue S3S4 2 19.4 ± 1.0 NS Argynnis aphrodite Aphrodite Fritillary S3S4 11 44.4 ± 0.0 NS Polygonia faunus Green Comma S3S4 6 83.2 ± 20.0 NS Aeshna clepsydra Mottled Darner S3S4 28 77.3 ± 0.0 NS Aeshna constricta Lance-Tipped Darner S3S4 1 91.4 ± 1.0 NS Boyeria grafiana Ocellated Darner S3S4 15 18.0 ± 0.0 NS Gomphaeschna furcillata Harlequin Darner S3S4 29 6.4 ± 1.0 NS Somatochlora franklini Delicate Emerald S3S4 29 6.4 ± 1.0 NS Erythrodiplax berenice Seaside Dragonlet S3S4 21 77.5 ± 1.0 NS Nannothemis bella Elfin Skimmer S3S4 21 37.3 ± 0.0 NS Sympetrum danae Black Meadowhawk S3S4 20 11.4 ± 0.0 NS Enallagma vesperum Vesper Bluet S3S4 20 11.4 ± 0.0 NS Laricia saepiolus Greenish Blue S1 4 69.3 ± 2.0 NS Laricia saepiolus Greenish Blue S1 4 69.3 ± 2.0 NS Erioderma pedicellatum Boreal Felt Lichen Endangered En	i									
Amblyscirtes hegon	1									
Cupido comyntas	1									
Argynnis aphrodite	1	, ,								
Polygonia faunus Green Comma S3S4 6 83.2 ± 20.0 NS Aeshna clepsydra Mottled Darner S3S4 28 7.3 ± 0.0 NS Aeshna constricta Lance-Tipped Darner S3S4 1 91.4 ± 1.0 NS Boyeria grafiana Ocellated Darner S3S4 15 18.0 ± 0.0 NS Gomphaeschna furcillata Harlequin Darner S3S4 29 6.4 ± 1.0 NS Gomphaeschna furcillata Harlequin Darner S3S4 29 6.4 ± 1.0 NS Somatochlora franklini Delicate Emerald S3S4 1 70.5 ± 1.0 NS Somatochlora franklini Delicate Emerald S3S4 1 70.5 ± 1.0 NS Erythrodiplax berenice Seaside Dragonlet S3S4 32 13.7 ± 0.0 NS Sympetrum danae Black Meadowhawk S3S4 21 7.3 ± 0.0 NS Sympetrum danae Black Meadowhawk S3S4 21 7.3 ± 0.0 NS Enallagma vesperum Vesper Bluet S3S4 20 11.4 ± 0.0 NS Amphiagrion saucium Eastern Red Damsel S3S4 3 78.9 ± 1.0 NS Laricia saepiolus Greenish Blue S1 93.2 ± 2.0 NS Chlosyne nycteis Silvery Checkerspot S1 93.2 ± 2.0 NS N Erioderma mollissimum Graceful Felt Lichen Endangered Endangered Endangered S1 323 4.8 ± 0.0 NS Erioderma pedicellatum Boreal Felt Lichen - Atlantic Endangered Endangered Endangered Endangered Endangered Endangered S1 323 4.8 ± 0.0 NS	1									
Aeshna colepsydra	1									
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	1									
Somatochlora franklini	1									
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N Erioderma pedicellatum Boreal Felt Lichen - Atlantic Endangered Endangered S1 64 21.8 + 0.0 NS	1									
N Endangered Endangered S1 64 21.8 ± 0.0	N			Endangered	Endangered	Endangered	S1	323	4.8 ± 0.0	
(Atlantic pop.) 5 5	N			Endangered	Endangered	Endangered	S1	64	21.8 ± 0.0	NS
		(Atlantic pop.)	pop.	U	<u> </u>	Ü				

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Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
N	Pannaria lurida	Wrinkled Shingle Lichen	Threatened	Threatened	Threatened	S2S3	214	2.7 ± 0.0	NS
N	Pannaria lurida ssp. russellii	Wrinkled Shingle Lichen	Threatened	Threatened		S2S3	1	42.0 ± 0.0	NS
N	Anzia colpodes	Black-foam Lichen	Threatened	Threatened	Threatened	S3	268	5.3 ± 0.0	NS
N	Fuscopannaria leucosticta	White-rimmed Shingle Lichen	Threatened			S3	531	2.5 ± 0.0	NS
N	Heterodermia squamulosa	Scaly Fringe Lichen	Threatened			S3	43	24.0 ± 0.0	NS
N	Pectenia plumbea	Blue Felt Lichen	Special Concern	Special Concern	Vulnerable	S3	876	3.6 ± 0.0	NS
	Sclerophora peronella	Frosted Glass-whiskers	•	·	vuillerable				NS
N	(Atlantic pop.)	(Atlantic population)	Special Concern	Special Concern		S3S4	110	3.6 ± 0.0	NO
N	Pseudevernia cladonia	Ghost Antler Lichen	Not At Risk			S2S3	21	3.5 ± 0.0	NS
N	Fissidens exilis	Pygmy Pocket Moss	Not At Risk			S3	2	95.5 ± 3.0	NS
N	Frullania selwyniana	Selwyn's Scalewort				S1	8	94.0 ± 0.0	NS
N	Harpalejeunea molleri ssp. integra	a liverwort				S1	3	94.0 ± 0.0	NS
N	Homalotheciella subcapillata	Few-haired Moss				S1	1	88.5 ± 0.0	NS
N	Orthotrichum pallens	Pale Bristle Moss				S1	1	43.5 ± 0.0	NS
N	Sematophyllum demissum	a Moss				S1	1	55.7 ± 1.0	NS
N	Cyrto-hypnum minutulum	Tiny Cedar Moss				S1	1	45.0 ± 0.0	NS
N	Umbilicaria vellea	Grizzled Rocktripe Lichen				S1	3	12.7 ± 0.0	NS
N	Heterodermia leucomela	Elegant Fringe Lichen				S1	3	3.5 ± 0.0	NS
N	Flavoparmelia baltimorensis	Rock Greenshield Lichen				S1	2	28.1 ± 1.0	NS
N	Ephebe hispidula	Dryside Rockshag Lichen				S1	2	13.1 ± 1.0	NS
N	Parmotrema perforatum	Perforated Ruffle Lichen				S1	42	30.2 ± 0.0	NS
N	Polychidium muscicola	Eyed Mossthorns Woollybear Lichen				S1	1	91.7 ± 0.0	NS
N	Pseudevernia consocians	Common Antler Lichen				S1	1	47.3 ± 0.0	NS
N	Spilonema revertens	Rock Hairball Lichen				S1	4	96.2 ± 0.0	NS
N	Sticta limbata	Powdered Moon Lichen				S1	9	37.7 ± 0.0	NS
N	Leptogium hibernicum	Hibernia Jellyskin Lichen				S1	65	39.7 ± 0.0	NS
N	Hypotrachyna horrescens	Hairy-spined Shield Lichen				S1	3	54.5 ± 0.0	NS
N	Peltigera lepidophora	Scaly Pelt Lichen				S1	1	75.2 ± 0.0	NS
N	Hypogymnia hultenii	Powdered Honeycomb Lichen				S1	3	77.8 ± 0.0	NS
N	Campylostelium saxicola	a Moss				S1?	1	18.6 ± 1.0	NS
N	Conardia compacta	Coast Creeping Moss				S1?	i	90.6 ± 2.0	NS
N	Grimmia anodon	Toothless Grimmia Moss				S1?	2	47.7 ± 3.0	NS
N	Homomallium adnatum	Adnate Hairy-gray Moss				S1?	2	45.4 ± 5.0	NS
N	Meesia triquetra	Three-ranked Cold Moss				S1?	1	93.3 ± 0.0	NS
N	Sphagnum cyclophyllum	a Moss				S1?	12	64.1 ± 1.0	NS
N	Sphagnum molle	Blushing Peat Moss				S1?	2	74.7 ± 0.0	NS
N	Syntrichia ruralis	a Moss				S1?	1	45.6 ± 0.0	NS
N	Scytinium intermedium	Forty-five Jellyskin Lichen				S1?	1	73.3 ± 1.0	NS
N	Melanelia culbersonii	Appalachain Camouflage				S1?	1	82.7 ± 0.0	NS
N		Lichen				0100	2		NC
N	Metzgeria crassipilis	Hairy Veilwort				S1S2	3	9.0 ± 0.0	NS
N	Porella pinnata	Pinnate Scalewort				S1S2	1	26.9 ± 0.0	NS NS
N	Arrhenopterum heterostichum	One-sided Groove Moss				S1S2	1	50.7 ± 5.0	NS
N	Didymodon rigidulus	Rigid Screw Moss				S1S2	2	49.2 ± 0.0	NS
N	Plagiothecium latebricola	Alder Silk Moss				S1S2	1	76.2 ± 5.0	NS
N	Sematophyllum marylandicum	a Moss				S1S2	1	49.0 ± 0.0	NS
N	Sphagnum trinitense	a peatmoss				S1S2	6	74.5 ± 0.0	NS
N	Tortula mucronifolia	Mucronate Screw Moss				S1S2	1	47.7 ± 3.0	NS
	Pseudotaxiphyllum								NS
N	distichaceum	a Moss				S1S2	5	74.0 ± 0.0	1,0
N	Hamatocaulis vernicosus	a Moss				S1S2	2	93.4 ± 0.0	NS
N	Haplocladium microphyllum	Tiny-leaved Haplocladium				S1S2	1	99.7 ± 3.0	NS
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Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
		Moss							
N	Peltigera ponojensis	Pale-bellied Pelt Lichen				S1S2	3	3.8 ± 0.0	NS
N	Pilophorus cereolus	Powdered Matchstick Lichen				S1S2	1	85.6 ± 3.0	NS
N	Rhizoplaca subdiscrepans	Scattered Rock-posy Lichen				S1S2	1	81.1 ± 1.0	NS
N	Parmotrema reticulatum	Netted Ruffle Lichen				S1S2	6	49.4 ± 0.0	NS
N	Cladonia subtenuis	Dixie Reindeer Lichen				S1S2	1	64.7 ± 0.0	NS
N	Parmeliella parvula	Poor-man's Shingles Lichen				S1S2	40	19.1 ± 6.0	NS
N	Chaenotheca hygrophila	a lichen				S1S3	9	2.5 ± 0.0	NS
N	Umbilicaria polyrhiza	Ballpoint Rocktripe Lichen				S1S3	2	28.1 ± 1.0	NS
N						S1S3	1		NS
	Heterodermia galactophylla	Branching Fringe Lichen						80.9 ± 0.0	
N	Peltigera neckeri	Black-saddle Pelt Lichen				S1S3	1	19.3 ± 0.0	NS
N	Usnea fragilescens	Inflationary Beard Lichen				S1S3	4	19.6 ± 2.0	NS
N	Usnea chaetophora	Articulated Beard Lichen				S1S3	1	5.7 ± 0.0	NS
N	Stereocaulon grande	Grand Foam Lichen				S1S3	1	66.0 ± 0.0	NS
N	Stereocaulon intermedium	Pacific Brain Foam Lichen				S1S3	4	37.7 ± 0.0	NS
N	Anacamptodon splachnoides	a Moss				S2	1	45.4 ± 0.0	NS
N	Sphagnum platyphyllum	Flat-leaved Peat Moss				S2	1	74.4 ± 0.0	NS
N	Sphagnum subnitens	Lustrous Peat Moss				S2	4	40.8 ± 0.0	NS
N.I.		Blood-splattered Beard				00	4	05.5 . 4.0	NS
N	Usnea flavocardia	Lichen				S2	1	25.5 ± 1.0	
N	Cystocoleus ebeneus	Rockgossamer Lichen				S2	3	24.2 ± 0.0	NS
N	Hypotrachyna catawbiensis	Powder-tipped Antler Lichen				S2	3	29.3 ± 0.0	NS
N	Scytinium imbricatum	Scaly Jellyskin Lichen				S2	1	51.7 ± 0.0	NS
N	Nephroma resupinatum	a lichen				S2	5	6.4 ± 0.0	NS
N	Placynthium flabellosum	Scaly Ink Lichen				S2	1	91.7 ± 0.0	NS
N	Atrichum angustatum	Lesser Smoothcap Moss				S2?	7	42.7 ± 0.0	NS
N						S2?	1	57.2 ± 1.0	NS
	Ptychostomum pendulum	Drooping Bryum				S2? S2?		45.4 ± 0.0	NS NS
N	Drepanocladus polygamus	Polygamous Hook Moss					2		
N	Pseudocampylium radicale	Long-stalked Fine Wet Moss				S2?	2	43.4 ± 0.0	NS
N	Climacium americanum	American Tree Moss				S2?	9	43.4 ± 0.0	NS
N	Dicranum condensatum	Condensed Broom Moss				S2?	5	42.7 ± 0.0	NS
N	Ditrichum rhynchostegium	a Moss				S2?	5	45.2 ± 1.0	NS
N	Fissidens bushii	Bush's Pocket Moss				S2?	3	45.0 ± 0.0	NS
N	Fontinalis hypnoides	a moss				S2?	1	45.3 ± 0.0	NS
N	Fontinalis sullivantii	Sullivant's Water Moss				S2?	4	38.3 ± 3.0	NS
N	Grimmia olneyi	a Moss				S2?	10	43.0 ± 0.0	NS
N	Grimmia anomala	Mountain Forest Grimmia				S2?	1	69.5 ± 1.0	NS
N	Orthotrichum anomalum	Anomalous Bristle Moss				S2?	1	43.5 ± 0.0	NS
N	Philonotis marchica	a Moss				S2?	1	49.2 ± 0.0	NS
N	Rauiella scita	Smaller Fern Moss				S2?	16	42.7 ± 0.0	NS
N	Platylomella lescurii	a Moss				S2?	8	43.4 ± 0.0	NS
N	Phylliscum demangeonii	Black Rock-wafer Lichen				S2?	3	45.6 ± 2.0	NS
N		Light Beaked Moss				S2S3	3	45.4 ± 5.0	NS
N N	Oxyrrhynchium hians					S2S3	3 3	45.4 ± 5.0 49.3 ± 0.0	NS NS
	Platydictya subtilis	Bark Willow Moss							
N	Plagiomnium rostratum	Long-beaked Leafy Moss				S2S3	4	43.4 ± 0.0	NS
N	Scorpidium revolvens	Limprichtia Moss				S2S3	1	90.3 ± 2.0	NS
N	Moelleropsis nebulosa	Blue-gray Moss Shingle				S2S3	173	4.4 ± 0.0	NS
• •	•	Lichen				0200		= 0.0	
N	Moelleropsis nebulosa ssp.	Blue-gray Moss Shingle				S2S3	9	3.4 ± 0.0	NS
	frullaniae	Lichen							
N	Ramalina thrausta	Angelhair Ramalina Lichen				S2S3	1	77.6 ± 2.0	NS
N	Collema leptaleum	Crumpled Bat's Wing Lichen				S2S3	27	8.2 ± 0.0	NS
N	Usnea ceratina	Warty Beard Lichen				S2S3	4	4.7 ± 0.0	NS
N	Usnea rubicunda	Red Beard Lichen				S2S3	9	5.4 ± 0.0	NS
N	Ahtiana aurescens	Eastern Candlewax Lichen				S2S3	35	11.1 ± 0.0	NS
N	Usnocetraria oakesiana	Yellow Band Lichen				S2S3	8	45.2 ± 0.0	NS
N	Catinaria atropurpurea	a lichen				S2S3	1	33.0 ± 0.0	NS
N N						S2S3	4		NS NS
IN	Cladonia incrassata	Powder-foot British Soldiers				3233	4	25.9 ± 3.0	INO

Taxonomic Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
0.046		Lichen		• • • • • • • • • • • • • • • • • • • •		The trial of the t		Dietailee (iiii)	
N	Cladonia mateocyatha	Mixed-up Pixie-cup				S2S3	2	59.1 ± 0.0	NS
N	Cladonia parasitica	Fence-rail Lichen				S2S3	2	24.3 ± 1.0	NS
N	Scytinium tenuissimum	Birdnest Jellyskin Lichen				S2S3	4	22.3 ± 6.0	NS
N	Parmelia fertilis	Fertile Shield Lichen				S2S3	1	63.8 ± 0.0	NS
IN	Parmella lerulis					5253	'	03.0 ± 0.0	NS NS
N	Hypotrachyna minarum	Hairless-spined Shield				S2S3	5	49.1 ± 0.0	NS
N	Racodium rupestre	Lichen Rockhair Lichen				S2S3	3	40.0 ± 0.0	NS
N N		Pitted Beard Lichen				S2S3	3 1	40.0 ± 0.0 25.8 ± 0.0	NS
	Usnea cavernosa						3		
N	Usnea mutabilis	Bloody Beard Lichen				S2S3		33.8 ± 0.0	NS
N	Fuscopannaria sorediata	a Lichen				S2S3	24	24.0 ± 0.0	NS
N	Hypotrachyna revoluta	Granulating Loop Lichen				S2S3	3	84.1 ± 2.0	NS
N	Cetraria arenaria	Sand-loving Icelandmoss Lichen				S2S3	2	47.1 ± 1.0	NS
N	Cladonia coccifera	Eastern Boreal Pixie-cup Lichen				S2S3	1	91.3 ± 0.0	NS
N	Cladonia deformis	Lesser Sulphur-cup Lichen				S2S3	1	96.9 ± 4.0	NS
N	Usnea flammea	Coastal Bushy Beard Lichen				S2S3	1	28.1 ± 0.0	NS
N	Microlejeunea ulicina	a pouncewort				S3	6	93.9 ± 0.0	NS
N	Anomodon tristis	a Moss				S3	6	42.9 ± 0.0	NS
		Toothed-leaved Nitrogen							NS
N	Tetraplodon angustatus	Moss				S3	3	41.3 ± 0.0	110
N	Rostania occultata	Crusted Tarpaper Lichen				S3	1	49.4 ± 2.0	NS
N	Collema nigrescens	Blistered Tarpaper Lichen				S3	102	2.5 ± 0.0	NS
N	Fuscopannaria ahlneri	Corrugated Shingles Lichen				S3	113	2.0 ± 0.0	NS
N	Scytinium lichenoides	Tattered Jellyskin Lichen				S3	7	12.6 ± 0.0	NS
N	Leptogium milligranum	Stretched Jellyskin Lichen				S3	60	10.0 ± 0.0	NS
		Naked Kidney Lichen				S3			NS NS
N	Nephroma bellum						11	3.6 ± 0.0	
N	Placynthium nigrum	Common Ink Lichen				S3	1	14.2 ± 3.0	NS
N	Punctelia appalachensis	Appalachian Speckleback Lichen				S3	21	51.1 ± 0.0	NS
N	Viridothelium virens					S3	8	58.4 ± 15.0	NS
N	Ephebe lanata	Waterside Rockshag Lichen				S3	2	53.7 ± 0.0	NS
N	Dharan burair a wallaida	Pompom-tipped Shadow				00	0	20 5 . 0 0	NS
N	Phaeophyscia pusilloides	Lichen				S3	2	38.5 ± 0.0	
N	Peltigera collina	Tree Pelt Lichen				S3	9	23.0 ± 0.0	NS
N	Metzgeria conjugata	Rock Veilwort				S3?	1	94.2 ± 0.0	NS
N	Drummondia prorepens	a Moss				S3?	4	10.3 ± 5.0	NS
		Black-footed Reindeer							NS
N	Cladonia stygia	Lichen				S3?	15	11.9 ± 0.0	
N	Anomodon rugelii	Rugel's Anomodon Moss				S3S4	7	42.9 ± 0.0	NS
N	Dichelyma capillaceum	Hairlike Dichelyma Moss				S3S4	8	42.5 ± 0.0	NS
N	Dicranum leioneuron	a Dicranum Moss				S3S4	3	26.4 ± 0.0	NS
N	Myurella julacea	Small Mouse-tail Moss				S3S4	1	96.2 ± 0.0	NS
N	Splachnum ampullaceum	Cruet Dung Moss				S3S4	1	71.4 ± 0.0	NS
N	Thamnobryum alleghaniense	a Moss				S3S4 S3S4	1	71.4 ± 0.0 50.6 ± 1.0	NS NS
N N		a Moss Elf Bloom Moss				S3S4 S3S4			
	Schistidium agassizii						2	55.7 ± 1.0	NS
N	Hylocomiastrum pyrenaicum	a Feather Moss				S3S4	1	45.4 ± 0.0	NS
N	Bryoria pseudofuscescens	Mountain Horsehair Lichen				S3S4	2	55.0 ± 0.0	NS
N	Sticta fuliginosa	Peppered Moon Lichen				S3S4	286	3.6 ± 0.0	NS
N	Arctoparmelia incurva	Finger Ring Lichen				S3S4	24	12.1 ± 0.0	NS
N	Scytinium teretiusculum	Curly Jellyskin Lichen				S3S4	10	23.1 ± 0.0	NS
N	Leptogium acadiense	Acadian Jellyskin Lichen				S3S4	48	4.1 ± 0.0	NS
N	Scytinium subtile	Appressed Jellyskin Lichen				S3S4	32	6.5 ± 0.0	NS
N	Felipes leucopellaeus	• •				S3S4	7	1.0 ± 0.0	NS
N	Cladonia floerkeana	Gritty British Soldiers Lichen				S3S4	2	77.7 ± 0.0	NS
N	Vahliella leucophaea	Shelter Shingle Lichen				S3S4	1	91.7 ± 0.0	NS
N	Heterodermia speciosa	Powdered Fringe Lichen				S3S4	55	4.8 ± 0.0	NS
	otorodomila apooloda	. Swadioa i migo Lionon				2001	55	2 0.0	110

Taxonomic

Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
N	Leptogium corticola	Blistered Jellyskin Lichen		•		S3S4	478	1.3 ± 0.0	NS
N	Melanohalea olivacea	Spotted Camouflage Lichen				S3S4	3	19.6 ± 0.0	NS
N	Parmotrema perlatum	Powdered Ruffle Lichen				S3S4	54	20.3 ± 19.0	NS
N		Fragile Coral Lichen				S3S4 S3S4	4	43.2 ± 0.0	NS
IN	Sphaerophorus fragilis	0				5354	4	43.2 ± 0.0	
N	Sclerophora peronella	Frosted Glass-whiskers Lichen				S3S4	8	20.8 ± 0.0	NS
N	Coccocarpia palmicola	Salted Shell Lichen				S3S4	1095	3.4 ± 0.0	NS
N	Physcia caesia	Blue-gray Rosette Lichen				S3S4	1	52.6 ± 20.0	NS
N	Physcia tenella	Fringed Rosette Lichen				S3S4	1	28.1 ± 1.0	NS
N	Anaptychia palmulata	Shaggy Fringed Lichen				S3S4	164	4.4 ± 1.0	NS
N	Evernia prunastri	Valley Oakmoss Lichen				S3S4	6	62.4 ± 1.0	NS
N	Heterodermia neglecta	Fringe Lichen				S3S4	304	3.8 ± 0.0	NS
	Rhynchospora	•							NS
Р	macrostachya	Tall Beakrush	Endangered	Endangered	Endangered	S1	57	27.8 ± 0.0	110
Р	Lyonia ligustrina	Maleberry	Endangered			S1	12	82.2 ± 0.0	NS
Р	Coreopsis rosea	Pink Coreopsis	Endangered	Endangered	Endangered	S2	468	74.6 ± 0.0	NS
Р	Drosera filiformis	Thread-leaved Sundew	Endangered	Endangered	Endangered	S2	924	64.6 ± 0.0	NS
Р	Clethra alnifolia	Coast Pepper-Bush	Endangered	Threatened	Vulnerable	S2	299	49.1 ± 0.0	NS
P	Sabatia kennedyana	Plymouth Gentian	Endangered	Endangered	Endangered	S2S3	1269	71.9 ± 1.0	NS
r P		,	•	•	Endangered				
P P	Juglans cinerea	Butternut	Endangered	Endangered	T	SNA	4	36.6 ± 0.0	NS
•	Fraxinus nigra	Black Ash	Threatened		Threatened	S1S2	144	13.0 ± 0.0	NS
P	Baccharis halimifolia	Eastern Baccharis	Threatened	Threatened	Threatened	S2	175	85.8 ± 0.0	NS
P	Liatris spicata	Dense Blazing Star	Threatened	Threatened		SNA	1	97.5 ± 0.0	NS
P	Hydrocotyle umbellata	Water Pennywort	Special Concern	Special Concern	Endangered	S2	206	34.4 ± 13.0	NS
P	Eleocharis tuberculosa	Tubercled Spike-rush	Special Concern	Special Concern	Vulnerable	S2	517	8.9 ± 0.0	NS
Р	Lachnanthes caroliniana	Redroot	Special Concern	Special Concern	Vulnerable	S2	1472	19.1 ± 0.0	NS
Р	Lophiola aurea	Goldencrest	Special Concern	Special Concern	Vulnerable	S2	829	6.7 ± 0.0	NS
Р	Lilaeopsis chinensis	Eastern Lilaeopsis	Special Concern	Special Concern	Vulnerable	S3	186	21.2 ± 0.0	NS
Р	Scirpus Iongii	Long's Bulrush	Special Concern	opoolal oolloom	Vulnerable	S3	869	5.1 ± 0.0	NS
P	Isoetes prototypus	Prototype Quillwort	Special Concern	Special Concern	Vulnerable	S3	7	86.3 ± 0.0	NS
P		Poison Sumac	Special Concern	Special Concern	vuirierable	S1	, 41	28.4 ± 0.0	NS NS
P P	Toxicodendron vernix					S1			
•	Turritis glabra	Tower Mustard					1	77.0 ± 0.0	NS
P	Lobelia spicata	Pale-Spiked Lobelia				S1	1	73.0 ± 50.0	NS
P	Stellaria crassifolia	Fleshy Stitchwort				S1	1	13.6 ± 2.0	NS
P	Callitriche hermaphroditica	Northern Water-starwort				S1	1	87.4 ± 0.0	NS
P	Trichostema dichotomum	Forked Bluecurls				S1	5	39.7 ± 0.0	NS
P	Polygonum achoreum	Leathery Knotweed				S1	1	90.8 ± 10.0	NS
P	Podostemum ceratophyllum	Horn-leaved Riverweed				S1	4	52.2 ± 0.0	NS
P	Lysimachia minima	Chaffweed				S1	1	46.7 ± 0.0	NS
Р	Ámelanchier nantucketensis	Nantucket Serviceberry				S1	1	48.6 ± 0.0	NS
Р	Scrophularia lanceolata	Lance-leaved Figwort				S1	2	98.7 ± 1.0	NS
Р	Carex digitalis	Slender Wood Sedge				S1	4	33.8 ± 0.0	NS
Р	Carex laxiflora	Loose-Flowered Sedge				S1	3	47.8 ± 10.0	NS
P	Carex ormostachya	Necklace Spike Sedge				S1	2	62.7 ± 0.0	NS
P						S1			
•	Cyperus diandrus	Low Flatsedge					7	76.7 ± 0.0	NS
P	Fimbristylis autumnalis	Slender Fimbry				S1	3	37.3 ± 0.0	NS
P	Scirpus atrovirens	Dark-green Bulrush				S1	1	71.7 ± 0.0	NS
Р	Schoenoplectus torreyi	Torrey's Bulrush				S1	8	28.9 ± 0.0	NS
Р	Sisyrinchium fuscatum	Coastal Plain Blue-eyed- grass				S1	8	22.9 ± 0.0	NS
Р	Juncus secundus	Secund Rush				S1	2	30.2 ± 1.0	NS
Р	Spiranthes casei var. casei	Case's Ladies'-Tresses				S1	3	18.2 ± 0.0	NS
•	Dichanthelium								NS
Р	xanthophysum	Slender Panic Grass				S1	9	45.6 ± 1.0	
Р	Torreyochloa pallida var.	Pale False Manna Grass				S1	1	80.1 ± 0.0	NS
5	pallida								NO
P	Adiantum pedatum	Northern Maidenhair Fern				S1	2	89.9 ± 0.0	NS
P	Dryopteris goldieana	Goldie's Woodfern				S1	1	58.0 ± 1.0	NS

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Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
P	Carex pensylvanica	Pennsylvania Sedge				S1?	1	44.5 ± 10.0	NS
Р	Bolboschoenus robustus	Sturdy Bulrush				S1?	2	90.6 ± 5.0	NS
Р	Juncus anthelatus	Greater Poverty Rush				S1?	1	90.5 ± 0.0	NS
Р	Allium schoenoprasum var.	Wild Chives				S1?	1	98.4 ± 1.0	NS
Г	sibiricum	Wild Criives				31!	'	90.4 I 1.0	
Р	Panicum dichotomiflorum	Spreading Panicgrass				S1?	18	29.9 ± 0.0	NS
	ssp. puritanorum								
Р	Crocanthemum canadense	Long-branched Frostweed			Endangered	S1S2	22	20.1 ± 0.0	NS
Р	Cornus suecica	Swedish Bunchberry				S1S2	2	16.1 ± 0.0	NS
Р	Proserpinaca intermedia	Intermediate Mermaidweed				S1S2	6	20.2 ± 5.0	NS
Р	Carex haydenii	Hayden's Sedge				S1S2	2	42.5 ± 0.0	NS
Р	Euphrasia farlowii	Farlow's Eyebright				S1S3	2	41.1 ± 0.0	NS
Р	Carex vacillans	Estuarine Sedge				S1S3	1	25.3 ± 0.0	NS
P	Antennaria parlinii ssp. fallax	Parlin's Pussytoes				S2	13	34.0 ± 0.0	NS
Р	Rudbeckia laciniata	Cut-Leaved Coneflower				S2	1	95.0 ± 7.0	NS
Р	Hudsonia ericoides	Pinebarren Golden Heather				S2	57	20.9 ± 0.0	NS
P	Desmodium canadense	Canada Tick-trefoil				S2	7	44.2 ± 1.0	NS
Р	Hylodesmum glutinosum	Large Tick-trefoil				S2	18	43.6 ± 0.0	NS
Р	Conopholis americana	American Cancer-root				S2	56	39.0 ± 0.0	NS
Р	Anemonastrum canadense	Canada Anemone				S2	5	20.6 ± 1.0	NS
Р	Hepatica americana	Round-lobed Hepatica				S2	8	45.7 ± 1.0	NS
Р	Ranunculus sceleratus	Cursed Buttercup				S2	3	23.6 ± 0.0	NS
Р	Galium boreale	Northern Bedstraw				S2	3	71.3 ± 0.0	NS
Р	Agalinis maritima	Saltmarsh Agalinis				S2	51	83.2 ± 0.0	NS
Р	Juncus greenei	Greene's Rush				S2	7	80.7 ± 0.0	NS
Р	Juncus alpinoarticulatus ssp.	Northern Green Rush				S2	1	93.8 ± 0.0	NS
5	americanus	Magneti					40		NO
Р	Allium tricoccum	Wild Leek				S2	42	90.8 ± 7.0	NS
Р	Cypripedium parviflorum var.	Yellow Lady's-slipper				S2	1	93.3 ± 1.0	NS
Р	pubescens					00	418	00.70	NO
Р	Platanthera flava var. flava	Southern Rein Orchid				S2	418	6.8 ± 7.0	NS
Р	Platanthera flava var. herbiola	Pale Green Orchid				S2	23	18.3 ± 15.0	NS
Р	Platanthera macrophylla	Large Round-Leaved Orchid				S2	3	63.6 ± 0.0	NS
P	Cinna arundinacea	Sweet Wood Reed Grass				S2	35	45.5 ± 0.0	NS
P	Piptatheropsis pungens	Slender Ricegrass				S2 S2	12	26.6 ± 1.0	NS
r P	Cuscuta cephalanthi	Buttonbush Dodder				S2?	8	23.6 ± 0.0	NS
P	Rumex persicarioides	Peach-leaved Dock				S2?	5	13.1 ± 5.0	NS
Р	Crataegus submollis	Quebec Hawthorn				S2?	1	84.9 ± 7.0	NS
Р	Thuja occidentalis	Eastern White Cedar			Vulnerable	S2S3	376	49.3 ± 0.0	NS
Р	Erigeron philadelphicus	Philadelphia Fleabane			Valiforable	S2S3	1	92.1 ± 1.0	NS
Р	Eutrochium dubium	Coastal Plain Joe Pye Weed				S2S3	185	25.7 ± 0.0	NS
Р	Lactuca hirsuta	Hairy Lettuce				S2S3	6	22.6 ± 5.0	NS
Р	Caulophyllum thalictroides	Blue Cohosh				S2S3	9	97.7 ± 0.0	NS
Р	Oxybasis rubra	Red Goosefoot				S2S3	3	25.6 ± 0.0	NS
Р	Hypericum majus	Large St John's-wort				S2S3	3	31.7 ± 0.0	NS
P	Hypericum x dissimulatum	Disguised St. John's-wort				S2S3	11	21.4 ± 0.0	NS
P	Empetrum atropurpureum	Purple Crowberry				S2S3	1	93.0 ± 7.0	NS
P	Euphorbia polygonifolia	Seaside Spurge				S2S3	18	15.8 ± 5.0	NS
Р	Myriophyllum farwellii	Farwell's Water Milfoil				S2S3	10	29.8 ± 0.0	NS
P	Hedeoma pulegioides	American False Pennyroyal				S2S3	7	35.5 ± 1.0	NS
	Oenothera fruticosa ssp.	Narrow-leaved Evening							NS
Р	tetragona	Primrose				S2S3	17	15.4 ± 1.0	110
Р	Polygala polygama	Racemed Milkwort				S2S3	22	46.4 ± 0.0	NS
	Polygonum aviculare ssp.								NS
Р	buxiforme	Box Knotweed				S2S3	2	40.8 ± 0.0	.,.
_	Polygonum oxyspermum								NS
Р	ssp. raii	Ray's Knotweed				S2S3	13	15.7 ± 5.0	
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Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
Р	Rumex triangulivalvis	Triangular-valve Dock				S2S3	1	44.9 ± 1.0	NS
Р	Anemone quinquefolia	Wood Anemone				S2S3	23	88.4 ± 0.0	NS
Р	Caltha palustris	Yellow Marsh Marigold				S2S3	1	57.0 ± 0.0	NS
Р	Amelanchier fernaldii	Fernald's Serviceberry				S2S3	2	39.6 ± 1.0	NS
Р	Potentilla canadensis	Canada Cinquefoil				S2S3	20	13.5 ± 0.0	NS
Р	Galium obtusum	Blunt-leaved Bedstraw				S2S3	24	30.7 ± 0.0	NS
P	Boehmeria cylindrica	Small-spike False-nettle				S2S3	47	45.4 ± 0.0	NS
P	Carex adusta	Lesser Brown Sedge				S2S3	2	42.0 ± 7.0	NS
Р	Carex comosa	Bearded Sedge				S2S3	5	93.5 ± 0.0	NS
Р	Carex houghtoniana	Houghton's Sedge				S2S3	7	29.1 ± 0.0	NS
P	Carex hystericina	Porcupine Sedge				S2S3	2	91.0 ± 1.0	NS
P						S2S3	15	24.0 ± 10.0	NS NS
P	Carex longii	Long's Sedge				S2S3			NS NS
P	Eleocharis ovata	Ovate Spikerush					4 1	41.2 ± 0.0	
•	Scirpus pedicellatus	Stalked Bulrush				S2S3	-	94.0 ± 5.0	NS
P	Vallisneria americana	Wild Celery				S2S3	12	28.5 ± 0.0	NS
P	Najas gracillima	Thread-Like Naiad				S2S3	20	6.8 ± 7.0	NS
Р	Goodyera pubescens	Downy Rattlesnake-Plantain				S2S3	79	22.3 ± 11.0	NS
Р	Spiranthes casei	Case's Ladies'-Tresses				S2S3	4	31.7 ± 0.0	NS
Р	Spiranthes casei var.	Case's Ladies'-Tresses				S2S3	20	17.6 ± 0.0	NS
•	novaescotiae	Odde 3 Eddies - Heddes							
Р	Spiranthes lucida	Shining Ladies'-Tresses				S2S3	5	78.2 ± 7.0	NS
Р	Botrychium lanceolatum ssp.	Narrow Triangle Moonwort				S2S3	3	81.2 ± 1.0	NS
P	angustisegmentum	· ·				S2S3	4	23.9 ± 1.0	NS
P	Botrychium simplex	Least Moonwort					11	23.9 ± 1.0 18.7 ± 0.0	NS NS
•	Ophioglossum pusillum	Northern Adder's-tongue				S2S3			
P	Potamogeton pulcher	Spotted Pondweed			Vulnerable	S3	53	20.3 ± 0.0	NS
P	Conioselinum chinense	Chinese Hemlock-parsley				S3	3	13.5 ± 0.0	NS
Р	Iva frutescens	Big-leaved Marsh-elder				S3	58	84.9 ± 0.0	NS
Р	Senecio pseudoarnica	Seabeach Ragwort				S3	1	97.0 ± 0.0	NS
Р	Symphyotrichum boreale	Boreal Aster				S3	17	15.3 ± 5.0	NS
Р	Symphyotrichum undulatum	Wavy-leaved Aster				S3	135	17.9 ± 1.0	NS
Р	Alnus serrulata	Smooth Alder				S3	841	15.7 ± 7.0	NS
Р	Betula michauxii	Michaux's Dwarf Birch				S3	52	0.9 ± 0.0	NS
Р	Cardamine parviflora	Small-flowered Bittercress				S3	4	45.6 ± 0.0	NS
Р	Mononeuria groenlandica	Greenland Stitchwort				S3	84	38.8 ± 0.0	NS
Р	Sagina nodosa	Knotted Pearlwort				S3	53	13.8 ± 1.0	NS
Р	Sagina nodosa ssp. borealis	Knotted Pearlwort				S3	2	14.9 ± 1.0	NS
P	Stellaria longifolia	Long-leaved Starwort				S3	1	48.8 ± 5.0	NS
P	Ceratophyllum echinatum	Prickly Hornwort				S3	3	28.6 ± 0.0	NS
P	Crassula aquatica	Water Pygmyweed				S3	3	49.5 ± 0.0	NS
Р	Empetrum eamesii	Pink Crowberry				S3	8	90.1 ± 1.0	NS
P	Halenia deflexa	Spurred Gentian				S3	3	96.6 ± 0.0	NS
P	Geranium bicknellii	Bicknell's Crane's-bill				S3	14	36.2 ± 2.0	NS
P		Inverted Bladderwort				S3	41	0.7 ± 0.0	NS NS
P	Utricularia resupinata					S3	2	0.7 ± 0.0 21.2 ± 0.0	NS NS
P P	Epilobium strictum	Downy Willowherb Blood Milkwort				S3	6	48.2 ± 0.0	NS NS
P	Polygala sanguinea								
•	Persicaria arifolia	Halberd-leaved Tearthumb				S3	10	42.7 ± 0.0	NS
P	Plantago rugelii	Rugel's Plantain				S3	2	58.5 ± 0.0	NS
P	Primula laurentiana	Laurentian Primrose				S3	1	98.5 ± 2.0	NS
P	Samolus parviflorus	Seaside Brookweed				S3	82	11.0 ± 0.0	NS
Р	Anemone virginiana	Virginia Anemone				S3	1	45.7 ± 0.0	NS
Р	Cephalanthus occidentalis	Common Buttonbush				S3	1961	6.8 ± 7.0	NS
Р	Salix pedicellaris	Bog Willow				S3	92	16.0 ± 3.0	NS
Р	Salix sericea	Silky Willow				S3	172	10.7 ± 3.0	NS
Р	Lindernia dubia	Yellow-seeded False				S3	11	24.6 ± 0.0	NS
·	LitiuGitila uubla	Pimperel							
Р	Viola nephrophylla	Northern Bog Violet				S3	1	45.9 ± 1.0	NS
Р	Carex cryptolepis	Hidden-scaled Sedge				S3	5	10.8 ± 2.0	NS

Taxonomic

Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
Р .	Carex eburnea	Bristle-leaved Sedge				S3	1	16.0 ± 0.0	NS
Р	Carex lupulina	Hop Sedge				S3	34	20.2 ± 0.0	NS
P	Carex rosea	Rosy Sedge				S3	5	93.1 ± 4.0	NS
P	Carex swanii	Swan's Sedge				S3	37	31.5 ± 0.0	NS
P	Carex tenera	Tender Sedge				S3	4	45.7 ± 0.0	NS
P	Carex tribuloides	Blunt Broom Sedge				S3	i	41.7 ± 0.0	NS
Р	Eleocharis nitida	Quill Spikerush				S3	5	72.7 ± 1.0	NS
	Eleocharis flavescens var.	Quiii Opikerusii						12.1 1 1.0	NS
Р	olivacea	Bright-green Spikerush				S3	19	29.4 ± 0.0	NO
Р	Eleocharis rostellata	Beaked Spikerush				S3	67	69.0 ± 0.0	NS
P	Eriophorum gracile	Slender Cottongrass				S3	6	93.3 ± 0.0	NS
P	Schoenoplectus americanus	Olney's Bulrush				S3	93	81.9 ± 0.0	NS
P	Neottia bifolia	Southern Twayblade				S3	124	15.7 ± 0.0	NS
Р	Platanthera flava	Southern Rein-Orchid				S3	55	18.3 ± 5.0	NS
Р	Platanthera grandiflora	Large Purple Fringed Orchid				S3	4	72.1 ± 0.0	NS
Р	Platanthera hookeri	Hooker's Orchid				S3	14	13.0 ± 100.0	NS
Р	Dichanthelium linearifolium	Narrow-leaved Panic Grass				S3	11	45.0 ± 0.0	NS
P	Piptatheropsis canadensis	Canada Ricegrass				S3	25	10.7 ± 0.0	NS
P	Stuckenia filiformis	Thread-leaved Pondweed				S3	1	77.9 ± 7.0	NS
r P	Sceptridium dissectum	Dissected Moonwort				S3	4	53.6 ± 0.0	NS
P	Polypodium appalachianum	Appalachian Polypody				S3	9	7.6 ± 0.0	NS
	Persicaria amphibia var.	Apparachian Folypody				33	9	7.0 ± 0.0	NS
Р	emersa	Long-root Smartweed				S3?	30	20.2 ± 0.0	INO
Р	Spiranthes ochroleuca	Yellow Ladies'-tresses				S3?	43	11.8 ± 1.0	NS
P	Diphasiastrum x sabinifolium	Savin-leaved Ground-cedar				S3?	3	45.6 ± 0.0	NS
P	Bidens vulgata	Tall Beggarticks				S3S4	1	93.9 ± 0.0	NS
P	Hieracium paniculatum	Panicled Hawkweed				S3S4 S3S4	35	28.7 ± 0.0	NS NS
P	Bidens beckii	Water Beggarticks				S3S4 S3S4	28	29.8 ± 0.0	NS NS
P						S3S4 S3S4	1		NS NS
P	Vaccinium boreale	Northern Blueberry				S3S4 S3S4	32	55.2 ± 0.0 50.2 ± 0.0	NS NS
P P	Vaccinium cespitosum	Dwarf Bilberry							
P P	Vaccinium corymbosum	Highbush Blueberry				S3S4	781	10.6 ± 0.0	NS
P P	Fagus grandifolia	American Beech				S3S4	272	3.9 ± 3.0	NS
	Bartonia virginica	Yellow Bartonia				S3S4	114	7.0 ± 0.0	NS
P	Proserpinaca pectinata	Comb-leaved Mermaidweed				S3S4	110	19.1 ± 0.0	NS
P	Decodon verticillatus	Swamp Loosestrife				S3S4	348	10.1 ± 0.0	NS
P	Nuphar microphylla	Small Yellow Pond-lily				S3S4	7	10.8 ± 2.0	NS
Р	Persicaria pensylvanica	Pennsylvania Smartweed				S3S4	8	28.9 ± 5.0	NS
Р	Fallopia scandens	Climbing False Buckwheat				S3S4	7	35.3 ± 0.0	NS
P	Pyrola asarifolia	Pink Pyrola				S3S4	1	84.1 ± 7.0	NS
Р	Amelanchier spicata	Running Serviceberry				S3S4	47	15.8 ± 5.0	NS
P	Galium aparine	Common Bedstraw				S3S4	14	24.6 ± 0.0	NS
Р	Limosella australis	Southern Mudwort				S3S4	18	12.4 ± 0.0	NS
P	Ulmus americana	White Elm				S3S4	15	28.7 ± 2.0	NS
Р	Verbena hastata	Blue Vervain				S3S4	38	20.6 ± 1.0	NS
Р	Viola sagittata var. ovata	Arrow-Leaved Violet				S3S4	48	16.0 ± 0.0	NS
Р	Symplocarpus foetidus	Eastern Skunk Cabbage				S3S4	406	36.8 ± 0.0	NS
Р	Carex argyrantha	Silvery-flowered Sedge				S3S4	24	10.5 ± 4.0	NS
Р	Sisyrinchium atlanticum	Eastern Blue-Eyed-Grass				S3S4	421	14.5 ± 0.0	NS
P	Triglochin gaspensis	Gasp ├─ Arrowgrass				S3S4	20	23.5 ± 0.0	NS
Р	Juncus acuminatus	Sharp-Fruit Rush				S3S4	19	18.3 ± 5.0	NS
P	Juncus subcaudatus	Woods-Rush				S3S4	29	20.5 ± 5.0	NS
P	Goodyera repens	Lesser Rattlesnake-plantain				S3S4	18	13.3 ± 0.0	NS
Р	Liparis loeselii	Loesel's Twayblade				S3S4	9	21.3 ± 1.0	NS
Р	Platanthera obtusata	Blunt-leaved Orchid				S3S4	19	26.4 ± 10.0	NS
Р	Platanthera orbiculata	Small Round-leaved Orchid				S3S4	47	13.0 ± 100.0	NS
Р	Dichanthelium clandestinum	Deer-tongue Panic Grass				S3S4	257	44.6 ± 10.0	NS
Р	Coleataenia longifolia	Long-leaved Panicgrass				S3S4	2382	7.0 ± 0.0	NS
Р	Panicum philadelphicum	Philadelphia Panicgrass				S3S4	33	9.9 ± 0.0	NS

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Taxonomic									
Group	Scientific Name	Common Name	COSEWIC	SARA	Prov Legal Prot	Prov Rarity Rank	# recs	Distance (km)	Prov
Р	Asplenium trichomanes	Maidenhair Spleenwort				S3S4	4	81.1 ± 1.0	NS
Р	Lorinseria areolata	Netted Chain Fern				S3S4	336	10.6 ± 0.0	NS
Р	Equisetum pratense	Meadow Horsetail				S3S4	1	96.3 ± 0.0	NS
Р	Diphasiastrum complanatum	Northern Ground-cedar				S3S4	6	70.8 ± 1.0	NS
Р	Sceptridium multifidum	Leathery Moonwort				S3S4	6	26.4 ± 10.0	NS
Р	Botrychium matricariifolium	Daisy-leaved Moonwort				S3S4	1	26.4 ± 10.0	NS
Р	Bidens discoidea	Swamp Beggarticks				SH	1	57.2 ± 0.0	NS
Р	Dichanthelium meridionale	Matting Witchgrass				SH	3	86.8 ± 2.0	NS

5.1 SOURCE BIBLIOGRAPHY (100 km)

The recipient of these data shall acknowledge the AC CDC and the data sources listed below in any documents, reports, publications or presentations, in which this dataset makes a significant contribution.

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APPENDIX H FISH & FISH HABITAT

Table 1: Fish Habitat Characteristics - Mersey River Wind Farm Project

Watercourse	Position in stream	Bankfull width (m)	Wetted width (m)	Average depth (m)	Direction of flow	Velocity (m/s)	Water Chemistry	Substrate (%)	In-Stream Habitat Types (Present, Absent)	In-stream Cover (Trace, Moderate, Abundant)	Riparian Habitat Types (Present, Absent)	Bank Characteristics (Trace, Moderate, Abundant)	Fish Habitat (Trace, Moderate, Abundant)	Barriers to Fish Passage (>0.5 cm)	Probability for Fish Present
	Downstream	10.4	9.4	0.19	East	0.41	Temp. (°C) = 20.1 DO (mg/L) = 6.92 DO (%) = 76.2 Cond. (mS/cm) = 0.024 pH = 5.03	Bedrock = 0 Boulder (>25 cm) = 30 Rubble (14-25 cm) = 15 Cobble (3-13 cm) = 25 Gravel (2 mm-3 cm) = 10 Square (0.06-2 mm) = 5 Fines (<0.06 mm) = 15	Pools = Present Riffles = Present Runs = Absent Flat = Absent Rapids = Absent Cascade = Absent	Boudiers = Moderate Overhanging vegetation = Abundant Large woody debris = Trace Small woody debris = Moderate Deep pools = Moderate Undercut banks = Moderate Instream vegetation = Trace	Herbaceous = Present Graminoids = Absent Shrub = Present Softwood = Present Hardwood = Present	Evidence of siltation = Trace Eroding banks = Trace Bank stability = Moderate Degree of siltation = Trace Undercut banks = Moderate	Spawning = Trace Rearing = Abundant Overwintering = Abundant		
001/WC3	Crossing	9.9	9.6	0.69	East	0.32	Temp. (°C) = 21.7 DO (mg/L) = 6.18 DO (%) = 69.1 Cond. (mS/cm) = 0.024 pH = 5.14	Bedrock = 0 Boulder (>25 cm) = 45 Rubble (14-25 cm) = 10 Cobble (3-13 cm) = 25 Gravel (2 mm-3 cm) = 10 Sand (0.06-2 mm) = 5 Fines (<0.06 mm) = 5	Pools = Absent Riffles = Absent Runs = Present Flat = Absent Rapids = Absent Cascade = Absent	Boudlers = Abundant Overhanging vegetation = Moderate Large woody debris = Trace Small woody debris = Moderate Deep pools = None Undercut banks = Trace Instream vegetation = Moderate	Herbaceous = Present Graminoids = Present Shrub = Present Softwood = Present Hardwood = Present	Evidence of siltation = Trace Eroding banks = Trace Bank stability = Abundant Degree of siltation = Trace Undercut banks = Trace	Spawning = Trace Rearing = Moderte Overwintering = Trace	No	Moderate to high
	Upstream	11	10.5	0.49	East	0.38	Temp. (°C) = 22.3 DO (mg/L) = 5.89 DO (%) = 68.2 Cond. (mS/cm) = 0.024 pH = 5.16	Bedrock = 0 Boulder (>25 cm) = 5 Rubble (14-25 cm) = 0 Cobble (3-13 cm) = 0 Gravel (2 mm-3 cm) = 0 Sand (0.06-2 mm) = 0 Fines (<0.06 mm) = 95	Pools = Absent Riffles = Absent Runs = Absent Flat = Present Rapids = Absent Cascade = Absent	Boudlers = Trace Overhanging vegetation = Trace Large woody debris = Trace Small woody debris = None Deep pools = None Undercut banks = Trace Instream vegetation = Abundant	Herbaceous = Present Graminoids = Present Shrub = Present Softwood = Present Hardwood = Present	Evidence of siltation = Moderate Eroding banks = Trace Bank stability = Abundant Degree of siltation = Trace Undercut banks = Trace	Spawning = Trace Rearing = Trace Overwintering = Trace		
	Downstream	3.96	3.53	0.28	North	0.88	Temp. (°C) = 17.7 DO (mg/L) = 10.03 DO (%) = 104.9 Cond. (mS/cm) = 0.018 pH = 5.69	Bedrock = 0 Boulder (>25 cm) = 75 Rubble (14-25 cm) = 15 Cobble (3-13 cm) = 5 Gravel (2 mm-3 cm) = 0 Sand (0.06-2 mm) = 0 Fines (<0.06 mm) = 5	Pools = Absent Riffles = Present Runs = Present Flat = Absent Rapids = Absent Cascade = Absent	Boudlers = Trace Overhanging vegetation = Abundant Large woody debris = None Small woody debris = Trace Deep pools = None Undercut banks = None Instream vegetation = Abundant	Herbaceous = Present Graminoids = Present Shrub = Present Softwood = Present Hardwood = Present	Evidence of siltation = Trace Eroding banks = Trace Bank stability = Abundant Degree of siltation = Trace Undercut banks = None	Spawning = Trace Rearing = Moderate Overwintering = Trace		
002/Bon Mature Brook	Crossing	4.04	4.01	0.3	North	0.25	Temp. (°C) = 18.2 DO (mg/L) = 9.80 DO (%) = 103.3 Cond. (mS/cm) = 0.018 pH = 5.67	Bedrock = 0 Boulder (>25 cm) = 85 Rubble (14-25 cm) = 5 Cobble (3-13 cm) = 5 Gravel (2 mm-3 cm) = 0 Sand (0.06-2 mm) = 0 Fines (<0.06 mm) = 5	Pools = Absent Riffles = Present Runs = Present Flat = Absent Rapids = Absent Cascade = Absent	Boudlers = Abundant Overhanging vegetation = Abundant Large woody debris = None Small woody debris = Moderate Deep pools = Trace Undercut banks = None Instream vegetation = None	Herbaceous = Present Graminoids = Absent Shrub = Present Softwood = Present Hardwood = Present	Evidence of siltation = None Eroding banks = None Bank stability = Abundant Degree of siltation = None Undercut banks = None	Spawning = Trace Rearing = Moderte Overwintering = Trace	No	Moderate to high
	Upstream	3.36	3.24	0.42	North	0.36	Temp. (°C) = 19.3 DO (mg/L) = 9.51 DO (%) = 103 Cond. (mS/cm) = 0.018 pH = 5.68	Bedrock = 0 Boulder (>25 cm) = 55 Rubble (14-25 cm) = 35 Cobble (3-13 cm) = 5 Gravel (2 mm-3 cm) = 0 Sand (0.06-2 mm) = 0 Fines (<0.06 mm) = 5	Pools = Absent Riffles = Present Runs = Present Flat = Absent Rapids = Absent Cascade = Present	Boudlers = Moderate Overhanging vegetation = Trace Large woody debris = Moderate Small woody debris = Moderate Deep pools = Trace Undercut Banks = None Instream vegetation = Moderate	Herbaceous = Present Graminoids = Present Shrub = Present Softwood = Present Hardwood = Present	Evidence of siltation = Trace Eroding banks = None Bank stability = Moderate Degree of siltation = Trace Undercut banks = None	Spawning = Trace Rearing = Moderate Overwintering = Trace		
	Downstream	21.3	20.8	0.52	East	0.43	Temp. (°C) = 23.1 DO (mg/L) = 9.95 DO (%) = 116.3 Cond. (mS/cm) = 0.019 pH = 5.66	Bedrock = 0 Boulder (>25 cm) = 45 Rubble (14-25 cm) = 35 Cobble (3-13 cm) = 20 Gravel (2 mm-3 cm) = 0 Sand (0.06-2 mm) = 0 Fines (<0.06 mm) = 0	Pools = Present Riffles = Present Runs = Present Flat = Absent Rapids = Absent Cascade = Absent	Boudlers = Moderate Overhanging vegetation = Trace Large woody debris = None Small woody debris = None Deep pools = Trace Undercut banks = None Instream vegetation = Moderate	Herbaceous = Present Graminoids = Present Shrub = Present Softwood = Present Hardwood = Present	Evidence of siltation = None Eroding banks = None Bank stability = Abundant Degree of siltation = Trace Undercut banks = None	Spawning = Trace Rearing = Moderate Overwintering = Trace		
003/Mersey River	Crossing	15	14.9	0.45	East	0.47	Temp. (°C) = 22.7 DO (mg/L) = 8.8 DO (%) = 102.3 Cond. (mS/cm) = 0.020 pH = 5.72	Bedrock = 0 Boulder (>25 cm) = 40 Rubble (14-25 cm) = 50 Cobble (3-13 cm) = 10 Gravel (2 mm-3 cm) = 0 Sand (0.06-2 mm) = 0 Fines (<0.06 mm) = 0	Pools = Present Riffles = Present Runs = Present Flat = Absent Rapids = Absent Cascade = Absent	Boudlers = Abundant Overhanging vegetation = Trace Large woody debris = None Small woody debris = None Deep pools = Trace Undercut banks = None Instream vegetation = Moderate	Herbaceous = Present Graminoids = Present Shrub = Present Softwood = Present Hardwood = Present	Evidence of siltation = None Eroding banks = None Bank stability = Abundant Degree of siltation = None Undercut banks = None	Spawning = Trace Rearing = Moderte Overwintering = Trace	No	High
	Upstream	42	40.5	0.97	East	0.54	Temp. (°C) = 23.2 DO (mg/L) = 8.98 DO (%) = 103.2 Cond. (mS/cm) = 0.019 pH = 5.71	Bedrock = 0 Boulder (>25 cm) = 90 Rubble (14-25 cm) = 10 Cobble (3-13 cm) = 0 Gravel (2 mm-3 cm) = 0 Sand (0.06-2 mm) = 0 Fines (<0.06 mm) = 0	Pools = Present Riffles = Present Runs = Present Flat = Absent Rapids = Absent Cascade = Absent	Boudlers = Abundant Overhanging vegetation = Moderate Large woody debris = None Small woody debris = None Deep pools = Trace Undercut banks = None Instream vegetation = Abundant	Herbaceous = Present Graminoids = Present Shrub = Present Softwood = Present Hardwood = Present	Evidence of siltation = None Eroding banks = None Bank stability = Abundant Degree of siltation = None Undercut banks = None	Spawning = Trace Rearing = Moderate Overwintering = Trace		
	Downstream	3	1.2	0.27	Northwest	0.23	Temp. (°C) = 23.2 DO (mg/L) = 5.15 DO (%) = 57.7 Cond. (mS/cm) = 0.06 pH = 4.14	Bedrock = 0 Boulder (>25 cm) = 90 Rubble (14-25 cm) = 0 Cobble (3-13 cm) = 10 Gravel (2 mm-3 cm) = 0 Sand (0.06-2 mm) = 0 Fines (<0.06 mm) = 0	Pools = Absent Riffles = Absent Runs = Present Flat = Absent Rapids = Absent Cascade = Absent	Boudlers = Abundant Overhanging vegetation = Moderate Large woody debris = None Small woody debris = None Deep pools = None Undercut banks = None Instream vegetation = Abundant	Herbaceous = Present Graminoids = Present Shrub = Present Softwood = Present Hardwood = Present	Evidence of siltation = None Eroding banks = None Bank stability = Moderate Degree of siltation = Trace Undercut banks = None	Spawning = Trace Rearing = Moderate Overwintering = Trace		
004/East Broad River	Crossing	4	2	0.16	Northwest	0.12	Temp. (°C) = 22.8 DO (mg/L) = 3.55 DO (%) = 40.5 Cond. (mS/cm) = 0.06 pH = 4.04	Bedrock = 0 Boulder (>25 cm) = 100 Rubble (14-25 cm) = 0 Cobble (3-13 cm) = 0 Gravel (2 mm-3 cm) = 0 Sand (0.06-2 mm) = 0 Fines (<0.06 mm) = 0	Pools = Absent Riffles = Absent Runs = Present Flat = Absent Rapids = Absent Cascade = Absent	Boudlers = Abundant Overhanging vegetation = Moderate Large woody debris = None Small woody debris = Trace Deep pools = None Undercut banks = None Instream vegetation = None	Herbaceous = Present Graminoids = Absent Shrub = Present Softwood = Present Hardwood = Present	Evidence of siltation = None Eroding banks = None Bank stability = Abundant Degree of siltation = None Undercut banks = None	Spawning = Trace Rearing = Moderte Overwintering = Trace	Yes. Low water levels at stream crossing survey point	High (subject to water levels)
	Upstream	4	2	0.12	Northwest	0.14	Temp. (°C) = 19.9 DO (mg/L) = 2.78 DO (%) = 30.0 Cond. (mS/cm) = 0.06 pH = 4.08	Bedrock = 0 Boulder (>25 cm) = 100 Rubble (14-25 cm) = 0 Cobble (3-13 cm) = 0 Gravel (2 mm-3 cm) = 0 Sand (0.06-2 mm) = 0 Fines (<0.06 mm) = 0	Pools = Absent Riffles = Absent Runs = Present Flat = Absent Rapids = Absent Cascade = Absent	Boudlers = Abundant Overhanging vegetation = Moderate Large woody debris = Trace Small woody debris = Abundant Deep pools = None Undercut banks = None Instream vegetation = Trace	Herbaceous = Present Graminoids = Absent Shrub = Present Softwood = Present Hardwood = Present	Evidence of siltation = None Eroding banks = None Bank stability = Abundant Degree of siltation = None Undercut banks = None	Spawning = Trace Rearing = Moderate Overwintering = Trace		



Photo 1. A representitive photo of the downstream reach for electrofished stream 001/WC3.



001/WC3

CROSSING

Photo 2. A representitive photo of the crossing reach for stream 001/WC3. Note that water temperatures were too high to electrofish this reach.



UPSTREAM

Photo 3. A representitive photo of the upstream reach for electrofished stream 001/WC3.



Photo 4. An American eel (*Aguilla rostrata*) caught in this watercourse during electrofishing surveys in water course 001/WC3.



Photo 5. A representitive photo of the downstream reach for electrofished stream 002/Bon Mature Brook.

002/Bon Mature Brook CROSSING



Photo 6. A representitive photo of the crossing reach for electrofished stream 002/Bon Mature Brook.



Photo 7. A representitive photo of the upstream reach for electrofished stream 002/Bon Mature Brook.



Photo 8. An American eel (*Aguilla rostrata*) caught in this watercourse during electrofishing surveys in watercourse 002/Bon Mature Brook.



Photo 9. A representitive photo of the downstream reach for stream 003/Mersey River. Note that water temperatures were too high to electrofish this reach.

003/Mersey River CROSSING



Photo 10. A representitive photo of the crossing reach for stream 003/Mersey River. Note that water temperatures were too high to electrofish this reach.

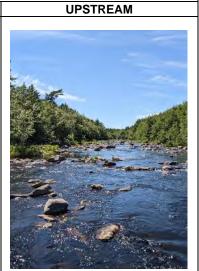


Photo 11. A representitive photo of the upstream reach for stream 003/Mersey River. Note that water temperatures were too high to electrofish this reach.



004/East Broad River CROSSING

UPSTREAM



Photo 12. A representitive photo of the downstream reach for stream 004/East Broad River. Note that water temperatures were too high to electrofish this reach.



Photo 13. A representitive photo of the crossing reach for stream 004/East Broad River. Note that water temperatures were too high to electrofish this reach.



Photo 14. A representitive photo of the upstream reach for stream 004/East Broad River. Note that water temperatures were too high to electrofish this reach.



APPENDIX I WETLANDS

Wetland ID	Wetland Type	Area (m2)	Landscape Position	Landform	Water Flow	Soil Type	Surface/Hydrologic	Fish-Bearing Potential		Dominant Vegetation	
Wettaria	Wedana Type	Area (mz)	Landscape i osition	Landioiiii	Water Flow	Con Type	Conditions	Tion bearing rotential	Herbaceous	Shrub	Trees
WL1	Vernal pool	148.15	Terrene	Basin	Ephemeral throughflow	A11: Depleted below dark surface	Water-stained leaves; Sediment deposits; Drainage patterns	No, isolated from stream network	Common woolly bulrush (Scirpus cyperinus); Cinnamon fern (Osmunda cinnamomea); Fringed sedge (Carex crinita)	Leather leaf (<i>Chamaedaphne</i> calyculata); Speckled alder (<i>Alnus</i> incana); Sheep laurel (<i>Kalmia</i> angustifolia)	Red spruce (<i>Picea</i> rubens); Red maple (<i>Acer</i> rubrum); Balsam fir (<i>Abies</i> balsamea)
WL2	Vernal pool	11.32	Terrene	Basin	Ephemeral throughflow	A1: Histosol	High water table; Saturation; Sediment deposits	No, surface water absent	Common woolly bulrush (Scirpus cyperinus); Cinnamon fern (Osmunda cinnamomea); Fringed sedge (Carex crinita)	Tamarack (<i>Larix laricina</i>); Black spruce (<i>Picea</i> <i>mariana</i>); Leather leaf (<i>Chamaedaphne</i> <i>calyculata</i>)	Tamarack (<i>Larix</i> laricina); Black spruce (<i>Picea mariana</i>); Balsam fir (<i>Abies</i> balsamea)
WL3	Vernal pool	35.16	Terrene	Basin	Ephemeral throughflow	A1: Histosol	Saturation; Sediment deposits; Drainage patterns	No, surface water absent	Common wooly bulrush (Scirpus cyperinus)	Sweet fern (<i>Comptonia</i> peregrina); Black huckleberry (<i>Gaylussacia baccata</i>); Northern bayberry (<i>Morella</i> pensylvanica)	Tamarack (<i>Larix laricina</i>); Grey birch (<i>Betula populifolia</i>); Red spruce (<i>Picea rubens</i>)
WL4	Bog / Treed swamp	1220.6	Lentic	Basin	Throughflow	A1: Histosol	Surface water; Algal mat; Saturation	Minimum due to shallow, hypoxic surface water	Soft rush (Juncus effusus); Common woolly bulrush (Scirpus cyperinus); Eastern marsh fern (Thelypteris palustris)	Black huckleberry (Gaylussacia baccata); Labrador tea (Rhododendron groenlandicum); Red maple (Acer rubrum)	Tamarack (<i>Larix laricina</i>); Black spruce (<i>Picea mariana</i>); Balsam fir (<i>Albies balsamea</i>)
WL5	Vernal pool	136.57	Terrene	Basin	Ephemeral throughflow	A1: Histosol	Sparsley vegetated concave suface; Water-stained leaves; Drainage patterns	No, surface water absent	Common wooly bulrush (<i>Scirpus cyperinus</i>); Cinnamon fern (<i>Osmunda</i> <i>cinnamomea</i>)	Winterberry (<i>Ilex verticillata</i>); Red maple (<i>Acer rubrum</i>); Black huckleberry (<i>Gaylussacia baccata</i>)	White pine (<i>Pinus</i> strobus); Grey birch (<i>Betula</i> populifolia); Red maple (<i>Acer</i> rubrum)
WL6	Shrub swamp	711.1	Terrene	Flat	Paludified	A1: Histosol	Saturation; Sediment deposits; Drainage patterns	No, surface water absent	Common woolly bulrush (Scirpus cyperinus); Cinnamon fern (Osmunda cinnamomea); Three-seeded sedge (Carex trisperma)	Leather leaf (<i>Chamaedaphne</i> <i>calyculata</i>); Red maple (<i>Acer rubrum</i>)	Red spruce (<i>Picea</i> rubens); Red maple (<i>Acer</i> rubrum); Grey birch (<i>Betula</i> populifolia)
WL7	Bog	1845.82	Lentic	Flat	Throughflow	A1: Histosol	Surface water; Saturation; Drainage patterns	Minimum, due to shallow water and macrophyte abundance	American burreed (Sparganium americanum); Common wooly bulrush (Scirpus cyperinus); Bristly dewberry (Rubus hispidus)	Steeplebush (<i>Spiraea</i> tomentosa); Speckled alder (<i>Alnus</i> incana); Grey birch (<i>Betula populifolia</i>)	White pine (<i>Pinus</i> strobus); Grey birch (<i>Betula</i> populifolia); Red maple (<i>Acer</i> rubrum)
WL8	Vernal pool	54.15	Lentic	Basin	Throughflow	A1: Histosol	Surface water; Saturation; Drainage patterns	No, isolated from stream network	Common wooly bulrush (Scirpus cyperinus); Cinnamon fern (Osmunda cinnamomea); Three-seeded sedge (Carex trisperma)	Sheep laurel (<i>Kalmia</i> angustifolia); Red maple (<i>Acer rubrum</i>); Red spruce (<i>Picea rubens</i>)	Red spruce (<i>Picea</i> rubens); Red maple (<i>Acer</i> rubrum); Balsam fir (<i>Abies</i> balsamea)
WL9	Treed swamp / Shrub swamp	124.34	Lentic	Basin	Ephemeral throughflow	A1: Histosol	Surface water; Saturation; Water marks	No, ephemeral drainage basin along roadside	Northen water horehound (Lycopus uniflorus); Three-seeded sedge (Carex trisperma); Dewdrop (Rubus repens)	Speckled alder (<i>Alnus</i> incana); Northern bayberry (<i>Morella</i> pensylvanica); Red spruce (<i>Picea rubens</i>)	Speckled alder (Alnus incana); Red maple (Acer rubrum); Red spruce (Picea rubens)
WL10	Shrub swamp / Treed swamp	1156.67	Terrene	Basin	Throughflow	A1: Histosol	Surface water; Saturation; Drainage patterns	No, insufficient water levels	Common woolly bulrush (Scirpus cyperinus); Northen water horehound (Lycopus uniflorus); Greenish sedge (Carex viridula)	Speckled alder (<i>Alnus</i> incana); Black spruce (<i>Picea mariana</i>); Red maple (<i>Acer rubrum</i>)	Black spruce (<i>Picea mariana</i>); Speckled alder (<i>Alnus incana</i>); Red maple (<i>Acer rubrum</i>)



Wetland ID	Wetland Type	Area (m2)	Landscape Position	Landform	Water Flow	Soil Type	Surface/Hydrologic	Fish-Bearing Potential		Dominant Vegetation	
Wedana ib	Troduila Type	Al Qu (IIIZ)	Landoupe i OsitiOii	Lundioiiii	Tracer i low	Oon Type	Conditions	. ion boaring i otential	Herbaceous	Shrub	Trees
WL11	Shrub swamp	58.03	Lotic	Fringe	Throughflow	A1: Histosol	Surface water; Saturation; Water marks	Yes, located along a small stream, adjacent to roadway	Northern water horehound (Lycopus uniflorus); Bluejoint reed grass (Calamagrostis canadensis); Bristly dewberry (Rubus hispidus)	Speckled alder (<i>Alnus</i> incana); Red maple (<i>Acer rubrum</i>); Balsam fir (<i>Albies balsamea</i>)	Red maple (Acer rubrum); Speckled alder (Alnus incana); Red spruce (Picea rubens)
WL12	Treed swamp / Shrub swamp	5984.5	Lentic	Fringe	Throughflow	A5: Stratified layers	Surface water; Saturation; Drainage patterns	Yes, located along a small stream	Cinnamon fern (Osmunda cinnamomea); Bunchberry (Cornus canadensis); Three-leaved goldthread (Coptis trifolia)	Speckled alder (<i>Alnus</i> incana); Red maple (<i>Acer rubrum</i>); Black huckleberry (<i>Gaylussacia baccata</i>)	Black spruce (Picea mariana); Grey birch (Betula populifolia); Red maple (Acer rubrum)
WL13	Shrub swamp	201.23	Lentic	Fringe	Throughflow	A1: Histosol	Surface water; Saturation; Drainage patterns	Yes, open water areas with plenty of macropytic vegetation	Canada rush (<i>Juncus</i> canadensis); Bladder sedge (<i>Carex</i> intumescens); Common wooly bulrush (<i>Scirpus cyperinus</i>)	Grey birch (<i>Betula</i> populifolia); Sweet gale (<i>Myrica gale</i>); Red maple (<i>Acer rubrum</i>)	Grey birch (<i>Betula</i> populifolia); Tamarack (<i>Larix</i> laricina); Red maple (<i>Acer</i> rubrum)
WL14	Marsh	337.92	Lentic	Fringe	Throughflow	A1: Histosol	Surface water; Saturation; Drainage patterns	Minimum due to intermittent subterranian flow	Common wooly bulrush (Scirpus cyperinus); Canada rush (Juncus canadensis); Bladder sedge (Carex intumescens)	Sheep laurel (<i>Kalmia</i> angustifolia); Sweet fern (<i>Comptonia</i> peregrina); Black spruce (<i>Picea mariana</i>)	Black spruce (Picea mariana); Red maple (Acer rubrum); White pine (Pinus strobus)
WL15	Bog	102.77	Terrene	Basin	Throughflow	A1: Histosol	Surface water; Saturation; Drainage patterns	No, insufficient water levels	Canada rush (Juncus canadensis); Common wooly bulrush (Scirpus cyperinus); Cinnamon fern (Osmunda cinnamomea)	Sheep laurel (<i>Kalmia</i> angustifolia); Sweet fern (<i>Comptonia</i> peregrina); Red spruce (<i>Picea rubens</i>)	Red spruce (<i>Picea</i> rubens); Red maple (<i>Acer</i> rubrum); Grey birch (<i>Betula</i> populifolia)
WL16	Bog	317.1	Terrene	Basin	Throughflow	A1: Histosol	Surface water; Saturation; Drainage patterns	No, insufficient water levels	Common wooly bulrush (Scirpus cyperinus); Bladder sedge (Carex intumescens); Cinnamon fern (Osmunda cinnamomea)	Sheep laurel (<i>Kalmia</i> angustifolia); Sweet fern (<i>Comptonia</i> peregrina); Red spruce (<i>Picea rubens</i>)	Red spruce (<i>Picea</i> rubens); Red maple (<i>Acer</i> rubrum); Grey birch (<i>Betula</i> populifolia)
WL17	Bog / Marsh	468.04	Terrene	Basin	Throughflow	A5: Stratified layers	High water table; Saturation; Drainage patterns	No, insufficient water levels	Common Wooly bulrush (<i>Scirpus cyperinus</i>); Cinnamon fern (<i>Osmunda</i> <i>cinnamomea</i>); Broad-leaved cattail (<i>Typha</i> <i>latifolia</i>)	Steeplebush (Spirea tomentosa); Sweet fern (Comptonia peregrina); Red maple (Acer rubrum)	Grey birch (<i>Betula</i> populifolia); Red maple (<i>Acer</i> rubrum); White pine (<i>Pinus</i> strobus)
WL18	Shrub swamp	268.63	Terrene	Basin	Throughflow	A5: Stratified layers	High water table; Saturation; Drainage patterns	No, insufficient water levels	Common wooly bulrush (Scirpus cyperinus); Common soft rush (Juncus effusus); Bristly dewberry (Rubus hispidus)	Grey birch (<i>Betula</i> populifolia); Grey alder (<i>Alnus incana</i>); Steeplebush (<i>Spirea</i> tomentosa)	Grey birch (<i>Betula</i> populifolia); White pine (<i>Pinus</i> strobus); Red maple (<i>Acer</i> rubrum)
WL19	Marsh	84.02	Lentic	Fringe	Throughflow	A : Hydrogen sulfide	Surface water; Saturation; Drainage patterns	Minimum, due to subterranean connection to stream network	Common wooly bulrush (Scirpus cyperinus); Broad-leaved cattail (Typha latifolia); Common soft rush (Juncus effusus)	Speckled alder (alnus incana); Sweet fern (Comptonia peregrina); Red maple (Acer rubrum)	Grey birch (<i>Betula</i> poulifolia); Balsam fir (<i>Abies</i> balsamea); Red maple (<i>Acer</i> rubrum)
WL20	Vernal pool	94.22	Lentic	Fringe	Throughflow	A1: Histosol	Surface water; Saturation; Drainage patterns	No, disconnected from stream network	Sallow sedge (Carex lurida); Canada rush (Juncus canadensis); Common soft rush (Juncus effusus)	Northern bayberry (<i>Morella</i> pensylvanica); Red maple (<i>Acer rubrum</i>); Red spruce (<i>Picea rubens</i>)	Black spruce (Picea mariana); Red maple (Acer rubrum); White pine (Pinus strobus)



Wetland ID	Wetland Type	Area (m2)	Landscape Position	Landform	Water Flow	Soil Type	Surface/Hydrologic	Fish-Bearing Potential		Dominant Vegetation	
Wettand ib	Welland Type	Area (mz)	Lanascape i esition	Landioiiii	Water Flow	oon type	Conditions	1 isii Bearing i oteritiai	Herbaceous	Shrub	Trees
WL21	Treed swamp / Shrub swamp	2893.37	Terrene	Basin	Throughflow	A5: Stratified layers	Saturation; High water table; Drainage patterns	No, lack of surface water	Canada bluejoint (Calamagrostis canadensis); Three-seeded sedge (Carex trisperma); Eastern teaberry (Gaultheria procumbens)	Labrador tea (<i>Rhododendron</i> groenlandicum); Sheep laurel (<i>Kalmia</i> angustifolia); Mountain holly (<i>Illex</i> mucronata)	Black spruce (Picea mariana); Balsam fir (Abies balsamaea); Mountain holly (Ilex mucronata)
WL22	Treed swamp	160.53	Terrene	Basin	Throughflow	A5: Stratified layers	Saturation; High water table; Drainage patterns	No, lack of surface water	Bunchberry (Cornus canadensis); Cinnamon fern (Osmunda cinnamomea); Two-seeded sedge (Carex disperma)	Black huckleberry (<i>Gaylussacia baccata</i>); Sheep laurel (<i>Kalmia</i> <i>angustifolia</i>); Speckled alder (<i>Alnus incana</i>)	Black spruce (Picea mariana); Balsam fir (Abies balsamea); Speckled alder (Alnus incana)
WL23	Bog	261.39	Terrene	Basin	Throughflow	A5: Stratified layers	Saturation; High water table; Drainage patterns	No, lack of surface water	Common wooly bulrush (Scirpus cyperinus); Broad-leaved cattail (Typha latifolia); Common soft rush (Juncus effusus)	Speckled alder (Alnus incana); Sweet fern (Comptonia peregrina); Red maple (Acer rubrum)	Grey birch (<i>Betula</i> populifolia); Red spruce (<i>Picea</i> rubens); White pine (<i>Pinus</i> strobus)
WL24	Shrub swamp	546.55	Terrene	Basin	Throughflow	A1: Histosol	Surface water; Saturation; Drainage patterns	No, hypoxic water conditions	Canada rush (Juncus canadensis); Small cranberry (Vaccinium oxycoccos); Common wooly bulrush (Scirpus cyperinus)	Leatherleaf (<i>Chamaedaphne</i> calyculata); Rhodora (<i>Rhododendron</i> canadense); Sheep laurel (<i>Kalmia</i> angustifolia)	Black spruce (<i>Picea mariana</i>); Tamarack (<i>Larix</i> <i>Iaricina</i>); White pine (<i>Pinus</i> <i>strobus</i>)
WL25	Bog	2028.61	Terrene	Basin	Throughflow	A1: Histosol	High water table; Saturation; Drainage patterns	No, lacks surface water	Round-leaved sundew (Drosera rotundifolia); Small cranberry (Vaccinium oxycoccos); Two-seeded sedge (Carex disperma)	Leatherleaf (<i>Chamaedaphne</i> calyculata); Rhodora (<i>Rhododendron</i> canadense); Sheep laurel (<i>Kalmia</i> angustifolia)	N/A
WL26	Bog	674.33	Terrene	Basin	Throughflow	A1: Histosol	High water table; Saturation; Drainage patterns	No, lacks surface water	Cinnamon fern (Osmunda cinnamomea); Small cranberry (Vaccinium oxycoccos); Three-seeded sedge (Carex trisperma)	Leatherleaf (<i>Chamaedaphne</i> calyculata); Rhodora (<i>Rhododendron</i> canadense); Sheep laurel (<i>Kalmia</i> angustifolia)	Black spruce (Picea mariana); Red maple (Acer rubrum); White pine (Pinus strobus)
WL27	Treed swamp	530.17	Terrene	Basin	Throughflow	A1: Histosol	High water table; Saturation; Drainage patterns	No, lacks surface water	Bunchberry (Cornus canadensis); Creeping snowberry (Gaultheria hispidula); Northern starflower (Lysimachia borealis)	Balsam fir (<i>Abies balsamea</i>); Black spruce (<i>Picea mariana</i>)	Black spruce (<i>Picea mariana</i>); Balsam fir (<i>Abies</i> <i>balsamea</i>); Red maple (<i>Acer</i> <i>rubrum</i>)
WL28	Bog	1481.24	Terrene	Basin	Throughflow	A5: Stratified layers	High water table; Saturation; Drainage patterns	No, lacks surface water	Bunchberry (Cornus canadensis); Cinnamon fern (Osmunda cinnamoma); Three-seeded sedge (Carex trisperma)	Highbush blueberry (Vaccinium corymbosum); Black huckleberry (Gaylussicia baccata); Labrador tea (Rhododendron groenlandicum)	Black spruce (Picea mariana); Red spruce (Picea rubens); Red maple (Acer rubrum)
WL29	Bog	1186.84	Terrene	Basin	Throughflow	A1: Histosol	High water table; Saturation; Drainage patterns	No, lacks surface water	Cinnamon fern (Osmunda cinnamomea); Bluejoint reed grass (Calamagrostis canadensis); Bristly dewberry (Rubus hispidus)	Speckled alder (<i>Alnus</i> <i>incana</i>); Black huckleberry (<i>Gaylussicia baccata</i>); Grey birch (<i>Betula populifolia</i>)	Black spruce (<i>Picea mariana</i>); Red spruce (<i>Picea rubens</i>); Red maple (<i>Acer rubrum</i>)



Wetland ID	Wetland Type	Aron (m2)	Landscape Position	Landform	Water Flow	Soil Type	Surface/Hydrologic	Fish-Bearing Potential		Dominant Vegetation	
wettand ib	welland Type	Area (m2)	Landscape Position	Landiorni	water Flow	Son Type	Conditions	rish-bearing Potential	Herbaceous	Shrub	Trees
WL30	Bog	449.79	Terrene	Basin	Throughflow	A1: Histosol	High water table; Saturation; Drainage patterns	No, lacks surface water	Bluejoint reed grass (Calamagrotis canadensis); False violet (Dalibarda repens); Bristly dewberry (Rubus hispidus)	Labrador tea (<i>Rhododendron</i> groenlandicum); Wild raisin (<i>Viburnum</i> cassinoides); Black huckleberry (<i>Gaylussicia baccata</i>)	Tamarack (<i>Larix laricina</i>); Red maple (<i>Acer rubrum</i>); Black spruce (<i>Picea mariana</i>)
WL31	Treed swamp / Bog	4185.59	Terrene	Basin	Throughflow	A1: Histosol	High water table; Saturation; Drainage patterns	No, lacks surface water	Cinnamon fern (Osmunda cinnamomea); Eastern teaberry (Gaultheria procumbens); Three-seeded sedge (Carex trisperma)	Mountain holly (<i>llex</i> mucronata); Sheep laurel (<i>Kalmia</i> angustifolia); Speckled alder (<i>Alnus</i> incana)	Black spruce (Picea mariana); Tamarack (Larix laricina); Red maple (Acer rubrum)
WL32	Shrub swamp/ Marsh	226.58	Lentic	Fringe	Throughflow	A1: Histosol	Saturation; High water table; Drainage patterns	Minimum, lacks connectivity to stream network	Common wooly bulrush (Scirpus cyperus); Canada rush (Juncus canadensis); Marsh fern (Thelypteris palustris)	Sheep laurel (<i>Kalmia</i> angustifolia); Grey birch (<i>Betula</i> populifolia); Red spruce (<i>Picea rubens</i>)	Red spruce (<i>Picea</i> rubens); Grey birch (<i>Betula</i> populifolia); Red maple (<i>Acer</i> rubrum)
WL33	Treed swamp	1642.83	Terrene	Basin	Throughflow	A5: Stratified layers	Saturation; High water table; Drainage patterns	No, lacks surface water	Cinnamon fern (Osmunda cinnamomea); Bunchberry (Cornus canadensis); Three-seeded sedge (Carex trisperma)	Black spruce (<i>Picea mariana</i>); Red spruce (<i>Picean rubens</i>); White pine (<i>Pinus strobus</i>)	Black spruce (Picea mariana); Red maple (Acer rubrum); Sugar maple (Acer saccharum)
WL34	Marsh / Shrub swamp	111.86	Terrene	Basin	Throughflow	A5: Stratified layers	Saturation; High water table; Drainage patterns	No, lacks surface water	Common wooly bulrushs (Scirpus cyperus); Canada rush (Juncus canadensis); Fringed sedge (Carex crinita)	Grey birch (<i>Betula</i> populifolia); Red maple (<i>Acer rubrum</i>); Yellow birch (<i>Betula</i> alleghaniensis)	Black spruce (<i>Picea mariana</i>); Red maple (<i>Acer</i> rubrum)
WL35	Marsh / Treed swamp	450.36	Terrene	Basin	Throughflow	A5: Stratified layers	Saturation; High water table; Drainage patterns	No, lacks surface water	Bluejoint reed grass (Calamagrostis canadensis); Three-leaved false Solomon's seal (Maianthemum trifolium); Bristly dewberry (Rubens hispidus)	Mountain holly (<i>Ilex</i> <i>mucronata</i>); Speckled alder (<i>Alnus</i> <i>incana</i>); Balsam fir (<i>Abies balsamea</i>)	Red spruce (<i>Picea</i> rubens); Balsam fir (<i>Abies</i> balsamea); Red maple (<i>Acer</i> rubrum)
WL36	Treed swamp	207.03	Terrene	Basin	Throughflow	A1: Histosol	Saturation; High water table; Drainage patterns	No, lacks surface water	Cinnamon fern (Osmunda cinnamomea); Threeleaf goldthread (Coptis trifolia); Three-seeded sedge (Carex trisperma)	Red spruce (<i>Picea rubens</i>); Balsam fir (<i>Abies balsamea</i>)	Balsam fir (Abies balsamea); Eastern hemlock (Tsuga canadensis); Red maple (Acer rubrum)
WL37	Treed swamp / Marsh	500.95	Terrene	Basin	Throughflow	A1: Histosol	Saturation; High water table; Drainage patterns	No, lacks surface water	Tawny cottongrass (Eriophorum virginicum); Cinnamon fern (Osmunda cinnamomea); Three-seeded sedge (Carex trisperma)	Black huckleberry (<i>Gaylussicia baccata</i>) Mointain holly (<i>Ilex</i> <i>murconata</i>); Red maple (<i>Acer rubrum</i>)	Red maple (Acer rubrum); Black spruce (Picea mariana); Red spruce (Picea rubens)
WL38	Treed swamp	512.01	Terrene	Basin	Throughflow	A1: Histosol	Saturation; High water table; Drainage patterns	No, lacks surface water	Cinnamon fern (Osmunda cinnamomea); Bunchberry (Cornus canadensis); Three-seeded sedge (Carex trisperma)	Balsam fir (<i>Abies balsamea</i>); Red spruce (<i>Picea rubens</i>); Black spruce (<i>Picea mariana</i>)	Balsam fir (Abies balsamea); Black spruce (Picea mariana); Red maple (Acer rubrum)
WL39	Shrub swamp / Treed swamp	576.32	Terrene	Basin	Throughflow	A5: Stratified layers	Saturation; High water table; Drainage patterns	No, lacks surface water	Common wooly bulrush (Scirpus cyperus); Three-seeded sedge (Carex trisperma); White fringed orchid (Platanthera blephariglottis)	Leatherleaf (<i>Chamaedaphne</i> calyculata); Sheep laurel (<i>Kalmia</i> angustifolia); Rhodora (<i>Rhododenron</i> canadensis)	Tamarack (<i>Larix laricina</i>); Balsam fir (<i>Abies balsamea</i>); Red maple (<i>Acer rubrum</i>)



Wetland ID	Wetland Type	Area (m2)	Landscape Position	Landform	Water Flow	Soil Type	Surface/Hydrologic	Fish-Bearing Potential		Dominant Vegetation	
Wettallu ib	Welland Type	Alea (IIIZ)	Landscape r osition	Landioiiii	Water Flow	oon Type	Conditions	r isir-bearing r otential	Herbaceous	Shrub	Trees
WL40	Shrub swamp	339.38	Terrene	Basin	Throughflow	A1: Histosol	Saturation; High water table; Drainage patterns	No, lacks surface water	Cinnamon fern (Osmunda cinnamomea); Common wooly bulrush (Scirpus cyperus); Swamp dewberry (Rubens hispidus)	Sheep laurel (<i>Kalmia</i> angustifolia); Black huckleberry (<i>Gaylussicia baccata</i>); Grey birch (<i>Betula</i> populifolia)	Tamarack (<i>Larix</i> laricina); Red maple (<i>Acer</i> rubrum); White pine (<i>Pinus</i> strobus)
WL41	Shrub swamp / Treed swamp	9651.68	Terrene	Basin	Throughflow	A1: Histosol	Saturation; High water table; Drainage patterns	No, lacks surface water	Cinnamon fern (Osmunda cinnamomea); Northern pitcher plant (Sarracenia purpurea); Three-seeded sedge (Carex trisperma)	Labrador tea (<i>Rhododenron</i> groenlandicum); Black huckleberry (<i>Gaylusscicia baccata</i>); Rhodora (<i>Rhododendron</i> canadensis)	Tamarack (<i>Larix</i> laricina); Balsam fir (<i>Abies</i> balsamea); Red maple (<i>Acer</i> rubrum)
WL42	Marsh	512.06	Terrene	Basin	Throughflow	A5: Stratified layers	Saturation; High water table; Drainage patterns	No, lacks surface water	Common wooly bulrush (Scirpus cyperus)	N/A	Grey birch (<i>Betula</i> populifolia); Red maple (<i>Acer</i> rubrum)
WL43	Treed swamp / Shrub swamp	1251.49	Terrene	Basin	Throughflow	A1: Histosol	Saturation; High water table; Drainage patterns	No, lacks surface water	Three-seeded sedge (Carex trisperma)	Black huckleberry (<i>Gaylussicia baccata</i>); Red maple (<i>Acer rubrum</i>); Rhodora (<i>Rhododendron</i> <i>canadensis</i>)	Red maple (<i>Acer</i> rubrum); Black spruce (<i>Picea mariana</i>); Tamarack (<i>Larix</i> laricina)
WL44	Shrub swamp / Treed swamp	2248.87	Terrene	Basin	Throughflow	A1: Histosol	Saturation; High water table; Drainage patterns	No, lacks surface water	Interrupted fern (<i>Osmunda</i> <i>claytoniana</i>); Eastern teaberry (<i>Sarracenia purpurea</i>)	Wild raisin (<i>Viburnum</i> cassinoides); Rhodora (<i>Rhododendron</i> canadensis); Red maple (<i>Acer rubrum</i>)	Black spruce (Picea mariana); Red maple (Acer rubrum); Yellow birch (Betula alleghaniensis)
WL45	Marsh	362.07	Terrene	Basin	Throughflow	A1: Histosol	Saturation; High water table; Drainage patterns	No, lacks surface water	Cinnamon fern (Osmunda cinnamomea); Northern pitcher plant (Sarracenia purpurea); Three-seeded sedge (Carex trisperma)	Winterberry (<i>llex verticillata</i>); Red maple (<i>Acer rubrum</i>); Black huckleberry (<i>Gaylussacia baccata</i>)	Black spruce (Picea mariana); Balsam fir (Abies balsamea); Red maple (Acer rubrum)
WL46	Treed swamp	423.62	Terrene	Basin	Throughflow	A1: Histosol	Saturation; High water table; Drainage patterns	No, lacks surface water	Common wooly bulrush (Scirpus cyperinus); Cinnamon fern (Osmunda cinnamomea); Three-seeded sedge (Carex trisperma)	Speckled alder (<i>Alnus</i> incana); Sheep laurel (<i>Kalmia</i> angustifolia); Grey birch (<i>Betula populifolia</i>)	Black spruce (Picea mariana); Red maple (Acer rubrum); White pine (Pinus strobus)
WL47	Treed swamp	2162.47	Terrene	Floodplain	Throughflow	A5: Stratified layers	Saturation; High water table; Drainage patterns	Potentially in river adjacent to wetland	Three-seeded sedge (<i>Carex trisperma</i>); White fringed orchid (<i>Platanthera blephariglottis</i>)	N/A	Black spruce (Picea mariana); Red maple (Acer rubrum); Red spruce(Picea rubens)
WL48	Treed swamp	2239.5	Terrene	Basin	Throughflow	A1: Histosol	Saturation; High water table; Drainage patterns	No, insufficient water levels	Cinnamon fern (<i>Osmunda</i> cinnamomea); Common wooly bulrush (<i>Scirpus cyperus</i>); Threeleaf goldthread (<i>Coptis trifolia</i>)	Speckled alder (<i>Alnus</i> incana); Sheep laurel (<i>Kalmia</i> angustifolia); Red spruce (<i>Picea rubens</i>)	Red maple (<i>Acer</i> rubrum); Tamarack (<i>Larix</i> lucinda); Black spruce (<i>Picea mariana</i>)
WL49	Treed swamp / Shrub swamp	1575.69	Terrene	Basin	Throughflow	A1: Histosol	Saturation; High water table; Drainage patterns	No, insufficient water levels	Cinnamon fern (Osmunda cinnamomea); Sensitive fern (Onoclea sensibilis); Common wooly bulrush (Scirpus cyperus)	Speckledalder (<i>Alnus incana</i>); Sheep laurel (<i>Kalmia</i> <i>angustifolia</i>); Grey birch (<i>Betula populifolia</i>)	Black spruce (<i>Picea mariana</i>); Tamarack (<i>Larix</i> <i>laricina</i>); Red maple (<i>Acer</i> <i>rebrum</i>)



Wetlered ID	Wedleyd Tone	A (0)	Landanana Basitian	l	Mater Flour	Call Towns	Surface/Hydrologic	Fish Dessine Detential		Dominant Vegetation	
Wetland ID	Wetland Type	Area (m2)	Landscape Position	Landform	Water Flow	Soil Type	Conditions	Fish-Bearing Potential	Herbaceous	Shrub	Trees
WL50	Shrub swamp	1356.64	Terrene	Basin	Throughflow	A1: Histosol	Saturation; High water table; Drainage patterns	No, insufficient water levels	Common wooly bulrush (<i>Scirpus cyperus</i>); Bristly dewberry (<i>Rubus</i> <i>hispidus</i>)	Speckled alder (<i>Alnus</i> incana); Grey birch (<i>Betula</i> populifolia); Balsam fir (<i>Abies balsamea</i>)	Balsam fir (Abies balsamea); Tamarack (Larix luricina); Red maple (Acer rubrum)
WL51	Treed swamp / Shrub swamp	2724.74	Terrene	Basin	Throughflow	A1: Histosol	Saturation; High water table; Drainage patterns	No, insufficient water levels	Common soft rush (Juncus effucus); Whorled wood aster (Oclemena acuminata); Bristly dewberry (Rubus hispidus)	Winterberry (<i>Ilex verticillata</i>); Speckled alder (<i>Alnus incana</i>); Sheep laurel (<i>Kalmia angustifolia</i>)	Black spruce (Picea mariana); Red maple (Acer rubrum); White pine (Pinus strobus)
WL52	Shrub swamp	181.82	Lentic	Fringe	Throughflow	A1: Histosol	Surface water; Saturation; Drainage patterns	Yes, sufficient depth, plenty of macrophytic vegetation	Common wooly bulrush (Scirpus cyperus); Common soft rush (Juncus effucus); Threeway sedge (Dulichium arundinaceum)	Speckled alder (<i>Alnus</i> <i>incana</i>); Sheep laurel (<i>Kalmia</i> <i>angustifolia</i>); Grey birch (<i>Betula populifolia</i>)	Black spruce (Picea mariana); Balsam fir (Abies balsamea); Red maple (Acer rubrum)
WL53	Bog / Treed swamp	1807.85	Terrene	Basin	Throughflow	A11: Depleted below dark surface	Saturation; High water table; Drainage patterns	No, insufficient water levels	Common wooly bulrush (Scirpus cyperinus); Cinnamon fern (Osmunda cinnamomea); Three-seeded sedge (Carex trisperma)	Black huckleberry (<i>Gaylussicia baccata</i>); Red maple (<i>Acer rubrum</i>); Rhodora (<i>Rhododendron</i> <i>canadensis</i>)	Balsam fir (Abies balsamea); Tamarack (Larix Iuricina); Red maple (Acer rubrum)
WL54	Shrub swamp	1519.76	Terrene	Basin	Throughflow	A11: Depleted below dark surface	Saturation; High water table; Drainage patterns	No, insufficient water levels	Bog aster (Oclemena nemoralis); Three-seeded sedge (Carex trisperma); Cinnamon fern (Osmunda cinnamomea)	Wild raisin (<i>Viburnum</i> cassinoides); Rhodora (<i>Rhododendron</i> canadensis); Red maple (<i>Acer rubrum</i>)	Red maple (Acer rubrum); Black spruce (Picea mariana); Tamarack (Larix laricina)
WL55	Treed swamp	960.55	Terrene	Basin	Throughflow	A1: Histosol	Surface water; High water table; Saturation	No, insufficient water levels	Canada rush (<i>Juncus</i> canadensis); Common wooly bulrush (<i>Scirpus cyperu</i> s)	Grey birch (<i>Betula</i> populifolia); Red maple (<i>Acer rubrum</i>); Yellow birch (<i>Betula</i> alleghaniensis)	Red spruce (<i>Picea</i> mariana); Grey birch (<i>Betula</i> populifolia); Red maple (<i>Acer</i> rubrum)
WL56	Shrub swamp	176.72	Terrene	Basin	Throughflow	A1: Histosol	Surface water; High water table; Saturation	No, insufficient water levels	Common wooly bulrush (Scirpus cyperinus); Cinnamon fern (Osmunda cinnamomea); Three-seeded sedge (Carex trisperma)	Winterberry (<i>Ilex verticillata</i>); Red maple (<i>Acer rubrum</i>); Black huckleberry (<i>Gaylussacia baccata</i>)	Black spruce (Picea mariana); Tamarack (Larix laricina); Red maple (Acer rubrum)
WL57	Treed swamp	653.69	Terrene	Basin	Throughflow	A1: Histosol	Saturation; High water table; Drainage patterns	No, insufficient water levels	Common wooly bulrush (Scirpus cyperus); Canada rush (Juncus canadensis); Fringed sedge (Carex crinita)	Sheep laurel (<i>Kalmia</i> angustifolia); Black huckleberry (<i>Gaylussicia baccata</i>); Grey birch (<i>Betula populifolia</i>)	Red spruce (<i>Picea</i> rubens); Red maple (<i>Acer</i> rubrum); White pine (<i>Pinus</i> strobus)
WL58	Marsh	219.75	Terrene	Basin	Throughflow	A1: Histosol	High water table; Saturation; Water marks	No, insufficient water levels	N/A	N/A	Grey birch (<i>Betula</i> populifolia); Eastern hemlock (<i>Tsuga canadensis</i>)
WL59	Treed swamp	19943.58	Terrene	Basin	Throughflow	A1: Histosol	High water table; Saturation; Drainage patterns	No, insufficient water levels	Royal fern (<i>Osmunda</i> regalis); Sensitive fern (<i>Onoclea</i> sensibilis); Harlequin blue flag (<i>Iris</i> versicolor)	Speckled alder (<i>Alnus incana</i>)	Balsam fir (Abies balsamea); Red maple (Acer rubrum); Eastern hemlock (Tsuga canadensis)



Table 1: Wetland Characteristics - Mersey River Wind Farm Project Project # 21-7833

Wetland ID	Wetland Type	Area (m2)	Landscape Position	Landform	Water Flow	Soil Type	Surface/Hydrologic	Fish-Bearing Potential		Dominant Vegetation	
Wetland ID	Welland Type	Alea (IIIZ)	Landscape i osition	Landioiiii	Water Flow	oon Type	Conditions	1 isii-bearing i otentiai	Herbaceous	Shrub	Trees
WL60	Shrub swamp / Treed swamp	689.11	Terrene	Basin	Throughflow	A1: Histosol	High water table; Saturation; Water marks	No, insufficient water levels	Velvet-leaved blueberry (Vaccinium myrtilloides); Whorled wood aster (Oclemena acuminata); Bristly dewberry (Rubus hispidus)	Grey alder (<i>Alnus incana</i>); Red spruce (<i>Picea rubens</i>); Mountain holly (<i>Ilex</i> <i>murconata</i>)	Red spruce (<i>Picea</i> rubens); Red maple (acer rubrum); Balsam fir (<i>Abies</i> balsamea)
WL61	Shrub swamp	1568.47	Terrene	Basin	Throughflow	A1: Histosol	High water table; Saturation; Water marks	No, insufficient water levels	Cinnamon fern (Osmunda cinnamomea); Bunchberry (Cornus canadensis)	N/A	Red spruce (<i>Picea</i> rubens); White pine (<i>Pinus</i> strobus); Red maple (acer rubrum)
WL62	Treed swamp	138.35	Terrene	Basin	Throughflow	A1: Histosol	High water table; Saturation; Water marks	No, insufficient water levels	Sheep laurel (<i>Kalmia</i> angustifolia); Cinnamon fern (<i>Osmunda</i> cinnamomea)	White pine (<i>Pinus strobus</i>); Red spruce (<i>Picea rubens</i>); Balsam fir (<i>Abies balsamea</i>)	Balsam fir (Abies balsamea); Red maple (acer rubrum); Red spruce (Picea rubens)
WL63	Treed swamp	558.63	Terrene	Basin	Throughflow	A1: Histosol	High water table; Saturation; Water marks	No, insufficient water levels	Two-seeded sedge (Carex disprma); Creeping snowberry (Gaultheria hispidula); Glyceria sp.	Sheep laurel (<i>Kalmia</i> angustifolia); Red spruce (<i>Picea rubens</i>); Balsam fir (<i>Abies balsamea</i>)	Balsam fir (<i>Abies</i> balsamea); Red maple (acer rubrum)
WL64	Shrub swamp / Treed swamp	735.79	Terrene	Basin	Throughflow	A1: Histosol	High water table; Saturation; Water marks	No, insufficient water levels	Cinnamon fern (<i>Osmunda</i> cinnamomea); Bunchberry (<i>Cornus</i> canadensis)	Common Labrador tea (Rhododendron groenlandicum); Sheep laurel (Kalmia angustifolia); White pine Red spruce (Picea rubens); Balsam fir (Abies balsamea)	Balsam fir (<i>Abies</i> balsamea); Red spruce (<i>Picea</i> rubens)
WL65	Shrub swamp	713.91	Terrene	Basin	Throughflow	A2: Histic epipedon	High water table; Saturation; Water marks	No, insufficient water levels	Northern dewberry (Rubus hispidus); <i>Glyceria sp.</i>	Green alder (Alnus alnobetula)	Green alder (Alnus alnobetula)
WL66	Treed swamp	2163.01	Terrene	Basin	Throughflow	A1: Histosol	High water table; Saturation; Water marks	No, insufficient water levels	Cinnamon fern (Osmunda cinnamomea); Juncus sp. Carex sp.	Green alder (<i>Alnus alnobetula</i>); Sheep laurel (<i>Kalmia</i> <i>angustifolia</i>)	White pine (<i>Pinus</i> strobus); Black spruce (<i>Picea</i> mariana); American holly (<i>Ilex</i> opaca)





Photo 1. A representative photo of WL1.



Photo 2. A representative photo of WL2.



Photo 3. A representative photo of WL3.



Photo 4. A representative photo of WL4.



Photo 5. A representative photo of WL5.



Photo 6. A representative photo of WL6.





Photo 7. A representative photo of WL7.



Photo 8. A representative photo of WL8.



Photo 9. A representative photo of WL9.



Photo 10. A representative photo of WL10.



Photo 11. A representative photo of WL11.



Photo 12. A representative photo of WL12.





Photo 13. A representative photo of WL13.



Photo 14. A representative photo of WL14.



Photo 15. A representative photo of WL15.



Photo 16. A representative photo of WL16.



Photo 17. A representative photo of WL17.



Photo 18. A representative photo of WL18.





Photo 19. A representative photo of WL19.



Photo 20. A representative photo of WL20.



Photo 21. A representative photo of WL21.



Photo 22. A representative photo of WL22.



Photo 23. A representative photo of WL23.



Photo 24. A representative photo of WL24.





Photo 25. A representative photo of WL25.



Photo 26. A representative photo of WL26.



Photo 27. A representative photo of WL27.



Photo 28. A representative photo of WL28.



Photo 29. A representative photo of WL29.



Photo 30. A representative photo of WL30.





Photo 31. A representative photo of WL31.



Photo 32. A representative photo of WL32.



Photo 33. A representative photo of WL33.



Photo 34. A representative photo of WL34.



Photo 35. A representative photo of WL35.



Photo 36. A representative photo of WL36.





Photo 37. A representative photo of WL37.



Photo 38. A representative photo of WL38.



Photo 39. A representative photo of WL39.



Photo 40. A representative photo of WL40.



Photo 41. A representative photo of WL41.



Photo 42. A representative photo of WL42.





Photo 43. A representative photo of WL43.



Photo 44. A representative photo of WL44.



Photo 45. A representative photo of WL45.



Photo 46. A representative photo of WL46.



Photo 47. A representative photo of WL47.



Photo 48. A representative photo of WL48.





Photo 49. A representative photo of WL49.



Photo 50. A representative photo of WL50.



Photo 51. A representative photo of WL51.



Photo 52. A representative photo of WL52.



Photo 53. A representative photo of WL53.



Photo 54. A representative photo of WL54.





Photo 55. A representative photo of WL55.



Photo 56. A representative photo of WL56.



Photo 57. A representative photo of WL57.



Photo 58. A representative photo of WL58.



Photo 59. A representative photo of WL59.



Photo 60. A representative photo of WL60.





Photo 61. A representative photo of WL61.



Photo 62. A representative photo of WL62.



Photo 63. A representative photo of WL63.



Photo 64. A representative photo of WL64.



Photo 65. A representative photo of WL65.



Photo 66. A representative photo of WL66.



Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	Mersey River Wind Farm - WL4
Investigator Name:	Darcy Kavanagh & Jordan Davis
Date of Field Assessment:	September 14, 2022
Nearest Town:	Milton, NS
Latitude (decimal degrees):	44.08858648521735
Longitude (decimal degrees):	64.88788765425824
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	0.12 ha
AA as percent of entire wetland (approx.). Attach sketch map if AA is smaller than the entire contiguous wetland.	52%
What percent (approx.) of the wetland were you able to visit?	100%
What percent (approx.) of the AA were you able to visit?	100%
Were you able to ask the site owner/manager about any of the questions?	No
Indicate here if you intentionally surveyed for rare plants, calciphile plants, or rare animals:	Yes
Have you attended a WESP-AC training session? If so, indicate approximate month & year.	No
How many wetlands have you assessed previously using WESP-AC? (approx.)	50+
Comments about the site or this WESP-AC assessment (attach extra page if desired):	

	Α	В	С	D	E
	Date: S	Sept 14, 2022	Site Identifier: WL4		tor: Darcy Kavanagh & Jordan Davis
1					

Form OF (Office). Non-tidal Wetland Data Form. WESP-AC version 2 for Nova Scotia wetlands only. DIRECTIONS: Conduct an assessment only after reading the accompanying Manual and the Explanations column of the data form. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answering many of the questions below will require using these online map viewers:

Google Earth Pro: https://www.google.com/earth/download/gep/agree.html

Provincial Landscape Viewer: https://nsgi.novascotia.ca/plv/

For most wetlands, completing this office data form will require 1-2 hours. For a list of functions to which each question pertains, see bracketed abbreviations in the Definitions/Explanations column. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Manual. Codes for functions and values are: WS= Water Storage, SFS= Stream Flow Support, WC= Water Cooling, SR= Sediment Retention & Stabilisation, PR= Phosphorus Retention, NR= Nitrate Removal, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate Habitat, FA= Anadromous Fish Habitat, FR= Resident Fish Habitat, AM= Amphibian & Reptile Habitat, WBF= Feeding Waterbird Habitat, WBN= Nesting Waterbird Habitat, SBM= Songbird, Raptor, & Mammal Habitat, POL= Pollinator Habitat, PH= Native Plant Habitat, PU= Public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= Stressors.

3	#	Indicators	Condition Choices	Data	Definitions/Explanations
4	OF1	Province	Mark the province in which the AA is located by changing the 0 in the column next to it to a "1". Mark only one.		This determines to which province's calibration wetlands the raw score of any wetland is normalised. In the function and benefits models, it also triggers the automatic exclusion of indicators for which no
5			New Brunswick	0	spatial data exists in a particular province.
6			Nova Scotia	1	openiar data onisio in a particular province.
7			Prince Edward Island	0	
8			Newfoundland-Labrador	0	
9	OF2	Ponded Area Within 1 km.	The area of surface water ponded during most of the growing season that is both (1) in or adjacent to the AA and (2) within 1 km is:		"Adjacent" means not separated from the AA by a wide expanse (>50 m) of upland (including roads >50 m wide). Include ponded areas likely to be hidden by wetland vegetation. If surface water extends
10			<0.01 hectare (about 10 m x 10 m).	1	beyond 1 km, include only the part within 1 km. Do not include tidal areas. Measure the area from
11			0.01 - 0.1 hectare.	0	aerial imagery using Google Earth Pro (click on Ruler icon in toolbar, then Polygon in pop-up menu). [PH, SBM, WBN]
12			0.1 - 1 hectare.	0	[TTI, JOHN, WON]
13			1 to 10 hectares.	0	
14			10 to 100 hectares.	0	
15			>100 hectares.	0	
			The area of wetlands and surface water ponded during most of the growing season that is both (1) in or adjacent to the AA and (2) within 1		See definition of adjacent in OF2. If the AA's wetland vegetation extends beyond 1 km, include only
16		Within 1 km.	km is:		the part within 1 km. "Ponded" means not flowing in rivers or streams. [Sens, WBF]
17			<0.01 hectare (about 10 m x 10 m).	0	
18			0.01 - 0.1 hectare.	0	
19			0.1 - 1 hectare.	1	
20 21			1 to 10 hectares.	0	
21			10 to 100 hectares.	0	
22			>100 hectares.	0	
23		Size of Largest Nearby Vegetated Tract or	The largest vegetated patch or corridor that includes the AA's vegetation plus all adjacent upland vegetation that is not lawn, row crops, heavily grazed lands, conifer plantation is:		See definition of adjacent in OF2. Use Google Earth Pro's polygon ruler (as described above). Exclude conifer plantations only if it is obvious that trees were planted in rows. [AM, PH, SBM, Sens]
24		Corridor	<0.01 hectare (about 10 m x 10 m).	0	
24 25 26 27			0.01 - 0.1 hectare.	0	
26			0.1 - 1 hectare.	0	
27			1 to 10 hectares.	0	
28			10 to 100 hectares.	0	
29			100 to 1000 hectares.	0	
30			>1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	1	

	Α	В	С	D	E
	OF5	Distance to Large	The minimum distance from the edge of the AA to the edge of the closest vegetated land (but excluding row crops, lawn, conifer plantation)		To measure distance, use Google Earth Pro (Ruler > Line tool). The 375-ha criterion is from the Fundy
31		Vegetated Tract	larger than 375 hectares (about 2 km on a side), is:		Model Forest Project. [AM, PH, POL, SBM, Sens]
			<50 m, and not separated from the 375-ha vegetated area by any width of paved roads, stretches of open water, row crops, bare ground,	1	
			lawn, or impervious surface. Or the AA itself contains >375 ha of vegetation. [This is often the answer in relatively undeveloped landscapes.]		
32					
			<50 m, but completely separated from the 375-ha vegetated area by those features, and AA does not contain >375 ha of vegetation.	0	
33				_	
34			50-500 m, and not separated.	0	
35			50-500 m, but separated by those features.	0	
36			0.5 - 5 km, and no t separated.	0	
37			0.5 - 5 km, but separated by those features.	0	
38			None of the above (the closest patches or corridors which are that large are >5 km away).	0	
	OF6	Herbaceous Uniqueness	The AA's vegetation cover is >10% herbaceous* but uplands within 5 km have <10% herbaceous cover. If so, enter "3" and continue to OF7. If not, consider:	1	For this question only, consider moss to be herbaceous vegetation. Determine the score by viewing aerial imagery in Google Earth after successively drawing or estimating the boundaries of the buffers of
			In rou, consider: The AA's vegetation cover is >10% herbaceous* but uplands within 1 km have <10% herbaceous cover. If so enter "2" and continue to OF7.		5 km, 1 km, and 100 m radius focused on the center of the AA. Circles of specified radius can be
			If not, consider:		drawn in Google Earth Pro by clicking on the Ruler icon, then Circle in the pop-up menu. [AMv, PHv,
			The AA's vegetation cover is >10% herbaceous* but uplands within 100 m of the wetland edge have <10% herbaceous cover. If so, enter		POLv, SBMv, WBFv, WBNv]
			m1".		
			[* NOTE: Exclude lawns, row crops, heavily grazed lands, forest, shrublands. Include moss as well as grasslike plants in this use of		
39			"herbaceous vegetation"]		
	OF7	Woody Uniqueness	The AA's vegetation cover is >10% woody* but uplands within 5 km have <10% woody cover. If so, enter "3" and continue to OF8. If not,	1	See above. Do not consider conifer plantations to be forest if it is obvious that trees were planted in
			consider:		rows. [AMv, PHv, POLv, SBMv]
			The AA's vegetation is >10% woody* but uplands within 1 km have <10% woody cover. If so enter "2" and continue to OF8. If not, consider: The AA's vegetation is >10% woody* but uplands within 100 m of the wetland edge have <10% woody cover. If so, enter "1"		
			[* NOTE: woody cover = trees & shrubs taller than 1 m.]		
40			[· · · · - · · · · · · · · · · · · · ·		
	OF8	Local Vegetated Cover	Draw a 5-km radius circle measured from the center of the AA. Ignoring all permanent water in the circle, the percent of the remaining area		In Google Earth, draw the 5 km buffer and then estimate land cover percentages, or do GIS analysis of
		Percentage	that is wooded or unmanaged herbaceous vegetation (NOT lawn, row crops, bare or heavily grazed land, clearcuts, or conifer plantations) is:		an appropriate land cover layer. [AM, PH, POL, SBM, Sens]
41					
42			<5% of the land.	0	
43			5 to 20% of the land.	0	
44			20 to 60% of the land.	1	
45			60 to 90% of the land.	0	
46			>90% of the land. SKIP to OF10.	0	
47	OF9	Type of Land Cover	Within the 5-km radius circle, and ignoring all permanent water, the land area that is bare or non-perennial cover is mostly:		[AM, SBM]
48		Alteration	Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0	
49			Bare pervious surface, e.g., lawn, recent (<5 yrs ago) clearcut, dirt or gravel road, cropland, landslide, conifer plantation.	1	
50	OF10	Distance by Road to	Measured along the maintained road nearest the AA, the distance to the nearest population center is:		"Population center" means a settled area with more than about 5 regularly- inhabited structures per
50		Nearest Population	<100 m.	0	square kilometer. In Google Earth Pro, click on the Ruler icon, then Path, and draw and measure the
51		Center	< 100 m. 100 - 500 m.	0	route. [FAv, FRv, NRv, PH, PU, SBM, WBFv]
52 53			0.5- 1 km.	0	
			U.5- I KM. 1 - 5 km.	0	
54 55			1 - 5 km. >5 km.	1	
33			20 MII.	- 1	

	Α	В	С	D	E
. (OF11	Distance to Nearest	From the center of the AA, the distance to the nearest maintained public road (dirt or paved) is:		Determine this by viewing aerial imagery in Google Earth Pro and measuring with the Ruler>Line tool.
56		Maintained Road	10	0	[AM, FAv, FRv, NRv, PH, PU, SBM, STR, WBN]
57			<10 m.	0	
58			10 - 25 m.	0	
59			25 - 50 m.	0	
60			50 - 100 m.	0	
61			100 - 500 m.	0	
62			>500 m.	1	
(OF12	Wildlife Access	Draw a circle of radius of 5 km from the center of the AA. If mammals and amphibians can move from the center of the AA to ALL other		Draw the 5 km circle in Google Earth Pro using the Circle tool and search for roads and wetlands within
			separate wetlands and ponds located within the circle without being forced to cross pavement (any width), lawns, bare ground, and/or marine waters, mark 1= yes can move to all, 0= no. Change to blank if there are no other wetlands within 5 km.	0	it, being alert for roads hidden under forest canopy. [AM, SBM, STR]
63			, , , , , , , , , , , , , , , , , , ,		
64	OF13	Distance to Ponded Water	The distance from the AA center to the closest (but separate) ponded water body visible in GoogleEarth imagery is:		In Google Earth Pro, zoom in closely to examine the surrounding landscape for ponds, lakes, and wetlands that appear to be permanently flooded. [AM, PH, SBM, Sens, WBF, WBN]
65			<50 m, and not separated by any width of paved roads, stretches of open water, row crops, lawn, bare ground, or impervious surface.	0	
66			<50 m, but completely separated by those features.	0	
67			50-500 m, and not separated.	1	
68			50-500 m, but separated by those features.	0	
69			0.5 - 1 km, and not separated.	0]
70			0.5 - 1 km, but separated by those features.	0	1
71			None of the above (the closest patches or corridors that large are >1 km away).	0	1
(OF14	Distance to Large	The distance from the AA center to the closest (but separate) non-tidal body of water that is ponded during most of the year and is larger		Determine this by viewing aerial imagery in Google Earth. [Sens, WBF, WBN]
72		Ponded Water	than 8 hectares during most of a normal year is:		
73			<100 m.	0	1
74			100 m - 1 km.	1	
75			1 -2 km.	0	
76			2-5 km.	0	
77			5-10 km.	0	
78			>10 km.	0	
	OF15	Tidal Proximity	The distance from the AA edge to the closest tidal water body (regardless of its salinity) is:		In Google Earth, measure the distance to the ocean (including Bay of Fundy) or tidal river, whichever is
79			<100 m.	0	closer. If you need to see how far upriver a river is tidal, see the KMZ file provided with this calculator
80			100 m - 1 km.		for NS (NS Headtide). Points shown in those files are only an approximation, so local information if
81				0	available may be preferable. [FA, WBF]
82			1 - 5 km.	0	
83			5-10 km.	0	
84			10-40 km.	1	
85	0547		>40 km.	0	
86	OF16	Upland Edge Contact	Select one:		[NR, SBM, Sens]
87			The AA has no upland edge (or upland is <1% of perimeter). The AA is entirely surrounded by (& contiguous with) other wetlands or water.	0	
88			1-25% of the AA's perimeter abuts upland (including filled areas). The rest adjoins other wetlands or water that is mostly wider than the AA.	0	
89			25-50% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0	1
90			50-75% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0	1
90			More than 75% of the AA's perimeter abuts upland. Any remainder adjoins other wetlands or water that is mostly wider than the AA. This	1	
91			will be true for most assessments done with WESP-AC.	l '	
7	OF17	Flood Damage from Non-	Within 5 km downstream or downslope of the AA (select first true choice):		Contact local authories to determine if such maps exist. Where available, LiDAR imagery can provide
92		tidal Waters			finer elevational resolution useful for flood modeling. [WSv]
93			Maps show Flood Zone or Flood Risk areas and there appears to be infrastructure vulnerable to river flooding not caused by tidal storm surges.	0	
93			Maps show Flood Zone or Flood Risk areas, but infrastructure is absent or is not vulnerable to floods from a non-tidal river. In some cases	0	1
94			levees, upriver dams, or other measures may partly limit damage or risk from smaller events.	ľ	
Ħ			Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure	0	1
95			vulnerable to river flooding unrelated to tidal storm surges.	I -	
			Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there is no infrastructure vulnerable to	1]
96			river flooding unrelated to tidal storm surges.	I	

	Α	В	С	D	E
	OF18	Relative Elevation in	In Google Earth, enable the Terrain layer (lower left menu) and open the NS_Watersheds Secondary KMZ file that accompanies this		[FA, NR, Sens, SFSv, WCv, WSv]
97		Watershed	calculator. Then determine the AA's approximate elevation (bottom right, NOT the "eye alt"). Then move cursor around to determine the watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-min).	0.37	
97	OF10	Water Quality Sensitive	The AA is in a Protected Water Supply area (Designated Water Supply Area, Natural Watershed Municipal Surface Water Supply Area, or	0	If an ACCDC report is available for this AA, it also may contain such information. [NRv]
98	OF 19	Watershed or Area	Municipal Water Supply Area) according to the provided KMZ overlay ("NS Protected Water Supply Areas"). Enter 1= yes, 0= no.	U	ii an Accoc report is avaliable for this AA, it also may contain such information. [INRV]
	OF20	Degraded Water	Sampling indicates a problem with concentrations of metals, hydrocarbons, nutrients, or other substances (excluding bacteria, acidic		May use existing data, or sample those waters as part of this wetland assessment. "Harmful" should be
99		Upstream	water, high temperatures) being present at levels harmful to aquatic life or humans, and:		evaluated with regard to current federal or provincial water quality standards. [AM, FA, FR, NRv, PRv,
100			The condition is present within the AA.	0	SRv, STR, WBF, WBN]
101			The condition is present in waters within 1 km that flow into the AA, but has not been documented in the AA itself.	0	
			Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in either the AA or inflowing	0	
102			waters.		
			Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the situation for nearly all	1	
103			wetlands in this region.		
104		Degraded Water	The problem described above is downslope from the AA, and:		May use existing data, or monitor waters as part of this wetland assessment. [NRv, PRv, SRv]
105		Downstream	The condition is present within 1 km downslope and connected to the AA by a channel.	0	
			The condition is present within 5 km downslope and connected to the AA by a channel, or within 1 km but not connected to the AA by a	0	
106			channel.		
			Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in either the AA or inflowing	0	
107			waters.		
			Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the situation for nearly all	1	
108			wetlands in this region.		
	OF22	Wetland as a % of Its	From a topographic map and field observations, estimate the approximate boundaries of the catchment (CA) of the entire wetland of which		Topographic maps may be viewed online at the National Atlas of Canada (Toporama):
		Contributing Area	the AA may be only a part. Then adjust those boundaries if necessary based on your field observations of the surrounding terrain, and/or by		http://atlas.gc.ca/toporama/en/index.html [NR, PR, Sens, SR, WS]
		(Catchment)	using procedures described in the Manual. Divide the area of the wetland (not just the AA) by the approximate area of its catchment		
109			excluding the area of the wetland itself. When doing the calculation, if ponded water is adjacent to the wetland, include that in the wetland's area. The result is:		
110			<0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	0	
111			0.01 to 0.1.	1	
112			0.1 to 1.	0	
			>1 (wetland is larger than its catchment (e.g., wetland with flat surrounding terrain and no inlet, or is entirely isolated by dikes, or is a raised	0	
113	0522	Harrandatad Crafaca in	bog). The considered the AA's contribution and for a considered to a 1000 or analysis of the AA's contribution and a contributi		(FA INIV ND., DD., CD., CTD W.C., W.C.)
		Unvegetated Surface in the Contributing Area	The proportion of the AA's contributing area (measured to no more than 1000 m upslope) that is comprised of buildings, roads, parking lots, other pavement, exposed bedrock, landslides, and other mostly-bare surface is about:		[FA, INV, NRv, PRv, SRv, STR, WCv, WSv]
114		the Contributing Area		4	
115			<10%. 10 to 25%.	0	
116				0	
117	0504	T	>25%.	0	[ND_DD_CD_WC]
	OF24	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as indicated by the following:		[NRv, PRv, SRv, WSv]
			(a) input channel is present,		
			(b) input channels have been straightened,		
			(c) upslope wetlands have been ditched extensively,		
			(d) land cover is mostly non-forest,		
			(e) CA slopes are steep, and/or		
			(f) most CA soils are shallow (bedrock near surface) and/or have high runoff coefficients.		
118			This statement is:		
119			Mostly true.	0	
120			Somewhat true.	0	
121			Mostly untrue.	1	

A	В	C	D	E
122 OF25	Aspect	The overland flow direction of most surface water (in streams, rivers, or runoff) that enters the AA is:		[AM, NR, SFS, WC, WS]
123		Northward (N, NE). north-facing contributing area.	0	
124		Southward (S, SW). south-facing contributing area.	0	
125		Other (E, SE, W, NW), or no detectable uphill slope or input channel (flat).	1	
126 OF26	Internal Flow Distance	The horizontal flow distance from the wetland's inlet to outlet is:		Identify inlets and outlets, if any, from topographic maps (use elevations to determine which are inlets
127	(Path Length)	<10 m.	0	and which are outlets) and augment by field inspection. With the Provincial Landscape Viewer, select
128		10 - 50 m.	0	Nova Scotia Topo as the Basemap. Also enable the layer Forestry>WAM Predicted Flow. Then measure the inlet-outlet distance. [NR, OE, PR, SR, WS]
129		50 - 100 m.	0	modela me mot datat distance (m) del/ m on mod
130		100 - 1000 m.	0	
131		1- 2 km.	0	
132		>2 km, or wetland lacks an inlet and outlet.	1	
OF27	Growing Degree Days	In Google Earth, open the KMZ file that accompanies this calculator, called NS_GrowingDegreeDays. Place your cursor over the AA and left- click. From the pop-up window, enter the GRIDCODE number in the next column.	2177	This layer was provided by Dr. Dan McKenney of the Canadian Forest Service [AM, CS, FR, INV, NR, OE, PH, PR, Sens, SR, WBF, WCv, WS]
134 OF28	Fish Access or Use	According to agency biologists and/or your own observations, the AA. [Mark just the first choice that is true.]:		Regarding the last choice, if uncertain if an AA is fishless, consider the possibility its waters have been
135		Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. Go to Provincial Landscape Viewer>Wildlife>Significant Habitat>Species at Risk. Contact local fishery biologists, review the ACCDC report, and visit these websites: http://www.salmonatlas.com/atlanticsalmon/canada-east/index.1.html http://atlanticsalmonfederation.org/rivers/introduction.html	0	stocked. [AM, FA, FR, INV, WBF, WBN]
136		Has not been documented to support Atlantic salmon rearing and/or spawning, but is connected to nearby waters likely to contain Atlantic salmon or other anadromous species or eels and is probably accessed by those during some conditions.	0	
137		Is probably is not accessed by any anadromous fish species but is known or likely to have other fish at least seasonally.	0	
138		Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	1	
OF29 139	Species of Conservation Concern	Within the past 10 years, in the AA (or in its adjoining waters or wetland), qualified observers have documented [mark all applicable]:		Request information from ACCDC and/or conduct your own survey at an appropriate season using an approved protocol. For birds, also check eBird.org. NOTE for NS: If your WESP-AC is being completed
140		Presence of one or more of the plant species listed in the Plants_Rare worksheet of the accompanying Supplnfo file, or the AA is within a mapped Atlantic Coastal Plain Flora Buffer (go to Provincial Landscape Viewer> Wildlife> Special Management Practice Zones).	0	for a Wetland Alteration Application to NS-ECC, your ACCDC results and any taxon-specific survey results must be submitted along with your WESP-AC results, and application. [AMv, EC, PHv, POLv, SBMv, Sens, WBFv, WBNv]
141		Presence of one or more of the amphibian or reptile species (AM) of conservation concern as listed in the Wildlife_Rare worksheet of the accompanying Supplnfo file.	0	
142		Presence of one or more of the waterbird species (WBF, WBN) of conservation concern as listed in the Wildlife_Rare worksheet of the accompanying Supplnfo file.	0	
143		Presence of one or more of the nesting songbird or raptor species (SBM) of conservation concern as listed in the Wildlife_Rare worksheet of the accompanying Supplnfo file, during their nesting season (May-July for most species).	0	
144		None of the above, or no data.	1	
OF30 145	Important Bird Area (IBA)	In Google Earth, open the KMZ file that accompanies this calculator, called IBAs_Canada. The AA is all or part of an officially designated IBA. Enter 1= yes, 0= no.	0	The source of this layer, which should be checked periodically for updates, is: http://www.ibacanada.com/mapviewer.jsp?lang=EN [SBMv, WBFv, WBNv]
	Black Duck Nesting Area	In Google Earth, open the KMZ file that accompanies this calculator, called BlackDuck. Adjust its alignment and opacity. Determine the predicted density (pairs per 25 sq. km) of nesting American Black Duck in the AA's vicinity: <10 (enter 0), 10-20 (enter 1), 20-30 (enter 2), >30 (enter 3). If outside of region shown in map, change to blank.	0	This was provided by Dr. David Leske. [WBNv]
146 OE32	Wintering Deer or Moose	If AA is on private land with no information, change to blank (not 0). Otherwise: With the Provincial Landscape Viewer, for Wintering Moose,	0	[SBM]
147	Concentration Areas	if AA is of private and with his mornation, change to brank (not o). Ornelwise: with the Provincial Landscape viewer, for wintering woose, go to Wildlife> Significant Habitat. For Mainland Moose Concentration Areas, go to Wildlife> Special Management Practice Zones. Enter: yes= 1, no= 0.	U	[SDIW]
OF33	Other Conservation Designation	The AA is all or part of an area designated by government, First Nations, or the Nature Conservancy of Canada (NCC) for its exceptional ecological features or highly intact natural conditions. With Provincial Landscape Viewer, see Protected Areas. Enter: yes= 1, no= 0. If uncertain, consult NCC and agencies for more recent information.	0	See: https://novascotia.ca/parksandprotectedareas/plan/interactive-map/ [PU]
OF34	Conservation Investment	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance the wetland (excluding mitigation wetlands). Ask the property owner. Enter: yes= 1, no= 0. If no information, change toblank (not 0).	0	[PU]

	Α	В	С	D	E
15	OF35	Mitigation Investment	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere. Ask the property owner. Enter: yes= 1, no= 0. If no information, change to blank.	0	[PU]
15	OF36		Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area. Ask the property owner. Enter: yes= 1, no= 0. If no information, change toblank.	0	[PU]
15	OF37	Calcareous Region	The AA is NOT in a subregion that has been heavily exposed to acid precipitation. Enter "1" if true (green or yellow in map in Appendix A of the Manual). Enter "0" if false. If no information, change to blank.	0	[AM, FA, FR, INV, PH]
15	OF38		Select the ONE ownership that covers the most of the AA. In Google Earth, open KMZ file called NS_CrownlandsUse more recent information if available.		"Private lands" may include those owned or leased by non-governmental organizations, e.g., charitable conservation land trusts, DUC, TNC. [PU, STR]
15	4		New timber harvest, roads, mineral extraction, and intensive summer recreation (e.g., off-road vehicles) are permanently prohibited. Includes many publicly-owned Protected Lands, and private lands under long-term (30+ year) legal agreements to maintain nearly-unaltered conditions.	0	
15			Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are allowed.	1	
15	6		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable or not) is in place.	0	
15	7		Ownership is private and owner does not allow access, or access permission unknown, and not a conservation easement.	0	

	A	В	С	D	E
	Date: September 14, 2022		Site Identifier: WL4	Investiga	tor: Darcy Kavanagh & Jordan Davis
1					

Form F (Field). Non-tidal Wetland Data Form. WESP-AC version 2 for Nova Scotia. DIRECTIONS: Walk for no less than 10 minutes from the wetland edge towards its core, in the part of the At that is proposed for alteration. If no alteration is proposed, walk in a portion that appears to be most representative of the wetland overall. Walk only where it is safe and legal to do so. Conduct the assessment only after reading the accompanying Manual and the Explanations column of the data form. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgable persons, and/or reviewing aerial imagery. For most wetlands, completing this field data form will require 1-2 hours on a site. For a list of functions to which each question pertains, see the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Manual. Codes for functions and values are: WS= Water Storage & Delay, SFS= Stream Flow Support, WC= Water Cooling, SR= Sediment Retention & Stabilisation, PR= Phosphorus Retention, NR= Nitrate Removal, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate Habitat, FA= Anadromous Fish Habitat, FR= Resident Fish Habitat, AM= Amphibian & Reptile Habitat, WBF= Feeding Waterbird Habitat, WBN= Nesting Waterbird Habitat, SBM= Songbird, Raptor, & Mammal Habitat, POL= Pollinator Habitat, PH= Native Plant Habitat, PU= Public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= Stressors.

3	#	Indicators	Condition Choices	Data	Definitions/Explanations
4	F1	Wetland Type	Follow the key below and mark the ONE row that best describes MOST of the vegetated part of the AA:		Ericaceous shrubs are ones in the heather family (Ericaceae). Most have leathery evergreen leaves. They include rhododendron, azalea, swamp laurel, leatherleaf, Labrador tea, and others. Most require
5			A. Moss and/or lichen cover more than 25% of the ground. Often dominated by ericaceous shrubs (e.g., Labrador tea) or other acid-tolerant plants (e.g., bog cranberry, pitcher plant, sundew, orchids). Substrate is mostly undecomposed peat. Choose between A1 and A2 and mark the choice with a 1 in their adjoining column. Otherwise go to B below.		acidic soil. Although not in the family Ericaceae, sweetgale (<i>Myrica gale</i>) should be counted also. [AM, CS, FA, FR, INV, NR, OE, PH, Sens, SFS, WBF, WBN]
6			A1. Surface water is usually absent or, if present, pH is typically <4.5 and conductivity is usually <100 µS/cm (<64 ppm TDS). Trees are absent or nearly so. Sedge cover usually sparse or absent but cottongrass and/or lichen cover may be extensive, as well as cloudberry, lingonberry, sheep laurel, and a sedge (<i>Carex rariflora</i>). Wetland surface and surrounding landscape are seldom sloping and wetland often is domed (convex). Inlet and outlet channels are usually absent. If known, pH of peat is <4.0.	0	
7			A2. Not A1. Surface water, if present, has pH typically >4.5 and conductivity is usually >100 μS/cm (>64 ppm TDS). Sedge cover is usually extensive, and/or tree and tall shrub cover is extensive. Sometimes at toe of slope or edge of water body. An exit channel is usually present. Wetter than A1 and peat depth may be shallower (<2 m).	1	
8			B. Moss and/or lichen cover less than 25% of the ground. Soil is mineral or decomposed organic (muck). Choose between B1 and B2 and mark the choice with a 1 in their adjoining column:		
9			B1. Trees and shrubs taller than 1 m comprise more than 25% of the vegetated cover. Surface water is mostly absent or inundates the vegetation only seasonally (e.g., vernal pools or floodplain).	0	
10			B2. Not B1. Tree & tall shrubs comprise less than than 25% of the vegetated cover. Vegetation is mostly herbaceous, e.g., cattail, bulrush, burreed, pond lily, horsetail. Surface water may be extensive and fluctuates seasonally, being either persistent or drying up partly or entirely.	0	
11	The Ainclude " adjace description their e	A should also include pa e the open water part ac cent " is used synonym bed features along their	the AA should include all persistent waters in ponds smaller than 8 hectares (-283 m on a side) that are adjacent to the AA. art of the water area of adjacent ponded water larger than 8 ha and adjacent rivers wider than 20 m. Specifically, the AA should diacent to wetland vegetation and equal in width to the average width of that vegetated zone. Throughout this data form, ously with abutting, adjoining, bordering, contiguous and means no upland (manmade or natural) completely separates the directly shared edge. Features joined only by a channel are not necessarily considered to be adjacent a large portion of features do not have to be hydrologically connected in order to be considered adjacent.		
12		Wetland Types - Adjoining or Subordinate	If the AA is smaller than 1 ha, mark all other types that occupy more than 1% of the vegetated AA. If the AA is larger than 1 ha, mark all other types which are within or adjacent to the AA and occupy more than 1 ha, as visible from the AA or as interpreted from aerial imagery. Do not mark again the type marked in F1.		1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m, 1000 m by 10 m, or similar. [AM, INV, SBM, WBF]
13			A1.	0	
14	4		A2.	0	
15 16	-		B1. B2.	0	
10			oc.		

FieldF form - Non-tidal Page 1 of 10

	A	В	С	D	E
	F3	Woody Height & Form	Following EACH row below, indicate with a number code the percentage of the living vegetation in the AA which is occupied by that feature		Deciduous shrubs in this region usually include buttonbush, Labrador tea, bayberry (Morella),
		Diversity	(6 if >95%, 5 if 75-95%, 4 if 50-75%, 3 if 25-50%, 2 if 5-25%, 1 if <5%, 0 if none). If the vegetated part of the AA is largely herbaceous (non-		huckleberry, cranberry, cloudberry, sweetgale, alder, willow, birch, ash, dogwood, and a few others. If
17			woody) vegetation, these percentages should not sum to 100%.		you assigned a code of 3 or higher to any of the first four choices and the ground cover beneath the trees/shrubs is <25% moss, then question F1 might be "B1". [CS, INV, NR, PH, POL, SBM, Sens]
18			coniferous trees (may include tamarack) taller than 3 m.	4	1005/311/023 13 \227/011033, then question 11 might be D1 . [65, 1144, 141, 110, 150, 3514, 3613]
19			deciduous trees taller than 3 m.	2	
20			coniferous or ericaceous shrubs or trees 1-3 m tall not directly below the canopy of trees.	3	
21			deciduous shrubs or trees 1-3 m tall not directly below the canopy of trees.	2	
22			coniferous or ericaceous shrubs <1 m tall not directly below the canopy of taller vegetation.	4	
23			deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	2	
24		•	1 F3 was marked 2 or greater, SKIP to F9 (N fixers).		
25	F4	Dominance of Most	Determine which two woody plant species comprise the greatest portion of the low (<3 m) woody cover . Then choose one:		[PH, POL, SBM, Sens]
26		Abundant Shrub	those species together comprise > 50% of such cover.	1	
27		Species	those species together do not comprise > 50% of such cover.	0	
	F5	Woody Diameter	Mark ALL the types that comprise >5% of the woody canopy cover in the AA or >5% of the wooded areas (if any) along its upland edge		Estimate the diameters at chest height. If small-diameter trees are overtopped (shaded) by larger
28		Classes	(perimeter). The edge should include only the trees whose canopies extend into the AA.		ones, visualise a "subcanopy" at the average height of the smaller-dbh trees, to serve as a basis for the
29			coniferous, 1-9 cm diameter and >1 m tall.	1	minimum 5% canopy requirement in this question. The trees and shrubs need not be wetland species.
30			broad-leaved deciduous 1-9 cm diameter and >1 m tall.	1	[AM, CS, POL, SBM, Sens, WBN]
31			coniferous, 10-19 cm diameter.	1	
32 33			broad-leaved deciduous 10-19 cm diameter.	1	
33			coniferous, 20-40 cm diameter.	0	
34			broad-leaved deciduous 20-40 cm diameter.	0	
35			coniferous, >40 cm diameter.	0	
36			broad-leaved deciduous >40 cm diameter.	0	
37		Height Class	Follow the key below and mark the ONE row that best describes MOST of the AA:		[AM, INV, NR, PH, SBM, Sens]
-		Interspersion	A. Neither the vegetation taller than 1 m nor the vegetation shorter than that comprise >70% of the vegetated part of the AA. They each		
			comprise 30-70%. Choose between A1 and A2 and mark the choice with a 1 in the adjoining column. Otherwise go to B below.		
38					
39			A1. The two height classes are mostly scattered and intermixed throughout the AA.	1	
40			A2. Not A1. The two height classes are mostly in separate zones or bands, or in proportionately large clumps.	0	
			B. Either the vegetation shorter than 1 m comprises >70% of the vegetated part of the AA, or the vegetation taller than that does. One size		
41			class might even be totally absent. Choose between B1 and B2 and mark the choice with a 1 in the adjoining column:		
42			B1. The less prevalent height class is mostly scattered and intermixed within the prevalent one.	0	
			B2. Not B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is completely	0	
43			absent.		
44	F7	Large Snags (Dead Standing Trees)	The number of large snags (diameter >20 cm) in the AA plus adjacent upland area within 10 m of the wetland edge is:		Snags are dead standing trees that often (not always) lack bark and foliage. Include only ones that are at least 2 m tall. [POL, SBM, WBN]
45		Statiumy (1883)	None, or fewer than 8/ hectare which exceed this diameter.	0	at loads 2 in tain. It of John, Horij
46			Several (>8/hectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km.	0	
47			Several (>8/hectare) but above not true.	1	
48	F8	Downed Wood	The number of downed wood pieces longer than 2 m and with diameter >10 cm, and not persistently submerged, is:		Exclude temporary "burn piles." [AM, INV, POL, SBM]
49			Few or none that meet these criteria.	1	
50			Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria.	0	
	F9	N Fixers	The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa, other legumes)		Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
51			IS:		
52			<1% or none.	0	
53			1-25% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
54			25-50% of the vegetated cover, in the AA or along its water edge (whichever has more).	1	
55			50-75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
56			>75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	

FieldF form - Non-tidal Page 2 of 10

	A	В	C	D	E
	F10	Sphagnum Moss	The cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured by taller		Exclude moss growing on trees and rocks. [CS, PH]
57		Extent	sedges and other plants rooted in it, is:		
58			<5% of the vegetated part of the AA.	0	
59			5-25% of the vegetated part of the AA.	0	
60			25-50% of the vegetated part of the AA.	0	
61			50-95% of the vegetated part of the AA.	1	
62		0/ 0 10	>95% of the vegetated part of the AA.	0	
	F11	% Bare Ground &	Consider the parts of the AA that lack surface water at the driest time of the growing season. Viewed from directly above the ground layer, the predominant condition in those areas at that time is:		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that is present under a tree or shrub canopy should be counted. Boulders count as bare ground. Wetlands
63		Thatch			with mineral soils and that are heavily shaded or are dominated by annual plant species tend to have
			Little or no (<5%) bare ground is visible between erect stems or under canopy anywhere in the vegetated AA. Ground is extensively blanketed by dense thatch, moss, lichens, graminoids with great stem densities, or plants with ground-hugging foliage.	1	more extensive areas that are bare during the early growing season. [AM, EC, INV, NR, OE, POL, PR,
64			samota by donor mator, moss, monors, grammore man groat storm donormos, or plants man groate nagging longue.		SBM, Sens]
04			Slightly bare ground (5-20% bare between plants) is visible in places, but those areas comprise less than 5% of the unflooded parts of the	0	
65			AA.		
			Much bare ground (20-50% bare between plants) is visible in places, and those areas comprise more than 5% of the unflooded parts of the	0	
66			AA.		
67			Other conditions.	0	
68			Not applicable. Surface water (either open or obscured by emergent plants) covers all of the AA all the time.	0	
	F12	Ground Irregularity	Imagine the AA without any living vegetation. Excluding the portion of the AA that is always under water, the number of hummocks, small		The depressions may be of human or natural origin. [AM, EC, INV, NR, PH, POL, PR, SBM, SR, WS]
			pits, raised mounds, animal burrows, ruts, gullies, natural levees, microdepressions, and other areas of peat or mineral soil that are raised or depressed >10 cm compared to most of the area within a few meters surrounding them is:		
69			-		
70			Few or none (minimal microtopography; <1% of the land has such features, or entire AA is always water-covered).	0	
71			Intermediate.		
72	F13	Unland Indusions	Several (extensive micro-topography). Within the AA, inclusions of upland are:	1	[AM, NR, SBM]
73	F13	Upland Inclusions	Within the AA, inclusions of upland are.		[AIVI, INK, SDIVI]
74			Few or none.	1	
75			Intermediate (1 - 10% of vegetated part of the AA).	0	
76			Many (e.g., wetland-upland "mosaic", >10% of the vegetated AA).	0	
	F14	Soil Texture	In parts of the AA that lack persistent water, the texture of soil in the uppermost layer is mostly: [To determine this, use a trowel to check in		[CS, NR, OE, PH, PR, Sens, SFS, WS]
77			at least 3 widely spaced locations, and use the soil texture key (in Appendix A of the Manual).]		
78			Loamy: soils that may contain a little fine grit and do not make a "ribbon" longer than 2 cm when moistened, rolled, squeezed, and extended between thumb and forefinger.	0	
76			Fines: includes silt, clay, silt, soils that make a ribbon longer than 2 cm when moistened, rolled, squeezed, and extended between thumb and	0	
79			forefinger.	Ü	
80			Deep Peat, to 40 cm depth or greater.	1	
81			Shallow Peat or organic <40 cm deep.	0	
			Coarse: includes sand, loamy sand, gravel, cobble, soils that do not make a ribbon when moistened, rolled, squeezed, and extended	0	
82	E45	01 11 15 "	between thumb and forefinger.		71.5 I
	F15	Shorebird Feeding	During any 2 consecutive weeks of the growing season, the extent of mudflats, bare unshaded saturated areas not covered by thatch, and		This addresses needs of many but not all migratory sandpipers, plovers, and related species. [WBF]
83		Habitats	unshaded waters shallower than 6 cm is: [Include also any area that is adjacent to the AA.]	1	
84			None, or <100 sq. m.	0	
85			100-1000 sq. m. 1000 – 10,000 sq. m.	0	
86 87			1000 - 10,000 sq. m. >10,000 sq. m.	0	
	F16	Herbaceous % of	In aerial ("ducks eye") view, the maximum annual cover of herbaceous vegetation (all non-woody plants except moss) is:	U	[AM, WBF, WBN]
88	. 10	Vegetated Wetland			[run, 1121 , 1121]
		goldiou Wollding	<5% of the vegetated part of the AA or <0.01 hectare (whichever is less). Mark "1" here and SKIP to F20 (Invasive Plant Cover).	0	
89			E 25% of the vagetated part of the AA	0	
90			5-25% of the vegetated part of the AA. 25-50% of the vegetated part of the AA.	0	
91			25-50% of the vegetated part of the AA. 50-95% of the vegetated part of the AA.	1	
92			>95% of the vegetated part of the AA.	0	
23			2 70 70 or the regelated part of the 70°.	-	

FieldF form - Non-tidal Page 3 of 10

	Α	В	С	D	E
94	-17	Forb Cover	Within parts of the AA having herbaceous cover (excluding SAV), the areal cover of forbs reaches an annual maximum of:		Forbs are flowering plants. Do not include grasses, sedges, cattail, other graminoids, ferns, horsetails,
95			<5% of the herbaceous part of the AA.	0	or others that lack showy flowers. [POL]
96			5-25% of the herbaceous part of the AA.	1	
97			25-50% of the herbaceous part of the AA.	0	
98			50-95% of the herbaceous part of the AA.	0	
99			>95% of the herbaceous part of the AA.	0	
100	-18	Sedge Cover	Sedges (Carex spp.) and cottongrass (Eriophorum spp.) occupy:		[CS]
101			<5% of the vegetated area, or none.	0	
102			5-50% of the vegetated area.	1	
103			50-95% of the vegetated area.	0	
104			>95% of the vegetated area.	0	
105		Dominance of Most Abundant Herbaceous	Determine which two herbaceous species comprise the greatest portion of the herbaceous cover (excluding mosses and floating-leaved aquatic plants). Then choose one of the following:		For this question, include ferns as well as graminoids and forbs. [EC, INV, PH, POL, Sens]
106		Species	those species together comprise > 50% of the areal cover of herbaceous plants at any time during the year.	1	
107			those species together do not comprise > 50% of the areal cover of herbaceous plants at any time during the year.	0	
108	-20	Invasive Plant Cover	How extensive is the cover of invasive plant species in the AA? For species, see Plants_invasive worksheet in the accompanying Supplnfo file.		[EC, PH, POL, Sens]
109			invasive species appear to be absent in the AA, or are present only in trace amount (a few individuals).	1	
110			invasive species are present in more than trace amounts, but comprise <5% of herbaceous cover (or woody cover, if the invasives are woody).	0	
111			invasive species comprise 5-20% of the herb cover (or woody cover, if the invasives are woody).	0	
112			invasive species comprise 20-50% of the herb cover (or woody cover, if the invasives are woody).	0	
113			invasive species comprise >50% of the herb cover (or woody cover, if the invasives are woody).	0	
114	-21	Invasive Cover Along Upland Edge	Along the wetland-upland boundary, the percent of the upland edge (within 3 m upslope from the wetland) that is occupied by invasive plant species is:		If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an exotic species, assume the unidentified plant to also be exotic. If vegetation is so senesced that exotic
115			none of the upland edge (invasives apparently absent), or AA has no upland edge.	1	species cannot be identified, answer "none". [PH, STR]
116			some (but <5%) of the upland edge.	0	
117			5-50% of the upland edge.	0	
118			most (>50%) of the upland edge.	0	
119	-22	Fringe Wetland	During most of the year, open water within or adjacent to the vegetated part of the wetland is much wider than the maximum width of the vegetated zone within the wetland. Enter "1" if true, "0" if false.	0	[WBF, WBN, WCv]
120	23	Lacustrine Wetland	The vegetated part of the AA is within or adjacent to a body of non-tidal standing open water whose size exceeds 8 hectares during most of a normal year.	0	[FR, PR, PU, WBF, WBN]
		% of AA Without Surface Water	The percentage of the AA that never_contains surface water during an average year (that is, except perhaps for a few hours after snowmelt or rainstorms), but which is still a wetland, is:		1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m, 1000 m by 10 m, or similar. [AM, FA, FR, INV, NR, PH, PR, SBM, Sens, SRv, WBF, WBN, WC]
121		Juniuse Water	<1% . In other words, all or nearly all of the AA is covered by water permanently or at least seasonally.	0	
123			1-25% of the AA. or <1% but >0.01 ha never contains surface water.	0	
124			25-50% of the AA never contains surface water.	0	
125			50-75% of the AA never contains surface water.	0	1
123			75-99% of the AA never contains surface water, OR >99% and there is at least one persistently ponded water body larger than 1 ha in the	1	
126			AA.		
			99-100%. AND there is no persistently ponded water body larger than 1 ha within the AA. Enter "1" and SKIP to F42 (Channel Connection).	0	
127					

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A	В	С	D	E
F25	% of AA with	Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during the driest		If you are unable to determine the condition at the driest time of year, ask the land owner or neighbors
	Persistent Surface	times of a normal year, i.e., when the AA's surface water is at its lowest annual level. At that time, the percentage of the AA that still contains		about it if possible. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat.
128	Water	surface water is:		[AM, CS, FA, FR, INV, NR, POL, PR, SBM, WBF, WBN]
129		None. The AA dries up completely (no water in channels either) or never has surface water during most years. SKIP to F27.	0	
130		1-20% of the AA.	1	1
131		20-50% of the AA.	0	
132		50-95% of the AA.	0	1
133		>95% of the AA. True for many fringe wetlands.	0	
F26	% of Summertime	At mid-day during the warmest time of year, the area of surface water <u>within</u> the AA that is shaded by vegetation and other features that are		[FA, WC]
134	Water that Is Shaded	<u>within</u> the AA at that time is:		
135		<5% of the water is shaded, or no surface water is present then.	0	
136		5-25% of the water is shaded.	1	
137		25-50% of the water is shaded.	0	
138		50-75% of the water is shaded.	0	
139		>75% of the water is shaded.	0	
140 F27	% of AA that is	The percentage of the AA's area that is between the annual high water and the annual low water (surface water) is:		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not
141	Flooded Only	None, or <0.01 hectare and <1% of the AA. SKIP to F29.	0	fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial)
142	Seasonally	1-20% of the AA, or <1% but >0.01 ha.	0	plant species. In riverine systems, the extent of this zone can be estimated by multiplying by 2 the bankful height and visualising where that would intercept the land along the river. [CS, FA, INV, NR,
143		20-50% of the AA.	0	OE, PH, SR, WBF, WBN, WS]
144		50-95% of the AA.	1	
145		>95% of the AA.	0	
146 F28	Annual Water	The annual fluctuation in surface water level within most of the parts of the AA that contain surface water at least temporarily is:		Look for flood marks (see above). Because the annual range of water levels is difficult to estimate
147	Fluctuation Range	<10 cm change (stable or nearly so).	0	without multiple visits, consider asking the land owner or neighbors about it. [AM, CS, INV, NR, OE,
148		10 cm - 50 cm change.	1	PH, PR, SR, WBN, WS]
149		0.5 - 1 m change.	0	
150		1-2 m change.	0	†
151		>2 m change.	0	
Is the	AA plus adiacent ponde	d water smaller than 0.01 hectare (about 10m x 10m, or 1m x 100 m)? If so, enter "1" in column D andSKIP TO F42	0	
152 (Con				
F29	Predominant Depth	During most of the time when surface water is present during the growing season, its depth, averaged over the entire inundated part of the		If a boat is unavailable, estimate this by considering wetland size and local topography. Or if timing
153	Class	AA, is:		and safety allow, depths may be measured by drilling through winter ice. This question is asking about
154		<10 cm deep (but >0).	0	the spatial median depth that occurs during most of that time, even if inundation is only seasonal or
155		10 - 50 cm deep.	1	temporary. If inundation in most but not all of the wetland is brief, the answer will be based on the depth of the most persistently inundated part of the wetland. Include surface water in channels and ditches as
156		0.5 - 1 m deep.	0	well as ponded areas. [CS, FA, FR, INV, OE, PH, PR, Sens, SFS, SR, WBF, WBN, WC]
157		1 - 2 m deep.	0	
158		>2 m deep. True for many fringe wetlands.	0	
159 F30	Depth Classes -	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. [FR, INV,
160	Evenness of	One depth class that comprises >90% of the AA's inundated area (use the classes in the question above).	0	WBF, WBN]
161	Proportions	One depth class that comprises 50-90% of the AA's inundated area.	0]
162		Neither of above. There are 3 or more depth classes and none occupy >50%.	1	
F31	% of Water That Is Ponded (not Flowing)	During most times when surface water is present, the percentage that is (1) ponded (stagnant, or flows so slowly that fine sediment is not held in suspension) AND (2) is likely to be deeper than 0.5 m in some places, is:		Nearly all wetlands with surface water have some ponded water. [AM, CS, INV, NR, OE, PR, Sens, SR WBF, WBN, WC, WS]
163	i dilucu (not i lowinu)			4
163	orded (not riowing)	<5% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34.	0	
164	r onded (not r lowing)	<5% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34. 5-30% of the water.	0	
164 165	Tonded (not riowing)	1 1 2	0 1 0	
164	Tonded (not nowing)	5-30% of the water.	1	

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1 1	Α	В	С	D	E
F	32	Ponded Open Water -	During most of the growing season, the largest patch of open water that is ponded and is in or bordering the AA is >0.01 hectare (about 10	0	Open water is not obscured by vegetation in aerial ("duck's eye") view. It includes vegetation floating
		Minimum Size	m by 10 m) and mostly deeper than 0.5 m. If true enter "1" and continue, If false, enter "0" and SKIP to F41 (Floating Algae & Duckweed).		on the water surface or entirely submersed beneath it.
					·
169					
F	33	% of Ponded Water	In ducks-eye aerial view, the percentage of the ponded water that is open (lacking emergent vegetation during most of the growing season,		[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]
170		that is Open	and unhidden by a forest or shrub canopy) is:		
171			None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	0	
172			1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	0	
173			5-30% of the ponded water.	1	
174			30-70% of the ponded water.	0	
175			70-99% of the ponded water.	0	
176			100% of the ponded water.	0	
	34	Width of Vegetated	At the time during the growing season when the AA's water level is lowest, the average width of vegetated area <u>in the AA</u> that separates		"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may
177		Zone within Wetland	adjoining uplands from open water within the AA is:		include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR,
178		Zono mami Modana	<1 m.	0	SBM, Sens, SR, WBN]
179			1 · 9 m.	0	
180			10 - 29 m.	0	1
-			30 - 49 m.	0	
181			30 - 49 m. 50 - 100 m.	0	{
182					
183	.0.5		> 100 m, or open water is absent at that time.	1	
	35	Flat Shoreline Extent	During most of the part of the growing season when water is present, the percentage of the AA'swater edge length that is nearly flat (a		If several isolated pools are present in early summer, estimate the percent of their collective shorelines
184			slope less than about 5% measured within 5 m landward of the water) is:		that has such a gentle slope. [SR, WBN]
185			<1% of the water edge.	0	
186			1-25% of the water edge.	1	
187			25-50% of the water edge.	0	
188			50-75% of the water edge.	0	
189			>75% of the water edge.	0	
190 F	36	Robust Emergents	The percentage of the emergent vegetation cover in the AA that is cattail (<i>Typha</i> spp.), common reed (<i>Phragmites</i>), or tall (>1m) bulrush is:		Emergent vegetation is herbaceous plants whose stems are partly above and partly below the water surface during most of the time water is present. [WBN]
191			<1% of the emergent vegetation, or emergent vegetation is absent. SKIP to F38.	0	
192			1-25% of the emergent vegetation.	0	
193			25-75% of the emergent vegetation.	0	
194			>75%, of the emergent vegetation.	1	
F	37	Interspersion of	During most of the part of the growing season when water is present, the spatial patternof emergent vegetation within the water is mostly:		[AM, FA, FR, INV, NR, OE, PH, PR, SBM, SR, WBF, WBN]
195		Emergents & Open			
196		Water	Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water.	0	1
197			Intermediate.	0	1
-,,			Clumped. More than 70% of such vegetation is in bands along the wetland perimeter or is clumped at one or a few sides of the surface water	1	
198			area.		
F	38	Persistent Deepwater	If the deepest patch of surface water (flowing or ponded) in or directly adjacent to the AA is mostly deeper than 0.5 m for >2 weeks during the	1	
100		Area	growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection).		
199	39	Non-vegetated	During most of the growing season and in waters deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians that is		For this question, consider only the wood that is at or above the water surface. Estimates of underwater
	39	•	provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is:		wood based only on observations from terrestrial viewpoints are unreliable so should not be attempted.
200		Aquatic Cover	, , , , , , , , , , , , , , , , , , , ,		[AM, FA, FR, INV]
201			Little or none.	1	,,
202			Intermediate.	0	1
203			Extensive.	0	
F∙	40	Isolated Island	The AA contains (or is part of) an island or beaver lodge within a lake, pond, or river, and is isolated from the shore by water depths >1 m	0	[WBN]
			on all sides during an average June. The island may be solid, or it may be a floating vegetation mat that is sufficiently large and dense to		
204			support a waterbird nest.		

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	АВ	С	D	E
F41		At some time of the year, mats of algae and/or duckweed are likely to cover >50% of the AA's otherwise-unshaded water surface, or blanket	0	[EC, PR, WBF]
205	Duckweed	>50% of the underwater substrate. If true, enter "1" in next column. If untrue or uncertain, enter "0".		
F42	Properties Channel Connection Outflow Duration	& The most persistent surface water connection (outlet channel or pipe, ditch, or overbank water exchange) between the AA and a downslope stream network is: Molecular-left-surface (note: If the AA represents only part of a wetland, answer this according to whichever is the least permanent surface connection: the one between the AA and the rest of the wetland, or the surface connection between the wetland and the downslope stream network.]		Consider the connection regardless of whether the surface water is frozen. The "downslope stream network" could consist of ditches, rivers, ponds, or lakes which eventually connect to the ocean. If this cannot be determined while visiting the AA, consult topographic maps perhaps by viewing these online with Toporama (http://atlas.nrcan.gc.ca/toporama/en/index.html) [CS, FA, FR, NR, OE, PR, Sens, SFS, SR, WCV, WS]
207		Persistent (surface water flows out for >9 months/year).	0	31 3, 311, WGV, W3J
208		Seasonal (surface water flows out for 14 days to 9 months/year, not necessarily consecutive).	0]
209		Temporary (surface water flows out for <14 days, not necessarily consecutive).	0]
210		None but maps show a stream network downslope from the AA and within a distance that is less than the AA's length. SKIP to F47 (pH Measurement).	0	
211		No surface water flows out of the wetland except possibly during extreme events (<once (ph="" 10="" a="" an="" ditch,="" f47="" flows="" into="" lacks="" lake="" measurement).<="" only="" or="" or,="" outlet.="" per="" skip="" td="" that="" to="" water="" wetland,="" years).=""><td>1</td><td></td></once>	1	
212 F43	Outflow Confinemen			"Major runoff events" would include biennial high water caused by storms and/or rapid snowmelt. [CS, NR, OE, PR, Sens, SR, STR, WS]
213		Mostly passes through a pipe, culvert, narrowly breached dike, berm, beaver dam, or other partial obstruction (other than natural topography) that does not appear to drain the wetland artificially during most of the growing season.	0	MIX, OL, FIX, JEIIS, JIX, WJ
214		Leaves through natural exits (channels or diffuse outflow), not mainly through artificial or temporary features.	0	
215		Is exported more quickly than usual due to ditches or pipes within the AA or connected to its outlet, or within 10 m of the AA's edge, which drain the wetland artificially, or water is pumped out of the AA.	0	
F44	Tributary Channel	At least once annually, surface water from a tributary channel that is >100 m long moves into the AA. Or, surface water from a larger permanent water body adjacent to the AA spills into the AA. If it enters only via a pipe, that pipe must be fed by a mapped stream or lake further upslope. If no, SKIP to F47 (pH Measurement).	0	If inlet tributaries cannot be searched for due to inaccessibility of part of the AA, follow suggestions in F42 above. [NRv, PH, PRv, SRv]
F45	Input Water Temperature	Based on lack of shade, water source characteristics, or actual temperature measurements, the inflow is likely to be warmer than surface water in the AA during part of most years. Enter 1= yes, 0= no.	0	[wcv]
F46	Throughflow Resistance	During its travel through the AA at the time of peak annual flow, water arriving in channels: [select only the ONE encountered bymost of the incoming water].		[FA, FR, INV, NR, OE, PR, SR, WS]
219		Does not bump into many plant stems as it travels through the AA. Nearly all the water continues to travel in unvegetated (often incised) channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond or lake.	0	
220		Bumps into herbaceous vegetation but mostly remains in fairly straight channels.	0	1
221		Bumps into herbaceous vegetation and mostly spreads throughout, or is in widely meandering, multi-branched, or braided channels.	0	
222		Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels.	0	
223		Bumps into tree trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or braided).	0	
224 F47	pH Measurement	The pH in most of the AA's surface water:		Preferably, measure this in larger areas of ponded surface water within the AA, or in streams that have passed through (not along) most of the AA. Unless surface water is completely absent, do not dig holes
225		Was measured, and is: [enter the reading in the column to the right.]	3.8	or make depressions in peat in order to provide water for this measurement. Avoid measuring near
226		Was not measured but surface water is present and is darkly tea-coloured. Or if no surface water, then mosses and plants that indicate peatland (e.g., Labrador tea) are prevalent. Enter "1".	0	roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
227		Neither of above. Enter "1".	0	
228 F48	TDS and/or Conductivity	The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information):		See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
229	Conductivity	TDS is: [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.]		
230		Conductivity is [Enter the reading in µS/cm in the column to the right.]	0.43	
231	I	Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1".	0	
232		Neither of above	0	

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	Α	В	С	D	E
225	F49	Beaver Probability	Use of the AA by beaver during the past 5 years is (select most applicable ONE):		[FA, FR, PH, SBM, Sens, WBF, WBN]
233		, , , , , , , , , , , , , , , , , , ,			,
			Evident from direct observation or presence of gnawed limbs, dams, tracks, dens, lodges, or extensive stands of water-killed trees (snags).	0	
234			Likely based on known occurrence in the region and proximity to suitable habitat, which may include: (a) a persistent freshwater wetland,	0	
			pond, or lake, or a perennial low or mid-gradient (<10%) channel, and (b) a corridor or multiple stands of hardwood trees and shrubs in	U	
225			yeqetated areas near surface water.		
235			Unlikely because site characteristics above are deficient, and/or this is a settled area or other area where beaver are routinely removed.	1	
236			Unincery because site characteristics above are deficient, and/or this is a settled area of other area where beaver are routinely removed.	1	
	F50	Groundwater Strength	Select first applicable choice:		Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other
237		of Evidence			evidence. Consult topographic maps to detect breaks in slope described here. Rust deposits
		or Evidence	Springs are known to be present within the AA, or if groundwater levels have been monitored, that has demonstrated that groundwater	0	associated with groundwater seeps may be most noticeable as orange discoloration in ice formations
			primarily discharges to the wetland for longer periods during the year than periods when the wetland recharges the groundwater.		along streams during early winter. [AM, CS, FA, FR, INV, NR, OE, PH, PRv, SFS, WC, WS]
238			Mark Cills AAA and a control of COV and a control of the control o		
220			Most of the AA has a slope of >5%, or is very close to the base of a natural slope longer than 100 and much steeper than the slope of the AA, AND the pH of surface water, if known, is >5.5.	0	
239			Neither of above is true, although some groundwater may discharge to or flow through the AA. Or groundwater influx is unknown.	1	
240			iveliner of above is frue, although some groundwater may discharge to of flow through the AA. Or groundwater mildx is driknown.	1	
240	FF1	Internal Conditions	The analysis along a seal of the flow with within the AA in		This is not the same of the shoot line along it is the slower and difference between the AA's inlet and
241	F51	Internal Gradient	The gradient along most of the flow path within the AA is:		This is not the same as the shoreline slope. It is the elevational difference between the AA's inlet and outlet, divided by the flow-distance between them and converted to percent. If available, use a
242			<2% or the AA has no surface water outlet (not even seasonally).	1	clinometer to measure this. Free clinometer apps can be downloaded to smartphones. If the wetland is
243			2-5%.	0	large (longer than ~1 km), this may be estimated using Google Earth to determine the minimum and
244			6-10%.	0	maximum elevation within the AA, then dividing by length and multiplying by 100. [CS, NR, OE, PR,
245			>10%.	0	SR, WBF, WBN, WS]
	Note f	or the next three gues	tions: If the AA lacks an upland edge, evaluate based on the AA's entire perimeter, and moving outward into whatever areas		
			ns, these questions are best answered by measuring from aerial images.		
			Within a zone extending 30 m laterally from the AA's edge with upland and/or other wetlands, the percentage that contains perennial		[AM, FA, FR, INV, NRv, PH, POL, PRv, SBM, Sens, SRv, STR, WBN]
247		of Perimeter	vegetation cover (except lawns, row crops, heavily grazed land, conifer plantations) is:		pan, m, m, m, mo, m, oc., m, oc., oc., oc., oc., oc., oc., oc.,
		or r crimeter	<5%.	0	
248 249			5 to 30%.	1	
			30 to 60%.	0	
250			60 to 90%.	0	
251					
252	LE3	Type of Cover in	>90%, or all the area within 30 m of the AA edge is other wetlands. SKIP to F55.	0	IAM FA INV ND, DU DOL CDM CTD WDNI
	F53	Type of Cover in	Within 30 m upslope of where the wetland transitions to upland, the upland land cover that is NOT perennial vegetation is mostly (mark ONE):		[AM, FA, INV, NRv, PH, POL, SBM, STR, WBN]
253		Buffer	·	0	
254			Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0	
255	FF 4	D. W Cl	Bare or nearly bare pervious surface or managed vegetation, e.g., lawn, row crops, unpaved road, dike, landslide.	1	(ND_DD_CCD_)
	F54	Buffer Slope	The steepest and/or most disturbed part of the upland area that is within 30 m of the wetland and occupies >10% of that upland area has a		[NRv, PRv, Sens, SRv]
256			percent slope of:		
257			<1% (flat almost no noticeable slope) or all the area within 30 m of the AA edge is other wetlands.	0	
258			2-5%.	1	
259			5-30%.	0	
260			>30%.	0	
	F55	Cliffs or Steep Banks	In the AA or within 100 m, there are elevated terrestrial features such as cliffs, talus slopes, stream banks, or excavated pits (but not riprap)	0	Do not include upturned trees as potential den sites. [POL, SBM]
			that extend at least 2 m nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den		
261			areas. Enter 1 (yes) or 0 (no).		

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I	Ą	В	С	D	E
F56	5	New or Expanded	Human actions within or adjacent to the AA have persistently expanded a naturally occurring wetland or created a wetland where there		Determine this using historical aerial photography, old maps, soil maps, or permit files as available
262	ľ	Wetland	previously was none (e.g., by excavation, impoundment):		[CS, NR, OE, PH, Sens]
263			No.	0	
264			Yes, and created or expanded 20 - 100 years ago.	0	
265			Yes, and created or expanded 3-20 years ago.	0	
266			Yes, and created or expanded within last 3 years.	0	
267			Yes, but time of origin or expansion unknown.	1	
268			Unknown if new or expanded within 20 years or not.	0	
269 F57	7	Burn History	More than 1% of the AA's previously vegetated area:		Look for charred soil or stumps (in multiple widely-spaced locations) or ask landowner. [CS, PH, STR]
270			Burned within past 5 years.	0	
271			Burned 6-10 years ago.	0	
272			Burned 11-30 years ago.	0	
273			Burned >30 years ago, or no evidence of a burn and no data.	1	
F58 274	3	Visibility	The maximum percentage of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings, or public maintained trails that intersect, adjoin, or are within 100 m of the AA (select one) is:		[PU, STR, WBFv]
275			<25%.	1	
276			25-50%.	0	
277			>50%.	0	
278 F59	9	Non-consumptive	Assuming access permission was granted, select ALL statements that are true of the AA as it currently exists:		[PU, STR]
279		Uses - Actual or Potential	For an average person, walking is physically possible in (not just near) >5% of the AA during most of the growing season, e.g., free of deep water and dense shrub thickets.	0	
280			Maintained roads, parking areas, or foot-trails are within 10 m of the AA, or the AA can be accessed part of the year by boats arriving via contiquous waters.	0	
281			Within or near the AA, there is an interpretive center, trails with interpretive signs or brochures, and/or regular guided interpretive tours.	0	
F60)	Unvisited Core Area	The percentage of the AA almost never visited by humans during an average growing season probably comprises: [Note: Only include the part actually walked or driven (not simply viewed from) with a vehicle or boat. Do not include visitors on trails outside of the AA unless more than half the wetland is visible from the trails and they are within 30 m of the wetland edge. In that case include only the area occupied by the trail.]		[AM, FAv, FRv, PH, PU, SBM, STR, WBF, WBN]
283			<5% and no inhabited building is within 100 m of the AA.	0	
284			<5% and inhabited building is within 100 m of the AA.	0	
285			5-50% and no inhabited building is within 100 m of the AA.	0	
286			5-50% and inhabited building is within 100 m of the AA.	0	
287			50-95%, with or without inhabited building nearby.	0	
288			>95% of the AA with or without inhabited building nearby.	1	
F61	1	Frequently Visited	The part of the AA visited by humans almost daily for several weeks during an average growing season probably comprises: <i> See note</i>		[AM, PH, PU, SBM, STR, WBF, WBN]
289		Area	above.]		,
290			<5%. If F60 was answered ">95%" (mostly never visited), SKIP to F64.	1	
291			5-50%.	0	
292			50-95%.	0	1
293			>95% of the AA.	0	
F62 294	2	BMP - Soils	Boardwalks, paved trails, fences or other infrastructure and/or well-enforced regulations appear to effectively prevent visitors from walking on soil within nearly all of the AA when the soil is unfrozen. Enter "1" if true.	0	[PH, PU]
F63		BMP - Wildlife Protection	Fences, observation blinds, platforms, paved trails, exclusion periods, and/or well-enforced prohibitions on motorised boats, off-leash pets, and off road vehicles appear to effectively exclude or divert visitors and their pets from the AA at critical times in order to minimize disturbance of wildlife (except during hunting seasons). Enter "1" if true.	0	[AM, PU, WBF, WBN]

FieldF form - Non-tidal Page 9 of 10

	Α	В	С	D	E
20/	F64	Consumptive Uses	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select ALL that apply.		[FAv, FRv, WBFv]
29		(Provisioning Services)	Low-impact commercial timber harvest (e.g., selective thinning).	0	
298	3	oci vices)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0	
299)		Waterfowl hunting.	0	
300)		Fishing.	0	
30			Trapping of furbearers.	0	
302	!		None of the above.	1	
303	F65	Domestic Wells	The closest wells or water bodies that currently provide drinking water are:		[NRv]
304	i.		Within 0-100 m. of the AA.	0	
30:	;		100-500 m. away.	0	
300	5		>500 m. away, or no information.	1	
30′	F66	Calcareous Fen	The AA is, or is part of, a calcareous fen. See the Plants_Calcar worksheet in the accompanying Supplnfo file for list of plant indicators (calciphiles). Enter 1 If more than two Strong or more than five Moderate calciphile species are present; otherwise enter 0, but if not able to identify those and no information, change to blank.		[PH, PR]

FieldF form - Non-tidal Page 10 of 10

stigator: Darcy Kavanagh & Jordan Davis	Site Identifier: WL4		Date: September 14, 2022						
ressor (S) Data Form for Non-Ti	dal Wetlands. WESP-AC for Nova	Scotia version 2.		Da					
Aberrant Timing of Water Inputs									
In the last column, place a check mark next to any item that is likely to have caused the timing of water inputs (but not necessarily their volume) to shift by hours, days, or weeks, becoming either more muted (smaller or less frequent peaks spread over longer									
, , ,	ore flashy (larger or more frequent spikes but over shorter times). [FA	A, FR, INV, PH, STR]							
Stormwater from impervious surfaces that drains directly to the									
Water subsidies from wastewater effluent, septic system leakage	• •								
Regular removal of surface or groundwater for irrigation or other	· · · · · · · · · · · · · · · · · · ·								
, , , , , , , , , , , , , , , , , , ,	ing water body, or other control structure at water entry points that re	<u> </u>							
A dam, dike, levee, weir, berm, or fill within or downgradient	from the wetland that interferes with surface or subsurface flow in/	out of the AA (e.g., road fill, wellpads, pipelines).							
Excavation within the wetland, e.g., dugout, artificial pond, dea	d-end ditch.								
Artificial drains or ditches in or near the wetland.									
Accelerated downcutting or channelization of an adjacent or in	ternal channel (incised below the historical water table level).								
Logging within the wetland.									
Subsidence or compaction of the wetland's substrate as a resu	ult of machinery, livestock, fire, drainage, or off road vehicles.								
Straightening, ditching, dredging, and/or lining of tributary char	nnels.								
If any items were checked above, then for each row of the table below, assign points. However, if you believe the checked items had no measurable effect on the timing of water conditions in any part of the AA, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or were no longer present.									
	Severe (3 points)	Medium (2 points)	Mild (1 point)						
Spatial extent of timing shift within the wetland:	>95% of wetland.	5-95% of wetland.	<5% of wetland.	0					
When most of the timing shift began:	<3 yrs ago.	3-9 yrs ago.	10-100 yrs ago.	0					
Score the following 2 rows only if the altered inputs began within	n past 10 years, and only for the part of the wetland that experiences	those.							
Input timing now vs. previously:	Shift of weeks.	Shift of days.	Shift of hours or minutes.	0					
Flashiness or muting:	Became very flashy or controlled.	Intermediate.	Became mildly flashy or controlled.	0					
			Sum=	- 0					
			Stressor subscore=	0.0					
·	Accelerated Inputs of Contaminants and/or Salts In the last column, place a check mark next to any item occurring in either the welland or its CA that is likely to have accelerated the inputs of contaminants or salts to the AA. [AM, FA, PH, POL, STR]								
		are inpute of contaminante of sale to the first pain, first, first, first,							
Stormwater or wastewater effluent (including failing septic systems), landfills, industrial facilities. Metals & chemical wastes from mining, shooting ranges, snow storage areas, oil/ gas extraction, other sources (download many locations from National Pollutant Release Inventory and view KMZ overlay in Google Earth. https://www.ec.gc.ca/inrp-npri/default.asp?lang=En&n=B85A1846-1									
Road salt.				1					
Spraying of pesticides, as applied to lawns, croplands, roadsid	es, or other areas in the CA.			1					
	below, assign points. However, if you believe the checked items did dition with the condition if the checked items never occurred or were		ntaminants and/or salts, then leave the "O's" for the scores in						
	Severe (3 points)	Medium (2 points)	Mild (1 point)						
Usual toxicity of most toxic contaminants:	Industrial effluent, mining waste, unmanaged landfill.	Cropland, managed landfill, pipeline or transmission rights-of- way.	Low density residential.	(
Frequency & duration of input:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.	0					
AA proximity to main sources (actual or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.	0					
			Sum=	- C					
			Stressor subscore=	0.0					

	rring in either the wetland or its CA that is likely to have accelerated the	he inpute of putrients to the worland [NDv. DDv. CTD]						
''	,	ie inpuis of numents to the wettand. [INRV, PRV, 31R]						
Stormwater or wastewater effluent (including failing septic systems), landfills.								
Fertilizers applied to lawns, ag lands, or other areas in the CA	<u>:</u>							
Livestock, dogs.								
Artificial drainage of upslope lands.								
If any items were checked above, then for each row of the table below, assign points. However, if you believe the checked items did not cumulatively expose the AA to significantly more nutrients, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or were no longer present.								
	Severe (3 points)	Medium (2 points)	Mild (1 point)					
Type of loading:	High density of unmaintained septic, some types of industrial sources.	Moderate density septic, cropland, secondary wastewater treatment plant.	Livestock, pets, low density residential.					
Frequency & duration of input:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.					
AA proximity to main sources (actual or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.					
			Sum=					
			Stressor subscore=					
Excessive Sediment Leading from Cont	ributing Area							
-	Excessive Sediment Loading from Contributing Area							
In the last column, place a check mark next to any item present	t in the CA that is likely to have elevated the load of waterborne or wind	borne sediment reaching the wetland from its CA. [FA, FR, INV,	PH, SRv, STR]					
Erosion from plowed fields, fill, timber harvest, dirt roads, vege	etation clearing, fires.							
Erosion from construction, in-channel machinery in the CA.								
Erosion from off-road vehicles in the CA.								
Erosion from livestock or foot traffic in the CA.								
Stormwater or wastewater effluent.								
Stormwater or wastewater effluent. Sediment from road sanding, gravel mining, other mining, oil/	gas extraction.							
	-							
Sediment from road sanding, gravel mining, other mining, oil/	-							
Sediment from road sanding, gravel mining, other mining, oil/ Accelerated channel downcutting or headcutting of tributaries Other human-related disturbances within the CA. If any items were checked above, then for each row of the table	-	· · · · · · · · · · · · · · · · · · ·	y add significantly more sediment or suspended solids to the					
Sediment from road sanding, gravel mining, other mining, oil/ Accelerated channel downcutting or headcutting of tributaries Other human-related disturbances within the CA. If any items were checked above, then for each row of the table	due to altered land use. e below, assign points (3, 2, or 1 as shown in header) in the last column	· · · · · · · · · · · · · · · · · · ·	y add significantly more sediment or suspended solids to the Mild (1 point)					
Sediment from road sanding, gravel mining, other mining, oil/ Accelerated channel downcutting or headcutting of tributaries Other human-related disturbances within the CA. If any items were checked above, then for each row of the table	due to altered land use. e below, assign points (3, 2, or 1 as shown in header) in the last column estimate effects, contrast the current condition with the condition if the	checked items never occurred or were no longer present.	, ,					
Sediment from road sanding, gravel mining, other mining, oil/ Accelerated channel downcutting or headcutting of tributaries Other human-related disturbances within the CA. If any items were checked above, then for each row of the table AA, then leave the "0's" for the scores in the following rows. To	due to altered land use. e below, assign points (3, 2, or 1 as shown in header) in the last column estimate effects, contrast the current condition with the condition if the Severe (3 points)	checked items never occurred or were no longer present. Medium (2 points) Potentially (based on high-intensity* land use) or scattered	Mild (1 point) Potentially (based on low-intensity* land use) with little or no					
Sediment from road sanding, gravel mining, other mining, oil/ Accelerated channel downcutting or headcutting of tributaries Other human-related disturbances within the CA. If any items were checked above, then for each row of the table AA, then leave the "OS" for the scores in the following rows. To Erosion in CA:	due to altered land use. e below, assign points (3, 2, or 1 as shown in header) in the last column: estimate effects, contrast the current condition with the condition if the Severe (3 points) Extensive evidence, high intensity.*	checked items never occurred or were no longer present. Medium (2 points) Potentially (based on high-intensity* land use) or scattered evidence.	Mild (1 point) Potentially (based on low-intensity* land use) with little or no direct evidence. >1 yr ago. Infrequent & during high runoff events mainly.					
Sediment from road sanding, gravel mining, other mining, oil/ Accelerated channel downcutting or headcutting of tributaries Other human-related disturbances within the CA. If any items were checked above, then for each row of the table AA, then leave the "0's" for the scores in the following rows. To Erosion in CA: Recentness of significant soil disturbance in the CA:	due to altered land use. e below, assign points (3, 2, or 1 as shown in header) in the last column: estimate effects, contrast the current condition with the condition if the Severe (3 points) Extensive evidence, high intensity.* Current & ongoing.	checked items never occurred or were no longer present. Medium (2 points) Potentially (based on high-intensity* land use) or scattered evidence. 1-12 months ago.	Mild (1 point) Potentially (based on low-intensity* land use) with little or no direct evidence. >1 yr ago.					
Sediment from road sanding, gravel mining, other mining, oil/ Accelerated channel downcutting or headcutting of tributaries Other human-related disturbances within the CA. If any items were checked above, then for each row of the table AA, then leave the "0's" for the scores in the following rows. To Erosion in CA: Recentness of significant soil disturbance in the CA: Duration of sediment inputs to the wetland: AA proximity to actual or potential sources:	due to altered land use. e below, assign points (3, 2, or 1 as shown in header) in the last column: estimate effects, contrast the current condition with the condition if the Severe (3 points) Extensive evidence, high intensity.* Current & ongoing. Frequent and year-round.	checked items never occurred or were no longer present. Medium (2 points) Potentially (based on high-intensity* land use) or scattered evidence. 1-12 months ago. Frequent but mostly seasonal. 15-100 m.	Mild (1 point) Potentially (based on low-intensity* land use) with little or no direct evidence. >1 yr ago. Infrequent & during high runoff events mainly.					

Soil or Sediment Alteration Within the As	sessment Area							
In the last column, place a check mark next to any item present in the wetland that is likely to have compacted, eroded, or otherwise altered the wetland's soil. Consider only items occurring within past 100 years or since wetland was created or restored (whichever is less). [CS, INV, NR, PH, SR, STR]								
Compaction from machinery, off-road vehicles, livestock, or mountain bikes, especially during wetter periods.								
Leveling or other grading not to the natural contour.								
Tillage, plowing (but excluding disking for enhancement of nativ	e plants).							
Fill or riprap, excluding small amounts of upland soils containing	g organic amendments (compost, etc.) or small amounts of topsoil in	nported from another wetland.						
Excavation.								
Ditch cleaning or dredging in or adjacent to the wetland.								
Boat traffic in or adjacent to the wetland and sufficient to cause	shore erosion or stir bottom sediments.							
Artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments.								
If any items were checked above, then for each row of the table effects, contrast the current condition with the condition if the che	below, assign points. However, if you believe the checked items did tocked items never occurred or were no longer present.	not measurably alter the soil structure and/or topography, then le	ave the "O's" for the scores in the following rows. To estimate					
	Severe (3 points)	Medium (2 points)	Mild (1 point)					
Spatial extent of altered soil:	>95% of wetland or >95% of its upland edge (if any).	5-95% of wetland or 5-95% of its upland edge (if any).	<5% of wetland and <5% of its upland edge (if any).					
Recentness of significant soil alteration in wetland:	Current & ongoing.	1-12 months ago.	>1 yr ago.					
Duration:	Long-lasting, minimal veg recovery.	Long-lasting but mostly revegetated.	Short-term, revegetated, not intense.					
Timing of soil alteration:	Frequent and year-round.	Frequent but mostly seasonal.	Mainly during one-time or scattered events.					
	·	•	Sum=					
			Stressor subscore=	(

Assessment Area (AA) Results:

Wetland ID: WL4

Date: September 14, 2022

Observer: Darcy Kavanagh & Jordan Davis

Latitude & Longitude (decimal degrees): 44.08858648521735, -64.88788765425824

Scores will appear below after data are entered in worksheets OF, F, and S. See Manual for definitions and descriptions of how scores were computed.

Wetland Functions or Other Attributes:	Function Score (Normalised)	Function Rating	Benefits Score (Normalised)	Benefits Rating	Function Score (raw)	Benefits Score (raw)
Water Storage & Delay (WS)	8.03	Higher	2.10	Lower	7.94	0.93
Stream Flow Support (SFS)	0.00	Lower	0.00	Lower	0.00	0.00
Water Cooling (WC)	6.42	Higher	0.00	Lower	4.28	0.00
Sediment Retention & Stabilisation (SR)	10.00	Higher	2.50	Moderate	10.00	1.22
Phosphorus Retention (PR)	10.00	Higher	1.88	Moderate	10.00	1.46
Nitrate Removal & Retention (NR)	10.00	Higher	5.42	Moderate	10.00	5.42
Carbon Sequestration (CS)	6.68	Higher			8.36	
Organic Nutrient Export (OE)	6.42	Moderate			4.20	
Anadromous Fish Habitat (FA)	0.00	Lower	0.00	Lower	0.00	0.00
Resident Fish Habitat (FR)	0.00	Lower	0.00	Lower	0.00	0.00
Aquatic Invertebrate Habitat (INV)	6.50	Higher	5.56	Moderate	6.14	4.24
Amphibian & Turtle Habitat (AM)	6.43	Moderate	4.76	Moderate	6.49	5.69
Waterbird Feeding Habitat (WBF)	6.95	Higher	3.33	Moderate	5.29	3.33
Waterbird Nesting Habitat (WBN)	7.17	Higher	3.33	Moderate	5.20	3.33
Songbird, Raptor, & Mammal Habitat (SBM)	9.68	Higher	3.33	Moderate	8.43	3.33
Pollinator Habitat (POL)	8.18	Higher	3.33	Moderate	6.78	3.33
Native Plant Habitat (PH)	6.40	Higher	6.18	Moderate	6.45	6.18
Public Use & Recognition (PU)			0.23	Lower		0.46
Wetland Sensitivity (Sens)			8.25	Higher		4.52
Wetland Ecological Condition (EC)			6.52	Higher		8.33
Wetland Stressors (STR) (higher score means more stress)			8.01	Higher		4.03
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	8.03	Higher	2.10	Lower	7.94	0.93
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	9.58	Higher	4.34	Moderate	9.79	4.06
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	5.66	Higher	3.70	Lower	4.90	2.82
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	5.64	Moderate	3.52	Moderate	4.95	4.08
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	8.88	Higher	5.23	Lower	7.82	5.23
WETLAND CONDITION (EC)			6.52	Higher		8.33
WETLAND RISK (average of Sensitivity & Stressors)			8.13	Higher		4.28

NOTE: A score of 0 does not mean the function or benefit is absent from the wetland. It means only that this wetland has a capacity that is equal or less than the lowest-scoring one, for that function or benefit, from among all the NS calibration wetlands that were assessed previously.

NOVA SCOTIA - Functional WSS Interpretation Tool

3. Functional WSS Interpretation Results

Function-Benefit Product (FBP)	FBP SCORE	FBP SCORE CATEGORY
SUPPORT SUPERGROUP - HYDROLOGIC	16.84533282	Low
SUPPORT SUPERGROUP - WATER QUALITY SUPPORT	41.5924954	Low
SUPPORT SUPERGROUP - AQUATIC SUPPORT	20.97748578	Low
HABITAT SUPERGROUP - AQUATIC HABITAT	19.87708325	Low
HABITAT SUPERGROUP - TRANSITION HABITAT	46.46291121	Low

3a. Functional WSS Determination: Automatic Method

Habitat Rule Satisfied? NO
Support Rule Satisfied? NO
Habitat/Support Hybrid Rule Satisfied? NO

CONCLUSION: Site is not a WSS

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	Mersey River Wind Farm - WL7
Investigator Name:	Darcy Kavanagh & Jordan Davis
Date of Field Assessment:	September 14, 2022
Nearest Town:	Milton, NS
Latitude (decimal degrees):	44.083123936220474
Longitude (decimal degrees):	-64.86706089334821
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	0.19
AA as percent of entire wetland (approx.). Attach sketch map if AA is smaller than the entire contiguous wetland.	100%
What percent (approx.) of the wetland were you able to visit?	100%
What percent (approx.) of the AA were you able to visit?	100%
Were you able to ask the site owner/manager about any of the questions?	No
Indicate here if you intentionally surveyed for rare plants, calciphile plants, or rare animals:	Yes
Have you attended a WESP-AC training session? If so, indicate approximate month & year.	No
How many wetlands have you assessed previously using WESP-AC? (approx.)	50+
Comments about the site or this WESP-AC assessment (attach extra page if desired):	

	A	В	С	D	Е
	Date: S	September 14, 2022	Site Identifier: WL7	Investigator: Darcy Kavanagh & Jordan [Davis
1					

Form OF (Office). Non-tidal Wetland Data Form. WESP-AC version 2 for Nova Scotia wetlands only. DIRECTIONS: Conduct an assessment only after reading the accompanying Manual and the Explanations column of the data form. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answering many of the questions below will require using these online map viewers:

Google Earth Pro: https://www.google.com/earth/download/gep/agree.html

Provincial Landscape Viewer: https://nsgi.novascotia.ca/plv/

For most wetlands, completing this office data form will require 1-2 hours. For a list of functions to which each question pertains, see bracketed abbreviations in the Definitions/Explanations column. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Manual. Codes for functions and values are: WS= Water Storage, SFS= Stream Flow Support, WC= Water Cooling, SR= Sediment Retention & Stabilisation, PR= Phosphorus Retention, NR= Nitrate Removal, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate Habitat, FA= Anadromous Fish Habitat, FR= Resident Fish Habitat, AM= Amphibian & Reptile Habitat, WBF= Feeding Waterbird Habitat, WBN= Nesting Waterbird Habitat, SBM= Songbird, Raptor, & Mammal Habitat, POL= Pollinator Habitat, PH= Native Plant Habitat, PU= Public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= Stressors.

	#	Indicators	Condition Choices	Data	Definitions/Explanations
3	OF1	Province	Mark the province in which the AA is located by changing the 0 in the column next to it to a "1". Mark only one.		This determines to which province's calibration wetlands the raw score of any wetland is normalised.
4	UFI	Province			In the function and benefits models, it also triggers the automatic exclusion of indicators for which no
5			New Brunswick	0	spatial data exists in a particular province.
6			Nova Scotia	1	
7			Prince Edward Island	0	
8			Newfoundland-Labrador	0	
9	OF2	Ponded Area Within 1 km.	The area of surface water ponded during most of the growing season that is both (1) in or adjacent to the AA and (2) within 1 km is:		"Adjacent" means not separated from the AA by a wide expanse (>50 m) of upland (including roads >50 m wide). Include ponded areas likely to be hidden by wetland vegetation. If surface water
10			<0.01 hectare (about 10 m x 10 m).	1	extends beyond 1 km, include only the part within 1 km. Do not include tidal areas. Measure the area from aerial imagery using Google Earth Pro (click on Ruler icon in toolbar, then Polygon in pop-
11			0.01 - 0.1 hectare.	0	up menu). [PH, SBM, WBN]
12			0.1 - 1 hectare.	0	ap mondy. [i 11, obin, mbrij
13			1 to 10 hectares.	0	
14			10 to 100 hectares.	0	
15			>100 hectares.	0	
16		Ponded Water & Wetland Within 1 km.	The area of wetlands and surface water ponded during most of the growing season that is both (1) in or adjacent to the AA and (2) within 1 km is:		See definition of adjacent in OF2. If the AA's wetland vegetation extends beyond 1 km, include only the part within 1 km. "Ponded" means not flowing in rivers or streams. [Sens, WBF]
17			<0.01 hectare (about 10 m x 10 m).	0	
18			0.01 - 0.1 hectare.	0	
19			0.1 - 1 hectare.	1	
20			1 to 10 hectares.	0	
21			10 to 100 hectares.	0	
22			>100 hectares.	0	
23		Size of Largest Nearby Vegetated Tract or	The largest vegetated patch or corridor that includes the AA's vegetation plus alladjacent upland vegetation that is not lawn, row crops, heavily grazed lands, conifer plantation is:		See definition of adjacent in OF2. Use Google Earth Pro's polygon ruler (as described above). Exclude conifer plantations only if it is obvious that trees were planted in rows. [AM, PH, SBM, Sens]
24		Corridor	<0.01 hectare (about 10 m x 10 m).	0	
25			0.01 - 0.1 hectare.	0	
26			0.1 - 1 hectare.	0	
27			1 to 10 hectares.	0	
28			10 to 100 hectares.	0	
29			100 to 1000 hectares.	0	
30			>1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	1	

	A	В	С	D	E
	OF5	Distance to Large	The minimum distance from the edge of the AA to the edge of the closest <i>vegetated land</i> (but excluding row crops, lawn, conifer		To measure distance, use Google Earth Pro (Ruler > Line tool). The 375-ha criterion is from the
31		Vegetated Tract	plantation) larger than 375 hectares (about 2 km on a side), is:		Fundy Model Forest Project. [AM, PH, POL, SBM, Sens]
-			<50 m, and not separated from the 375-ha vegetated area by any width ofpaved roads, stretches of open water, row crops, bare ground,	1	
			lawn, or impervious surface. Or the AA itself contains >375 ha of vegetation. [This is often the answer in relatively undeveloped		
32	:		landscapes.]		
			<50 m, but completely separated from the 375-ha vegetated area by those features, and AA does not contain >375 ha of vegetation.	0	
33					
34			50-500 m, and no t separated.	0	
35			50-500 m, but separated by those features.	0	
36	,		0.5 - 5 km, and not separated.	0	
37	,		0.5 - 5 km, but separated by those features.	0	
38			None of the above (the closest patches or corridors which are that large are >5 km away).	0	
	OF6	Herbaceous Uniqueness	The AA's vegetation cover is >10% herbaceous* but uplands within 5 km have <10% herbaceous cover. If so, enter "3" and continue to	1	For this question only, consider moss to be herbaceous vegetation. Determine the score by viewing
			OF7. If not, consider:		aerial imagery in Google Earth after successively drawing or estimating the boundaries of the buffers
			The AA's vegetation cover is >10% herbaceous* but uplands within 1 km have <10% herbaceous cover. If so enter "2" and continue to		of 5 km, 1 km, and 100 m radius focused on the center of the AA. Circles of specified radius can be
			OF7. If not, consider: The AA's vegetation cover is >10% herbaceous* but uplands within 100 m of the wetland edge have <10% herbaceous cover. If so, enter		drawn in Google Earth Pro by clicking on the Ruler icon, then Circle in the pop-up menu. [AMv, PHv, POLv. SBMv. WBFv. WBNv]
			The AA'S vegeration cover is > 10% herbaceous but uplantus within 100 hr of the wetland edge have < 10% herbaceous cover. It so, enter "1".		POLV, SDIVIV, WDFV, WDIVVJ
			* NOTE: Exclude lawns, row crops, heavily grazed lands, forest, shrublands. Include moss as well as grasslike plants in this use of		
39			"herbaceous vegetation"]		
35		Woody Uniqueness	The AA's vegetation cover is >10% woody* but uplands within 5 km have <10% woody cover. If so, enter "3" and continue to OF8. If not,	1	See above. Do not consider conifer plantations to be forest if it is obvious that trees were planted in
	017	vvoody oniqueness	consider:		rows. [AMv, PHv, POLv, SBMv]
			The AA's vegetation is >10% woody* but uplands within 1 km have <10% woody cover. If so enter "2" and continue to OF8. If not,		
			consider:		
			The AA's vegetation is >10% woody* but uplands within 100 m of the wetland edge have <10% woody cover. If so, enter "1"		
40			[* NOTE: woody cover = trees & shrubs taller than 1 m.]		
	OF8	Local Vegetated Cover	Draw a 5-km radius circle measured from the center of the AA. Ignoring all permanent water in the circle, the percent of the remaining are		In Google Earth, draw the 5 km buffer and then estimate land cover percentages, or do GIS analysis
41		Percentage	that is wooded or unmanaged herbaceous vegetation (NOT lawn, row crops, bare or heavily grazed land, clearcuts, or conifer plantations)		of an appropriate land cover layer. [AM, PH, POL, SBM, Sens]
41	-		<5% of the land.	0	
42	_		5 to 20% of the land.	0	
43			20 to 60% of the land.	1	
44			20 to 60% of the land.	0	
45			>90% of the land. SKIP to OF10.	0	
46		Tons of Land Cause		0	[ALL CDM]
47	OF9	Type of Land Cover Alteration	Within the 5-km radius circle, and ignoring all permanent water, the land area that is bare or non-perennial cover is mostly:		[AM, SBM]
48		ordion	Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0	
49			Bare pervious surface, e.g., lawn, recent (<5 yrs ago) clearcut, dirt or gravel road, cropland, landslide, conifer plantation.	1	
50	OF10	Distance by Road to	Measured along the maintained road nearest the AA, the distance to the nearestpopulation center is:		"Population center" means a settled area with more than about 5 regularly- inhabited structures per
-	-	Nearest Population	<100 m.	0	square kilometer. In Google Earth Pro, click on the Ruler icon, then Path, and draw and measure the
51		Center	100 - 500 m.	0	route. [FAv, FRv, NRv, PH, PU, SBM, WBFv]
52			0.5-1 km.	0	
			1 - 5 km.	0	
54 55			>5 km.	1	
33	<u> </u>		z J Mili.	<u> </u>	

	А	В	С	D	E
-	OF11	Distance to Nearest	From the center of the AA, the distance to the nearest maintained public road (dirt or paved) is:		Determine this by viewing aerial imagery in Google Earth Pro and measuring with the Ruler>Line tool
56		Maintained Road	<10 m.	0	[AM, FAv, FRv, NRv, PH, PU, SBM, STR, WBN]
57			10 - 25 m.	0	-
58			25 - 50 m.	0	-
59			20 - 30 Hi. 50 - 100 m.	0	-
60			100 - 500 m.	0	-
62			>500 m.	1	-
02	OF12	Wildlife Access	Draw a circle of radius of 5 km from the center of the AA. If mammals and amphibians can move from the center of the AA to ALL other	'	Draw the 5 km circle in Google Earth Pro using the Circle tool and search for roads and wetlands
63		vviidine / teeess	separate wetlands and ponds located within the circle without being forced to cross pavement (any width), lawns, bare ground, and/or marine waters, mark 1= yes can move to all, 0= no. Change to blank if there are no other wetlands within 5 km.	0	within it, being alert for roads hidden under forest canopy. [AM, SBM, STR]
64	OF13	Distance to Ponded	The distance from the AA center to the closest (but separate) ponded water body visible in GoogleEarth imagery is:		In Google Earth Pro, zoom in closely to examine the surrounding landscape for ponds, lakes, and wetlands that appear to be permanently flooded. [AM, PH, SBM, Sens, WBF, WBN]
65		Water	<50 m, and not separated by any width of paved roads, stretches of open water, row crops, lawn, bare ground, or impervious surface.	0	- wettands that appear to be permanently hooded. [AM, PH, SBM, Sens, WBF, WBM]
66			<50 m, but completely separated by those features.	0	1
67			50-500 m, and not separated.	1	1
68			50-500 m, but separated by those features.	0	1
69			0.5 - 1 km, and not separated.	0	1
70			0.5 - 1 km, but separated by those features.	0	1
71			None of the above (the closest patches or corridors that large are >1 km away).	0	
72		Distance to Large Ponded Water	The distance from the AA center to the closest (but separate)non-tidal body of water that is ponded during most of the year and islarger than 8 hectares during most of a normal year is:		Determine this by viewing aerial imagery in Google Earth. [Sens, WBF, WBN]
73			<100 m.	0	
74			100 m - 1 km.	1	1
75			1 -2 km.	0	
76			2-5 km.	0	
77			5-10 km.	0	
78			>10 km.	0	
79	OF15	Tidal Proximity	The distance from the AA edge to the closest tidal water body (regardless of its salinity) is:		In Google Earth, measure the distance to the ocean (including Bay of Fundy) or tidal river, whichever is closer. If you need to see how far upriver a river is tidal, see the KMZ file provided with this
80			<100 m.	0	calculator for NS (NS Headtide). Points shown in those files are only an approximation, so local
81			100 m - 1 km.	0	information if available may be preferable. [FA, WBF]
82			1 - 5 km.	0	
83			5-10 km.	1	
84			10-40 km.	0	
85			>40 km.	0	
86	OF16	Upland Edge Contact	Select one:		[NR, SBM, Sens]
87			The AA has no upland edge (or upland is <1% of perimeter). The AA is entirely surrounded by (& contiguous with) other wetlands or water	0	
88			1-25% of the AA's perimeter abuts upland (including filled areas). The rest adjoins other wetlands or water that is mostly wider than the AA	0	
89			25-50% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0]
90			50-75% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0	_
91			More than 75% of the AA's perimeter abuts upland. Any remainder adjoins other wetlands or water that is mostly wider than the AA. This will be true for most assessments done with WESP-AC.	1	

	Α	В	С	D	E
00			Within 5 km downstream or downslope of the AA (select first true choice):		Contact local authories to determine if such maps exist. Where available, LiDAR imagery can
92		tidal Waters	Maps show Flood Zone or Flood Risk areas and there appears to be infrastructure vulnerable to river flooding not caused by tidal storm	0	provide finer elevational resolution useful for flood modeling. [WSv]
93			waps show ribod zone of ribod Risk areas and there appears to be initiastructure vulnerable to fiver flooding not caused by tidal storm surges.	U	
93			Maps show Flood Zone or Flood Risk areas, but infrastructure is absent or is not vulnerable to floods from a non-tidal river. In some cases	0	
94			levees, upriver dams, or other measures may partly limit damage or risk from smaller events.	Ü	
			Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure	0	
95			vulnerable to river flooding unrelated to tidal storm surges.		
			Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there is no infrastructure vulnerable	1	
96	OE10	Relative Elevation in	to river flooding unrelated to tidal storm surges. In Google Earth, enable the Terrain layer (lower left menu) and open the NS_Watersheds Secondary KMZ file that accompanies this		[FA, NR, Sens, SFSv, WCv, WSv]
	OF 10	Watershed	calculator. Then determine the AA's approximate elevation (bottom right, NOT the "eye alt"). Then move cursor around to determine the	0.22	[FA, IVR, SEIIS, SESV, WCV, WSV]
97			watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-min).	0.33	
91	OF19	Water Quality Sensitive	The AA is in a Protected Water Supply area (Designated Water Supply Area, Natural Watershed Municipal Surface Water Supply Area, or	0	If an ACCDC report is available for this AA, it also may contain such information. [NRv]
98	01 17	Watershed or Area	Municipal Water Supply Area) according to the provided KMZ overlay ("NS Protected Water Supply Areas"). Enter 1= yes, 0= no.	Ü	in any record report is available for this 70%, it also may contain sacir information. [1474]
70	OF20	Degraded Water	Sampling indicates a problem with concentrations of metals, hydrocarbons, nutrients, or other substances (excluding bacteria, acidic		May use existing data, or sample those waters as part of this wetland assessment. "Harmful" should
99		Upstream	water, high temperatures) being present at levels harmful to aquatic life or humans, and:		be evaluated with regard to current federal or provincial water quality standards. [AM, FA, FR, NRv,
100			The condition is present within the AA.	0	PRv, SRv, STR, WBF, WBN]
101			The condition is present in waters within 1 km that flowinto the AA, but has not been documented in the AA itself.	0	
			Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in either the AA or inflowing	0	
102			waters.		
100			Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the situation for nearly	1	
103	OF21	Degraded Water	all wetlands in this region. The problem described above is downslope from the AA, and:		May use existing data, or monitor waters as part of this wetland assessment. [NRv, PRv, SRv]
104	0121	Downstream	·		iviay use existing data, or mornitor waters as part or this wettaria assessment. [IVIV, FIV, SIV]
105			The condition is present within 1 km downslope and connected to the AA by a channel.	0	
			The condition is present within 5 km downslope and connected to the AA by a channel, or within 1 km but not connected to the AA by a	0	
106			channel. Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in either the AA or inflowing	0	
107			Sampling during bournow water periods and unles with right dubit (storms, showner) indicates no problems in ether the AA or inhowing waters.	U	
107			Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the situation for nearly	1	
108			all wetlands in this region.	•	
100	OF22	Wetland as a % of Its	From a topographic map and field observations, estimate the approximate boundaries of the catchment (CA) of the entire wetland of which		Topographic maps may be viewed online at the National Atlas of Canada (Toporama):
			the AA may be only a part. Then adjust those boundaries if necessary based on your field observations of the surrounding terrain, and/or		http://atlas.gc.ca/toporama/en/index.html [NR, PR, Sens, SR, WS]
		(Catchment)	by using procedures described in the Manual. Divide the area of the wetland (not just the AA) by the approximate area of its catchment		
100			excluding the area of the wetland itself. When doing the calculation, if ponded water is adjacent to the wetland, include that in the wetland area. The result is:		
109			<0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	0	
110			0.01 to 0.1.	1	
111			0.1 to 1.	0	
112			>1 (wetland is larger than its catchment (e.g., wetland with flat surrounding terrain and no inlet, or is entirely isolated by dikes, or is a raised	0	
113			bog).		
	OF23		The proportion of the AA's contributing area (measured to no more than 1000 m upslope) that is comprised of buildings, roads, parking lots		[FA, INV, NRv, PRv, SRv, STR, WCv, WSv]
114		the Contributing Area	other pavement, exposed bedrock, landslides, and other mostly-bare surface is about :		
115			<10%.	1	
116			10 to 25%.	0	
117			>25%.	0	

	A	В	С	D	E
0	F24	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as		[NRv, PRv, SRv, WSv]
			indicated by the following:		
			(a) input channel is present,		
			(b) input channels have been straightened,		
			(c) upslope wetlands have been ditched extensively,		
			(d) land cover is mostly non-forest, (e) CA slopes are steep, and/or		
			(f) most CA soils are shallow (bedrock near surface) and/or have high runoff coefficients.		
			This statement is:		
118					
119			Mostly true.	0	
120			Somewhat true.	0	
121			Mostly untrue.	1	
122 O	F25	Aspect	The overland flow direction of most surface water (in streams, rivers, or runoff) that enters the AA is:		[AM, NR, SFS, WC, WS]
123		ŀ	Northward (N, NE). north-facing contributing area.	1	
124		ŀ	Southward (S, SW), south-facing contributing area.	0	
125			Other (E, SE, W, NW), or no detectable uphill slope or input channel (flat).	0	
0	F26	Internal Flow Distance	The horizontal flow distance from the wetland's inlet to outlet is:		Identify inlets and outlets, if any, from topographic maps (use elevations to determine which are inlets
126		(Path Length)			and which are outlets) and augment by field inspection. With the Provincial Landscape Viewer, select
127		•	<10 m.	0	Nova Scotia Topo as the Basemap. Also enable the layer Forestry>WAM Predicted Flow. Then
128			10 - 50 m.	0	measure the inlet-outlet distance. [NR, OE, PR, SR, WS]
129			50 - 100 m.	0	
130			100 - 1000 m.	0	
131			1- 2 km.	0	
132			>2 km, or wetland lacks an inlet and outlet.	1	
0	F27		In Google Earth, open the KMZ file that accompanies this calculator, called NS_GrowingDegreeDays. Place your cursor over the AA and	2192	This layer was provided by Dr. Dan McKenney of the Canadian Forest Service [AM, CS, FR, INV,
133			left-click. From the pop-up window, enter the GRIDCODE number in the next column.	2172	NR, OE, PH, PR, Sens, SR, WBF, WCv, WS]
134 ^O	F28	Fish Access or Use	According to agency biologists and/or your own observations, the AA. [Mark just the first choice that is true.]:		Regarding the last choice, if uncertain if an AA is fishless, consider the possibility its waters have been stocked. [AM, FA, FR, INV, WBF, WBN]
			Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. Go to Provincial Landscape	0	Decit Stocked. [Alla, 174, 114, 1144, WDI , WDI]
			Viewer>Wildlife>Significant Habitat>Species at Risk. Contact local fishery biologists, review the ACCDC report, and visit these websites:		
135			http://www.salmonatlas.com/atlanticsalmon/canada-east/index.1.html http://atlanticsalmonfederation.org/rivers/introduction.html		
			Has not been documented to support Atlantic salmon rearing and/or spawning, but is connected to nearby waters likely to contain Atlantic	0	
136			salmon or other anadromous species or eels and is probably accessed by those during some conditions.		
137			Is probably is not accessed by any anadromous fish species but is known or likely to haveother fish at least seasonally.	0	
138			Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	1	
		•	Within the past 10 years, in the AA (or in its adjoining waters or wetland), qualified observers have documented[mark all applicable]:		Request information from ACCDC and/or conduct your own survey at an appropriate season using an
139		Concern			approved protocol. For birds, also check eBird.org. NOTE for NS: If your WESP-AC is being completed for a Wetland Alteration Application to NS-ECC, your ACCDC results and any taxon-
			Presence of one or more of the plant species listed in the Plants_Rare worksheet of the accompanying Supplnfo file, or the AA is within a	0	specific survey results must be submitted along with your WESP-AC results, and application. [AMv,
			mapped Atlantic Coastal Plain Flora Buffer (go to Provincial Landscape Viewer> Wildlife> Special Management Practice Zones).		EC, PHv, POLv, SBMv, Sens, WBFv, WBNv]
140			D	- 0	
141			Presence of one or more of the amphibian or reptile species (AM) of conservation concern as listed in the Wildlife_Rare worksheet of the accompanying Supplnfo file.	0	
141		ŀ	Presence of one or more of the waterbird species (WBF, WBN) of conservation concern as listed in the Wildlife_Rare worksheet of the	0	
142			accompanying Supplnfo file.	J	
			Presence of one or more of the nesting songbird or raptor species (SBM) of conservation concern as listed in the Wildlife_Rare	0	
143			worksheet of the accompanying Supplinfo file, during their nesting season (May-July for most species).		
			None of the above, or no data.	1	

	Α	В	С	D	E
145		Important Bird Area (IBA)	In Google Earth, open the KMZ file that accompanies this calculator, called IBAs_Canada. The AA is all or part of an officially designated IBA. Enter 1= yes, 0= no.	0	The source of this layer, which should be checked periodically for updates, is: http://www.ibacanada.com/mapviewer.jsp?lang=EN [SBMv, WBFv, WBNv]
146		Black Duck Nesting Area	In Google Earth, open the KMZ file that accompanies this calculator, called BlackDuck. Adjust its alignment and opacity. Determine the predicted density (pairs per 25 sq. km) of nesting American Black Duck in the AA's vicinity: <10 (enter 0), 10-20 (enter 1), 20-30 (enter 2), >30 (enter 3). If outside of region shown in map, change toblank.	0	This was provided by Dr. David Leske. [WBNv]
147		Wintering Deer or Moose Concentration Areas	If AA is on private land with no information, change toblank (not 0). Otherwise: With the Provincial Landscape Viewer, for Wintering Moose, go to Wildlife> Significant Habitat. For Mainland Moose Concentration Areas, go to Wildlife> Special Management Practice Zones Enter: yes= 1, no= 0.	0	[SBM]
148		Other Conservation Designation	The AA is all or part of an area designated by government, First Nations, or the Nature Conservancy of Canada (NCC) for its exceptional ecological features or highly intact natural conditions. With Provincial Landscape Viewer, see Protected Areas. Enter: yes= 1, no= 0. If uncertain, consult NCC and agencies for more recent information.	0	See: https://novascotia.ca/parksandprotectedareas/plan/interactive-map/ [PU]
149		Conservation Investment	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance the wetland (excluding mitigation wetlands). Ask the property owner. Enter: yes= 1, no= 0. If no information, change tollank (not 0).	0	[PU]
150		Mitigation Investment	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere. Ask the property owner. Enter: yes= 1, no= 0. If no information, change to blank .	0	[PU]
151		Sustained Scientific Use	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area. Ask the property owner. Enter: yes= 1, no= 0. If no information, change toblank.	0	[PU]
152		Calcareous Region	The AA is NOT in a subregion that has been heavily exposed to acid precipitation. Enter "1" if true (green or yellow in map in Appendix A o the Manual). Enter "0" if false. If no information, change toblank.	0	[AM, FA, FR, INV, PH]
153		Ownership	Select the ONE ownership that covers the most of the AA. In Google Earth, open KMZ file called NS_CrownlandsUse more recent information if available.		"Private lands" may include those owned or leased by non-governmental organizations, e.g., charitable conservation land trusts, DUC, TNC. [PU, STR]
154			New timber harvest, roads, mineral extraction, and intensive summer recreation (e.g., off-road vehicles) are permanently prohibited. Includes many publicly-owned Protected Lands, and private lands under long-term (30+ year) legal agreements to maintain nearly-unaltered conditions.	0	
155			Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are allowed.	1	
156	-		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable or not) is in place.	0	
157			Ownership is private and owner does not allow access, or access permission unknown, and not a conservation easement.	0	

	A	В	С	D	E
	Date: Septemeber 14, 2022		Site Identifier: WL7	Investiga	tor: Darcy Kavanagh & Jordan Davis
1					

Form F (Field). Non-tidal Wetland Data Form. WESP-AC version 2 for Nova Scotia. DIRECTIONS: Walk for no less than 10 minutes from the wetland edge towards its core, in the part of the AA that is proposed for alteration. If no alteration is proposed, walk in a portion that appears to be most representative of the wetland overall. Walk only where it is safe and legal to do so. Conduct the assessment only after reading the accompanying Manual and the Explanations column of the data form. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgable persons, and/or reviewing aerial imagery. For most wetlands, completing this field data form will require 1-2 hours on a site. For a list of functions to which each question pertains, see the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Manual. Codes for functions and values are: WS= Water Storage & Delay, SFS= Stream Flow Support, WC= Water Cooling, SR= Sediment Retention & Stabilisation, PR= Phosphorus Retention, NR= Nitrate Removal, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate Habitat, FA= Anadromous Fish Habitat, FR= Resident Fish Habitat, AM= Amphibian & Reptile Habitat, WBF= Feeding Waterbird Habitat, WBN= Nesting Waterbird Habitat, SBM= Songbird, Raptor, & Mammal Habitat, POL= Pollinator Habitat, PH= Native Plant Habitat, PU= Public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= Stressors.

3	#	Indicators	Condition Choices	Data	Definitions/Explanations
4	F1	Wetland Type	Follow the key below and mark the ONE row that best describes MOST of the vegetated part of the AA:		Ericaceous shrubs are ones in the heather family (Ericaceae). Most have leathery evergreen leaves. They include rhododendron, azalea, swamp laurel, leatherleaf, Labrador tea, and others. Most require
5			A. Moss and/or lichen cover more than 25% of the ground. Often dominated by ericaceous shrubs (e.g., Labrador tea) or other acid-tolerant plants (e.g., bog cranberry, pitcher plant, sundew, orchids). Substrate is mostly undecomposed peat. Choose between A1 and A2 and mark the choice with a 1 in their adjoining column. Otherwise go to B below.		acidic soil. Although not in the family Ericaceae, sweetgale (<i>Myrica gale</i>) should be counted also. [AM, CS, FA, FR, INV, NR, OE, PH, Sens, SFS, WBF, WBN]
6			A1. Surface water is usually absent or, if present, pH is typically <4.5 and conductivity is usually <100 µS/cm (<64 ppm TDS). Trees are absent or nearly so. Sedge cover usually sparse or absent but cottongrass and/or lichen cover may be extensive, as well as cloudberry, lingonberry, sheep laurel, and a sedge (<i>Carex rariflora</i>). Wetland surface and surrounding landscape are seldom sloping and wetland often is domed (convex). Inlet and outlet channels are usually absent. If known, pH of peat is <4.0.	0	
7			A2. Not A1. Surface water, if present, has pH typically >4.5 and conductivity is usually >100 μS/cm (>64 ppm TDS). Sedge cover is usually extensive, and/or tree and tall shrub cover is extensive. Sometimes at toe of slope or edge of water body. An exit channel is usually present. Wetter than A1 and peat depth may be shallower (<2 m).	1	
8			B. Moss and/or lichen cover less than 25% of the ground. Soil is mineral or decomposed organic (muck). Choose between B1 and B2 and mark the choice with a 1 in their adjoining column:		
9			B1. Trees and shrubs taller than 1 m comprise more than 25% of the vegetated cover. Surface water is mostly absent or inundates the vegetation only seasonally (e.g., vernal pools or floodplain).	0	
10			B2. Not B1. Tree & tall shrubs comprise less than than 25% of the vegetated cover. Vegetation is mostly herbaceous, e.g., cattail, bulrush, burreed, pond lily, horsetail. Surface water may be extensive and fluctuates seasonally, being either persistent or drying up partly or entirely.	0	
11	The Aninclude "adjac describ	A should also include pa e the open water part ac cent " is used synonym bed features along their	the AA should include all persistent waters in ponds smaller than 8 hectares (-283 m on a side) that are adjacent to the AA. art of the water area of adjacent ponded water larger than 8 ha and adjacent rivers wider than 20 m. Specifically, the AA should djacent to wetland vegetation and equal in width to the average width of that vegetated zone. Throughout this data form, ously with abutting, adjoining, bordering, contiguous and means no upland (manmade or natural) completely separates the directly shared edge. Features joined only by a channel are not necessarily considered to be adjacent a large portion of features do not have to be hydrologically connected in order to be considered adjacent.		
12		Wetland Types - Adjoining or Subordinate	If the AA is smaller than 1 ha, mark all other types that occupy more than 1% of the vegetated AA. If the AA is larger than 1 ha, mark all other types which are within or adjacent to the AA and occupy more than 1 ha, as visible from the AA or as interpreted from aerial imagery. Do not mark again the type marked in F1.		1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m, 1000 m by 10 m, or similar. [AM, INV, SBM, WBF]
13]		A1.	0	
14	4		A2.	0	
15 16	-		B1. B2.	0	
10			02.	-	

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	A	В	C	D	E
	F3	Woody Height & Form	Following EACH row below, indicate with a number code the percentage of the living vegetation in the AA which is occupied by that feature		Deciduous shrubs in this region usually include buttonbush, Labrador tea, bayberry (Morella),
		Diversity	(6 if >95%, 5 if 75-95%, 4 if 50-75%, 3 if 25-50%, 2 if 5-25%, 1 if <5%, 0 if none). If the vegetated part of the AA is largely herbaceous (non-		huckleberry, cranberry, cloudberry, sweetgale, alder, willow, birch, ash, dogwood, and a few others. If
17			woody) vegetation, these percentages should not sum to 100%.		you assigned a code of 3 or higher to any of the first four choices and the ground cover beneath the
18			coniferous trees (may include tamarack) taller than 3 m.	2	trees/shrubs is <25% moss, then question F1 might be "B1". [CS, INV, NR, PH, POL, SBM, Sens]
19			deciduous trees taller than 3 m.	4	
20			coniferous or ericaceous shrubs or trees 1-3 m tall not directly below the canopy of trees.	2	
21			deciduous shrubs or trees 1-3 m tall not directly below the canopy of trees.	1	
22			coniferous or ericaceous shrubs <1 m tall not directly below the canopy of taller vegetation.	2	
23			deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	1	
24	Note :	If none of top 4 rows in	n F3 was marked 2 or greater, SKIP to F9 (N fixers).		
25	F4	Dominance of Most	Determine which two woody plant species comprise the greatest portion of the low (<3 m) woody cover . Then choose one:		[PH, POL, SBM, Sens]
26		Abundant Shrub	those species together comprise > 50% of such cover.	1	
27		Species	those species together do not comprise > 50% of such cover.	0	
	F5	Woody Diameter	Mark ALL the types that comprise >5% of the woody canopy cover in the AA or >5% of the wooded areas (if any) along its upland edge		Estimate the diameters at chest height. If small-diameter trees are overtopped (shaded) by larger
28		Classes	(perimeter). The edge should include only the trees whose canopies extend into the AA.		ones, visualise a "subcanopy" at the average height of the smaller-dbh trees, to serve as a basis for the
29			coniferous, 1-9 cm diameter and >1 m tall.	1	minimum 5% canopy requirement in this question. The trees and shrubs need not be wetland species.
30			broad-leaved deciduous 1-9 cm diameter and >1 m tall.	1	[AM, CS, POL, SBM, Sens, WBN]
31			coniferous, 10-19 cm diameter.	1	
			broad-leaved deciduous 10-19 cm diameter.	1	
32			coniferous, 20-40 cm diameter.	1	
34			broad-leaved deciduous 20-40 cm diameter.	0	
35			coniferous, >40 cm diameter.	1	
36			broad-leaved deciduous >40 cm diameter.	0	
37	F6	Height Class	Follow the key below and mark the ONE row that best describes MOST of the AA:		[AM, INV, NR, PH, SBM, Sens]
37		Interspersion	A. Neither the vegetation taller than 1 m nor the vegetation shorter than that comprise >70% of the vegetated part of the AA. They each		
			comprise 30-70%. Choose between A1 and A2 and mark the choice with a 1 in the adjoining column. Otherwise go to B below.		
38			, , ,		
39			A1. The two height classes are mostly scattered and intermixed throughout the AA.	1	
40			A2. Not A1. The two height classes are mostly in separate zones or bands, or in proportionately large clumps.	0	
			B. Either the vegetation shorter than 1 m comprises >70% of the vegetated part of the AA, or the vegetation taller than that does. One size		
41			class might even be totally absent. Choose between B1 and B2 and mark the choice with a 1 in the adjoining column:		
42			B1. The less prevalent height class is mostly scattered and intermixed within the prevalent one.	0	1
			B2. Not B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is completely	0	1
43			absent.		
44	F7	Large Snags (Dead	The number of large snags (diameter >20 cm) in the AA plus adjacent upland area within 10 m of the wetland edge is:		Snags are dead standing trees that often (not always) lack bark and foliage. Include only ones that are
45		Standing Trees)	None, or fewer than 8/ hectare which exceed this diameter.	1	at least 2 m tall. [POL, SBM, WBN]
46			Several (>8/hectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km.	0	
47			Several (>8/hectare) but above not true.	0	
48	F8	Downed Wood	The number of downed wood pieces longer than 2 m and with diameter >10 cm, and not persistently submerged, is:		Exclude temporary "burn piles." [AM, INV, POL, SBM]
49			Few or none that meet these criteria.	1	
50			Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria.	0	
-	F9	N Fixers	The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa, other legumes)		Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
51			is:		
52			<1% or none.	0	1
53			1-25% of the vegetated cover, in the AA or along its water edge (whichever has more).	1	
54			25-50% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	1
55			50-75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	1
56			>75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	1

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	Α	В	С	D	E
H	F10	Sphagnum Moss	The cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured by taller		Exclude moss growing on trees and rocks. [CS, PH]
57		Extent	sedges and other plants rooted in it, is:		
58			<5% of the vegetated part of the AA.	0	
59			5-25% of the vegetated part of the AA.	0	
60			25-50% of the vegetated part of the AA.	1	
61			50-95% of the vegetated part of the AA.	0	
62			>95% of the vegetated part of the AA.	0	
	F11	% Bare Ground &	Consider the parts of the AA that lack surface water at the driest time of the growing season. Viewed from directly above the ground layer, the		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that is
63	• •	Thatch	predominant condition in those areas at that time is:		present under a tree or shrub canopy should be counted. Boulders count as bare ground. Wetlands
0.5			Little or no (<5%) bare ground is visible between erect stems or under canopy anywhere in the vegetated AA. Ground is extensively	1	with mineral soils and that are heavily shaded or are dominated by annual plant species tend to have
			blanketed by dense thatch, moss, lichens, graminoids with great stem densities, or plants with ground-hugging foliage.		more extensive areas that are bare during the early growing season. [AM, EC, INV, NR, OE, POL, PR,
64					SBM, Sens]
Ħ			Slightly bare ground (5-20% bare between plants) is visible in places, but those areas comprise less than 5% of the unflooded parts of the	0	
65			AA.		
			Much bare ground (20-50% bare between plants) is visible in places, and those areas comprise more than 5% of the unflooded parts of the	0	
66			AA.		
67			Other conditions.	0	
68			Not applicable. Surface water (either open or obscured by emergent plants) covers all of the AA all the time.	0	
	F12	Ground Irregularity	Imagine the AA without any living vegetation. Excluding the portion of the AA that is always under water, the number of hummocks, small		The depressions may be of human or natural origin. [AM, EC, INV, NR, PH, POL, PR, SBM, SR, WS]
			pits, raised mounds, animal burrows, ruts, gullies, natural levees, microdepressions, and other areas of peat or mineral soil that are raised or		
69			depressed >10 cm compared to most of the area within a few meters surrounding them is:		
70			Few or none (minimal microtopography; <1% of the land has such features, or entire AA is always water-covered).	0	
71			Intermediate.	0	
72			Several (extensive micro-topography).	1	
73	F13	Upland Inclusions	Within the AA, inclusions of upland are:		[AM, NR, SBM]
74			Few or none.	0	
75			Intermediate (1 - 10% of vegetated part of the AA).	0	
76			Many (e.g., wetland-upland "mosaic", >10% of the vegetated AA).	1	
70	F14	Soil Texture	In parts of the AA that lack persistent water, the texture of soil in the uppermost layer is mostly: [To determine this, use a trowel to check in	-	[CS, NR, OE, PH, PR, Sens, SFS, WS]
77	. 17	JOIL LEVINIG	at least 3 widely spaced locations, and use the soil texture key (in Appendix A of the Manual).]		lootuut ortuutut uu onistot mol
//			Loamy: soils that may contain a little fine grit and do not make a "ribbon" longer than 2 cm when moistened, rolled, squeezed, and extended	0	
78			between thumb and forefinger.	J	
, 5			Fines: includes silt, clay, silt, soils that make a ribbon longer than 2 cm when moistened, rolled, squeezed, and extended between thumb and	0	
79			forefinger.	-	
80			Deep Peat, to 40 cm depth or greater.	0	
81			Shallow Peat or organic <40 cm deep.	1	
			Coarse: includes sand, loamy sand, gravel, cobble, soils that do not make a ribbon when moistened, rolled, squeezed, and extended	0	
82			between thumb and forefinger.		
		Shorebird Feeding	During any 2 consecutive weeks of the growing season, the extent of mudflats, bare unshaded saturated areas not covered by thatch, and		This addresses needs of many but not all migratory sandpipers, plovers, and related species. [WBF]
83		Habitats	unshaded waters shallower than 6 cm is: [Include also any area that is adjacent to the AA.]		
84			None, or <100 sq. m.	1	
85			100-1000 sq. m.	0	
86			1000 – 10,000 sq. m.	0	
87			>10,000 sq. m.	0	
88	F16	Herbaceous % of	In aerial ("ducks eye") view, the maximum annual cover of herbaceous vegetation (all non-woody plants except moss) is:		[AM, WBF, WBN]
00		Vegetated Wetland	<5% of the vegetated part of the AA or <0.01 hectare (whichever is less). Mark "1" here and SKIP to F20 (Invasive Plant Cover).	0	
89			Now of the regulated part of the Art of No. of freeders (whilehever is less). Walk I here and skir to 120 (Illivasive Fialli Cover).		
90			5-25% of the vegetated part of the AA.	0	
91			25-50% of the vegetated part of the AA.	0	
92			50-95% of the vegetated part of the AA.	1	
93			>95% of the vegetated part of the AA.	0	
23			- 7070 of the regulated part of the FET.		

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	Α	В	С	D	E
94	F17	Forb Cover	Within parts of the AA having herbaceous cover (excluding SAV), the areal cover of forbs reaches an annual maximum of:		Forbs are flowering plants. Do not include grasses, sedges, cattail, other graminoids, ferns, horsetails,
95			<5% of the herbaceous part of the AA.	0	or others that lack showy flowers. [POL]
96			5-25% of the herbaceous part of the AA.	0	
97			25-50% of the herbaceous part of the AA.	1	
98			50-95% of the herbaceous part of the AA.	0	
99			>95% of the herbaceous part of the AA.	0	
100	F18	Sedge Cover	Sedges (Carex spp.) and cottongrass (Eriophorum spp.) occupy:		[CS]
101			<5% of the vegetated area, or none.	0	
102			5-50% of the vegetated area.	1	
103			50-95% of the vegetated area.	0	
104			>95% of the vegetated area.	0	
105		Dominance of Most Abundant Herbaceous	Determine which two herbaceous species comprise the greatest portion of the herbaceous cover (excluding mosses and floating-leaved aquatic plants). Then choose one of the following:		For this question, include ferns as well as graminoids and forbs. [EC, INV, PH, POL, Sens]
106		Species	those species together comprise > 50% of the areal cover of herbaceous plants at any time during the year.	1	
107			those species together do not comprise > 50% of the areal cover of herbaceous plants at any time during the year.	0	
108	F20	Invasive Plant Cover	How extensive is the cover of invasive plant species in the AA? For species, see Plants_invasive worksheet in the accompanying Supplnfo file.		[EC, PH, POL, Sens]
109			invasive species appear to be absent in the AA, or are present only in trace amount (a few individuals).	1	
110			invasive species are present in more than trace amounts, but comprise <5% of herbaceous cover (or woody cover, if the invasives are woody).	0	
111			invasive species comprise 5-20% of the herb cover (or woody cover, if the invasives are woody).	0	
112			invasive species comprise 20-50% of the herb cover (or woody cover, if the invasives are woody).	0	
113			invasive species comprise >50% of the herb cover (or woody cover, if the invasives are woody).	0	
114	F21	Invasive Cover Along Upland Edge	Along the wetland-upland boundary, the percent of the upland edge (within 3 m upslope from the wetland) that is occupied by invasive plant species is:		If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an exotic species, assume the unidentified plant to also be exotic. If vegetation is so senesced that exotic
115			none of the upland edge (invasives apparently absent), or AA has no upland edge.	1	species cannot be identified, answer "none". [PH, STR]
116			some (but <5%) of the upland edge.	0	
117			5-50% of the upland edge.	0	
118			most (>50%) of the upland edge.	0	
119	F22	Fringe Wetland	During most of the year, open water within or adjacent to the vegetated part of the wetland is much wider than the maximum width of the vegetated zone within the wetland. Enter "1" if true, "0" if false.	0	[WBF, WBN, WCv]
120	F23	Lacustrine Wetland	The vegetated part of the AA is within or adjacent to a body of non-tidal standing open water whose size exceeds 8 hectares during most of a normal year.	0	[FR, PR, PU, WBF, WBN]
		% of AA Without Surface Water	The percentage of the AA that never_contains surface water during an average year (that is, except perhaps for a few hours after snowmelt or rainstorms), but which is still a wetland, is:		1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m, 1000 m by 10 m, or similar. [AM, FA, FR, INV, NR, PH, PR, SBM, Sens, SRv, WBF, WBN, WC]
121		Canado Water	<1% . In other words, all or nearly all of the AA is covered by water permanently or at least seasonally.	0	
123			1-25% of the AA, or <1% but >0.01 ha never contains surface water.	0	
124			25-50% of the AA never contains surface water.	0	1
125			50-75% of the AA never contains surface water.	1	
123			75-99% of the AA never contains surface water, OR >99% and there is at least one persistently ponded water body larger than 1 ha in the	0	
126			AA.		
			99-100%. AND there is no persistently ponded water body larger than 1 ha within the AA. Enter "1" and SKIP to F42 (Channel Connection).	0	
127					

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A	В	C	D	E
F25	% of AA with	Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during the driest		If you are unable to determine the condition at the driest time of year, ask the land owner or neighbors
	Persistent Surface	times of a normal year, i.e., when the AA's surface water is at its lowest annual level. At that time, the percentage of the AA that still contains		about it if possible. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat.
128	Water	surface water is:		[AM, CS, FA, FR, INV, NR, POL, PR, SBM, WBF, WBN]
129		None. The AA dries up completely (no water in channels either) or never has surface water during most years. SKIP to F27.	0	1
130		1-20% of the AA.	0	1
131		20-50% of the AA.	1	1
132		50-95% of the AA.	0	
133		>95% of the AA. True for many fringe wetlands.	0	
F26	% of Summertime	At mid-day during the warmest time of year, the area of surface water <u>within</u> the AA that is shaded by vegetation and other features that are		[FA, WC]
134	Water that Is Shaded	<u>within</u> the AA at that time is:		
135		<5% of the water is shaded, or no surface water is present then.	1	
136		5-25% of the water is shaded.	0	
137		25-50% of the water is shaded.	0	
138		50-75% of the water is shaded.	0	
139		>75% of the water is shaded.	0	
140 F27	% of AA that is	The percentage of the AA's area that is between the annual high water and the annual low water (surface water) is:		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not
141	Flooded Only	None, or < 0.01 hectare and < 1% of the AA. SKIP to F29.	0	fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial)
142	Seasonally	1-20% of the AA, or <1% but >0.01 ha.	1	plant species. In riverine systems, the extent of this zone can be estimated by multiplying by 2 the bankful height and visualising where that would intercept the land along the river. [CS, FA, INV, NR,
143		20-50% of the AA.	0	OE, PH, SR, WBF, WBN, WS]
144		50-95% of the AA.	0	
145		>95% of the AA.	0	1
146 F28	Annual Water	The annual fluctuation in surface water level within most of the parts of the AA that contain surface water at least temporarily is:		Look for flood marks (see above). Because the annual range of water levels is difficult to estimate
147	Fluctuation Range	<10 cm change (stable or nearly so).	0	without multiple visits, consider asking the land owner or neighbors about it. [AM, CS, INV, NR, OE,
148		10 cm - 50 cm change.	1	PH, PR, SR, WBN, WS]
149		0.5 - 1 m change.	0	
150		1-2 m change.	0	†
151		>2 m change.	0	
Is the	AA plus adjacent ponde	d water smaller than 0.01 hectare (about 10m x 10m, or 1m x 100 m)? If so, enter "1" in column D andSKIP TO F42	0	
152 (Con				
F29	Predominant Depth	During most of the time when surface water is present during the growing season, its depth, averaged over the entire inundated part of the		If a boat is unavailable, estimate this by considering wetland size and local topography. Or if timing
153	Class	AA, is:		and safety allow, depths may be measured by drilling through winter ice. This question is asking about
154		<10 cm deep (but >0).	0	the spatial median depth that occurs during most of that time, even if inundation is only seasonal or
155		10 - 50 cm deep.	1	temporary. If inundation in most but not all of the wetland is brief, the answer will be based on the depth of the most persistently inundated part of the wetland. Include surface water in channels and ditches as
156		0.5 - 1 m deep.	0	well as ponded areas. [CS, FA, FR, INV, OE, PH, PR, Sens, SFS, SR, WBF, WBN, WC]
157		1 - 2 m deep.	0	
158	<u> </u>	>2 m deep. True for many fringe wetlands.	0	
159 F30	Depth Classes -	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. [FR, INV,
160	Evenness of	One depth class that comprises >90% of the AA's inundated area (use the classes in the question above).	0	WBF, WBN]
161	Proportions	One depth class that comprises 50-90% of the AA's inundated area.	0]
162		Neither of above. There are 3 or more depth classes and none occupy >50%.	1	
F31	% of Water That Is	During most times when surface water is present, the percentage that is (1) ponded (stagnant, or flows so slowly that fine sediment is not		Nearly all wetlands with surface water have some ponded water. [AM, CS, INV, NR, OE, PR, Sens, SR WBF, WBN, WC, WS]
_	Ponded (not Flowing)	held in suspension) AND (2) is likely to be deeper than 0.5 m in some places, is:		wdi, wdi, wc, wsj
163			0	war, war, waj
163 164		45% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34. 5-30% of the water.	0	1101, 1101, 110, 110j
163 164 165		<5% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34.	0 1 0	indi, noi, no, noj
163 164		<5% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34. 5-30% of the water.	1	THE T, WENT, WE, WEJ

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	Α	В	С	D	E
	F32	Ponded Open Water -	During most of the growing season, the largest patch of open water that is ponded and is in or bordering the AA is >0.01 hectare (about 10	0	Open water is not obscured by vegetation in aerial ("duck's eye") view. It includes vegetation floating
		Minimum Size	m by 10 m) and mostly deeper than 0.5 m. If true enter "1" and continue, If false, enter "0" and SKIP to F41 (Floating Algae & Duckweed).		on the water surface or entirely submersed beneath it.
169					
	F33	% of Ponded Water	In ducks-eye aerial view, the percentage of the ponded water that is open (lacking emergent vegetation during most of the growing season,		[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]
170		that is Open	and unhidden by a forest or shrub canopy) is:		
171			None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	0	
172			1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	0	
173			5-30% of the ponded water.	0	
174			30-70% of the ponded water.	0	
175			70-99% of the ponded water.	1	
176			100% of the ponded water.	0	
	F34	Width of Vegetated	At the time during the growing season when the AA's water level is lowest, the average width of vegetated area <u>in the AA</u> that separates		"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may
177		Zone within Wetland	adjoining uplands from open water within the AA is:		include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR,
178			<1 m.	0	SBM, Sens, SR, WBN]
179			1 - 9 m.	0	
180			10 - 29 m.	1	
181			30 - 49 m.	0	
182			50 - 100 m.	0	
183			> 100 m, or open water is absent at that time.	0	
	F35	Flat Shoreline Extent	During most of the part of the growing season when water is present, the percentage of the AA'swater edge length that is nearly flat (a		If several isolated pools are present in early summer, estimate the percent of their collective shorelines
184		ridi onorciine Extent	slope less than about 5% measured within 5 m landward of the water) is:		that has such a gentle slope. [SR, WBN]
185			<1% of the water edge.	0	
186			1-25% of the water edge.	1	
187			25-50% of the water edge.	0	
188			50-75% of the water edge.	0	
189			>75% of the water edge.	0	
189	-24	Debugt Emergente	· ·	0	Emergent variation is between a plants whose stome are partly above and partly below the water
190	F36	Robust Emergents	The percentage of the emergent vegetation cover in the AA that is cattail (<i>Typha</i> spp.), common reed (<i>Phragmites</i>), or tall (>1m) bulrush		Emergent vegetation is herbaceous plants whose stems are partly above and partly below the water surface during most of the time water is present. [WBN]
191			<1% of the emergent vegetation, or emergent vegetation is absent. SKIP to F38.	0	surface during most of the time water is present. [WDN]
191			1-25% of the emergent vegetation.	0	
193			25-75% of the emergent vegetation.	1	
193			>75%, of the emergent vegetation.	0	
194	27	Interspersion of	During most of the part of the growing season when water is present, the spatial patternof emergent vegetation within the water is mostly:	0	[AM, FA, FR, INV, NR, OE, PH, PR, SBM, SR, WBF, WBN]
195	-31	Emergents & Open	builing most of the part of the growing season when water is present, the spatial patternor emergent vegetation within the water is mostly.		[MIN, FM, FK, 1199, 196, CE, FFI, FK, SONI, SK, WOF, WON]
196		Water	Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water.	0	
197		Water	Intermediate.	0	
197			Clumped. More than 70% of such vegetation is in bands along the wetland perimeter or is clumped at one or a few sides of the surface water	1	
198			comped. More than 70% of such vegetation is in bands along the wettand perimeter of is comped at one of a few sides of the surface water area.	1	
	F38	Persistent Deepwater	If the deepest patch of surface water (flowing or ponded) in or directly adjacent to the AA is mostly deeper than 0.5 m for >2 weeks during the	0	
		Area	growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection).		
199	-00				Enths of the section
	F39	Non-vegetated	During most of the growing season and in waters deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians that is		For this question, consider only the wood that is at or above the water surface. Estimates of underwater
200		Aquatic Cover	provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is:		wood based only on observations from terrestrial viewpoints are unreliable so should not be attempted. [AM, FA, FR, INV]
201			Little or none.	0	[[[[]]]]
202			Intermediate.	0	
203			Extensive.	0	
	F40	Isolated Island	The AA contains (or is part of) an island or beaver lodge within a lake, pond, or river, and is isolated from the shoreby water depths >1 m	0	[WBN]
			on all sides during an average June. The island may be solid, or it may be a floating vegetation mat that is sufficiently large and dense to		
204			support a waterbird nest.		
	F41	Floating Algae &	At some time of the year, mats of algae and/or duckweed are likely to cover >50% of the AA's otherwise-unshaded water surface, or blanket	0	[EC, PR, WBF]
205		Duckweed	>50% of the underwater substrate. If true, enter "1" in next column. If untrue or uncertain, enter "0".		
200					

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	Α	В	С	D	E
	F42	Channel Connection &	The most persistent surface water connection (outlet channel or pipe, ditch, or overbank water exchange) between the AA and a downslope		Consider the connection regardless of whether the surface water is frozen. The "downslope stream
		Outflow Duration	stream network is: [Note: If the AA represents only part of a wetland, answer this according to whichever is the least permanent surface		network" could consist of ditches, rivers, ponds, or lakes which eventually connect to the ocean. If this
			connection: the one between the AA and the rest of the wetland, or the surface connection between the wetland and the downslope stream		cannot be determined while visiting the AA, consult topographic maps perhaps by viewing these online
206			network.]		with Toporama (http://atlas.nrcan.gc.ca/toporama/en/index.html) [CS, FA, FR, NR, OE, PR, Sens, SFS, SR, WCv, WS]
207			Persistent (surface water flows out for >9 months/year).	0	5r5, 5k, WCV, W5j
208			Seasonal (surface water flows out for 14 days to 9 months/year, not necessarily consecutive).	0	
209			Temporary (surface water flows out for <14 days, not necessarily consecutive).	0	
			None but maps show a stream network downslope from the AA and within a distance that is less than the AA's length. SKIP to F47 (pH	1	
210			Measurement).		
211			No surface water flows out of the wetland except possibly during extreme events (<once (ph="" 10="" a="" an="" ditch,="" f47="" flows="" into="" lacks="" lake="" measurement).<="" only="" or="" or,="" outlet.="" per="" skip="" td="" that="" to="" water="" wetland,="" years).=""><td>0</td><td></td></once>	0	
212	F43	Outflow Confinement	During major runoff events, in the places where surface water exits the AA or connected waters nearby, the water:		"Major runoff events" would include biennial high water caused by storms and/or rapid snowmelt. [CS,
			Mostly passes through a pipe, culvert, narrowly breached dike, berm, beaver dam, or other partial obstruction (other than natural topography)	0	NR, OE, PR, Sens, SR, STR, WS]
213			that does not appear to drain the wetland artificially during most of the growing season.		
214			Leaves through natural exits (channels or diffuse outflow), not mainly through artificial or temporary features.	0	
			Is exported more quickly than usual due to ditches or pipes within the AA or connected to its outlet, or within 10 m of the AA's edge, which	0	
215			drain the wetland artificially, or water is pumped out of the AA.		
	F44	Tributary Channel	At least once annually, surface water from a tributary channel that is >100 m long moves into the AA. Or, surface water from a larger		If inlet tributaries cannot be searched for due to inaccessibility of part of the AA, follow suggestions in
			permanent water body adjacent to the AA spills into the AA. If it enters only via a pipe, that pipe must be fed by a mapped stream or lake further upslope. If no, SKIP to F47 (pH Measurement).	0	F42 above. [NRv, PH, PRv, SRv]
216					
	F45	Input Water	Based on lack of shade, water source characteristics, or actual temperature measurements, the inflow is likely to be warmer than surface	0	[WCv]
217		Temperature	water in the AA during part of most years. Enter 1= yes, 0= no.		
217	F46	Throughflow	During its travel through the AA at the time of peak annual flow, water arriving in channels: [select only the ONE encountered bymost of the		[FA, FR, INV, NR, OE, PR, SR, WS]
218	0	Resistance	incoming water].		
210			Does not bump into many plant stems as it travels through the AA. Nearly all the water continues to travel in unvegetated (often incised)	0	
			channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond or lake.		
219					
220			Bumps into herbaceous vegetation but mostly remains in fairly straight channels.	0	
221			Bumps into herbaceous vegetation and mostly spreads throughout, or is in widely meandering, multi-branched, or braided channels.	0	
222			Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels.	0	
			Bumps into tree trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or braided).	0	
223					
224	F47	pH Measurement	The pH in most of the AA's surface water:		Preferably, measure this in larger areas of ponded surface water within the AA, or in streams that have
225			Was measured, and is: [enter the reading in the column to the right.]	4.6	passed through (not along) most of the AA. Unless surface water is completely absent, do not dig holes or make depressions in peat in order to provide water for this measurement. Avoid measuring near
			Was not measured but surface water is present and is darkly tea-coloured. Or if no surface water, then mosses and plants that indicate	0	roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
226			peatland (e.g., Labrador tea) are prevalent. Enter "1".		
227			Neither of above. Enter "1".	0	
228	F48	TDS and/or	The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information):		See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
229		Conductivity	TDS is: [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.]		
230			Conductivity is [Enter the reading in µS/cm in the column to the right.]	0.09	
231			Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1".	0	
232			Neither of above	0	
233	F49	Beaver Probability	Use of the AA by beaver during the past 5 years is (select most applicable ONE):		[FA, FR, PH, SBM, Sens, WBF, WBN]
233			Evident from direct observation or presence of gnawed limbs, dams, tracks, dens, lodges, or extensive stands of water-killed trees (snags).	0	
234			(magy)		
			Likely based on known occurrence in the region and proximity to suitable habitat, which may include: (a) a persistent freshwater wetland,	0	
			pond, or lake, or a perennial low or mid-gradient (<10%) channel, and (b) a corridor or multiple stands of hardwood trees and shrubs in		
235			vegetated areas near surface water.		
			Unlikely because site characteristics above are deficient, and/or this is a settled area or other area where beaver are routinely removed.	1	
236					

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	A	В	C	D	E
225	F50		Select first applicable choice:		Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other
237		of Evidence		0	evidence. Consult topographic maps to detect breaks in slope described here. Rust deposits
			Springs are known to be present within the AA, or if groundwater levels have been monitored, that has demonstrated that groundwater primarily discharges to the wetland for longer periods during the year than periods when the wetland recharges the groundwater.	0	associated with groundwater seeps may be most noticeable as orange discoloration in ice formations
238			printing discharges to the welland for longer periods during the year than periods when the welland recharges the groundwater.		along streams during early winter. [AM, CS, FA, FR, INV, NR, OE, PH, PRv, SFS, WC, WS]
236			Most of the AA has a slope of >5%, or is very close to the base of a natural slope longer than 100 and much steeper than the slope of the	0	
239			AA, AND the pH of surface water, if known, is >5.5.5.		
			Neither of above is true, although some groundwater may discharge to or flow through the AA. Or groundwater influx is unknown.	1	
240					
241	F51	Internal Gradient	The gradient along most of the flow path within the AA is:		This is not the same as the shoreline slope. It is the elevational difference between the AA's inlet and
			<2% or the AA has no surface water outlet (not even seasonally).	0	outlet, divided by the flow-distance between them and converted to percent. If available, use a
242 243			2-5%.	1	clinometer to measure this. Free clinometer apps can be downloaded to smartphones. If the wetland is
243			6-10%.	0	large (longer than ~1 km), this may be estimated using Google Earth to determine the minimum and maximum elevation within the AA, then dividing by length and multiplying by 100. [CS, NR, OE, PR,
244			>10%.	0	SR, WBF, WBN, WS]
-	Ni.i. C			U	on, wor, mon, moj
			tions: If the AA lacks an upland edge, evaluate based on the AA's entire perimeter, and moving outward into whatever areas		
246		,	ns, these questions are best answered by measuring from aerial images.		
	F52	•	Within a zone extending 30 m laterally from the AA's edge with upland and/or other wetlands, the percentage that contains perennial		[AM, FA, FR, INV, NRv, PH, POL, PRv, SBM, Sens, SRv, STR, WBN]
247		of Perimeter	vegetation cover (except lawns, row crops, heavily grazed land, conifer plantations) is:		
248			<5%.	0	
249			5 to 30%.	0	
250			30 to 60%.	0	
251			60 to 90%.	1	
252			>90%, or all the area within 30 m of the AA edge is other wetlands. SKIP to F55.	0	
	F53	Type of Cover in	Within 30 m upslope of where the wetland transitions to upland, the upland land cover that is NOT perennial vegetation is mostly (mark		[AM, FA, INV, NRv, PH, POL, SBM, STR, WBN]
253		Buffer	ONE):		
254			Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0	
255	FF.4	D # 01	Bare or nearly bare pervious surface or managed vegetation, e.g., lawn, row crops, unpaved road, dike, landslide.	1	ND DD C C CD I
256	F54	Buffer Slope	The steepest and/or most disturbed part of the upland area that is within 30 m of the wetland and occupies >10% of that upland area has a percent slope of:		[NRv, PRv, Sens, SRv]
257			<1% (flat almost no noticeable slope) or all the area within 30 m of the AA edge is other wetlands.	0	
258			2-5%.	1	
259			5-30%.	0	
260			>30%.	0	
	F55	Cliffs or Steep Banks	In the AA or within 100 m, there are elevated terrestrial features such as cliffs, talus slopes, stream banks, or excavated pits (but not riprap)	0	Do not include upturned trees as potential den sites. [POL, SBM]
			that extend at least 2 m nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den		
261			areas. Enter 1 (yes) or 0 (no).		
	F56	New or Expanded	Human actions within or adjacent to the AA have persistently expanded a naturally occurring wetland or created a wetland where there		Determine this using historical aerial photography, old maps, soil maps, or permit files as available
262		Wetland	previously was none (e.g., by excavation, impoundment):		[CS, NR, OE, PH, Sens]
263			No.	0	
264			Yes, and created or expanded 20 - 100 years ago.	1	
265			Yes, and created or expanded 3-20 years ago.	0	
266			Yes, and created or expanded within last 3 years.	0	
267			Yes, but time of origin or expansion unknown.	0	1
268			Unknown if new or expanded within 20 years or not.	0	
269	F57	Burn History	More than 1% of the AA's previously vegetated area:		Look for charred soil or stumps (in multiple widely-spaced locations) or ask landowner. [CS, PH, STR]
270			Burned within past 5 years.	0]
271			Burned 6-10 years ago.	0	
272			Burned 11-30 years ago.	0]
273			Burned >30 years ago, or no evidence of a burn and no data.	1	1
					-

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	Α	В	С	D	E
F!	58	Visibility	The maximum percentage of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings, or		[PU, STR, WBFv]
274			public maintained trails that intersect, adjoin, or are within 100 m of the AA (select one) is:		
275			<25%.	1	
276			25-50%.	0	
277			>50%.	0	
278 F	59	Non-consumptive	Assuming access permission was granted, select ALL statements that are true of the AA as it currently exists:		[PU, STR]
279		Uses - Actual or Potential	For an average person, walking is physically possible in (not just near) >5% of the AA during most of the growing season, e.g., free of deep water and dense shrub thickets.	0	
			Maintained roads, parking areas, or foot-trails are within 10 m of the AA, or the AA can be accessed part of the year by boats arriving via contiquous waters.	0	
280			Within or near the AA, there is an interpretive center, trails with interpretive signs or brochures, and/or regular guided interpretive tours.	0	
281			within of theat the M, there is an interpretive center, trails with interpretive signs of biochdies, and/or regular guided interpretive todis.	U	
	60	Unvisited Core Area	The percentage of the AA almost never visited by humans during an average growing season probably comprises: (Note: Only include the		[AM, FAV, FRV, PH, PU, SBM, STR, WBF, WBN]
		onvisited core rired	part actually walked or driven (not simply viewed from) with a vehicle or boat. Do not include visitors on trails outside of the AA unless more		[min min min of early man, man]
			than half the wetland is visible from the trails and they are within 30 m of the wetland edge. In that case include only the area occupied by		
282			the trail.]		
283			<5% and no inhabited building is within 100 m of the AA.	1	
284			<5% and inhabited building is within 100 m of the AA.	0	
285			5-50% and no inhabited building is within 100 m of the AA.	0	
286			5-50% and inhabited building is within 100 m of the AA.	0	
287			50-95%, with or without inhabited building nearby.	0	
288			>95% of the AA with or without inhabited building nearby.	0	
	61	Frequently Visited	The part of the AA visited by humans almost daily for several weeks during an average growing season probably comprises: [See note		[AM, PH, PU, SBM, STR, WBF, WBN]
289		Area	above.]		, , , , , , , , , , , , , , , , , , , ,
290			<5%. If F60 was answered ">95%" (mostly never visited), SKIP to F64.	1	
291			5-50%.	0	
292			50-95%.	0	
293			>95% of the AA.	0	
294	62	BMP - Soils	Boardwalks, paved trails, fences or other infrastructure and/or well-enforced regulations appear to effectively prevent visitors from walking on soil within nearly all of the AA when the soil is unfrozen. Enter "1" if true.	0	[PH, PU]
	63	BMP - Wildlife	Fences, observation blinds, platforms, paved trails, exclusion periods, and/or well-enforced prohibitions on motorised boats, off-leash pets,	0	[AM, PU, WBF, WBN]
		Protection	and off road vehicles appear to effectively exclude or divert visitors and their pets from the AA at critical times in order to minimize		[
295			disturbance of wildlife (except during hunting seasons). Enter "1" if true.		
	64	Consumptive Uses	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select ALL that apply.		[FAv, FRv, WBFv]
297		(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	0	
298		Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	1	
299			Waterfowl hunting.	0	
300			Fishing.	0	
301			Trapping of furbearers.	0	
302			None of the above.	0	
	65	Domestic Wells	The closest wells or water bodies that currently provide drinking water are:		[NRv]
304			Within 0-100 m, of the AA.	0	
305			100-500 m. away.	0	
306			>500 m. away, or no information.	1	
	66	Calcareous Fen	The AA is, or is part of, a calcareous fen. See the Plants_Calcar worksheet in the accompanying Supplnfo file for list of plant indicators	-	[PH, PR]
	-~	Calcarcous I CII	(calciphiles). Enter 1 If more than two Strong or more than five Moderate calciphile species are present; otherwise enter 0, but if not able to		r · · · · · · · · · · · · · · · · · · ·
307			identify those and no information, change to blank.		
307			-		

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stigator: Darcy Kavanagh & Jordan Davis	Site Identifier: WL7		Date: September 14, 2022	
ressor (S) Data Form for Non-Tida	Il Wetlands. WESP-AC for Nova S	Scotia version 2.		Data
Aberrant Timing of Water Inputs				
	y to have caused the timing of water inputs (but not necessarily their (larger or more frequent spikes but over shorter times). [FA, FR, INV		uted (smaller or less frequent peaks spread over longer times,	
Stormwater from impervious surfaces that drains directly to the we	, , ,	, m, any		
Water subsidies from wastewater effluent, septic system leakage,				
Regular removal of surface or groundwater for irrigation or other c	onsumptive use.			
Flow regulation in tributaries or water level regulation in adjoining	water body, or other control structure at water entry points that regul	ates inflow to the wetland.		
A dam, dike, levee, weir, berm, or fill within or downgradient from	n the wetland that interferes with surface or subsurface flow in/out	of the AA (e.g., road fill, wellpads, pipelines).		
Excavation within the wetland, e.g., dugout, artificial pond, dead-e	nd ditch.			
Artificial drains or ditches in or near the wetland.				
Accelerated downcutting or channelization of an adjacent or interr	nal channel (incised below the historical water table level).			
Logging within the wetland.				
Subsidence or compaction of the wetland's substrate as a result of	f machinery, livestock, fire, drainage, or off road vehicles.			
Straightening, ditching, dredging, and/or lining of tributary channel	S.			
	low, assign points. However, if you believe the checked items had no Indition if the checked items never occurred or were no longer prese.		the AA, then leave the "O's" for the scores in the following	
	Severe (3 points)	Medium (2 points)	Mild (1 point)	
Spatial extent of timing shift within the wetland:	>95% of wetland.	5-95% of wetland.	<5% of wetland.	0
When most of the timing shift began:	<3 yrs ago.	3-9 yrs ago.	10-100 yrs ago.	0
Score the following 2 rows only if the altered inputs began within pa	ast 10 years, and only for the part of the wetland that experiences the	ose.		
Input timing now vs. previously:	Shift of weeks.	Shift of days.	Shift of hours or minutes.	0
Flashiness or muting:	Became very flashy or controlled.	Intermediate.	Became mildly flashy or controlled.	0
			Sum=	0
			Stressor subscore=	0.00
Accelerated Inputs of Contaminants and/or	r Salts			
In the last column, place a check mark next to any item occurring	in either the wetland or its CA that is likely to have accelerated th	e inputs of contaminants or salts to the AA. [AM, FA, PH, POL, STA	RJ	
Stormwater or wastewater effluent (including failing septic system:	s), landfills, industrial facilities.			
Metals & chemical wastes from mining, shooting ranges, snow stonpri/default.asp?lang=En&n=B85A1846-1	rage areas, oil/ gas extraction, other sources (download many location)	ions from National Pollutant Release Inventory and view KMZ overl	ay in Google Earth. https://www.ec.gc.ca/inrp-	
Road salt.				
Spraying of pesticides, as applied to lawns, croplands, roadsides,	or other areas in the CA.			
	low, assign points. However, if you believe the checked items did no vith the condition if the checked items never occurred or were no lon		ninants and/or salts, then leave the "O's" for the scores in the	
	Severe (3 points)	Medium (2 points)	Mild (1 point)	
Usual toxicity of most toxic contaminants:	Industrial effluent, mining waste, unmanaged landfill.	Cropland, managed landfill, pipeline or transmission rights-of- way.	Low density residential.	0
Frequency & duration of input:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.	0
AA proximity to main sources (actual or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.	0
		•	Sum=	
			Suili=	0

Accelerated Inputs of Nutrients									
In the last column, place a check mark next to any item occurring	g in either the wetland or its CA that is likely to have accelerated the	inputs of nutrients to the wetland. [NRv, PRv, STR]							
Stormwater or wastewater effluent (including failing septic system	ter or wastewater effluent (including failing septic systems), landfills.								
Fertilizers applied to lawns, ag lands, or other areas in the CA.									
Livestock, dogs.									
Artificial drainage of upslope lands.									
If any items were checked above, then for each row of the table be effects, contrast the current condition with the condition if the chec	elow, assign points. However, if you believe the checked items did not ked items never occurred or were no longer present.	cumulatively expose the AA to significantly more nutrients, then le	eave the "0's" for the scores in the following rows. To estimate						
	Severe (3 points)	Medium (2 points)	Mild (1 point)						
Type of loading:	High density of unmaintained septic, some types of industrial sources.	Moderate density septic, cropland, secondary wastewater treatment plant.	Livestock, pets, low density residential.						
Frequency & duration of input:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.						
AA proximity to main sources (actual or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.						
			Sum=						
			Stressor subscore=						
Excessive Sediment Loading from Contrib	outing Area								
<u> </u>		are codiment reaching the water different to CA IFA FD INIV DI	I CD., CTDI						
, , , , , , , , , , , , , , , , , , , ,	the CA that is likely to have elevated the load of waterborne or windbo	ine seament reacting the wettand from its CA. [FA, FK, INV, PA	, SKV, STKJ						
Erosion from plowed fields, fill, timber harvest, dirt roads, vegetat	ion clearing, tires.								
Erosion from construction, in-channel machinery in the CA.									
Erosion from off-road vehicles in the CA.									
Erosion from livestock or foot traffic in the CA.									
Stormwater or wastewater effluent.									
Sediment from road sanding, gravel mining, other mining, oil/ gas									
Accelerated channel downcutting or headcutting of tributaries due	e to altered land use.								
Other human-related disturbances within the CA.									
	elow, assign points (3, 2, or 1 as shown in header) in the last column. It te effects, contrast the current condition with the condition if the check		a significantly more sealment or suspended solids to the AA,						
	Severe (3 points)	Medium (2 points)	Mild (1 point)						
Erosion in CA:	Extensive evidence, high intensity.*	Potentially (based on high-intensity* land use) or scattered evidence.	Potentially (based on low-intensity* land use) with little or no direct evidence.						
Recentness of significant soil disturbance in the CA:	Current & ongoing.	1-12 months ago.	>1 yr ago.						
Duration of sediment inputs to the wetland:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.						
AA proximity to actual or potential sources:	0 - 15 m.	15-100 m.	In more distant part of contributing area.						
* high-intensity= extensive off-road vehicle use, plowing, grading, soil or sediment.	excavation, erosion with or without veg removal; low-intensity= veg r	removal only with little or no apparent erosion or disturbance of	Sum=						
.									

Soil or Sediment Alteration Within the Ass	essment Area								
In the last column, place a check mark next to any item present in the wetland that is likely to have compacted, eroded, or otherwise altered the wetland's soil. Consider only items occurring within past 100 years or since wetland was created or restored (whichever is less). [CS, INV, NR, PH, SR, STR]									
Compaction from machinery, off-road vehicles, livestock, or mou	ntain bikes, especially during wetter periods.								
Leveling or other grading not to the natural contour.									
Tillage, plowing (but excluding disking for enhancement of native	plants).								
Fill or riprap, excluding small amounts of upland soils containing	organic amendments (compost, etc.) or small amounts of topsoil impo	orted from another wetland.							
Excavation.									
Ditch cleaning or dredging in or adjacent to the wetland.									
Boat traffic in or adjacent to the wetland and sufficient to cause shore erosion or stir bottom sediments.									
Artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments.									
If any items were checked above, then for each row of the table be effects, contrast the current condition with the condition if the checket.	elow, assign points. However, if you believe the checked items did no cked items never occurred or were no longer present.	t measurably alter the soil structure and/or topography, then leave	the "O's" for the scores in the following rows. To estimate						
	Severe (3 points)	Medium (2 points)	Mild (1 point)						
Spatial extent of altered soil:	>95% of wetland or >95% of its upland edge (if any).	5-95% of wetland or 5-95% of its upland edge (if any).	<5% of wetland and <5% of its upland edge (if any).						
Recentness of significant soil alteration in wetland:	Current & ongoing.	1-12 months ago.	>1 yr ago.						
Duration:	Long-lasting, minimal veg recovery.	Long-lasting but mostly revegetated.	Short-term, revegetated, not intense.						
Timing of soil alteration:	Frequent and year-round.	Frequent but mostly seasonal.	Mainly during one-time or scattered events.						
		•	Sum=						
			Stressor subscore=	0					

Assessment Area (AA) Results:

Wetland ID: WL7

Date: September 14, 2022

Observer: Darcy Kavanagh & Jordan Davis

Latitude & Longitude (decimal degrees): 44.083123936220474, -64.86706089334821

Scores will appear below after data are entered in worksheets OF, F, and S. See Manual for definitions and descriptions of how scores were computed.

Wetland Functions or Other Attributes:	Function Score (Normalised)	Function Rating	Benefits Score (Normalised)	Benefits Rating	Function Score (raw)	Benefits Score (raw)
Water Storage & Delay (WS)	6.77	Moderate	1.88	Lower	7.00	0.83
Stream Flow Support (SFS)	1.16	Lower	0.00	Lower	0.94	0.00
Water Cooling (WC)	4.29	Moderate	0.00	Lower	2.86	0.00
Sediment Retention & Stabilisation (SR)	10.00	Higher	2.01	Moderate	10.00	0.98
Phosphorus Retention (PR)	3.85	Moderate	1.34	Moderate	6.16	1.04
Nitrate Removal & Retention (NR)	10.00	Higher	4.58	Moderate	10.00	4.58
Carbon Sequestration (CS)	4.00	Moderate			7.09	
Organic Nutrient Export (OE)	8.12	Higher			5.31	
Anadromous Fish Habitat (FA)	0.00	Lower	0.00	Lower	0.00	0.00
Resident Fish Habitat (FR)	0.00	Lower	0.00	Lower	0.00	0.00
Aquatic Invertebrate Habitat (INV)	5.92	Higher	4.78	Moderate	5.91	3.82
Amphibian & Turtle Habitat (AM)	6.67	Higher	3.89	Moderate	6.62	4.97
Waterbird Feeding Habitat (WBF)	6.42	Moderate	3.33	Moderate	4.89	3.33
Waterbird Nesting Habitat (WBN)	6.49	Moderate	3.33	Moderate	4.71	3.33
Songbird, Raptor, & Mammal Habitat (SBM)	7.68	Higher	3.33	Moderate	6.69	3.33
Pollinator Habitat (POL)	7.74	Moderate	3.33	Moderate	6.41	3.33
Native Plant Habitat (PH)	4.67	Moderate	5.48	Moderate	5.76	5.48
Public Use & Recognition (PU)			0.90	Lower		0.92
Wetland Sensitivity (Sens)			10.00	Higher		5.47
Wetland Ecological Condition (EC)			6.52	Higher		8.33
Wetland Stressors (STR) (higher score means more stress)			6.16	Higher		3.14
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	6.77	Moderate	1.88	Lower	7.00	0.83
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	8.48	Higher	3.61	Moderate	9.16	3.39
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	6.50	Higher	3.19	Lower	4.83	2.54
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	5.29	Moderate	3.00	Moderate	4.93	3.65
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	7.22	Higher	4.76	Lower	6.49	4.76
WETLAND CONDITION (EC)			6.52	Higher		8.33
WETLAND RISK (average of Sensitivity & Stressors)			8.08	Higher		4.31
WETLAND RISK (average of Sensitivity & Stressors)			8.08	Higher		4

NOTE: A score of 0 does not mean the function or benefit is absent from the wetland. It means only that this wetland has a capacity that is equal or less than the lowest-scoring one, for that function or benefit, from among all the NS calibration wetlands that were assessed previously.

NOVA SCOTIA - Functional WSS Interpretation Tool

3. Functional WSS Interpretation Results

Function-Benefit Product (FBP)	FBP SCORE	FBP SCORE CATEGORY
SUPPORT SUPERGROUP - HYDROLOGIC	12.71315467	Low
SUPPORT SUPERGROUP - WATER QUALITY SUPPORT	30.64755507	Low
SUPPORT SUPERGROUP - AQUATIC SUPPORT	20.69477762	Low
HABITAT SUPERGROUP - AQUATIC HABITAT	15.89760948	Low
HABITAT SUPERGROUP - TRANSITION HABITAT	34.38038469	Low

3a. Functional WSS Determination: Automatic Method

Habitat Rule Satisfied? NO
Support Rule Satisfied? NO
Habitat/Support Hybrid Rule Satisfied? NO
CONCLUSION: Site is not a WSS

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	Mersey River Wind Farm - WL14
Investigator Name:	Darcy Kavanagh & Jordan Davis
Date of Field Assessment:	September 14, 2022
Nearest Town:	Milton, NS
Latitude (decimal degrees):	44.054702409494396
Longitude (decimal degrees):	-64.83238837184054
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	0.028
AA as percent of entire wetland (approx.). Attach sketch map if AA is smaller than the entire contiguous wetland.	64%
What percent (approx.) of the wetland were you able to visit?	100%
What percent (approx.) of the AA were you able to visit?	100%
Were you able to ask the site owner/manager about any of the questions?	No
Indicate here if you intentionally surveyed for rare plants, calciphile plants, or rare animals:	Yes
Have you attended a WESP-AC training session? If so, indicate approximate month & year.	No
How many wetlands have you assessed previously using WESP-AC? (approx.)	50+
Comments about the site or this WESP-AC assessment (attach extra page if desired):	

	A	В	С	D	Е
	Date: September 14, 2022		Site Identifier: WL14	Investigato	or: Darcy Kavanagh & Jordan Davis
]					

Form OF (Office). Non-tidal Wetland Data Form. WESP-AC version 2 for Nova Scotia wetlands only. DIRECTIONS: Conduct an assessment only after reading the accompanying Manual and the Explanations column of the data form. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answering many of the questions below will require using these online map viewers:

Google Earth Pro: https://www.google.com/earth/download/gep/agree.html

Provincial Landscape Viewer: https://nsgi.novascotia.ca/plv/

For most wetlands, completing this office data form will require 1-2 hours. For a list of functions to which each question pertains, see bracketed abbreviations in the Definitions/Explanations column. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Manual. Codes for functions and values are: WS= Water Storage, SFS= Stream Flow Support, WC= Water Cooling, SR= Sediment Retention & Stabilisation, PR= Phosphorus Retention, NR= Nitrate Removal, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate Habitat, FA= Anadromous Fish Habitat, FR= Resident Fish Habitat, AM= Amphibian & Reptile Habitat, WBF= Feeding Waterbird Habitat, WBN= Nesting Waterbird Habitat, SBM= Songbird, Raptor, & Mammal Habitat, POL= Pollinator Habitat, PH= Native Plant Habitat, PU= Public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= Stressors.

3	#	Indicators	Condition Choices	Data	Definitions/Explanations
4	OF1	Province	Mark the province in which the AA is located by changing the 0 in the column next to it to a "1". Mark only one.		This determines to which province's calibration wetlands the raw score of any wetland is normalised. In the function and benefits models, it also triggers the automatic exclusion of indicators for which no
5			New Brunswick	0	spatial data exists in a particular province.
6			Nova Scotia	1	Spanial adda Shisto in a particular profitios.
7			Prince Edward Island	0	
8			Newfoundland-Labrador	0	
9	OF2	Ponded Area Within 1 km.	The area of surface water ponded during most of the growing season that is both (1) in or adjacent to the AA and (2) within 1 km is:		"Adjacent" means not separated from the AA by a wide expanse (>50 m) of upland (including roads >50 m wide). Include ponded areas likely to be hidden by wetland vegetation. If surface water
10			<0.01 hectare (about 10 m x 10 m).	1	extends beyond 1 km, include only the part within 1 km. Do not include tidal areas. Measure the
11			0.01 - 0.1 hectare.	0	area from aerial imagery using Google Earth Pro (click on Ruler icon in toolbar, then Polygon in pop- up menu). [PH, SBM, WBN]
12			0.1 - 1 hectare.	0	ар пісна). [і ті, эвім, мівіч]
13			1 to 10 hectares.	0	
14			10 to 100 hectares.	0	
15			>100 hectares.	0	
		Ponded Water &	The area of wetlands and surface water ponded during most of the growing season that is both (1) in or adjacent to the AA and (2) within		See definition of adjacent in OF2. If the AA's wetland vegetation extends beyond 1 km, include only
16		Wetland Within 1 km.	1 km is:		the part within 1 km. "Ponded" means not flowing in rivers or streams. [Sens, WBF]
17			<0.01 hectare (about 10 m x 10 m).	0	
18			0.01 - 0.1 hectare.	1	
19			0.1 - 1 hectare.	0	
20			1 to 10 hectares.	0	
21			10 to 100 hectares.	0	
22			>100 hectares.	0	
	OF4	Size of Largest Nearby Vegetated Tract or	The largest vegetated patch or corridor that includes the AA's vegetation plus alladjacent upland vegetation that is not lawn, row crops, heavily grazed lands, conifer plantation is:		See definition of adjacent in OF2. Use Google Earth Pro's polygon ruler (as described above). Exclude conifer plantations only if it is obvious that trees were planted in rows. [AM, PH, SBM, Sens]
23		Corridor	,		Exclude Cornier plantations only if it is obvious that frees were planted in rows. [Aivi, Ph., Sbivi, Seris]
24 25		o o mao	<0.01 hectare (about 10 m x 10 m).	0	
25			0.01 - 0.1 hectare.	0	
26			0.1 - 1 hectare.	0	
27			1 to 10 hectares.	0	
28			10 to 100 hectares.	0	
29			100 to 1000 hectares.	0	
30			>1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	1	

	Α	В	С	D	E
	OF5	Distance to Large	The minimum distance from the edge of the AA to the edge of the closest <i>vegetated land</i> (but excluding row crops, lawn, conifer		To measure distance, use Google Earth Pro (Ruler > Line tool). The 375-ha criterion is from the
31		Vegetated Tract	plantation) larger than 375 hectares (about 2 km on a side), is:		Fundy Model Forest Project. [AM, PH, POL, SBM, Sens]
			<50 m, and not separated from the 375-ha vegetated area by any width ofpaved roads, stretches of open water, row crops, bare ground,	1	
			lawn, or impervious surface. Or the AA itself contains >375 ha of vegetation. [This is often the answer in relatively undeveloped	·	
32			landscapes.]		
			<50 m, but completely separated from the 375-ha vegetated area by those features, and AA does not contain >375 ha of vegetation.	0	
33					
34			50-500 m, and not separated.	0	
35			50-500 m, but separated by those features.	0	
36			0.5 - 5 km, and not separated.	0	
37			0.5 - 5 km, but separated by those features.	0	
38			None of the above (the closest patches or corridors which are that large are >5 km away).	0	
	OF6	Herbaceous Uniqueness	The AA's vegetation cover is >10% herbaceous* but uplands within 5 km have <10% herbaceous cover. If so, enter "3" and continue to	1	For this question only, consider moss to be herbaceous vegetation. Determine the score by viewing
			OF7. If not, consider:		aerial imagery in Google Earth after successively drawing or estimating the boundaries of the buffers
			The AA's vegetation cover is >10% herbaceous* but uplands within 1 km have <10% herbaceous cover. If so enter "2" and continue to OF7. If not, consider:		of 5 km, 1 km, and 100 m radius focused on the center of the AA. Circles of specified radius can be drawn in Google Earth Pro by clicking on the Ruler icon, then Circle in the pop-up menu. [AMv, PHv,
			The AA's vegetation cover is >10% herbaceous* but uplands within 100 m of the wetland edge have <10% herbaceous cover. If so, enter		POLv. SBMv. WBFv. WBNvl
			ngn		
			[* NOTE: Exclude lawns, row crops, heavily grazed lands, forest, shrublands. Include moss as well as grasslike plants in this use of		
39			"herbaceous vegetation"]		
	OF7	Woody Uniqueness	The AA's vegetation cover is >10% woody* but uplands within 5 km have <10% woody cover. If so, enter "3" and continue to OF8. If not,	1	See above. Do not consider conifer plantations to be forest if it is obvious that trees were planted in
			consider:		rows. [AMv, PHv, POLv, SBMv]
			The AA's vegetation is >10% woody* but uplands within 1 km have <10% woody cover. If so enter "2" and continue to OF8. If not, consider:		
			The AA's vegetation is >10% woody* but uplands within 100 m of the wetland edge have <10% woody cover. If so, enter "1"		
40			[* NOTE: woody cover = trees & shrubs taller than 1 m.]		
	OF8	Local Vegetated Cover	Draw a 5-km radius circle measured from the center of the AA. Ignoring all permanent water in the circle, the percent of the remaining are		In Google Earth, draw the 5 km buffer and then estimate land cover percentages, or do GIS analysis
		Percentage	that is wooded or unmanaged herbaceous vegetation (NOT lawn, row crops, bare or heavily grazed land, clearcuts, or conifer plantations)		of an appropriate land cover layer. [AM, PH, POL, SBM, Sens]
41			is:		
42			<5% of the land.	0	
43			5 to 20% of the land.	0	
44			20 to 60% of the land.	1	
45			60 to 90% of the land.	0	
46			>90% of the land. SKIP to OF10.	0	
47	OF9	Type of Land Cover	Within the 5-km radius circle, and ignoring all permanent water, the land area that is bare or non-perennial cover is mostly:		[AM, SBM]
48		Alteration	Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0	
49			Bare pervious surface, e.q., lawn, recent (<5 yrs ago) clearcut, dirt or gravel road, cropland, landslide, conifer plantation.	1	
	OF10	Distance by Road to	Measured along the maintained road nearest the AA, the distance to the nearest population center is:		"Population center" means a settled area with more than about 5 regularly- inhabited structures per
50		Nearest Population			square kilometer. In Google Earth Pro, click on the Ruler icon, then Path, and draw and measure the
51		Center	<100 m.	0	route. [FAv, FRv, NRv, PH, PU, SBM, WBFv]
52			100 - 500 m.	0	
53			0.5-1 km.	0	
54			1 - 5 km.	0	
55			>5 km.	ı	

	Α	В	С	D	E
	OF11	Distance to Nearest	From the center of the AA, the distance to the nearest maintained public road (dirt or paved) is:		Determine this by viewing aerial imagery in Google Earth Pro and measuring with the Ruler>Line tool
56		Maintained Road	<10 m.	0	[AM, FAv, FRv, NRv, PH, PU, SBM, STR, WBN]
57 58			10 - 25 m.	0	-
			25 - 50 m.	0	-
59			50 - 100 m.	0	-
60			100 - 500 m.	0	-
62			>500 m.	1	-
02	OF12	Wildlife Access	Draw a circle of radius of 5 km from the center of the AA. If mammals and amphibians can move from the center of the AA to ALL other		Draw the 5 km circle in Google Earth Pro using the Circle tool and search for roads and wetlands
63	01 12	••••••••••••••••••••••••••••••••••••••	separate wetlands and ponds located within the circle without being forced to cross pavement (any width), lawns, bare ground, and/or marine waters, mark 1= yes can move to all, 0= no. Change to blank if there are no other wetlands within 5 km.	0	within it, being alert for roads hidden under forest canopy. [AM, SBM, STR]
64	OF13	Distance to Ponded Water	The distance from the AA center to the closest (but separate) ponded water body visible in GoogleEarth imagery is:		In Google Earth Pro, zoom in closely to examine the surrounding landscape for ponds, lakes, and wetlands that appear to be permanently flooded. [AM, PH, SBM, Sens, WBF, WBN]
65		water	<50 m, and not separated by any width of paved roads, stretches of open water, row crops, lawn, bare ground, or impervious surface.	0	- wettands that appear to be permanently hooded. [Alvi, FTI, Sbivi, Sens, Wbi , Wbivi
66			<50 m, but completely separated by those features.	0	1
67			50-500 m, and not separated.	0	1
68			50-500 m, but separated by those features.	0	
69			0.5 - 1 km, and not separated.	0	
70			0.5 - 1 km, but separated by those features.	0	
71			None of the above (the closest patches or corridors that large are >1 km away).	1	
72		Distance to Large Ponded Water	The distance from the AA center to the closest (but separate)non-tidal body of water that is ponded during most of the year and islarger than 8 hectares during most of a normal year is:		Determine this by viewing aerial imagery in Google Earth. [Sens, WBF, WBN]
73			<100 m.	0	
74			100 m - 1 km.	0	
75			1 -2 km.	1	
76			2-5 km.	0	
77			5-10 km.	0	
78			>10 km.	0	
79	OF15	Tidal Proximity	The distance from the AA edge to the closest tidal water body (regardless of its salinity) is:		In Google Earth, measure the distance to the ocean (including Bay of Fundy) or tidal river, whichever is closer. If you need to see how far upriver a river is tidal, see the KMZ file provided with this
80			<100 m.	0	calculator for NS (NS Headtide). Points shown in those files are only an approximation, so local
81			100 m - 1 km.	0	information if available may be preferable. [FA, WBF]
82			1 - 5 km.	0	
83			5-10 km.	1	
84			10-40 km.	0	
85			>40 km.	0	
86	OF16	Upland Edge Contact	Select one:		[NR, SBM, Sens]
87			The AA has no upland edge (or upland is <1% of perimeter). The AA is entirely surrounded by (& contiguous with) other wetlands or water.	0	
88			1-25% of the AA's perimeter abuts upland (including filled areas). The rest adjoins other wetlands or water that is mostly wider than the AA	0]
89			25-50% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0	
90			50-75% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0]
91			More than 75% of the AA's perimeter abuts upland. Any remainder adjoins other wetlands or water that is mostly wider than the AA. This will be true for most assessments done with WESP-AC.	1	

	A	В	С	D	E
		_	Within 5 km downstream or downslope of the AA (select first true choice):		Contact local authories to determine if such maps exist. Where available, LiDAR imagery can
92		tidal Waters	·		provide finer elevational resolution useful for flood modeling. [WSv]
			Maps show Flood Zone or Flood Risk areas and there appears to be infrastructure vulnerable to river flooding not caused by tidal storm	0	,
93			surges.		
			Maps show Flood Zone or Flood Risk areas, but infrastructure is absent or is not vulnerable to floods from a non-tidal river. In some cases	0	
94			levees, upriver dams, or other measures may partly limit damage or risk from smaller events.		
			Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure	0	
95			vulnerable to river flooding unrelated to tidal storm surges.		
0.0			Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there is no infrastructure vulnerable	1	
96	OF10	Deletine Elemetica in	to river flooding unrelated to tidal storm surges.		IFA ND C CFC., MC., MC.
	UF 18	Relative Elevation in Watershed	In Google Earth, enable the Terrain layer (lower left menu) and open the NS_Watersheds Secondary KMZ file that accompanies this calculator. Then determine the AA's approximate elevation (bottom right, NOT the "eye alt"). Then move cursor around to determine the		[FA, NR, Sens, SFSv, WCv, WSv]
		Watersheu	watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-min).	0.83	
97					
	OF19	Water Quality Sensitive	The AA is in a Protected Water Supply area (Designated Water Supply Area, Natural Watershed Municipal Surface Water Supply Area, or	0	If an ACCDC report is available for this AA, it also may contain such information. [NRv]
98		Watershed or Area	Municipal Water Supply Area) according to the provided KMZ overlay ("NS Protected Water Supply Areas"). Enter 1= yes, 0= no.		
	OF20	Degraded Water	Sampling indicates a problem with concentrations of metals, hydrocarbons, nutrients, or other substances (excluding bacteria, acidic		May use existing data, or sample those waters as part of this wetland assessment. "Harmful" should
99		Upstream	water, high temperatures) being present at levels harmful to aquatic life or humans, and:		be evaluated with regard to current federal or provincial water quality standards. [AM, FA, FR, NRv,
100			The condition is present within the AA.	0	PRv, SRv, STR, WBF, WBN]
101			The condition is present in waters within 1 km that flowinto the AA, but has not been documented in the AA itself.	0	
101			Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in either the AA or inflowing	0	
102			waters.	-	
102			Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the situation for nearly	1	
103			all wetlands in this region.		
104	OF21	Degraded Water	The problem described above is downslope from the AA, and:		May use existing data, or monitor waters as part of this wetland assessment. [NRv, PRv, SRv]
105		Downstream	The condition is present within 1 km downslope and connected to the AA by a channel.	0	
103			The condition is present within 5 km downslope and connected to the AA by a channel, or within 1 km but not connected to the AA by a	0	
106			channel.	Ü	
			Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in either the AA or inflowing	0	
107			waters.		
			Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the situation for nearly	1	
108			all wetlands in this region.		
100	OF22	Wetland as a % of Its	From a topographic map and field observations, estimate the approximate boundaries of the catchment (CA) of the entire wetland of which		Topographic maps may be viewed online at the National Atlas of Canada (Toporama):
		Contributing Area	the AA may be only a part. Then adjust those boundaries if necessary based on your field observations of the surrounding terrain, and/or		http://atlas.gc.ca/toporama/en/index.html [NR, PR, Sens, SR, WS]
		(Catchment)	by using procedures described in the Manual. Divide the area of the wetland (not just the AA) by the approximate area of its catchment		
			excluding the area of the wetland itself. When doing the calculation, if ponded water is adjacent to the wetland, include that in the wetland		
109			area. The result is:		
110			<0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	0	
111			0.01 to 0.1.	1	
112			0.1 to 1.	0	
			>1 (wetland is larger than its catchment (e.g., wetland with flat surrounding terrain and no inlet, or is entirely isolated by dikes, or is a raised	0	
113			bog).		
	OF23	Unvegetated Surface in	The proportion of the AA's contributing area (measured to no more than 1000 m upslope) that is comprised of buildings, roads, parking lots		[FA, INV, NRv, PRv, SRv, STR, WCv, WSv]
114		the Contributing Area	other pavement, exposed bedrock, landslides, and other mostly-bare surface is about :		
115			<10%.	1	
116			10 to 25%.	0	
117			>25%.	0	
11/				-	

	A	В	С	D	E
	OF24	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as		[NRv, PRv, SRv, WSv]
			indicated by the following:		
			(a) input channel is present,		
			(b) input channels have been straightened,		
			(c) upslope wetlands have been ditched extensively,		
			(d) land cover is mostly non-forest,		
			(e) CA slopes are steep, and/or (f) most CA soils are shallow (bedrock near surface) and/or have high runoff coefficients.		
			(i) most CA sons are snanow (bedrock near surface) and/or have night unon coemicients. This statement is:		
118			The statement is.		
119			Mostly true.	0	
120			Somewhat true.	0	
121			Mostly untrue.	1	
	OF25	Aspect	The overland flow direction of most surface water (in streams, rivers, or runoff) that enters the AA is:		[AM, NR, SFS, WC, WS]
122	01 20	rispect	No. 1 in the second of the sec		[IIII, IIII, 51 5, 116, 116]
123			Northward (N, NE). north-facing contributing area.	0	
124			Southward (S, SW). south-facing contributing area.	0	
125			Other (E, SE, W, NW), or no detectable uphill slope or input channel (flat).	1	
126	OF26	Internal Flow Distance	The horizontal flow distance from the wetland's inlet to outlet is:		Identify inlets and outlets, if any, from topographic maps (use elevations to determine which are inlets
126		(Path Length)	<10 m.	0	and which are outlets) and augment by field inspection. With the Provincial Landscape Viewer, select
127			10 - 50 m.	0	Nova Scotia Topo as the Basemap. Also enable the layer Forestry>WAM Predicted Flow. Then
128			10 - 30 m.	0	measure the inlet-outlet distance. [NR, OE, PR, SR, WS]
129					
130			100 - 1000 m.	0	
131			1- 2 km.	0	
132			>2 km, or wetland lacks an inlet and outlet.	1	
	OF27	Growing Degree Days	In Google Earth, open the KMZ file that accompanies this calculator, called NS_GrowingDegreeDays. Place your cursor over the AA and	2192	This layer was provided by Dr. Dan McKenney of the Canadian Forest Service [AM, CS, FR, INV,
133	_		left-click. From the pop-up window, enter the GRIDCODE number in the next column.	2172	NR, OE, PH, PR, Sens, SR, WBF, WCv, WS]
134	OF28	Fish Access or Use	According to agency biologists and/or your own observations, the AA. [Mark just the first choice that is true.]:		Regarding the last choice, if uncertain if an AA is fishless, consider the possibility its waters have been stocked. [AM, FA, FR, INV, WBF, WBN]
			Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. Go to Provincial Landscape	0	been stocked. [AM, 174, 114, 1144, WBI , WBI]
			Viewer>Wildlife>Significant Habitat>Species at Risk. Contact local fishery biologists, review the ACCDC report, and visit these websites:		
135			http://www.salmonatlas.com/atlanticsalmon/canada-east/index.1.html http://atlanticsalmonfederation.org/rivers/introduction.html		
			Has not been documented to support Atlantic salmon rearing and/or spawning, but is connected to nearby waters likely to contain Atlantic	0	
136			salmon or other anadromous species or eels and is probably accessed by those during some conditions.		
137			Is probably is not accessed by any anadromous fish species but is known or likely to have other fish at least seasonally.	0	
138			Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	1	
	OF29	•	Within the past 10 years, in the AA (or in its adjoining waters or wetland), qualified observers have documented[mark all applicable]:		Request information from ACCDC and/or conduct your own survey at an appropriate season using ar
139		Concern			approved protocol. For birds, also check eBird.org. NOTE for NS: If your WESP-AC is being
			Presence of one or more of the plant species listed in the Plants_Rare worksheet of the accompanying SuppInfo file, or the AA is within a	0	completed for a Wetland Alteration Application to NS-ECC, your ACCDC results and any taxon-
			mapped Atlantic Coastal Plain Flora Buffer (go to Provincial Landscape Viewer> Wildlife> Special Management Practice Zones).		specific survey results must be submitted along with your WESP-AC results, and application. [AMv, EC, PHv, POLv, SBMv, Sens, WBFv, WBNv]
140					EC, FTIV, FOLV, SBIVIV, SCIIS, WDI V, WDIVV]
			Presence of one or more of the amphibian or reptile species (AM) of conservation concern as listed in the Wildlife_Rare worksheet of the	0	
141			accompanying Supplnfo file.		
			Presence of one or more of the waterbird species (WBF, WBN) of conservation concern as listed in the Wildlife_Rare worksheet of the	0	
142			accompanying Supplnfo file.		
			Presence of one or more of the nesting songbird or raptor species (SBM) of conservation concern as listed in the Wildlife_Rare	0	
143			worksheet of the accompanying Supplnfo file, during their nesting season (May-July for most species).	4	
144			None of the above, or no data.	ı	

	A	В	С	D	E
145		Important Bird Area (IBA)	In Google Earth, open the KMZ file that accompanies this calculator, called IBAs_Canada. The AA is all or part of an officially designated IBA. Enter 1= yes, 0= no.	0	The source of this layer, which should be checked periodically for updates, is: http://www.ibacanada.com/mapviewer.jsp?lang=EN [SBMv, WBFv, WBNv]
146		Black Duck Nesting Area	In Google Earth, open the KMZ file that accompanies this calculator, called BlackDuck. Adjust its alignment and opacity. Determine the predicted density (pairs per 25 sq. km) of nesting American Black Duck in the AA's vicinity: <10 (enter 0), 10-20 (enter 1), 20-30 (enter 2), >30 (enter 3). If outside of region shown in map, change toblank.	0	This was provided by Dr. David Leske. [WBNv]
147		Wintering Deer or Moose Concentration Areas	If AA is on private land with no information, change toblank (not 0). Otherwise: With the Provincial Landscape Viewer, for Wintering Moose, go to Wildlife> Significant Habitat. For Mainland Moose Concentration Areas, go to Wildlife> Special Management Practice Zones Enter: yes= 1, no= 0.	0	[SBM]
148		Other Conservation Designation	The AA is all or part of an area designated by government, First Nations, or the Nature Conservancy of Canada (NCC) for its exceptional ecological features or highly intact natural conditions. With Provincial Landscape Viewer, see Protected Areas. Enter: yes= 1, no= 0. If uncertain, consult NCC and agencies for more recent information.	0	See: https://novascotia.ca/parksandprotectedareas/plan/interactive-map/ [PU]
149		Conservation Investment	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance the wetland (excluding mitigation wetlands). Ask the property owner. Enter: yes= 1, no= 0. If no information, change tollank (not 0).	0	[PU]
150		Mitigation Investment	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere. Ask the property owner. Enter: yes= 1, no= 0. If no information, change to blank .	0	[PU]
151		Sustained Scientific Use	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area. Ask the property owner. Enter: yes= 1, no= 0. If no information, change toblank.	0	[PU]
152		Calcareous Region	The AA is NOT in a subregion that has been heavily exposed to acid precipitation. Enter "1" if true (green or yellow in map in Appendix A o the Manual). Enter "0" if false. If no information, change toblank.	0	[AM, FA, FR, INV, PH]
153		Ownership	Select the ONE ownership that covers the most of the AA. In Google Earth, open KMZ file called NS_CrownlandsUse more recent information if available.		"Private lands" may include those owned or leased by non-governmental organizations, e.g., charitable conservation land trusts, DUC, TNC. [PU, STR]
154			New timber harvest, roads, mineral extraction, and intensive summer recreation (e.g., off-road vehicles) are permanently prohibited. Includes many publicly-owned Protected Lands, and private lands under long-term (30+ year) legal agreements to maintain nearly-unaltered conditions.	0	
155			Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are allowed.	1	
156	-		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable or not) is in place.	0	
157			Ownership is private and owner does not allow access, or access permission unknown, and not a conservation easement.	0	

	A	В	С	D	E
	Date: September 14, 2022		Site Identifier: WL14	Investiga	ator: Darcy Kavanagh & Jordan Davis
1					

Form F (Field). Non-tidal Wetland Data Form. WESP-AC version 2 for Nova Scotia. DIRECTIONS: Walk for no less than 10 minutes from the wetland edge towards its core, in the part of the At that is proposed for alteration. If no alteration is proposed, walk in a portion that appears to be most representative of the wetland overall. Walk only where it is safe and legal to do so. Conduct the assessment only after reading the accompanying Manual and the Explanations column of the data form. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgable persons, and/or reviewing aerial imagery. For most wetlands, completing this field data form will require 1-2 hours on a site. For a list of functions to which each question pertains, see the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Manual. Codes for functions and values are: WS= Water Storage & Delay, SFS= Stream Flow Support, WC= Water Cooling, SR= Sediment Retention & Stabilisation, PR= Phosphorus Retention, NR= Nitrate Removal, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate Habitat, FA= Anadromous Fish Habitat, FR= Resident Fish Habitat, AM= Amphibian & Reptile Habitat, WBF= Feeding Waterbird Habitat, WBN= Nesting Waterbird Habitat, SBM= Songbird, Raptor, & Mammal Habitat, POL= Pollinator Habitat, PH= Native Plant Habitat, PU= Public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= Stressors.

3	#	Indicators	Condition Choices	Data	Definitions/Explanations
4	F1	Wetland Type	Follow the key below and mark the ONE row that best describes MOST of the vegetated part of the AA:		Ericaceous shrubs are ones in the heather family (Ericaceae). Most have leathery evergreen leaves. They include rhododendron, azalea, swamp laurel, leatherleaf, Labrador tea, and others. Most require
5			A. Moss and/or lichen cover more than 25% of the ground. Often dominated by ericaceous shrubs (e.g., Labrador tea) or other acid-tolerant plants (e.g., bog cranberry, pitcher plant, sundew, orchids). Substrate is mostly undecomposed peat. Choose between A1 and A2 and mark the choice with a 1 in their adjoining column. Otherwise go to B below.		acidic soil. Although not in the family Ericaceae, sweetgale (<i>Myrica gale</i>) should be counted also. [AM, CS, FA, FR, INV, NR, OE, PH, Sens, SFS, WBF, WBN]
6			A1. Surface water is usually absent or, if present, pH is typically <4.5 and conductivity is usually <100 µS/cm (<64 ppm TDS). Trees are absent or nearly so. Sedge cover usually sparse or absent but cottongrass and/or lichen cover may be extensive, as well as cloudberry, lingonberry, sheep laurel, and a sedge (<i>Carex rariflora</i>). Wetland surface and surrounding landscape are seldom sloping and wetland often is domed (convex). Inlet and outlet channels are usually absent. If known, pH of peat is <4.0.	0	
7			A2. Not A1. Surface water, if present, has pH typically >4.5 and conductivity is usually >100 μS/cm (>64 ppm TDS). Sedge cover is usually extensive, and/or tree and tall shrub cover is extensive. Sometimes at toe of slope or edge of water body. An exit channel is usually present. Wetter than A1 and peat depth may be shallower (<2 m).	0	
8			B. Moss and/or lichen cover less than 25% of the ground. Soil is mineral or decomposed organic (muck). Choose between B1 and B2 and mark the choice with a 1 in their adjoining column:		
9			B1. Trees and shrubs taller than 1 m comprise more than 25% of the vegetated cover. Surface water is mostly absent or inundates the vegetation only seasonally (e.g., vernal pools or floodplain).	1	
10			B2. Not B1. Tree & tall shrubs comprise less than than 25% of the vegetated cover. Vegetation is mostly herbaceous, e.g., cattail, bulrush, burreed, pond lily, horsetail. Surface water may be extensive and fluctuates seasonally, being either persistent or drying up partly or entirely.	0	
11	The Aninclude " adjace description their en	A should also include pa e the open water part ac cent " is used synonym bed features along their	the AA should include all persistent waters in ponds smaller than 8 hectares (-283 m on a side) that are adjacent to the AA. art of the water area of adjacent ponded water larger than 8 ha and adjacent rivers wider than 20 m. Specifically, the AA should djacent to wetland vegetation and equal in width to the average width of that vegetated zone. Throughout this data form, ously with abutting, adjoining, bordering, contiguous and means no upland (manmade or natural) completely separates the directly shared edge. Features joined only by a channel are not necessarily considered to be adjacent a large portion of features do not have to be hydrologically connected in order to be considered adjacent.		
12		Wetland Types - Adjoining or Subordinate	If the AA is smaller than 1 ha, mark all other types that occupy more than 1% of the vegetated AA. If the AA is larger than 1 ha, mark all other types which are within or adjacent to the AA and occupy more than 1 ha, as visible from the AA or as interpreted from aerial imagery. Do not mark again the type marked in F1.		1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m, 1000 m by 10 m, or similar. [AM, INV, SBM, WBF]
13			A1.	1	
14	4		A2.	0	
15 16	1		B1. B2.	0	
10			5E	ì	

FieldF form - Non-tidal Page 1 of 9

	A	В	С	D	E
	F3	Woody Height & Form	Following EACH row below, indicate with a number code the percentage of the living vegetation in the AA which is occupied by that feature		Deciduous shrubs in this region usually include buttonbush, Labrador tea, bayberry (Morella),
		Diversity	(6 if >95%, 5 if 75-95%, 4 if 50-75%, 3 if 25-50%, 2 if 5-25%, 1 if <5%, 0 if none). If the vegetated part of the AA is largely herbaceous (non-		huckleberry, cranberry, cloudberry, sweetgale, alder, willow, birch, ash, dogwood, and a few others. If
17			woody) vegetation, these percentages should not sum to 100%.		you assigned a code of 3 or higher to any of the first four choices and the ground cover beneath the trees/shrubs is <25% moss, then question F1 might be "B1". [CS, INV, NR, PH, POL, SBM, Sens]
18			coniferous trees (may include tamarack) taller than 3 m.	3	1005/3/11005 13 5257/0 11053, then question 1 1 might be D1 . [65, 1144, 144, 1 11, 1 02, 3510, 36113]
19			deciduous trees taller than 3 m.	3	
20			coniferous or ericaceous shrubs or trees 1-3 m tall not directly below the canopy of trees.	2	
21			deciduous shrubs or trees 1-3 m tall not directly below the canopy of trees.	2	
22			coniferous or ericaceous shrubs <1 m tall not directly below the canopy of taller vegetation.	4	
23			deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	2	
24	<u>Note</u> :	If none of top 4 rows in	n F3 was marked 2 or greater, SKIP to F9 (N fixers).		
25	F4	Dominance of Most	Determine which two woody plant species comprise the greatest portion of the low (<3 m) woody cover . Then choose one:		[PH, POL, SBM, Sens]
26		Abundant Shrub	those species together comprise > 50% of such cover.	1	
27		Species	those species together do not comprise > 50% of such cover.	0	
	F5	Woody Diameter	Mark ALL the types that comprise >5% of the woody canopy cover in the AA or >5% of the wooded areas (if any) along its upland edge		Estimate the diameters at chest height. If small-diameter trees are overtopped (shaded) by larger
28		Classes	(perimeter). The edge should include only the trees whose canopies extend into the AA.		ones, visualise a "subcanopy" at the average height of the smaller-dbh trees, to serve as a basis for the
29			coniferous, 1-9 cm diameter and >1 m tall.	1	minimum 5% canopy requirement in this question. The trees and shrubs need not be wetland species.
30			broad-leaved deciduous 1-9 cm diameter and >1 m tall.	1	[AM, CS, POL, SBM, Sens, WBN]
31			coniferous, 10-19 cm diameter.	1	
32 33			broad-leaved deciduous 10-19 cm diameter.	1	
33			coniferous, 20-40 cm diameter.	1	
34			broad-leaved deciduous 20-40 cm diameter.	0	
35			coniferous, >40 cm diameter.	1	
36			broad-leaved deciduous >40 cm diameter.	0	
37		Height Class	Follow the key below and mark the ONE row that best describes MOST of the AA:		[AM, INV, NR, PH, SBM, Sens]
		Interspersion	A. Neither the vegetation taller than 1 m nor the vegetation shorter than that comprise >70% of the vegetated part of the AA. They each		
			comprise 30-70%. Choose between A1 and A2 and mark the choice with a 1 in the adjoining column. Otherwise go to B below.		
38					
39			A1. The two height classes are mostly scattered and intermixed throughout the AA.	0	
40			A2. Not A1. The two height classes are mostly in separate zones or bands, or in proportionately large clumps.	0	
			B. Either the vegetation shorter than 1 m comprises >70% of the vegetated part of the AA, or the vegetation taller than that does. One size		
41			class might even be totally absent. Choose between B1 and B2 and mark the choice with a 1 in the adjoining column:		
42			B1. The less prevalent height class is mostly scattered and intermixed within the prevalent one.	1	
42			B2. Not B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is completely	0	
43	E7	Largo Spage (Dood	absent. The number of large charge (diameter > 20 cm) in the AA plus adjacent upland area within 10 m of the watland edge is:		Spage are dead standing trace that often (not always) lack bark and folioge. Include only once that are
44	117	Large Snags (Dead Standing Trees)	The number of large snags (diameter >20 cm) in the AA plus adjacent upland area within 10 m of the wetland edge is:		Snags are dead standing trees that often (not always) lack bark and foliage. Include only ones that are at least 2 m tall. [POL, SBM, WBN]
45		g	None, or fewer than 8/ hectare which exceed this diameter.	1	
46			Several (>8/hectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km.	0	
47	F0		Several (>8/hectare) but above not true.	0	
48	F8	Downed Wood	The number of downed wood pieces longer than 2 m and with diameter >10 cm, and not persistently submerged, is:		Exclude temporary "burn piles." [AM, INV, POL, SBM]
49			Few or none that meet these criteria.	0	
50			Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria.	1	
	F9	N Fixers	The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa, other legumes)		Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
51			IS:		
52			<1% or none.	0	
53			1-25% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
54			25-50% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
55			50-75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
56			>75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	

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	Α	В	С	D	E
	F10	Sphagnum Moss	The cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured by taller		Exclude moss growing on trees and rocks. [CS, PH]
57		Extent	sedges and other plants rooted in it, is:		
58			<5% of the vegetated part of the AA.	0	
59			5-25% of the vegetated part of the AA.	1	
60			25-50% of the vegetated part of the AA.	0	
61			50-95% of the vegetated part of the AA.	0	
62			>95% of the vegetated part of the AA.	0	
	F11	% Bare Ground &	Consider the parts of the AA that lack surface water at the driest time of the growing season. Viewed from directly above the ground layer, the		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that is
63		Thatch	predominant condition in those areas at that time is:		present under a tree or shrub canopy should be counted. Boulders count as bare ground. Wetlands
			Little or no (<5%) bare ground is visible between erect stems or under canopy anywhere in the vegetated AA. Ground is extensively	1	with mineral soils and that are heavily shaded or are dominated by annual plant species tend to have
			blanketed by dense thatch, moss, lichens, graminoids with great stem densities, or plants with ground-hugging foliage.		more extensive areas that are bare during the early growing season. [AM, EC, INV, NR, OE, POL, PR,
64					SBM, Sens]
			Slightly bare ground (5-20% bare between plants) is visible in places, but those areas comprise less than 5% of the unflooded parts of the	0	
65			AA.		
			Much bare ground (20-50% bare between plants) is visible in places, and those areas comprise more than 5% of the unflooded parts of the	0	
66			AA.		
67			Other conditions.	0	
68			Not applicable. Surface water (either open or obscured by emergent plants) covers all of the AA all the time.	0	
	F12	Ground Irregularity	Imagine the AA without any living vegetation. Excluding the portion of the AA that is always under water, the number of hummocks, small		The depressions may be of human or natural origin. [AM, EC, INV, NR, PH, POL, PR, SBM, SR, WS]
			pits, raised mounds, animal burrows, ruts, gullies, natural levees, microdepressions, and other areas of peat or mineral soil that are raised or		
69			depressed >10 cm compared to most of the area within a few meters surrounding them is:		
70			Few or none (minimal microtopography; <1% of the land has such features, or entire AA is always water-covered).	0	
71			Intermediate.	1	
72			Several (extensive micro-topography).	0	
73	F13	Upland Inclusions	Within the AA, inclusions of upland are:		[AM, NR, SBM]
74			Few or none.	0	
75			Intermediate (1 - 10% of vegetated part of the AA).	1	
76			Many (e.g., wetland-upland "mosaic", >10% of the vegetated AA).	0	
,,	F14	Soil Texture	In parts of the AA that lack persistent water, the texture of soil in the uppermost layer is mostly: [To determine this, use a trowel to check in		[CS, NR, OE, PH, PR, Sens, SFS, WS]
77			at least 3 widely spaced locations, and use the soil texture key (in Appendix A of the Manual).]		,
-			Loamy: soils that may contain a little fine grit and do not make a "ribbon" longer than 2 cm when moistened, rolled, squeezed, and extended	1	
78			between thumb and forefinger.		
			Fines: includes silt, clay, silt, soils that make a ribbon longer than 2 cm when moistened, rolled, squeezed, and extended between thumb and	0	
79			forefinger.		
80			Deep Peat, to 40 cm depth or greater.	0	
81			Shallow Peat or organic <40 cm deep.	0	
			Coarse: includes sand, loamy sand, gravel, cobble, soils that do not make a ribbon when moistened, rolled, squeezed, and extended	0	
82	F1E	Chambind Front	between thumb and forefinger.		This address and of any holest all aims to the control of the cont
0.5	F15	Shorebird Feeding	During any 2 consecutive weeks of the growing season, the extent of mudflats, bare unshaded saturated areas not covered by thatch, and unshaded waters shallower than 6 cm is: [Include also any area that is adjacent to the AA.]		This addresses needs of many but not all migratory sandpipers, plovers, and related species. [WBF]
83		Habitats	, , , , , , , , , , , , , , , , , , , ,		
84			None, or <100 sq. m.	1	
85			100-1000 sq. m.	0	
86			1000 – 10,000 sq. m.	0	
87	Г14	Harbanaur 0/ -f	>10,000 sq. m.	0	fam wide widnii
88	F16	Herbaceous % of	In aerial ("ducks eye") view, the maximum annual cover of herbaceous vegetation (all non-woody plants except moss) is:		[AM, WBF, WBN]
		Vegetated Wetland	<5% of the vegetated part of the AA or <0.01 hectare (whichever is less). Mark "1" here and SKIP to F20 (Invasive Plant Cover).	0	
89					
90			5-25% of the vegetated part of the AA.	0	
91			25-50% of the vegetated part of the AA.	0	
92			50-95% of the vegetated part of the AA.	1	
93			>95% of the vegetated part of the AA.	0	

FieldF form - Non-tidal Page 3 of 9

	Α	В	С	D	E
0.4	-17	Forb Cover	Within parts of the AA having herbaceous cover (excluding SAV), the areal cover of forbs reaches an annual maximum of:		Forbs are flowering plants. Do not include grasses, sedges, cattail, other graminoids, ferns, horsetails,
95			<5% of the herbaceous part of the AA.	0	or others that lack showy flowers. [POL]
96			5-25% of the herbaceous part of the AA.	1	
97			25-50% of the herbaceous part of the AA.	0	
98			50-95% of the herbaceous part of the AA.	0	
99			>95% of the herbaceous part of the AA.	0	
100	18	Sedge Cover	Sedges (Carex spp.) and cottongrass (Eriophorum spp.) occupy:		[CS]
101			<5% of the vegetated area, or none.	0	
102			5-50% of the vegetated area.	1	
103			50-95% of the vegetated area.	0	
104			>95% of the vegetated area.	0	
105		Dominance of Most Abundant Herbaceous	Determine which two herbaceous species comprise the greatest portion of the herbaceous cover (excluding mosses and floating-leaved aquatic plants). Then choose one of the following:		For this question, include ferns as well as graminoids and forbs. [EC, INV, PH, POL, Sens]
106		Species	those species together comprise > 50% of the areal cover of herbaceous plants at any time during the year.	0	
107			those species together do not comprise > 50% of the areal cover of herbaceous plants at any time during the year.	1	
108	20	Invasive Plant Cover	How extensive is the cover of invasive plant species in the AA? For species, see Plants_invasive worksheet in the accompanying Supplnfo file.		[EC, PH, POL, Sens]
109			invasive species appear to be absent in the AA, or are present only in trace amount (a few individuals).	1	
110			invasive species are present in more than trace amounts, but comprise <5% of herbaceous cover (or woody cover, if the invasives are woody).	0	
111			invasive species comprise 5-20% of the herb cover (or woody cover, if the invasives are woody).	0	
112			invasive species comprise 20-50% of the herb cover (or woody cover, if the invasives are woody).	0	
113			invasive species comprise >50% of the herb cover (or woody cover, if the invasives are woody).	0	
114	21	Invasive Cover Along Upland Edge	Along the wetland-upland boundary, the percent of the upland edge (within 3 m upslope from the wetland) that is occupied by invasive plant species is:		If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an exotic species, assume the unidentified plant to also be exotic. If vegetation is so senesced that exotic
115			none of the upland edge (invasives apparently absent), or AA has no upland edge.	1	species cannot be identified, answer "none". [PH, STR]
116			some (but <5%) of the upland edge.	0	
117			5-50% of the upland edge.	0	
118			most (>50%) of the upland edge.	0	
119	-22	Fringe Wetland	During most of the year, open water within or adjacent to the vegetated part of the wetland is much wider than the maximum width of the vegetated zone within the wetland. Enter "1" if true, "0" if false.	0	[WBF, WBN, WCv]
120	23	Lacustrine Wetland	The vegetated part of the AA is within or adjacent to a body of non-tidal standing open water whose size exceeds 8 hectares during most of a normal year.	0	[FR, PR, PU, WBF, WBN]
		% of AA Without Surface Water	The percentage of the AA that never contains surface water during an average year (that is, except perhaps for a few hours after snowmelt or rainstorms), but which is still a wetland, is:		1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m, 1000 m by 10 m, or similar. [AM, FA, FR, INV, NR, PH, PR, SBM, Sens, SRv, WBF, WBN, WC]
121		Surface Water	<1% . In other words, all or nearly all of the AA is covered by water permanently or at least seasonally.	0	To the or summar. [Parts, 173, 173, 1837, 1837, 171, 173, SUM, SUID, SUN, WOIT, WOIT, WO]
122 123			1-25% of the AA. or <1% but >0.01 ha never contains surface water.	0	1
123			25-50% of the AA never contains surface water.	0	
124			50-75% of the AA never contains surface water.	1	
123			75-99% of the AA never contains surface water, OR >99% and there is at least one persistently ponded water body larger than 1 ha in the	0	1
126			AA.		
			99-100%. AND there is no persistently ponded water body larger than 1 ha within the AA. Enter "1" and SKIP to F42 (Channel Connection).	0	
127					

FieldF form - Non-tidal Page 4 of 9

A	В	С	D	E
F25	% of AA with	Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during the driest	-	If you are unable to determine the condition at the driest time of year, ask the land owner or neighbors
	Persistent Surface	times of a normal year, i.e., when the AA's surface water is at its lowest annual level. At that time, the percentage of the AA that still contains		about it if possible. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat.
128	Water	surface water is:		[AM, CS, FA, FR, INV, NR, POL, PR, SBM, WBF, WBN]
129		None. The AA dries up completely (no water in channels either) or never has surface water during most years. SKIP to F27.	1	
130		1-20% of the AA.	0	
131		20-50% of the AA.	0	
132		50-95% of the AA.	0	
133		>95% of the AA. True for many fringe wetlands.	0	
F26	% of Summertime	At mid-day during the warmest time of year, the area of surface water within the AA that is shaded by vegetation and other features that are		[FA, WC]
134	Water that Is Shaded	<u>within</u> the AA at that time is:		
135		<5% of the water is shaded, or no surface water is present then.	0	
136		5-25% of the water is shaded.	0	
137		25-50% of the water is shaded.	0	
138		50-75% of the water is shaded.	0	
139		>75% of the water is shaded.	0	
140 F27	% of AA that is	The percentage of the AA's area that is between the annual high water and the annual low water (surface water) is:		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not
141	Flooded Only	None, or < 0.01 hectare and < 1% of the AA. SKIP to F29.	0	fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial)
142	Seasonally	1-20% of the AA, or <1% but >0.01 ha.	0	plant species. In riverine systems, the extent of this zone can be estimated by multiplying by 2 the bankful height and visualising where that would intercept the land along the river. [CS, FA, INV, NR,
143		20-50% of the AA.	0	OE, PH, SR, WBF, WBN, WS
144		50-95% of the AA.	0	
145		>95% of the AA.	1	
146 F28	Annual Water	The annual fluctuation in surface water level within most of the parts of the AA that contain surface water at least temporarily is:		Look for flood marks (see above). Because the annual range of water levels is difficult to estimate
147	Fluctuation Range	<10 cm change (stable or nearly so).	0	without multiple visits, consider asking the land owner or neighbors about it. [AM, CS, INV, NR, OE,
148		10 cm - 50 cm change.	1	PH, PR, SR, WBN, WS]
149		0.5 - 1 m change.	0	
150		1-2 m change.	0	
151		>2 m change.	0	
	AA plus adiacent ponde	d water smaller than 0.01 hectare (about 10m x 10m, or 1m x 100 m)? If so, enter "1" in column D andSKIP TO F42	0	
152 (Conne		a nation situation in the first and a contract of the first and the firs		
F29	Predominant Depth	During most of the time when surface water is present during the growing season, its depth, averaged over the entire inundated part of the		If a boat is unavailable, estimate this by considering wetland size and local topography. Or if timing
153	Class	AA, is:		and safety allow, depths may be measured by drilling through winter ice. This question is asking about
154		<10 cm deep (but >0).	0	the spatial median depth that occurs during most of that time, even if inundation is only seasonal or
155		10 - 50 cm deep.	1	temporary. If inundation in most but not all of the wetland is brief, the answer will be based on the depth
156		0.5 - 1 m deep.	0	of the most persistently inundated part of the wetland. Include surface water in channels and ditches as well as ponded areas. [CS, FA, FR, INV, OE, PH, PR, Sens, SFS, SR, WBF, WBN, WC]
157		1 - 2 m deep.	0	
158		>2 m deep. True for many fringe wetlands.	0	
159 F30	Depth Classes -	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. [FR, INV,
160	Evenness of	One depth class that comprises >90% of the AA's inundated area (use the classes in the question above).	0	WBF, WBN]
161	Proportions	One depth class that comprises 50-90% of the AA's inundated area.	0	
162		Neither of above. There are 3 or more depth classes and none occupy >50%.	1	
F31	% of Water That Is	During most times when surface water is present, the percentage that is (1) ponded (stagnant, or flows so slowly that fine sediment is not		Nearly all wetlands with surface water have some ponded water. [AM, CS, INV, NR, OE, PR, Sens, SR
163	Ponded (not Flowing)	held in suspension) AND (2) is likely to be deeper than 0.5 m in some places, is:		WBF, WBN, WC, WS]
164		<5% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34 .	0	
165		5-30% of the water.	0	
166		30-70% of the water.	0	
167		70-95% of the water.	0	
168		>95% of the water.	1	

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Minimum Size may 10 m) and mostly desport than 0.5 m. If toe enter "1" and continue, If failse, order 10" and SCRP to F41 (Floating Again 4. Duckwood). 33 % of Ponded Water to this Copen with which to Spen (facing emergent vegetation duting most of the growing season, and undicated by a vice for the Amazine for the state of the s	A	В	С	D	E
100 3 September 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	F32	Ponded Open Water -	During most of the growing season, the largest patch of open water that is ponded and is in or bordering the AA is >0.01 hectare (about 10	0	Open water is not obscured by vegetation in aerial ("duck's eye") view. It includes vegetation floating
Section Sect		Minimum Size	m by 10 m) and mostly deeper than 0.5 m. If true enter "1" and continue, If false, enter "0" and SKIP to F41 (Floating Algae & Duckweed).		on the water surface or entirely submersed beneath it.
37 See Pended Water Industries special and success special and success special and success special speci					
That is Open Th	-				
Both or x 17st of the Award Layes poor corages of 01 houses. Enter 1" and SKPI to F41 (Floriting Ages & Duckness). 0					[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]
1-ft of the pended value. Enter "1" and SKRP to F41 ("I scaling Algas & Duckswood). 0 0 0 0 0 0 0 0 0		that is Open	3		
5-37% of the ponded water. 0 0 10 10 10 10 10 10					
25 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175 175			, , , , , , , , , , , , , , , , , , , ,		
Total Tota			'		
Total Content of the part of			·		
Width of Vegetated A Description of Section 1973 Vegetated And Section 1974 Vegetated area of the proving section when the AS water level is lowest, the average width of vegetated area in the section of the proving section when the AS is a continuous proving section when water is present, the percentage of the AS water edge length that is nearly flat (a size less than about 5% measured within 5 in bandours of the proving section when water is present, the percentage of the AS water edge length that is nearly flat (a size less than about 5% measured within 5 in bandours of the water object. 125% of the water edge. 125% of the water edge. 0 in 125% of	175		70-99% of the ponded water.	0	
Zone within Wetland The process of the service of the part of the growing season when water is present, the percentage of the AAswater edge length that is nearly flat (a significance) and the such a special pattern of their coil flat of the service of the south and the service	176		100% of the ponded water.	0	
Time	F34				"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may
179 1-9 m.	177	Zone within Wetland	adjoining uplands from open water within the AA is:		include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR,
F35 Flot Shoreline Extent 10 29 m. 10 29 m. 10 29 m. 20 20 m. 20 20 m. 20 20 m.	178		<1 m.	0	SBM, Sens, SR, WBN]
F35 Flot Shoreline Extent 10 29 m. 10 29 m. 10 29 m. 20 20 m. 20 20 m. 20 20 m.	179		1-9 m.	0	
SI Si Si Si Si Si Si Si			10 - 29 m.	0	
50 - 100 m. 50 m. or post water is absent at that time. 0 m. 50 m. or open water is absent at that time. 0 min grous of the part of the growing season when water is present, the percentage of the AAS-water edge length that is nearly flat (a stope less than about 15% measured within 5 m landward of the water) is: 184			30 - 49 m.	0]
F35 Flat Shoreline Extent Suring most of the part of the growing season when water is present, the percentage of the A/Swater edge length that is nearly flat (a slope less than about 5 measured within 5 m landward of the water) is.	182		50 - 100 m.	0	
184 Slope less: than about 5% measured within 5 m landward of the water) is: 185 186 1.25% of the water edge. 0 188 5.75% of the water edge. 0 189 5.75% of the water edge. 0 190 190 190 190 191 191 191 192 1.25% of the water edge. 0 191 190 190 1.25% of the water edge. 0 192 1.25% of the water edge. 0 193 1.25% of the water edge. 0 194 1.25% of the water edge. 0 195 1.25% of the water edge. 0 195 1.25% of the water edge. 0 196 1.25% of the water edge. 0 197 1.25% of the emergent vegetation cover in the AA that is catall (<i>Typha</i> spp.), common reed (<i>Phragmites</i>), or tall (*1m) bultush is: 198 1.25% of the emergent vegetation is absent. SKIP to F38. 0 1.25% of the emergent vegetation. 0	183		> 100 m, or open water is absent at that time.	0	
-1% of the water edge125% of the water edge105 55% of the water edge106 50 75% of the water edge107 55% of the water edge108 60 50 75% of the water edge109 50 75% of the water edge	F35	Flat Shoreline Extent	During most of the part of the growing season when water is present, the percentage of the AA'swater edge length that is nearly flat (a		If several isolated pools are present in early summer, estimate the percent of their collective shorelines
185 186 1-25% of the water edge. 0 1-25% of the wate	184		slope less than about 5% measured within 5 m landward of the water) is:		that has such a gentle slope. [SR, WBN]
1-25% of the water edge. 1-25% of the water edge. 0 0 0 0 0 0 0 0 0			<1% of the water edge.	0	
Section Sect			3	0	
50.75% of the water edge. 0 0 0 0 0 0 0 0 0			Ÿ		
F36 Robust Emergents The percentage of the emergent vegetation cover in the AA that is caltail (Typha spp.), common reed (Phragmites), or tall (>1m) bullrush is: Emergent vegetation is herbaceous plants whose stems are partly above and partly surface during most of the time water is present. [WBN]			· ·		1
F36 Robust Emergents The percentage of the emergent vegetation cover in the AA that is cattail (Typha spp.), common reed (Phragmiles), or tall (>1m) bulnush is:			•		
Section Sect		Robust Emergents	ů		Emergent vegetation is herbaceous plants whose stems are partly above and partly below the water
191 2 2 2 2 2 2 2 2 2		Robust Emergents	is:		
192 1-25% of the emergent vegetation.	191		<1% of the emergent vegetation, or emergent vegetation is absent. SKIP to F38.	0	
25.75% of the emergent vegetation. 194 25.75% of the emergent vegetation. 26.75% of the emergent vegetation. 27.75% of the emergent vegetation. 27.75% of the emergent vegetation. 27.75% of the emergent vegetation between the growing season when water is present, the spatial patternof emergent vegetation within the water is mostly: 27.75% of the emergent vegetation between the growing season when water is present, the spatial patternof emergent vegetation within the water is mostly: 28.75% of the emergent vegetation between the growing season when water is present, the spatial patternof emergent vegetation between the water is mostly: 28.75% of the emergent vegetation between the spatial patternof emergent vegetation within the water is mostly: 28.75% of the emergent vegetation between the spatial patternof emergent vegetation between the water is mostly: 28.75% of the em			1-25% of the emergent vegetation.	0	1
194 575%, of the emergent vegetation. 0 575%, of the part of the growing season when water is present, the spatial patternof emergent vegetation within the water is mostly: 0 575%, of the part of the part of the growing season when water is present, the spatial patternof emergent vegetation within the water is mostly: 0 575%, of the part of the part of the growing season when water is present, the spatial patternof emergent vegetation within the water is mostly: 0 575%, of the part of the spatial patternof emergent vegetation within the water is mostly: 0 575%, of the part of the part of the part of the spatial patternof emergent vegetation within the water is mostly: 0 0 575%, or of the part of			25-75% of the emergent vegetation.	0	1
F37 Interspersion of Emergents & Open Water Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water. Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water. O Intermediate. O Clumped. More than 70% of such vegetation is in bands along the wetland perimeter or is clumped at one or a few sides of the surface water area. F38 Persistent Deepwater Area Provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: Intermediate. O Inter			>75%, of the emergent vegetation.	0	1
Emergents & Open Water Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water. O Intermediate. Clumped. More than 70% of such vegetation is in bands along the wetland perimeter or is clumped at one or a few sides of the surface water area. F38 Persistent Deepwater Area F39 Non-vegetated Aquatic Cover provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: Little or none. Intermediate. During most of the growing season and in waters deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians that is provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: Little or none. Intermediate. During most of the growing season and in waters deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians that is provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: Little or none. Intermediate. During most of the growing season and in waters deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians that is provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: Little or none. Intermediate. During most of the growing season and in waters deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians that is wood based only on observations from terrestrial viewpoints are unreliable so should intermediate. Aquatic Cover Intermediate. During most of the growing season and in waters deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians that is wood based only on observations from terrestrial viewpoints are unreliable so should intermediate. Extensive.	F37	Interspersion of	During most of the part of the growing season when water is present, the spatial patternof emergent vegetation within the water is mostly:		[AM, FA, FR, INV, NR, OE, PH, PR, SBM, SR, WBF, WBN]
Water Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water. O Intermediate. Clumped. More than 70% of such vegetation is in bands along the wetland perimeter or is clumped at one or a few sides of the surface water area. F38 Persistent Deepwater Area If the deepest patch of surface water (flowing or ponded) in or directly adjacent to the AA is mostly deeper than 0.5 m for >2 weeks during the growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection). F39 Non-vegetated Aquatic Cover provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: Little or none. Intermediate. O Extensive.	195				
Intermediate. Clumped. More than 70% of such vegetation is in bands along the wetland perimeter or is clumped at one or a few sides of the surface water area. F38 Persistent Deepwater Area growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection). F39 Non-vegetated Aquatic Cover provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: Little or none. Little or none. Intermediate. Little or none. Intermediate. Extensive.	196		Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water.	0	
Clumped. More than 70% of such vegetation is in bands along the wetland perimeter or is clumped at one or a few sides of the surface water area. F38 Persistent Deepwater Area growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection). F39 Non-vegetated Aquatic Cover provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: Little or none. Intermediate. Little or none. Intermediate. Extensive.			Intermediate.	0	1
area. F38 Persistent Deepwater Area If the deepest patch of surface water (flowing or ponded) in or directly adjacent to the AA is mostly deeper than 0.5 m for >2 weeks during the growing season, enter *1* and continue. If not, enter *0* and SKIP to F42 .(Connection). F39 Non-vegetated Aquatic Cover provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: Little or none. Intermediate. Little or none. Intermediate. Extensive.	П		Clumped. More than 70% of such vegetation is in bands along the wetland perimeter or is clumped at one or a few sides of the surface water	0	1
Area growing season, enter "1" and continue. If not, enter "0" and SKIP to F42. (Connection). F39 Non-vegetated Aquatic Cover provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: Differentiate. Little or none. Intermediate. Extensive. Area growing season, enter "1" and continue. If not, enter "0" and SKIP to F42. (Connection). For this question, consider only the wood that is at or above the water surface. Estimate wood based only on observations from terrestrial viewpoints are unreliable so should be formed at the content of the growing season and in waters deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians that is wood based only on observations from terrestrial viewpoints are unreliable so should be formed at the content of the growing season and in waters deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians that is wood based only on observations from terrestrial viewpoints are unreliable so should be formed at the content of the growing season and in waters deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians that is wood based only on observations from terrestrial viewpoints are unreliable so should be formed at the content of the growing season and in waters deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians that is wood based only on observations from terrestrial viewpoints are unreliable so should be formed at the cover for fish, aquatic invertebrates, and/or amphibians that is wood based only on observations from terrestrial viewpoints are unreliable so should be formed at the cover for fish, aquatic invertebrates, and/or amphibians that is wood based only on observations from terrestrial viewpoints are unreliable so should be formed at the cover for fish, aquatic invertebrates, and/or amphibians that is a cover for the cover for fish, aquatic invertebrates, and/or amphibians that is a cover for fish, aquatic invertebrates, and/or amphibians that	198				
F39 Non-vegetated Aquatic Cover provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: Differentiate. During most of the growing season and in waters deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians that is provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: Little or none. Intermediate. During most of the growing season and in waters deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians that is wood based only on observations from terrestrial viewpoints are unreliable so should be accompanied by the wood that is at or above the water surface. Estimate wood based only on observations from terrestrial viewpoints are unreliable so should be accompanied by the wood that is at or above the water surface. Estimate wood based only on observations from terrestrial viewpoints are unreliable so should be accompanied by the wood that is at or above the water surface. Estimate wood based only on observations from terrestrial viewpoints are unreliable so should be accompanied by the wood that is at or above the water surface. Estimate wood based only on observations from terrestrial viewpoints are unreliable so should be accompanied by the wood that is at or above the water surface. Estimate wood based only on observations from terrestrial viewpoints are unreliable so should be accompanied by the wood that is at or above the water surface. Estimate wood based only on observations from terrestrial viewpoints are unreliable so should be accompanied by the wood that is at or above the water surface. Estimate wood based only on observations from terrestrial viewpoints are unreliable so should be accompanied by the wood that is at or above the water surface. Estimate wood based only on observations from terrestrial viewpoints are unreliable so should be accompanied by the wood that is at or above the water surface.	F38	Persistent Deepwater		0	
F39 Non-vegetated Aquatic Cover Provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: 201 Little or none. Intermediate. Extensive. 202 Extensive. Extensive. During most of the growing season and in waters deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians that is wood based only on observations from terrestrial viewpoints are unreliable so should in the provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: For this question, consider only the wood that is at or above the water surface. Estimate wood based only on observations from terrestrial viewpoints are unreliable so should in the provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: AM, FA, FR, INV]	199	Area	growing season, enter "1" and continue. If not, enter "0" and SKIP to F42 .(Connection).		
Aquatic Cover provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: 201 202 203 204 4quatic Cover provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: Wood based only on observations from terrestrial viewpoints are unreliable so should recommend to the provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: Wood based only on observations from terrestrial viewpoints are unreliable so should recommend to the provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: Wood based only on observations from terrestrial viewpoints are unreliable so should recommend to the provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: Wood based only on observations from terrestrial viewpoints are unreliable so should recommend to the provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: Wood based only on observations from terrestrial viewpoints are unreliable so should recommend to the provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: Wood based only on observations from terrestrial viewpoints are unreliable so should recommend to the provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: Wood based only on observations from terrestrial viewpoints are unreliable so should recommend to the provided NOT by living vegetation by accumulation of dead wood and undercut banks is: Wood based only on observations from terrestrial viewpoints are unreliable so should recommend to the provided NOT by accumulation of dead wood and undercut banks is: Wood based only on observations from terrestrial viewpoints are unreliable so should recommend to the provided NOT by accumulation of the provided NOT by accumul		Non-vegetated	During most of the growing season and in waters deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians that is		For this question, consider only the wood that is at or above the water surface. Estimates of underwater
Little or none. Continue		Ů.			wood based only on observations from terrestrial viewpoints are unreliable so should not be attempted.
202 Intermediate. 0 203 Extensive. 0		1	, , , , , , , , , , , , , , , , , , , ,	0	
203 Extensive. 0					1
					1
		Isolated Island			[WRN]
on all sides during an average June. The island may be solid, or it may be a floating vegetation mat that is sufficiently large and dense to	170	isolatea islanu		l	[1121]
support a waterbird nest.	204				
204		Electing Algae 9		0	(EC DD WRE)
F41 Floating Algae & At some time of the year, mats of algae and/or duckweed are likely to cover >50% of the AA's otherwise-unshaded water surface, or blanket Duckweed >50% of the underwater substrate. If true, enter "1" in next column. If untrue or uncertain, enter "0".	F41			0	[EO, FIX, WDI J
205 Duckweed 2007 of the direct water substate. If they expend the first water substate. If they expend the first water substate.	205	DUCKWEEU	To the strategy substitute. It thus, office is in the condition in an add of an ordinary office of		

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	Α	В	C	D	E
	F42	Channel Connection &	The most persistent surface water connection (outlet channel or pipe, ditch, or overbank water exchange) between the AA and a downslope		Consider the connection regardless of whether the surface water is frozen. The "downslope stream
		Outflow Duration	stream network is: [Note: If the AA represents only part of a wetland, answer this according to whichever is the least permanent surface		network" could consist of ditches, rivers, ponds, or lakes which eventually connect to the ocean. If this
			connection: the one between the AA and the rest of the wetland, or the surface connection between the wetland and the downslope stream		cannot be determined while visiting the AA, consult topographic maps perhaps by viewing these online
206			network.]		with Toporama (http://atlas.nrcan.gc.ca/toporama/en/index.html) [CS, FA, FR, NR, OE, PR, Sens, SFS, SR, WCv, WS]
207			Persistent (surface water flows out for >9 months/year).	0	5r5, 5k, WCV, W5j
208			Seasonal (surface water flows out for 14 days to 9 months/year, not necessarily consecutive).	0	
209			Temporary (surface water flows out for <14 days, not necessarily consecutive).	0	
			None but maps show a stream network downslope from the AA and within a distance that is less than the AA's length. SKIP to F47 (pH	0	
210			Measurement).		
211			No surface water flows out of the wetland except possibly during extreme events (<once (ph="" 10="" a="" an="" ditch,="" f47="" flows="" into="" lacks="" lake="" measurement).<="" only="" or="" or,="" outlet.="" per="" skip="" td="" that="" to="" water="" wetland,="" years).=""><td>1</td><td></td></once>	1	
212	F43	Outflow Confinement	During major runoff events, in the places where surface water exits the AA or connected waters nearby, the water:		"Major runoff events" would include biennial high water caused by storms and/or rapid snowmelt. [CS,
			Mostly passes through a pipe, culvert, narrowly breached dike, berm, beaver dam, or other partial obstruction (other than natural topography)	0	NR, OE, PR, Sens, SR, STR, WS]
213			that does not appear to drain the wetland artificially during most of the growing season.		
214			Leaves through natural exits (channels or diffuse outflow), not mainly through artificial or temporary features.	0	
			Is exported more quickly than usual due to ditches or pipes within the AA or connected to its outlet, or within 10 m of the AA's edge, which	0	
215			drain the wetland artificially, or water is pumped out of the AA.		
	F44	Tributary Channel	At least once annually, surface water from a tributary channel that is >100 m long moves into the AA. Or, surface water from a larger		If inlet tributaries cannot be searched for due to inaccessibility of part of the AA, follow suggestions in
			permanent water body adjacent to the AA spills into the AA. If it enters only via a pipe, that pipe must be fed by a mapped stream or lake further upslope. If no, SKIP to F47 (pH Measurement).	0	F42 above. [NRv, PH, PRv, SRv]
216			1 1 1		
	F45	Input Water	Based on lack of shade, water source characteristics, or actual temperature measurements, the inflow is likely to be warmer than surface	0	[WCv]
217		Temperature	water in the AA during part of most years. Enter 1= yes, 0= no.		
21/	F46	Throughflow	During its travel through the AA at the time of peak annual flow, water arriving in channels: [select only the ONE encountered bymost of the		[FA, FR, INV, NR, OE, PR, SR, WS]
218	0	Resistance	incoming water].		
210			Does not bump into many plant stems as it travels through the AA. Nearly all the water continues to travel in unvegetated (often incised)	0	
			channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond or lake.		
219					
220			Bumps into herbaceous vegetation but mostly remains in fairly straight channels.	0	
221			Bumps into herbaceous vegetation and mostly spreads throughout, or is in widely meandering, multi-branched, or braided channels.	0	
222			Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels.	0	
			Bumps into tree trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or braided).	0	
223					
224	F47	pH Measurement	The pH in most of the AA's surface water:		Preferably, measure this in larger areas of ponded surface water within the AA, or in streams that have
225			Was measured, and is: [enter the reading in the column to the right.]		passed through (not along) most of the AA. Unless surface water is completely absent, do not dig holes or make depressions in peat in order to provide water for this measurement. Avoid measuring near
	1		Was not measured but surface water is present and is darkly tea-coloured. Or if no surface water, then mosses and plants that indicate	1	roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
226			peatland (e.g., Labrador tea) are prevalent. Enter "1".		, , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , , ,
227			Neither of above. Enter "1".	0	
228	F48	TDS and/or	The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information):		See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
229		Conductivity	TDS is: [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.]		
230			Conductivity is [Enter the reading in µS/cm in the column to the right.]		
231			Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1".	0	
232			Neither of above	0	
233	F49	Beaver Probability	Use of the AA by beaver during the past 5 years is (select most applicable ONE):		[FA, FR, PH, SBM, Sens, WBF, WBN]
233		ĺ	Evident from direct observation or presence of gnawed limbs, dams, tracks, dens, lodges, or extensive stands of water-killed trees (snags).	0	
234			Levident from direct observation of presence of grawed limbs, dains, tracks, dens, lodges, or extensive stallas of water-killed frees (strags).	U	
234			Likely based on known occurrence in the region and proximity to suitable habitat, which may include: (a) a persistent freshwater wetland,	0	
			pond, or lake, or a perennial low or mid-gradient (<10%) channel, and (b) a corridor or multiple stands of hardwood trees and shrubs in		
235			vegetated areas near surface water.		
			Unlikely because site characteristics above are deficient, and/or this is a settled area or other area where beaver are routinely removed.	1	
236					

FieldF form - Non-tidal Page 7 of 9

	A	В	С	D	E
225	F50		Select first applicable choice:		Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other
23 /		of Evidence	Springs are known to be present within the AA, or if groundwater levels have been monitored, that has demonstrated that groundwater	0	evidence. Consult topographic maps to detect breaks in slope described here. Rust deposits
			primarily discharges to the wetland for longer periods during the year than periods when the wetland recharges the groundwater.	O	associated with groundwater seeps may be most noticeable as orange discoloration in ice formations
238			F		along streams during early winter. [AM, CS, FA, FR, INV, NR, OE, PH, PRv, SFS, WC, WS]
			Most of the AA has a slope of >5%, or is very close to the base of a natural slope longer than 100 and much steeper than the slope of the	0	1
239			AA, AND the pH of surface water, if known, is >5.5.		
			Neither of above is true, although some groundwater may discharge to or flow through the AA. Or groundwater influx is unknown.	1	
240					
241	F51	Internal Gradient	The gradient along most of the flow path within the AA is:		This is not the same as the shoreline slope. It is the elevational difference between the AA's inlet and
242			<2% or the AA has no surface water outlet (not even seasonally).	0	outlet, divided by the flow-distance between them and converted to percent. If available, use a
243			2-5%.	1	clinometer to measure this. Free clinometer apps can be downloaded to smartphones. If the wetland is large (longer than ~1 km), this may be estimated using Google Earth to determine the minimum and
244			6-10%.	0	maximum elevation within the AA, then dividing by length and multiplying by 100. [CS, NR, OE, PR,
245			>10%.	0	SR, WBF, WBN, WS]
\vdash	Note f	or the next three gues	tions: If the AA lacks an upland edge, evaluate based on the AA's entire perimeter, and moving outward into whatever areas		
			ns, these questions are best answered by measuring from aerial images.		
246	F52		Within a zone extending 30 m laterally from the AA's edge with upland and/or other wetlands, the percentage that contains perennial		[AM, FA, FR, INV, NRv, PH, POL, PRv, SBM, Sens, SRv, STR, WBN]
247	1 32	of Perimeter	vegetation cover (except lawns, row crops, heavily grazed land, conifer plantations) is:		[ANN, 1 A, 1 A, 104, 1914, FII, FOL, FIA, SUN, SCIS, SAV, STA, WON]
		or r crimeter	<5%.	0	
248 249			5 to 30%.	1	
250			30 to 60%.	0	
251			60 to 90%.	0	
252			>90%, or all the area within 30 m of the AA edge is other wetlands. SKIP to F55.	0	
232	F53	Type of Cover in	Within 30 m upslope of where the wetland transitions to upland, the upland land cover that is NOT perennial vegetation is mostly (mark	_	[AM, FA, INV, NRv, PH, POL, SBM, STR, WBN]
253	. 00	Buffer	ONE):		
254			Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0	
255			Bare or nearly bare pervious surface or managed vegetation, e.g., lawn, row crops, unpaved road, dike, landslide.	1	
	F54	Buffer Slope	The steepest and/or most disturbed part of the upland area that is within 30 m of the wetland and occupies >10% of that upland area has a		[NRv, PRv, Sens, SRv]
256		· ·	percent slope of:		
257			<1% (flat almost no noticeable slope) or all the area within 30 m of the AA edge is other wetlands.	0	
258			2-5%.	1	
259			5-30%.	0	
260			>30%.	0	
	F55	Cliffs or Steep Banks	In the AA or within 100 m, there are elevated terrestrial features such as cliffs, talus slopes, stream banks, or excavated pits (but not riprap)	0	Do not include upturned trees as potential den sites. [POL, SBM]
			that extend at least 2 m nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den		
261			areas. Enter 1 (yes) or 0 (no).		
	F56	New or Expanded	Human actions within or adjacent to the AA have persistently expanded a naturally occurring wetland or created a wetland where there		Determine this using historical aerial photography, old maps, soil maps, or permit files as available
262		Wetland	previously was none (e.g., by excavation, impoundment):		[CS, NR, OE, PH, Sens]
263			No.	0	
264			Yes, and created or expanded 20 - 100 years ago.	0	_
265			Yes, and created or expanded 3-20 years ago.	1	
266			Yes, and created or expanded within last 3 years.	0	1
267			Yes, but time of origin or expansion unknown.	0	4
268			Unknown if new or expanded within 20 years or not.	0	
269	F57	Burn History	More than 1% of the AA's previously vegetated area:		Look for charred soil or stumps (in multiple widely-spaced locations) or ask landowner. [CS, PH, STR]
270			Burned within past 5 years.	0	1
271			Burned 6-10 years ago.	0	1
272			Burned 11-30 years ago.	0	1
273			Burned >30 years ago, or no evidence of a burn and no data.	1	1
					-

FieldF form - Non-tidal Page 8 of 9

	A	В	С	D	E
	F58	Visibility	The maximum percentage of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings, or		[PU, STR, WBFv]
274			public maintained trails that intersect, adjoin, or are within 100 m of the AA (select one) is:		
275			<25%.	1	
276			25-50%.	0	
277			>50%.	0	1
	F59	Non-consumptive	Assuming access permission was granted, select ALL statements that are true of the AA as it currently exists:	Ů	[PU, STR]
278		Uses - Actual or			
279		Potential	For an average person, walking is physically possible in (not just near) >5% of the AA during most of the growing season, e.g., free of deep water and dense shrub thickets.	0	
280			Maintained roads, parking areas, or foot-trails are within 10 m of the AA, or the AA can be accessed part of the year by boats arriving via contiquous waters.	0	
200			Within or near the AA, there is an interpretive center, trails with interpretive signs or brochures, and/or regular guided interpretive tours.	0	1
281					
	F60	Unvisited Core Area	The percentage of the AA almost never visited by humans during an average growing season probably comprises: [Note: Only include the		[AM, FAv, FRv, PH, PU, SBM, STR, WBF, WBN]
			part actually walked or driven (not simply viewed from) with a vehicle or boat. Do not include visitors on trails outside of the AA unless more		
202			than half the wetland is visible from the trails and they are within 30 m of the wetland edge. In that case include only the area occupied by the trail.]		
282			<5% and no inhabited building is within 100 m of the AA.	0	
283			<5% and inhabited building is within 100 m of the AA.	0	1
284			5-50% and no inhabited building is within 100 m of the AA.	0	-
286			5-50% and inhabited building is within 100 m of the AA.	0	
287			50-95%, with or without inhabited building nearby.	0	-
288			>95% of the AA with or without inhabited building nearby.	1	
	F61	Frequently Visited	The part of the AA visited by humans almost daily for several weeks during an average growing season probably comprises: /See note	_	[AM, PH, PU, SBM, STR, WBF, WBN]
289	101	Area	above.		[AWI, FTI, FO, JOINI, STIX, WOIL, WOIN]
290		71100	<5%. If F60 was answered ">95%" (mostly never visited), SKIP to F64.	1	
291			5-50%.	0	
292			50-95%.	0	
293			>95% of the AA.	0	
	F62	BMP - Soils	Boardwalks, paved trails, fences or other infrastructure and/or well-enforced regulations appear to effectively prevent visitors from walking on	0	[PH, PU]
294			soil within nearly all of the AA when the soil is unfrozen. Enter "1" if true.		
	F63	BMP - Wildlife	Fences, observation blinds, platforms, paved trails, exclusion periods, and/or well-enforced prohibitions on motorised boats, off-leash pets,	0	[AM, PU, WBF, WBN]
		Protection	and off road vehicles appear to effectively exclude or divert visitors and their pets from the AA at critical times in order to minimize		
295			disturbance of wildlife (except during hunting seasons). Enter "1" if true.		
296	F64	Consumptive Uses	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select ALL that apply.		[FAv, FRv, WBFv]
297		(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	0	1
298		Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0]
299			Waterfowl hunting.	0	1
300			Fishing.	0]
301			Trapping of furbearers.	0]
302			None of the above.	1	
303	F65	Domestic Wells	The closest wells or water bodies that currently provide drinking water are:		[NRv]
304			Within 0-100 m. of the AA.	0	1
305			100-500 m. away.	0]
306			>500 m. away, or no information.	1	
	F66	Calcareous Fen	The AA is, or is part of, a calcareous fen. See the Plants_Calcar worksheet in the accompanying SuppInfo file for list of plant indicators		[PH, PR]
			(calciphiles). Enter 1 If more than two Strong or more than five Moderate calciphile species are present; otherwise enter 0, but if not able to		
307			identify those and no information, change to blank .		
308					

FieldF form - Non-tidal Page 9 of 9

stigator: Darcy Kavanagh & Jordan Davis	Site Identifier: WL14		Date: September 14, 2022				
ressor (S) Data Form for Non-Tida	al Wetlands. WESP-AC for Nova S	Scotia version 2.		Data			
Aberrant Timing of Water Inputs							
	y to have caused the timing of water inputs (but not necessarily their		uted (smaller or less frequent peaks spread over longer times,				
Stormwater from impervious surfaces that drains directly to the w	(larger or more frequent spikes but over shorter times). [FA, FR, INV	r, PH, STKJ					
Water subsidies from wastewater effluent, septic system leakage,							
Regular removal of surface or groundwater for irrigation or other or	<u> </u>						
Flow regulation in tributaries or water level regulation in adjoining water body, or other control structure at water entry points that regulates inflow to the wetland.							
	m the wetland that interferes with surface or subsurface flow in/out						
Excavation within the wetland, e.g., dugout, artificial pond, dead-e		of the AA (e.g., Todu IIII, Wellpaus, pipelines).					
Artificial drains or ditches in or near the wetland.	and diten.						
Accelerated downcutting or channelization of an adjacent or interru	nal channel (incised below the historical water table level)						
Logging within the wetland.	iai channel (incised below the historical water table level).						
Subsidence or compaction of the wetland's substrate as a result of	of machinery livestack fire drainage or off road vehicles						
Straightening, ditching, dredging, and/or lining of tributary channe							
	low, assign points. However, if you believe the checked items had n	o measurable effect on the timing of water conditions in any part of	the AA, then leave the "O's" for the scores in the following				
	andition if the checked items never occurred or were no longer prese.		ane run, and recure are to a for the secretary are following				
	Severe (3 points)	Medium (2 points)	Mild (1 point)				
Spatial extent of timing shift within the wetland:	>95% of wetland.	5-95% of wetland.	<5% of wetland.	0			
When most of the timing shift began:	When most of the timing shift began: <3 yrs ago. 3-9 yrs ago.						
Score the following 2 rows only if the altered inputs began within pa	lowing 2 rows only if the altered inputs began within past 10 years, and only for the part of the wetland that experiences those.						
Input timing now vs. previously:	Shift of weeks.	Shift of days.	Shift of hours or minutes.	0			
Flashiness or muting:	Became very flashy or controlled.	Intermediate.	Became mildly flashy or controlled.	0			
			Sum=	0			
			Stressor subscore=	0.00			
Accelerated Inputs of Contaminants and/o	r Salts						
·	g in either the wetland or its CA that is likely to have accelerated th	e inputs of contaminants or salts to the AA TAM FA PH POL STE	21				
Stormwater or wastewater effluent (including failing septic system	· · · · · · · · · · · · · · · · · · ·	e inputs of contaminants of saits to the res. [rivi, Fr., Fr., Fr., Fo.E., Str	y				
		land from National Dellidant Deland Income and the MAZ and	Coords Forth Albert House on a self-rem				
npri/default.asp?lang=En&n=B85A1846-1	orage areas, oil/ gas extraction, other sources (download many locati	ons from National Polititant Release Inventory and view KMZ overs	ay in Google Earth. https://www.ec.gc.ca/inrp-				
Road salt.							
Spraying of pesticides, as applied to lawns, croplands, roadsides,	or other areas in the CA						
	low, assign points. However, if you believe the checked items did no	t cumulatively expose the AA to significantly higher levels of contain	ninants and/or salts, then leave the "O's" for the scores in the				
	with the condition if the checked items never occurred or were no long						
	Severe (3 points)	Medium (2 points)	Mild (1 point)				
Usual toxicity of most toxic contaminants:	Industrial effluent, mining waste, unmanaged landfill.	Cropland, managed landfill, pipeline or transmission rights-of- way.	Low density residential.	0			
Frequency & duration of input:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.	0			
AA proximity to main sources (actual or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.	0			
			Sum=	0			
Stressor subscore= 0,00							

Accelerated Inputs of Nutrients				
In the last column, place a check mark next to any item occurring	g in either the wetland or its CA that is likely to have accelerated the	inputs of nutrients to the wetland. [NRv, PRv, STR]		
Stormwater or wastewater effluent (including failing septic system	ns), landfills.			
Fertilizers applied to lawns, ag lands, or other areas in the CA.				
Livestock, dogs.				
Artificial drainage of upslope lands.				
If any items were checked above, then for each row of the table be effects, contrast the current condition with the condition if the chec	elow, assign points. However, if you believe the checked items did not ked items never occurred or were no longer present.	cumulatively expose the AA to significantly more nutrients, then le	eave the "0's" for the scores in the following rows. To estimate	
	Severe (3 points)	Medium (2 points)	Mild (1 point)	
Type of loading:	High density of unmaintained septic, some types of industrial sources.	Moderate density septic, cropland, secondary wastewater treatment plant.	Livestock, pets, low density residential.	
Frequency & duration of input:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.	
AA proximity to main sources (actual or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.	
			Sum=	
			Stressor subscore=	
Excessive Sediment Loading from Contrib	outing Area			
<u> </u>		are and importance in a the western different to CA IFA FD INIV DI	I CD., CTDI	
, , , , , , , , , , , , , , , , , , , ,	the CA that is likely to have elevated the load of waterborne or windbo	ine seament reacting the wettand from its CA. [FA, FK, INV, PA	, SKV, STKJ	
Erosion from plowed fields, fill, timber harvest, dirt roads, vegetat	ion clearing, tires.			
Erosion from construction, in-channel machinery in the CA.				
Erosion from off-road vehicles in the CA.				
Erosion from livestock or foot traffic in the CA.				
Stormwater or wastewater effluent.				
Sediment from road sanding, gravel mining, other mining, oil/ gas				
Accelerated channel downcutting or headcutting of tributaries due	e to altered land use.			
Other human-related disturbances within the CA.				
	elow, assign points (3, 2, or 1 as shown in header) in the last column. It te effects, contrast the current condition with the condition if the check		a significantly more sealment or suspended solids to the AA,	
	Severe (3 points)	Medium (2 points)	Mild (1 point)	
Erosion in CA:	Extensive evidence, high intensity.*	Potentially (based on high-intensity* land use) or scattered evidence.	Potentially (based on low-intensity* land use) with little or no direct evidence.	
Recentness of significant soil disturbance in the CA:	Current & ongoing.	1-12 months ago.	>1 yr ago.	
Duration of sediment inputs to the wetland:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.	
AA proximity to actual or potential sources:	0 - 15 m.	15-100 m.	In more distant part of contributing area.	
* high-intensity= extensive off-road vehicle use, plowing, grading, soil or sediment.	excavation, erosion with or without veg removal; low-intensity= veg r	removal only with little or no apparent erosion or disturbance of	Sum=	
.				

Soil or Sediment Alteration Within the Ass	essment Area								
In the last column, place a check mark next to any item present in the wetland that is likely to have compacted, eroded, or otherwise altered the wetland's soil. Consider only items occurring within past 100 years or since wetland was created or restored (whichever is less). [CS, INV, NR, PH, SR, STR]									
Compaction from machinery, off-road vehicles, livestock, or mountain bikes, especially during wetter periods.									
Leveling or other grading not to the natural contour.									
Tillage, plowing (but excluding disking for enhancement of native plants).									
Fill or riprap, excluding small amounts of upland soils containing organic amendments (compost, etc.) or small amounts of topsoil imported from another wetland.									
Excavation.									
Ditch cleaning or dredging in or adjacent to the wetland.									
Boat traffic in or adjacent to the wetland and sufficient to cause shore erosion or stir bottom sediments.									
Artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments.									
If any items were checked above, then for each row of the table be effects, contrast the current condition with the condition if the checket.	elow, assign points. However, if you believe the checked items did no cked items never occurred or were no longer present.	t measurably alter the soil structure and/or topography, then leave	the "O's" for the scores in the following rows. To estimate						
	Severe (3 points)	Medium (2 points)	Mild (1 point)						
Spatial extent of altered soil:	>95% of wetland or >95% of its upland edge (if any).	5-95% of wetland or 5-95% of its upland edge (if any).	<5% of wetland and <5% of its upland edge (if any).						
Recentness of significant soil alteration in wetland:	Current & ongoing.	1-12 months ago.	>1 yr ago.						
Duration:	Long-lasting, minimal veg recovery.	Long-lasting but mostly revegetated.	Short-term, revegetated, not intense.						
Timing of soil alteration:	Frequent and year-round.	Frequent but mostly seasonal.	Mainly during one-time or scattered events.						
		•	Sum=						
			Stressor subscore=	0					

Assessment Area (AA) Results:

Wetland ID: WL14

Date: September 14, 2022

Observer: Darcy Kavanagh & Jordan Davis

Latitude & Longitude (decimal degrees): 44.054702409494396, -64.83238837184054

Scores will appear below after data are entered in worksheets OF, F, and S. See Manual for definitions and descriptions of how scores were computed.

Wetland Functions or Other Attributes:	Function Score (Normalised)	Function Rating	Benefits Score (Normalised)	Benefits Rating	Function Score (raw)	Benefits Score (raw)
Water Storage & Delay (WS)	8.46	Higher	4.68	Moderate	8.26	2.07
Stream Flow Support (SFS)	0.00	Lower	0.00	Lower	0.00	0.00
Water Cooling (WC)	2.30	Moderate	0.00	Lower	1.53	0.00
Sediment Retention & Stabilisation (SR)	10.00	Higher	2.50	Moderate	10.00	1.22
Phosphorus Retention (PR)	10.00	Higher	1.88	Moderate	10.00	1.46
Nitrate Removal & Retention (NR)	10.00	Higher	5.42	Moderate	10.00	5.42
Carbon Sequestration (CS)	2.74	Lower			6.49	
Organic Nutrient Export (OE)	5.92	Moderate			3.87	
Anadromous Fish Habitat (FA)	0.00	Lower	0.00	Lower	0.00	0.00
Resident Fish Habitat (FR)	0.00	Lower	0.00	Lower	0.00	0.00
Aquatic Invertebrate Habitat (INV)	2.70	Lower	3.55	Moderate	4.59	3.16
Amphibian & Turtle Habitat (AM)	4.47	Moderate	6.29	Higher	5.47	6.95
Waterbird Feeding Habitat (WBF)	6.08	Moderate	10.00	Higher	4.63	10.00
Waterbird Nesting Habitat (WBN)	3.65	Moderate	10.00	Higher	2.64	10.00
Songbird, Raptor, & Mammal Habitat (SBM)	7.13	Moderate	10.00	Higher	6.21	10.00
Pollinator Habitat (POL)	9.15	Higher	3.33	Moderate	7.58	3.33
Native Plant Habitat (PH)	2.69	Lower	5.71	Moderate	4.98	5.71
Public Use & Recognition (PU)			0.35	Lower		0.54
Wetland Sensitivity (Sens)			10.00	Higher		5.56
Wetland Ecological Condition (EC)			8.26	Higher		9.17
Wetland Stressors (STR) (higher score means more stress)			8.01	Higher		4.03
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	8.46	Higher	4.68	Moderate	8.26	2.07
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	9.09	Higher	4.34	Moderate	9.56	4.06
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	4.32	Moderate	2.37	Lower	3.55	2.11
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	4.46	Moderate	7.63	Higher	4.01	7.69
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	7.74	Higher	8.17	Moderate	6.92	8.17
WETLAND CONDITION (EC)			8.26	Higher		9.17
WETLAND RISK (average of Sensitivity & Stressors)			9.00	Higher		4.80
			-			

NOTE: A score of 0 does not mean the function or benefit is absent from the wetland. It means only that this wetland has a capacity that is equal or less than the lowest-scoring one, for that function or benefit, from among all the NS calibration wetlands that were assessed previously.

NOVA SCOTIA - Functional WSS Interpretation Tool

3. Functional WSS Interpretation Results

Function-Benefit Product (FBP)	FBP SCORE	FBP SCORE CATEGORY
SUPPORT SUPERGROUP - HYDROLOGIC	39.55699565	Moderate
SUPPORT SUPERGROUP - WATER QUALITY SUPPORT	39.45646222	Low
SUPPORT SUPERGROUP - AQUATIC SUPPORT	10.2439715	Low
HABITAT SUPERGROUP - AQUATIC HABITAT	34.0241239	Low
HABITAT SUPERGROUP - TRANSITION HABITAT	63.23706159	Low

3a. Functional WSS Determination: Automatic Method

Habitat Rule Satisfied? NO Support Rule Satisfied? NO Habitat/Support Hybrid Rule Satisfied? NO

CONCLUSION: Site is not a WSS

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	Mersey River Wind Farm - WL17
Investigator Name:	Darcy Kavanagh & Jordan Davis
Date of Field Assessment:	September 14, 2022
Nearest Town:	Milton, NS
Latitude (decimal degrees):	44.06863403135772
Longitude (decimal degrees):	-64.82514685074169
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	0.047
AA as percent of entire wetland (approx.). Attach sketch map if AA is smaller than the entire contiguous wetland.	100%
What percent (approx.) of the wetland were you able to visit?	100%
What percent (approx.) of the AA were you able to visit?	100%
Were you able to ask the site owner/manager about any of the questions?	No
Indicate here if you intentionally surveyed for rare plants, calciphile plants, or rare animals:	Yes
Have you attended a WESP-AC training session? If so, indicate approximate month & year.	No
How many wetlands have you assessed previously using WESP-AC? (approx.)	50+
Comments about the site or this WESP-AC assessment (attach extra page if desired):	

	A	В	С	D E
	Date: S	September 14, 2022	Site Identifier: WL17	Investigator: Darcy Kavanagh & Jordan Davis
1				

Form OF (Office). Non-tidal Wetland Data Form. WESP-AC version 2 for Nova Scotia wetlands only. DIRECTIONS: Conduct an assessment only after reading the accompanying Manual and the Explanations column of the data form. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answering many of the questions below will require using these online map viewers:

Google Earth Pro: https://www.google.com/earth/download/gep/agree.html

Provincial Landscape Viewer: https://nsgi.novascotia.ca/plv/

For most wetlands, completing this office data form will require 1-2 hours. For a list of functions to which each question pertains, see bracketed abbreviations in the Definitions/Explanations column. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Manual. Codes for functions and values are: WS= Water Storage, SFS= Stream Flow Support, WC= Water Cooling, SR= Sediment Retention & Stabilisation, PR= Phosphorus Retention, NR= Nitrate Removal, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate Habitat, FA= Anadromous Fish Habitat, FR= Resident Fish Habitat, AM= Amphibian & Reptile Habitat, WBF= Feeding Waterbird Habitat, WBN= Nesting Waterbird Habitat, SBM= Songbird, Raptor, & Mammal Habitat, POL= Pollinator Habitat, PH= Native Plant Habitat, PU= Public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= Stressors.

3	#	Indicators	Condition Choices	Data	Definitions/Explanations
4	OF1	Province	Mark the province in which the AA is located by changing the 0 in the column next to it to a "1". Mark only one.		This determines to which province's calibration wetlands the raw score of any wetland is normalised. In the function and benefits models, it also triggers the automatic exclusion of indicators for which no
5			New Brunswick	0	spatial data exists in a particular province.
6			Nova Scotia	1	openial acts on to particular province.
7			Prince Edward Island	0	
8			Newfoundland-Labrador Newfoundland-Labrador	0	
9		Ponded Area Within 1 km.	The area of surface water ponded during most of the growing season that is both (1) in or adjacent to the AA and (2) within 1 km is:		"Adjacent" means not separated from the AA by a wide expanse (>50 m) of upland (including roads >50 m wide). Include ponded areas likely to be hidden by wetland vegetation. If surface water
10			<0.01 hectare (about 10 m x 10 m).	1	extends beyond 1 km, include only the part within 1 km. Do not include tidal areas. Measure the area from aerial imagery using Google Earth Pro (click on Ruler icon in toolbar, then Polygon in pop-
11			0.01 - 0.1 hectare.	0	up menu). [PH, SBM, WBN]
12			0.1 - 1 hectare.	0	
13			1 to 10 hectares.	0	
14			10 to 100 hectares.	0	
15			>100 hectares.	0	
16		Ponded Water & Wetland Within 1 km.	The area of wetlands and surface water ponded during most of the growing season that is both (1) in or adjacent to the AA and (2) within 1 km is:		See definition of adjacent in OF2. If the AA's wetland vegetation extends beyond 1 km, include only the part within 1 km. "Ponded" means not flowing in rivers or streams. [Sens, WBF]
17			<0.01 hectare (about 10 m x 10 m).	0	
18			0.01 - 0.1 hectare.	1	
19			0.1 - 1 hectare.	0	
20			1 to 10 hectares.	0	
21			10 to 100 hectares.	0	
22			>100 hectares.	0	
23		Size of Largest Nearby Vegetated Tract or	The largest vegetated patch or corridor that includes the AA's vegetation plus alladjacent upland vegetation that is not lawn, row crops, heavily grazed lands, conifer plantation is:		See definition of adjacent in OF2. Use Google Earth Pro's polygon ruler (as described above). Exclude conifer plantations only if it is obvious that trees were planted in rows. [AM, PH, SBM, Sens]
24		Corridor	<0.01 hectare (about 10 m x 10 m).	0	
25			0.01 - 0.1 hectare.	0	
26			0.1 - 1 hectare.	0	
27			1 to 10 hectares.	0	
28			10 to 100 hectares.	0	
29			100 to 1000 hectares.	0	
30			>1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	1	

	Α	В	С	D	E
	OF5	Distance to Large	The minimum distance from the edge of the AA to the edge of the closest vegetated land (but excluding row crops, lawn, conifer		To measure distance, use Google Earth Pro (Ruler > Line tool). The 375-ha criterion is from the
31		Vegetated Tract	plantation) larger than 375 hectares (about 2 km on a side), is:		Fundy Model Forest Project. [AM, PH, POL, SBM, Sens]
			<50 m, and not separated from the 375-ha vegetated area by any width ofpaved roads, stretches of open water, row crops, bare ground,	1	
			lawn, or impervious surface. Or the AA itself contains >375 ha of vegetation. [This is often the answer in relatively undeveloped	·	
32			landscapes.]		
			<50 m, but completely separated from the 375-ha vegetated area by those features, and AA does not contain >375 ha of vegetation.	0	
33					
34			50-500 m, and not separated.	0	
35			50-500 m, but separated by those features.	0	
36			0.5 - 5 km, and not separated.	0	
37			0.5 - 5 km, but separated by those features.	0	
38			None of the above (the closest patches or corridors which are that large are >5 km away).	0	
	OF6	Herbaceous Uniqueness	The AA's vegetation cover is >10% herbaceous* but uplands within 5 km have <10% herbaceous cover. If so, enter "3" and continue to	1	For this question only, consider moss to be herbaceous vegetation. Determine the score by viewing
			OF7. If not, consider:		aerial imagery in Google Earth after successively drawing or estimating the boundaries of the buffers
			The AA's vegetation cover is >10% herbaceous* but uplands within 1 km have <10% herbaceous cover. If so enter "2" and continue to OF7. If not, consider:		of 5 km, 1 km, and 100 m radius focused on the center of the AA. Circles of specified radius can be drawn in Google Earth Pro by clicking on the Ruler icon, then Circle in the pop-up menu. [AMv, PHv,
			The AA's vegetation cover is >10% herbaceous* but uplands within 100 m of the wetland edge have <10% herbaceous cover. If so, enter		POLv. SBMv. WBFv. WBNvl
			ngn		
			[* NOTE: Exclude lawns, row crops, heavily grazed lands, forest, shrublands. Include moss as well as grasslike plants in this use of		
39			"herbaceous vegetation"]		
	OF7	Woody Uniqueness	The AA's vegetation cover is >10% woody* but uplands within 5 km have <10% woody cover. If so, enter "3" and continue to OF8. If not,	1	See above. Do not consider conifer plantations to be forest if it is obvious that trees were planted in
			consider:		rows. [AMv, PHv, POLv, SBMv]
			The AA's vegetation is >10% woody* but uplands within 1 km have <10% woody cover. If so enter "2" and continue to OF8. If not, consider:		
			The AA's vegetation is >10% woody* but uplands within 100 m of the wetland edge have <10% woody cover. If so, enter "1"		
40			[* NOTE: woody cover = trees & shrubs taller than 1 m.]		
	OF8	Local Vegetated Cover	Draw a 5-km radius circle measured from the center of the AA. Ignoring all permanent water in the circle, the percent of the remaining are		In Google Earth, draw the 5 km buffer and then estimate land cover percentages, or do GIS analysis
		Percentage	that is wooded or unmanaged herbaceous vegetation (NOT lawn, row crops, bare or heavily grazed land, clearcuts, or conifer plantations)		of an appropriate land cover layer. [AM, PH, POL, SBM, Sens]
41			is:		
42			<5% of the land.	0	
43			5 to 20% of the land.	0	
44			20 to 60% of the land.	1	
45			60 to 90% of the land.	0	
46			>90% of the land. SKIP to OF10.	0	
47	OF9	Type of Land Cover	Within the 5-km radius circle, and ignoring all permanent water, the land area that is bare or non-perennial cover is mostly:		[AM, SBM]
48		Alteration	Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0	
49			Bare pervious surface, e.q., lawn, recent (<5 yrs ago) clearcut, dirt or gravel road, cropland, landslide, conifer plantation.	1	
	OF10	Distance by Road to	Measured along the maintained road nearest the AA, the distance to the nearest population center is:		"Population center" means a settled area with more than about 5 regularly- inhabited structures per
50		Nearest Population			square kilometer. In Google Earth Pro, click on the Ruler icon, then Path, and draw and measure the
51		Center	<100 m.	0	route. [FAv, FRv, NRv, PH, PU, SBM, WBFv]
52			100 - 500 m.	0	
53			0.5-1 km.	0	
54			1 - 5 km.	1	
55			>5 km.	0	

	A	В	С	D	E
	OF11	Distance to Nearest	From the center of the AA, the distance to the nearest maintained public road (dirt or paved) is:		Determine this by viewing aerial imagery in Google Earth Pro and measuring with the Ruler>Line tool
56		Maintained Road	<10 m.	0	[AM, FAv, FRv, NRv, PH, PU, SBM, STR, WBN]
57 58			10 - 25 m.	0	-
			25 - 50 m.	0	-
59			50 - 100 m.	0	-
60			100 - 500 m.	0	-
62			>500 m.	1	-
02	OF12	Wildlife Access	Draw a circle of radius of 5 km from the center of the AA. If mammals and amphibians can move from the center of the AA to ALL other	'	Draw the 5 km circle in Google Earth Pro using the Circle tool and search for roads and wetlands
63	01 12	· · · · · · · · · · · · · · · · · · ·	separate wetlands and ponds located within the circle without being forced to cross pavement (any width), lawns, bare ground, and/or marine waters, mark 1= yes can move to all, 0= no. Change to blank if there are no other wetlands within 5 km.	0	within it, being alert for roads hidden under forest canopy. [AM, SBM, STR]
64	OF13	Distance to Ponded Water	The distance from the AA center to the closest (but separate) ponded water body visible in GoogleEarth imagery is:		In Google Earth Pro, zoom in closely to examine the surrounding landscape for ponds, lakes, and wetlands that appear to be permanently flooded. [AM, PH, SBM, Sens, WBF, WBN]
65		water	<50 m, and not separated by any width of paved roads, stretches of open water, row crops, lawn, bare ground, or impervious surface.	0	- wettanus that appear to be permanently hooded. [Ain, FTI, 35in, 36ts, Wbi , Wbin]
66			<50 m, but completely separated by those features.	0	1
67			50-500 m, and not separated.	0	1
68			50-500 m, but separated by those features.	0	
69			0.5 - 1 km, and not separated.	0	
70			0.5 - 1 km, but separated by those features.	0	
71			None of the above (the closest patches or corridors that large are >1 km away).	1	
72		Distance to Large Ponded Water	The distance from the AA center to the closest (but separate)non-tidal body of water that is ponded during most of the year and islarger than 8 hectares during most of a normal year is:		Determine this by viewing aerial imagery in Google Earth. [Sens, WBF, WBN]
73			<100 m.	0	1
74			100 m - 1 km.	0	1
75			1 -2 km.	0	1
76			2-5 km.	1	
77			5-10 km.	0	
78			>10 km.	0	
79	OF15	Tidal Proximity	The distance from the AA edge to the closest tidal water body (regardless of its salinity) is:		In Google Earth, measure the distance to the ocean (including Bay of Fundy) or tidal river, whichever is closer. If you need to see how far upriver a river is tidal, see the KMZ file provided with this
80			<100 m.	0	calculator for NS (NS Headtide). Points shown in those files are only an approximation, so local
81			100 m - 1 km.	0	information if available may be preferable. [FA, WBF]
82			1 - 5 km.	0	
83			5-10 km.	1	
84			10-40 km.	0	
85			>40 km.	0	
86	OF16	Upland Edge Contact	Select one:		[NR, SBM, Sens]
87			The AA has no upland edge (or upland is <1% of perimeter). The AA is entirely surrounded by (& contiguous with) other wetlands or water.	0	
88			1-25% of the AA's perimeter abuts upland (including filled areas). The rest adjoins other wetlands or water that is mostly wider than the AA	0	
89			25-50% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0	
90			50-75% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0]
91			More than 75% of the AA's perimeter abuts upland. Any remainder adjoins other wetlands or water that is mostly wider than the AA. This will be true for most assessments done with WESP-AC.	1	

	A	В	С	D	E
02	OF17		Within 5 km downstream or downslope of the AA (select first true choice):		Contact local authories to determine if such maps exist. Where available, LiDAR imagery can
92		tidal Waters	Maps show Flood Zone or Flood Risk areas and there appears to be infrastructure vulnerable to river flooding not caused by tidal storm	0	provide finer elevational resolution useful for flood modeling. [WSv]
93			Surges.	O	
75			Maps show Flood Zone or Flood Risk areas, but infrastructure is absent or is not vulnerable to floods from a non-tidal river. In some cases	0	
94			levees, upriver dams, or other measures may partly limit damage or risk from smaller events.		
			Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure	0	
95			vulnerable to river flooding unrelated to tidal storm surges.		
96			Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there is no infrastructure vulnerable to river flooding unrelated to tidal storm surges.	1	
		Relative Elevation in	In Google Earth, enable the Terrain layer (lower left menu) and open the NS_Watersheds Secondary KMZ file that accompanies this		[FA, NR, Sens, SFSv, WCv, WSv]
		Watershed	calculator. Then determine the AA's approximate elevation (bottom right, NOT the "eye alt"). Then move cursor around to determine the	0.39	
97			watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-min).		
	OF19	Water Quality Sensitive	The AA is in a Protected Water Supply area (Designated Water Supply Area, Natural Watershed Municipal Surface Water Supply Area, or	0	If an ACCDC report is available for this AA, it also may contain such information. [NRv]
98		Watershed or Area	Municipal Water Supply Area) according to the provided KMZ overlay ("NS Protected Water Supply Areas"). Enter 1= yes, 0= no.		
	OF20	Degraded Water	Sampling indicates a problem with concentrations of metals, hydrocarbons, nutrients, or other substances (excluding bacteria, acidic		May use existing data, or sample those waters as part of this wetland assessment. "Harmful" should
99		Upstream	water, high temperatures) being present at levels harmful to aquatic life or humans, and:		be evaluated with regard to current federal or provincial water quality standards. [AM, FA, FR, NRv,
100			The condition is present within the AA.	0	PRv, SRv, STR, WBF, WBN]
101			The condition is present in waters within 1 km that flowinto the AA, but has not been documented in the AA itself.	0	
102			Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in either the AA or inflowing waters.	0	
			Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the situation for nearly	1	
103			all wetlands in this region.		
104		Degraded Water Downstream	The problem described above is downslope from the AA, and:		May use existing data, or monitor waters as part of this wetland assessment. [NRv, PRv, SRv]
105			The condition is present within 1 km downslope and connected to the AA by a channel.	0	
106			The condition is present within 5 km downslope and connected to the AA by a channel, or within 1 km but not connected to the AA by a channel.	0	
107			Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in either the AA or inflowing waters.	0	
108			Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the situation for nearly all wetlands in this region.	1	
	OF22	Wetland as a % of Its	From a topographic map and field observations, estimate the approximate boundaries of the catchment (CA) of the entire wetland of which		Topographic maps may be viewed online at the National Atlas of Canada (Toporama):
		Contributing Area	the AA may be only a part. Then adjust those boundaries if necessary based on your field observations of the surrounding terrain, and/or		http://atlas.gc.ca/toporama/en/index.html [NR, PR, Sens, SR, WS]
		(Catchment)	by using procedures described in the Manual. Divide the area of the wetland (not just the AA) by the approximate area of its catchment		
			excluding the area of the wetland itself. When doing the calculation, if ponded water is adjacent to the wetland, include that in the wetland		
109			area. The result is:		
110			<0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	0	
111			0.01 to 0.1.		
112			0.1 to 1.	0	
113			>1 (wetland is larger than its catchment (e.g., wetland with flat surrounding terrain and no inlet, or is entirely isolated by dikes, or is a raised boo).	0	
	OF23	Unvegetated Surface in	Dogy. The proportion of the AA's contributing area (measured to no more than 1000 m upslope) that is comprised of buildings, roads, parking lots		[FA, INV, NRv, PRv, SRv, STR, WCv, WSv]
114		the Contributing Area	other pavement, exposed bedrock, landslides, and other mostly-bare surface is about :		• • • • • • • • • • • • • • • • • • • •
115			<10%.	1	
116			10 to 25%.	0	
117			>25%.	0	
-17					

	A	В	С	D	E
	OF24	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as		[NRv, PRv, SRv, WSv]
			indicated by the following:		
			(a) input channel is present,		
			(b) input channels have been straightened,		
			(c) upslope wetlands have been ditched extensively,		
			(d) land cover is mostly non-forest,		
			(e) CA slopes are steep, and/or (f) most CA soils are shallow (bedrock near surface) and/or have high runoff coefficients.		
			(i) most CA sons are snanow (bedrock near surface) and/or have night unon coemicients. This statement is:		
118			THE SELECTION IS.		
119			Mostly true.	0	
120	1		Somewhat true.	0	
121			Mostly untrue.	1	
	OF25	Aspect	The overland flow direction of most surface water (in streams, rivers, or runoff) that enters the AA is:		[AM, NR, SFS, WC, WS]
122			No. 1 in the second of the sec		[,,,]
123	1		Northward (N, NE). north-facing contributing area.	0	
124			Southward (S, SW). south-facing contributing area.	0	
125			Other (E, SE, W, NW), or no detectable uphill slope or input channel (flat).	1	
126	OF26	Internal Flow Distance	The horizontal flow distance from the wetland's inlet to outlet is:		Identify inlets and outlets, if any, from topographic maps (use elevations to determine which are inlets
127		(Path Length)	<10 m.	0	and which are outlets) and augment by field inspection. With the Provincial Landscape Viewer, select
128	1		10 - 50 m.	0	Nova Scotia Topo as the Basemap. Also enable the layer Forestry>WAM Predicted Flow. Then measure the inlet-outlet distance. [NR, OE, PR, SR, WS]
			50 - 100 m.	0	illeasure the illet-outlet distance. [NK, OE, PK, SK, WS]
129	1		100 - 1000 m.	0	
130			1- 2 km.	0	
131			- 2 km, or wetland lacks an inlet and outlet.	1	
132		Carrier Danas Dana	1	ı	This leaves were sided by De Don Mel/son as of the Consulting Forest Consider [AM CC FD INIV
		Growing Degree Days	In Google Earth, open the KMZ file that accompanies this calculator, called NS_GrowingDegreeDays. Place your cursor over the AA and left-click. From the pop-up window, enter the GRIDCODE number in the next column.	2192	This layer was provided by Dr. Dan McKenney of the Canadian Forest Service [AM, CS, FR, INV, NR, OE, PH, PR, Sens, SR, WBF, WCv, WS]
133		F			-
134	OF28	Fish Access or Use	According to agency biologists and/or your own observations, the AA. [Mark just the first choice that is true.]:		Regarding the last choice, if uncertain if an AA is fishless, consider the possibility its waters have been stocked. [AM, FA, FR, INV, WBF, WBN]
			Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. Go to Provincial Landscape	0	been stocked. [AM, 174, 114, 1144, WB1, WB1]
			Viewer>Wildlife>Significant Habitat>Species at Risk. Contact local fishery biologists, review the ACCDC report, and visit these websites:		
135			http://www.salmonatlas.com/atlanticsalmon/canada-east/index.1.html http://atlanticsalmonfederation.org/rivers/introduction.html		
			Has not been documented to support Atlantic salmon rearing and/or spawning, but is connected to nearby waters likely to contain Atlantic	0	
136			salmon or other anadromous species or eels and is probably accessed by those during some conditions.		
137			Is probably is not accessed by any anadromous fish species but is known or likely to have other fish at least seasonally.	0	
138			Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	1	
	OF29	•	Within the past 10 years, in the AA (or in its adjoining waters or wetland), qualified observers have documented[mark all applicable]:		Request information from ACCDC and/or conduct your own survey at an appropriate season using ar
139		Concern			approved protocol. For birds, also check eBird.org. NOTE for NS: If your WESP-AC is being
			Presence of one or more of the plant species listed in the Plants_Rare worksheet of the accompanying SuppInfo file, or the AA is within a	0	completed for a Wetland Alteration Application to NS-ECC, your ACCDC results and any taxon- specific survey results must be submitted along with your WESP-AC results, and application. [AMv,
			mapped Atlantic Coastal Plain Flora Buffer (go to Provincial Landscape Viewer> Wildlife> Special Management Practice Zones).		EC, PHv, POLv, SBMv, Sens, WBFv, WBNv]
140					ES, TIV, TOEV, SUIN, SSIS, WEIV, WEIV]
			Presence of one or more of the amphibian or reptile species (AM) of conservation concern as listed in the Wildlife_Rare worksheet of the	0	
141			accompanying Supplnfo file.		
			Presence of one or more of the waterbird species (WBF, WBN) of conservation concern as listed in the Wildlife_Rare worksheet of the	0	
142			accompanying Supplinfo file.	0	
1.42			Presence of one or more of the nesting songbird or raptor species (SBM) of conservation concern as listed in the Wildlife_Rare worksheet of the accompanying Supplnfo file, during their nesting season (May-July for most species).	U	
143			None of the above, or no data.	1	
144			none of the above, of the adia.		

	A	В	С	D	E
145		Important Bird Area (IBA)	In Google Earth, open the KMZ file that accompanies this calculator, called IBAs_Canada. The AA is all or part of an officially designated IBA. Enter 1= yes, 0= no.	0	The source of this layer, which should be checked periodically for updates, is: http://www.ibacanada.com/mapviewer.jsp?lang=EN [SBMv, WBFv, WBNv]
146		Black Duck Nesting Area	In Google Earth, open the KMZ file that accompanies this calculator, called BlackDuck. Adjust its alignment and opacity. Determine the predicted density (pairs per 25 sq. km) of nesting American Black Duck in the AA's vicinity: <10 (enter 0), 10-20 (enter 1), 20-30 (enter 2), >30 (enter 3). If outside of region shown in map, change toblank.	0	This was provided by Dr. David Leske. [WBNv]
147		Wintering Deer or Moose Concentration Areas	If AA is on private land with no information, change toblank (not 0). Otherwise: With the Provincial Landscape Viewer, for Wintering Moose, go to Wildlife> Significant Habitat. For Mainland Moose Concentration Areas, go to Wildlife> Special Management Practice Zones Enter: yes= 1, no= 0.	0	[SBM]
148		Other Conservation Designation	The AA is all or part of an area designated by government, First Nations, or the Nature Conservancy of Canada (NCC) for its exceptional ecological features or highly intact natural conditions. With Provincial Landscape Viewer, see Protected Areas. Enter: yes= 1, no= 0. If uncertain, consult NCC and agencies for more recent information.	0	See: https://novascotia.ca/parksandprotectedareas/plan/interactive-map/ [PU]
149		Conservation Investment	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance the wetland (excluding mitigation wetlands). Ask the property owner. Enter: yes= 1, no= 0. If no information, change tollank (not 0).	0	[PU]
150		Mitigation Investment	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere. Ask the property owner. Enter: yes= 1, no= 0. If no information, change to blank .	0	[PU]
151		Sustained Scientific Use	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area. Ask the property owner. Enter: yes= 1, no= 0. If no information, change toblank.	0	[PU]
152		Calcareous Region	The AA is NOT in a subregion that has been heavily exposed to acid precipitation. Enter "1" if true (green or yellow in map in Appendix A o the Manual). Enter "0" if false. If no information, change toblank.	0	[AM, FA, FR, INV, PH]
153		Ownership	Select the ONE ownership that covers the most of the AA. In Google Earth, open KMZ file called NS_CrownlandsUse more recent information if available.		"Private lands" may include those owned or leased by non-governmental organizations, e.g., charitable conservation land trusts, DUC, TNC. [PU, STR]
154			New timber harvest, roads, mineral extraction, and intensive summer recreation (e.g., off-road vehicles) are permanently prohibited. Includes many publicly-owned Protected Lands, and private lands under long-term (30+ year) legal agreements to maintain nearly-unaltered conditions.	0	
155			Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are allowed.	1	
156	-		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable or not) is in place.	0	
157			Ownership is private and owner does not allow access, or access permission unknown, and not a conservation easement.	0	

	A	В	С	D	E	
	Date: September 14, 2022		Site Identifier: WL17		Investigator: Darcy Kavanagh & Jordan Davis	
1						

Form F (Field). Non-tidal Wetland Data Form. WESP-AC version 2 for Nova Scotia. DIRECTIONS: Walk for no less than 10 minutes from the wetland edge towards its core, in the part of the AA that is proposed for alteration. If no alteration is proposed, walk in a portion that appears to be most representative of the wetland overall. Walk only where it is safe and legal to do so. Conduct the assessment only after reading the accompanying Manual and the Explanations column of the data form. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgable persons, and/or reviewing aerial imagery. For most wetlands, completing this field data form will require 1-2 hours on a site. For a list of functions to which each question pertains, see the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Manual. Codes for functions and values are: WS= Water Storage & Delay, SFS= Stream Flow Support, WC= Water Cooling, SR= Sediment Retention & Stabilisation, PR= Phosphorus Retention, NR= Nitrate Removal, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate Habitat, FA= Anadromous Fish Habitat, FR= Resident Fish Habitat, AM= Amphibian & Reptile Habitat, WBF= Feeding Waterbird Habitat, WBN= Nesting Waterbird Habitat, SBM= Songbird, Raptor, & Mammal Habitat, POL= Pollinator Habitat, PH= Native Plant Habitat, PU= Public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= Stressors.

2					
3	#	Indicators	Condition Choices	Data	Definitions/Explanations
4	F1	Wetland Type	Follow the key below and mark the ONE row that best describes MOST of the vegetated part of the AA:		Ericaceous shrubs are ones in the heather family (Ericaceae). Most have leathery evergreen leaves. They include rhododendron, azalea, swamp laurel, leatherleaf, Labrador tea, and others.
5			A. Moss and/or lichen cover more than 25% of the ground. Often dominated by ericaceous shrubs (e.g., Labrador tea) or other acid-tolerant plants (e.g., bog cranberry, pitcher plant, sundew, orchids). Substrate is mostly undecomposed peat. Choose between A1 and A2 and mark the choice with a 1 in their adjoining column. Otherwise go to B below.		Most require acidic soil. Although not in the family Ericaceae, sweetgale (<i>Myrica gale</i>) should be counted also. [AM, CS, FA, FR, INV, NR, OE, PH, Sens, SFS, WBF, WBN]
			A1. Surface water is usually absent or, if present, pH is typically <4.5 and conductivity is usually <100 μS/cm (<64 ppm TDS). Trees are absent or nearly so. Sedge cover usually sparse or absent but cottongrass and/or lichen cover may be extensive, as well as cloudberry, lingonberry, sheep laurel, and a sedge (<i>Carex rariflor</i> a). Wetland surface and surrounding landscape are seldom sloping and wetland often is domed (convex). Inlet and outlet channels are usually absent. If known, pH of peat is <4.0.	0	
7			A2. Not A1. Surface water, if present, has pH typically >4.5 and conductivity is usually >100 μS/cm (>64 ppm TDS). Sedge cover is usually extensive, and/or tree and tall shrub cover is extensive. Sometimes at toe of slope or edge of water body. An exit channel is usually present. Wetter than A1 and peat depth may be shallower (<2 m).	1	
8			B. Moss and/or lichen cover less than 25% of the ground. Soil is mineral or decomposed organic (muck). Choose between B1 and B2 and mark the choice with a 1 in their adjoining column:		
9			B1. Trees and shrubs taller than 1 m comprise more than 25% of the vegetated cover. Surface water is mostly absent or inundates the vegetation only seasonally (e.g., vernal pools or floodplain).	0	
10			B2. Not B1. Tree & tall shrubs comprise less than than 25% of the vegetated cover. Vegetation is mostly herbaceous, e.g., cattail, bulrush, burreed, pond lily, horsetail. Surface water may be extensive and fluctuates seasonally, being either persistent or drying up partly or entirely.	0	
11	The An should form, ' the de	A should also include partification of the should also include the open water adjacent " is used synthesis scribed features along it	the AA should include all persistent waters in ponds smaller than 8 hectares (-283 m on a side) that are adjacent to the AA. art of the water area of adjacent ponded water larger than 8 ha and adjacent rivers wider than 20 m. Specifically, the AA r part adjacent to wetland vegetation and equal in width to the average width of that vegetated zone. Throughout this data onymously with abutting, adjoining, bordering, contiguous and means no upland (manmade or natural) completely separates their directly shared edge. Features joined only by a channel are not necessarily considered to be adjacent a large portion of features do not have to be hydrologically connected in order to be considered adjacent.		
12		Wetland Types - Adjoining or Subordinate	If the AA is smaller than 1 ha, mark all other types that occupy more than 1% of the vegetated AA. If the AA is larger than 1 ha, mark all other types which are within or adjacent to the AA and occupy more than 1 ha, as visible from the AA or as interpreted from aerial imagery. Do not mark again the type marked in F1.		1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m, 1000 m by 10 m, or similar. [AM, INV, SBM, WBF]
13			A1.	0	
14			A2. B1.	0	
15 16			B1. B2.	0	
. 0	1			-	

FieldF form - Non-tidal Page 1 of 9

	Α	В	С	D	E
	F3	Woody Height & Form	Following EACH row below, indicate with a number code the percentage of the living vegetation in the AA which is occupied by that		Deciduous shrubs in this region usually include buttonbush, Labrador tea, bayberry (Morella),
		Diversity	feature (6 if >95%, 5 if 75-95%, 4 if 50-75%, 3 if 25-50%, 2 if 5-25%, 1 if <5%, 0 if none). If the vegetated part of the AA is largely		huckleberry, cranberry, cloudberry, sweetgale, alder, willow, birch, ash, dogwood, and a few others.
17		-	herbaceous (non-woody) vegetation, these percentages should not sum to 100%.		If you assigned a code of 3 or higher to any of the first four choices and the ground cover beneath
18			coniferous trees (may include tamarack) taller than 3 m.	3	the trees/shrubs is <25% moss, then question F1 might be "B1". [CS, INV, NR, PH, POL, SBM,
19			deciduous trees taller than 3 m.	4	Sens]
20			coniferous or ericaceous shrubs or trees 1-3 m tall not directly below the canopy of trees.	2	
21			deciduous shrubs or trees 1-3 m tall not directly below the canopy of trees.	2	
22			coniferous or ericaceous shrubs <1 m tall not directly below the canopy of taller vegetation.	1	
23			deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	1	
24	Note:	If none of top 4 rows in	n F3 was marked 2 or greater , SKIP to F9 (N fixers).		
25	F4		Determine which two woody plant species comprise the greatest portion of the low (<3 m) woody cover . Then choose one:		[PH, POL, SBM, Sens]
26		Abundant Shrub	those species together comprise > 50% of such cover.	1	
27		Species	those species together do not comprise > 50% of such cover.	0	
	F5	Woody Diameter	Mark ALL the types that comprise >5% of the woody canopy cover in the AA or >5% of the wooded areas (if any) along its upland		Estimate the diameters at chest height. If small-diameter trees are overtopped (shaded) by larger
28		Classes	edge (perimeter). The edge should include only the trees whose canopies extend into the AA.		ones, visualise a "subcanopy" at the average height of the smaller-dbh trees, to serve as a basis for
29			coniferous, 1-9 cm diameter and >1 m tall.	1	the minimum 5% canopy requirement in this question. The trees and shrubs need not be wetland
30			broad-leaved deciduous 1-9 cm diameter and >1 m tall.	1	species. [AM, CS, POL, SBM, Sens, WBN]
31			coniferous, 10-19 cm diameter.	1	
32			broad-leaved deciduous 10-19 cm diameter.	1	
33			coniferous, 20-40 cm diameter.	0	
34			broad-leaved deciduous 20-40 cm diameter.	0	
35			coniferous, >40 cm diameter.	0	
36			broad-leaved deciduous >40 cm diameter.	0	
37	F6	Height Class	Follow the key below and mark the ONE row that best describes MOST of the AA:		[AM, INV, NR, PH, SBM, Sens]
-		Interspersion	A. Neither the vegetation taller than 1 m nor the vegetation shorter than that comprise >70% of the vegetated part of the AA. They		
			each comprise 30-70%. Choose between A1 and A2 and mark the choice with a 1 in the adjoining column. Otherwise go to B below.		
38					
39			A1. The two height classes are mostly scattered and intermixed throughout the AA.	0	
40			A2. Not A1. The two height classes are mostly in separate zones or bands, or in proportionately large clumps.	1	
			B. Either the vegetation shorter than 1 m comprises >70% of the vegetated part of the AA, or the vegetation taller than that does. One		
41			size class might even be totally absent. Choose between B1 and B2 and mark the choice with a 1 in the adjoining column:		
42			B1. The less prevalent height class is mostly scattered and intermixed within the prevalent one.	1	
			B2. Not B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is	0	
43			completely absent.		
44	F7	Large Snags (Dead	The number of large snags (diameter >20 cm) in the AA plus adjacent upland area within 10 m of the wetland edge is:		Snags are dead standing trees that often (not always) lack bark and foliage. Include only ones that
45		Standing Trees)	None, or fewer than 8/ hectare which exceed this diameter.	1	are at least 2 m tall. [POL, SBM, WBN]
46			Several (>8/hectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km.	0	
47			Several (>8/hectare) but above not true.	0	
48	F8	Downed Wood	The number of downed wood pieces longer than 2 m and with diameter >10 cm, and not persistently submerged, is:		Exclude temporary "burn piles." [AM, INV, POL, SBM]
49			Few or none that meet these criteria.	1	
50			Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria.	0	1
	F9	N Fixers	The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa, other		Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
51			legumes) is:		
52			<1% or none.	0]
53			1-25% of the vegetated cover, in the AA or along its water edge (whichever has more).	1	
54			25-50% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
55			50-75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
56			>75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
				-	5

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A	В	C	D	E
F10	Sphagnum Moss	The cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured by taller		Exclude moss growing on trees and rocks. [CS, PH]
57	Extent	sedges and other plants rooted in it, is:		
58		<5% of the vegetated part of the AA.	0	
59		5-25% of the vegetated part of the AA.	0	
60		25-50% of the vegetated part of the AA.	0	
61		50-95% of the vegetated part of the AA.	1	
62		>95% of the vegetated part of the AA.	0	
F11	% Bare Ground &	Consider the parts of the AA that lack surface water at the driest time of the growing season. Viewed from directly above the ground		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that is
63	Thatch	layer, the predominant condition in those areas at that time is:		present under a tree or shrub canopy should be counted. Boulders count as bare ground. Wetlands
		Little or no (<5%) bare ground is visible between erect stems or under canopy anywhere in the vegetated AA. Ground is extensively	1	with mineral soils and that are heavily shaded or are dominated by annual plant species tend to
		blanketed by dense thatch, moss, lichens, graminoids with great stem densities, or plants with ground-hugging foliage.		have more extensive areas that are bare during the early growing season. [AM, EC, INV, NR, OE,
64				POL, PR, SBM, Sens]
		Slightly bare ground (5-20% bare between plants) is visible in places, but those areas comprise less than 5% of the unflooded parts of	0	
65		the AA.		
		Much bare ground (20-50% bare between plants) is visible in places, and those areas comprise more than 5% of the unflooded parts of	0	
66		the AA.		
67		Other conditions.	0	
68		Not applicable. Surface water (either open or obscured by emergent plants) covers all of the AA all the time.	0	
F12	Ground Irregularity	Imagine the AA without any living vegetation. Excluding the portion of the AA that is always under water, the number of hummocks, small		The depressions may be of human or natural origin. [AM, EC, INV, NR, PH, POL, PR, SBM, SR,
		pits, raised mounds, animal burrows, ruts, gullies, natural levees, microdepressions, and other areas of peat or mineral soil that are raised		WS]
69		or depressed >10 cm compared to most of the area within a few meters surrounding them is:		
70		Few or none (minimal microtopography; <1% of the land has such features, or entire AA is always water-covered).	0	
71		Intermediate.	1	
72		Several (extensive micro-topography).	0	
73 F13	Upland Inclusions	Within the AA, inclusions of upland are:		[AM, NR, SBM]
74		Few or none.	0	
75		Intermediate (1 - 10% of vegetated part of the AA).	1	
76		Many (e.g., wetland-upland "mosaic", >10% of the vegetated AA).	0	
	Soil Texture	In parts of the AA that lack persistent water, the texture of soil in the uppermost layer is mostly: [To determine this, use a trowel to check		[CS, NR, OE, PH, PR, Sens, SFS, WS]
77		in at least 3 widely spaced locations, and use the soil texture key (in Appendix A of the Manual).]		
		Loamy: soils that may contain a little fine grit and do not make a "ribbon" longer than 2 cm when moistened, rolled, squeezed, and	0	
78		extended between thumb and forefinger.		
		Fines: includes silt, clay, silt, soils that make a ribbon longer than 2 cm when moistened, rolled, squeezed, and extended between thumb	0	
79		and forefinger.		
80		Deep Peat, to 40 cm depth or greater.	0	
81		Shallow Peat or organic <40 cm deep.	1	
		Coarse: includes sand, loamy sand, gravel, cobble, soils that do not make a ribbon when moistened, rolled, squeezed, and extended	0	
82		between thumb and forefinger.		
F15	Shorebird Feeding	During any 2 consecutive weeks of the growing season, the extent of mudflats, bare unshaded saturated areas not covered by thatch,		This addresses needs of many but not all migratory sandpipers, plovers, and related species. [WBF]
83	Habitats	and unshaded waters shallower than 6 cm is: [Include also any area that is adjacent to the AA.]		
84		None, or <100 sq. m.	1	
85		100-1000 sq. m.	0	
86		1000 – 10,000 sq. m.	0	
87		>10,000 sq. m.	0	
88 F16	Herbaceous % of	In aerial ("ducks eye") view, the maximum annual cover of herbaceous vegetation (all non-woody plants except moss) is:		[AM, WBF, WBN]
H	Vegetated Wetland	<5% of the vegetated part of the AA or <0.01 hectare (whichever is less). Mark "1" here and SKIP to F20 (Invasive Plant Cover).	0	
89			_	
90		5-25% of the vegetated part of the AA.	1	
91		25-50% of the vegetated part of the AA.	0	
92		50-95% of the vegetated part of the AA.	0	
93		>95% of the vegetated part of the AA.	0	
		and the state of t		

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	Α	В	C	D	E
04	F17	Forb Cover	Within parts of the AA having herbaceous cover (excluding SAV), the areal cover of forbs reaches an annual maximum of:		Forbs are flowering plants. Do not include grasses, sedges, cattail, other graminoids, ferns,
95			<5% of the herbaceous part of the AA.	0	horsetails, or others that lack showy flowers. [POL]
96			5-25% of the herbaceous part of the AA.	1	
97			25-50% of the herbaceous part of the AA.	0	
98			50-95% of the herbaceous part of the AA.	0	
99			>95% of the herbaceous part of the AA.	0	
	F18	Sedge Cover	Sedges (Carex spp.) and cottongrass (Eriophorum spp.) occupy:		[CS]
100		Scage Cover			[co]
101			<5% of the vegetated area, or none.	0	
102			5-50% of the vegetated area.	1	
103			50-95% of the vegetated area.	0	
104	F40	5	>95% of the vegetated area.	0	E 11' 12' 1 1 1 1 1 1 1 1 1 1
	F19	Dominance of Most	Determine which two herbaceous species comprise the greatest portion of the herbaceous cover (excluding mosses and floating-leaved aquatic plants). Then choose one of the following:		For this question, include ferns as well as graminoids and forbs. [EC, INV, PH, POL, Sens]
105				- 1	
106		Species	those species together comprise > 50% of the areal cover of herbaceous plants at any time during the year.	1	
107			those species together do not comprise > 50% of the areal cover of herbaceous plants at any time during the year.	0	
	F20	Invasive Plant Cover	How extensive is the cover of invasive plant species in the AA? For species, see Plants_invasive worksheet in the accompanying		[EC, PH, POL, Sens]
108			Supplnfo file.		
109			invasive species appear to be absent in the AA, or are present only in trace amount (a few individuals).	1	
			invasive species are present in more than trace amounts, but comprise <5% of herbaceous cover (or woody cover, if the invasives are	0	
110			woody).		
111			invasive species comprise 5-20% of the herb cover (or woody cover, if the invasives are woody).	0	
112			invasive species comprise 20-50% of the herb cover (or woody cover, if the invasives are woody).	0	
113			invasive species comprise >50% of the herb cover (or woody cover, if the invasives are woody).	0	
114	F21	Invasive Cover Along Upland Edge	Along the wetland-upland boundary, the percent of the upland edge (within 3 m upslope from the wetland) that is occupied by invasive plant species is:		If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an exotic species, assume the unidentified plant to also be exotic. If vegetation is so senesced that exotic
115			none of the upland edge (invasives apparently absent), or AA has no upland edge.	1	species cannot be identified, answer "none". [PH, STR]
116			some (but <5%) of the upland edge.	0	
117			5-50% of the upland edge.	0	
118			most (>50%) of the upland edge.	0	
119	F22	Fringe Wetland	During most of the year, open water within or adjacent to the vegetated part of the wetland is much wider than the maximum width of the vegetated zone within the wetland. Enter "1" if true, "0" if false.	0	[WBF, WBN, WCv]
120	F23	Lacustrine Wetland	The vegetated part of the AA is within or adjacent to a body of non-tidal standing open water whose size exceeds 8 hectares during most of a normal year.	0	[FR, PR, PU, WBF, WBN]
	F24	% of AA Without	The percentage of the AA that <u>never</u> contains <u>surface</u> water during an average year (that is, except perhaps for a few hours after		1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m, 1000 m
121		Surface Water	snowmelt or rainstorms), but which is still a wetland, is:		by 10 m, or similar. [AM, FA, FR, INV, NR, PH, PR, SBM, Sens, SRv, WBF, WBN, WC]
122		ĺ	<1%. In other words, all or nearly all of the AA is covered by water permanently or at least seasonally.	0	
123		ĺ	1-25% of the AA, or <1% but >0.01 ha never contains surface water.	0	
124			25-50% of the AA never contains surface water.	1	
125		ĺ	50-75% of the AA never contains surface water.	0	
			75-99% of the AA never contains surface water, OR >99% and there is at least one persistently ponded water body larger than 1 ha in	0	
126			the AA.	0	
127			99-100%. AND there is no persistently ponded water body larger than 1 ha within the AA. Enter "1" and SKIP to F42 (Channel Connection).	U	
	F25	% of AA with	Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during the driest		If you are unable to determine the condition at the driest time of year, ask the land owner or
		Persistent Surface	times of a normal year, i.e., when the AA's surface water is at its lowest annual level. At that time, the percentage of the AA that still contains surface water is:		neighbors about it if possible. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat. [AM, CS, FA, FR, INV, NR, POL, PR, SBM, WBF, WBN]
128		Water			anu mushat. [Awi, OS, 1 A, FR, MVV, NR, FOL, FR, SDW, WOF, WON]
129			None. The AA dries up completely (no water in channels either) or never has surface water during most years. SKIP to F27.	0	
130			1-20% of the AA.	1	
131		ĺ	20-50% of the AA.	0	
132		ĺ	50-95% of the AA.	0	
133			>95% of the AA. True for many fringe wetlands.	0	

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A	В	С	D	E
F26	% of Summertime	At mid-day during the warmest time of year, the area of surface water within the AA that is shaded by vegetation and other features that		[FA, WC]
134	Water that Is Shaded	are <u>within</u> the AA at that time is:		
135		<5% of the water is shaded, or no surface water is present then.	0	
136		5-25% of the water is shaded.	1	
137		25-50% of the water is shaded.	0	
138		50-75% of the water is shaded.	0	
139		>75% of the water is shaded.	0	
F27	% of AA that is	The percentage of the AA's area that is between the annual high water and the annual low water (surface water) is:		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not
140	Flooded Only			fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial)
141	Seasonally	None, or <0.01 hectare and <1% of the AA. SKIP to F29.	1	plant species. In riverine systems, the extent of this zone can be estimated by multiplying by 2 the
142	,	1-20% of the AA, or <1% but >0.01 ha.	0	bankful height and visualising where that would intercept the land along the river. [CS, FA, INV, NR,
143		20-50% of the AA.	0	OE, PH, SR, WBF, WBN, WS]
144		50-95% of the AA.	0	
145		>95% of the AA.	0	
11461	Annual Water	The annual fluctuation in surface water level within most of the parts of the AA that contain surface water at least temporarily is:		Look for flood marks (see above). Because the annual range of water levels is difficult to estimate
147	Fluctuation Range	<10 cm change (stable or nearly so).	0	without multiple visits, consider asking the land owner or neighbors about it. [AM, CS, INV, NR, OE, PH, PR, SR, WBN, WS]
148		10 cm - 50 cm change.	0	rn, rk, sk, woiv, wsj
149		0.5 - 1 m change.	0	
150		1-2 m change.	0	
151		>2 m change.	0	
	ΔΔ nlus adjacent nonde	d water smaller than 0.01 hectare (about 10m x 10m, or 1m x 100 m)? If so, enter "1" in column D and SKIP TO F42	0	
	ection).	d water smaller than 0.01 nectare (about 1011 x 1011), or 1111 x 100 mg: 11 30, enter 1 in column b and 3xii 10142		
102	Predominant Depth	During most of the time when surface water is present during the growing season, its depth, averaged over the entire inundated part of		If a boat is unavailable, estimate this by considering wetland size and local topography. Or if timing
	Class	the AA, is:		and safety allow, depths may be measured by drilling through winter ice. This question is asking
154	Cidoo	<10 cm deep (but >0).	1	about the spatial median depth that occurs during most of that time, even if inundation is only
155		10 - 50 cm deep.	0	seasonal or temporary. If inundation in most but not all of the wetland is brief, the answer will be
		0.5 - 1 m deep.	0	based on the depth of the most persistently inundated part of the wetland. Include surface water in
156 157		1 - 2 m deep.	0	channels and ditches as well as ponded areas. [CS, FA, FR, INV, OE, PH, PR, Sens, SFS, SR,
157		>2 m deep. True for many fringe wetlands.	0	WBF, WBN, WC]
E20	Depth Classes -	When present, surface water in most of the AA usually consists of (select one):	U	Estimate these proportions by considering the gradient and microtopography of the site. [FR, INV,
159	Evenness of	when present, surface water in most of the AA usually consists of (select one).		WBF, WBN]
160	Proportions	One depth class that comprises >90% of the AA's inundated area (use the classes in the question above).	1	
161	Toportions	One depth class that comprises 50-90% of the AA's inundated area.	0	
162		Neither of above. There are 3 or more depth classes and none occupy >50%.	0	
	% of Water That Is	During most times when surface water is present, the percentage that is (1) ponded (stagnant, or flows so slowly that fine sediment is not		Nearly all wetlands with surface water have some ponded water. [AM, CS, INV, NR, OE, PR, Sens,
	Ponded (not Flowing)	held in suspension) AND (2) is likely to be deeper than 0.5 m in some places, is:		SR, WBF, WBN, WC, WS]
164		<5% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34.	0	
165		5-30% of the water.	0	
166		30-70% of the water.	0	
167		70-95% of the water.	0	
168		>95% of the water.	1	
	Ponded Open Water -	During most of the growing season, the largest patch of open water that is ponded and is in or bordering the AA is >0.01 hectare (about	0	Open water is not obscured by vegetation in aerial ("duck's eye") view. It includes vegetation
	Minimum Size	10 m by 10 m) and mostly deeper than 0.5 m. If true enter "1" and continue, If false, enter "0" and SKIP to F41 (Floating Algae &		floating on the water surface or entirely submersed beneath it.
169		Duckweed).		
	% of Ponded Water	In ducks-eye aerial view, the percentage of the ponded water that is open (lacking emergent vegetation during most of the growing		[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]
	that is Open	season, and unhidden by a forest or shrub canopy) is:		[MINI, CO, I M, I M, INW, INM, UE, FM, OK, WODF, WODIN, WC]
	mat is Open	None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	0	
171		None, or <1% of the AA and rargest pool occupies <0.01 necraires. Enter 1 and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	0	
172			4	
173		5-30% of the ponded water.	1	
174		30-70% of the ponded water.	0	
175		70-99% of the pended water.	0	
176		100% of the ponded water.	0	

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A	В	С	D	E
F34	Width of Vegetated	At the time during the growing season when the AA's water level is lowest, the average width of vegetated area <u>in the AA</u> that separates		"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may
177	Zone within Wetland	adjoining uplands from open water within the AA is:		include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH,
178		<1 m.	1	PR, SBM, Sens, SR, WBN]
179		1 - 9 m.	0	
180		10 - 29 m.	0	
181		30 - 49 m.	0	
182		50 - 100 m.	0	
183		> 100 m, or open water is absent at that time.	0	
F35 184	Flat Shoreline Extent	During most of the part of the growing season when water is present, the percentage of the AA's water edge length that is nearly flat (a slope less than about 5% measured within 5 m landward of the water) is:		If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentle slope. [SR, WBN]
185		<1% of the water edge.	0	
186		1-25% of the water edge.	1	
187		25-50% of the water edge.	0	
188		50-75% of the water edge.	0	
189		>75% of the water edge.	0	
F36 190	Robust Emergents	The percentage of the emergent vegetation cover in the AA that is cattail (<i>Typha</i> spp.), common reed (<i>Phragmites</i>), or tall (>1m) bulrush is:		Emergent vegetation is herbaceous plants whose stems are partly above and partly below the water surface during most of the time water is present. [WBN]
191		<1% of the emergent vegetation, or emergent vegetation is absent. SKIP to F38.	0	
192		1-25% of the emergent vegetation.	0	
193		25-75% of the emergent vegetation.	1	
194		>75%, of the emergent vegetation.	0	
F37 195	Interspersion of Emergents & Open	During most of the part of the growing season when water is present, the spatial pattern of emergent vegetation within the water is mostly:		[AM, FA, FR, INV, NR, OE, PH, PR, SBM, SR, WBF, WBN]
196	Water	Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water.	0	
197		Intermediate.	0	
198		Clumped. More than 70% of such vegetation is in bands along the wetland perimeter or is clumped at one or a few sides of the surface water area.	1	
F38	Persistent Deepwater Area	If the deepest patch of surface water (flowing or ponded) in or directly adjacent to the AA is mostly deeper than 0.5 m for >2 weeks during the growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection).	0	
F39 200	Non-vegetated Aquatic Cover	During most of the growing season and in waters deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians that is provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is:		For this question, consider only the wood that is at or above the water surface. Estimates of underwater wood based only on observations from terrestrial viewpoints are unreliable so should not
201		Little or none.	0	be attempted. [AM, FA, FR, INV]
202		Intermediate.	0	
203		Extensive.	0	
F40	Isolated Island	The AA contains (or is part of) an island or beaver lodge within a lake, pond, or river, and is isolated from the shore by water depths > 1 m on all sides during an average June. The island may be solid, or it may be a floating vegetation mat that is sufficiently large and dense	0	[WBN]
204		to support a waterbird nest.		
F41	Floating Algae & Duckweed	At some time of the year, mats of algae and/or duckweed are likely to cover >50% of the AA's otherwise-unshaded water surface, or blanket >50% of the underwater substrate. If true, enter "1" in next column. If untrue or uncertain, enter "0".	0	[EC, PR, WBF]
205	Duckweed			
F42	Channel Connection & Outflow Duration	The most persistent surface water connection (outlet channel or pipe, ditch, or overbank water exchange) between the AA and a downslope stream network is: [Note: If the AA represents only part of a wetland, answer this according to whichever is the least		Consider the connection regardless of whether the surface water is frozen. The "downslope stream network" could consist of ditches, rivers, ponds, or lakes which eventually connect to the ocean. If
		permanent surface connection: the one between the AA and the rest of the wetland, or the surface connection between the wetland and the downslope stream network.]		this cannot be determined while visiting the AA, consult topographic maps perhaps by viewing these online with Toporama (http://atlas.nrcan.gc.ca/toporama/en/index.html) [CS, FA, FR, NR, OE, PR,
206				Sens, SFS, SR, WCv, WS]
207		Persistent (surface water flows out for >9 months/year).	0	
208		Seasonal (surface water flows out for 14 days to 9 months/year, not necessarily consecutive).	0	

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	A	В	С	D	E
209			Temporary (surface water flows out for <14 days, not necessarily consecutive).	0	
			None but maps show a stream network downslope from the AA and within a distance that is less than the AA's length. SKIP to F47 (pH	0	
210			Measurement).		
			No surface water flows out of the wetland except possibly during extreme events (<once 10="" a<="" flows="" into="" only="" or,="" per="" td="" water="" years).=""><td>1</td><td></td></once>	1	
211			wetland, ditch, or lake that lacks an outlet. SKIP to F47 (pH Measurement).		
212 F	43	Outflow Confinement	During major runoff events, in the places where surface water exits the AA or connected waters nearby, the water:		"Major runoff events" would include biennial high water caused by storms and/or rapid snowmelt.
			Mostly passes through a pipe, culvert, narrowly breached dike, berm, beaver dam, or other partial obstruction (other than natural	0	[CS, NR, OE, PR, Sens, SR, STR, WS]
213			topography) that does not appear to drain the wetland artificially during most of the growing season.		
214			Leaves through natural exits (channels or diffuse outflow), not mainly through artificial or temporary features.		
			Is exported more quickly than usual due to ditches or pipes within the AA or connected to its outlet, or within 10 m of the AA's edge, which	0	
215			drain the wetland artificially, or water is pumped out of the AA.		
F	44	Tributary Channel	At least once annually, surface water from a tributary channel that is >100 m long moves into the AA. Or, surface water from a larger		If inlet tributaries cannot be searched for due to inaccessibility of part of the AA, follow suggestions
			permanent water body adjacent to the AA spills into the AA. If it enters only via a pipe, that pipe must be fed by a mapped stream or lake further upslope. If no, SKIP to F47 (pH Measurement).	0	in F42 above. [NRv, PH, PRv, SRv]
216			The state of the s		
F	45	Input Water	Based on lack of shade, water source characteristics, or actual temperature measurements, the inflow is likely to be warmer than surface	0	[WCv]
217		Temperature	water in the AA during part of most years. Enter 1= yes, 0= no.		
217	46	Throughflour	During its traval through the AA at the time of peak annual flag, water arriving in channels, feelest only the ONE appropriate of the most of		[FA, FR, INV, NR, OE, PR, SR, WS]
		Throughflow Resistance	During its travel through the AA at the time of peak annual flow, water arriving in channels: [select only the ONE encountered by most of the incoming water].		[FA, FR, INV, NR, OE, PR, SR, WS]
218		Resistance	Does not bump into many plant stems as it travels through the AA. Nearly all the water continues to travel in unvegetated (often incised)	0	
			channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond or lake.	U	
219			chamics that have minimal contact with welland vegetation, or through a zone of open water such as an instituting found of take.		
220			Bumps into herbaceous vegetation but mostly remains in fairly straight channels.	0	
			Bumps into herbaceous vegetation and mostly spreads throughout, or is in widely meandering, multi-branched, or braided channels.	0	
221					
222			Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels.	0	
			Bumps into tree trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or	0	
223			braided).		
224 F	47	pH Measurement	The pH in most of the AA's surface water:		Preferably, measure this in larger areas of ponded surface water within the AA, or in streams that have passed through (not along) most of the AA. Unless surface water is completely absent, do not
225			Was measured, and is: [enter the reading in the column to the right.]	4.9	dig holes or make depressions in peat in order to provide water for this measurement. Avoid
			Was not measured but surface water is present and is darkly tea-coloured. Or if no surface water, then mosses and plants that indicate	0	measuring near roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR,
226			peatland (e.g., Labrador tea) are prevalent. Enter "1".		Sens, WBF, WBN]
227			Neither of above. Enter "1".	0	·
228 F		TDS and/or	The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information):		See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
229		Conductivity	TDS is: [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.]		
230			Conductivity is [Enter the reading in µS/cm in the column to the right.]	0.12	
231			Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1".	0	
232			Neither of above	0	
	49	Beaver Probability	Use of the AA by beaver during the past 5 years is (select most applicable ONE):		[FA, FR, PH, SBM, Sens, WBF, WBN]
233		,			
22.4			Evident from direct observation or presence of gnawed limbs, dams, tracks, dens, lodges, or extensive stands of water-killed trees (snags).	0	
234			Likely based on known occurrence in the region and proximity to suitable habitat, which may include: (a) a persistent freshwater wetland,	0	1
			pond, or lake, or a perennial low or mid-gradient (<10%) channel, and (b) a corridor or multiple stands of hardwood trees and shrubs in	U	
235			vegetated areas near surface water.		
233			Unlikely because site characteristics above are deficient, and/or this is a settled area or other area where beaver are routinely removed.	1	
236			,		

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	Α	В	C	D	E
227 F	50	Groundwater Strength	Select first applicable choice:		Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or
238		of Evidence	Springs are known to be present within the AA, or if groundwater levels have been monitored, that has demonstrated that groundwater primarily discharges to the wetland for longer periods during the year than periods when the wetland recharges the groundwater.	0	other evidence. Consult topographic maps to detect breaks in slope described here. Rust deposits associated with groundwater seeps may be most noticeable as orange discoloration in ice formations along streams during early winter. [AM, CS, FA, FR, INV, NR, OE, PH, PRv, SFS, WC, WS]
239			Most of the AA has a slope of >5%, or is very close to the base of a natural slope longer than 100 and much sleeper than the slope of the AA, AND the pH of surface water, if known, is >5.5.	0	
240			Neither of above is true, although some groundwater may discharge to or flow through the AA. Or groundwater influx is unknown.	1	
241 F!	51	Internal Gradient	The gradient along most of the flow path within the AA is:		This is not the same as the shoreline slope. It is the elevational difference between the AA's inlet
242			<2% or the AA has no surface water outlet (not even seasonally).	0	and outlet, divided by the flow-distance between them and converted to percent. If available, use a
243			2-5%.	1	clinometer to measure this. Free clinometer apps can be downloaded to smartphones. If the wetland is large (longer than ~1 km), this may be estimated using Google Earth to determine the minimum
244			6-10%,	0	and maximum elevation within the AA, then dividing by length and multiplying by 100. [CS, NR, OE,
245			>10%.	0	PR, SR, WBF, WBN, WS]
	re adj	acent. In many situation	citions: If the AA lacks an upland edge, evaluate based on the AA's entire perimeter, and moving outward into whatever areas ons, these questions are best answered by measuring from aerial images.		
247		Vegetated Buffer as % of Perimeter	Within a zone extending 30 m laterally from the AA's edge with upland and/or other wetlands, the percentage that contains perennial vegetation cover (except lawns, row crops, heavily grazed land, conifer plantations) is:		[AM, FA, FR, INV, NRv, PH, POL, PRv, SBM, Sens, SRv, STR, WBN]
248			<5%.	0	
249			5 to 30%.	1	
250			30 to 60%.	0	
251			60 to 90%.	0	
252			>90%, or all the area within 30 m of the AA edge is other wetlands. SKIP to F55.	0	
253 F	53	Type of Cover in Buffer	Within 30 m upslope of where the wetland transitions to upland, the upland land cover that is NOT perennial vegetation is mostly (mark ONE):		[AM, FA, INV, NRv, PH, POL, SBM, STR, WBN]
254			Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0	
255			Bare or nearly bare pervious surface or managed vegetation, e.g., lawn, row crops, unpaved road, dike, landslide.	1	
256 F	54	Buffer Slope	The steepest and/or most disturbed part of the upland area that is within 30 m of the wetland and occupies >10% of that upland area has a percent slope of:		[NRv, PRv, Sens, SRv]
257			<1% (flat almost no noticeable slope) or all the area within 30 m of the AA edge is other wetlands.	0	
258			2-5%.	1	
259			5-30%.	0	
260			>30%.	0	
261	55	Cliffs or Steep Banks	In the AA or within 100 m, there are elevated terrestrial features such as cliffs, talus slopes, stream banks, or excavated pits (but not riprap) that extend at least 2 m nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den areas. Enter 1 (yes) or 0 (no).	0	Do not include upturned trees as potential den sites. [POL, SBM]
262 F		New or Expanded Wetland	Human actions within or adjacent to the AA have persistently expanded a naturally occurring wetland or created a wetland where there previously was none (e.g., by excavation, impoundment):		Determine this using historical aerial photography, old maps, soil maps, or permit files as available [CS, NR, OE, PH, Sens]
263			No.	0	
264			Yes, and created or expanded 20 - 100 years ago.	0	
265			Yes, and created or expanded 3-20 years ago.	1	
266			Yes, and created or expanded within last 3 years.	0	
267			Yes, but time of origin or expansion unknown.	0	
268			Unknown if new or expanded within 20 years or not.	0	
269	57	Burn History	More than 1% of the AA's previously vegetated area:		Look for charred soil or stumps (in multiple widely-spaced locations) or ask landowner. [CS, PH, STR]
270			Burned within past 5 years.	0	
271			Burned 6-10 years ago.	0	
272			Burned 11-30 years ago.	0	
273			Burned >30 years ago, or no evidence of a burn and no data.	1	

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	Α	В	С	D	E
F	_	Visibility	The maximum percentage of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings,		[PU, STR, WBFv]
274			or public maintained trails that intersect, adjoin, or are within 100 m of the AA (select one) is:		
275			<25%.	1	
276			25-50%.	0	
277			>50%.	0	
278 F	59	Non-consumptive	Assuming access permission was granted, select ALL statements that are true of the AA as it currently exists:		[PU, STR]
270		Uses - Actual or	For an average person, walking is physically possible in (not just near) >5% of the AA during most of the growing season, e.g., free of	0	
279		Potential	deep water and dense shrub thickets.		
280			Maintained roads, parking areas, or foot-trails are within 10 m of the AA, or the AA can be accessed part of the year by boats arriving via contiquous waters.	0	
			Within or near the AA, there is an interpretive center, trails with interpretive signs or brochures, and/or regular guided interpretive tours.	0	
281					
F	60	Unvisited Core Area	The percentage of the AA almost never visited by humans during an average growing season probably comprises: [Note: Only include		[AM, FAv, FRv, PH, PU, SBM, STR, WBF, WBN]
			the part actually walked or driven (not simply viewed from) with a vehicle or boat. Do not include visitors on trails outside of the AA unless		
			more than half the wetland is visible from the trails and they are within 30 m of the wetland edge. In that case include only the area		
282			occupied by the trail.]		
283			<5% and no inhabited building is within 100 m of the AA.	1	
284			<5% and inhabited building is within 100 m of the AA.	0	
285			5-50% and no inhabited building is within 100 m of the AA.	0	
286			5-50% and inhabited building is within 100 m of the AA.	0	
287			50-95%, with or without inhabited building nearby.	0	
288			>95% of the AA with or without inhabited building nearby.	0	
	61	Frequently Visited	The part of the AA visited by humans almost daily for several weeks during an average growing season probably comprises: See note	U	[AM, PH, PU, SBM, STR, WBF, WBN]
289	01	Area	above.		[AW, FTI, FO, JOIN, JTK, WOI , WOIV]
290		71100	<5%. If F60 was answered ">95%" (mostly never visited), SKIP to F64.	1	
291			5-50%.	0	
292			50-95%.	0	
293			>95% of the AA.	0	
	62	BMP - Soils	Boardwalks, paved trails, fences or other infrastructure and/or well-enforced regulations appear to effectively prevent visitors from walking	0	[PH, PU]
294			on soil within nearly all of the AA when the soil is unfrozen. Enter "1" if true.	_	
F	63	BMP - Wildlife	Fences, observation blinds, platforms, paved trails, exclusion periods, and/or well-enforced prohibitions on motorised boats, off-leash	0	[AM, PU, WBF, WBN]
		Protection	pets, and off road vehicles appear to effectively exclude or divert visitors and their pets from the AA at critical times in order to minimize		
295			disturbance of wildlife (except during hunting seasons). Enter "1" if true.		
296 F	64	Consumptive Uses (Provisioning	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select ALL that apply.		[FAv, FRv, WBFv]
297		Services)	Low-impact commercial timber harvest (e.g., selective thinning).	1	
298		Jei vices)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0	
299			Waterfowl hunting.	0	
300			Fishing.	0	
301			Trapping of furbearers.	0	
302			None of the above.	0	
303 F	65	Domestic Wells	The closest wells or water bodies that currently provide drinking water are:		[NRv]
304			Within 0-100 m. of the AA.	0	
305			100-500 m. away.	0	
306			>500 m. away, or no information.	1	
F	66	Calcareous Fen	The AA is, or is part of, a calcareous fen. See the Plants_Calcar worksheet in the accompanying Supplnfo file for list of plant indicators		[PH, PR]
			(calciphiles). Enter 1 If more than two Strong or more than five Moderate calciphile species are present; otherwise enter 0, but if not able		
307			to identify those and no information, change to blank .		

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stigator: Darcy Kavanagh & Jordan Davis	rcy Kavanagh & Jordan Davis Site Identifier: WL17 Date: September 14, 2022				
ressor (S) Data Form for Non-Tida	Netlands. WESP-AC for Nova	Scotia version 2.		Data	
Aberrant Timing of Water Inputs					
In the last column, place a check mark next to any item that is likely to have caused the timing of water inputs (but not necessarily their volume) to shift by hours, days, or weeks, becoming either more muted (smaller or less frequent peaks spread over longer times, more temporal homogeneity of flow or water levels) or more flashy (larger or more frequent spikes but over shorter times). [FA, FR, INV, PH, STR]					
Stormwater from impervious surfaces that drains directly to the wetland.					
Water subsidies from wastewater effluent, septic system leakage,					
Regular removal of surface or groundwater for irrigation or other of	onsumptive use.				
Flow regulation in tributaries or water level regulation in adjoining	water body, or other control structure at water entry points that regul	ates inflow to the wetland.			
A dam, dike, levee, weir, berm, or fill within or downgradient from	n the wetland that interferes with surface or subsurface flow in/out	of the AA (e.g., road fill, wellpads, pipelines).			
Excavation within the wetland, e.g., dugout, artificial pond, dead-e	nd ditch.				
Artificial drains or ditches in or near the wetland.					
Accelerated downcutting or channelization of an adjacent or interr	nal channel (incised below the historical water table level).				
Logging within the wetland.					
Subsidence or compaction of the wetland's substrate as a result of	f machinery, livestock, fire, drainage, or off road vehicles.				
Straightening, ditching, dredging, and/or lining of tributary channel	S.				
	low, assign points. However, if you believe the checked items had no Indition if the checked items never occurred or were no longer prese		the AA, then leave the "O's" for the scores in the following		
	Severe (3 points)	Medium (2 points)	Mild (1 point)		
Spatial extent of timing shift within the wetland:	>95% of wetland.	5-95% of wetland.	<5% of wetland.	0	
When most of the timing shift began:	<3 yrs ago.	3-9 yrs ago.	10-100 yrs ago.	0	
Score the following 2 rows only if the altered inputs began within pa	ast 10 years, and only for the part of the wetland that experiences the	ose.			
Input timing now vs. previously:	Shift of weeks.	Shift of days.	Shift of hours or minutes.	0	
Flashiness or muting:	Became very flashy or controlled.	Intermediate.	Became mildly flashy or controlled.	0	
			Sum=	0	
			Stressor subscore=	0.00	
Accelerated Inputs of Contaminants and/o	r Salts				
In the last column, place a check mark next to any item occurring	in either the wetland or its CA that is likely to have accelerated th	e inputs of contaminants or salts to the AA. [AM, FA, PH, POL, STF	R)		
Stormwater or wastewater effluent (including failing septic system	s), landfills, industrial facilities.				
Metals & chemical wastes from mining, shooting ranges, snow stonpri/default.asp?lang=En&n=B85A1846-1	rage areas, oil/ gas extraction, other sources (download many locati	ions from National Pollutant Release Inventory and view KMZ overla	ay in Google Earth. https://www.ec.gc.ca/inrp-		
Road salt.					
Spraying of pesticides, as applied to lawns, croplands, roadsides,	or other areas in the CA.				
If any items were checked above, then for each row of the table be	low, assign points. However, if you believe the checked items did no vith the condition if the checked items never occurred or were no lon		ninants and/or salts, then leave the "O's" for the scores in the		
	Severe (3 points)	Medium (2 points)	Mild (1 point)		
Usual toxicity of most toxic contaminants:	Industrial effluent, mining waste, unmanaged landfill.	Cropland, managed landfill, pipeline or transmission rights-of- way.	Low density residential.	0	
Frequency & duration of input:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.	0	
AA proximity to main sources (actual or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.	0	
	•	•			
			Sum=	0	

In the last column, place a check mark next to any item occurring	ng in either the wetland or its CA that is likely to have accelerated the	inputs of nutrients to the wetland. [NRv, PRv, STR]			
Stormwater or wastewater effluent (including failing septic system	ns), landfills.				
Fertilizers applied to lawns, aq lands, or other areas in the CA.	,				
Livestock, dogs.					
Artificial drainage of upslope lands.					
If any items were checked above, then for each row of the table be effects, contrast the current condition with the condition if the check	elow, assign points. However, if you believe the checked items did not cked items never occurred or were no longer present.	cumulatively expose the AA to significantly more nutrients, then le	eave the "O's" for the scores in the following rows. To estimate		
	Severe (3 points)	Medium (2 points)	Mild (1 point)		
Type of loading:	High density of unmaintained septic, some types of industrial sources.	Moderate density septic, cropland, secondary wastewater treatment plant.	Livestock, pets, low density residential.	0	
Frequency & duration of input:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.		
AA proximity to main sources (actual or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.		
	•		Sum=		
			Stressor subscore=		
Excessive Sediment Loading from Contrib	outing Area				
<u> </u>		"	LOD OTRI		
.,	the CA that is likely to have elevated the load of waterborne or windbo	rne sediment reaching the wetland from its CA. [FA, FR, INV, PH	l, SRV, STRJ		
Erosion from plowed fields, fill, timber harvest, dirt roads, vegetation clearing, fires.					
Erosion from construction, in-channel machinery in the CA.				—	
Erosion from off-road vehicles in the CA.				_	
Erosion from livestock or foot traffic in the CA.				_	
Stormwater or wastewater effluent.				_	
Sediment from road sanding, gravel mining, other mining, oil/ gas				-	
Accelerated channel downcutting or headcutting of tributaries du	e to altered land use.			-	
Other human-related disturbances within the CA.					
	elow, assign points (3, 2, or 1 as shown in header) in the last column. He te effects, contrast the current condition with the condition if the checke		ld significantly more sediment or suspended solids to the AA,		
	Severe (3 points)	Medium (2 points)	Mild (1 point)		
Erosion in CA:	Extensive evidence, high intensity.*	Potentially (based on high-intensity* land use) or scattered evidence.	Potentially (based on low-intensity* land use) with little or no direct evidence.	 	
Recentness of significant soil disturbance in the CA:	Current & ongoing.	1-12 months ago.	>1 yr ago.	3	
Duration of sediment inputs to the wetland:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.		
AA proximity to actual or potential sources:	0 - 15 m.	15-100 m.	In more distant part of contributing area.		
* high-intensity= extensive off-road vehicle use, plowing, grading, soil or sediment.	excavation, erosion with or without veg removal; low-intensity= veg r	emoval only with little or no apparent erosion or disturbance of	Sum=		
Soil of Sediment.					

Soil or Sediment Alteration Within the Ass	sessment Area			
In the last column, place a check mark next to any item present in is less). [CS, INV, NR, PH, SR, STR]	the wetland that is likely to have compacted, eroded, or otherwise all	ered the wetland's soil. Consider only items occurring within past 1	00 years or since wetland was created or restored (whichever	
Compaction from machinery, off-road vehicles, livestock, or mou	ntain bikes, especially during wetter periods.			
Leveling or other grading not to the natural contour.				
Tillage, plowing (but excluding disking for enhancement of native	plants).			
Fill or riprap, excluding small amounts of upland soils containing	organic amendments (compost, etc.) or small amounts of topsoil impo	orted from another wetland.		
Excavation.				
Ditch cleaning or dredging in or adjacent to the wetland.				
Boat traffic in or adjacent to the wetland and sufficient to cause s	hore erosion or stir bottom sediments.			
Artificial water level or flow manipulations sufficient to cause ero	sion or stir bottom sediments.			
If any items were checked above, then for each row of the table be effects, contrast the current condition with the condition if the che	elow, assign points. However, if you believe the checked items did no cked items never occurred or were no longer present.	t measurably alter the soil structure and/or topography, then leave	the "O's" for the scores in the following rows. To estimate	
	Severe (3 points)	Medium (2 points)	Mild (1 point)	
Spatial extent of altered soil:	>95% of wetland or >95% of its upland edge (if any).	5-95% of wetland or 5-95% of its upland edge (if any).	<5% of wetland and <5% of its upland edge (if any).	0
Recentness of significant soil alteration in wetland:	Current & ongoing.	1-12 months ago.	>1 yr ago.	0
Duration:	Long-lasting, minimal veg recovery.	Long-lasting but mostly revegetated.	Short-term, revegetated, not intense.	0
Timing of soil alteration:	Frequent and year-round.	Frequent but mostly seasonal.	Mainly during one-time or scattered events.	0
	'	•	Sum=	0
			Stressor subscore=	0.0

Assessment Area (AA) Results:

Wetland ID: WL17

Date: September 14, 2022

Observer: Darcy Kavanagh & Jordan Davis

Latitude & Longitude (decimal degrees): 44.06863403135772, -64.82514685074169

Scores will appear below after data are entered in worksheets OF, F, and S. See Manual for definitions and descriptions of how scores were computed.

Wetland Functions or Other Attributes:	Function Score (Normalised)	Function Rating	Benefits Score (Normalised)	Benefits Rating	Function Score (raw)	Benefits Score (raw)
Water Storage & Delay (WS)	5.85	Moderate	2.20	Lower	6.31	0.98
Stream Flow Support (SFS)	0.00	Lower	0.00	Lower	0.00	0.00
Water Cooling (WC)	3.13	Moderate	0.00	Lower	2.08	0.00
Sediment Retention & Stabilisation (SR)	10.00	Higher	2.46	Moderate	10.00	1.20
Phosphorus Retention (PR)	10.00	Higher	1.88	Moderate	10.00	1.46
Nitrate Removal & Retention (NR)	10.00	Higher	5.42	Moderate	10.00	5.42
Carbon Sequestration (CS)	3.50	Moderate			6.85	
Organic Nutrient Export (OE)	7.39	Moderate			4.83	
Anadromous Fish Habitat (FA)	0.00	Lower	0.00	Lower	0.00	0.00
Resident Fish Habitat (FR)	0.00	Lower	0.00	Lower	0.00	0.00
Aquatic Invertebrate Habitat (INV)	5.26	Moderate	4.38	Moderate	5.64	3.60
Amphibian & Turtle Habitat (AM)	6.07	Moderate	6.44	Higher	6.30	7.06
Waterbird Feeding Habitat (WBF)	5.02	Moderate	10.00	Higher	3.83	10.00
Waterbird Nesting Habitat (WBN)	5.69	Moderate	10.00	Higher	4.13	10.00
Songbird, Raptor, & Mammal Habitat (SBM)	8.46	Higher	10.00	Higher	7.37	10.00
Pollinator Habitat (POL)	7.17	Moderate	3.33	Moderate	5.94	3.33
Native Plant Habitat (PH)	2.48	Lower	5.55	Moderate	4.89	5.55
Public Use & Recognition (PU)			1.04	Lower		1.01
Wetland Sensitivity (Sens)			10.00	Higher		5.76
Wetland Ecological Condition (EC)			4.78	Moderate		7.50
Wetland Stressors (STR) (higher score means more stress)			8.40	Higher		4.22
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	5.85	Moderate	2.20	Lower	6.31	0.98
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	9.19	Higher	4.33	Moderate	9.61	4.05
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	5.67	Higher	2.92	Lower	4.39	2.40
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	4.71	Moderate	7.64	Higher	4.58	7.71
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	7.25	Higher	8.15	Moderate	6.72	8.15
WETLAND CONDITION (EC)			4.78	Moderate		7.50
WETLAND RISK (average of Sensitivity & Stressors)			9.20	Higher		4.99
			_			

NOTE: A score of 0 does not mean the function or benefit is absent from the wetland. It means only that this wetland has a capacity that is equal or less than the lowest-scoring one, for that function or benefit, from among all the NS calibration wetlands that were assessed previously.

NOVA SCOTIA - Functional WSS Interpretation Tool

3. Functional WSS Interpretation Results

Function-Benefit Product (FBP)	FBP SCORE	FBP SCORE CATEGORY	
SUPPORT SUPERGROUP - HYDROLOGIC	12.87126739	Low	
SUPPORT SUPERGROUP - WATER QUALITY SUPPORT	39.80952277	Low	
SUPPORT SUPERGROUP - AQUATIC SUPPORT	16.55507226	Low	
HABITAT SUPERGROUP - AQUATIC HABITAT	36.02309662	Low	
HABITAT SUPERGROUP - TRANSITION HABITAT	59.05803279	Low	

3a. Functional WSS Determination: Automatic Method

Habitat Rule Satisfied? NO Support Rule Satisfied? NO Habitat/Support Hybrid Rule Satisfied? NO

CONCLUSION: Site is not a WSS

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	Mersey River Wind Farm - WL25
Investigator Name:	Darcy Kavanagh & Jordan Davis
Date of Field Assessment:	September 15, 2022
Nearest Town:	Milton, NS
Latitude (decimal degrees):	44.09277548608155
Longitude (decimal degrees):	-64.93906744971514
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	0.2
AA as percent of entire wetland (approx.). Attach sketch map if AA is smaller than the entire contiguous wetland.	42%
What percent (approx.) of the wetland were you able to visit?	80%
What percent (approx.) of the AA were you able to visit?	100%
Were you able to ask the site owner/manager about any of the questions?	No
Indicate here if you intentionally surveyed for rare plants, calciphile plants, or rare animals:	Yes
Have you attended a WESP-AC training session? If so, indicate approximate month & year.	No
How many wetlands have you assessed previously using WESP-AC? (approx.)	50+
Comments about the site or this WESP-AC assessment (attach extra page if desired):	

	A	В	С	D	E
	Date: September 15, 2022		Site Identifier: WL25	Investiga	tor: Darcy Kavanagh & Jordan Davis
1					

Form OF (Office). Non-tidal Wetland Data Form. WESP-AC version 2 for Nova Scotia wetlands only. DIRECTIONS: Conduct an assessment only after reading the accompanying Manual and the Explanations column of the data form. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answering many of the questions below will require using these online map viewers:

Google Earth Pro: https://www.google.com/earth/download/gep/agree.html

Provincial Landscape Viewer: https://nsgi.novascotia.ca/plv/

For most wetlands, completing this office data form will require 1-2 hours. For a list of functions to which each question pertains, see bracketed abbreviations in the Definitions/Explanations column. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Manual. Codes for functions and values are: WS= Water Storage, SFS= Stream Flow Support, WC= Water Cooling, SR= Sediment Retention & Stabilisation, PR= Phosphorus Retention, NR= Nitrate Removal, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate Habitat, FA= Anadromous Fish Habitat, FR= Resident Fish Habitat, AM= Amphibian & Reptile Habitat, WBF= Feeding Waterbird Habitat, WBN= Nesting Waterbird Habitat, SBM= Songbird, Raptor, & Mammal Habitat, POL= Pollinator Habitat, PH= Native Plant Habitat, PU= Public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= Stressors.

3	#	Indicators	Condition Choices	Data	Definitions/Explanations
4	OF1	Province	Mark the province in which the AA is located by changing the 0 in the column next to it to a "1". Mark only one.		This determines to which province's calibration wetlands the raw score of any wetland is normalised. In the function and benefits models, it also triggers the automatic exclusion of indicators for which no
5			New Brunswick	0	spatial data exists in a particular province.
6			Nova Scotia	1	Spatial data onios in a particular provinces.
7			Prince Edward Island	0	
8			Newfoundland-Labrador	0	
9		Ponded Area Within 1 km.	The area of surface water ponded during most of the growing season that is both (1) in or adjacent to the AA and (2) within 1 km is:		"Adjacent" means not separated from the AA by a wide expanse (>50 m) of upland (including roads >50 m wide). Include ponded areas likely to be hidden by wetland vegetation. If surface water extends
10			<0.01 hectare (about 10 m x 10 m).	1	beyond 1 km, include only the part within 1 km. Do not include tidal areas. Measure the area from
11			0.01 - 0.1 hectare.	0	aerial imagery using Google Earth Pro (click on Ruler icon in toolbar, then Polygon in pop-up menu). [PH, SBM, WBN]
12			0.1 - 1 hectare.	0	[FTI, SDIW, WDIV]
13			1 to 10 hectares.	0	
14			10 to 100 hectares.	0	
15			>100 hectares.	0	
			The area of wetlands and surface water ponded during most of the growing season that is both (1) in or adjacent to the AA and (2) within 1		See definition of adjacent in OF2. If the AA's wetland vegetation extends beyond 1 km, include only
16		Within 1 km.	km is:		the part within 1 km. "Ponded" means not flowing in rivers or streams. [Sens, WBF]
17			<0.01 hectare (about 10 m x 10 m).	0	
18			0.01 - 0.1 hectare.	0	
19			0.1 - 1 hectare.	1	
20 21			1 to 10 hectares.	0	
			10 to 100 hectares.	0	
22			>100 hectares.	0	
23		Size of Largest Nearby Vegetated Tract or	The largest vegetated patch or corridor that includes the AA's vegetation plus all adjacent upland vegetation that is not lawn, row crops, heavily grazed lands, conifer plantation is:		See definition of adjacent in OF2. Use Google Earth Pro's polygon ruler (as described above). Exclude conifer plantations only if it is obvious that trees were planted in rows. [AM, PH, SBM, Sens]
24		Corridor	<0.01 hectare (about 10 m x 10 m).	0	
25			0.01 - 0.1 hectare.	0	
26			0.1 - 1 hectare.	0	
25 26 27			1 to 10 hectares.	0	
28			10 to 100 hectares.	0	
29			100 to 1000 hectares.	0	
30			>1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	1	

	Α	В	С	D	E
	OF5	Distance to Large	The minimum distance from the edge of the AA to the edge of the closest vegetated land (but excluding row crops, lawn, conifer plantation)		To measure distance, use Google Earth Pro (Ruler > Line tool). The 375-ha criterion is from the Fundy
31		Vegetated Tract	larger than 375 hectares (about 2 km on a side), is:		Model Forest Project. [AM, PH, POL, SBM, Sens]
			<50 m, and not separated from the 375-ha vegetated area by any width of paved roads, stretches of open water, row crops, bare ground,	1	
			lawn, or impervious surface. Or the AA itself contains >375 ha of vegetation. [This is often the answer in relatively undeveloped landscapes.]		
32					
			<50 m, but completely separated from the 375-ha vegetated area by those features, and AA does not contain >375 ha of vegetation.	0	
33				_	
34			50-500 m, and not separated.	0	
35			50-500 m, but separated by those features.	0	
36			0.5 - 5 km, and no t separated.	0	
37			0.5 - 5 km, but separated by those features.	0	
38			None of the above (the closest patches or corridors which are that large are >5 km away).	0	
	OF6	Herbaceous Uniqueness	The AA's vegetation cover is >10% herbaceous* but uplands within 5 km have <10% herbaceous cover. If so, enter "3" and continue to OF7. If not, consider:	1	For this question only, consider moss to be herbaceous vegetation. Determine the score by viewing aerial imagery in Google Earth after successively drawing or estimating the boundaries of the buffers of
			In rou, consider: The AA's vegetation cover is >10% herbaceous* but uplands within 1 km have <10% herbaceous cover. If so enter "2" and continue to OF7.		5 km, 1 km, and 100 m radius focused on the center of the AA. Circles of specified radius can be
			If not, consider:		drawn in Google Earth Pro by clicking on the Ruler icon, then Circle in the pop-up menu. [AMv, PHv,
			The AA's vegetation cover is >10% herbaceous* but uplands within 100 m of the wetland edge have <10% herbaceous cover. If so, enter		POLv, SBMv, WBFv, WBNv]
			m1".		
			[* NOTE: Exclude lawns, row crops, heavily grazed lands, forest, shrublands. Include moss as well as grasslike plants in this use of		
39			"herbaceous vegetation"]		
	OF7	Woody Uniqueness	The AA's vegetation cover is >10% woody* but uplands within 5 km have <10% woody cover. If so, enter "3" and continue to OF8. If not,	1	See above. Do not consider conifer plantations to be forest if it is obvious that trees were planted in
			consider:		rows. [AMv, PHv, POLv, SBMv]
			The AA's vegetation is >10% woody* but uplands within 1 km have <10% woody cover. If so enter "2" and continue to OF8. If not, consider: The AA's vegetation is >10% woody* but uplands within 100 m of the wetland edge have <10% woody cover. If so, enter "1"		
			[* NOTE: woody cover = trees & shrubs taller than 1 m.]		
40			[· · · · - · · · · · · · · · · · · · ·		
	OF8	Local Vegetated Cover	Draw a 5-km radius circle measured from the center of the AA. Ignoring all permanent water in the circle, the percent of the remaining area		In Google Earth, draw the 5 km buffer and then estimate land cover percentages, or do GIS analysis of
		Percentage	that is wooded or unmanaged herbaceous vegetation (NOT lawn, row crops, bare or heavily grazed land, clearcuts, or conifer plantations) is:		an appropriate land cover layer. [AM, PH, POL, SBM, Sens]
41					
42			<5% of the land.	0	
43			5 to 20% of the land.	0	
44			20 to 60% of the land.	1	
45			60 to 90% of the land.	0	
46			>90% of the land. SKIP to OF10.	0	
47	OF9	Type of Land Cover	Within the 5-km radius circle, and ignoring all permanent water, the land area that is bare or non-perennial cover is mostly:		[AM, SBM]
48		Alteration	Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0	
49			Bare pervious surface, e.g., lawn, recent (<5 yrs ago) clearcut, dirt or gravel road, cropland, landslide, conifer plantation.	1	
50	OF10	Distance by Road to	Measured along the maintained road nearest the AA, the distance to the nearest population center is:		"Population center" means a settled area with more than about 5 regularly- inhabited structures per
50		Nearest Population	<100 m.	0	square kilometer. In Google Earth Pro, click on the Ruler icon, then Path, and draw and measure the
51		Center	< 100 m. 100 - 500 m.	0	route. [FAv, FRv, NRv, PH, PU, SBM, WBFv]
52 53			0.5- 1 km.	0	
			U.5- I KM. 1 - 5 km.	0	
54 55			1 - 5 km. >5 km.	1	
33			20 MII.	- 1	

56 OF11 57 58	B Distance to Nearest	-		
58		From the center of the AA, the distance to the nearest maintained public road (dirt or paved) is:		Determine this by viewing aerial imagery in Google Earth Pro and measuring with the Ruler>Line tool.
58	Maintained Road	10		[AM, FAv, FRv, NRv, PH, PU, SBM, STR, WBN]
58		<10 m.	0	
		10 - 25 m.	0	4
59		25 - 50 m.	0	4
60		50 - 100 m.	0	
61		100 - 500 m.	0	
62		>500 m.	1	
OF12	Wildlife Access	Draw a circle of radius of 5 km from the center of the AA. If mammals and amphibians can move from the center of the AA to ALL other		Draw the 5 km circle in Google Earth Pro using the Circle tool and search for roads and wetlands within
		separate wetlands and ponds located within the circle without being forced to cross pavement (any width), lawns, bare ground, and/or marine waters, mark 1= yes can move to all, 0= no. Change to blank if there are no other wetlands within 5 km.	0	it, being alert for roads hidden under forest canopy. [AM, SBM, STR]
63		, v		
64	Distance to Ponded Water	The distance from the AA center to the closest (but separate) ponded water body visible in GoogleEarth imagery is:		In Google Earth Pro, zoom in closely to examine the surrounding landscape for ponds, lakes, and wetlands that appear to be permanently flooded. [AM, PH, SBM, Sens, WBF, WBN]
65		<50 m, and not separated by any width of paved roads, stretches of open water, row crops, lawn, bare ground, or impervious surface.	0	
66		<50 m, but completely separated by those features.	0	
67		50-500 m, and not separated.	0	
68		50-500 m, but separated by those features.	0	
69		0.5 - 1 km, and not separated.	1	
70		0.5 - 1 km, but separated by those features.	0]
71		None of the above (the closest patches or corridors that large are >1 km away).	0	
	Distance to Large Ponded Water	The distance from the AA center to the closest (but separate) non-tidal body of water that is ponded during most of the year and is larger than 8 hectares during most of a normal year is:		Determine this by viewing aerial imagery in Google Earth. [Sens, WBF, WBN]
72	i ondod water	<100 m.	0	
73			0	-
74		100 m - 1 km.		4
75		1 - 2 km.	1	
76		2-5 km.	0	
77		5-10 km.	0	
78	TILLE	>10 km.	0	
79 OF 15	Tidal Proximity	The distance from the AA edge to the closest tidal water body (regardless of its salinity) is:		In Google Earth, measure the distance to the ocean (including Bay of Fundy) or tidal river, whichever is closer. If you need to see how far upriver a river is tidal, see the KMZ file provided with this calculator
80		<100 m.	0	for NS (NS Headtide). Points shown in those files are only an approximation, so local information if
81		100 m - 1 km.	0	available may be preferable. [FA, WBF]
82		1 - 5 km.	0	1
83		5-10 km.	0	1
84		10-40 km.	1	
85		>40 km.	0	
oc OF16	Upland Edge Contact	Select one:		[NR, SBM, Sens]
86		The AA has no upland edge (or upland is <1% of perimeter). The AA is entirely surrounded by (& contiguous with) other wetlands or water.	0	
87		The Art has no upland cage (or upland is \$170 or perimeter). The Art is charter surrounded by (a configuous with) other weitands or water.	U	
88		1-25% of the AA's perimeter abuts upland (including filled areas). The rest adjoins other wetlands or water that is mostly wider than the AA.	0	
89		25-50% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0	1
90		50-75% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0	1
90		More than 75% of the AA's perimeter abuts upland. Any remainder adjoins other wetlands or water that is mostly wider than the AA. This	1	-
91		will be true for most assessments done with WESP-AC.		
OF17	Flood Damage from Non	Within 5 km downstream or downslope of the AA (select first true choice):		Contact local authories to determine if such maps exist. Where available, LiDAR imagery can provide
92	tidal Waters		Ŷ	finer elevational resolution useful for flood modeling. [WSv]
93		Maps show Flood Zone or Flood Risk areas and there appears to be infrastructure vulnerable to river flooding not caused by tidal storm surges.	0	
93		Surges. Maps show Flood Zone or Flood Risk areas, but infrastructure is absent or is not vulnerable to floods from a non-tidal river. In some cases	0	-
94		levees, upriver dams, or other measures may partly limit damage or risk from smaller events.	U	
Ħ		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure	0	1
95		vulnerable to river flooding unrelated to tidal storm surges.	_]
		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there is no infrastructure vulnerable to	1]
96		river flooding unrelated to tidal storm surges.		

	Α	В	C	D	E
		Relative Elevation in	In Google Earth, enable the Terrain layer (lower left menu) and open the NS_Watersheds Secondary KMZ file that accompanies this		[FA, NR, Sens, SFSv, WCv, WSv]
		Watershed	calculator. Then determine the AA's approximate elevation (bottom right, NOT the "eye alt"). Then move cursor around to determine the	0.40	
97			watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-min).		
98	OF19	Water Quality Sensitive Watershed or Area	The AA is in a Protected Water Supply area (Designated Water Supply Area, Natural Watershed Municipal Surface Water Supply Area, or Municipal Water Supply Area) according to the provided KMZ overlay ("NS Protected Water Supply Areas"). Enter 1= yes, 0= no.	0	If an ACCDC report is available for this AA, it also may contain such information. [NRv]
99	OF20	Degraded Water Upstream	Sampling indicates a problem with concentrations of metals, hydrocarbons, nutrients, or other substances (excluding bacteria, acidic water, high temperatures) being present at levels harmful to aquatic life or humans, and:		May use existing data, or sample those waters as part of this wetland assessment. "Harmful" should be evaluated with regard to current federal or provincial water quality standards. [AM, FA, FR, NRv, PRv,
100			The condition is present within the AA.	0	SRv, STR, WBF, WBN]
101			The condition is present in waters within 1 km that flow into the AA, but has not been documented in the AA itself.	0	
102			Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in either the AA or inflowing waters.	0	
103			Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the situation for nearly all wetlands in this region.	1	
104	OF21	Degraded Water	The problem described above is downslope from the AA, and:		May use existing data, or monitor waters as part of this wetland assessment. [NRv, PRv, SRv]
105		Downstream	The condition is present within 1 km downslope and connected to the AA by a channel.	0	
100			The condition is present within 5 km downslope and connected to the AA by a channel, or within 1 km but not connected to the AA by a	0	
106			channel.		
107			Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in either the AA or inflowing waters.	0	
108			Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the situation for nearly all wetlands in this region.	1	
109	OF22	Wetland as a % of Its Contributing Area (Catchment)	From a topographic map and field observations, estimate the approximate boundaries of the catchment (CA) of the entire wetland of which the AA may be only a part. Then adjust those boundaries if necessary based on your field observations of the surrounding terrain, and/or by using procedures described in the Manual. Divide the area of the wetland (not just the AA) by the approximate area of its catchment excluding the area of the wetland itself. When doing the calculation, if ponded water is adjacent to the wetland, include that in the wetland's area. The result is:		Topographic maps may be viewed online at the National Atlas of Canada (Toporama): http://atlas.gc.ca/toporama/en/index.html [NR, PR, Sens, SR, WS]
110			<0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	0	
111			0.01 to 0.1.	1	
112			0.1 to 1.	0	
113			>1 (wetland is larger than its catchment (e.g., wetland with flat surrounding terrain and no inlet, or is entirely isolated by dikes, or is a raised	0	
113	OE23	Unvegetated Surface in	bog). The proportion of the AA's contributing area (measured to no more than 1000 m upslope) that is comprised of buildings, roads, parking lots,		[FA, INV, NRv, PRv, SRv, STR, WCv, WSv]
114		the Contributing Area	other pavement, exposed bedrock, landslides, and other mostly-bare surface is about :		[17, 111, 111, 111, 111, 110, 110, 110, 1
115		Ü	<10%.	1	
116			10 to 25%.	0	
117			>25%.	0	
117	OF24	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as indicated by the following:	0	[NRv, PRv, SRv, WSv]
			(a) input channel is present,		
			(b) input channels have been straightened, (c) upslope wetlands have been ditched extensively,		
			(d) land cover is mostly non-forest,		
			(e) CA slopes are steep, and/or		
			(f) most CA soils are shallow (bedrock near surface) and/or have high runoff coefficients.		
118			This statement is:		
119			Mostly true.	0	
120			Somewhat true.	0	
121			Mostly untrue.	1	
122	OF25	Aspect	The overland flow direction of most surface water (in streams, rivers, or runoff) that enters the AA is:		[AM, NR, SFS, WC, WS]
123			Northward (N, NE). north-facing contributing area.	0	
124			Southward (S, SW). south-facing contributing area.	0	
125			Other (E, SE, W, NW), or no detectable uphill slope or input channel (flat).	1	
<u> </u>					

	A	В	С	D	E
126	OF26	Internal Flow Distance	The horizontal flow distance from the wetland's inlet to outlet is:		Identify inlets and outlets, if any, from topographic maps (use elevations to determine which are inlets
		(Path Length)	<10 m.	0	and which are outlets) and augment by field inspection. With the Provincial Landscape Viewer, select
127			10 - 50 m.	0	Nova Scotia Topo as the Basemap. Also enable the layer Forestry>WAM Predicted Flow. Then
128			50 - 100 m.	0	measure the inlet-outlet distance. [NR, OE, PR, SR, WS]
129					
130			100 - 1000 m.	0	
131			1- 2 km.	0	
132			>2 km, or wetland lacks an inlet and outlet.	1	
133	OF27	Growing Degree Days	In Google Earth, open the KMZ file that accompanies this calculator, called NS_GrowingDegreeDays. Place your cursor over the AA and left- click. From the pop-up window, enter the GRIDCODE number in the next column.	2177	This layer was provided by Dr. Dan McKenney of the Canadian Forest Service [AM, CS, FR, INV, NR, OE, PH, PR, Sens, SR, WBF, WCv, WS]
134	OF28	Fish Access or Use	According to agency biologists and/or your own observations, the AA. [Mark just the first choice that is true.]:		Regarding the last choice, if uncertain if an AA is fishless, consider the possibility its waters have been
			Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. Go to Provincial Landscape	0	stocked. [AM, FA, FR, INV, WBF, WBN]
			Viewer>Wildlife>Significant Habitat>Species at Risk. Contact local fishery biologists, review the ACCDC report, and visit these websites:		
135			http://www.salmonatlas.com/atlanticsalmon/canada-east/index.1.html http://atlanticsalmonfederation.org/rivers/introduction.html		
			Has not been documented to support Atlantic salmon rearing and/or spawning, but is connected to nearby waters likely to contain Atlantic	0	
136			salmon or other anadromous species or eels and is probably accessed by those during some conditions.	1	
137			Is probably is not accessed by any anadromous fish species but is known or likely to have other fish at least seasonally.	0	
138			Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	1	
150	OF29	Species of Conservation	Within the past 10 years, in the AA (or in its adjoining waters or wetland), qualified observers have documented [mark all applicable]:		Request information from ACCDC and/or conduct your own survey at an appropriate season using an
139	JI 27	Concern	main are pass to years, in the zer for in its adjoining maters of metandy, qualified observers have documented financial applicable.		approved protocol. For birds, also check eBird.org. NOTE for NS: If your WESP-AC is being completed
137			Presence of one or more of the plant species listed in the Plants_Rare worksheet of the accompanying Supplnfo file, or the AA is within a	0	for a Wetland Alteration Application to NS-ECC, your ACCDC results and any taxon-specific survey
			mapped Atlantic Coastal Plain Flora Buffer (go to Provincial Landscape Viewer> Wildlife> Special Management Practice Zones).	U	results must be submitted along with your WESP-AC results, and application. [AMv, EC, PHv, POLv,
140			mapped Manne Godstal Family Total Burlot (go to Frontiera Landscape Frontier) Wildings Special Management Francisco		SBMv, Sens, WBFv, WBNv]
140			Presence of one or more of the amphibian or reptile species (AM) of conservation concern as listed in the Wildlife Rare worksheet of the	0	
141			accompanying Supplinfo file.	U	
141			Presence of one or more of the waterbird species (WBF, WBN) of conservation concern as listed in the Wildlife_Rare worksheet of the	0	
142			accompanying Supplinfo file.	U	
142			Presence of one or more of the nesting songbird or raptor species (SBM) of conservation concern as listed in the Wildlife_Rare worksheet	0	
143			of the accompanying Supplnfo file, during their nesting season (May-July for most species).	U	
144			None of the above, or no data.	1	
144	OF30	Important Bird Area (IBA)	In Google Earth, open the KMZ file that accompanies this calculator, called IBAs_Canada. The AA is all or part of an officially designated	0	The source of this layer, which should be checked periodically for updates, is:
145	OF30	important bird Area (IBA)	IBA. Enter 1= yes, 0= no.	U	http://www.ibacanada.com/mapviewer.jsp?lang=EN [SBMv, WBFv, WBNv]
	OF31	Black Duck Nesting Area	In Google Earth, open the KMZ file that accompanies this calculator, called BlackDuck. Adjust its alignment and opacity. Determine the	0	This was provided by Dr. David Leske. [WBNv]
		-	predicted density (pairs per 25 sq. km) of nesting American Black Duck in the AA's vicinity: <10 (enter 0), 10-20 (enter 1), 20-30 (enter 2), >30		
146			(enter 3). If outside of region shown in map, change to blank .		
140	OE32	Wintering Deer or Moose	If AA is on private land with no information, change to blank (not 0). Otherwise: With the Provincial Landscape Viewer, for Wintering Moose,	0	[SBM]
	J1 J2	•	go to Wildlife> Significant Habitat. For Mainland Moose Concentration Areas, go to Wildlife> Special Management Practice Zones. Enter:	U	[Spin]
,		00001111111011711013	yes= 1, no= 0.		
147	0500	0"0"			Continue the control of the land of the la
	OF33	Other Conservation	The AA is all or part of an area designated by government, First Nations, or the Nature Conservancy of Canada (NCC) for its exceptional	0	See: https://novascotia.ca/parksandprotectedareas/plan/interactive-map/ [PU]
		Designation	ecological features or highly intact natural conditions. With Provincial Landscape Viewer, see Protected Areas. Enter: yes= 1, no= 0.		
148	056		If uncertain, consult NCC and agencies for more recent information.		four
	OF34	Conservation Investment	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or	0	[PU]
			enhance the wetland (excluding mitigation wetlands). Ask the property owner. Enter: yes= 1, no= 0. If no information, change toblank (not 0).		
149					
	OF35	Mitigation Investment	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere. Ask the property owner. Enter: yes= 1, no= 0. If no	0	[PU]
150			information, change to blank .		
	OF36	Sustained Scientific Use	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the	0	[PU]
			public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends		
151			monitoring area. Ask the property owner. Enter: yes= 1, no= 0. If no information, change to blank .		
-51	OF37	Calcareous Region	The AA is NOT in a subregion that has been heavily exposed to acid precipitation. Enter "1" if true (green or yellow in map in Appendix A of	0	[AM, FA, FR, INV, PH]
152			the Manual). Enter "0" if false. If no information, change to blank .	Ī -	
132			,		

	Α	В	С	D	E
153	OF38	'	Select the ONE ownership that covers the most of the AA. In Google Earth, open KMZ file called NS_CrownlandsUse more recent information if available.		"Private lands" may include those owned or leased by non-governmental organizations, e.g., charitable conservation land trusts, DUC, TNC. [PU, STR]
154	1		New timber harvest, roads, mineral extraction, and intensive summer recreation (e.g., off-road vehicles) are permanently prohibited. Includes many publicly-owned Protected Lands, and private lands under long-term (30+ year) legal agreements to maintain nearly-unaltered conditions.	0	
153	5		Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are allowed.	1	
150	5		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable or not) is in place.	0	
15'	7		Ownership is private and owner does not allow access, or access permission unknown, and not a conservation easement.	0	

	A	В	C	D	E	
	Date: September 15, 2022		Site Identifier: WL25		Investigator: Darcy Kavanagh & Jordan Davis	
1						

Form F (Field). Non-tidal Wetland Data Form. WESP-AC version 2 for Nova Scotia. DIRECTIONS: Walk for no less than 10 minutes from the wetland edge towards its core, in the part of the AA that is proposed for alteration. If no alteration is proposed, walk in a portion that appears to be most representative of the wetland overall. Walk only where it is safe and legal to do so. Conduct the assessment only after reading the accompanying Manual and the Explanations column of the data form. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgable persons, and/or reviewing aerial imagery. For most wetlands, completing this field data form will require 1-2 hours on a site. For a list of functions to which each question pertains, see the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Manual. Codes for functions and values are: WS= Water Storage & Delay, SFS= Stream Flow Support, WC= Water Cooling, SR= Sediment Retention & Stabilisation, PR= Phosphorus Retention, NR= Nitrate Removal, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate Habitat, FA= Anadromous Fish Habitat, FR= Resident Fish Habitat, AM= Amphibian & Reptile Habitat, WBF= Feeding Waterbird Habitat, WBN= Nesting Waterbird Habitat, SBM= Songbird, Raptor, & Mammal Habitat, POL= Pollinator Habitat, PH= Native Plant Habitat, PU= Public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= Stressors.

3	#	Indicators	Condition Choices	Data	Definitions/Explanations
4	F1	Wetland Type	Follow the key below and mark the ONE row that best describes MOST of the vegetated part of the AA:		Ericaceous shrubs are ones in the heather family (Ericaceae). Most have leathery evergreen leaves. They include rhododendron, azalea, swamp laurel, leatherleaf, Labrador tea, and others.
5			A. Moss and/or lichen cover more than 25% of the ground. Often dominated by ericaceous shrubs (e.g., Labrador tea) or other acid-tolerant plants (e.g., bog cranberry, pitcher plant, sundew, orchids). Substrate is mostly undecomposed peat. Choose between A1 and A2 and mark the choice with a 1 in their adjoining column. Otherwise go to B below.		Most require acidic soil. Although not in the family Ericaceae, sweetgale (<i>Myrica gale</i>) should be counted also. [AM, CS, FA, FR, INV, NR, OE, PH, Sens, SFS, WBF, WBN]
6			A1. Surface water is usually absent or, if present, pH is typically <4.5 and conductivity is usually <100 μS/cm (<64 ppm TDS). Trees are absent or nearly so. Sedge cover usually sparse or absent but cottongrass and/or lichen cover may be extensive, as well as cloudberry, lingonberry, sheep laurel, and a sedge (<i>Carex rariflor</i> a). Wetland surface and surrounding landscape are seldom sloping and wetland often is domed (convex). Inlet and outlet channels are usually absent. If known, pH of peat is <4.0.	1	
7			A2. Not A1. Surface water, if present, has pH typically >4.5 and conductivity is usually >100 µS/cm (>64 ppm TDS). Sedge cover is usually extensive, and/or tree and tall shrub cover is extensive. Sometimes at toe of slope or edge of water body. An exit channel is usually present. Wetter than A1 and peat depth may be shallower (<2 m).	0	
8			B. Moss and/or lichen cover less than 25% of the ground. Soil is mineral or decomposed organic (muck). Choose between B1 and B2 and mark the choice with a 1 in their adjoining column:		
9			B1. Trees and shrubs taller than 1 m comprise more than 25% of the vegetated cover. Surface water is mostly absent or inundates the vegetation only seasonally (e.g., vernal pools or floodplain).	0	
10			B2. Not B1. Tree & tall shrubs comprise less than than 25% of the vegetated cover. Vegetation is mostly herbaceous, e.g., cattail, bulrush, burreed, pond lily, horsetail. Surface water may be extensive and fluctuates seasonally, being either persistent or drying up partly or entirely.	0	
11	The AA should form, " the des	A should also include pa include the open water adjacent " is used syn scribed features along t	the AA should include all persistent waters in ponds smaller than 8 hectares (-283 m on a side) that are adjacent to the AA. art of the water area of adjacent ponded water larger than 8 ha and adjacent rivers wider than 20 m. Specifically, the AA is part adjacent to wetland vegetation and equal in width to the average width of that vegetated zone. Throughout this data onymously with abutting, adjoining, bordering, contiguous and means no upland (manmade or natural) completely separates their directly shared edge. Features joined only by a channel are not necessarily considered to be adjacent a large portion of features do not have to be hydrologically connected in order to be considered adjacent.		
12		Wetland Types - Adjoining or Subordinate	If the AA is smaller than 1 ha, mark all other types that occupy more than 1% of the vegetated AA. If the AA is larger than 1 ha, mark all other types which are within or adjacent to the AA and occupy more than 1 ha, as visible from the AA or as interpreted from aerial imagery. Do not mark again the type marked in F1.		1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m, 1000 m by 10 m, or similar. [AM, INV, SBM, WBF]
13			A1.	0	
14 15			A2. B1.	0	
16			B2.	0	
17		Woody Height & Form Diversity	Following EACH row below, indicate with a number code the percentage of the living vegetation in the AA which is occupied by that feature (6 if >95%, 5 if 75-95%, 4 if 50-75%, 3 if 25-50%, 2 if 5-25%, 1 if <5%, 0 if none). If the vegetated part of the AA is largely herbaceous (non-woody) vegetation, these percentages should not sum to 100%.		Deciduous shrubs in this region usually include buttonbush, Labrador tea, bayberry (Morella), huckleberry, cranberry, cloudberry, sweetgale, alder, willow, birch, ash, dogwood, and a few others. If you assigned a code of 3 or higher to any of the first four choices and the ground cover beneath the topsoid byte in 2012 (Sept. 1992). PML POLEDIA.

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	Α	В	C	D	E
18	- 11	В	coniferous trees (may include tamarack) taller than 3 m.	2	THE TREESTAILINDS IS < 20 % HIUSS, THEIT QUESTION FT HIIGHT DE BT. [CS, HVV, NVK, FH, FOE, 30NI,
19			deciduous trees taller than 3 m.	2	Sens]
20			coniferous or ericaceous shrubs or trees 1-3 m tall not directly below the canopy of trees.	2	
21			deciduous shrubs or trees 1-3 m tall not directly below the canopy of trees.	2	
22			coniferous or ericaceous shrubs <1 m tall not directly below the canopy of taller vegetation.	5	
23			deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	2	
-	Mata	If name of tan Arawai		_	
24			n F3 was marked 2 or greater , SKIP to F9 (N fixers).		
25	F4	Dominance of Most Abundant Shrub	Determine which two woody plant species comprise the greatest portion of the low (<3 m) woody cover . Then choose one:		[PH, POL, SBM, Sens]
26		Species	those species together comprise > 50% of such cover.	1	
27		Species	those species together do not comprise > 50% of such cover.	0	
	F5	Woody Diameter	Mark ALL the types that comprise >5% of the woody canopy cover in the AA or >5% of the wooded areas (if any) along its upland		Estimate the diameters at chest height. If small-diameter trees are overtopped (shaded) by larger
28		Classes	edge (perimeter). The edge should include only the trees whose canopies extend into the AA.		ones, visualise a "subcanopy" at the average height of the smaller-dbh trees, to serve as a basis for
29			coniferous, 1-9 cm diameter and >1 m tall.	1	the minimum 5% canopy requirement in this question. The trees and shrubs need not be wetland
30			broad-leaved deciduous 1-9 cm diameter and >1 m tall.	1	species. [AM, CS, POL, SBM, Sens, WBN]
31			coniferous, 10-19 cm diameter.	1	
32			broad-leaved deciduous 10-19 cm diameter.	1	
33			coniferous, 20-40 cm diameter.	1	
34			broad-leaved deciduous 20-40 cm diameter.	0	
35			coniferous, >40 cm diameter.	0	
36			broad-leaved deciduous >40 cm diameter.	0	
	F6	Height Class	Follow the key below and mark the ONE row that best describes MOST of the AA:		[AM, INV, NR, PH, SBM, Sens]
37		Interspersion	A 11-11 11 11 11 11 11 11 11 11 11 11 11		
		·	A. Neither the vegetation taller than 1 m nor the vegetation shorter than that comprise >70% of the vegetated part of the AA. They each comprise 30-70%. Choose between A1 and A2 and mark the choice with a 1 in the adjoining column. Otherwise go to B below.		
			each comprise 50-70%. Choose between AT and A2 and mark the choice with a 1 in the adjoining column. Otherwise go to 6 below.		
38					
39			A1. The two height classes are mostly scattered and intermixed throughout the AA.	0	
40			A2. Not A1. The two height classes are mostly in separate zones or bands, or in proportionately large clumps.	0	
			B. Either the vegetation shorter than 1 m comprises >70% of the vegetated part of the AA, or the vegetation taller than that does. One		
41			size class might even be totally absent. Choose between B1 and B2 and mark the choice with a 1 in the adjoining column:		
42			B1. The less prevalent height class is mostly scattered and intermixed within the prevalent one.	1	
			B2. Not B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is	0	
43	F7		completely absent.		
44	F/	Large Snags (Dead	The number of large snags (diameter >20 cm) in the AA plus adjacent upland area within 10 m of the wetland edge is:		Snags are dead standing trees that often (not always) lack bark and foliage. Include only ones that are at least 2 m tall. [POL, SBM, WBN]
45		Standing Trees)	None, or fewer than 8/ hectare which exceed this diameter.	0	are at reast 2 m tail. [r OL, SDIVI, WON]
46			Several (>8/hectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km.	1	
47			Several (>8/hectare) but above not true.	0	
48	F8	Downed Wood	The number of downed wood pieces longer than 2 m and with diameter >10 cm, and not persistently submerged, is:		Exclude temporary "burn piles." [AM, INV, POL, SBM]
49			Few or none that meet these criteria.	1	
50			Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria.	0	
	F9	N Fixers	The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa, other		Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
51			legumes) is:		- , ,
52			<1% or none.	0	
53			1-25% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	1
54			25-50% of the vegetated cover, in the AA or along its water edge (whichever has more).	1	
55			50-75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
56			>75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
50			The state of the s	<u> </u>	

FieldF form - Non-tidal Page 2 of 9

A	В	C	D	E
F10	Sphagnum Moss	The cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured by taller		Exclude moss growing on trees and rocks. [CS, PH]
57	Extent	sedges and other plants rooted in it, is:		
58		<5% of the vegetated part of the AA.	0	
59		5-25% of the vegetated part of the AA.	0	
60		25-50% of the vegetated part of the AA.	1	
61		50-95% of the vegetated part of the AA.	0	
62		>95% of the vegetated part of the AA.	0	
F11	% Bare Ground &	Consider the parts of the AA that lack surface water at the driest time of the growing season. Viewed from directly above the ground		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that is
63	Thatch	layer, the predominant condition in those areas at that time is:		present under a tree or shrub canopy should be counted. Boulders count as bare ground. Wetlands
- 03		Little or no (<5%) bare ground is visible between erect stems or under canopy anywhere in the vegetated AA. Ground is extensively	1	with mineral soils and that are heavily shaded or are dominated by annual plant species tend to
		blanketed by dense thatch, moss, lichens, graminoids with great stem densities, or plants with ground-hugging foliage.		have more extensive areas that are bare during the early growing season. [AM, EC, INV, NR, OE,
64				POL, PR, SBM, Sens]
01		Slightly bare ground (5-20% bare between plants) is visible in places, but those areas comprise less than 5% of the unflooded parts of	0	
65		the AA.		
		Much bare ground (20-50% bare between plants) is visible in places, and those areas comprise more than 5% of the unflooded parts of	0	
66		the AA.		
67		Other conditions.	0	
68		Not applicable. Surface water (either open or obscured by emergent plants) covers all of the AA all the time.	0	
F12	Ground Irregularity	Imagine the AA without any living vegetation. Excluding the portion of the AA that is always under water, the number of hummocks, small		The depressions may be of human or natural origin. [AM, EC, INV, NR, PH, POL, PR, SBM, SR,
		pits, raised mounds, animal burrows, ruts, gullies, natural levees, microdepressions, and other areas of peat or mineral soil that are raised		WS]
69		or depressed >10 cm compared to most of the area within a few meters surrounding them is:		
70		Few or none (minimal microtopography; <1% of the land has such features, or entire AA is always water-covered).	0	
71		Intermediate.	1	
72		Several (extensive micro-topography).	0	
E12	Upland Inclusions	Within the AA, inclusions of upland are:		[AM, NR, SBM]
73	Opiana inclusions	Tham are ray measons or apara are.		[Fills, INC, ODIN]
74		Few or none.	0	
75		Intermediate (1 - 10% of vegetated part of the AA).	1	
76		Many (e.g., wetland-upland "mosaic", >10% of the vegetated AA).	0	
F14	Soil Texture	In parts of the AA that lack persistent water, the texture of soil in the uppermost layer is mostly: [To determine this, use a trowel to check		[CS, NR, OE, PH, PR, Sens, SFS, WS]
77		in at least 3 widely spaced locations, and use the soil texture key (in Appendix A of the Manual).]		
		Loamy: soils that may contain a little fine grit and do not make a "ribbon" longer than 2 cm when moistened, rolled, squeezed, and	0	
78		extended between thumb and forefinger.		
		Fines: includes silt, clay, silt, soils that make a ribbon longer than 2 cm when moistened, rolled, squeezed, and extended between thumb	0	
79		and forefinger.		
80		Deep Peat, to 40 cm depth or greater.	0	
81		Shallow Peat or organic <40 cm deep.	1	
82		Coarse: includes sand, loamy sand, gravel, cobble, soils that do not make a ribbon when moistened, rolled, squeezed, and extended between thumb and forefinger.	0	
F15	Sharohird Fooding	During any 2 consecutive weeks of the growing season, the extent of mudflats, bare unshaded saturated areas not covered by thatch,		This addresses peods of many but not all migratory candinars, players, and related species. IMPET
	Shorebird Feeding Habitats	and unshaded waters shallower than 6 cm is: [Include also any area that is adjacent to the AA.]		This addresses needs of many but not all migratory sandpipers, plovers, and related species. [WBF]
83	ו ומטוומנט		4	
84		None, or <100 sq. m.	1	
85		100-1000 sq. m.	0	
86		1000 – 10,000 sq. m.	0	
87	Hadrana W. of	>10,000 sq. m.	0	IAM MIDE MIDNI
88 F16	Herbaceous % of	In aerial ("ducks eye") view, the maximum annual cover of herbaceous vegetation (all non-woody plants except moss) is:		[AM, WBF, WBN]
	Vegetated Wetland	<5% of the vegetated part of the AA or <0.01 hectare (whichever is less). Mark "1" here and SKIP to F20 (Invasive Plant Cover).	0	
89				
90		5-25% of the vegetated part of the AA.	1	
91		25-50% of the vegetated part of the AA.	0	
92		50-95% of the vegetated part of the AA.	0	
93		>95% of the vegetated part of the AA.	0	
			•	

FieldF form - Non-tidal Page 3 of 9

	A	В	С	D	E
04	F17	Forb Cover	Within parts of the AA having herbaceous cover (excluding SAV), the areal cover of forbs reaches an annual maximum of:		Forbs are flowering plants. Do not include grasses, sedges, cattail, other graminoids, ferns,
95			<5% of the herbaceous part of the AA.	0	horsetails, or others that lack showy flowers. [POL]
96			5-25% of the herbaceous part of the AA.	1	
97			25-50% of the herbaceous part of the AA.	0	
98			50-95% of the herbaceous part of the AA.	0	
99			>95% of the herbaceous part of the AA.	0	
	F18	Sedge Cover	Sedges (Carex spp.) and cottongrass (Eriophorum spp.) occupy:		[CS]
100		Scage cover		_	11
101			<5% of the vegetated area, or none.	0	
102			5-50% of the vegetated area.	1	
103			50-95% of the vegetated area.	0	
104	F10	D : (14)	>95% of the vegetated area.	0	Frontier wording include force as well as any inclide and forter (FC INIV DIL DOL Com)
	F19	Dominance of Most	Determine which two herbaceous species comprise the greatest portion of the herbaceous cover (excluding mosses and floating-leaved aquatic plants). Then choose one of the following:		For this question, include ferns as well as graminoids and forbs. [EC, INV, PH, POL, Sens]
105					
106		Species	those species together comprise > 50% of the areal cover of herbaceous plants at any time during the year.	0	
107			those species together do not comprise > 50% of the areal cover of herbaceous plants at any time during the year.	1	
	F20	Invasive Plant Cover	How extensive is the cover of invasive plant species in the AA? For species, see Plants_invasive worksheet in the accompanying		[EC, PH, POL, Sens]
108			Supplnfo file.		
109			invasive species appear to be absent in the AA, or are present only in trace amount (a few individuals).	1	
			invasive species are present in more than trace amounts, but comprise <5% of herbaceous cover (or woody cover, if the invasives are	0	
110			woody).		
111			invasive species comprise 5-20% of the herb cover (or woody cover, if the invasives are woody).	0	
112			invasive species comprise 20-50% of the herb cover (or woody cover, if the invasives are woody).	0	
113			invasive species comprise >50% of the herb cover (or woody cover, if the invasives are woody).	0	
114	F21	Invasive Cover Along Upland Edge	Along the wetland-upland boundary, the percent of the upland edge (within 3 m upslope from the wetland) that is occupied by invasive plant species is:		If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an exotic species, assume the unidentified plant to also be exotic. If vegetation is so senesced that exotic
115			none of the upland edge (invasives apparently absent), or AA has no upland edge.	1	species cannot be identified, answer "none". [PH, STR]
116			some (but <5%) of the upland edge.	0	
117			5-50% of the upland edge.	0	
118			most (>50%) of the upland edge.	0	
119	F22	Fringe Wetland	During most of the year, open water within or adjacent to the vegetated part of the wetland is much wider than the maximum width of the vegetated zone within the wetland. Enter "1" if true, "0" if false.	0	[WBF, WBN, WCv]
120	F23	Lacustrine Wetland	The vegetated part of the AA is within or adjacent to a body of non-tidal standing open water whose size exceeds 8 hectares during most of a normal year.	0	[FR, PR, PU, WBF, WBN]
	F24	% of AA Without	The percentage of the AA that <u>never</u> contains <u>surface</u> water during an average year (that is, except perhaps for a few hours after		1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m, 1000 m
121		Surface Water	snowmelt or rainstorms), but which is still a wetland, is:		by 10 m, or similar. [AM, FA, FR, INV, NR, PH, PR, SBM, Sens, SRv, WBF, WBN, WC]
122			<1%. In other words, all or nearly all of the AA is covered by water permanently or at least seasonally.	0	
123			1-25% of the AA, or <1% but >0.01 ha never contains surface water.	0	
124			25-50% of the AA never contains surface water.	0	
125			50-75% of the AA never contains surface water.	0	
			75-99% of the AA never contains surface water, OR >99% and there is at least one persistently ponded water body larger than 1 ha in	1	
126			the AA.	0	
127			99-100%. AND there is no persistently ponded water body larger than 1 ha within the AA. Enter "1" and SKIP to F42 (Channel Connection).	U	
	F25	% of AA with	Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during the driest		If you are unable to determine the condition at the driest time of year, ask the land owner or
		Persistent Surface	times of a normal year, i.e., when the AA's surface water is at its lowest annual level. At that time, the percentage of the AA that still		neighbors about it if possible. Indicators of persistence may include fish, some dragonflies, beaver,
128		Water	contains surface water is:		and muskrat. [AM, CS, FA, FR, INV, NR, POL, PR, SBM, WBF, WBN]
129			None. The AA dries up completely (no water in channels either) or never has surface water during most years. SKIP to F27.	0	
130			1-20% of the AA.	1	
131			20-50% of the AA.	0	
132			50-95% of the AA.	0	
133			>95% of the AA. True for many fringe wetlands.	0	

FieldF form - Non-tidal Page 4 of 9

An of Summer street	A	В	C	D	E
Water that is Straged Water than is Straged And Straged or with a shadow of the strain strain or shadow are or without any or with a shadow of the shadow					
10			· · · · · · · · · — · · · · · · · · · ·		(
15		Water that is officed		0	
500 de les uniter à stabel 50 de 19 ce uniter à stabel 50	-		'		
Self-Not of the water behalded This of the water behalded Food Only Secure VIV. Secure					
17 17 17 17 17 17 17 17				1	
For Yand Miles For Ya				0	
Flooded Only Secondly		0/ (A A H 1 '		U	
Secondary Wife. G. and Chilb Section and Child in	140		The percentage of the AA's area that is between the annual high water and the annual low water (surface water) is:		. 9
1.25 Commonwealth	141	,	None, or <0.01 hectare and <1% of the AA. SKIP to F29.	0	
Sept	142	Seasonally	1-20% of the AA, or <1% but >0.01 ha.	1	
144 155 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156 156	143		20-50% of the AA.	0	
1875 28 29 29 29 20 20 20 20 20			50-95% of the AA.	0	
## Arnal Walter			>95% of the AA.	0	
Turbulation Range 10 cm change (Salda or nairly sol) 10 cm : 30 cm change 10 cm change 10 cm : 30 cm change 10 cm change 10 cm : 30 cm change 12 cm change 13 cm change 14 cm change 15 cm change 16 cm change	F28	Annual Water			l ook for flood marks (see above). Because the annual range of water levels is difficult to estimate
1	146				
1.5 The charge. 1.5		i idotadiion rtango			
2 m change 2 m change 2 m change 2 m change 3 m	148		3	1	·
See the AA plus adjacent ponded water smaller than 0.01 hectare (about 10m x 10m, or 1m x 100 m)? If so, enter "1" in cultum D and SKIP TO F42	149		0.5 - 1 m change.	0	
s the AA plus adjacent ponded water smaller than 0.01 hectare (about 10m x 10m, or 1m x 100 m)? If so, enter "1" in column D and SKIP TO F42 152 Connection). 153 Connection). 154 Class 155 Class 156 Class 157 Class 158 Class 159 Depth Classes- 1-2 m deep.	150		1-2 m change.	0	
15 Connection	151		>2 m change.	0	
Fig. Class During most of the lime when surface water is present during the growing season, its depth, averaged over the entire inundated part of the AL is.	Is the	AA plus adiacent ponde	d water smaller than 0.01 hectare (about 10m x 10m, or 1m x 100 m)? If so, enter "1" in column D and SKIP TO F42	0	
Pedaminant Depth Class Face Pedaminant Depth Class Class Class Pedaminant Depth Class Pedaminant Depth Class Class Pedaminant Depth Class Pedaminant Dep			,, ,, ,, ,, ,, ,, ,, ,, ,,, ,,, ,,,,,,		
Class the AA is: and salely allow, depths may be measured by diffing through winter ce. This question is asking to the property of the p			During most of the time when surface water is present during the growing season, its depth, averaged over the entire inundated part of		If a hoat is unavailable, estimate this by considering wetland size and local topography. Or if timing
Company Comp					
1.5 So and disep. 1.5 The deep. 1.5 Th		OldSS	·	0	
156 157 156 157 156 157 156 157 156 157 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158 158					
1-2 m deep.			'		based on the depth of the most persistently inundated part of the wetland. Include surface water in
158 F32 Ponded (not Flowing) F32 Ponded Open Water Minimum Size Ponded Water Minimum Si			•		
Face			'		WBF, WBN, WC]
Evenness of Proportions One depth class that comprises 5-90% of the AA's inundated area (use the classes in the question above). One depth class that comprises 50-90% of the AA's inundated area. One depth class that comprises 50-90% of the AA's inundated area. One depth class that comprises 50-90% of the AA's inundated area. One depth class that comprises 50-90% of the AA's inundated area. One depth class that comprises 50-90% of the AA's inundated area. One depth class that comprises 50-90% of the AA's inundated area. One depth class that comprises 50-90% of the AA's inundated area. One depth class that comprises 50-90% of the AA's inundated area. One depth class that comprises 50-90% of the AA's inundated area. One depth class that comprises 50-90% of the AA's inundated area. One depth class that comprises 50-90% of the AA's inundated area. One depth class that comprises 50-90% of the AA's inundated area. One depth class that comprises 50-90% of the AA's inundated area. One depth class that comprises 50-90% of the AA's inundated area. One depth class that comprises 50-90% of the AA's inundated area. One depth class that comprises 50-90% of the AA's inundated area. One depth class that comprises 50-90% of the AA's inundated area. One depth class that comprises 50-90% of the AA's inundated area. One depth class that comprises 50-90% of the AA's inundated area. One depth class that comprises 50-90% of the AA's inundated area. One depth class that comprises are a 3 or more depth classes and not occupy so the AA's inundated area. One depth class that comprises 50-90% of the AA's inundated area. One depth class that comprises 40. One depth class that comprises 50-90% of the AA's inundated area. One depth class that comprises 50-90% of the AA's inundated area. One depth class that comprises 50-90% of the AA's inundated area. One depth class that comprises 50-90% of the AA's inundate			, , ,	0	
For proportions One depth class hat comprises \$90% of the AA's inundated area (use the classes in the question above). One depth class hat comprises \$90% of the AA's inundated area (use the classes in the question above). One depth class hat comprises \$90% of the AA's inundated area (use the classes in the question above). One depth classes and none occupy > 50%. Image: Proportion of the proving most times when surface water is present, the percentage that is (1) ponded (stagnant, or flows so slowly that fine sediment is not held in suspension) AMD (2) is likely to be deeper hato 0.5 in is some places, is:	159 F30		When present, surface water in most of the AA usually consists of (select one):		
Proportions Proportions One depth class that comprises 50-90% of the AA's inundated area. One depth classes and none occupy >50%. Neither of above. There are 3 or more depth classes and none occupy >50%. During most limites when surface water is present, the percentage that is (1) ponded (stagnant, or flows so slowly that fine sediment is not beld in suspension) AND (2) is likely to be deeper than 0.5 m in some places, is: 163	160		One depth class that comprises >90% of the AA's inundated area (use the classes in the question above).	0	WBF, WBNJ
Neither of above. There are 3 or more depth classes and none occupy >50%. F31		Proportions		0	
F31 % of Water That Is Ponded (not Flowing) 163 Ponded (not Flowing) 164 Ponded (not Flowing) 165 Ponded (not Flowing) 165 Ponded (not Flowing) 166 Ponded (not Flowing) 16			Neither of above. There are 3 or more depth classes and none occupy >50%.	1	
Ponded (not Flowing) held in suspension) AND (2) is likely to be deeper than 0.5 m in some places, is: -5% of the water. -5% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). -5% of the ponded water. -5% of the ponded wat		% of Water That Is	, ,,		Nearly all wetlands with surface water have some ponded water, [AM, CS, INV, NR, OF, PR, Sens.
164 5% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34. 0 5-30% of the water. 0 0 70.95% of the water. 0 70.95% of the ponded water. 0 70.95% of					
5-30% of the water. 5-30% of the ponded water. 5-30% of th		onaca (not rioning)		0	
30-70% of the water. 70-95% of the water. 70-95% of the water. 95% of the water. Ponded Open Water Minimum Size F32 Ponded Water Minimum Size F33 % of Ponded Water that is Open F33 % of Ponded Water that is Open F34 None, or <1% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 170 Lake of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 171 Signal of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 172 Signal of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 173 Signal of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 174 Signal of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 175 Signal of the ponded water. 176 Signal of the ponded water. 177 Signal of the ponded water. 178 Signal of the ponded water. 179 Signal of the ponded water. 170 Signal of the ponded water. 170 Signal of the ponded water. 170 Signal of the ponded water. 171 Signal of the ponded water. 172 Signal of the ponded water. 173 Signal of the ponded water. 174 Signal of the ponded water. 175 Signal of the ponded water. 176 Signal of the ponded water. 177 Signal of the ponded water. 178 Signal of the ponded water. 179 Signal of the ponded water. 170 Sig					1
70-95% of the water. 70-95% of					
Solution					
F32 Ponded Open Water - Minimum Size					
Minimum Size Minimum Size Minimum Size Minimum Size 10 m by 10 m) and mostly deeper than 0.5 m. If true enter "1" and continue, If false, enter "0" and SKIP to F41 (Floating Algae & Duckweed). F33 Mof Ponded Water that is Open that is Open Mone, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). None, or <1% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 173 174 175 Mone or <1% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 175 Minimum Size 10 m by 10 m) and mostly deeper than 0.5 m. If true enter "1" and SKIP to F41 (Floating Algae & SKIP to F41 (Floating Algae & Duckweed). [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]		D 1 10 W:			
Duckweed). F33 % of Ponded Water that is Open that is Open (acking emergent vegetation during most of the growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 173 5-30% of the ponded water. 174 30-70% of the ponded water. 175 70-99% of the ponded water.	F32			0	
F33 % of Ponded Water that is Open that is Open with a ponded water that is Open (lacking emergent vegetation during most of the growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 172		iviinimum Size			noating on the water surface of entirely submersed beneath it.
F33	169		Ducktrocuj.		
that is Open season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 172 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 173 5-30% of the ponded water. 174 30-70% of the ponded water. 175 70-99% of the ponded water. 176 70-99% of the ponded water. 177 0-99% of the ponded water.		% of Ponded Water	In ducks-eye aerial view, the percentage of the ponded water that is, open (lacking emergent vegetation during most of the growing		IAM CS FA FR INV NR OF PR SR WRF WRN WC1
171 None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).					pan, oo, m, m, m, m, oe, m, oe, wor, wor, wor, wo
172 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 0 173 5-30% of the ponded water. 0 174 30-70% of the ponded water. 0 175 70-99% of the ponded water. 0		unat is Open	2 12	0	
173 5-30% of the ponded water. 0 174 30-70% of the ponded water. 0 175 70-99% of the ponded water. 0	-				
174 30-70% of the ponded water. 0 175 70-99% of the ponded water. 0					
70-99% of the ponded water. 0			'		
	174		·		
176 100% of the ponded water. 0	175		·	-	
	176		100% of the ponded water.	0	

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A	В	С	D	E
F34	Width of Vegetated	At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in the AA that separates		"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may
177	Zone within Wetland	adjoining uplands from open water within the AA is:		include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH,
178		<1 m.	0	PR, SBM, Sens, SR, WBN]
179		1 - 9 m.	0	
180		10 - 29 m.	0	
181		30 - 49 m.	0	
182		50 - 100 m.	0	
183		> 100 m, or open water is absent at that time.	0	
F35	Flat Shoreline Extent	During most of the part of the growing season when water is present, the percentage of the AA's water edge length that is nearly flat (a		If several isolated pools are present in early summer, estimate the percent of their collective
184		slope less than about 5% measured within 5 m landward of the water) is:		shorelines that has such a gentle slope. [SR, WBN]
185		<1% of the water edge.	0	
186		1-25% of the water edge.	0	
187		25-50% of the water edge.	0	
188		50-75% of the water edge.	0	
189		>75% of the water edge.	0	
F36	Robust Emergents	The percentage of the emergent vegetation cover in the AA that is cattail (<i>Typha</i> spp.), common reed (<i>Phragmites</i>), or tall (>1m)		Emergent vegetation is herbaceous plants whose stems are partly above and partly below the
190	J	bulrush is:		water surface during most of the time water is present. [WBN]
191		<1% of the emergent vegetation, or emergent vegetation is absent. SKIP to F38.	0	
192		1-25% of the emergent vegetation.	0	
193		25-75% of the emergent vegetation.	0	
194		>75%, of the emergent vegetation.	0	
F37		During most of the part of the growing season when water is present, the spatial pattern of emergent vegetation within the water is		[AM, FA, FR, INV, NR, OE, PH, PR, SBM, SR, WBF, WBN]
195	Emergents & Open	mostly:		
196	Water	Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water.	0	
197		Intermediate.	0	
100		Clumped. More than 70% of such vegetation is in bands along the wetland perimeter or is clumped at one or a few sides of the surface	0	
198		water area.	_	
F38	Persistent Deepwater	If the deepest patch of surface water (flowing or ponded) in or directly adjacent to the AA is mostly deeper than 0.5 m for >2 weeks during the growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection).	0	
199	Area	the growing season, enter 1 and continue. If not, enter 0 and SNF to 142.(Connection).		
F39	9	During most of the growing season and in waters deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians that is		For this question, consider only the wood that is at or above the water surface. Estimates of
200	Aquatic Cover	provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is:		underwater wood based only on observations from terrestrial viewpoints are unreliable so should not
201		Little or none.	0	be attempted. [AM, FA, FR, INV]
202		Intermediate.	0	
203		Extensive.	0	
F40	Isolated Island	The AA contains (or is part of) an island or beaver lodge within a lake, pond, or river, and is isolated from the shore by water depths >1	0	[WBN]
		m on all sides during an average June. The island may be solid, or it may be a floating vegetation mat that is sufficiently large and dense		
204		to support a waterbird nest.		
F41	Floating Algae &	At some time of the year, mats of algae and/or duckweed are likely to cover >50% of the AA's otherwise-unshaded water surface, or	0	[EC, PR, WBF]
205	Duckweed	blanket >50% of the underwater substrate. If true, enter "1" in next column. If untrue or uncertain, enter "0".		
203				

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206 207 208 209	Channel Connection & Outflow Duration	The most persistent surface water connection (outlet channel or pipe, ditch, or overbank water exchange) between the AA and a downslope stream network is: [Note: If the AA represents only part of a wetland, answer this according to whichever is the least permanent surface connection: the one between the AA and the rest of the wetland, or the surface connection between the wetland and		Consider the connection regardless of whether the surface water is frozen. The "downslope stream network" could consist of ditches, rivers, ponds, or lakes which eventually connect to the ocean. If
208		the downslope stream network.]		this cannot be determined while visiting the AA, consult topographic maps perhaps by viewing these online with Toporama (http://atlas.nrcan.gc.ca/toporama/en/index.html) [CS, FA, FR, NR, OE, PR, Sens, SFS, SR, WCv, WS]
_		Persistent (surface water flows out for >9 months/year).	0	
200		Seasonal (surface water flows out for 14 days to 9 months/year, not necessarily consecutive).	0	
209		Temporary (surface water flows out for <14 days, not necessarily consecutive).	0	
210		None but maps show a stream network downslope from the AA and within a distance that is less than the AA's length. SKIP to F47 (pH Measurement).	0	
211		No surface water flows out of the wetland except possibly during extreme events (<once (ph="" 10="" a="" an="" ditch,="" f47="" flows="" into="" lacks="" lake="" measurement).<="" only="" or="" or,="" outlet.="" per="" skip="" td="" that="" to="" water="" wetland,="" years).=""><td>1</td><td></td></once>	1	
212 F43	Outflow Confinement	During major runoff events, in the places where surface water exits the AA or connected waters nearby, the water:		"Major runoff events" would include biennial high water caused by storms and/or rapid snowmelt.
213		Mostly passes through a pipe, culvert, narrowly breached dike, berm, beaver dam, or other partial obstruction (other than natural topography) that does not appear to drain the wetland artificially during most of the growing season.	0	[CS, NR, OE, PR, Sens, SR, STR, WS]
214		Leaves through natural exits (channels or diffuse outflow), not mainly through artificial or temporary features.	0	
215		Is exported more quickly than usual due to ditches or pipes within the AA or connected to its outlet, or within 10 m of the AA's edge, which drain the wetland artificially, or water is pumped out of the AA.	0	
F44	Tributary Channel	At least once annually, surface water from a tributary channel that is >100 m long moves into the AA. Or, surface water from a larger permanent water body adjacent to the AA spills into the AA. If it enters only via a pipe, that pipe must be fed by a mapped stream or lake further upslope. If no, SKIP to F47 (pH Measurement).	0	If inlet tributaries cannot be searched for due to inaccessibility of part of the AA, follow suggestions in F42 above. [NRv, PH, PRv, SRv]
F45 217	Input Water Temperature	Based on lack of shade, water source characteristics, or actual temperature measurements, the inflow is likely to be warmer than surface water in the AA during part of most years. Enter 1= yes, 0= no.	0	[WCv]
F46 218	Throughflow Resistance	During its travel through the AA at the time of peak annual flow, water arriving in channels: [select only the ONE encountered by most of the incoming water].		[FA, FR, INV, NR, OE, PR, SR, WS]
219		Does not bump into many plant stems as it travels through the AA. Nearly all the water continues to travel in unvegetated (often incised) channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond or lake.	0	
220		Bumps into herbaceous vegetation but mostly remains in fairly straight channels.	0	
221		Bumps into herbaceous vegetation and mostly spreads throughout, or is in widely meandering, multi-branched, or braided channels.	0	
222		Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels.	0	
223		Bumps into tree trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or braided).	0	
224 F47	pH Measurement	The pH in most of the AA's surface water:		Preferably, measure this in larger areas of ponded surface water within the AA, or in streams that
225		Was measured, and is: [enter the reading in the column to the right.]	5.3	have passed through (not along) most of the AA. Unless surface water is completely absent, do not dig holes or make depressions in peat in order to provide water for this measurement. Avoid
226		Was not measured but surface water is present and is darkly tea-coloured. Or if no surface water, then mosses and plants that indicate peatland (e.g., Labrador tea) are prevalent. Enter "1".	0	measuring near roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
227		Neither of above. Enter "1".	0	·
228 F48	TDS and/or	The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information):		See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
229	Conductivity	TDS is: [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.]		
230		Conductivity is [Enter the reading in µS/cm in the column to the right.]	80	
231		Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1".	0	
232		Neither of above	0	TEL ED DU COM O WIDE WIDE
233 F49	Beaver Probability	Use of the AA by beaver during the past 5 years is (select most applicable ONE): Evident from direct observation or presence of gnawed limbs, dams, tracks, dens, lodges, or extensive stands of water-killed trees	0	[FA, FR, PH, SBM, Sens, WBF, WBN]
234		(snags).		
235		Likely based on known occurrence in the region and proximity to suitable habitat, which may include: (a) a persistent freshwater wetland, pond, or lake, or a perennial low or mid-gradient (<10%) channel, and (b) a corridor or multiple stands of hardwood trees and shrubs in vegetated areas near surface water.	0	
236		Unlikely because site characteristics above are deficient, and/or this is a settled area or other area where beaver are routinely removed.	1	

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A	В	C	D	E
F50	Groundwater Strength	Select first applicable choice:		Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or
238	of Evidence	Springs are known to be present within the AA, or if groundwater levels have been monitored, that has demonstrated that groundwater primarily discharges to the wetland for longer periods during the year than periods when the wetland recharges the groundwater.	0	other evidence. Consult topographic maps to detect breaks in slope described here. Rust deposits associated with groundwater seeps may be most noticeable as orange discoloration in ice formations along streams during early winter. [AM, CS, FA, FR, INV, NR, OE, PH, PRv, SFS, WC, WS]
239		Most of the AA has a slope of >5%, or is very close to the base of a natural slope longer than 100 and much steeper than the slope of the AA, AND the pH of surface water, if known, is >5.5.	0	
240		Neither of above is true, although some groundwater may discharge to or flow through the AA. Or groundwater influx is unknown.	1	
241 F51	Internal Gradient	The gradient along most of the flow path within the AA is:		This is not the same as the shoreline slope. It is the elevational difference between the AA's inlet
242		<2% or the AA has no surface water outlet (not even seasonally).	1	and outlet, divided by the flow-distance between them and converted to percent. If available, use a
243		2-5%.	0	clinometer to measure this. Free clinometer apps can be downloaded to smartphones. If the wetland is large (longer than ~1 km), this may be estimated using Google Earth to determine the minimum
244		6-10%,	0	and maximum elevation within the AA, then dividing by length and multiplying by 100. [CS, NR, OE,
245		>10%.	0	PR, SR, WBF, WBN, WS]
		citions: If the AA lacks an upland edge, evaluate based on the AA's entire perimeter, and moving outward into whatever areas ons, these questions are best answered by measuring from aerial images.		
F52 247	Vegetated Buffer as % of Perimeter	Within a zone extending 30 m laterally from the AA's edge with upland and/or other wetlands, the percentage that contains perennial vegetation cover (except lawns, row crops, heavily grazed land, conifer plantations) is:		[AM, FA, FR, INV, NRv, PH, POL, PRv, SBM, Sens, SRv, STR, WBN]
248		<5%.	0	
249		5 to 30%.	1	
250		30 to 60%.	0	
251		60 to 90%.	0	
252		>90%, or all the area within 30 m of the AA edge is other wetlands. SKIP to F55.	0	
F53 253	Type of Cover in Buffer	Within 30 m upslope of where the wetland transitions to upland, the upland land cover that is NOT perennial vegetation is mostly (mark ONE):		[AM, FA, INV, NRv, PH, POL, SBM, STR, WBN]
254		Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0	
255		Bare or nearly bare pervious surface or managed vegetation, e.g., lawn, row crops, unpaved road, dike, landslide.	1	
F54 256	Buffer Slope	The steepest and/or most disturbed part of the upland area that is within 30 m of the wetland and occupies >10% of that upland area has a percent slope of:		[NRv, PRv, Sens, SRv]
257		<1% (flat almost no noticeable slope) or all the area within 30 m of the AA edge is other wetlands.	0	
258		2-5%.	1	
259		5-30%.	0	
260		>30%.	0	
F55 261	Cliffs or Steep Banks	In the AA or within 100 m, there are elevated terrestrial features such as cliffs, talus slopes, stream banks, or excavated pits (but not riprap) that extend at least 2 m nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den areas. Enter 1 (yes) or 0 (no).	0	Do not include upturned trees as potential den sites. [POL, SBM]
F56 262	New or Expanded Wetland	Human actions within or adjacent to the AA have persistently expanded a naturally occurring wetland or created a wetland where there previously was none (e.g., by excavation, impoundment):		Determine this using historical aerial photography, old maps, soil maps, or permit files as available [CS, NR, OE, PH, Sens]
263		No.	0	
264		Yes, and created or expanded 20 - 100 years ago.	0	
265		Yes, and created or expanded 3-20 years ago.	1	
266		Yes, and created or expanded within last 3 years.	0	
267		Yes, but time of origin or expansion unknown.	0	
268		Unknown if new or expanded within 20 years or not.	0	
269 F57	Burn History	More than 1% of the AA's previously vegetated area:		Look for charred soil or stumps (in multiple widely-spaced locations) or ask landowner. [CS, PH, STR]
270		Burned within past 5 years.	0	
271		Burned 6-10 years ago.	0	
272		Burned 11-30 years ago.	0	
273		Burned >30 years ago, or no evidence of a burn and no data.	1	

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A	В	С	D	Е
F58	Visibility	The maximum percentage of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings,		[PU, STR, WBFv]
274		or public maintained trails that intersect, adjoin, or are within 100 m of the AA (select one) is:		
275		<25%.	1	
276		25-50%.	0	
277		>50%.	0	
278 F59	Non-consumptive	Assuming access permission was granted, select ALL statements that are true of the AA as it currently exists:		[Pu, Str]
279	Uses - Actual or Potential	For an average person, walking is physically possible in (not just near) >5% of the AA during most of the growing season, e.g., free of deep water and dense shrub thickets.	0	
280		Maintained roads, parking areas, or foot-trails are within 10 m of the AA, or the AA can be accessed part of the year by boats arriving via contiguous waters.	0	
281		Within or near the AA, there is an interpretive center, trails with interpretive signs or brochures, and/or regular guided interpretive tours.	0	
F60	Unvisited Core Area	The percentage of the AA almost never visited by humans during an average growing season probably comprises: [Note: Only include the part actually walked or driven (not simply viewed from) with a vehicle or boat. Do not include visitors on trails outside of the AA unless		[AM, FAv, FRv, PH, PU, SBM, STR, WBF, WBN]
282		more than half the wetland is visible from the trails and they are within 30 m of the wetland edge. In that case include only the area occupied by the trail.]		
283		<5% and no inhabited building is within 100 m of the AA.	0	1
284		<5% and inhabited building is within 100 m of the AA.	0	1
285		5-50% and no inhabited building is within 100 m of the AA.	0	
286		5-50% and inhabited building is within 100 m of the AA.	0	
287		50-95%, with or without inhabited building nearby.	0	
288		>95% of the AA with or without inhabited building nearby.	1	
F61 289	Frequently Visited Area	The part of the AA visited by humans almost daily for several weeks during an average growing season probably comprises: [See note above.]		[AM, PH, PU, SBM, STR, WBF, WBN]
290		<5%. If F60 was answered ">95%" (mostly never visited), SKIP to F64.	0	
291		5-50%.	0	
292		50-95%.	0	
293		>95% of the AA.	0	
F62 294	BMP - Soils	Boardwalks, paved trails, fences or other infrastructure and/or well-enforced regulations appear to effectively prevent visitors from walking on soil within nearly all of the AA when the soil is unfrozen. Enter "1" if true.	0	[PH, PU]
F63	BMP - Wildlife Protection	Fences, observation blinds, platforms, paved trails, exclusion periods, and/or well-enforced prohibitions on motorised boats, off-leash pets, and off road vehicles appear to effectively exclude or divert visitors and their pets from the AA at critical times in order to minimize	0	[AM, PU, WBF, WBN]
295	Frotection	disturbance of wildlife (except during hunting seasons). Enter "1" if true.		
296 F64	Consumptive Uses (Provisioning	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select ALL that apply.		[FAv, FRv, WBFv]
297	Services)	Low-impact commercial timber harvest (e.g., selective thinning).	0	
298	301 11003)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0	
299		Waterfowl hunting.	0	
300		Fishing.	0	
301		Trapping of furbearers.	0	
302		None of the above.	1	
303 F65	Domestic Wells	The closest wells or water bodies that currently provide drinking water are:		[NRv]
304		Within 0-100 m. of the AA.	0	
305		100-500 m. away.	0	
306		>500 m. away, or no information.	1	
F66	Calcareous Fen	The AA is, or is part of, a calcareous fen. See the Plants_Calcar worksheet in the accompanying Supplnfo file for list of plant indicators (calciphiles). Enter 1 If more than two Strong or more than five Moderate calciphile species are present; otherwise enter 0, but if not able to identify those and no information, change to blank.		[PH, PR]
		·		
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estigator: Darcy Kavanagh & Jordan Davis	Site Identifier: WL25		Date: September 15, 2022						
tressor (S) Data Form for Non-Tida	I Wetlands. WESP-AC for Nova S	Scotia version 2.		Data					
Aberrant Timing of Water Inputs									
•	In the last column, place a check mark next to any item that is likely to have caused the timing of water inputs (but not necessarily their volume) to shift by hours, days, or weeks, becoming either more muted (smaller or less frequent peaks spread over longer times,								
	more temporal homogeneity of flow or water levels) or more flashy (larger or more frequent spikes but over shorter times). [FA, FR, INV, PH, STR]								
<u> </u>	Stormwater from impervious surfaces that drains directly to the wetland.								
Water subsidies from wastewater effluent, septic system leakage									
Regular removal of surface or groundwater for irrigation or other of	<u>'</u>								
	water body, or other control structure at water entry points that regula								
<u> </u>	m the wetland that interferes with surface or subsurface flow in/out	of the AA (e.g., road fill, wellpads, pipelines).							
Excavation within the wetland, e.g., dugout, artificial pond, dead-	nd ditch.								
Artificial drains or ditches in or near the wetland.									
Accelerated downcutting or channelization of an adjacent or inter-	nal channel (incised below the historical water table level).								
Logging within the wetland.									
Subsidence or compaction of the wetland's substrate as a result of	<u> </u>								
Straightening, ditching, dredging, and/or lining of tributary channel									
	low, assign points. However, if you believe the checked items had no andition if the checked items never occurred or were no longer preser		the AA, then leave the "O's" for the scores in the following						
	Severe (3 points)	Medium (2 points)	Mild (1 point)						
Spatial extent of timing shift within the wetland:	>95% of wetland.	5-95% of wetland.	<5% of wetland.	0					
When most of the timing shift began:	<3 yrs ago.	3-9 yrs ago.	10-100 yrs ago.	0					
Score the following 2 rows only if the altered inputs began within p	ast 10 years, and only for the part of the wetland that experiences the	ose.							
Input timing now vs. previously:	Shift of weeks.	Shift of days.	Shift of hours or minutes.	0					
Flashiness or muting:	Became very flashy or controlled.	Intermediate.	Became mildly flashy or controlled.	0					
			Sum=	0					
			Stressor subscore=	0.00					
Accelerated Inputs of Contaminants and/o	r Salts								
In the last column, place a check mark next to any item occurring	n in either the wetland or its CA that is likely to have accelerated the	e inputs of contaminants or salts to the AA IAM FA PH POL STR	וֹן						
, ,	•	ampula or comammuma or came to the rate print, 111, 1102, error	ı						
Stormwater or wastewater effluent (including failing septic systems), landfills, industrial facilities. Metals & chemical wastes from mining, shooting ranges, snow storage areas, oil/ gas extraction, other sources (download many locations from National Pollutant Release Inventory and view KMZ overlay in Google Earth. https://www.ec.gc.ca/inrp-npri/default.asp?lang=En&n=B85A1846-1									
Road salt.									
Spraying of pesticides, as applied to lawns, croplands, roadsides,	or other areas in the CA.								
	If any items were checked above, then for each row of the table below, assign points. However, if you believe the checked items did not cumulatively expose the AA to significantly higher levels of contaminants and/or salts, then leave the "O's" for the scores in the following rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or were no longer present.								
	Severe (3 points)	Medium (2 points)	Mild (1 point)						
Usual toxicity of most toxic contaminants:	Industrial effluent, mining waste, unmanaged landfill.	Cropland, managed landfill, pipeline or transmission rights-of- way.	Low density residential.	0					
Frequency & duration of input:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.	0					
AA proximity to main sources (actual or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.	0					
			Sum=	0					
			Stressor subscore=	0.00					

FieldS form Non-tidal

In the last column, place a check mark next to any item occurrin	g in either the wetland or its CA that is likely to have accelerated the	inputs of nutrients to the wetland. [NRv, PRv, STR]								
Stormwater or wastewater effluent (including failing septic system	ns), landfills,									
Fertilizers applied to lawns, ag lands, or other areas in the CA.										
Livestock, dogs.										
Artificial drainage of upslope lands.										
If any items were checked above, then for each row of the table by effects, contrast the current condition with the condition if the check	elow, assign points. However, if you believe the checked items did not cked items never occurred or were no longer present.	cumulatively expose the AA to significantly more nutrients, then le	eave the "0's" for the scores in the following rows. To estimate							
	Severe (3 points) Medium (2 points)									
Type of loading:	High density of unmaintained septic, some types of industrial sources.	Moderate density septic, cropland, secondary wastewater treatment plant.	Livestock, pets, low density residential.							
Frequency & duration of input:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.							
AA proximity to main sources (actual or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.							
Su										
			Stressor subscore=							
Excessive Sediment Loading from Contrib	outing Area									
		" ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '	LOD OTRI							
., , , , , , , , , , , , , , , , , , ,	the CA that is likely to have elevated the load of waterborne or windbo	rne sediment reaching the wetland from its CA. [FA, FR, INV, PH	l, SRV, STRJ							
Erosion from plowed fields, fill, timber harvest, dirt roads, vegetat	ion clearing, fires.									
Erosion from construction, in-channel machinery in the CA.										
Erosion from off-road vehicles in the CA.										
Erosion from livestock or foot traffic in the CA.										
Stormwater or wastewater effluent.										
Sediment from road sanding, gravel mining, other mining, oil/ gas										
Accelerated channel downcutting or headcutting of tributaries du	e to altered land use.									
Other human-related disturbances within the CA.										
	elow, assign points (3, 2, or 1 as shown in header) in the last column. He te effects, contrast the current condition with the condition if the check		ld significantly more sediment or suspended solids to the AA,							
	Severe (3 points)	Medium (2 points)	Mild (1 point)							
Erosion in CA:	Extensive evidence, high intensity.*	Potentially (based on high-intensity* land use) or scattered evidence.	Potentially (based on low-intensity* land use) with little or no direct evidence.							
Recentness of significant soil disturbance in the CA:	Current & ongoing.	1-12 months ago.	>1 yr ago.							
Duration of sediment inputs to the wetland:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.							
AA proximity to actual or potential sources:	0 - 15 m.	15-100 m.	In more distant part of contributing area.							
* high-intensity= extensive off-road vehicle use, plowing, grading, soil or sediment.	excavation, erosion with or without veg removal; low-intensity= veg r	emoval only with little or no apparent erosion or disturbance of	Sum=							
Soil of Sediment.			1							

FieldS form Non-tidal

Soil or Sediment Alteration Within the Ass	sessment Area								
In the last column, place a check mark next to any item present in is less). [CS, INV, NR, PH, SR, STR]	the wetland that is likely to have compacted, eroded, or otherwise all	ered the wetland's soil. Consider only items occurring within past 1	00 years or since wetland was created or restored (whichever						
Compaction from machinery, off-road vehicles, livestock, or mountain bikes, especially during wetter periods.									
Leveling or other grading not to the natural contour.									
Tillage, plowing (but excluding disking for enhancement of native plants).									
Fill or riprap, excluding small amounts of upland soils containing	organic amendments (compost, etc.) or small amounts of topsoil impo	orted from another wetland.							
Excavation.									
Ditch cleaning or dredging in or adjacent to the wetland.									
Boat traffic in or adjacent to the wetland and sufficient to cause s	hore erosion or stir bottom sediments.								
Artificial water level or flow manipulations sufficient to cause eros	sion or stir bottom sediments.								
If any items were checked above, then for each row of the table be effects, contrast the current condition with the condition if the che	elow, assign points. However, if you believe the checked items did no cked items never occurred or were no longer present.	t measurably alter the soil structure and/or topography, then leave	the "0's" for the scores in the following rows. To estimate						
	Severe (3 points)	Medium (2 points)	Mild (1 point)						
Spatial extent of altered soil:	>95% of wetland or >95% of its upland edge (if any).	5-95% of wetland or 5-95% of its upland edge (if any).	<5% of wetland and <5% of its upland edge (if any).	0					
Recentness of significant soil alteration in wetland:	Current & ongoing.	1-12 months ago.	>1 yr ago.	0					
Duration:	Long-lasting, minimal veg recovery.	Long-lasting but mostly revegetated.	Short-term, revegetated, not intense.	(
Timing of soil alteration:	Frequent and year-round.	Frequent but mostly seasonal.	Mainly during one-time or scattered events.	C					
	'	•	Sum=	0					
			Stressor subscore=	0.0					

FieldS form Non-tidal

Assessment Area (AA) Results:

Wetland ID: WL25

Date: September 14, 2022

Observer: Darcy Kavanagh & Jordan Davis

Latitude & Longitude (decimal degrees): 44.09277548608155, -64.93906744971514

Scores will appear below after data are entered in worksheets OF, F, and S. See Manual for definitions and descriptions of how scores were computed.

Function Score (Normalised)	Function Rating	Benefits Score (Normalised)	Benefits Rating	Function Score (raw)	Benefits Score (raw)
6.81	Moderate	2.24	Lower	7.03	1.00
0.00	Lower	0.00	Lower	0.00	0.00
4.29	Moderate	0.00	Lower	2.86	0.00
10.00	Higher	2.50	Moderate	10.00	1.22
10.00	Higher	1.88	Moderate	10.00	1.46
10.00	Higher	5.42	Moderate	10.00	5.42
4.42	Moderate			7.29	
5.38	Moderate			3.51	
0.00	Lower	0.00	Lower	0.00	0.00
0.00	Lower	0.00	Lower	0.00	0.00
1.82	Lower	2.88	Moderate	4.23	2.80
1.77	Lower	4.19	Moderate	4.05	5.21
4.22	Moderate	5.00	Moderate	3.21	5.00
2.88	Moderate	5.00	Higher	2.09	5.00
8.54	Higher	5.00	Moderate	7.43	5.00
8.70	Higher	3.33	Moderate	7.21	3.33
3.73	Moderate	5.99	Moderate	5.39	5.99
		0.23	Lower		0.46
		6.30	Moderate		3.96
		8.26	Higher		9.17
		8.01	Higher		4.03
6.81	Moderate	2.24	Lower	7.03	1.00
9.30	Higher	4.34	Moderate	9.66	4.06
4.12	Moderate	1.92	Lower	3.44	1.86
2.99	Moderate	3.92	Moderate	2.96	4.13
7.84	Higher	5.38	Lower	7.05	5.38
		8.26	Higher		9.17
		7.15	Higher		4.00
	(Normalised) 6.81 0.00 4.29 10.00 10.00 10.00 4.42 5.38 0.00 0.00 1.82 1.77 4.22 2.88 8.54 8.70 3.73 6.81 9.30 4.12 2.99	(Normalised) Function Rating 6.81 Moderate 0.00 Lower 4.29 Moderate 10.00 Higher 10.00 Higher 4.42 Moderate 5.38 Moderate 0.00 Lower 1.82 Lower 1.77 Lower 4.22 Moderate 2.88 Moderate 8.54 Higher 8.70 Higher 3.73 Moderate 6.81 Moderate 9.30 Higher 4.12 Moderate 2.99 Moderate	(Normalised) Function Nating (Normalised) 6.81 Moderate 2.24 0.00 Lower 0.00 4.29 Moderate 0.00 10.00 Higher 2.50 10.00 Higher 5.42 4.42 Moderate 5.38 Moderate 0.00 Lower 0.00 1.82 Lower 2.88 1.77 Lower 4.19 4.22 Moderate 5.00 2.88 Moderate 5.00 8.54 Higher 5.00 8.70 Higher 3.33 3.73 Moderate 5.99 0.23 6.30 8.26 8.01 8.01 6.81 Moderate 1.92 2.99 Moderate 1.92 2.99 Moderate 3.92 7.84 Higher 5.38 8.26	(Normalised) Function Rating (Normalised) Benefits Rating 6.81 Moderate 2.24 Lower 0.00 Lower 0.00 Lower 4.29 Moderate 0.00 Lower 10.00 Higher 2.50 Moderate 10.00 Higher 1.88 Moderate 10.00 Higher 5.42 Moderate 5.38 Moderate Moderate 0.00 Lower 0.00 Lower 0.00 Lower 0.00 Lower 1.82 Lower 2.88 Moderate 1.77 Lower 4.19 Moderate 2.88 Moderate 5.00 Moderate 4.22 Moderate 5.00 Higher 8.54 Higher 5.00 Moderate 8.70 Higher 3.33 Moderate 9.23 Lower 6.30 Moderate 8.26 Higher 6.81 Moderate	(Normalised) Function Rating (Normalised) Benefits Rating (raw) 6.81 Moderate 2.24 Lower 7.03 0.00 Lower 0.00 Lower 0.00 4.29 Moderate 0.00 Lower 2.86 10.00 Higher 2.50 Moderate 10.00 10.00 Higher 5.42 Moderate 10.00 10.00 Higher 5.42 Moderate 10.00 4.42 Moderate 7.29 3.51 0.00 Lower 0.00 0.00 Lower 0.00 Lower 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 0.00 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

NOTE: A score of 0 does not mean the function or benefit is absent from the wetland. It means only that this wetland has a capacity that is equal or less than the lowest-scoring one, for that function or benefit, from among all the NS calibration wetlands that were assessed previously.

NOVA SCOTIA - Functional WSS Interpretation Tool

3. Functional WSS Interpretation Results

Function-Benefit Product (FBP)	FBP SCORE	FBP SCORE CATEGORY
SUPPORT SUPERGROUP - HYDROLOGIC	15.28278677	Low
SUPPORT SUPERGROUP - WATER QUALITY SUPPORT	40.37078973	Low
SUPPORT SUPERGROUP - AQUATIC SUPPORT	7.928564978	Low
HABITAT SUPERGROUP - AQUATIC HABITAT	11.7364275	Low
HABITAT SUPERGROUP - TRANSITION HABITAT	42.2089114	Low

3a. Functional WSS Determination: Automatic Method

Habitat Rule Satisfied? NO
Support Rule Satisfied? NO
Habitat/Support Hybrid Rule Satisfied? NO

CONCLUSION: Site is not a WSS

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	Mersey River Wind Farm - WL33
Investigator Name:	Darcy Kavanagh & Jordan Davis
Date of Field Assessment:	September 15, 2022
Nearest Town:	Milton, NS
Latitude (decimal degrees):	44.05543400083889
Longitude (decimal degrees):	-64.87571159082009
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	0.16
AA as percent of entire wetland (approx.). Attach sketch map if AA is smaller than the entire contiguous wetland.	100%
What percent (approx.) of the wetland were you able to visit?	100%
What percent (approx.) of the AA were you able to visit?	100%
Were you able to ask the site owner/manager about any of the questions?	No
Indicate here if you intentionally surveyed for rare plants, calciphile plants, or rare animals:	Yes
Have you attended a WESP-AC training session? If so, indicate approximate month & year.	No
How many wetlands have you assessed previously using WESP-AC? (approx.)	50+
Comments about the site or this WESP-AC assessment (attach extra page if desired):	

	Α	В	С	D	Е
	Date: S	September 15, 2022	Site Identifier: WL33	Investigator: Darcy Kavanagh & Jordan	n Davis
1					

Form OF (Office). Non-tidal Wetland Data Form. WESP-AC version 2 for Nova Scotia wetlands only. DIRECTIONS: Conduct an assessment only after reading the accompanying Manual and the Explanations column of the data form. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answering many of the questions below will require using these online map viewers:

Google Earth Pro: https://www.google.com/earth/download/gep/agree.html

Provincial Landscape Viewer: https://nsgi.novascotia.ca/plv/

For most wetlands, completing this office data form will require 1-2 hours. For a list of functions to which each question pertains, see bracketed abbreviations in the Definitions/Explanations column. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Manual. Codes for functions and values are: WS= Water Storage, SFS= Stream Flow Support, WC= Water Cooling, SR= Sediment Retention & Stabilisation, PR= Phosphorus Retention, NR= Nitrate Removal, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate Habitat, FA= Anadromous Fish Habitat, FR= Resident Fish Habitat, AM= Amphibian & Reptile Habitat, WBF= Feeding Waterbird Habitat, WBN= Nesting Waterbird Habitat, SBM= Songbird, Raptor, & Mammal Habitat, POL= Pollinator Habitat, PH= Native Plant Habitat, PU= Public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= Stressors.

3	#	Indicators	Condition Choices	Data	Definitions/Explanations
4	OF1	Province	Mark the province in which the AA is located by changing the 0 in the column next to it to a "1". Mark only one.		This determines to which province's calibration wetlands the raw score of any wetland is normalised. In the function and benefits models, it also triggers the automatic exclusion of indicators for which no
5			New Brunswick	0	spatial data exists in a particular province.
6			Nova Scotia	1	
7			Prince Edward Island	0	
8			Newfoundland-Labrador	0	
9	OF2	Ponded Area Within 1 km.	The area of surface water ponded during most of the growing season that is both (1) in or adjacent to the AA and (2) within 1 km is:		"Adjacent" means not separated from the AA by a wide expanse (>50 m) of upland (including roads >50 m wide). Include ponded areas likely to be hidden by wetland vegetation. If surface water
10			<0.01 hectare (about 10 m x 10 m).	1	extends beyond 1 km, include only the part within 1 km. Do not include tidal areas. Measure the area from aerial imagery using Google Earth Pro (click on Ruler icon in toolbar, then Polygon in pop-
11			0.01 - 0.1 hectare.	0	up menu). [PH, SBM, WBN]
12			0.1 - 1 hectare.	0	ap money, [, 11] obini moni
13			1 to 10 hectares.	0	
14			10 to 100 hectares.	0	
15			>100 hectares.	0	
	OF3	Ponded Water &	The area of wetlands and surface water ponded during most of the growing season that is both (1) in or adjacent to the AA and (2) within		See definition of adjacent in OF2. If the AA's wetland vegetation extends beyond 1 km, include only
16		Wetland Within 1 km.	1 km is:		the part within 1 km. "Ponded" means not flowing in rivers or streams. [Sens, WBF]
17			<0.01 hectare (about 10 m x 10 m).	0	
18			0.01 - 0.1 hectare.	0	
19			0.1 - 1 hectare.	1	
20			1 to 10 hectares.	0	
21			10 to 100 hectares.	0	
22			>100 hectares.	0	
23	OF4	Size of Largest Nearby Vegetated Tract or	The largest vegetated patch or corridor that includes the AA's vegetation plus alladjacent upland vegetation that is not lawn, row crops, heavily grazed lands, conifer plantation is:		See definition of adjacent in OF2. Use Google Earth Pro's polygon ruler (as described above). Exclude conifer plantations only if it is obvious that trees were planted in rows. [AM, PH, SBM, Sens]
24		Corridor	<0.01 hectare (about 10 m x 10 m).	0	
25			0.01 - 0.1 hectare.	0	
26			0.1 - 1 hectare.	0	
27			1 to 10 hectares.	0	
28			10 to 100 hectares.	0	
29			100 to 1000 hectares.	0	
30			>1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	1	

	A	В	С	D	E
	OF5	Distance to Large	The minimum distance from the edge of the AA to the edge of the closest <i>vegetated land</i> (but excluding row crops, lawn, conifer		To measure distance, use Google Earth Pro (Ruler > Line tool). The 375-ha criterion is from the
31		Vegetated Tract	plantation) larger than 375 hectares (about 2 km on a side), is:		Fundy Model Forest Project. [AM, PH, POL, SBM, Sens]
			<50 m, and not separated from the 375-ha vegetated area by any width ofpaved roads, stretches of open water, row crops, bare ground,	1	
			lawn, or impervious surface. Or the AA itself contains >375 ha of vegetation. [This is often the answer in relatively undeveloped		
32	:		landscapes.]		
			<50 m, but completely separated from the 375-ha vegetated area by those features, and AA does not contain >375 ha of vegetation.	0	
33					
34			50-500 m, and no t separated.	0	
35			50-500 m, but separated by those features.	0	
36	,		0.5 - 5 km, and not separated.	0	
37	,		0.5 - 5 km, but separated by those features.	0	
38			None of the above (the closest patches or corridors which are that large are >5 km away).	0	
	OF6	Herbaceous Uniqueness	The AA's vegetation cover is >10% herbaceous* but uplands within 5 km have <10% herbaceous cover. If so, enter "3" and continue to	1	For this question only, consider moss to be herbaceous vegetation. Determine the score by viewing
			OF7. If not, consider:		aerial imagery in Google Earth after successively drawing or estimating the boundaries of the buffers
			The AA's vegetation cover is >10% herbaceous* but uplands within 1 km have <10% herbaceous cover. If so enter "2" and continue to		of 5 km, 1 km, and 100 m radius focused on the center of the AA. Circles of specified radius can be
			OF7. If not, consider: The AA's vegetation cover is >10% herbaceous* but uplands within 100 m of the wetland edge have <10% herbaceous cover. If so, enter		drawn in Google Earth Pro by clicking on the Ruler icon, then Circle in the pop-up menu. [AMv, PHv, POLv. SBMv. WBFv. WBNv]
			The AA'S vegeration cover is > 10% herbaceous but uplantus within 100 hr of the wetland edge have < 10% herbaceous cover. It so, enter "1".		POLV, SDIVIV, WDFV, WDIVVJ
			* NOTE: Exclude lawns, row crops, heavily grazed lands, forest, shrublands. Include moss as well as grasslike plants in this use of		
39			"herbaceous vegetation"]		
35		Woody Uniqueness	The AA's vegetation cover is >10% woody* but uplands within 5 km have <10% woody cover. If so, enter "3" and continue to OF8. If not,	1	See above. Do not consider conifer plantations to be forest if it is obvious that trees were planted in
	017	vvoody oniqueness	consider:		rows. [AMv, PHv, POLv, SBMv]
			The AA's vegetation is >10% woody* but uplands within 1 km have <10% woody cover. If so enter "2" and continue to OF8. If not,		
			consider:		
			The AA's vegetation is >10% woody* but uplands within 100 m of the wetland edge have <10% woody cover. If so, enter "1"		
40			[* NOTE: woody cover = trees & shrubs taller than 1 m.]		
	OF8	Local Vegetated Cover	Draw a 5-km radius circle measured from the center of the AA. Ignoring all permanent water in the circle, the percent of the remaining are		In Google Earth, draw the 5 km buffer and then estimate land cover percentages, or do GIS analysis
41		Percentage	that is wooded or unmanaged herbaceous vegetation (NOT lawn, row crops, bare or heavily grazed land, clearcuts, or conifer plantations)		of an appropriate land cover layer. [AM, PH, POL, SBM, Sens]
41	-		<5% of the land.	0	
42	_		5 to 20% of the land.	0	
43			20 to 60% of the land.	1	
44			20 to 60% of the land.	0	
45			>90% of the land. SKIP to OF10.	0	
46		Tons of Land Cause		0	[ALL CDM]
47	OF9	Type of Land Cover Alteration	Within the 5-km radius circle, and ignoring all permanent water, the land area that is bare or non-perennial cover is mostly:		[AM, SBM]
48		ordilon	Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0	
49			Bare pervious surface, e.g., lawn, recent (<5 yrs ago) clearcut, dirt or gravel road, cropland, landslide, conifer plantation.	1	
50	OF10	Distance by Road to	Measured along the maintained road nearest the AA, the distance to the nearestpopulation center is:		"Population center" means a settled area with more than about 5 regularly- inhabited structures per
-	-	Nearest Population	<100 m.	0	square kilometer. In Google Earth Pro, click on the Ruler icon, then Path, and draw and measure the
51		Center	100 - 500 m.	0	route. [FAv, FRv, NRv, PH, PU, SBM, WBFv]
52			0.5-1 km.	0	
			1 - 5 km.	0	
54 55			>5 km.	1	
33	<u> </u>		z J Mili.	<u> </u>	

	Α	В	С	D	E
	OF11	Distance to Nearest	From the center of the AA, the distance to the nearest maintained public road (dirt or paved) is:		Determine this by viewing aerial imagery in Google Earth Pro and measuring with the Ruler>Line tool
56		Maintained Road	<10 m.	0	[AM, FAv, FRv, NRv, PH, PU, SBM, STR, WBN]
57 58			10 - 25 m.	0	-
			25 - 50 m.	0	-
59			50 - 100 m.	0	-
60	ł		100 - 500 m.	0	1
62			>500 m.	1	-
02	OF12	Wildlife Access	Draw a circle of radius of 5 km from the center of the AA. If mammals and amphibians can move from the center of the AA to ALL other	'	Draw the 5 km circle in Google Earth Pro using the Circle tool and search for roads and wetlands
63	01.12		separate wetlands and ponds located within the circle without being forced to cross pavement (any width), lawns, bare ground, and/or marine waters, mark 1= yes can move to all, 0= no. Change to blank if there are no other wetlands within 5 km.	0	within it, being alert for roads hidden under forest canopy. [AM, SBM, STR]
64	OF13	Distance to Ponded Water	The distance from the AA center to the closest (but separate) ponded water body visible in GoogleEarth imagery is:		In Google Earth Pro, zoom in closely to examine the surrounding landscape for ponds, lakes, and wetlands that appear to be permanently flooded. [AM, PH, SBM, Sens, WBF, WBN]
65	1	water	<50 m, and not separated by any width of paved roads, stretches of open water, row crops, lawn, bare ground, or impervious surface.	0	wettanus that appear to be permanently hooded. [Ain, FTI, 35in, 3ens, wbi , wbin]
66	1		<50 m, but completely separated by those features.	0	
67	1		50-500 m, and not separated.	0	
68			50-500 m, but separated by those features.	0	
69			0.5 - 1 km, and not separated.	1	
70			0.5 - 1 km, but separated by those features.	0	
71			None of the above (the closest patches or corridors that large are >1 km away).	0	
72		Distance to Large Ponded Water	The distance from the AA center to the closest (but separate)non-tidal body of water that is ponded during most of the year and islarger than 8 hectares during most of a normal year is:		Determine this by viewing aerial imagery in Google Earth. [Sens, WBF, WBN]
73	1		<100 m.	0	
74	1		100 m - 1 km.	1	
75	1		1 -2 km.	0	
76			2-5 km.	0	
77			5-10 km.	0	
78			>10 km.	0	
79	OF15	Tidal Proximity	The distance from the AA edge to the closest tidal water body (regardless of its salinity) is:		In Google Earth, measure the distance to the ocean (including Bay of Fundy) or tidal river, whichever is closer. If you need to see how far upriver a river is tidal, see the KMZ file provided with this
80			<100 m.	0	calculator for NS (NS Headtide). Points shown in those files are only an approximation, so local
81			100 m - 1 km.	0	information if available may be preferable. [FA, WBF]
82			1 - 5 km.	0	
83			5-10 km.	1	
84			10-40 km.	0	
85			>40 km.	0	
86	OF16	Upland Edge Contact	Select one:		[NR, SBM, Sens]
87			The AA has no upland edge (or upland is <1% of perimeter). The AA is entirely surrounded by (& contiguous with) other wetlands or water.	0	
88			1-25% of the AA's perimeter abuts upland (including filled areas). The rest adjoins other wetlands or water that is mostly wider than the AA	0	
89			25-50% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0	_
90			50-75% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0	_
91			More than 75% of the AA's perimeter abuts upland. Any remainder adjoins other wetlands or water that is mostly wider than the AA. This will be true for most assessments done with WESP-AC.	1	

	Α	В	С	D	E
$\mid \rightarrow \mid$	OF17		Within 5 km downstream or downslope of the AA (select first true choice):		Contact local authories to determine if such maps exist. Where available, LiDAR imagery can
92		tidal Waters			provide finer elevational resolution useful for flood modeling. [WSv]
			Maps show Flood Zone or Flood Risk areas and there appears to be infrastructure vulnerable to river flooding not caused by tidal storm	0	
93			surges.		
			Maps show Flood Zone or Flood Risk areas, but infrastructure is absent or is not vulnerable to floods from a non-tidal river. In some cases	0	
94			levees, upriver dams, or other measures may partly limit damage or risk from smaller events.		
			Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure	0	
95			vulnerable to river flooding unrelated to tidal storm surges.		
96			Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there is no infrastructure vulnerable to river flooding unrelated to tidal storm surges.	1	
	7F18	Relative Elevation in	In Google Earth, enable the Terrain layer (lower left menu) and open the NS Watersheds Secondary KMZ file that accompanies this		[FA, NR, Sens, SFSv, WCv, WSv]
		Watershed	calculator. Then determine the AA's approximate elevation (bottom right, NOT the "eye alt"). Then move cursor around to determine the	0.20	[i A, INI, Jelis, Ji Jv, Wev, Wav]
0.7		Tratoronou	watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-min).	0.39	
97	0510	Matan Ovality Compities	¥	0	If an ACCDO annual in equilable for this AA it also seem to be information. [ND.]
	JF 19	Water Quality Sensitive Watershed or Area	The AA is in a Protected Water Supply area (Designated Water Supply Area, Natural Watershed Municipal Surface Water Supply Area, or Municipal Water Supply Area) according to the provided KMZ overlay ("NS Protected Water Supply Areas"). Enter 1= yes, 0= no.	0	If an ACCDC report is available for this AA, it also may contain such information. [NRv]
98			113 / 3 1		
	OF20	Degraded Water	Sampling indicates a problem with concentrations of metals, hydrocarbons, nutrients, or other substances (excluding bacteria, acidic		May use existing data, or sample those waters as part of this wetland assessment. "Harmful" should
99		Upstream	water, high temperatures) being present at levels harmful to aquatic life or humans, and:		be evaluated with regard to current federal or provincial water quality standards. [AM, FA, FR, NRv, PRv, STR, WBF, WBN]
100			The condition is present within the AA.	0	PRV, SRV, STR, WDF, WDIV]
101			The condition is present in waters within 1 km that flow into the AA, but has not been documented in the AA itself.	0	
			Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in either the AA or inflowing	0	
102			waters.		
			Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the situation for nearly	1	
103			all wetlands in this region.		
104		Degraded Water Downstream	The problem described above is downslope from the AA, and:		May use existing data, or monitor waters as part of this wetland assessment. [NRv, PRv, SRv]
105		Downsteam	The condition is present within 1 km downslope and connected to the AA by a channel.	0	
			The condition is present within 5 km downslope and connected to the AA by a channel, or within 1 km but not connected to the AA by a	0	
106			channel.		
			Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in either the AA or inflowing	0	
107			waters.		
			Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the situation for nearly	0	
108			all wetlands in this region.		
	OF22	Wetland as a % of Its	From a topographic map and field observations, estimate the approximate boundaries of the catchment (CA) of the entire wetland of which		Topographic maps may be viewed online at the National Atlas of Canada (Toporama):
		Contributing Area	the AA may be only a part. Then adjust those boundaries if necessary based on your field observations of the surrounding terrain, and/or		http://atlas.gc.ca/toporama/en/index.html [NR, PR, Sens, SR, WS]
		(Catchment)	by using procedures described in the Manual. Divide the area of the wetland (not just the AA) by the approximate area of its catchment		
			excluding the area of the wetland itself. When doing the calculation, if ponded water is adjacent to the wetland, include that in the wetland		
109			area. The result is:		
110			<0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	0	
111			0.01 to 0.1.	0	
112			0.1 to 1.	0	
			>1 (wetland is larger than its catchment (e.g., wetland with flat surrounding terrain and no inlet, or is entirely isolated by dikes, or is a raised	1	
113			bog).		
	OF23	Unvegetated Surface in	The proportion of the AA's contributing area (measured to no more than 1000 m upslope) that is comprised of buildings, roads, parking lots		[FA, INV, NRv, PRv, SRv, STR, WCv, WSv]
114		the Contributing Area	other pavement, exposed bedrock, landslides, and other mostly-bare surface is about :		
115			<10%.	1	
116			10 to 25%.	0	
117			>25%.	0	

	Α	В	C	D	E
	OF24	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as		[NRv, PRv, SRv, WSv]
			indicated by the following:		
			(a) input channel is present,		
			(b) input channels have been straightened,		
			(c) upslope wetlands have been ditched extensively,		
			(d) land cover is mostly non-forest,		
			(e) CA slopes are steep, and/or (f) most CA soils are shallow (bedrock near surface) and/or have high runoff coefficients.		
			(i) most CA sons are snanow (bedrock near surface) and/or have night unon coemicients. This statement is:		
118			THE SELECTION IS.		
119			Mostly true.	0	
120			Somewhat true.	0	
121			Mostly untrue.	1	
	OF25	Aspect	The overland flow direction of most surface water (in streams, rivers, or runoff) that enters the AA is:		[AM, NR, SFS, WC, WS]
122	01 20	rispect	No. 1 in the second sec		[IIII, IIII, 51 5, 116, 116]
123			Northward (N, NE). north-facing contributing area.	0	
124			Southward (S, SW). south-facing contributing area.	0	
125			Other (E, SE, W, NW), or no detectable uphill slope or input channel (flat).	1	
126	OF26	Internal Flow Distance	The horizontal flow distance from the wetland's inlet to outlet is:		Identify inlets and outlets, if any, from topographic maps (use elevations to determine which are inlets
126		(Path Length)	<10 m.	0	and which are outlets) and augment by field inspection. With the Provincial Landscape Viewer, select
127			10 - 50 m.	0	Nova Scotia Topo as the Basemap. Also enable the layer Forestry>WAM Predicted Flow. Then
128			10 - 30 m.	0	measure the inlet-outlet distance. [NR, OE, PR, SR, WS]
129					
130			100 - 1000 m.	0	
131			1- 2 km.	0	
132			>2 km, or wetland lacks an inlet and outlet.	1	
	OF27	Growing Degree Days	In Google Earth, open the KMZ file that accompanies this calculator, called NS_GrowingDegreeDays. Place your cursor over the AA and	2177	This layer was provided by Dr. Dan McKenney of the Canadian Forest Service [AM, CS, FR, INV,
133			left-click. From the pop-up window, enter the GRIDCODE number in the next column.	2177	NR, OE, PH, PR, Sens, SR, WBF, WCv, WS]
134	OF28	Fish Access or Use	According to agency biologists and/or your own observations, the AA. [Mark just the first choice that is true.]:		Regarding the last choice, if uncertain if an AA is fishless, consider the possibility its waters have been stocked. [AM, FA, FR, INV, WBF, WBN]
			Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. Go to Provincial Landscape	0	Decit Stocked. [All I, I A, I I A, I I A, I IV , WDI , WDI]
			Viewer>Wildlife>Significant Habitat>Species at Risk. Contact local fishery biologists, review the ACCDC report, and visit these websites:		
135			http://www.salmonatlas.com/atlanticsalmon/canada-east/index.1.html http://atlanticsalmonfederation.org/rivers/introduction.html		
			Has not been documented to support Atlantic salmon rearing and/or spawning, but is connected to nearby waters likely to contain Atlantic	0	
136			salmon or other anadromous species or eels and is probably accessed by those during some conditions.		
137			Is probably is not accessed by any anadromous fish species but is known or likely to have other fish at least seasonally.	0	
138			Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	1	
	OF29	•	Within the past 10 years, in the AA (or in its adjoining waters or wetland), qualified observers have documented[mark all applicable]:		Request information from ACCDC and/or conduct your own survey at an appropriate season using ar
139		Concern			approved protocol. For birds, also check eBird.org. NOTE for NS: If your WESP-AC is being
			Presence of one or more of the plant species listed in the Plants_Rare worksheet of the accompanying SuppInfo file, or the AA is within a	0	completed for a Wetland Alteration Application to NS-ECC, your ACCDC results and any taxon-
			mapped Atlantic Coastal Plain Flora Buffer (go to Provincial Landscape Viewer> Wildlife> Special Management Practice Zones).		specific survey results must be submitted along with your WESP-AC results, and application. [AMv, EC, PHv, POLv, SBMv, Sens, WBFv, WBNv]
140					EC, FTIV, FOLV, SBIVIV, SCIIS, WDI V, WDIVV]
			Presence of one or more of the amphibian or reptile species (AM) of conservation concern as listed in the Wildlife_Rare worksheet of the	0	
141			accompanying SuppInfo file.		
			Presence of one or more of the waterbird species (WBF, WBN) of conservation concern as listed in the Wildlife_Rare worksheet of the	0	
142			accompanying Supplnfo file.		
			Presence of one or more of the nesting songbird or raptor species (SBM) of conservation concern as listed in the Wildlife_Rare	0	
143			worksheet of the accompanying SuppInfo file, during their nesting season (May-July for most species). None of the above, or no data.	4	
144			inone of the above, of 110 data.	ı	

	A	В	С	D	E
145		Important Bird Area (IBA)	In Google Earth, open the KMZ file that accompanies this calculator, called IBAs_Canada. The AA is all or part of an officially designated IBA. Enter 1= yes, 0= no.	0	The source of this layer, which should be checked periodically for updates, is: http://www.ibacanada.com/mapviewer.jsp?lang=EN [SBMv, WBFv, WBNv]
146		Black Duck Nesting Area	In Google Earth, open the KMZ file that accompanies this calculator, called BlackDuck. Adjust its alignment and opacity. Determine the predicted density (pairs per 25 sq. km) of nesting American Black Duck in the AA's vicinity: <10 (enter 0), 10-20 (enter 1), 20-30 (enter 2), >30 (enter 3). If outside of region shown in map, change toblank.	0	This was provided by Dr. David Leske. [WBNv]
147		Wintering Deer or Moose Concentration Areas	If AA is on private land with no information, change toblank (not 0). Otherwise: With the Provincial Landscape Viewer, for Wintering Moose, go to Wildlife> Significant Habitat. For Mainland Moose Concentration Areas, go to Wildlife> Special Management Practice Zones Enter: yes= 1, no= 0.	0	[SBM]
148		Other Conservation Designation	The AA is all or part of an area designated by government, First Nations, or the Nature Conservancy of Canada (NCC) for its exceptional ecological features or highly intact natural conditions. With Provincial Landscape Viewer, see Protected Areas. Enter: yes= 1, no= 0. If uncertain, consult NCC and agencies for more recent information.	0	See: https://novascotia.ca/parksandprotectedareas/plan/interactive-map/ [PU]
149		Conservation Investment	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance the wetland (excluding mitigation wetlands). Ask the property owner. Enter: yes= 1, no= 0. If no information, change tollank (not 0).	0	[PU]
150		Mitigation Investment	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere. Ask the property owner. Enter: yes= 1, no= 0. If no information, change to blank .	0	[PU]
151		Sustained Scientific Use	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area. Ask the property owner. Enter: yes= 1, no= 0. If no information, change toblank.	0	[PU]
152		Calcareous Region	The AA is NOT in a subregion that has been heavily exposed to acid precipitation. Enter "1" if true (green or yellow in map in Appendix A o the Manual). Enter "0" if false. If no information, change toblank.	0	[AM, FA, FR, INV, PH]
153		Ownership	Select the ONE ownership that covers the most of the AA. In Google Earth, open KMZ file called NS_CrownlandsUse more recent information if available.		"Private lands" may include those owned or leased by non-governmental organizations, e.g., charitable conservation land trusts, DUC, TNC. [PU, STR]
154			New timber harvest, roads, mineral extraction, and intensive summer recreation (e.g., off-road vehicles) are permanently prohibited. Includes many publicly-owned Protected Lands, and private lands under long-term (30+ year) legal agreements to maintain nearly-unaltered conditions.	0	
155			Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are allowed.	1	
156	-		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable or not) is in place.	0	
157			Ownership is private and owner does not allow access, or access permission unknown, and not a conservation easement.	0	

	A	В	С	D	E
	Date: September 15, 2022		Site Identifier: WL33	Investiga	tor: Darcy Kavanagh & Jordan Davis
1	1				

Form F (Field). Non-tidal Wetland Data Form. WESP-AC version 2 for Nova Scotia. DIRECTIONS: Walk for no less than 10 minutes from the wetland edge towards its core, in the part of the At that is proposed for alteration. If no alteration is proposed, walk in a portion that appears to be most representative of the wetland overall. Walk only where it is safe and legal to do so. Conduct the assessment only after reading the accompanying Manual and the Explanations column of the data form. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgable persons, and/or reviewing aerial imagery. For most wetlands, completing this field data form will require 1-2 hours on a site. For a list of functions to which each question pertains, see the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Manual. Codes for functions and values are: WS= Water Storage & Delay, SFS= Stream Flow Support, WC= Water Cooling, SR= Sediment Retention & Stabilisation, PR= Phosphorus Retention, NR= Nitrate Removal, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate Habitat, FA= Anadromous Fish Habitat, FR= Resident Fish Habitat, AM= Amphibian & Reptile Habitat, WBF= Feeding Waterbird Habitat, WBN= Nesting Waterbird Habitat, SBM= Songbird, Raptor, & Mammal Habitat, POL= Pollinator Habitat, PH= Native Plant Habitat, PU= Public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= Stressors.

3	#	Indicators	Condition Choices	Data	Definitions/Explanations
4	F1	Wetland Type	Follow the key below and mark the ONE row that best describes MOST of the vegetated part of the AA:		Ericaceous shrubs are ones in the heather family (Ericaceae). Most have leathery evergreen leaves. They include rhododendron, azalea, swamp laurel, leatherleaf, Labrador tea, and others. Most require
5			A. Moss and/or lichen cover more than 25% of the ground. Often dominated by ericaceous shrubs (e.g., Labrador tea) or other acid-tolerant plants (e.g., bog cranberry, pitcher plant, sundew, orchids). Substrate is mostly undecomposed peat. Choose between A1 and A2 and mark the choice with a 1 in their adjoining column. Otherwise go to B below.		acidic soil. Although not in the family Ericaceae, sweetgale (<i>Myrica gale</i>) should be counted also. [AM, CS, FA, FR, INV, NR, OE, PH, Sens, SFS, WBF, WBN]
6			A1. Surface water is usually absent or, if present, pH is typically <4.5 and conductivity is usually <100 µS/cm (<64 ppm TDS). Trees are absent or nearly so. Sedge cover usually sparse or absent but cottongrass and/or lichen cover may be extensive, as well as cloudberry, lingonberry, sheep laurel, and a sedge (<i>Carex rariflor</i> a). Wetland surface and surrounding landscape are seldom sloping and wetland often is domed (convex). Inlet and outlet channels are usually absent. If known, pH of peat is <4.0.	0	
7			A2. Not A1. Surface water, if present, has pH typically >4.5 and conductivity is usually >100 μS/cm (>64 ppm TDS). Sedge cover is usually extensive, and/or tree and tall shrub cover is extensive. Sometimes at toe of slope or edge of water body. An exit channel is usually present. Wetter than A1 and peat depth may be shallower (<2 m).	1	
8			B. Moss and/or lichen cover less than 25% of the ground. Soil is mineral or decomposed organic (muck). Choose between B1 and B2 and mark the choice with a 1 in their adjoining column:		
9			B1. Trees and shrubs taller than 1 m comprise more than 25% of the vegetated cover. Surface water is mostly absent or inundates the vegetation only seasonally (e.g., vernal pools or floodplain).	0	
10			B2 . Not B1. Tree & tall shrubs comprise less than than 25% of the vegetated cover. Vegetation is mostly herbaceous, e.g., cattail, bulrush, burreed, pond lily, horsetail. Surface water may be extensive and fluctuates seasonally, being either persistent or drying up partly or entirely.	0	
11	The An include " adjac descri	A should also include pa e the open water part ac cent " is used synonymo bed features along their	the AA should include all persistent waters in ponds smaller than 8 hectares (-283 m on a side) that are adjacent to the AA. In of the water area of adjacent ponded water larger than 8 ha and adjacent rivers wider than 20 m. Specifically, the AA should liacent to wetland vegetation and equal in width to the average width of that vegetated zone. Throughout this data form, pusly with abutting, adjoining, bordering, contiguous and means no upland (manmade or natural) completely separates the directly shared edge. Features joined only by a channel are not necessarily considered to be adjacent a large portion of features do not have to be hydrologically connected in order to be considered adjacent.		
12			If the AA is smaller than 1 ha, mark all other types that occupy more than 1% of the vegetated AA. If the AA is larger than 1 ha, mark all other types which are within or adjacent to the AA and occupy more than 1 ha, as visible from the AA or as interpreted from aerial imagery. Do not mark again the type marked in F1.		1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m, 1000 m by 10 m, or similar. [AM, INV, SBM, WBF]
13			A1.	0	
14	1		A2.	0	
15			B1.	0	
16			B2.	1	

FieldF form - Non-tidal Page 1 of 9

	Α	В	С	D	E
	F3	Woody Height & Form	Following EACH row below, indicate with a number code the percentage of the living vegetation in the AA which is occupied by that feature		Deciduous shrubs in this region usually include buttonbush, Labrador tea, bayberry (Morella),
		Diversity	(6 if >95%, 5 if 75-95%, 4 if 50-75%, 3 if 25-50%, 2 if 5-25%, 1 if <5%, 0 if none). If the vegetated part of the AA is largely herbaceous (non-		huckleberry, cranberry, cloudberry, sweetgale, alder, willow, birch, ash, dogwood, and a few others. If
17			woody) vegetation, these percentages should not sum to 100%.		you assigned a code of 3 or higher to any of the first four choices and the ground cover beneath the trees/shrubs is <25% moss, then question F1 might be "B1". [CS, INV, NR, PH, POL, SBM, Sens]
18			coniferous trees (may include tamarack) taller than 3 m.	3	lices/siliubs is <25% filoss, their question FT filight be BT. [CS, livv, lvk, PH, POL, Sbivi, Selis]
19			deciduous trees taller than 3 m.	3	
20			coniferous or ericaceous shrubs or trees 1-3 m tall not directly below the canopy of trees.	3	
21			deciduous shrubs or trees 1-3 m tall not directly below the canopy of trees.	3	
22			coniferous or ericaceous shrubs <1 m tall not directly below the canopy of taller vegetation.	3	
23			deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	2	
24	<u>Note</u> :	If none of top 4 rows in	n F3 was marked 2 or greater, SKIP to F9 (N fixers).		
25	F4	Dominance of Most	Determine which two woody plant species comprise the greatest portion of the low (<3 m) woody cover . Then choose one:		[PH, POL, SBM, Sens]
26		Abundant Shrub	those species together comprise > 50% of such cover.	1	
27		Species	those species together do not comprise > 50% of such cover.	0	
	F5	Woody Diameter	Mark ALL the types that comprise >5% of the woody canopy cover in the AA or >5% of the wooded areas (if any) along its upland edge		Estimate the diameters at chest height. If small-diameter trees are overtopped (shaded) by larger
28		Classes	(perimeter). The edge should include only the trees whose canopies extend into the AA.		ones, visualise a "subcanopy" at the average height of the smaller-dbh trees, to serve as a basis for the
29			coniferous, 1-9 cm diameter and >1 m tall.	1	minimum 5% canopy requirement in this question. The trees and shrubs need not be wetland species.
30			broad-leaved deciduous 1-9 cm diameter and >1 m tall.	1	[AM, CS, POL, SBM, Sens, WBN]
31			coniferous, 10-19 cm diameter.	1	
32			broad-leaved deciduous 10-19 cm diameter.	1	
33			coniferous, 20-40 cm diameter.	1	
34			broad-leaved deciduous 20-40 cm diameter.	1	
35			coniferous, >40 cm diameter.	1	
36			broad-leaved deciduous >40 cm diameter.	1	
37	F6	Height Class	Follow the key below and mark the ONE row that best describes MOST of the AA:		[AM, INV, NR, PH, SBM, Sens]
	=	Interspersion	A. Neither the vegetation taller than 1 m nor the vegetation shorter than that comprise >70% of the vegetated part of the AA. They each		
			comprise 30-70%. Choose between A1 and A2 and mark the choice with a 1 in the adjoining column. Otherwise go to B below.		
38					
39			A1. The two height classes are mostly scattered and intermixed throughout the AA.	0	
40			A2. Not A1. The two height classes are mostly in separate zones or bands, or in proportionately large clumps.	0	
			B. Either the vegetation shorter than 1 m comprises >70% of the vegetated part of the AA, or the vegetation taller than that does. One size		
41			class might even be totally absent. Choose between B1 and B2 and mark the choice with a 1 in the adjoining column:		
42			B1. The less prevalent height class is mostly scattered and intermixed within the prevalent one.	1	
			B2. Not B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is completely	0	
43	-		absent.		
44		Large Snags (Dead	The number of large snags (diameter >20 cm) in the AA plus adjacent upland area within 10 m of the wetland edge is:		Snags are dead standing trees that often (not always) lack bark and foliage. Include only ones that are at least 2 m tall. [POL, SBM, WBN]
45		Standing Trees)	None, or fewer than 8/ hectare which exceed this diameter.	1	at 1605t 2 III tain. [I OE, JUNI, WUN]
46			Several (>8/hectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km.	0	
47			Several (>8/hectare) but above not true.	0	
48	F8	Downed Wood	The number of downed wood pieces longer than 2 m and with diameter >10 cm, and not persistently submerged, is:		Exclude temporary "burn piles." [AM, INV, POL, SBM]
49			Few or none that meet these criteria.	0	
50			Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria.	1	
	F9	N Fixers	The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa, other legumes)		Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
51			is:		
52			<1% or none.	0	
53			1-25% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
54			25-50% of the vegetated cover, in the AA or along its water edge (whichever has more).	1	
55	_		50-75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
56			>75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
56			>75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	

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	Α	В	С	D	E
	F10	Sphagnum Moss	The cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured by taller		Exclude moss growing on trees and rocks. [CS, PH]
57		Extent	sedges and other plants rooted in it, is:		
58			<5% of the vegetated part of the AA.	0	
59			5-25% of the vegetated part of the AA.	0	
60			25-50% of the vegetated part of the AA.	0	
61			50-95% of the vegetated part of the AA.	1	
62			>95% of the vegetated part of the AA.	0	
-	F11	% Bare Ground &	Consider the parts of the AA that lack surface water at the driest time of the growing season. Viewed from directly above the ground layer, the	Ů	Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that is
63	' ' '	Thatch	predominant condition in those areas at that time is:		present under a tree or shrub canopy should be counted. Boulders count as bare ground. Wetlands
0.5		materi	Little or no (<5%) bare ground is visible between erect stems or under canopy anywhere in the vegetated AA. Ground is extensively	1	with mineral soils and that are heavily shaded or are dominated by annual plant species tend to have
			blanketed by dense thatch, moss, lichens, graminoids with great stem densities, or plants with ground-hugging foliage.	1	more extensive areas that are bare during the early growing season. [AM, EC, INV, NR, OE, POL, PR,
64			bulineded by derise filader, moss, noteris, grammous with great stem derisities, or punts with ground ridgging rollage.		SBM, Sens]
64			Slightly bare ground (5-20% bare between plants) is visible in places, but those areas comprise less than 5% of the unflooded parts of the	0	
65			AA.	U	
0.5			Much bare ground (20-50% bare between plants) is visible in places, and those areas comprise more than 5% of the unflooded parts of the	0	
66			AA.	Ŭ	
67			Other conditions.	0	
68			Not applicable. Surface water (either open or obscured by emergent plants) covers all of the AA all the time.	0	
-	F12	Ground Irregularity	Imagine the AA without any living vegetation. Excluding the portion of the AA that is always under water, the number of hummocks, small		The depressions may be of human or natural origin. [AM, EC, INV, NR, PH, POL, PR, SBM, SR, WS]
		Cround irregularity	pits, raised mounds, animal burrows, ruts, gullies, natural levees, microdepressions, and other areas of peat or mineral soil that are raised or		The depressions may be of namen of natural origin [run, 25, 111, 111, 111, 111, 111, 111, 111,
69			depressed >10 cm compared to most of the area within a few meters surrounding them is:		
-			Few or none (minimal microtopography; <1% of the land has such features, or entire AA is always water-covered).	0	
70			Intermediate.	0	
71					
72	F10	Haland Lad Star	Several (extensive micro-topography).	1	TAM AID COM
73	F13	Upland Inclusions	Within the AA, inclusions of upland are:		[AM, NR, SBM]
74			Few or none.	0	
75			Intermediate (1 - 10% of vegetated part of the AA).	1	
76			Many (e.g., wetland-upland "mosaic", >10% of the vegetated AA).	0	
	F14	Soil Texture	In parts of the AA that lack persistent water, the texture of soil in the uppermost layer is mostly: [To determine this, use a trowel to check in		[CS, NR, OE, PH, PR, Sens, SFS, WS]
77			at least 3 widely spaced locations, and use the soil texture key (in Appendix A of the Manual).]		
			Loamy: soils that may contain a little fine grit and do not make a "ribbon" longer than 2 cm when moistened, rolled, squeezed, and extended	0	
78			between thumb and forefinger.		
			Fines: includes silt, clay, silt, soils that make a ribbon longer than 2 cm when moistened, rolled, squeezed, and extended between thumb and	0	
79			forefinger.		
80			Deep Peat, to 40 cm depth or greater.	0	
81			Shallow Peat or organic <40 cm deep.	1	
			Coarse: includes sand, loamy sand, gravel, cobble, soils that do not make a ribbon when moistened, rolled, squeezed, and extended	0	
82			between thumb and forefinger.		
	F15	Shorebird Feeding	During any 2 consecutive weeks of the growing season, the extent of mudflats, bare unshaded saturated areas not covered by thatch, and		This addresses needs of many but not all migratory sandpipers, plovers, and related species. [WBF]
83		Habitats	unshaded waters shallower than 6 cm is: [Include also any area that is adjacent to the AA.]		
84			None, or <100 sq. m.	1	
85			100-1000 sq. m.	0	
86			1000 – 10,000 sq. m.	0	
87			>10,000 sq. m.	0	

FieldF form - Non-tidal Page 3 of 9

	Α	В	С	D	E
00	F16	Herbaceous % of	In aerial ("ducks eye") view, the maximum annual cover of herbaceous vegetation (all non-woody plants except moss) is:		[AM, WBF, WBN]
- 00		Vegetated Wetland	<5% of the vegetated part of the AA or <0.01 hectare (whichever is less). Mark "1" here and SKIP to F20 (Invasive Plant Cover).	0	
89					
90			5-25% of the vegetated part of the AA.	0	
91			25-50% of the vegetated part of the AA.	0	
92			50-95% of the vegetated part of the AA.	1	
93			>95% of the vegetated part of the AA.	0	
94	F17	Forb Cover	Within parts of the AA having herbaceous cover (excluding SAV), the areal cover of forbs reaches an annual maximum of:		Forbs are flowering plants. Do not include grasses, sedges, cattail, other graminoids, ferns, horsetails,
95			<5% of the herbaceous part of the AA.	0	or others that lack showy flowers. [POL]
96			5-25% of the herbaceous part of the AA.	0	
97			25-50% of the herbaceous part of the AA.	1	
98			50-95% of the herbaceous part of the AA.	0	
99			>95% of the herbaceous part of the AA.	0	
100	F18	Sedge Cover	Sedges (Carex spp.) and cottongrass (Eriophorum spp.) occupy:		[CS]
101			<5% of the vegetated area, or none.	0	
102			5-50% of the vegetated area.	0	
103			50-95% of the vegetated area.	1	
104			>95% of the vegetated area.	0	
	F19	Dominance of Most	Determine which two herbaceous species comprise the greatest portion of the herbaceous cover (excluding mosses and floating-leaved		For this question, include ferns as well as graminoids and forbs. [EC, INV, PH, POL, Sens]
105			aquatic plants). Then choose one of the following:		
106		Species	those species together comprise > 50% of the areal cover of herbaceous plants at any time during the year.	0	
107			those species together do not comprise > 50% of the areal cover of herbaceous plants at any time during the year.	1	
107	F20	Invasive Plant Cover	How extensive is the cover of invasive plant species in the AA? For species, see Plants_invasive worksheet in the accompanying Supplnfo		[EC, PH, POL, Sens]
108			file.		, ,
109			invasive species appear to be absent in the AA, or are present only in trace amount (a few individuals).	1	
			invasive species are present in more than trace amounts, but comprise <5% of herbaceous cover (or woody cover, if the invasives are	0	
110			woody).		
111			invasive species comprise 5-20% of the herb cover (or woody cover, if the invasives are woody).	0	
112			invasive species comprise 20-50% of the herb cover (or woody cover, if the invasives are woody).	0	
113	F21	Investive Cover Mana	invasive species comprise >50% of the herb cover (or woody cover, if the invasives are woody).	0	If a plant cannot be identified to energies (e.g., winter conditions) but its gapus contains an evalua-
114	FZ1	Invasive Cover Along Upland Edge	Along the wetland-upland boundary, the percent of the upland edge (within 3 m upslope from the wetland) that is occupied by invasive plant species is:		If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an exotic species, assume the unidentified plant to also be exotic. If vegetation is so senesced that exotic
114		opiana Luge	none of the upland edge (invasives apparently absent), or AA has no upland edge.	1	species cannot be identified, answer "none". [PH, STR]
116			some (but <5%) of the upland edge.	0	'
117			5-50% of the upland edge.	0	1
118			most (>50%) of the upland edge.	0	1
	F22	Fringe Wetland	During most of the year, open water within or adjacent to the vegetated part of the wetland is much wider than the maximum width of the	0	[WBF, WBN, WCv]
119			vegetated zone within the wetland. Enter "1" if true, "0" if false.		
	F23	Lacustrine Wetland	The vegetated part of the AA is within or adjacent to a body of non-tidal standing open water whose size exceeds 8 hectares during most of	0	[FR, PR, PU, WBF, WBN]
120			a normal year.		
	F24	% of AA Without	The percentage of the AA that never contains surface water during an average year (that is, except perhaps for a few hours after snowmelt or		1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m, 1000 m by
121		Surface Water	rainstorms), but which is still a wetland, is:		10 m, or similar. [AM, FA, FR, INV, NR, PH, PR, SBM, Sens, SRv, WBF, WBN, WC]
122			<1%. In other words, all or nearly all of the AA is covered by water permanently or at least seasonally.	0	1
123			1-25% of the AA, or <1% but >0.01 ha never contains surface water.	0	
124			25-50% of the AA never contains surface water.	1	
125			50-75% of the AA never contains surface water.	0	1
126			75-99% of the AA never contains surface water, OR >99% and there is at least one persistently ponded water body larger than 1 ha in the	0	
120			AA. 99-100%. AND there is no persistently ponded water body larger than 1 ha within the AA. Enter "1" and SKIP to F42 (Channel Connection).	0	1
127			The processing personal states and the following states and the control of the co		
12/					

FieldF form - Non-tidal Page 4 of 9

Α	В	С	D	E
F25	% of AA with	Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during the driest		If you are unable to determine the condition at the driest time of year, ask the land owner or neighbors
	Persistent Surface	times of a normal year, i.e., when the AA's surface water is at its lowest annual level. At that time, the percentage of the AA that still contains		about it if possible. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat.
128	Water	surface water is:		[AM, CS, FA, FR, INV, NR, POL, PR, SBM, WBF, WBN]
129		None. The AA dries up completely (no water in channels either) or never has surface water during most years. SKIP to F27.	0	
130		1-20% of the AA.	1	
131		20-50% of the AA.	0	
132		50-95% of the AA.	0	1
133		>95% of the AA. True for many fringe wetlands.	0	1
F26	% of Summertime	At mid-day during the warmest time of year, the area of surface water within the AA that is shaded by vegetation and other features that are		[FA, WC]
134	Water that Is Shaded	<u>within</u> the AA at that time is:		
135		<5% of the water is shaded, or no surface water is present then.	0	
136		5-25% of the water is shaded.	1	
137		25-50% of the water is shaded.	0	
138		50-75% of the water is shaded.	0	
139		>75% of the water is shaded.	0	
F27	% of AA that is	The percentage of the AA's area that is between the annual high water and the annual low water (surface water) is:		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not
141	Flooded Only	None, or <0.01 hectare and <1% of the AA. SKIP to F29.	0	-fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial)
142	Seasonally	1-20% of the AA, or <1% but >0.01 ha.	1	plant species. In riverine systems, the extent of this zone can be estimated by multiplying by 2 the bankful height and visualising where that would intercept the land along the river. [CS, FA, INV, NR,
143		20-50% of the AA.	0	OE, PH, SR, WBF, WBN, WS]
144		50-95% of the AA.	0	oc, i ii, sik, iibi , iibik, iisj
145		>95% of the AA.	0	1
E28	Annual Water	The annual fluctuation in surface water level within most of the parts of the AA that contain surface water at least temporarily is:		Look for flood marks (see above). Because the annual range of water levels is difficult to estimate
146	Fluctuation Range			without multiple visits, consider asking the land owner or neighbors about it. [AM, CS, INV, NR, OE,
147		<10 cm change (stable or nearly so).	0	PH, PR, SR, WBN, WS]
148		10 cm - 50 cm change.	1	
149		0.5 - 1 m change.	0	
150		1-2 m change.	0	
151	<u> </u>	>2 m change.	0	
		d water smaller than 0.01 hectare (about 10m x 10m, or 1m x 100 m)? If so, enter "1" in column D and SKIP TO F42	0	
102	ection).			
F29	Predominant Depth	During most of the time when surface water is present during the growing season, its depth, averaged over the entire inundated part of the		If a boat is unavailable, estimate this by considering wetland size and local topography. Or if timing
153	Class	AA, is:		and safety allow, depths may be measured by drilling through winter ice. This question is asking about
154		<10 cm deep (but >0).	1	the spatial median depth that occurs during most of that time, even if inundation is only seasonal or temporary. If inundation in most but not all of the wetland is brief, the answer will be based on the depti
155		10 - 50 cm deep.	0	of the most persistently inundated part of the wetland. Include surface water in channels and ditches as
156		0.5 - 1 m deep.	0	well as ponded areas. [CS, FA, FR, INV, OE, PH, PR, Sens, SFS, SR, WBF, WBN, WC]
157		1 - 2 m deep.	0	
158	D 11 01	>2 m deep. True for many fringe wetlands.	0	
159 F30	Depth Classes -	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. [FR, INV,
160	Evenness of	One depth class that comprises >90% of the AA's inundated area (use the classes in the question above).	0	-WBF, WBN]
	Droportions	One depth class that comprises 50-90% of the AA's inundated area.	1	
161	Proportions	One deput class that comprises 50-40% of the MA's individued area.	1	
	Proportions	Neither of above. There are 3 or more depth classes and none occupy >50%.	0	
161	Proportions % of Water That Is		_	Nearly all wetlands with surface water have some ponded water. [AM, CS, INV, NR, OE, PR, Sens, SR
161 162	·	Neither of above. There are 3 or more depth classes and none occupy >50%.	_	Nearly all wetlands with surface water have some ponded water. [AM, CS, INV, NR, OE, PR, Sens, SR WBF, WBN, WC, WS]
161 162 F31	% of Water That Is	Neither of above. There are 3 or more depth classes and none occupy >50%. During most times when surface water is present, the percentage that is (1) ponded (stagnant, or flows so slowly that fine sediment is not	_	
161 162 F31	% of Water That Is	Neither of above. There are 3 or more depth classes and none occupy >50%. During most times when surface water is present, the percentage that is (1) ponded (stagnant, or flows so slowly that fine sediment is not held in suspension) AND (2) is likely to be deeper than 0.5 m in some places, is:	0	
F31 163 164	% of Water That Is	Neither of above. There are 3 or more depth classes and none occupy >50%. During most times when surface water is present, the percentage that is (1) ponded (stagnant, or flows so slowly that fine sediment is not held in suspension) AND (2) is likely to be deeper than 0.5 m in some places, is: <5% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34.	0	
F31 163 164 165	% of Water That Is	Neither of above. There are 3 or more depth classes and none occupy >50%. During most times when surface water is present, the percentage that is (1) ponded (stagnant, or flows so slowly that fine sediment is not held in suspension) AND (2) is likely to be deeper than 0.5 m in some places, is: <5% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34. 5-30% of the water.	0	

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F33 % of Po 170 that is C 171 172 173 174 175 176 F34 Width o 20ne wi	Ponded Water s Open	During most of the growing season, the largest patch of open water that is ponded and is in or bordering the AA is >0.01 hectare (about 10 m by 10 m) and mostly deeper than 0.5 m. If true enter "1" and continue, If false, enter "0" and SKIP to F41 (Floating Algae & Duckweed). In ducks-eye aerial view, the percentage of the ponded water that is open (lacking emergent vegetation during most of the growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	0	Open water is not obscured by vegetation in aerial ("duck's eye") view. It includes vegetation floating on the water surface or entirely submersed beneath it. [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]
F33 % of Po that is C 170 that is C 171 172 173 174 175 176 Width o 177 Zone wi	Ponded Water s Open	In ducks-eye aerial view, the percentage of the ponded water that is open (lacking emergent vegetation during most of the growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).		,
F33 % of Po 170 that is C 171 172 173 174 175 176 F34 Width o 177 Zone wi	s Open	and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).		[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]
F33 % of Po 170 that is C 171 172 173 174 175 176 F34 Width o 177 Zone wi	s Open	and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).		[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]
170 that is C 171 172 173 174 175 176 F34 Width o 20ne wi	s Open	and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).		II IAM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WCI
171 172 173 174 175 176 F34 Width o 177 Zone wi		None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).		
172 173 174 175 176 F34 Width o 177 Zone wi	Į			
173 174 175 176 F34 Width o 177 Zone wi	3	1 40/ of the pended water, Enter "1" and CVID to E41 (Fleating Algae & Duckwood)	1	4
174 175 176 F34 Width o 177	3	1	0	
175 176 F34 Width o 177 Zone wi	L-	5-30% of the ponded water.	0	
176 F34 Width o Zone wi	I-	30-70% of the ponded water.	0	
F34 Width o 200 Zone wi	Ľ	70-99% of the ponded water.	0	
Zone wi	ŕ	100% of the ponded water.	0	
	9	At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in the AA that separates		"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may
	within Wetland	adjoining uplands from open water within the AA is:		include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR,
178	•	<1 m.	0	SBM, Sens, SR, WBN]
179	7	1 - 9 m.	0	
180	[-	10 - 29 m.	0]
181		30 - 49 m.	0]
182	Ē	50 - 100 m.	0	1
183		> 100 m, or open water is absent at that time.	0	
F35 Flat Sho	Shoreline Extent	During most of the part of the growing season when water is present, the percentage of the AA'swater edge length that is nearly flat (a		If several isolated pools are present in early summer, estimate the percent of their collective shorelines
184	5	slope less than about 5% measured within 5 m landward of the water) is:		that has such a gentle slope. [SR, WBN]
185	Ī	<1% of the water edge.	0	1
186	ļ-	1-25% of the water edge.	0	1
187	1	25-50% of the water edge.	0	1
188	ī	50-75% of the water edge.	0	1
189	L-	>75% of the water edge.	0	•
		The percentage of the emergent vegetation cover in the AA that is cattail (<i>Typha</i> spp.), common reed (<i>Phragmites</i>), or tall (>1m) bulrush		Emergent vegetation is herbaceous plants whose stems are partly above and partly below the water
190	i	is:		surface during most of the time water is present. [WBN]
191	<	<1% of the emergent vegetation, or emergent vegetation is absent. SKIP to F38.	0	
192	-	1-25% of the emergent vegetation.	0	1
193	2	25-75% of the emergent vegetation.	0	
194	5	>75%, of the emergent vegetation.	0	
	spersion of	During most of the part of the growing season when water is present, the spatial patternof emergent vegetation within the water is mostly:		[AM, FA, FR, INV, NR, OE, PH, PR, SBM, SR, WBF, WBN]
	rgents & Open			
196 Water		Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water.	0	
197	Ī	Intermediate.	0	1
	ō	Clumped. More than 70% of such vegetation is in bands along the wetland perimeter or is clumped at one or a few sides of the surface water	0	1
198		area.		
F38 Persiste		If the deepest patch of surface water (flowing or ponded) in or directly adjacent to the AA is mostly deeper than 0.5 m for >2 weeks during the	0	
199 Area	Ç	growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection).		
	vegetated	During most of the growing season and in waters deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians that is		For this question, consider only the wood that is at or above the water surface. Estimates of underwater
		provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is:		wood based only on observations from terrestrial viewpoints are unreliable so should not be attempted.
201		Little or none.	0	[AM, FA, FR, INV]
202	l i	Intermediate.	0	1
203	l 'i	Extensive.	0	1
	ted Island	The AA contains (or is part of) an island or beaver lodge within a lake, pond, or river, and is isolated from the shore by water depths >1 m	0	[WBN]
i io isolateu		on all sides during an average June. The island may be solid, or it may be a floating vegetation mat that is sufficiently large and dense to	3	(nen)
204		support a waterbird nest.		
		At some time of the year, mats of algae and/or duckweed are likely to cover >50% of the AA's otherwise-unshaded water surface, or blanket	1	[EC, PR, WBF]
Duckwe	0 0	At some line of the year, mars of argae and/of duckweed are likely to cover >50% of the underwater substrate. If true, enter "1" in next column. If untrue or uncertain, enter "0".	-	[EQ, FIX, WDI]
205 Duckwe	weed	- sons of the analognates at the fortion of infinite columns it distributed an amountain fortion of		

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network.] Persistent (unface water flows out for 39 montholyear). Sestional (surface water flows out for 39 montholyear). Sestional (surface water flows out for 14 days to 9 montholyear). Sestional (surface water flows out for 14 days to 9 montholyear). Temporary (surface water flows out for 14 days, not necessarily consecutive). Non-but maps show a sestem network downside from the Anal within a distance that is less than the AAS length SKIP for F47 (plf 40 Measurement). No surface water flows out of the wetland except possibly during externer events (-once per 10 years). Or, water flows only into a wetland. 11 dist, or take that lacks an outlet. SKIP for F47 (plf Measurement). No surface water flows out of the wetland except possibly during externer events (-once per 10 years). Or, water flows only into a wetland. 12 dist, or take that lacks an outlet. SKIP for F47 (plf Measurement). No surface water flows out of the wetland except possibly during externer events (-once per 10 years). Or, water flows only into a wetland. Mostly passes through a pipe, culvert, narrowly breached disc, berm. beaver dam, or other partial distinction (other than natural topography). In this does not appear to drain the wetland artificially during most of the growing season. Leaves through that one collect flows (chamens) or differ broop affective possibly from passage flows that the wetland artificially during most of the growing season. F44 Tributary Channel F44 Tributary Channel F45 Input Water Temperature F45 Input Water Temperature F46 Troughflow Resistance F47 Individual Channel S48 Individual Channel S48 Individual Channel S49 Individual Channel S40 Individual Channel S4		A	В	С	D	E
President fundamental surface water from our for the out of the of monthly only of monthly of the president fundamental surface and the surface of the control of the president fundamental surface and the su	_	F42		stream network is: [Note: If the AA represents only part of a wetland, answer this according to whichever is the least permanent surface connection: the one between the AA and the rest of the wetland, or the surface connection between the wetland and the downslope stream network.]		network" could consist of dilches, rivers, ponds, or lakes which eventually connect to the ocean. If this cannot be determined while visiting the AA, consult topographic maps perhaps by viewing these online with Toporama (http://atlas.nrcan.gc.ca/toporama/en/index.html) [CS, FA, FR, NR, OE, PR, Sens,
Improvey further well for the cell of the cell control of the cell cell control of the cell control of the cell control of the cell cell cell cell cell cell cell ce	_					
rice — Let maps that a seven relaced downlope from the AA and within a distance that is less than the AAS single, SEPP is FIT (pit.) 12.12 12.13 12.14 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.15 12.1						
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And Syspesses Provided programs applied control processed and the cont	212	F43	Outflow Confinement	During major runoff events, in the places where surface water exits the AA or connected waters nearby, the water:		
s coported more apidosy harm used due to difficulty or which to dish the solded afficiality or which to dish the solded afficiality or which to grain the solded afficiality or which to grain the solded afficiality or which	213				0	INK, UE, PK, SellS, SK, STK, WSJ
dain the vestional distribution of water and distribution or water from a statute of transport to the CAN for control of the CAN for control	214					
parameter what body adjacent to the AA splis into the AA. It is enters only via a pipe, that pipe must be fed by a mapped sheam or take full throughout in the part of the first product of the part of t	215			, , ,	0	
Temperature water in the A during part of most years. Enter 1 – yes, 0-no. 1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	216	F44	Tributary Channel	permanent water body adjacent to the AA spills into the AA. If it enters only via a pipe, that pipe must be fed by a mapped stream or lake	0	3 1
Resistance Incoming water. Does not bump into many plant stores as it travels through the AA. Nearly all the water continues to travel in unwegetated (often incised) ordering that have minimal contact with verticant vegetation, or through a zone of open water such as an indexempond or lake. Bumps into herbaceous vegetation but mostly remains in fairly straight channels. Bumps into the returns and/or shrub sterms but mostly remains in fairly straight channels. Bumps into the returns and/or shrub sterms but mostly remains in fairly straight channels. Bumps into the returns and/or shrub sterms but mostly remains in fairly straight channels. Bumps into the returns and/or shrub sterms but mostly remains in fairly straight channels. Bumps into the returns and/or shrub sterms but mostly remains in fairly straight channels. Bumps into the returns and/or shrub sterms but mostly remains in fairly straight channels. Bumps into the returns and/or shrub sterms but mostly remains in fairly straight channels. Bumps into the returns and/or shrub sterms but mostly remains in fairly straight channels. Bumps into the returns and/or shrub sterms but mostly remains in fairly straight channels. Bumps into the returns and/or shrub sterms but mostly remains in fairly straight channels. Bumps into the returns and/or shrub sterms but mostly remains in fairly straight channels. Bumps into the returns and/or shrub sterms and follows a fairly lymdirect path from entirance to exit (meandering, mulli-branched, or braided). The phi in most of the AA Surface water is and follows a fairly lymdirect path from entirance to exit (meandering, mulli-branched, or braided). The phi in most of the AA Surface water is an analysis of the AA Surface water is completely absent, do not diployed water from entire as of ponded surface water within the AA or in steems that have passed through the AI and a surface water within the AA or in steems that have passed through the AI and a surface water is completely absent, do not diploy and passed	217	F45		· · · · · · · · · · · · · · · · · · ·	0	[WCv]
channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream prond or take. Burns into herbaceous vegetation but mostly remains in fairly straight channels. Burns into herbaceous vegetation and mostly spreads throughout, or is in widely meandering, multi-branched, or braided channels. Burns into tree trunks and/or shrub stems but mostly remains in fairly straight channels. Burns into tree trunks and/or shrub stems but mostly remains in fairly straight channels. Burns into tree trunks and/or shrub stems but mostly remains in fairly straight channels. Burns into tree trunks and/or shrub stems but mostly remains in fairly straight channels. Burns into tree trunks and/or shrub stems but mostly remains in fairly straight channels. Burns into herbaceous vegetation and mostly spreads through in the fairly straight channels. Burns into herbaceous vegetation and mostly spreads through in the fairly straight channels. Burns into herbaceous vegetation and mostly spreads through in the fairly straight channels. Burns into herbaceous vegetation and mostly spreads through in the fairly straight channels. Burns into herbaceous vegetation and mostly remains in fairly straight channels. Burns into herbaceous vegetation and mostly spreads through in the fairly straight channels. Description of the An Surface water is in with information the fairly in passed through in the column to the right.] Was not measured but surface water is present and is darkly tea-coloured. O' if no surface water is (select the first true row with information): To sign the reading in papm or mg/L in the column to the right.] Was not measured, but plants that indicate saline conditions cover much of the vegetated An Enter "1". O Reither of above. Discription three trunks and/or should be an as near surface water. Discription three trunks and/or should be an as near surface water. Discription three trunks and/or should be an as near surface water. Discription three trunks and/or shou	218	F46	•			[FA, FR, INV, NR, OE, PR, SR, WS]
Bumps into herbaceous vegetation and mostly spreads throughout, or is in widely meandering, multi-branched, or braided channels. Bumps into tree trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or braided). Description of the property of	219				0	
Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels. Bumps into tree trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or braided). The pH in most of the AA's surface water: The pH in most of the AA's surface water: Was measured, and is. [enter the reading in the column to the right.] Was not measured but surface water is present and is darkly tea-coloured. Or if no surface water, then mosses and plants that indicate pealland (e.g., Labrador tea) are prevalent. Enter "1". Peterably, measure this in larger areas of ponded surface water within the AA, or in streams that have passed through (not along) most of the AA. Unless surface water is completely absent, do not dig hole or make depressions in peat in order to provide water for this measurement. Avoid measuring near roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] Peterably, measure this in larger areas of ponded surface water within the AA, or in streams that have passed through (not along) most of the AA. Unless surface water is completely absent, do not dig hole or make depressions in peat in order to provide water for this measured, and is darkly tea-coloured. Or if no surface water, then mosses and plants that indicate a per pevalent. Enter "1". O The TIDS (cital dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information): Tobs is: [Enter the reading in pysicm in the column to the right.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". O Neither of above Use of the AA by beaver during the past 5 years is (select most applicable ONE): Evident from direct observation or presence of gnawed limbs, dams, tracks, dens, lodges, or extensive stands of water-killed trees (snags). Ukley based on known occurrence in the region and proximity to suitable habitat, which may include: (a) a persistent freshwate	220					
Bumps into tree trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or braided). The pH in most of the AA's surface water: Was measured, and is: [enter the reading in the column to the right.] Was not measured but surface water is present and is darkly tea-coloured. Or if no surface water, then mosses and plants that indicate pealand (e.g., Labradot tea) are prevalent. Enter "1". Neither of above. Enter "1". TDS and/or Conductivity TDS is: [Enter the reading in ppm or mg/L in the column to the right.] if measured. Or answer next row.] Conductivity is: [Enter the reading in ppm or mg/L in the column to the right.] if measured. Or answer next row.] Was not measured but surface water is: (select the first true row with information): TDS and/or Conductivity is: [Enter the reading in ppm or mg/L in the column to the right.] if measured. Or answer next row.] Conductivity is: [Enter the reading in ppm or mg/L in the column to the right.] for above. Was not measured but surface water is: (select the first true row with information): TDS is: [Enter the reading in ppm or mg/L in the column to the right.] if measured. Or answer next row.] Conductivity is: [Enter the reading in ppm or mg/L in the column to the right.] for answer next row.] Was not measured but surface water is: (select the first true row with information): Doublet of above or measurement guidance. [FR, INV, NRV, PH, PRV, Sens] Was not measured. Dut plants that indicate saline conditions cover much of the vegetated AA. Enter "1". O Neither of above Use of the AA by beaver during the past 5 years is (select most applicable ONE): Evident from direct observation or presence of gnawed limbs, dams, tracks, dens, lodges, or extensive stands of water-killed trees (snags). Likely based on known occurrence in the region and proximity to suitable habitat, which may include: (a) a persistent freshwater wetland, popond, or lake, or a perennial low or mid-yadient (c.10%) channel, and (b) a c				Bumps into herbaceous vegetation and mostly spreads throughout, or is in widely meandering, multi-branched, or braided channels.	0	
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Was measured, and is: [enter the reading in the column to the right.] Was not measured but surface water is present and is darkly tea-coloured. Or if no surface water, then mosses and plants that indicate peatland (e.g., Labrador tea) are prevalent. Enter "1". 228 F48 TDS and/or Conductivity TDS in [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.] Conductivity TDS is: [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.] Conductivity is [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.] Conductivity is [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.] Conductivity is [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.] Conductivity is [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.] Conductivity is [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.] Conductivity is [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.] Conductivity is [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.] Conductivity is [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.] Conductivity is [Enter the reading in ppm or mg/L in the column to the right, if measured only by recent rain. [AM, FA, FR, NR, WBF, WBF, WBF, WBF, WBF, WBF, WBF, WBF	224	F47	pH Measurement	The pH in most of the AA's surface water:		Preferably, measure this in larger areas of ponded surface water within the AA, or in streams that have
Was not measured but surface water is present and is darkly lea-coloured. Or if no surface water, then mosses and plants that indicate pealtand (e.g., Labrador tea) are prevalent. Enter "1". 228 F48 TDS and/or Conductivity TDS is: [Enter the reading in ppm or mg/t. in the column to the right, if measured, or answer next row.] Conductivity is: [Enter the reading in ppm or mg/t. in the column to the right.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". 231 P49 Beaver Probability Likely based on known occurrence in the region and proximity to suitable habitat, which may include: (a) a persistent freshwater welland, pond, or lake, or a perennial low or mid-gradient (<10%) channel, and (b) a corridor or multiple stands of hardwood trees and shrubs in vegetated areas near surface water. Unlikely because site characteristics above are deficient, and/or this is a settled area or other area where beaver are routinely removed.	225			Was measured, and is: [enter the reading in the column to the right.]	4.4	
The TDS and/or Conductivity TDS and/or Conductivity TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS					0	· · · · · · · · · · · · · · · · · · ·
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pond, or lake, or a perennial low or mid-gradient (<10%) channel, and (b) a corridor or multiple stands of hardwood trees and shrubs in vegetated areas near surface water. Unlikely because site characteristics above are deficient, and/or this is a settled area or other area where beaver are routinely removed.	234			Ernoris from onco observation of presence of gramou littles, dams, tracks, delts, todges, of extensive status of water-shilled flees (stags).	Ů	
	235			pond, or lake, or a perennial low or mid-gradient (<10%) channel, and (b) a corridor or multiple stands of hardwood trees and shrubs in	0	
	236			Unlikely because site characteristics above are deficient, and/or this is a settled area or other area where beaver are routinely removed.	1	

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	Α	В	С	D	E
225	F50		Select first applicable choice:		Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other
237		of Evidence		0	evidence. Consult topographic maps to detect breaks in slope described here. Rust deposits
			Springs are known to be present within the AA, or if groundwater levels have been monitored, that has demonstrated that groundwater primarily discharges to the wetland for longer periods during the year than periods when the wetland recharges the groundwater.	0	associated with groundwater seeps may be most noticeable as orange discoloration in ice formations
238			printally discharges to the welland for longer periods during the year than periods when the welland recharges the groundwater.		along streams during early winter. [AM, CS, FA, FR, INV, NR, OE, PH, PRv, SFS, WC, WS]
238			Most of the AA has a slope of >5%, or is very close to the base of a natural slope longer than 100 and much steeper than the slope of the	0	
239			AA, AND the pH of surface water, if known, is >5.5.	U	
237			Neither of above is true, although some groundwater may discharge to or flow through the AA. Or groundwater influx is unknown.	1	
240					
	F51	Internal Gradient	The gradient along most of the flow path within the AA is:		This is not the same as the shoreline slope. It is the elevational difference between the AA's inlet and
241					outlet, divided by the flow-distance between them and converted to percent. If available, use a
242			<2% or the AA has no surface water outlet (not even seasonally).	0	clinometer to measure this. Free clinometer apps can be downloaded to smartphones. If the wetland is
243			2-5%.	1	large (longer than ~1 km), this may be estimated using Google Earth to determine the minimum and
244			6-10%.	0	maximum elevation within the AA, then dividing by length and multiplying by 100. [CS, NR, OE, PR,
245			>10%.	0	SR, WBF, WBN, WS]
	Note for	or the next three ques	tions: If the AA lacks an upland edge, evaluate based on the AA's entire perimeter, and moving outward into whatever areas		
246	are adj	jacent. In many situatio	ns, these questions are best answered by measuring from aerial images.		
	F52	Vegetated Buffer as %	Within a zone extending 30 m laterally from the AA's edge with upland and/or other wetlands, the percentage that containsperennial		[AM, FA, FR, INV, NRv, PH, POL, PRv, SBM, Sens, SRv, STR, WBN]
247		of Perimeter	vegetation cover (except lawns, row crops, heavily grazed land, conifer plantations) is:		
248			<5%.	0	
249			5 to 30%.	0	
250			30 to 60%.	1	
251			60 to 90%.	0	
252			>90%, or all the area within 30 m of the AA edge is other wetlands. SKIP to F55.	0	
	F53	Type of Cover in	Within 30 m upslope of where the wetland transitions to upland, the upland land cover that is NOT perennial vegetation is mostly (mark		[AM, FA, INV, NRv, PH, POL, SBM, STR, WBN]
253		Buffer	ONE):		
254			Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0	
255			Bare or nearly bare pervious surface or managed vegetation, e.g., lawn, row crops, unpaved road, dike, landslide.	1	
	F54	Buffer Slope	The steepest and/or most disturbed part of the upland area that is within 30 m of the wetland and occupies >10% of that upland area has a		[NRv, PRv, Sens, SRv]
256			percent slope of:		
257			<1% (flat almost no noticeable slope) or all the area within 30 m of the AA edge is other wetlands.	0	
258			2-5%.	1	
259			5-30%.	0	
260			>30%.	0	
	F55	Cliffs or Steep Banks	In the AA or within 100 m, there are elevated terrestrial features such as cliffs, talus slopes, stream banks, or excavated pits (but not riprap)	0	Do not include upturned trees as potential den sites. [POL, SBM]
			that extend at least 2 m nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den		
261			areas. Enter 1 (yes) or 0 (no).		
	F56	New or Expanded	Human actions within or adjacent to the AA have persistently expanded a naturally occurring wetland or created a wetland where there		Determine this using historical aerial photography, old maps, soil maps, or permit files as available
262		Wetland .	previously was none (e.g., by excavation, impoundment):		[CS, NR, OE, PH, Sens]
263			No.	0	1
264			Yes, and created or expanded 20 - 100 years ago.	0	
265			Yes, and created or expanded 3-20 years ago.	1	
266			Yes, and created or expanded within last 3 years.	0	
267			Yes, but time of origin or expansion unknown.	0	1
268			Unknown if new or expanded within 20 years or not.	0	
200	F57	Burn History	More than 1% of the AA's previously vegetated area:		Look for charred soil or stumps (in multiple widely-spaced locations) or ask landowner. [CS, PH, STR]
269		ĺ	Burned within past 5 years.	0	
270			• •		1
271			Burned 6-10 years ago.	0	1
272			Burned 11-30 years ago.	0	
2/3			Burned >30 years ago, or no evidence of a burn and no data.	1	

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A	В	С	D	E
F58	Visibility	The maximum percentage of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings, or		[PU, STR, WBFv]
274	,	public maintained trails that intersect, adjoin, or are within 100 m of the AA (select one) is:		
275		<25%.	0	
276		25-50%.	0	
277		>50%.	1	
278 F59	Non-consumptive	Assuming access permission was granted, select ALL statements that are true of the AA as it currently exists:	_	[PU, STR]
2/8	Uses - Actual or	For an average person, walking is physically possible in (not just near) >5% of the AA during most of the growing season, e.g., free of deep	0	
279	Potential	water and dense shrub thickets.	0	
200		Maintained roads, parking areas, or foot-trails are within 10 m of the AA, or the AA can be accessed part of the year by boats arriving via contiquous waters.	1	
280		Within or near the AA, there is an interpretive center, trails with interpretive signs or brochures, and/or regular guided interpretive tours.	0	
281		within of near the AA, there is an interpretive center, trains with interpretive signs of brochares, allow regular guided interpretive tours.	U	
F60	Unvisited Core Area	The percentage of the AA almost never visited by humans during an average growing season probably comprises: [Note: Only include the		[AM, FAv, FRv, PH, PU, SBM, STR, WBF, WBN]
		part actually walked or driven (not simply viewed from) with a vehicle or boat. Do not include visitors on trails outside of the AA unless more		
		than half the wetland is visible from the trails and they are within 30 m of the wetland edge. In that case include only the area occupied by		
282		the trail.]		
283		<5% and no inhabited building is within 100 m of the AA.	1	
284		<5% and inhabited building is within 100 m of the AA.	0	
285		5-50% and no inhabited building is within 100 m of the AA.	0	
286		5-50% and inhabited building is within 100 m of the AA.	0	
287		50-95%, with or without inhabited building nearby.	0	
288		>95% of the AA with or without inhabited building nearby.	0	
F61	Frequently Visited	The part of the AA visited by humans almost daily for several weeks during an average growing season probably comprises: <i> See note</i>		[AM, PH, PU, SBM, STR, WBF, WBN]
289	Area	above.		pany ry of some ry north
290		<5%. If F60 was answered ">95%" (mostly never visited), SKIP to F64.	1	
291		5-50%.	0	
292		50-95%.	0	
293		>95% of the AA.	0	
F62	BMP - Soils	Boardwalks, paved trails, fences or other infrastructure and/or well-enforced regulations appear to effectively prevent visitors from walking on	0	[PH, PU]
294		soil within nearly all of the AA when the soil is unfrozen. Enter "1" if true.		
F63	BMP - Wildlife	Fences, observation blinds, platforms, paved trails, exclusion periods, and/or well-enforced prohibitions on motorised boats, off-leash pets,	0	[AM, PU, WBF, WBN]
	Protection	and off road vehicles appear to effectively exclude or divert visitors and their pets from the AA at critical times in order to minimize		
295		disturbance of wildlife (except during hunting seasons). Enter "1" if true.		
296 F64	Consumptive Uses	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select ALL that apply.		[FAv, FRv, WBFv]
297	(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	1	
298	Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0	
299		Waterfowl hunting.	0	
300		Fishing.	0	
301		Trapping of furbearers.	0	
302		None of the above.	0	
303 F65	Domestic Wells	The closest wells or water bodies that currently provide drinking water are:		[NRv]
304		Within 0-100 m. of the AA.	0	
305		100-500 m. away.	0	1
306		>500 m. away, or no information.	1	
F66	Calcareous Fen	The AA is, or is part of, a calcareous fen. See the Plants_Calcar worksheet in the accompanying Supplnfo file for list of plant indicators		[PH, PR]
		(calciphiles). Enter 1 If more than two Strong or more than five Moderate calciphile species are present; otherwise enter 0, but if not able to		
307		identify those and no information, change to blank .		
308	•	•		•
11				

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stigator: Darcy Kavanagh & Jordan Davis	Site Identifier: WL33		Date: September 15, 2022			
ressor (S) Data Form for Non-Tida	Wetlands. WESP-AC for Nova	Scotia version 2.		Data		
Aberrant Timing of Water Inputs						
	to have caused the timing of water inputs (but not necessarily their (larger or more frequent spikes but over shorter times). [FA, FR, INV		uted (smaller or less frequent peaks spread over longer times,			
Stormwater from impervious surfaces that drains directly to the we	, ,	, rп, этк <u>ј</u>				
Water subsidies from wastewater effluent, septic system leakage,						
Regular removal of surface or groundwater for irrigation or other of						
<u> </u>	water body, or other control structure at water entry points that regul	ates inflow to the wetland.				
	n the wetland that interferes with surface or subsurface flow in/out					
Excavation within the wetland, e.g., dugout, artificial pond, dead-e						
Artificial drains or ditches in or near the wetland.	····					
Accelerated downcutting or channelization of an adjacent or interr	al channel (incised below the historical water table level).					
Logging within the wetland.	,,,,,,,,,					
Subsidence or compaction of the wetland's substrate as a result of	f machinery, livestock, fire, drainage, or off road vehicles.					
Straightening, ditching, dredging, and/or lining of tributary channe						
	low, assign points. However, if you believe the checked items had no	o measurable effect on the timing of water conditions in any part of	the AA, then leave the "0's" for the scores in the following			
	ndition if the checked items never occurred or were no longer prese					
	Severe (3 points)	Medium (2 points)	Mild (1 point)			
Spatial extent of timing shift within the wetland:	>95% of wetland.	5-95% of wetland.	<5% of wetland.	0		
When most of the timing shift began:	<3 yrs ago.	3-9 yrs ago.	10-100 yrs ago.	0		
	st 10 years, and only for the part of the wetland that experiences those.					
Input timing now vs. previously:	Shift of weeks.	Shift of days.	Shift of hours or minutes.	0		
Flashiness or muting:	Became very flashy or controlled.	Intermediate.	Became mildly flashy or controlled.	0		
			Sum=	0		
			Stressor subscore=	0.00		
Accelerated Inputs of Contaminants and/o	Salts					
In the last column, place a check mark next to any item occurring	in either the wetland or its CA that is likely to have accelerated th	e inputs of contaminants or salts to the AA. IAM. FA. PH. POL. STF	RI			
Stormwater or wastewater effluent (including failing septic system	· · · · · · · · · · · · · · · · · · ·	, , , , , , , , , , , , , , , , , , , ,	,			
	rage areas, oil/ gas extraction, other sources (download many locati	ions from National Pollutant Release Inventory and view KMZ overla	ay in Google Earth. https://www.ec.gc.ca/inrp-			
Road salt.						
Spraying of pesticides, as applied to lawns, croplands, roadsides,	or other gross in the CA					
1 3 3 1 11	or other areas in the CA. low, assign points. However, if you believe the checked items did no	at cumulatively expose the AA to cignificantly higher levels of center	pipants and/or salts, then leave the "O's" for the scores in the			
	ow, assign points. However, if you believe the checked helis did no ith the condition if the checked items never occurred or were no long		illiants and/or saits, then leave the US Toll the scores in the			
	Severe (3 points)	Medium (2 points)	Mild (1 point)			
Usual toxicity of most toxic contaminants:	Industrial effluent, mining waste, unmanaged landfill.	Cropland, managed landfill, pipeline or transmission rights-of- way.	Low density residential.	0		
Frequency & duration of input:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.	0		
AA proximity to main sources (actual or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.	0		
			Sum=	0		
Stressor subscore= 0.00						

Accelerated Inputs of Nutrients				
In the last column, place a check mark next to any item occurring	g in either the wetland or its CA that is likely to have accelerated the	inputs of nutrients to the wetland. [NRv, PRv, STR]		
Stormwater or wastewater effluent (including failing septic system	ns), landfills.			
Fertilizers applied to lawns, ag lands, or other areas in the CA.				
Livestock, dogs.				
Artificial drainage of upslope lands.				
If any items were checked above, then for each row of the table be effects, contrast the current condition with the condition if the chec	elow, assign points. However, if you believe the checked items did not ked items never occurred or were no longer present.	cumulatively expose the AA to significantly more nutrients, then le	eave the "0's" for the scores in the following rows. To estimate	
	Severe (3 points)	Medium (2 points)	Mild (1 point)	
Type of loading:	High density of unmaintained septic, some types of industrial sources.	Moderate density septic, cropland, secondary wastewater treatment plant.	Livestock, pets, low density residential.	
Frequency & duration of input:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.	
AA proximity to main sources (actual or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.	
Sun				
			Stressor subscore=	
Excessive Sediment Loading from Contrib	outing Area			
<u> </u>		are and importance in a the western different to CA IFA FD INIV DI	I CD., CTDI	
, , , , , , , , , , , , , , , , , , , ,	the CA that is likely to have elevated the load of waterborne or windbo	ine seament reaching the wettahu from its CA. [FA, FK, INV, Ph	, SKV, STKJ	
Erosion from plowed fields, fill, timber harvest, dirt roads, vegetat	ion clearing, tires.			
Erosion from construction, in-channel machinery in the CA.				
Erosion from off-road vehicles in the CA.				
Erosion from livestock or foot traffic in the CA.				
Stormwater or wastewater effluent.				
Sediment from road sanding, gravel mining, other mining, oil/ gas				
Accelerated channel downcutting or headcutting of tributaries due	e to altered land use.			
Other human-related disturbances within the CA.				
	elow, assign points (3, 2, or 1 as shown in header) in the last column. It te effects, contrast the current condition with the condition if the check		a significantly more sealment or suspended solids to the AA,	
	Severe (3 points)	Medium (2 points)	Mild (1 point)	
Erosion in CA:	osion in CA: Extensive evidence, high intensity.* Potentially (based on high-intensity* land use) or scattered evidence.			
Recentness of significant soil disturbance in the CA:	Current & ongoing.	1-12 months ago.	>1 yr ago.	
Duration of sediment inputs to the wetland:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.	
AA proximity to actual or potential sources:	0 - 15 m.	15-100 m.	In more distant part of contributing area.	
* high-intensity= extensive off-road vehicle use, plowing, grading, soil or sediment.	excavation, erosion with or without veg removal; low-intensity= veg r	removal only with little or no apparent erosion or disturbance of	Sum=	
.				

Soil or Sediment Alteration Within the Ass	essment Area						
In the last column, place a check mark next to any item present in the wetland that is likely to have compacted, eroded, or otherwise altered the wetland's soil. Consider only items occurring within past 100 years or since wetland was created or restored (whichever is less). [CS, INV, NR, PH, SR, STR]							
Compaction from machinery, off-road vehicles, livestock, or mou	ntain bikes, especially during wetter periods.						
Leveling or other grading not to the natural contour.							
Tillage, plowing (but excluding disking for enhancement of native	plants).						
Fill or riprap, excluding small amounts of upland soils containing	organic amendments (compost, etc.) or small amounts of topsoil impo	orted from another wetland.					
Excavation.							
Ditch cleaning or dredging in or adjacent to the wetland.							
Boat traffic in or adjacent to the wetland and sufficient to cause s	hore erosion or stir bottom sediments.						
Artificial water level or flow manipulations sufficient to cause eros	sion or stir bottom sediments.						
If any items were checked above, then for each row of the table be effects, contrast the current condition with the condition if the checket.	elow, assign points. However, if you believe the checked items did no cked items never occurred or were no longer present.	t measurably alter the soil structure and/or topography, then leave	the "O's" for the scores in the following rows. To estimate				
	Severe (3 points)	Medium (2 points)	Mild (1 point)				
Spatial extent of altered soil:	>95% of wetland or >95% of its upland edge (if any).	5-95% of wetland or 5-95% of its upland edge (if any).	<5% of wetland and <5% of its upland edge (if any).				
Recentness of significant soil alteration in wetland:	Current & ongoing.	1-12 months ago.	>1 yr ago.				
Duration:	Long-lasting, minimal veg recovery.	Long-lasting but mostly revegetated.	Short-term, revegetated, not intense.				
Timing of soil alteration:	Frequent and year-round.	Frequent but mostly seasonal.	Mainly during one-time or scattered events.				
		•	Sum=				
			Stressor subscore=	0			

Assessment Area (AA) Results:

Wetland ID: WL33

Date: September 15, 2022

Observer: Darcy Kavanagh & Jordan Davis

Latitude & Longitude (decimal degrees): 44.05543400083889, -64.87571159082009

Scores will appear below after data are entered in worksheets OF, F, and S. See Manual for definitions and descriptions of how scores were computed.

Wetland Functions or Other Attributes:	Function Score (Normalised)	Function Rating	Benefits Score (Normalised)	Benefits Rating	Function Score (raw)	Benefits Score (raw)
Water Storage & Delay (WS)	7.14	Moderate	4.40	Moderate	7.28	1.95
Stream Flow Support (SFS)	0.00	Lower	0.00	Lower	0.00	0.00
Water Cooling (WC)	5.38	Higher	0.00	Lower	3.58	0.00
Sediment Retention & Stabilisation (SR)	10.00	Higher	10.00	Higher	10.00	10.00
Phosphorus Retention (PR)	10.00	Higher	10.00	Higher	10.00	10.00
Nitrate Removal & Retention (NR)	10.00	Higher	10.00	Higher	10.00	10.00
Carbon Sequestration (CS)	4.14	Moderate			7.15	
Organic Nutrient Export (OE)	7.81	Higher			5.10	
Anadromous Fish Habitat (FA)	0.00	Lower	0.00	Lower	0.00	0.00
Resident Fish Habitat (FR)	0.00	Lower	0.00	Lower	0.00	0.00
Aquatic Invertebrate Habitat (INV)	4.54	Moderate	4.52	Moderate	5.34	3.68
Amphibian & Turtle Habitat (AM)	6.25	Moderate	4.70	Moderate	6.40	5.63
Waterbird Feeding Habitat (WBF)	5.50	Moderate	5.00	Moderate	4.19	5.00
Waterbird Nesting Habitat (WBN)	5.20	Moderate	5.00	Higher	3.77	5.00
Songbird, Raptor, & Mammal Habitat (SBM)	8.85	Higher	5.00	Moderate	7.71	5.00
Pollinator Habitat (POL)	9.34	Higher	3.33	Moderate	7.74	3.33
Native Plant Habitat (PH)	5.46	Moderate	6.26	Moderate	6.08	6.26
Public Use & Recognition (PU)			2.13	Moderate		1.76
Wetland Sensitivity (Sens)			10.00	Higher		5.97
Wetland Ecological Condition (EC)			7.39	Higher		8.75
Wetland Stressors (STR) (higher score means more stress)			7.66	Higher		3.86
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	7.14	Moderate	4.40	Moderate	7.28	1.95
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	9.27	Higher	10.00	Higher	9.64	10.00
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	6.12	Higher	3.01	Lower	4.43	2.45
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	4.82	Moderate	3.97	Moderate	4.64	4.38
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	8.61	Higher	5.56	Moderate	7.46	5.56
WETLAND CONDITION (EC)			7.39	Higher		8.75
WETLAND RISK (average of Sensitivity & Stressors)			8.83	Higher		4.92

NOTE: A score of 0 does not mean the function or benefit is absent from the wetland. It means only that this wetland has a capacity that is equal or less than the lowest-scoring one, for that function or benefit, from among all the NS calibration wetlands that were assessed previously.

NOVA SCOTIA - Functional WSS Interpretation Tool

3. Functional WSS Interpretation Results

Function-Benefit Product (FBP)	FBP SCORE	FBP SCORE CATEGORY
SUPPORT SUPERGROUP - HYDROLOGIC	31.42521693	Low
SUPPORT SUPERGROUP - WATER QUALITY SUPPORT	92.67174386	High
SUPPORT SUPERGROUP - AQUATIC SUPPORT	18.44184607	Low
HABITAT SUPERGROUP - AQUATIC HABITAT	19.14575635	Low
HABITAT SUPERGROUP - TRANSITION HABITAT	47.90737067	Low

3a. Functional WSS Determination: Automatic Method

Habitat Rule Satisfied? NO Support Rule Satisfied? NO Habitat/Support Hybrid Rule Satisfied? NO

CONCLUSION: Site is not a WSS

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	Mersey River Wind Farm - WL38
Investigator Name:	Darcy Kavanagh & Jordan Davis
Date of Field Assessment:	September 15, 2022
Nearest Town:	Milton, NS
Latitude (decimal degrees):	44.040309700765725
Longitude (decimal degrees):	-64.8378118097724
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	0.051
AA as percent of entire wetland (approx.). Attach sketch map if AA is smaller than the entire contiguous wetland.	100%
What percent (approx.) of the wetland were you able to visit?	100%
What percent (approx.) of the AA were you able to visit?	100%
Were you able to ask the site owner/manager about any of the questions?	No
Indicate here if you intentionally surveyed for rare plants, calciphile plants, or rare animals:	Yes
Have you attended a WESP-AC training session? If so, indicate approximate month & year.	No
How many wetlands have you assessed previously using WESP-AC? (approx.)	50+
Comments about the site or this WESP-AC assessment (attach extra page if desired):	

	Α	В	С	D E	
	Date: S	September 15, 2022	Site Identifier: WL38	Investigator: Darcy Kavanagh & Jordan Davis	
1					

Form OF (Office). Non-tidal Wetland Data Form. WESP-AC version 2 for Nova Scotia wetlands only. DIRECTIONS: Conduct an assessment only after reading the accompanying Manual and the Explanations column of the data form. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answering many of the questions below will require using these online map viewers:

Google Earth Pro: https://www.google.com/earth/download/gep/agree.html

Provincial Landscape Viewer: https://nsgi.novascotia.ca/plv/

For most wetlands, completing this office data form will require 1-2 hours. For a list of functions to which each question pertains, see bracketed abbreviations in the Definitions/Explanations column. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Manual. Codes for functions and values are: WS= Water Storage, SFS= Stream Flow Support, WC= Water Cooling, SR= Sediment Retention & Stabilisation, PR= Phosphorus Retention, NR= Nitrate Removal, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate Habitat, FA= Anadromous Fish Habitat, FR= Resident Fish Habitat, AM= Amphibian & Reptile Habitat, WBF= Feeding Waterbird Habitat, WBN= Nesting Waterbird Habitat, SBM= Songbird, Raptor, & Mammal Habitat, POL= Pollinator Habitat, PH= Native Plant Habitat, PU= Public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= Stressors.

3	#	Indicators	Condition Choices	Data	Definitions/Explanations
4	OF1	Province	Mark the province in which the AA is located by changing the 0 in the column next to it to a "1". Mark only one.		This determines to which province's calibration wetlands the raw score of any wetland is normalised. In the function and benefits models, it also triggers the automatic exclusion of indicators for which no
5			New Brunswick	0	spatial data exists in a particular province.
6			Nova Scotia	1	
7			Prince Edward Island	0	
8			Newfoundland-Labrador	0	
9	OF2	Ponded Area Within 1 km.	The area of surface water ponded during most of the growing season that is both (1) in or adjacent to the AA and (2) within 1 km is:		"Adjacent" means not separated from the AA by a wide expanse (>50 m) of upland (including roads >50 m wide). Include ponded areas likely to be hidden by wetland vegetation. If surface water
10			<0.01 hectare (about 10 m x 10 m).	1	extends beyond 1 km, include only the part within 1 km. Do not include tidal areas. Measure the area from aerial imagery using Google Earth Pro (click on Ruler icon in toolbar, then Polygon in pop-
11			0.01 - 0.1 hectare.	0	up menu). [PH, SBM, WBN]
12			0.1 - 1 hectare.	0	ap money. [: 11] obini moni
13			1 to 10 hectares.	0	
14			10 to 100 hectares.	0	
15			>100 hectares.	0	
	OF3	Ponded Water &	The area of wetlands and surface water ponded during most of the growing season that is both (1) in or adjacent to the AA and (2) within		See definition of adjacent in OF2. If the AA's wetland vegetation extends beyond 1 km, include only
16		Wetland Within 1 km.	1 km is:		the part within 1 km. "Ponded" means not flowing in rivers or streams. [Sens, WBF]
17			<0.01 hectare (about 10 m x 10 m).	0	
18			0.01 - 0.1 hectare.	1	
19			0.1 - 1 hectare.	0	
20			1 to 10 hectares.	0	
21			10 to 100 hectares.	0	
22			>100 hectares.	0	
23	OF4	Size of Largest Nearby Vegetated Tract or	The largest vegetated patch or corridor that includes the AA's vegetation plus alladjacent upland vegetation that is not lawn, row crops, heavily grazed lands, conifer plantation is:		See definition of adjacent in OF2. Use Google Earth Pro's polygon ruler (as described above). Exclude conifer plantations only if it is obvious that trees were planted in rows. [AM, PH, SBM, Sens]
24		Corridor	<0.01 hectare (about 10 m x 10 m).	0	
25			0.01 - 0.1 hectare.	0	
26			0.1 - 1 hectare.	0	
27			1 to 10 hectares.	0	
28			10 to 100 hectares.	0	
29			100 to 1000 hectares.	0	
30			>1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	1	

	Α	В	С	D	E
	OF5	Distance to Large	The minimum distance from the edge of the AA to the edge of the closest vegetated land (but excluding row crops, lawn, conifer		To measure distance, use Google Earth Pro (Ruler > Line tool). The 375-ha criterion is from the
31		Vegetated Tract	plantation) larger than 375 hectares (about 2 km on a side), is:		Fundy Model Forest Project. [AM, PH, POL, SBM, Sens]
			<50 m, and not separated from the 375-ha vegetated area by any width ofpaved roads, stretches of open water, row crops, bare ground,	1	
			lawn, or impervious surface. Or the AA itself contains >375 ha of vegetation. [This is often the answer in relatively undeveloped	·	
32			landscapes.]		
			<50 m, but completely separated from the 375-ha vegetated area by those features, and AA does not contain >375 ha of vegetation.	0	
33					
34			50-500 m, and not separated.	0	
35			50-500 m, but separated by those features.	0	
36			0.5 - 5 km, and not separated.	0	
37			0.5 - 5 km, but separated by those features.	0	
38			None of the above (the closest patches or corridors which are that large are >5 km away).	0	
	OF6	Herbaceous Uniqueness	The AA's vegetation cover is >10% herbaceous* but uplands within 5 km have <10% herbaceous cover. If so, enter "3" and continue to	1	For this question only, consider moss to be herbaceous vegetation. Determine the score by viewing
			OF7. If not, consider:		aerial imagery in Google Earth after successively drawing or estimating the boundaries of the buffers
			The AA's vegetation cover is >10% herbaceous* but uplands within 1 km have <10% herbaceous cover. If so enter "2" and continue to OF7. If not, consider:		of 5 km, 1 km, and 100 m radius focused on the center of the AA. Circles of specified radius can be drawn in Google Earth Pro by clicking on the Ruler icon, then Circle in the pop-up menu. [AMv, PHv,
			The AA's vegetation cover is >10% herbaceous* but uplands within 100 m of the wetland edge have <10% herbaceous cover. If so, enter		POLv. SBMv. WBFv. WBNvl
			ngn		
			[* NOTE: Exclude lawns, row crops, heavily grazed lands, forest, shrublands. Include moss as well as grasslike plants in this use of		
39			"herbaceous vegetation"]		
	OF7	Woody Uniqueness	The AA's vegetation cover is >10% woody* but uplands within 5 km have <10% woody cover. If so, enter "3" and continue to OF8. If not,	1	See above. Do not consider conifer plantations to be forest if it is obvious that trees were planted in
			consider:		rows. [AMv, PHv, POLv, SBMv]
			The AA's vegetation is >10% woody* but uplands within 1 km have <10% woody cover. If so enter "2" and continue to OF8. If not, consider:		
			The AA's vegetation is >10% woody* but uplands within 100 m of the wetland edge have <10% woody cover. If so, enter "1"		
40			[* NOTE: woody cover = trees & shrubs taller than 1 m.]		
	OF8	Local Vegetated Cover	Draw a 5-km radius circle measured from the center of the AA. Ignoring all permanent water in the circle, the percent of the remaining are		In Google Earth, draw the 5 km buffer and then estimate land cover percentages, or do GIS analysis
		Percentage	that is wooded or unmanaged herbaceous vegetation (NOT lawn, row crops, bare or heavily grazed land, clearcuts, or conifer plantations)		of an appropriate land cover layer. [AM, PH, POL, SBM, Sens]
41			is:		
42			<5% of the land.	0	
43			5 to 20% of the land.	0	
44			20 to 60% of the land.	1	
45			60 to 90% of the land.	0	
46			>90% of the land. SKIP to OF10.	0	
47	OF9	Type of Land Cover	Within the 5-km radius circle, and ignoring all permanent water, the land area that is bare or non-perennial cover is mostly:		[AM, SBM]
48		Alteration	Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0	
49			Bare pervious surface, e.q., lawn, recent (<5 yrs ago) clearcut, dirt or gravel road, cropland, landslide, conifer plantation.	1	
	OF10	Distance by Road to	Measured along the maintained road nearest the AA, the distance to the nearest population center is:		"Population center" means a settled area with more than about 5 regularly- inhabited structures per
50		Nearest Population			square kilometer. In Google Earth Pro, click on the Ruler icon, then Path, and draw and measure the
51		Center	<100 m.	0	route. [FAv, FRv, NRv, PH, PU, SBM, WBFv]
52			100 - 500 m.	0	
53			0.5-1 km.	0	
54			1 - 5 km.	1	
55			>5 km.	0	

	А	В	С	D	E
-	OF11	Distance to Nearest	From the center of the AA, the distance to the nearest maintained public road (dirt or paved) is:		Determine this by viewing aerial imagery in Google Earth Pro and measuring with the Ruler>Line tool
56		Maintained Road	<10 m.	0	[AM, FAv, FRv, NRv, PH, PU, SBM, STR, WBN]
57			10 - 25 m.	0	-
58			25 - 50 m.	0	-
59			50 - 100 m.	0	-
60			100 - 500 m.	0	-
62			>500 m.	1	-
02	OF12	Wildlife Access	Draw a circle of radius of 5 km from the center of the AA. If mammals and amphibians can move from the center of the AA to ALL other	'	Draw the 5 km circle in Google Earth Pro using the Circle tool and search for roads and wetlands
63		vviidine / teeess	separate wetlands and ponds located within the circle without being forced to cross pavement (any width), lawns, bare ground, and/or marine waters, mark 1= yes can move to all, 0= no. Change to blank if there are no other wetlands within 5 km.	0	within it, being alert for roads hidden under forest canopy. [AM, SBM, STR]
64	OF13	Distance to Ponded	The distance from the AA center to the closest (but separate) ponded water body visible in GoogleEarth imagery is:		In Google Earth Pro, zoom in closely to examine the surrounding landscape for ponds, lakes, and wetlands that appear to be permanently flooded. [AM, PH, SBM, Sens, WBF, WBN]
65		Water	<50 m, and not separated by any width of paved roads, stretches of open water, row crops, lawn, bare ground, or impervious surface.	0	- wettands that appear to be permanently nooded. [AM, PH, SBM, Sens, WBF, WBM]
66			<50 m, but completely separated by those features.	0	1
67			50-500 m, and not separated.	1	1
68			50-500 m, but separated by those features.	0	1
69			0.5 - 1 km, and not separated.	0	1
70			0.5 - 1 km, but separated by those features.	0	1
71			None of the above (the closest patches or corridors that large are >1 km away).	0	
72		Distance to Large Ponded Water	The distance from the AA center to the closest (but separate)non-tidal body of water that is ponded during most of the year and islarger than 8 hectares during most of a normal year is:		Determine this by viewing aerial imagery in Google Earth. [Sens, WBF, WBN]
73			<100 m.	0	
74			100 m - 1 km.	1	1
75			1 -2 km.	0	
76			2-5 km.	0	
77			5-10 km.	0	
78			>10 km.	0	
79	OF15	Tidal Proximity	The distance from the AA edge to the closest tidal water body (regardless of its salinity) is:		In Google Earth, measure the distance to the ocean (including Bay of Fundy) or tidal river, whichever is closer. If you need to see how far upriver a river is tidal, see the KMZ file provided with this
80			<100 m.	0	calculator for NS (NS Headtide). Points shown in those files are only an approximation, so local
81			100 m - 1 km.	0	information if available may be preferable. [FA, WBF]
82			1 - 5 km.	0	
83			5-10 km.	1	
84			10-40 km.	0	
85			>40 km.	0	
86	OF16	Upland Edge Contact	Select one:		[NR, SBM, Sens]
87			The AA has no upland edge (or upland is <1% of perimeter). The AA is entirely surrounded by (& contiguous with) other wetlands or water	0	
88			1-25% of the AA's perimeter abuts upland (including filled areas). The rest adjoins other wetlands or water that is mostly wider than the AA	0	
89			25-50% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0	_
90			50-75% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0	_
91			More than 75% of the AA's perimeter abuts upland. Any remainder adjoins other wetlands or water that is mostly wider than the AA. This will be true for most assessments done with WESP-AC.	1	

	Α	В	С	D	E
	DF17		Within 5 km downstream or downslope of the AA (select first true choice):		Contact local authories to determine if such maps exist. Where available, LiDAR imagery can
92		tidal Waters			provide finer elevational resolution useful for flood modeling. [WSv]
			Maps show Flood Zone or Flood Risk areas and there appears to be infrastructure vulnerable to river flooding not caused by tidal storm	0	
93			surges.		
			Maps show Flood Zone or Flood Risk areas, but infrastructure is absent or is not vulnerable to floods from a non-tidal river. In some cases	0	
94			levees, upriver dams, or other measures may partly limit damage or risk from smaller events.		
			Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure	0	
95			vulnerable to river flooding unrelated to tidal storm surges.		
0.6			Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there is no infrastructure vulnerable	1	
96)F10	D	to river flooding unrelated to tidal storm surges.		[FA ND C
1		Relative Elevation in Watershed	In Google Earth, enable the Terrain layer (lower left menu) and open the NS_Watersheds Secondary KMZ file that accompanies this		[FA, NR, Sens, SFSv, WCv, WSv]
		WaterStieu	calculator. Then determine the AA's approximate elevation (bottom right, NOT the "eye alt"). Then move cursor around to determine the watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-min).	0.90	
97			, , , , , , , , , , , , , , , , , , ,		
()F19	Water Quality Sensitive	The AA is in a Protected Water Supply area (Designated Water Supply Area, Natural Watershed Municipal Surface Water Supply Area, or	0	If an ACCDC report is available for this AA, it also may contain such information. [NRv]
98		Watershed or Area	Municipal Water Supply Area) according to the provided KMZ overlay ("NS Protected Water Supply Areas"). Enter 1= yes, 0= no.		
()F20	Degraded Water	Sampling indicates a problem with concentrations of metals, hydrocarbons, nutrients, or other substances (excluding bacteria, acidic		May use existing data, or sample those waters as part of this wetland assessment. "Harmful" should
99		Upstream	water, high temperatures) being present at levels harmful to aquatic life or humans, and:		be evaluated with regard to current federal or provincial water quality standards. [AM, FA, FR, NRv,
100			The condition is present within the AA.	0	PRv, SRv, STR, WBF, WBN]
101			The condition is present in waters within 1 km that flowinto the AA, but has not been documented in the AA itself.	0	
101			Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in either the AA or inflowing	0	
102			waters.		
102			Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the situation for nearly	1	
103			all wetlands in this region.		
104		Degraded Water	The problem described above is downslope from the AA, and:		May use existing data, or monitor waters as part of this wetland assessment. [NRv, PRv, SRv]
105		Downstream	The condition is present within 1 km downslope and connected to the AA by a channel.	0	
100			The condition is present within 5 km downslope and connected to the AA by a channel, or within 1 km but not connected to the AA by a	0	
106			channel.		
			Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in either the AA or inflowing	0	
107			waters.		
			Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the situation for nearly	1	
108			all wetlands in this region.		
()F22	Wetland as a % of Its	From a topographic map and field observations, estimate the approximate boundaries of the catchment (CA) of the entire wetland of which		Topographic maps may be viewed online at the National Atlas of Canada (Toporama):
		Contributing Area	the AA may be only a part. Then adjust those boundaries if necessary based on your field observations of the surrounding terrain, and/or		http://atlas.gc.ca/toporama/en/index.html [NR, PR, Sens, SR, WS]
		(Catchment)	by using procedures described in the Manual. Divide the area of the wetland (not just the AA) by the approximate area of its catchment		
			excluding the area of the wetland itself. When doing the calculation, if ponded water is adjacent to the wetland, include that in the wetland		
109			area. The result is:		
110			<0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	0	
111			0.01 to 0.1.	1	
112			0.1 to 1.	0	
			>1 (wetland is larger than its catchment (e.g., wetland with flat surrounding terrain and no inlet, or is entirely isolated by dikes, or is a raised	0	
113			bog).		
)F23	Unvegetated Surface in	The proportion of the AA's contributing area (measured to no more than 1000 m upslope) that is comprised of buildings, roads, parking lots		[FA, INV, NRv, PRv, SRv, STR, WCv, WSv]
114		the Contributing Area	other pavement, exposed bedrock, landslides, and other mostly-bare surface is about :		
115			<10%.	1	
116			10 to 25%.	0	
117			>25%.	0	
-17					

	Α	В	С	D	E
	OF24	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as		[NRv, PRv, SRv, WSv]
			indicated by the following:		
			(a) input channel is present,		
			(b) input channels have been straightened,		
			(c) upslope wetlands have been ditched extensively,		
			(d) land cover is mostly non-forest,		
			(e) CA slopes are steep, and/or (f) most CA soils are shallow (bedrock near surface) and/or have high runoff coefficients.		
			(i) most CA soils are shallow (bedrock freat surface) and/or have high runoit coefficients. This statement is:		
118			This statement is.		
119			Mostly true.	0	
120			Somewhat true.	0	
121			Mostly untrue.	1	
	OF25	Aspect	The overland flow direction of most surface water (in streams, rivers, or runoff) that enters the AA is:		[AM, NR, SFS, WC, WS]
122			Y Y		[,,,]
123			Northward (N, NE). north-facing contributing area.	1	
124			Southward (S, SW). south-facing contributing area.	0	
125			Other (E, SE, W, NW), or no detectable uphill slope or input channel (flat).	0	
126	OF26	Internal Flow Distance	The horizontal flow distance from the wetland's inlet to outlet is:		Identify inlets and outlets, if any, from topographic maps (use elevations to determine which are inlets
127		(Path Length)	<10 m.	0	and which are outlets) and augment by field inspection. With the Provincial Landscape Viewer, select
-			10 - 50 m.	0	Nova Scotia Topo as the Basemap. Also enable the layer Forestry>WAM Predicted Flow. Then
128			50 - 100 m.	0	measure the inlet-outlet distance. [NR, OE, PR, SR, WS]
129			100 - 1000 m.	0	
130			***************************************		
131			1- 2 km.	0	
132	0507	0 1 0 0	>2 km, or wetland lacks an inlet and outlet.	ı	
	OF27	Growing Degree Days	In Google Earth, open the KMZ file that accompanies this calculator, called NS_GrowingDegreeDays. Place your cursor over the AA and	2208	This layer was provided by Dr. Dan McKenney of the Canadian Forest Service [AM, CS, FR, INV,
133			left-click. From the pop-up window, enter the GRIDCODE number in the next column.		NR, OE, PH, PR, Sens, SR, WBF, WCv, WS]
134	OF28	Fish Access or Use	According to agency biologists and/or your own observations, the AA. [Mark just the first choice that is true.]:		Regarding the last choice, if uncertain if an AA is fishless, consider the possibility its waters have been stocked. [AM, FA, FR, INV, WBF, WBN]
			Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. Go to Provincial Landscape	0	been stocked. [Alvi, FA, FIX, WOF, WON]
			Viewer>Wildlife>Significant Habitat>Species at Risk. Contact local fishery biologists, review the ACCDC report, and visit these websites:		
135			http://www.salmonatlas.com/atlanticsalmon/canada-east/index.1.html http://atlanticsalmonfederation.org/rivers/introduction.html		
			Has not been documented to support Atlantic salmon rearing and/or spawning, but is connected to nearby waters likely to contain Atlantic	0	
136			salmon or other anadromous species or eels and is probably accessed by those during some conditions.		
137			Is probably is not accessed by any anadromous fish species but is known or likely to have other fish at least seasonally.	0	
138			Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	1	
	OF29	Species of Conservation	Within the past 10 years, in the AA (or in its adjoining waters or wetland), qualified observers have documented[mark all applicable]:		Request information from ACCDC and/or conduct your own survey at an appropriate season using ar
139		Concern			approved protocol. For birds, also check eBird.org. NOTE for NS: If your WESP-AC is being
			Presence of one or more of the plant species listed in the Plants_Rare worksheet of the accompanying SuppInfo file, or the AA is within a	0	completed for a Wetland Alteration Application to NS-ECC, your ACCDC results and any taxon-
			mapped Atlantic Coastal Plain Flora Buffer (go to Provincial Landscape Viewer> Wildlife> Special Management Practice Zones).		specific survey results must be submitted along with your WESP-AC results, and application. [AMv, EC, PHv, POLv, SBMv, Sens, WBFv, WBNv]
140					EC, FTIV, FOLV, SBIVIV, SCIIS, WDI V, WDIVV]
			Presence of one or more of the amphibian or reptile species (AM) of conservation concern as listed in the Wildlife_Rare worksheet of the	0	
141			accompanying SuppInfo file.		
			Presence of one or more of the waterbird species (WBF, WBN) of conservation concern as listed in the Wildlife_Rare worksheet of the	0	
142			accompanying Supplnfo file.		
			Presence of one or more of the nesting songbird or raptor species (SBM) of conservation concern as listed in the Wildlife_Rare	0	
143			worksheet of the accompanying Supplnfo file, during their nesting season (May-July for most species).	- 4	
144			None of the above, or no data.	- 1	

	A	В	С	D	E
145		Important Bird Area (IBA)	In Google Earth, open the KMZ file that accompanies this calculator, called IBAs_Canada. The AA is all or part of an officially designated IBA. Enter 1= yes, 0= no.	0	The source of this layer, which should be checked periodically for updates, is: http://www.ibacanada.com/mapviewer.jsp?lang=EN [SBMv, WBFv, WBNv]
146		Black Duck Nesting Area	In Google Earth, open the KMZ file that accompanies this calculator, called BlackDuck. Adjust its alignment and opacity. Determine the predicted density (pairs per 25 sq. km) of nesting American Black Duck in the AA's vicinity: <10 (enter 0), 10-20 (enter 1), 20-30 (enter 2), >30 (enter 3). If outside of region shown in map, change toblank.	0	This was provided by Dr. David Leske. [WBNv]
147		Wintering Deer or Moose Concentration Areas	If AA is on private land with no information, change toblank (not 0). Otherwise: With the Provincial Landscape Viewer, for Wintering Moose, go to Wildlife> Significant Habitat. For Mainland Moose Concentration Areas, go to Wildlife> Special Management Practice Zones Enter: yes= 1, no= 0.	0	[SBM]
148		Other Conservation Designation	The AA is all or part of an area designated by government, First Nations, or the Nature Conservancy of Canada (NCC) for its exceptional ecological features or highly intact natural conditions. With Provincial Landscape Viewer, see Protected Areas. Enter: yes= 1, no= 0. If uncertain, consult NCC and agencies for more recent information.	0	See: https://novascotia.ca/parksandprotectedareas/plan/interactive-map/ [PU]
149		Conservation Investment	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance the wetland (excluding mitigation wetlands). Ask the property owner. Enter: yes= 1, no= 0. If no information, change tollank (not 0).	0	[PU]
150		Mitigation Investment	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere. Ask the property owner. Enter: yes= 1, no= 0. If no information, change to blank .	0	[PU]
151		Sustained Scientific Use	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area. Ask the property owner. Enter: yes= 1, no= 0. If no information, change toblank.	0	[PU]
152		Calcareous Region	The AA is NOT in a subregion that has been heavily exposed to acid precipitation. Enter "1" if true (green or yellow in map in Appendix A o the Manual). Enter "0" if false. If no information, change toblank.	0	[AM, FA, FR, INV, PH]
153		Ownership	Select the ONE ownership that covers the most of the AA. In Google Earth, open KMZ file called NS_CrownlandsUse more recent information if available.		"Private lands" may include those owned or leased by non-governmental organizations, e.g., charitable conservation land trusts, DUC, TNC. [PU, STR]
154			New timber harvest, roads, mineral extraction, and intensive summer recreation (e.g., off-road vehicles) are permanently prohibited. Includes many publicly-owned Protected Lands, and private lands under long-term (30+ year) legal agreements to maintain nearly- unaltered conditions.	0	
155			Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are allowed.	1	
156	-		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable or not) is in place.	0	
157			Ownership is private and owner does not allow access, or access permission unknown, and not a conservation easement.	0	

	Α	В	С	D	E
	Date: S	September 15, 2022	Site Identifier: WL38	Investiga	tor: Darcy Kavanagh & Jordan Davis
1					

Form F (Field). Non-tidal Wetland Data Form. WESP-AC version 2 for Nova Scotia. DIRECTIONS: Walk for no less than 10 minutes from the wetland edge towards its core, in the part of the AA that is proposed for alteration. If no alteration is proposed, walk in a portion that appears to be most representative of the wetland overall. Walk only where it is safe and legal to do so. Conduct the assessment only after reading the accompanying Manual and the Explanations column of the data form. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgable persons, and/or reviewing aerial imagery. For most wetlands, completing this field data form will require 1-2 hours on a site. For a list of functions to which each question pertains, see the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Manual. Codes for functions and values are: WS= Water Storage & Delay, SFS= Stream Flow Support, WC= Water Cooling, SR= Sediment Retention & Stabilisation, PR= Phosphorus Retention, NR= Nitrate Removal, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate Habitat, FA= Anadromous Fish Habitat, FR= Resident Fish Habitat, AM= Amphibian & Reptile Habitat, WBF= Feeding Waterbird Habitat, WBN= Nesting Waterbird Habitat, SBM= Songbird, Raptor, & Mammal Habitat, POL= Pollinator Habitat, PH= Native Plant Habitat, PU= Public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= Stressors.

3	#	Indicators	Condition Choices	Data	Definitions/Explanations
5	F1	Wetland Type	Follow the key below and mark the ONE row that best describes MOST of the vegetated part of the AA: A. Moss and/or lichen cover more than 25% of the ground. Often dominated by ericaceous shrubs (e.g., Labrador tea) or other acid-tolerant plants (e.g., bog cranberry, pitcher plant, sundew, orchids). Substrate is mostly undecomposed peat. Choose between A1 and A2 and mark the choice with a 1 in their adjoining column. Otherwise go to B below.		Ericaceous shrubs are ones in the heather family (Ericaceae). Most have leathery evergreen leaves. They include rhododendron, azalea, swamp laurel, leatherleaf, Labrador tea, and others. Most require acidic soil. Although not in the family Ericaceae, sweetgale (<i>Myrica gale</i>) should be counted also. [AM, CS, FA, FR, INV, NR, OE, PH, Sens, SFS, WBF, WBN]
6			A1. Surface water is usually absent or, if present, pH is typically <4.5 and conductivity is usually <100 µS/cm (<64 ppm TDS). Trees are absent or nearly so. Sedge cover usually sparse or absent but cottongrass and/or lichen cover may be extensive, as well as cloudberry, lingonberry, sheep laurel, and a sedge (<i>Carex rariflora</i>). Wetland surface and surrounding landscape are seldom sloping and wetland often is domed (convex). Inlet and outlet channels are usually absent. If known, pH of peat is <4.0.	0	
7			A2. Not A1. Surface water, if present, has pH typically >4.5 and conductivity is usually >100 μS/cm (>64 ppm TDS). Sedge cover is usually extensive, and/or tree and tall shrub cover is extensive. Sometimes at toe of slope or edge of water body. An exit channel is usually present. Wetter than A1 and peat depth may be shallower (<2 m).	1	
8			B. Moss and/or lichen cover less than 25% of the ground. Soil is mineral or decomposed organic (muck). Choose between B1 and B2 and mark the choice with a 1 in their adjoining column:		
9			B1. Trees and shrubs taller than 1 m comprise more than 25% of the vegetated cover. Surface water is mostly absent or inundates the vegetation only seasonally (e.g., vernal pools or floodplain).	0	
10			B2. Not B1. Tree & tall shrubs comprise less than than 25% of the vegetated cover. Vegetation is mostly herbaceous, e.g., cattail, bulrush, burreed, pond lily, horsetail. Surface water may be extensive and fluctuates seasonally, being either persistent or drying up partly or entirely.	0	
11	bulrush, burreed, pond lily, horsetail. Surface water may be extensive and fluctuates seasonally, being either persistent or drying up pa				
12		Wetland Types - Adjoining or Subordinate	If the AA is smaller than 1 ha, mark all other types that occupy more than 1% of the vegetated AA. If the AA is larger than 1 ha, mark all other types which are within or adjacent to the AA and occupy more than 1 ha, as visible from the AA or as interpreted from aerial imagery. Do not mark again the type marked in F1.		1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m, 1000 m by 10 m, or similar. [AM, INV, SBM, WBF]
13			A1. A2.	0	
15			B1.	1	
16			B2.	0	

FieldF form - Non-tidal Page 1 of 9

	Α	В	С	D	E
	F3	Woody Height & Form	Following EACH row below, indicate with a number code the percentage of the living vegetation in the AA which is occupied by that feature		Deciduous shrubs in this region usually include buttonbush, Labrador tea, bayberry (Morella),
		Diversity	(6 if >95%, 5 if 75-95%, 4 if 50-75%, 3 if 25-50%, 2 if 5-25%, 1 if <5%, 0 if none). If the vegetated part of the AA is largely herbaceous (non-		huckleberry, cranberry, cloudberry, sweetgale, alder, willow, birch, ash, dogwood, and a few others. If
17			woody) vegetation, these percentages should not sum to 100%.		you assigned a code of 3 or higher to any of the first four choices and the ground cover beneath the
18			coniferous trees (may include tamarack) taller than 3 m.	5	trees/shrubs is <25% moss, then question F1 might be "B1". [CS, INV, NR, PH, POL, SBM, Sens]
19			deciduous trees taller than 3 m.	3	
20			coniferous or ericaceous shrubs or trees 1-3 m tall not directly below the canopy of trees.	2	
21			deciduous shrubs or trees 1-3 m tall not directly below the canopy of trees.	2	
22			coniferous or ericaceous shrubs <1 m tall not directly below the canopy of taller vegetation.	1	
23			deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	1	
24	Note :	If none of top 4 rows in	n F3 was marked 2 or greater, SKIP to F9 (N fixers).		
25	F4	Dominance of Most	Determine which two woody plant species comprise the greatest portion of the low (<3 m) woody cover . Then choose one:		[PH, POL, SBM, Sens]
26		Abundant Shrub	those species together comprise > 50% of such cover.	0	
27		Species	those species together do not comprise > 50% of such cover.	1	
	F5	Woody Diameter	Mark ALL the types that comprise >5% of the woody canopy cover in the AA or >5% of the wooded areas (if any) along its upland edge		Estimate the diameters at chest height. If small-diameter trees are overtopped (shaded) by larger
28		Classes	(perimeter). The edge should include only the trees whose canopies extend into the AA.		ones, visualise a "subcanopy" at the average height of the smaller-dbh trees, to serve as a basis for the
29	9		coniferous, 1-9 cm diameter and >1 m tall.	1	minimum 5% canopy requirement in this question. The trees and shrubs need not be wetland species.
30			broad-leaved deciduous 1-9 cm diameter and >1 m tall.	1	[AM, CS, POL, SBM, Sens, WBN]
31			coniferous, 10-19 cm diameter.	1	
32			broad-leaved deciduous 10-19 cm diameter.	1	
33			coniferous, 20-40 cm diameter.	1	
34			broad-leaved deciduous 20-40 cm diameter.	1	
35			coniferous, >40 cm diameter.	0	
36			broad-leaved deciduous >40 cm diameter.	0	
37	F6	Height Class	Follow the key below and mark the ONE row that best describes MOST of the AA:		[AM, INV, NR, PH, SBM, Sens]
3,		Interspersion	A. Neither the vegetation taller than 1 m nor the vegetation shorter than that comprise >70% of the vegetated part of the AA. They each		
			comprise 30-70%. Choose between A1 and A2 and mark the choice with a 1 in the adjoining column. Otherwise go to B below.		
38					
39			A1. The two height classes are mostly scattered and intermixed throughout the AA.	0	
40			A2. Not A1. The two height classes are mostly in separate zones or bands, or in proportionately large clumps.		
			B. Either the vegetation shorter than 1 m comprises >70% of the vegetated part of the AA, or the vegetation taller than that does. One size		
41			class might even be totally absent. Choose between B1 and B2 and mark the choice with a 1 in the adjoining column:		
42			B1. The less prevalent height class is mostly scattered and intermixed within the prevalent one.	1	
			B2. Not B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is completely	0	1
43			absent.		
44	F7	Large Snags (Dead	The number of large snags (diameter >20 cm) in the AA plus adjacent upland area within 10 m of the wetland edge is:		Snags are dead standing trees that often (not always) lack bark and foliage. Include only ones that are at least 2 m tall. [POL, SBM, WBN]
45		Standing Trees)	None, or fewer than 8/ hectare which exceed this diameter.	1	at Icast 2 III tall. [FUL, SDIVI, WDIV]
46			Several (>8/hectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km.	0]
47			Several (>8/hectare) but above not true.	0	
48	F8	Downed Wood	The number of downed wood pieces longer than 2 m and with diameter >10 cm, and not persistently submerged, is:		Exclude temporary "burn piles." [AM, INV, POL, SBM]
49			Few or none that meet these criteria.	1	
50			Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria.	0	1
	F9	N Fixers	The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa, other legumes)		Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
51			is:		
52			<1% or none.	0	1
53			1-25% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	1
54			25-50% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	1
55			50-75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	1
56			>75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	1

FieldF form - Non-tidal Page 2 of 9

	Α	В	С	D	E
	F10	Sphagnum Moss	The cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured by taller		Exclude moss growing on trees and rocks. [CS, PH]
57		Extent	sedges and other plants rooted in it, is:		
58			<5% of the vegetated part of the AA.	1	
59			5-25% of the vegetated part of the AA.	0	
60			25-50% of the vegetated part of the AA.	0	
61			50-95% of the vegetated part of the AA.	0	
62			>95% of the vegetated part of the AA.	0	
	F11	% Bare Ground &	Consider the parts of the AA that lack surface water at the driest time of the growing season. Viewed from directly above the ground layer, the		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that is
63		Thatch	predominant condition in those areas at that time is:		present under a tree or shrub canopy should be counted. Boulders count as bare ground. Wetlands
33		•	Little or no (<5%) bare ground is visible between erect stems or under canopy anywhere in the vegetated AA. Ground is extensively	1	with mineral soils and that are heavily shaded or are dominated by annual plant species tend to have
			blanketed by dense thatch, moss, lichens, graminoids with great stem densities, or plants with ground-hugging foliage.		more extensive areas that are bare during the early growing season. [AM, EC, INV, NR, OE, POL, PR,
64					SBM, Sens]
			Slightly bare ground (5-20% bare between plants) is visible in places, but those areas comprise less than 5% of the unflooded parts of the	0	
65			AA.		
			Much bare ground (20-50% bare between plants) is visible in places, and those areas comprise more than 5% of the unflooded parts of the	0	
66			AA.		
67			Other conditions.	0	
68			Not applicable. Surface water (either open or obscured by emergent plants) covers all of the AA all the time.	0	
[F12	Ground Irregularity	Imagine the AA without any living vegetation. Excluding the portion of the AA that is always under water, the number of hummocks, small		The depressions may be of human or natural origin. [AM, EC, INV, NR, PH, POL, PR, SBM, SR, WS]
			pits, raised mounds, animal burrows, ruts, gullies, natural levees, microdepressions, and other areas of peat or mineral soil that are raised or		
69			depressed >10 cm compared to most of the area within a few meters surrounding them is:		
70			Few or none (minimal microtopography; <1% of the land has such features, or entire AA is always water-covered).	0	
71			Intermediate.	1	
72			Several (extensive micro-topography).	0	
73	F13	Upland Inclusions	Within the AA, inclusions of upland are:		[AM, NR, SBM]
74			Few or none.	0	
75			Intermediate (1 - 10% of vegetated part of the AA).	1	
76			Many (e.g., wetland-upland "mosaic", >10% of the vegetated AA).	0	
70	F14	Soil Texture	In parts of the AA that lack persistent water, the texture of soil in the uppermost layer is mostly: [To determine this, use a trowel to check in	J	[CS, NR, OE, PH, PR, Sens, SFS, WS]
77	. 17	JOIL LEVINIE	at least 3 widely spaced locations, and use the soil texture key (in Appendix A of the Manual).]		lootuut ori tutuu onistoi mol
//			Loamy: soils that may contain a little fine grit and do not make a "ribbon" longer than 2 cm when moistened, rolled, squeezed, and extended	1	
78			between thumb and forefinger.		
, 0			Fines: includes silt, clay, silt, soils that make a ribbon longer than 2 cm when moistened, rolled, squeezed, and extended between thumb and	0	
79			forefinger.	-	
80			Deep Peat, to 40 cm depth or greater.	0	
81			Shallow Peat or organic <40 cm deep.	0	
			Coarse: includes sand, loamy sand, gravel, cobble, soils that do not make a ribbon when moistened, rolled, squeezed, and extended	0	
82			between thumb and forefinger.		
		Shorebird Feeding	During any 2 consecutive weeks of the growing season, the extent of mudflats, bare unshaded saturated areas not covered by thatch, and		This addresses needs of many but not all migratory sandpipers, plovers, and related species. [WBF]
83		Habitats	unshaded waters shallower than 6 cm is: [Include also any area that is adjacent to the AA.]		
84			None, or <100 sq. m.	1	
85			100-1000 sq. m.	0	
86			1000 – 10,000 sq. m.	0	
87			>10,000 sq. m.	0	
88	F16	Herbaceous % of	In aerial ("ducks eye") view, the maximum annual cover of herbaceous vegetation (all non-woody plants except moss) is:		[AM, WBF, WBN]
88		Vegetated Wetland	<5% of the vegetated part of the AA or <0.01 hectare (whichever is less). Mark "1" here and SKIP to F20 (Invasive Plant Cover).	0	
89			Note the vegetated part of the AA of <0.01 hectate (whichever is less). Walk 1 here allo skip to F20 (hivasive Plaffi Cover).	J	
90			5-25% of the vegetated part of the AA.	0	
91			25-50% of the vegetated part of the AA.	1	
92			50-95% of the vegetated part of the AA.	0	
93			>95% of the vegetated part of the AA.	0	
13			2 70 70 of the regelated part of the 70%.		

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	Α	В	С	D	E
94	F17	Forb Cover	Within parts of the AA having herbaceous cover (excluding SAV), the areal cover of forbs reaches an annual maximum of:		Forbs are flowering plants. Do not include grasses, sedges, cattail, other graminoids, ferns, horsetails,
95			<5% of the herbaceous part of the AA.	0	or others that lack showy flowers. [POL]
96			5-25% of the herbaceous part of the AA.	0	
97			25-50% of the herbaceous part of the AA.	0	
98			50-95% of the herbaceous part of the AA.	0	
99			>95% of the herbaceous part of the AA.	0	
100	F18	Sedge Cover	Sedges (Carex spp.) and cottongrass (Eriophorum spp.) occupy:		[CS]
101			<5% of the vegetated area, or none.	0	
102			5-50% of the vegetated area.	1	
103			50-95% of the vegetated area.	0	
104			>95% of the vegetated area.	0	
105		Dominance of Most Abundant Herbaceous	Determine which two herbaceous species comprise the greatest portion of the herbaceous cover (excluding mosses and floating-leaved aquatic plants). Then choose one of the following:		For this question, include ferns as well as graminoids and forbs. [EC, INV, PH, POL, Sens]
106		Species	those species together comprise > 50% of the areal cover of herbaceous plants at any time during the year.	1	
107			those species together do not comprise > 50% of the areal cover of herbaceous plants at any time during the year.	0	
108	F20	Invasive Plant Cover	How extensive is the cover of invasive plant species in the AA? For species, see Plants_invasive worksheet in the accompanying Supplnfo file.		[EC, PH, POL, Sens]
109			invasive species appear to be absent in the AA, or are present only in trace amount (a few individuals).	1	
110			invasive species are present in more than trace amounts, but comprise <5% of herbaceous cover (or woody cover, if the invasives are woody).	0	
111			invasive species comprise 5-20% of the herb cover (or woody cover, if the invasives are woody).	0	
112			invasive species comprise 20-50% of the herb cover (or woody cover, if the invasives are woody).	0	
113			invasive species comprise >50% of the herb cover (or woody cover, if the invasives are woody).	0	
114	F21	Invasive Cover Along Upland Edge	Along the wetland-upland boundary, the percent of the upland edge (within 3 m upslope from the wetland) that is occupied by invasive plant species is:		If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an exotic species, assume the unidentified plant to also be exotic. If vegetation is so senesced that exotic
115			none of the upland edge (invasives apparently absent), or AA has no upland edge.	1	species cannot be identified, answer "none". [PH, STR]
116			some (but <5%) of the upland edge.	0	
117			5-50% of the upland edge.	0	
118			, , ,	0	
119	F22	Fringe Wetland	During most of the year, open water within or adjacent to the vegetated part of the wetland is much wider than the maximum width of the vegetated zone within the wetland. Enter "1" if true, "0" if false.	0	[WBF, WBN, WCv]
120	F23	Lacustrine Wetland	The vegetated part of the AA is within or adjacent to a body of non-tidal standing open water whose size exceeds 8 hectares during most of a normal year.	0	[FR, PR, PU, WBF, WBN]
	none of the upland edge (invasives apparently absent), or AA has no upland edge. none of the upland edge (invasives apparently absent), or AA has no upland edge. none of the upland edge. none of th	1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m, 1000 m by			
121		Surface Water	r · · · · · · · · · · · · · · · · · · ·	n	To the or summar. [Parts, 173, 173, 1837, 1837, 171, 173, SUM, SUID, SUN, WOLF, WOLF, WO.]
122 123			1-25% of the AA. or <1% but >0.01 ha never contains surface water.	0	1
124			25-50% of the AA never contains surface water.	0	
124			50-75% of the AA never contains surface water.	1	
123			75-99% of the AA never contains surface water, OR >99% and there is at least one persistently ponded water body larger than 1 ha in the	0	1
126	F24		AA.		
			99-100%. AND there is no persistently ponded water body larger than 1 ha within the AA. Enter "1" and SKIP to F42 (Channel Connection).	0	
127					

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A	В	С	D	E	
F25	% of AA with	Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during the driest		If you are unable to determine the condition at the driest time of year, ask the land owner or neighbors	
	Persistent Surface	times of a normal year, i.e., when the AA's surface water is at its lowest annual level. At that time, the percentage of the AA that still contains		about it if possible. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat.	
128	Water	surface water is:		[AM, CS, FA, FR, INV, NR, POL, PR, SBM, WBF, WBN]	
129		None. The AA dries up completely (no water in channels either) or never has surface water during most years. SKIP to F27.	1		
130		1-20% of the AA.	0		
131		20-50% of the AA.	0		
132		50-95% of the AA.	0		
133		>95% of the AA. True for many fringe wetlands.	0		
F26	% of Summertime	At mid-day during the warmest time of year, the area of surface water <u>within</u> the AA that is shaded by vegetation and other features that are		[FA, WC]	
134	Water that Is Shaded	<u>within</u> the AA at that time is:			
135		<5% of the water is shaded, or no surface water is present then.	0		
136		5-25% of the water is shaded.	0		
137		25-50% of the water is shaded.	0		
138		50-75% of the water is shaded.	0		
139		>75% of the water is shaded.	0		
140 F27	% of AA that is	The percentage of the AA's area that is between the annual high water and the annual low water (surface water) is:		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not	
141	Flooded Only	None, or < 0.01 hectare and < 1% of the AA. SKIP to F29.	0	fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. pere plant species. In riverine systems, the extent of this zone can be estimated by multiplying by 2	
142	Seasonally	1-20% of the AA, or <1% but >0.01 ha.	0	prant species. In riverine systems, the extent of this zone can be estimated by multiplying by z the bankful height and visualising where that would intercept the land along the river. [CS, FA, INV, NR,	
143		20-50% of the AA.	0	OE, PH, SR, WBF, WBN, WS	
144		50-95% of the AA.	0		
145		>95% of the AA.	1		
146 F28	Annual Water	The annual fluctuation in surface water level within most of the parts of the AA that contain surface water at least temporarily is:		Look for flood marks (see above). Because the annual range of water levels is difficult to estimate	
147	Fluctuation Range	<10 cm change (stable or nearly so).	1	without multiple visits, consider asking the land owner or neighbors about it. [AM, CS, INV, NR, OE,	
148		10 cm - 50 cm change.	0	PH, PR, SR, WBN, WS]	
149		0.5 - 1 m change.	0		
150		1-2 m change.	0		
151		>2 m change.	0		
	AA plus adiacent ponde	d water smaller than 0.01 hectare (about 10m x 10m, or 1m x 100 m)? If so, enter "1" in column D andSKIP TO F42	0		
		a nation of the control of the case of the control			
F29	Predominant Depth	During most of the time when surface water is present during the growing season, its depth, averaged over the entire inundated part of the		If a boat is unavailable, estimate this by considering wetland size and local topography. Or if timing	
153	Class	AA, is:		and safety allow, depths may be measured by drilling through winter ice. This question is asking about	
		<10 cm deep (but >0).	0	and safety allow, depths may be measured by drilling through winter ice. This question is asking the spatial median depth that occurs during most of that time, even if inundation is only seasona temporary. If inundation in most but not all of the wetland is brief, the answer will be based on the of the most persistently inundated part of the wetland. Include surface water in channels and dite	
155		10 - 50 cm deep.	1	and safety allow, depths may be measured by drilling through winter ice. This question is asking the spatial median depth that occurs during most of that time, even if inundation is only seasona	
156		0.5 - 1 m deep.	0		
F29 P 1.53 C 1.54 1.55 1.56		1 - 2 m deep.	0		
158		>2 m deep. True for many fringe wetlands.	0		
159 F30	Depth Classes -	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. [FR, INV,	
160	Evenness of	One depth class that comprises >90% of the AA's inundated area (use the classes in the question above).	1	WBF, WBN]	
161	Proportions	One depth class that comprises 50-90% of the AA's inundated area.	0		
162		Neither of above. There are 3 or more depth classes and none occupy >50%.	0	1	
F31	% of Water That Is	During most times when surface water is present, the percentage that is (1) ponded (stagnant, or flows so slowly that fine sediment is not		Nearly all wetlands with surface water have some ponded water. [AM, CS, INV, NR, OE, PR, Sens, SR	
163	Ponded (not Flowing)	held in suspension) AND (2) is likely to be deeper than 0.5 m in some places, is:		WBF, WBN, WC, WS]	
164		<5% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34 .	0	1	
165		5-30% of the water.	0	1	
		30-70% of the water.	0	1	
166				-	
167		70-95% of the water.	0		

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F32 Ponded Open Water - Minimum Size During most of the growing season, the largest patch of open water that is ponded and is in or bordering the AA m by 10 m) and mostly deeper than 0.5 m. If true enter "1" and continue, If false, enter "0" and SKIP to F41 (Floating m by 10 m) and mostly deeper than 0.5 m. If true enter "1" and continue, If false, enter "0" and SKIP to F41 (Floating m by 10 m) and mostly deeper than 0.5 m. If true enter "1" and continue, If false, enter "0" and SKIP to F41 (Floating m by 10 m) and mostly deeper than 0.5 m. If true enter "1" and continue, If false, enter "0" and SKIP to F41 (Floating m by 10 m) and mostly deeper than 0.5 m. If true enter "1" and continue, If false, enter "0" and SKIP to F41 (Floating m by 10 m) and mostly deeper than 0.5 m. If true enter "1" and continue, If false, enter "0" and SKIP to F41 (Floating m by 10 m) and mostly deeper than 0.5 m. If true enter "1" and continue, If false, enter "0" and SKIP to F41 (Floating m by 10 m) and mostly deeper than 0.5 m. If true enter "1" and continue, If false, enter "0" and SKIP to F41 (Floating m by 10 m) and mostly deeper than 0.5 m. If true enter "1" and continue, If false, enter "0" and SKIP to F41 (Floating m by 10 m) and mostly deeper than 0.5 m. If true enter "1" and continue, If false, enter "0" and SKIP to F41 (Floating m by 10 m) and mostly deeper than 0.5 m. If true enter "1" and continue, If false, enter "0" and SKIP to F41 (Floating m by 10 m) and mostly deeper than 0.5 m. If true enter "1" and continue, If false, enter "0" and SKIP to F41 (Floating m by 10 m) and mostly deeper than 0.5 m. If true enter "1" and continue, If false, enter "0" and SKIP to F41 (Floating m by 10 m) and continue, If false, enter "0" and SKIP to F41 (Floating m by 10 m) and continue, If false, enter "0" and SKIP to F41 (Floating m by 10 m) and continue, If false, enter "0" and SKIP to F41 (Floating m by 10 m) and continue, If false, enter "0" and SKIP to F41 (Floating m by 10 m) and continue, If false, enter "0" and SKIP to F41 (Floa	loating Algae & Duckweed). most of the growing season, & Duckweed).	0 0 0 0 0 1	Open water is not obscured by vegetation in aerial ("duck's eye") view. It includes vegetation floating on the water surface or entirely submersed beneath it. [AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] "Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR, SBM, Sens, SR, WBN]
F33 % of Ponded Water that is Open In ducks-eye aerial view, the percentage of the ponded water that is open (lacking emergent vegetation during mand unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Index In	most of the growing season, & Duckweed).	0 0 0 1 0	[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC] "Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR,
F33 % of Ponded Water that is Open lacking emergent vegetation during mand unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & I -4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & I -4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. 4 the time during the growing season when the AA's water level is lowest, the average width of vegetated adjoining uplands from open water within the AA is: <p>179 180 181 182 183 % of Ponded Water In ducks-eye aerial view, the percentage of the ponded water that is open (lacking emergent vegetation during mand unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. 4 the time during the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 70-99% of the ponded water. 100% of the</p>	& Duckweed).	0 0 0 1 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR,
F33 % of Ponded Water that is Open lacking emergent vegetation during mand unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & I -4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & I -4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. 4 the time during the growing season when the AA's water level is lowest, the average width of vegetated adjoining uplands from open water within the AA is: <p>179 180 181 182 183 % of Ponded Water In ducks-eye aerial view, the percentage of the ponded water that is open (lacking emergent vegetation during mand unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. 4 the time during the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 70-99% of the ponded water. 100% of the</p>	& Duckweed).	0 0 0 1 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR,
that is Open that is Open that is Open that is Open and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter *1* and SKIP to F41 (Floating Algae & I-4% of the ponded water. Enter *1* and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated adjoining uplands from open water within the AA is: 4 the time during the growing season when the AA's water level is lowest, the average width of vegetated area in adjoining uplands from open water within the AA is: 4 m. 9 m. 29 m. 30-49 m. 50-100 m. 	& Duckweed).	0 0 0 1 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR,
None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & I-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4		0 0 0 1 0	include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR,
1.4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. 100% of the ponded water. 4 the time during the growing season when the AA's water level is lowest, the average width of vegetated adjoining uplands from open water within the AA is: 178 179 180 181 182 1-4% of the ponded water. 10-99% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated areain adjoining uplands from open water within the AA is: 1 m. 1 - 9 m. 10 - 29 m. 30 - 49 m. 50 - 100 m.		0 0 0 1 0	include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR,
5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. 100% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated adjoining uplands from open water within the AA is: 178 179 180 181 182 5-30% of the ponded water. 70-99% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated areain adjoining uplands from open water within the AA is: 1 m. 1 - 9 m. 10 - 29 m. 30 - 49 m. 50 - 100 m.	a <u>in the AA</u> that separates	0 0 1 0	include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR,
174 175 176 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated adjoining uplands from open water within the AA is: 178 179 180 181 182 30-70% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated areain adjoining uplands from open water within the AA is: 1 m. 1 - 9 m. 10 - 29 m. 30 - 49 m. 50 - 100 m.	a <u>in the AA</u> that separates	0 1 0	include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR,
70-99% of the ponded water. 100% of the ponded water. F34 Width of Vegetated Zone within Wetland 178 179 180 181 182 182 170-99 m. T0-99% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in adjoining uplands from open water within the AA is: 178 179 180 10-29 m. 30-49 m. 50-100 m.	a <u>in the AA</u> that separates	0	include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR,
F34 Width of Vegetated Zone within Wetland F38	a <u>in the AA</u> that separates	0	include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR,
F34 Width of Vegetated Zone within Wetland T77 Net	a <u>in the AA</u> that separates	0	include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR,
177 Zone within Wetland adjoining uplands from open water within the AA is: 178 <1 m.	a <u>in the AA</u> that separates		include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR,
177			
179 1 - 9 m. 180 10 - 29 m. 181 30 - 49 m. 182 50 - 100 m.			SBM, Sens, SR, WBNJ
180 10 - 29 m. 181 30 - 49 m. 182 50 - 100 m.		1	
180 10 - 29 m. 181 30 - 49 m. 182 50 - 100 m.		-	
181 30 - 49 m. 182 50 - 100 m.	1	0	
182 50 - 100 m.		0	
100		0	1
> 100 m, or open water is absent at that time.		0	
F35 Flat Shoreline Extent During most of the part of the growing season when water is present, the percentage of the AA'swater edge length	ength that is nearly flat (a		If several isolated pools are present in early summer, estimate the percent of their collective shorelines
slope less than about 5% measured within 5 m landward of the water) is:			that has such a gentle slope. [SR, WBN]
185 <1% of the water edge.		0	
186 1-25% of the water edge.		1	
187 25-50% of the water edge.		0	
188 50-75% of the water edge.		0	
189 >75% of the water edge.		0	
F36 Robust Emergents The percentage of the emergent vegetation cover in the AA that is cattail (<i>Typha</i> spp.), common reed (<i>Phragn</i>	amites) or tall (>1m) hulrush		Emergent vegetation is herbaceous plants whose stems are partly above and partly below the water
190 is:	grimos y, or tall (* 1111) ballaon		surface during most of the time water is present. [WBN]
191 <1% of the emergent vegetation, or emergent vegetation is absent. SKIP to F38.		0	, , ,
192 1-25% of the emergent vegetation.		0	
193 25-75% of the emergent vegetation.		0	
194 >75%, of the emergent vegetation.		0	
F37 Interspersion of During most of the part of the growing season when water is present, the spatial patternof emergent vegetation	on within the water is mostly:		[AM, FA, FR, INV, NR, OE, PH, PR, SBM, SR, WBF, WBN]
195 Emergents & Open	,		
Water Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water.		0	
197 Intermediate.		0	
Clumped. More than 70% of such vegetation is in bands along the wetland perimeter or is clumped at one or a fe	few sides of the surface water	0	
198 area.			
F38 Persistent Deepwater If the deepest patch of surface water (flowing or ponded) in or directly adjacent to the AA is mostly deeper than 0	n 0.5 m for >2 weeks during the	0	
Area growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection).			
F39 Non-vegetated During most of the growing season and in waters deeper than 0.5 m, the cover for fish, aquatic invertebrates, an	and/or amphibians that is		For this question, consider only the wood that is at or above the water surface. Estimates of underwater
200 Aquatic Cover provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is:			wood based only on observations from terrestrial viewpoints are unreliable so should not be attempted.
201 Little or none.		0	[AM, FA, FR, INV]
202 Intermediate.		0	
203 Extensive.		0	1
F40 Isolated Island The AA contains (or is part of) an island or beaver lodge within a lake, pond, or river, and is isolated from the sho	horehy water denths <1 m	0	[WBN]
on all sides during an average June. The island may be solid, or it may be a floating vegetation mat that is suffici		5	[monj
support a waterbird nest.			
204	adod water curface, or blanket	0	[EC, PR, WBF]
F41 Floating Algae & At some time of the year, mats of algae and/or duckweed are likely to cover >50% of the AA's otherwise-unshad Duckweed >50% of the underwater substrate. If true, enter "1" in next column. If untrue or uncertain, enter "0".	aueu water surrace, or biariket	U	[LO, FIX, WDI]
205 Duckweed 25070 of the direct water 3 dashade. If the column, in direct of direct allit, enter 0.			

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	Α	В	С	D	E
	F42	Channel Connection &	The most persistent surface water connection (outlet channel or pipe, ditch, or overbank water exchange) between the AA and a downslope		Consider the connection regardless of whether the surface water is frozen. The "downslope stream
		Outflow Duration	stream network is: (Note: If the AA represents only part of a wetland, answer this according to whichever is the least permanent surface		network" could consist of ditches, rivers, ponds, or lakes which eventually connect to the ocean. If this
			connection: the one between the AA and the rest of the wetland, or the surface connection between the wetland and the downslope stream		cannot be determined while visiting the AA, consult topographic maps perhaps by viewing these online
206			network.]		with Toporama (http://atlas.nrcan.gc.ca/toporama/en/index.html) [CS, FA, FR, NR, OE, PR, Sens, SFS, SR, WCv, WS]
207			Persistent (surface water flows out for >9 months/year).	0	5r5, 5k, WCV, W5j
208			Seasonal (surface water flows out for 14 days to 9 months/year, not necessarily consecutive).	0	
209			Temporary (surface water flows out for <14 days, not necessarily consecutive).	0	
			None but maps show a stream network downslope from the AA and within a distance that is less than the AA's length. SKIP to F47 (pH	0	
210			Measurement).		
211			No surface water flows out of the wetland except possibly during extreme events (<once (ph="" 10="" a="" an="" ditch,="" f47="" flows="" into="" lacks="" lake="" measurement).<="" only="" or="" or,="" outlet.="" per="" skip="" td="" that="" to="" water="" wetland,="" years).=""><td>1</td><td></td></once>	1	
212	F43	Outflow Confinement	During major runoff events, in the places where surface water exits the AA or connected waters nearby, the water:		"Major runoff events" would include biennial high water caused by storms and/or rapid snowmelt. [CS,
			Mostly passes through a pipe, culvert, narrowly breached dike, berm, beaver dam, or other partial obstruction (other than natural topography)	0	NR, OE, PR, Sens, SR, STR, WS]
213			that does not appear to drain the wetland artificially during most of the growing season.		
214			Leaves through natural exits (channels or diffuse outflow), not mainly through artificial or temporary features.	0	
			Is exported more quickly than usual due to ditches or pipes within the AA or connected to its outlet, or within 10 m of the AA's edge, which	0	
215			drain the wetland artificially, or water is pumped out of the AA.		
	F44	Tributary Channel	At least once annually, surface water from a tributary channel that is >100 m long moves into the AA. Or, surface water from a larger		If inlet tributaries cannot be searched for due to inaccessibility of part of the AA, follow suggestions in
			permanent water body adjacent to the AA spills into the AA. If it enters only via a pipe, that pipe must be fed by a mapped stream or lake further upslope. If no, SKIP to F47 (pH Measurement).	0	F42 above. [NRv, PH, PRv, SRv]
216					
	F45	Input Water	Based on lack of shade, water source characteristics, or actual temperature measurements, the inflow is likely to be warmer than surface	0	[WCv]
217		Temperature	water in the AA during part of most years. Enter 1= yes, 0= no.		
21/	F46	Throughflow	During its travel through the AA at the time of peak annual flow, water arriving in channels: [select only the ONE encountered bymost of the		[FA, FR, INV, NR, OE, PR, SR, WS]
218	0	Resistance	incoming water].		
210			Does not bump into many plant stems as it travels through the AA. Nearly all the water continues to travel in unvegetated (often incised)	0	
			channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond or lake.		
219					
220			Bumps into herbaceous vegetation but mostly remains in fairly straight channels.	0	
221			Bumps into herbaceous vegetation and mostly spreads throughout, or is in widely meandering, multi-branched, or braided channels.	0	
222			Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels.	0	
			Bumps into tree trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or braided).	0	
223					
224	F47	pH Measurement	The pH in most of the AA's surface water:		Preferably, measure this in larger areas of ponded surface water within the AA, or in streams that have
225			Was measured, and is: [enter the reading in the column to the right.]		passed through (not along) most of the AA. Unless surface water is completely absent, do not dig holes or make depressions in peat in order to provide water for this measurement. Avoid measuring near
			Was not measured but surface water is present and is darkly tea-coloured. Or if no surface water, then mosses and plants that indicate	1	roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
226			peatland (e.g., Labrador tea) are prevalent. Enter "1".		,
227			Neither of above. Enter "1".	0	
228	224 225 226 227 228 F48	TDS and/or	The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information):		See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
229		Conductivity	TDS is: [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.]		
230			Conductivity is [Enter the reading in µS/cm in the column to the right.]		
231			Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1".	0	
232			Neither of above	1	
233	F49	Beaver Probability	Use of the AA by beaver during the past 5 years is (select most applicable ONE):		[FA, FR, PH, SBM, Sens, WBF, WBN]
233			Evident from direct observation or presence of gnawed limbs, dams, tracks, dens, lodges, or extensive stands of water-killed trees (snags).	0	
234				-	
			Likely based on known occurrence in the region and proximity to suitable habitat, which may include: (a) a persistent freshwater wetland,	0	
			pond, or lake, or a perennial low or mid-gradient (<10%) channel, and (b) a corridor or multiple stands of hardwood trees and shrubs in		
235			vegetated areas near surface water.		
			Unlikely because site characteristics above are deficient, and/or this is a settled area or other area where beaver are routinely removed.	1	
236					

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	Α	В	С	D	E
227	F50		Select first applicable choice:		Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other
237		of Evidence		0	evidence. Consult topographic maps to detect breaks in slope described here. Rust deposits
			Springs are known to be present within the AA, or if groundwater levels have been monitored, that has demonstrated that groundwater primarily discharges to the wetland for longer periods during the year than periods when the wetland recharges the groundwater.	0	associated with groundwater seeps may be most noticeable as orange discoloration in ice formations
238			printally discharges to the welland for longer periods during the year than periods when the welland recharges the groundwater.		along streams during early winter. [AM, CS, FA, FR, INV, NR, OE, PH, PRv, SFS, WC, WS]
238			Most of the AA has a slope of >5%, or is very close to the base of a natural slope longer than 100 and much steeper than the slope of the	1	
239			AA, AND the pH of surface water, if known, is >5.5.	_	
237			Neither of above is true, although some groundwater may discharge to or flow through the AA. Or groundwater influx is unknown.	0	
240			· · · · · · · · · · · · · · · · · · ·		
	F51	Internal Gradient	The gradient along most of the flow path within the AA is:		This is not the same as the shoreline slope. It is the elevational difference between the AA's inlet and
241					outlet, divided by the flow-distance between them and converted to percent. If available, use a
242			<2% or the AA has no surface water outlet (not even seasonally).	0	clinometer to measure this. Free clinometer apps can be downloaded to smartphones. If the wetland is
243			2-5%.	0	large (longer than ~1 km), this may be estimated using Google Earth to determine the minimum and
244			6-10%.	0	maximum elevation within the AA, then dividing by length and multiplying by 100. [CS, NR, OE, PR,
245			>10%.	0	SR, WBF, WBN, WS]
	Note f	or the next three ques	tions: If the AA lacks an upland edge, evaluate based on the AA's entire perimeter, and moving outward into whatever areas		
246	are adj	jacent. In many situatio	ns, these questions are best answered by measuring from aerial images.		
	F52	Vegetated Buffer as %	Within a zone extending 30 m laterally from the AA's edge with upland and/or other wetlands, the percentage that contains perennial		[AM, FA, FR, INV, NRv, PH, POL, PRv, SBM, Sens, SRv, STR, WBN]
247		of Perimeter	vegetation cover (except lawns, row crops, heavily grazed land, conifer plantations) is:		
248			<5%.	0	
249			5 to 30%.	0	
250			30 to 60%.	1	
251			60 to 90%.	0	
252			>90%, or all the area within 30 m of the AA edge is other wetlands. SKIP to F55.	0	
	F53	Type of Cover in	Within 30 m upslope of where the wetland transitions to upland, the upland land cover that is NOT perennial vegetation is mostly (mark		[AM, FA, INV, NRv, PH, POL, SBM, STR, WBN]
253		Buffer	ONE):		
254			Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0	
255			Bare or nearly bare pervious surface or managed vegetation, e.g., lawn, row crops, unpaved road, dike, landslide.	1	
	F54	Buffer Slope	The steepest and/or most disturbed part of the upland area that is within 30 m of the wetland and occupies >10% of that upland area has a		[NRv, PRv, Sens, SRv]
256		·	percent slope of:		
257			<1% (flat almost no noticeable slope) or all the area within 30 m of the AA edge is other wetlands.	0	
258			2-5%.	0	
259			5-30%.	1	
260			>30%.	0	
	F55	Cliffs or Steep Banks	In the AA or within 100 m, there are elevated terrestrial features such as cliffs, talus slopes, stream banks, or excavated pits (but not riprap)	0	Do not include upturned trees as potential den sites. [POL, SBM]
			that extend at least 2 m nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den		
261			areas. Enter 1 (yes) or 0 (no).		
	F56	New or Expanded	Human actions within or adjacent to the AA have persistently expanded a naturally occurring wetland or created a wetland where there		Determine this using historical aerial photography, old maps, soil maps, or permit files as available
262		Wetland	previously was none (e.g., by excavation, impoundment):		[CS, NR, OE, PH, Sens]
263			No.	0]
264			Yes, and created or expanded 20 - 100 years ago.	0]
265			Yes, and created or expanded 3-20 years ago.	1	
266			Yes, and created or expanded within last 3 years.	0	1
267			Yes, but time of origin or expansion unknown.	0	1
268			Unknown if new or expanded within 20 years or not.	0	1
269	F57	Burn History	More than 1% of the AA's previously vegetated area:		Look for charred soil or stumps (in multiple widely-spaced locations) or ask landowner. [CS, PH, STR]
270		Ť	Burned within past 5 years.	0	
270			Burned 6-10 years ago.	0	1
2/1			Burned 11-30 years ago.	0	1
272			Burned >30 years ago, or no evidence of a burn and no data.	1	
213			purifica zoo years ayo, or no evidence or a burn and no data.	1	

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A	В	С	D	E
F58	Visibility	The maximum percentage of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings, or		[PU, STR, WBFv]
274		public maintained trails that intersect, adjoin, or are within 100 m of the AA (select one) is:		
275		<25%.	0	
276		25-50%.	0	
277		>50%.	1	
278 F59	Non-consumptive	Assuming access permission was granted, select ALL statements that are true of the AA as it currently exists:	_	[PU, STR]
2/0	Uses - Actual or	For an average person, walking is physically possible in (not just near) >5% of the AA during most of the growing season, e.g., free of deep	1	
279	Potential	water and dense shrub thickets.	1	
280		Maintained roads, parking areas, or foot-trails are within 10 m of the AA, or the AA can be accessed part of the year by boats arriving via contiquous waters.	0	
200		Within or near the AA, there is an interpretive center, trails with interpretive signs or brochures, and/or regular guided interpretive tours.	0	
281		Than or real tier wit, there is a rinterpretate content, that's minimorphetate signs of broadings, allow regular guade interpretate todas.	ŭ	
F60	Unvisited Core Area	The percentage of the AA almost never visited by humans during an average growing season probably comprises: [Note: Only include the		[AM, FAv, FRv, PH, PU, SBM, STR, WBF, WBN]
		part actually walked or driven (not simply viewed from) with a vehicle or boat. Do not include visitors on trails outside of the AA unless more		
		than half the wetland is visible from the trails and they are within 30 m of the wetland edge. In that case include only the area occupied by		
282		the trail.]		
283		<5% and no inhabited building is within 100 m of the AA.	1	
284		<5% and inhabited building is within 100 m of the AA.	0	
285		5-50% and no inhabited building is within 100 m of the AA.	0	
286		5-50% and inhabited building is within 100 m of the AA.	0	
287		50-95%, with or without inhabited building nearby.	0	
288		>95% of the AA with or without inhabited building nearby.	0	
F61	Frequently Visited	The part of the AA visited by humans almost daily for several weeks during an average growing season probably comprises: /See note		[AM, PH, PU, SBM, STR, WBF, WBN]
289	Area	above.		[min ray resimpering menty
290	7 11 0 11	<5%. If F60 was answered ">95%" (mostly never visited), SKIP to F64.	1	
291		5-50%.	0	
292		50.95%.	0	
293		>95% of the AA.	0	
F62	BMP - Soils	Boardwalks, paved trails, fences or other infrastructure and/or well-enforced regulations appear to effectively prevent visitors from walking on	0	[PH, PU]
294	5	soil within nearly all of the AA when the soil is unfrozen. Enter "1" if true.		
F63	BMP - Wildlife	Fences, observation blinds, platforms, paved trails, exclusion periods, and/or well-enforced prohibitions on motorised boats, off-leash pets,	0	[AM, PU, WBF, WBN]
	Protection	and off road vehicles appear to effectively exclude or divert visitors and their pets from the AA at critical times in order to minimize		
295		disturbance of wildlife (except during hunting seasons). Enter "1" if true.		
296 F64	Consumptive Uses	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select ALL that apply.		[FAv, FRv, WBFv]
297	(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	1	
298	Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0	
299		Waterfowl hunting.	0	
300		Fishing.	0	
301		Trapping of furbearers.	0	
302		None of the above.	0	
303 F65	Domestic Wells	The closest wells or water bodies that currently provide drinking water are:		[NRv]
304		Within 0-100 m. of the AA.	0	
305		100-500 m. away.	0	
306		>500 m. away, or no information.	1	
F66	Calcareous Fen	The AA is, or is part of, a calcareous fen. See the Plants_Calcar worksheet in the accompanying Supplnfo file for list of plant indicators		[PH, PR]
		(calciphiles). Enter 1 If more than two Strong or more than five Moderate calciphile species are present; otherwise enter 0, but if not able to		
307		identify those and no information, change to blank .		
308	•	•	•	
200				

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stigator: Darcy Kavanagh & Jordan Davis	Site Identifier: WL38		Date: September 15, 2022								
ressor (S) Data Form for Non-Tida	Netlands. WESP-AC for Nova	Scotia version 2.		Data							
Aberrant Timing of Water Inputs											
In the last column, place a check mark next to any item that is likely to have caused the timing of water inputs (but not necessarily their volume) to shift by hours, days, or weeks, becoming either more muted (smaller or less frequent peaks spread over longer times,											
Stormwater from impervious surfaces that drains directly to the we	more temporal homogeneity of flow or water levels) or more flashy (larger or more frequent spikes but over shorter times). [FA, FR, INV, PH, STR]										
Water subsidies from wastewater effluent, septic system leakage,											
Regular removal of surface or groundwater for irrigation or other or											
<u> </u>	water body, or other control structure at water entry points that regul	ates inflow to the wetland.									
	n the wetland that interferes with surface or subsurface flow in/out										
Excavation within the wetland, e.g., dugout, artificial pond, dead-e											
Artificial drains or ditches in or near the wetland.	·· ··										
Accelerated downcutting or channelization of an adjacent or interr	nal channel (incised below the historical water table level).										
Logging within the wetland.	X										
Subsidence or compaction of the wetland's substrate as a result of	f machinery, livestock, fire, drainage, or off road vehicles.										
Straightening, ditching, dredging, and/or lining of tributary channe	<u> </u>										
If any items were checked above, then for each row of the table below, assign points. However, if you believe the checked items had no measurable effect on the timing of water conditions in any part of the AA, then leave the "0's" for the scores in the following											
rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or were no longer present.											
	Severe (3 points)	Medium (2 points)	Mild (1 point)								
Spatial extent of timing shift within the wetland:	>95% of wetland.	5-95% of wetland.	<5% of wetland.	0							
When most of the timing shift began:	When most of the timing shift began: <3 yrs ago. 3-9 yrs ago.										
	ast 10 years, and only for the part of the wetland that experiences the										
Input timing now vs. previously:	Shift of weeks.	Shift of days.	Shift of hours or minutes.	0							
Flashiness or muting:	Became very flashy or controlled.	Intermediate.	Became mildly flashy or controlled.	0							
			Sum=	0							
			Stressor subscore=	0.00							
Accelerated Inputs of Contaminants and/o	r Salts										
In the last column, place a check mark next to any item occurring	in either the wetland or its CA that is likely to have accelerated th	e inputs of contaminants or salts to the AA. [AM, FA, PH, POL, STF	र/								
	<u> </u>										
Stormwater or wastewater effluent (including failing septic systems), landfills, industrial facilities. Metals & chemical wastes from mining, shooting ranges, snow storage areas, oil/ gas extraction, other sources (download many locations from National Pollutant Release Inventory and view KMZ overlay in Google Earth. https://www.ec.gc.ca/inrp-npri/default.asp?lang=En&n=B85A1846-1											
Road salt.											
Spraying of pesticides, as applied to lawns, croplands, roadsides,	or other areas in the CA.										
	low, assign points. However, if you believe the checked items did no vith the condition if the checked items never occurred or were no long		ninants and/or salts, then leave the "O's" for the scores in the								
	Severe (3 points)	Medium (2 points)	Mild (1 point)								
Usual toxicity of most toxic contaminants:	most toxic contaminants: Industrial effluent, mining waste, unmanaged landfill. Cropland, managed landfill, pipeline or transmission rights-of way.		Low density residential.	0							
Frequency & duration of input:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.	0							
AA proximity to main sources (actual or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.	0							
			Sum=	0							
		U									

In the last column, place a check mark next to any item occurrin	g in either the wetland or its CA that is likely to have accelerated the	inputs of nutrients to the wetland. [NRv, PRv, STR]							
Stormwater or wastewater effluent (including failing septic systems), landfills.									
Fertilizers applied to lawns, aq lands, or other areas in the CA.									
Livestock, dogs.									
Artificial drainage of upslope lands.									
	If any items were checked above, then for each row of the table below, assign points. However, if you believe the checked items did not cumulatively expose the AA to significantly more nutrients, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or were no longer present.								
	Severe (3 points) Medium (2 points)								
Type of loading:	High density of unmaintained septic, some types of industrial sources.	Moderate density septic, cropland, secondary wastewater treatment plant.	Livestock, pets, low density residential.						
Frequency & duration of input:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.						
AA proximity to main sources (actual or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.						
			Sum=						
			Stressor subscore=						
Excessive Sediment Loading from Contrib	outing Area								
In the last column, place a check mark next to any item present in the CA that is likely to have elevated the load of waterborne or windborne sediment reaching the wetland from its CA. [FA, FR, INV, PH, SRv, STR]									
., , , , , , , , , , , , , , , , , , ,	,	rne sediment reaching the wetland from its CA. [FA, FR, INV, PH	l, SRV, STRJ						
Erosion from plowed fields, fill, timber harvest, dirt roads, vegetat	ion clearing, fires.								
Erosion from construction, in-channel machinery in the CA.									
Erosion from off-road vehicles in the CA.									
Erosion from livestock or foot traffic in the CA.									
Stormwater or wastewater effluent.									
Sediment from road sanding, gravel mining, other mining, oil/ gas									
Accelerated channel downcutting or headcutting of tributaries du	e to altered land use.								
Other human-related disturbances within the CA.									
	elow, assign points (3, 2, or 1 as shown in header) in the last column. He te effects, contrast the current condition with the condition if the check		ld significantly more sediment or suspended solids to the AA,						
	Severe (3 points)	Medium (2 points)	Mild (1 point)						
Erosion in CA:	Extensive evidence, high intensity.*	Potentially (based on high-intensity* land use) or scattered evidence.	Potentially (based on low-intensity* land use) with little or no direct evidence.	2					
Recentness of significant soil disturbance in the CA:	Current & ongoing. 1-12 months ago.		>1 yr ago.						
Duration of sediment inputs to the wetland:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.						
AA proximity to actual or potential sources:	0 - 15 m.	15-100 m.	In more distant part of contributing area.						
* high-intensity= extensive off-road vehicle use, plowing, grading, excavation, erosion with or without veg removal; low-intensity= veg removal only with little or no apparent erosion or disturbance of soil or sediment.									
Soil of Sediment.			1						

Soil or Sediment Alteration Within the Ass	sessment Area							
In the last column, place a check mark next to any item present in the wetland that is likely to have compacted, eroded, or otherwise altered the wetland's soil. Consider only items occurring within past 100 years or since wetland was created or restored (whichever is less). [CS, INV, NR, PH, SR, STR]								
Compaction from machinery, off-road vehicles, livestock, or mou	ntain bikes, especially during wetter periods.							
Leveling or other grading not to the natural contour.								
Tillage, plowing (but excluding disking for enhancement of native	plants).							
Fill or riprap, excluding small amounts of upland soils containing	organic amendments (compost, etc.) or small amounts of topsoil impo	orted from another wetland.						
Excavation.								
Ditch cleaning or dredging in or adjacent to the wetland.								
Boat traffic in or adjacent to the wetland and sufficient to cause s	hore erosion or stir bottom sediments.							
Artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments.								
If any liems were checked above, then for each row of the table below, assign points. However, if you believe the checked items did not measurably alter the soil structure and/or topography, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or were no longer present.								
	Severe (3 points)	Medium (2 points)	Mild (1 point)					
Spatial extent of altered soil:	>95% of wetland or >95% of its upland edge (if any).	5-95% of wetland or 5-95% of its upland edge (if any).	<5% of wetland and <5% of its upland edge (if any).	0				
Recentness of significant soil alteration in wetland:	Current & ongoing.	1-12 months ago.	>1 yr ago.	0				
Duration:	Long-lasting, minimal veg recovery.	Long-lasting but mostly revegetated.	Short-term, revegetated, not intense.	(
Timing of soil alteration:	Frequent and year-round.	Frequent but mostly seasonal.	Mainly during one-time or scattered events.	C				
	'	•	Sum=	0				
			Stressor subscore=	0.0				

Assessment Area (AA) Results:

Wetland ID: WL38

Date: September 15, 2022

Observer: Darcy Kavanagh & Jordan Davis

Latitude & Longitude (decimal degrees): 44.040309700765725, -64.8378118097724

Scores will appear below after data are entered in worksheets OF, F, and S. See Manual for definitions and descriptions of how scores were computed.

Wetland Functions or Other Attributes:	Function Score (Normalised)	Function Rating	Benefits Score (Normalised)	Benefits Rating	Function Score (raw)	Benefits Score (raw)
Water Storage & Delay (WS)	7.42	Moderate	5.05	Moderate	7.48	2.24
Stream Flow Support (SFS)	0.00	Lower	0.00	Lower	0.00	0.00
Water Cooling (WC)	4.90	Moderate	0.00	Lower	3.27	0.00
Sediment Retention & Stabilisation (SR)	10.00	Higher	2.35	Moderate	10.00	1.15
Phosphorus Retention (PR)	10.00	Higher	2.50	Moderate	10.00	1.94
Nitrate Removal & Retention (NR)	10.00	Higher	4.67	Moderate	10.00	4.67
Carbon Sequestration (CS)	3.30	Moderate			6.76	
Organic Nutrient Export (OE)	5.97	Moderate			3.90	
Anadromous Fish Habitat (FA)	0.00	Lower	0.00	Lower	0.00	0.00
Resident Fish Habitat (FR)	0.00	Lower	0.00	Lower	0.00	0.00
Aquatic Invertebrate Habitat (INV)	3.52	Moderate	3.72	Moderate	4.93	3.25
Amphibian & Turtle Habitat (AM)	5.57	Moderate	3.10	Moderate	6.04	4.31
Waterbird Feeding Habitat (WBF)	4.36	Moderate	4.17	Moderate	3.32	4.17
Waterbird Nesting Habitat (WBN)	5.30	Moderate	3.33	Moderate	3.85	3.33
Songbird, Raptor, & Mammal Habitat (SBM)	7.22	Moderate	3.33	Moderate	6.29	3.33
Pollinator Habitat (POL)	8.25	Higher	3.33	Moderate	6.83	3.33
Native Plant Habitat (PH)	2.70	Lower	5.48	Moderate	4.98	5.48
Public Use & Recognition (PU)			2.27	Moderate		1.86
Wetland Sensitivity (Sens)			10.00	Higher		5.74
Wetland Ecological Condition (EC)			4.78	Moderate		7.50
Wetland Stressors (STR) (higher score means more stress)			7.72	Higher		3.89
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	7.42	Moderate	5.05	Moderate	7.48	2.24
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	9.16	Higher	3.92	Moderate	9.59	3.63
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	4.78	Moderate	2.48	Lower	3.98	2.17
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	4.31	Moderate	3.14	Moderate	4.34	3.34
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	7.15	Higher	4.77	Lower	6.43	4.77
WETLAND CONDITION (EC)			4.78	Moderate		7.50
WETLAND RISK (average of Sensitivity & Stressors)			8.86	Higher		4.81

NOTE: A score of 0 does not mean the function or benefit is absent from the wetland. It means only that this wetland has a capacity that is equal or less than the lowest-scoring one, for that function or benefit, from among all the NS calibration wetlands that were assessed previously.

NOVA SCOTIA - Functional WSS Interpretation Tool

3. Functional WSS Interpretation Results

Function-Benefit Product (FBP)	FBP SCORE	FBP SCORE CATEGORY
SUPPORT SUPERGROUP - HYDROLOGIC	37.47619493	Moderate
SUPPORT SUPERGROUP - WATER QUALITY SUPPORT	35.91088857	Low
SUPPORT SUPERGROUP - AQUATIC SUPPORT	11.87375507	Low
HABITAT SUPERGROUP - AQUATIC HABITAT	13.54584976	Low
HABITAT SUPERGROUP - TRANSITION HABITAT	34.09284051	Low

3a. Functional WSS Determination: Automatic Method

Habitat Rule Satisfied? NO
Support Rule Satisfied? NO
Habitat/Support Hybrid Rule Satisfied? NO

CONCLUSION: Site is not a WSS

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	Mersey River Wind Farm - WL50
Investigator Name:	Darcy Kavanagh & Jordan Davis
Date of Field Assessment:	September 15, 2022
Nearest Town:	Milton, NS
Latitude (decimal degrees):	44.04631816166094
Longitude (decimal degrees):	-64.82420164263868
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	0.14
AA as percent of entire wetland (approx.). Attach sketch map if AA is smaller than the entire contiguous wetland.	36%
What percent (approx.) of the wetland were you able to visit?	54%
What percent (approx.) of the AA were you able to visit?	100%
Were you able to ask the site owner/manager about any of the questions?	No
Indicate here if you intentionally surveyed for rare plants, calciphile plants, or rare animals:	Yes
Have you attended a WESP-AC training session? If so, indicate approximate month & year.	No
How many wetlands have you assessed previously using WESP-AC? (approx.)	50+
Comments about the site or this WESP-AC assessment (attach extra page if desired):	

	A	В	С	D E	
	Date: S	September 15, 2022	Site Identifier: WL50	Investigator: Darcy Kavanagh & Jordan Davis	
1					

Form OF (Office). Non-tidal Wetland Data Form. WESP-AC version 2 for Nova Scotia wetlands only. DIRECTIONS: Conduct an assessment only after reading the accompanying Manual and the Explanations column of the data form. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answering many of the questions below will require using these online map viewers:

Google Earth Pro: https://www.google.com/earth/download/gep/agree.html

Provincial Landscape Viewer: https://nsgi.novascotia.ca/plv/

For most wetlands, completing this office data form will require 1-2 hours. For a list of functions to which each question pertains, see bracketed abbreviations in the Definitions/Explanations column. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Manual. Codes for functions and values are: WS= Water Storage, SFS= Stream Flow Support, WC= Water Cooling, SR= Sediment Retention & Stabilisation, PR= Phosphorus Retention, NR= Nitrate Removal, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate Habitat, FA= Anadromous Fish Habitat, FR= Resident Fish Habitat, AM= Amphibian & Reptile Habitat, WBF= Feeding Waterbird Habitat, WBN= Nesting Waterbird Habitat, SBM= Songbird, Raptor, & Mammal Habitat, POL= Pollinator Habitat, PH= Native Plant Habitat, PU= Public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= Stressors.

3	#	Indicators	Condition Choices	Data	Definitions/Explanations
4	OF1	Province	Mark the province in which the AA is located by changing the 0 in the column next to it to a "1". Mark only one.		This determines to which province's calibration wetlands the raw score of any wetland is normalised. In the function and benefits models, it also triggers the automatic exclusion of indicators for which no
5			New Brunswick	0	spatial data exists in a particular province.
6			Nova Scotia	1	
7			Prince Edward Island	0	
8			Newfoundland-Labrador	0	
9	OF2	Ponded Area Within 1 km.	The area of surface water ponded during most of the growing season that is both (1) in or adjacent to the AA and (2) within 1 km is:		"Adjacent" means not separated from the AA by a wide expanse (>50 m) of upland (including roads >50 m wide). Include ponded areas likely to be hidden by wetland vegetation. If surface water
10			<0.01 hectare (about 10 m x 10 m).	1	extends beyond 1 km, include only the part within 1 km. Do not include tidal areas. Measure the
11			0.01 - 0.1 hectare.	0	area from aerial imagery using Google Earth Pro (click on Ruler icon in toolbar, then Polygon in pop- up menu). [PH, SBM, WBN]
12			0.1 - 1 hectare.	0	up nicita). [i 11, 35ivi, wibivj
13			1 to 10 hectares.	0	
14			10 to 100 hectares.	0	
15			>100 hectares.	0	
			The area of wetlands and surface water ponded during most of the growing season that is both (1) in or adjacent to the AA and (2) within		See definition of adjacent in OF2. If the AA's wetland vegetation extends beyond 1 km, include only
16		Wetland Within 1 km.	1 km is:		the part within 1 km. "Ponded" means not flowing in rivers or streams. [Sens, WBF]
17			<0.01 hectare (about 10 m x 10 m).	0	
18			0.01 - 0.1 hectare.	0	
19			0.1 - 1 hectare.	1	
20			1 to 10 hectares.	1	
21			10 to 100 hectares.	0	
22			>100 hectares.	0	
	OF4	Size of Largest Nearby	The largest vegetated patch or corridor that includes the AA's vegetation plus alladjacent upland vegetation that is not lawn, row crops,		See definition of adjacent in OF2. Use Google Earth Pro's polygon ruler (as described above).
23		Vegetated Tract or Corridor	heavily grazed lands, conifer plantation is:	-	Exclude conifer plantations only if it is obvious that trees were planted in rows. [AM, PH, SBM, Sens]
24 25		Comuci	<0.01 hectare (about 10 m x 10 m).	0	
25			0.01 - 0.1 hectare.	0	
26			0.1 - 1 hectare.	0	
27			1 to 10 hectares.	0	
28			10 to 100 hectares.	0	
29			100 to 1000 hectares.	0	
30			>1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	1	

	Α	В	С	D	E
	OF5	Distance to Large	The minimum distance from the edge of the AA to the edge of the closest vegetated land (but excluding row crops, lawn, conifer		To measure distance, use Google Earth Pro (Ruler > Line tool). The 375-ha criterion is from the
31		Vegetated Tract	plantation) larger than 375 hectares (about 2 km on a side), is:		Fundy Model Forest Project. [AM, PH, POL, SBM, Sens]
			<50 m, and not separated from the 375-ha vegetated area by any width ofpaved roads, stretches of open water, row crops, bare ground,	1	
			lawn, or impervious surface. Or the AA itself contains >375 ha of vegetation. [This is often the answer in relatively undeveloped		
32			landscapes.]		
			<50 m, but completely separated from the 375-ha vegetated area by those features, and AA does not contain >375 ha of vegetation.	0	
33					
34			50-500 m, and not separated.	0	
35			50-500 m, but separated by those features.	0	
36			0.5 - 5 km, and not separated.	0	
37			0.5 - 5 km, but separated by those features.	0	
38			None of the above (the closest patches or corridors which are that large are >5 km away).	0	
	OF6	Herbaceous Uniqueness	The AA's vegetation cover is >10% herbaceous* but uplands within 5 km have <10% herbaceous cover. If so, enter "3" and continue to	1	For this question only, consider moss to be herbaceous vegetation. Determine the score by viewing
			OF7. If not, consider:		aerial imagery in Google Earth after successively drawing or estimating the boundaries of the buffers
			The AA's vegetation cover is >10% herbaceous* but uplands within 1 km have <10% herbaceous cover. If so enter "2" and continue to OF7. If not, consider:		of 5 km, 1 km, and 100 m radius focused on the center of the AA. Circles of specified radius can be drawn in Google Earth Pro by clicking on the Ruler icon, then Circle in the pop-up menu. [AMv, PHv,
			The AA's vegetation cover is >10% herbaceous* but uplands within 100 m of the wetland edge have <10% herbaceous cover. If so, enter		POLv. SBMv. WBFv. WBNvl
			ngn		
			[* NOTE: Exclude lawns, row crops, heavily grazed lands, forest, shrublands. Include moss as well as grasslike plants in this use of		
39			"herbaceous vegetation"]		
	OF7	Woody Uniqueness	The AA's vegetation cover is >10% woody* but uplands within 5 km have <10% woody cover. If so, enter "3" and continue to OF8. If not,	1	See above. Do not consider conifer plantations to be forest if it is obvious that trees were planted in
			consider:		rows. [AMv, PHv, POLv, SBMv]
			The AA's vegetation is >10% woody* but uplands within 1 km have <10% woody cover. If so enter "2" and continue to OF8. If not, consider:		
			The AA's vegetation is >10% woody* but uplands within 100 m of the wetland edge have <10% woody cover. If so, enter "1"		
40			[* NOTE: woody cover = trees & shrubs taller than 1 m.]		
	OF8	Local Vegetated Cover	Draw a 5-km radius circle measured from the center of the AA. Ignoring all permanent water in the circle, the percent of the remaining are		In Google Earth, draw the 5 km buffer and then estimate land cover percentages, or do GIS analysis
		Percentage	that is wooded or unmanaged herbaceous vegetation (NOT lawn, row crops, bare or heavily grazed land, clearcuts, or conifer plantations)		of an appropriate land cover layer. [AM, PH, POL, SBM, Sens]
41			is:		
42			<5% of the land.	0	
43			5 to 20% of the land.	0	
44			20 to 60% of the land.	1	
45			60 to 90% of the land.	0	
46			>90% of the land. SKIP to OF10.	0	
47	OF9	Type of Land Cover	Within the 5-km radius circle, and ignoring all permanent water, the land area that is bare or non-perennial cover is mostly:		[AM, SBM]
48		Alteration	Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0	
49			Bare pervious surface, e.g., lawn, recent (<5 yrs ago) clearcut, dirt or gravel road, cropland, landslide, conifer plantation.	1	
	OF10	Distance by Road to	Measured along the maintained road nearest the AA, the distance to the nearest population center is:		"Population center" means a settled area with more than about 5 regularly- inhabited structures per
50		Nearest Population			square kilometer. In Google Earth Pro, click on the Ruler icon, then Path, and draw and measure the
51		Center	<100 m.	0	route. [FAv, FRv, NRv, PH, PU, SBM, WBFv]
52			100 - 500 m.	0	
53			0.5-1 km.	0	
54			1 - 5 km.	1	
55			>5 km.	0	

	A	В	С	D	E
	OF11	Distance to Nearest	From the center of the AA, the distance to the nearest maintained public road (dirt or paved) is:		Determine this by viewing aerial imagery in Google Earth Pro and measuring with the Ruler>Line tool
56		Maintained Road	<10 m.	0	[AM, FAv, FRv, NRv, PH, PU, SBM, STR, WBN]
57 58			10 - 25 m.	0	-
			25 - 50 m.	0	-
59			50 - 100 m.	0	-
60			100 - 500 m.	0	-
62			>500 m.	1	-
02	OF12	Wildlife Access	Draw a circle of radius of 5 km from the center of the AA. If mammals and amphibians can move from the center of the AA to ALL other	'	Draw the 5 km circle in Google Earth Pro using the Circle tool and search for roads and wetlands
63	01 12	· · · · · · · · · · · · · · · · · · ·	separate wetlands and ponds located within the circle without being forced to cross pavement (any width), lawns, bare ground, and/or marine waters, mark 1= yes can move to all, 0= no. Change to blank if there are no other wetlands within 5 km.	0	within it, being alert for roads hidden under forest canopy. [AM, SBM, STR]
64	OF13	Distance to Ponded Water	The distance from the AA center to the closest (but separate) ponded water body visible in GoogleEarth imagery is:		In Google Earth Pro, zoom in closely to examine the surrounding landscape for ponds, lakes, and wetlands that appear to be permanently flooded. [AM, PH, SBM, Sens, WBF, WBN]
65		vvatei	<50 m, and not separated by any width of paved roads, stretches of open water, row crops, lawn, bare ground, or impervious surface.	0	- wettanus that appear to be permanently hooded. [Ain, FTI, 3bin, 3ens, wbi , wbin]
66			<50 m, but completely separated by those features.	0	1
67			50-500 m, and not separated.	1	1
68			50-500 m, but separated by those features.	0	
69			0.5 - 1 km, and not separated.	0	
70			0.5 - 1 km, but separated by those features.	0	
71			None of the above (the closest patches or corridors that large are >1 km away).	0	
72		Distance to Large Ponded Water	The distance from the AA center to the closest (but separate)non-tidal body of water that is ponded during most of the year and islarger than 8 hectares during most of a normal year is:		Determine this by viewing aerial imagery in Google Earth. [Sens, WBF, WBN]
73			<100 m.	0	1
74			100 m - 1 km.	0	1
75			1 -2 km.	1	1
76			2-5 km.	0	
77			5-10 km.	0	
78			>10 km.	0	
79	OF15	Tidal Proximity	The distance from the AA edge to the closest tidal water body (regardless of its salinity) is:		In Google Earth, measure the distance to the ocean (including Bay of Fundy) or tidal river, whichever is closer. If you need to see how far upriver a river is tidal, see the KMZ file provided with this
80			<100 m.	0	calculator for NS (NS Headtide). Points shown in those files are only an approximation, so local
81			100 m - 1 km.	0	information if available may be preferable. [FA, WBF]
82			1 - 5 km.	0	
83			5-10 km.	1	
84			10-40 km.	0	
85			>40 km.	0	
86	OF16	Upland Edge Contact	Select one:		[NR, SBM, Sens]
87			The AA has no upland edge (or upland is <1% of perimeter). The AA is entirely surrounded by (& contiguous with) other wetlands or water.	0	
88			1-25% of the AA's perimeter abuts upland (including filled areas). The rest adjoins other wetlands or water that is mostly wider than the AA	0	
89			25-50% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0	
90			50-75% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0]
91			More than 75% of the AA's perimeter abuts upland. Any remainder adjoins other wetlands or water that is mostly wider than the AA. This will be true for most assessments done with WESP-AC.	1	

	Α	В	С	D	E
	DF17		Within 5 km downstream or downslope of the AA (select first true choice):		Contact local authories to determine if such maps exist. Where available, LiDAR imagery can
92		tidal Waters			provide finer elevational resolution useful for flood modeling. [WSv]
			Maps show Flood Zone or Flood Risk areas and there appears to be infrastructure vulnerable to river flooding not caused by tidal storm	0	,
93			surges.		
			Maps show Flood Zone or Flood Risk areas, but infrastructure is absent or is not vulnerable to floods from a non-tidal river. In some cases	0	
94			levees, upriver dams, or other measures may partly limit damage or risk from smaller events.		
			Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure	0	
95			vulnerable to river flooding unrelated to tidal storm surges.		
0.6			Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there is no infrastructure vulnerable	1	
96)F10	D. I. E	to river flooding unrelated to tidal storm surges.		IFA ND C CFC WO WC 1
		Relative Elevation in Watershed	In Google Earth, enable the Terrain layer (lower left menu) and open the NS_Watersheds Secondary KMZ file that accompanies this		[FA, NR, Sens, SFSv, WCv, WSv]
		Watersheu	calculator. Then determine the AA's approximate elevation (bottom right, NOT the "eye alt"). Then move cursor around to determine the watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-min).	0.86	
97			, , , , , , , , , , , , , , , , , , ,		
()F19	Water Quality Sensitive	The AA is in a Protected Water Supply area (Designated Water Supply Area, Natural Watershed Municipal Surface Water Supply Area, or	0	If an ACCDC report is available for this AA, it also may contain such information. [NRv]
98		Watershed or Area	Municipal Water Supply Area) according to the provided KMZ overlay ("NS Protected Water Supply Areas"). Enter 1= yes, 0= no.		
()F20	Degraded Water	Sampling indicates a problem with concentrations of metals, hydrocarbons, nutrients, or other substances (excluding bacteria, acidic		May use existing data, or sample those waters as part of this wetland assessment. "Harmful" should
99		Upstream	water, high temperatures) being present at levels harmful to aquatic life or humans, and:		be evaluated with regard to current federal or provincial water quality standards. [AM, FA, FR, NRv,
100			The condition is present within the AA.	0	PRv, SRv, STR, WBF, WBN]
101			The condition is present in waters within 1 km that flowinto the AA, but has not been documented in the AA itself.	0	
101			Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in either the AA or inflowing	0	
102			waters.	Ü	
102			Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the situation for nearly	1	
103			all wetlands in this region.		
104		Degraded Water	The problem described above is downslope from the AA, and:		May use existing data, or monitor waters as part of this wetland assessment. [NRv, PRv, SRv]
105		Downstream	The condition is present within 1 km downslope and connected to the AA by a channel.	0	
103			The condition is present within 5 km downslope and connected to the AA by a channel, or within 1 km but not connected to the AA by a	0	
106			channel.	-	
			Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in either the AA or inflowing	0	
107			waters.		
107			Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the situation for nearly	1	
108			all wetlands in this region.		
)F22	Wetland as a % of Its	From a topographic map and field observations, estimate the approximate boundaries of the catchment (CA) of the entire wetland of which		Topographic maps may be viewed online at the National Atlas of Canada (Toporama):
		Contributing Area	the AA may be only a part. Then adjust those boundaries if necessary based on your field observations of the surrounding terrain, and/or		http://atlas.gc.ca/toporama/en/index.html [NR, PR, Sens, SR, WS]
		(Catchment)	by using procedures described in the Manual. Divide the area of the wetland (not just the AA) by the approximate area of its catchment		
			excluding the area of the wetland itself. When doing the calculation, if ponded water is adjacent to the wetland, include that in the wetland		
109			area. The result is:		
110			<0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	0	
111			0.01 to 0.1.	1	
112			0.1 to 1.	0	
			>1 (wetland is larger than its catchment (e.g., wetland with flat surrounding terrain and no inlet, or is entirely isolated by dikes, or is a raised	0	
113			bog).		
()F23	Unvegetated Surface in	The proportion of the AA's contributing area (measured to no more than 1000 m upslope) that is comprised of buildings, roads, parking lots		[FA, INV, NRv, PRv, SRv, STR, WCv, WSv]
114		the Contributing Area	other pavement, exposed bedrock, landslides, and other mostly-bare surface is about :		
115			<10%.	1	
116			10 to 25%.	0	
117			>25%.	0	
11/			12000	J	

	A	В	С	D	E
	OF24	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as		[NRv, PRv, SRv, WSv]
			indicated by the following:		
			(a) input channel is present,		
			(b) input channels have been straightened,		
			(c) upslope wetlands have been ditched extensively,		
			(d) land cover is mostly non-forest,		
			(e) CA slopes are steep, and/or (f) most CA soils are shallow (bedrock near surface) and/or have high runoff coefficients.		
			(i) most CA sons are snanow (bedrock near surface) and/or have night unon coemicients. This statement is:		
118			THE SELECTION IS.		
119			Mostly true.	0	
120			Somewhat true.	0	
121			Mostly untrue.	1	
	OF25	Aspect	The overland flow direction of most surface water (in streams, rivers, or runoff) that enters the AA is:		[AM, NR, SFS, WC, WS]
122	01 20	rispect	No. 1 in the contract of the c		[IIII, IIII, 51 5, 116, 116]
123			Northward (N, NE). north-facing contributing area.	0	
124			Southward (S, SW). south-facing contributing area.	1	
125			Other (E, SE, W, NW), or no detectable uphill slope or input channel (flat).	0	
126	OF26	Internal Flow Distance	The horizontal flow distance from the wetland's inlet to outlet is:		Identify inlets and outlets, if any, from topographic maps (use elevations to determine which are inlets
126		(Path Length)	<10 m.	0	and which are outlets) and augment by field inspection. With the Provincial Landscape Viewer, select
127			10 - 50 m.	0	Nova Scotia Topo as the Basemap. Also enable the layer Forestry>WAM Predicted Flow. Then
128			10 - 30 m.	0	measure the inlet-outlet distance. [NR, OE, PR, SR, WS]
129					
130			100 - 1000 m.	0	
131			1- 2 km.	0	
132			>2 km, or wetland lacks an inlet and outlet.	1	
	OF27	Growing Degree Days	In Google Earth, open the KMZ file that accompanies this calculator, called NS_GrowingDegreeDays. Place your cursor over the AA and	2192	This layer was provided by Dr. Dan McKenney of the Canadian Forest Service [AM, CS, FR, INV,
133			left-click. From the pop-up window, enter the GRIDCODE number in the next column.	2172	NR, OE, PH, PR, Sens, SR, WBF, WCv, WS]
134	OF28	Fish Access or Use	According to agency biologists and/or your own observations, the AA. [Mark just the first choice that is true.]:		Regarding the last choice, if uncertain if an AA is fishless, consider the possibility its waters have been stocked. [AM, FA, FR, INV, WBF, WBN]
			Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. Go to Provincial Landscape	0	been stocked. [AM, 174, 114, 1144, WB1, WB1]
			Viewer>Wildlife>Significant Habitat>Species at Risk. Contact local fishery biologists, review the ACCDC report, and visit these websites:		
135			http://www.salmonatlas.com/atlanticsalmon/canada-east/index.1.html http://atlanticsalmonfederation.org/rivers/introduction.html		
			Has not been documented to support Atlantic salmon rearing and/or spawning, but is connected to nearby waters likely to contain Atlantic	0	
136			salmon or other anadromous species or eels and is probably accessed by those during some conditions.		
137			Is probably is not accessed by any anadromous fish species but is known or likely to have other fish at least seasonally.	0	
138			Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	1	
	OF29	•	Within the past 10 years, in the AA (or in its adjoining waters or wetland), qualified observers have documented[mark all applicable]:		Request information from ACCDC and/or conduct your own survey at an appropriate season using ar
139		Concern			approved protocol. For birds, also check eBird.org. NOTE for NS: If your WESP-AC is being
			Presence of one or more of the plant species listed in the Plants_Rare worksheet of the accompanying SuppInfo file, or the AA is within a	0	completed for a Wetland Alteration Application to NS-ECC, your ACCDC results and any taxon-
			mapped Atlantic Coastal Plain Flora Buffer (go to Provincial Landscape Viewer> Wildlife> Special Management Practice Zones).		specific survey results must be submitted along with your WESP-AC results, and application. [AMv, EC, PHv, POLv, SBMv, Sens, WBFv, WBNv]
140					EC, FTIV, FOLV, SBIVIV, SCIIS, WDI V, WDIVV]
			Presence of one or more of the amphibian or reptile species (AM) of conservation concern as listed in the Wildlife_Rare worksheet of the	0	
141			accompanying Supplnfo file.		
			Presence of one or more of the waterbird species (WBF, WBN) of conservation concern as listed in the Wildlife_Rare worksheet of the	0	
142			accompanying Supplnfo file.		
			Presence of one or more of the nesting songbird or raptor species (SBM) of conservation concern as listed in the Wildlife_Rare	0	
143			worksheet of the accompanying Supplnfo file, during their nesting season (May-July for most species).	4	
144			None of the above, or no data.	ı	

	A	В	С	D	E
145		Important Bird Area (IBA)	In Google Earth, open the KMZ file that accompanies this calculator, called IBAs_Canada. The AA is all or part of an officially designated IBA. Enter 1= yes, 0= no.	0	The source of this layer, which should be checked periodically for updates, is: http://www.ibacanada.com/mapviewer.jsp?lang=EN [SBMv, WBFv, WBNv]
146		Black Duck Nesting Area	In Google Earth, open the KMZ file that accompanies this calculator, called BlackDuck. Adjust its alignment and opacity. Determine the predicted density (pairs per 25 sq. km) of nesting American Black Duck in the AA's vicinity: <10 (enter 0), 10-20 (enter 1), 20-30 (enter 2), >30 (enter 3). If outside of region shown in map, change toblank.	0	This was provided by Dr. David Leske. [WBNv]
147		Wintering Deer or Moose Concentration Areas	If AA is on private land with no information, change toblank (not 0). Otherwise: With the Provincial Landscape Viewer, for Wintering Moose, go to Wildlife> Significant Habitat. For Mainland Moose Concentration Areas, go to Wildlife> Special Management Practice Zones Enter: yes= 1, no= 0.	0	[SBM]
148		Other Conservation Designation	The AA is all or part of an area designated by government, First Nations, or the Nature Conservancy of Canada (NCC) for its exceptional ecological features or highly intact natural conditions. With Provincial Landscape Viewer, see Protected Areas. Enter: yes= 1, no= 0. If uncertain, consult NCC and agencies for more recent information.	0	See: https://novascotia.ca/parksandprotectedareas/plan/interactive-map/ [PU]
149		Conservation Investment	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance the wetland (excluding mitigation wetlands). Ask the property owner. Enter: yes= 1, no= 0. If no information, change tollank (not 0).	0	[PU]
150		Mitigation Investment	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere. Ask the property owner. Enter: yes= 1, no= 0. If no information, change to blank .	0	[PU]
151		Sustained Scientific Use	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area. Ask the property owner. Enter: yes= 1, no= 0. If no information, change toblank.	0	[PU]
152		Calcareous Region	The AA is NOT in a subregion that has been heavily exposed to acid precipitation. Enter "1" if true (green or yellow in map in Appendix A o the Manual). Enter "0" if false. If no information, change toblank.	0	[AM, FA, FR, INV, PH]
153		Ownership	Select the ONE ownership that covers the most of the AA. In Google Earth, open KMZ file called NS_CrownlandsUse more recent information if available.		"Private lands" may include those owned or leased by non-governmental organizations, e.g., charitable conservation land trusts, DUC, TNC. [PU, STR]
154			New timber harvest, roads, mineral extraction, and intensive summer recreation (e.g., off-road vehicles) are permanently prohibited. Includes many publicly-owned Protected Lands, and private lands under long-term (30+ year) legal agreements to maintain nearly- unaltered conditions.	0	
155			Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are allowed.	1	
156	-		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable or not) is in place.	0	
157			Ownership is private and owner does not allow access, or access permission unknown, and not a conservation easement.	0	

	A	В	C	D	E
	Date: S	September 15, 2022	Site Identifier: WL50	Investiga	itor: Darcy Kavanagh & Jordan Davis
1					

Form F (Field). Non-tidal Wetland Data Form. WESP-AC version 2 for Nova Scotia. DIRECTIONS: Walk for no less than 10 minutes from the wetland edge towards its core, in the part of the AA that is proposed for alteration. If no alteration is proposed, walk in a portion that appears to be most representative of the wetland overall. Walk only where it is safe and legal to do so. Conduct the assessment only after reading the accompanying Manual and the Explanations column of the data form. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgable persons, and/or reviewing aerial imagery. For most wetlands, completing this field data form will require 1-2 hours on a site. For a list of functions to which each question pertains, see the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Manual. Codes for functions and values are: WS= Water Storage & Delay, SFS= Stream Flow Support, WC= Water Cooling, SR= Sediment Retention & Stabilisation, PR= Phosphorus Retention, NR= Nitrate Removal, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate Habitat, FA= Anadromous Fish Habitat, FR= Resident Fish Habitat, AM= Amphibian & Reptile Habitat, WBF= Feeding Waterbird Habitat, WBN= Nesting Waterbird Habitat, SBM= Songbird, Raptor, & Mammal Habitat, POL= Pollinator Habitat, PH= Native Plant Habitat, PU= Public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= Stressors.

3	#	Indicators	Condition Choices	Data	Definitions/Explanations
4	F1	Wetland Type	Follow the key below and mark the ONE row that best describes MOST of the vegetated part of the AA:		Ericaceous shrubs are ones in the heather family (Ericaceae). Most have leathery evergreen leaves. They include rhododendron, azalea, swamp laurel, leatherleaf, Labrador tea, and others.
5			A. Moss and/or lichen cover more than 25% of the ground. Often dominated by ericaceous shrubs (e.g., Labrador tea) or other acid-tolerant plants (e.g., bog cranberry, pitcher plant, sundew, orchids). Substrate is mostly undecomposed peat. Choose between A1 and A2 and mark the choice with a 1 in their adjoining column. Otherwise go to B below.		Most require acidic soil. Although not in the family Ericaceae, sweetgale (<i>Myrica gale</i>) should be counted also. [AM, CS, FA, FR, INV, NR, OE, PH, Sens, SFS, WBF, WBN]
6			A1. Surface water is usually absent or, if present, pH is typically <4.5 and conductivity is usually <100 μS/cm (<64 ppm TDS). Trees are absent or nearly so. Sedge cover usually sparse or absent but cottongrass and/or lichen cover may be extensive, as well as cloudberry, lingonberry, sheep laurel, and a sedge (<i>Carex rarillor</i> a). Wetland surface and surrounding landscape are seldom sloping and wetland often is domed (convex). Inlet and outlet channels are usually absent. If known, pH of peat is <4.0.	0	
7			A2. Not A1. Surface water, if present, has pH typically >4.5 and conductivity is usually >100 µS/cm (>64 ppm TDS). Sedge cover is usually extensive, and/or tree and tall shrub cover is extensive. Sometimes at toe of slope or edge of water body. An exit channel is usually present. Wetter than A1 and peat depth may be shallower (<2 m).	1	
8			B. Moss and/or lichen cover less than 25% of the ground. Soil is mineral or decomposed organic (muck). Choose between B1 and B2 and mark the choice with a 1 in their adjoining column:		
9			B1. Trees and shrubs taller than 1 m comprise more than 25% of the vegetated cover. Surface water is mostly absent or inundates the vegetation only seasonally (e.g., vernal pools or floodplain).	0	
10			B2. Not B1. Tree & tall shrubs comprise less than than 25% of the vegetated cover. Vegetation is mostly herbaceous, e.g., cattail, bulrush, burreed, pond lily, horsetail. Surface water may be extensive and fluctuates seasonally, being either persistent or drying up partly or entirely.	0	
11	The An should form, " the des	A should also include pa include the open water adjacent " is used syn scribed features along t	the AA should include all persistent waters in ponds smaller than 8 hectares (-283 m on a side) that are adjacent to the AA. art of the water area of adjacent ponded water larger than 8 ha and adjacent rivers wider than 20 m. Specifically, the AA is part adjacent to wetland vegetation and equal in width to the average width of that vegetated zone. Throughout this data onymously with abutting, adjoining, bordering, contiguous and means no upland (manmade or natural) completely separates their directly shared edge. Features joined only by a channel are not necessarily considered to be adjacent a large portion of features do not have to be hydrologically connected in order to be considered adjacent.		
		Wetland Types - Adjoining or Subordinate	If the AA is smaller than 1 ha, mark all other types that occupy more than 1% of the vegetated AA. If the AA is larger than 1 ha, mark all other types which are within or adjacent to the AA and occupy more than 1 ha, as visible from the AA or as interpreted from aerial imagery. Do not mark again the type marked in F1.		1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m, 1000 m by 10 m, or similar. [AM, INV, SBM, WBF]
12		Suborullidle	A1.	0	
14 15			A2. B1.	0	
16			B2.	0	
17		Woody Height & Form Diversity	Following EACH row below, indicate with a number code the percentage of the living vegetation in the AA which is occupied by that feature (6 if >95%, 5 if 75-95%, 4 if 50-75%, 3 if 25-50%, 2 if 5-25%, 1 if <5%, 0 if none). If the vegetated part of the AA is largely herbaceous (non-woody) vegetation, these percentages should not sum to 100%.		Deciduous shrubs in this region usually include buttonbush, Labrador tea, bayberry (Morella), huckleberry, cranberry, cloudberry, sweetgale, alder, willow, birch, ash, dogwood, and a few others. If you assigned a code of 3 or higher to any of the first four choices and the ground cover beneath

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	Α	В	C	D	E
18	- 11	В	coniferous trees (may include tamarack) taller than 3 m.	2	THE TREESTAILINDS IS < 20 % HIUSS, THEIT QUESTION FT HIIGHT DE BT. [CS, HVV, NVK, FH, FOE, 30NI,
19			deciduous trees taller than 3 m.	3	Sens]
20			coniferous or ericaceous shrubs or trees 1-3 m tall not directly below the canopy of trees.	4	
21			deciduous shrubs or trees 1-3 m tall not directly below the canopy of trees.	4	
22			coniferous or ericaceous shrubs <1 m tall not directly below the canopy of taller vegetation.	1	
23			deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	1	
-	Mata	If none of ton A rough	, , , , , , , , , , , , , , , , , , , ,	_	
24		· · · · · · · · · · · · · · · · · · ·	n F3 was marked 2 or greater , SKIP to F9 (N fixers).		
25	F4	Dominance of Most Abundant Shrub	Determine which two woody plant species comprise the greatest portion of the low (<3 m) woody cover . Then choose one:		[PH, POL, SBM, Sens]
26		Species	those species together comprise > 50% of such cover.	1	
27		Species	those species together do not comprise > 50% of such cover.	0	
	F5	Woody Diameter	Mark ALL the types that comprise >5% of the woody canopy cover in the AA or >5% of the wooded areas (if any) along its upland		Estimate the diameters at chest height. If small-diameter trees are overtopped (shaded) by larger
28		Classes	edge (perimeter). The edge should include only the trees whose canopies extend into the AA.		13 0 0
29			coniferous, 1-9 cm diameter and >1 m tall.	1	
30			broad-leaved deciduous 1-9 cm diameter and >1 m tall.	1	species. [AM, CS, POL, SBM, Sens, WBN]
31			coniferous, 10-19 cm diameter.	1	
32			broad-leaved deciduous 10-19 cm diameter.	1	
33			coniferous, 20-40 cm diameter.	1	
34			broad-leaved deciduous 20-40 cm diameter.	1	
35			coniferous, >40 cm diameter.	0	
36			broad-leaved deciduous >40 cm diameter.	0	
	F6	Height Class	Follow the key below and mark the ONE row that best describes MOST of the AA:		[AM, INV, NR, PH, SBM, Sens]
37		Interspersion			Estimate the diameters at chest height. If small-diameter trees are overtopped (shaded) by larger ones, visualise a "subcanopy" at the average height of the smaller-dbh trees, to serve as a basis for the minimum 5% canopy requirement in this question. The trees and shrubs need not be wetland species. [AM, CS, POL, SBM, Sens, WBN] [AM, INV, NR, PH, SBM, Sens] [AM, INV, NR, PH, SBM, Sens] Snags are dead standing trees that often (not always) lack bark and foliage. Include only ones that are at least 2 m tall. [POL, SBM, WBN]
		'	A. Neither the vegetation taller than 1 m nor the vegetation shorter than that comprise >70% of the vegetated part of the AA. They each comprise 30-70%. Choose between A1 and A2 and mark the choice with a 1 in the adjoining column. Otherwise go to B below.		
			each comprise 50-70%. Choose between AT and A2 and mark the choice with a T in the adjoining column. Otherwise go to b below.		
38					
39			A1. The two height classes are mostly scattered and intermixed throughout the AA.	0	
40			A2. Not A1. The two height classes are mostly in separate zones or bands, or in proportionately large clumps.	0	
			B. Either the vegetation shorter than 1 m comprises >70% of the vegetated part of the AA, or the vegetation taller than that does. One		
41			size class might even be totally absent. Choose between B1 and B2 and mark the choice with a 1 in the adjoining column:		
42			B1. The less prevalent height class is mostly scattered and intermixed within the prevalent one.	1	
			B2. Not B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is	0	
43	F7		completely absent.		
44	F/	Large Snags (Dead	The number of large snags (diameter >20 cm) in the AA plus adjacent upland area within 10 m of the wetland edge is:		
45		Standing Trees)	None, or fewer than 8/ hectare which exceed this diameter.	1	are at least 2 fit tall. [FOE, SDIW, WDIV]
46			Several (>8/hectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km.	0	
47			Several (>8/hectare) but above not true.	0	
48	F8	Downed Wood	The number of downed wood pieces longer than 2 m and with diameter >10 cm, and not persistently submerged, is:		Exclude temporary "burn piles." [AM, INV, POL, SBM]
49			Few or none that meet these criteria.	1	
50			Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria.	0	
	F9	N Fixers	The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa, other		Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
51			legumes) is:		
52			<1% or none.	0	
53			1-25% of the vegetated cover, in the AA or along its water edge (whichever has more).	1	
54			25-50% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
55			50-75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
56			>75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
50					

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A	В	C	D	E
F10	Sphagnum Moss	The cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured by taller		Exclude moss growing on trees and rocks. [CS, PH]
57 Extent 58 59 60 61 62 F11 % Bare (63 F12 Ground I 64 65 66 67 68 F12 Ground I 71 72 73 F13 Upland I 74 75 76 F14 Soil Text 77 78 80 81 82 F15 Shorebir Habitats 84 85 86 87 88 F16 Herbace		sedges and other plants rooted in it, is:		
		<5% of the vegetated part of the AA.	0	
		5-25% of the vegetated part of the AA.	0	
		25-50% of the vegetated part of the AA.	1	
		50-95% of the vegetated part of the AA.	0	
		>95% of the vegetated part of the AA.	0	
	0/ D C 0	0 1	U	Thatab is dead plant material (stame Jeause) resting on the ground surface. Dare ground that is
1	% Bare Ground &	Consider the parts of the AA that lack surface water at the driest time of the growing season. Viewed from directly above the ground layer, the predominant condition in those areas at that time is:		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that is present under a tree or shrub canopy should be counted. Boulders count as bare ground. Wetlands
63	match			with mineral soils and that are heavily shaded or are dominated by annual plant species tend to
		Little or no (<5%) bare ground is visible between erect stems or under canopy anywhere in the vegetated AA. Ground is extensively	1	have more extensive areas that are bare during the early growing season. [AM, EC, INV, NR, OE,
		blanketed by dense thatch, moss, lichens, graminoids with great stem densities, or plants with ground-hugging foliage.		POL, PR, SBM, Sens]
64				
		Slightly bare ground (5-20% bare between plants) is visible in places, but those areas comprise less than 5% of the unflooded parts of	0	
65		the AA.		
		Much bare ground (20-50% bare between plants) is visible in places, and those areas comprise more than 5% of the unflooded parts of	0	
		the AA.	_	
		Other conditions.	0	
		Not applicable. Surface water (either open or obscured by emergent plants) covers all of the AA all the time.	0	
F12	Ground Irregularity	Imagine the AA without any living vegetation. Excluding the portion of the AA that is always under water, the number of hummocks, small		The depressions may be of human or natural origin. [AM, EC, INV, NR, PH, POL, PR, SBM, SR,
		pits, raised mounds, animal burrows, ruts, gullies, natural levees, microdepressions, and other areas of peat or mineral soil that are raised		WS]
69		or depressed >10 cm compared to most of the area within a few meters surrounding them is:		
70		Few or none (minimal microtopography; <1% of the land has such features, or entire AA is always water-covered).	0	
71		Intermediate.	1	
		Several (extensive micro-topography).	0	
E12	Upland Inclusions	Within the AA, inclusions of upland are:		[AM, NR, SBM]
	-			
		Few or none.	0	
		Intermediate (1 - 10% of vegetated part of the AA).	1	
76		Many (e.g., wetland-upland "mosaic", >10% of the vegetated AA).	0	
F14	Soil Texture	In parts of the AA that lack persistent water, the texture of soil in the uppermost layer is mostly: [To determine this, use a trowel to check		[CS, NR, OE, PH, PR, Sens, SFS, WS]
77		in at least 3 widely spaced locations, and use the soil texture key (in Appendix A of the Manual).]		
		Loamy: soils that may contain a little fine grit and do not make a "ribbon" longer than 2 cm when moistened, rolled, squeezed, and	0	
78		extended between thumb and forefinger.		
		Fines: includes silt, clay, silt, soils that make a ribbon longer than 2 cm when moistened, rolled, squeezed, and extended between thumb	0	
57 S S S S S S S S S		and forefinger.		
		Deep Peat, to 40 cm depth or greater.	0	
81		Shallow Peat or organic <40 cm deep.	1	
		Coarse: includes sand, loamy sand, gravel, cobble, soils that do not make a ribbon when moistened, rolled, squeezed, and extended	0	
82		between thumb and forefinger.		
F15	Shorebird Feeding	During any 2 consecutive weeks of the growing season, the extent of mudflats, bare unshaded saturated areas not covered by thatch,		This addresses needs of many but not all migratory sandpipers, plovers, and related species. [WBF]
83	Habitats	and unshaded waters shallower than 6 cm is: [Include also any area that is adjacent to the AA.]		
84		None, or <100 sq. m.	1	
		100-1000 sq. m.	0	
		1000 – 10,000 sq. m.	0	
		>10,000 sq. m.	0	
E14	Herbaceous % of	In aerial ("ducks eye") view, the maximum annual cover of herbaceous vegetation (all non-woody plants except moss) is:	Ť	[AM, WBF, WBN]
88	Vegetated Wetland			[100, 100, 110, 1]
	vegetated Wetland	<5% of the vegetated part of the AA or <0.01 hectare (whichever is less). Mark "1" here and SKIP to F20 (Invasive Plant Cover).	0	
90		5-25% of the vegetated part of the AA.	0	
91		25-50% of the vegetated part of the AA.	1	
92		50-95% of the vegetated part of the AA.	0	
		>95% of the vegetated part of the AA.	0	
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A	В	С	D	E
94 F17	Forb Cover	Within parts of the AA having herbaceous cover (excluding SAV), the areal cover of forbs reaches an annual maximum of:		Forbs are flowering plants. Do not include grasses, sedges, cattail, other graminoids, ferns,
95		<5% of the herbaceous part of the AA.	0	horsetails, or others that lack showy flowers. [POL]
96		5-25% of the herbaceous part of the AA.	1	
97		25-50% of the herbaceous part of the AA.	0	
98		50-95% of the herbaceous part of the AA.	0	1
99		>95% of the herbaceous part of the AA.	0	1
100 F18	Sedge Cover	Sedges (Carex spp.) and cottongrass (Eriophorum spp.) occupy:		[CS]
101		<5% of the vegetated area, or none.	0	1
102		5-50% of the vegetated area.	1	
103		50-95% of the vegetated area.	0	
104		>95% of the vegetated area.	0	1
F19	Dominance of Most	Determine which two herbaceous species comprise the greatest portion of the herbaceous cover (excluding mosses and floating-leaved		For this question, include ferns as well as graminoids and forbs. [EC, INV, PH, POL, Sens]
105	Abundant Herbaceous	aquatic plants). Then choose one of the following:		
106	Species	those species together comprise > 50% of the areal cover of herbaceous plants at any time during the year.	1	
107		those species together do not comprise > 50% of the areal cover of herbaceous plants at any time during the year.	0	
F20 108	Invasive Plant Cover	How extensive is the cover of invasive plant species in the AA? For species, see Plants_invasive worksheet in the accompanying Supplnfo file.		[EC, PH, POL, Sens]
109		invasive species appear to be absent in the AA, or are present only in trace amount (a few individuals).	1	1
110		invasive species are present in more than trace amounts, but comprise <5% of herbaceous cover (or woody cover, if the invasives are woody).	0	
111		invasive species comprise 5-20% of the herb cover (or woody cover, if the invasives are woody).	0	1
112		invasive species comprise 20-50% of the herb cover (or woody cover, if the invasives are woody).	0	1
113		invasive species comprise >50% of the herb cover (or woody cover, if the invasives are woody).	0	1
F21	Invasive Cover Along	Along the wetland-upland boundary, the percent of the upland edge (within 3 m upslope from the wetland) that is occupied by invasive		If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an exotic
114	Upland Edge	plant species is:		species, assume the unidentified plant to also be exotic. If vegetation is so senesced that exotic
115		none of the upland edge (invasives apparently absent), or AA has no upland edge.	1	species cannot be identified, answer "none". [PH, STR]
116		some (but <5%) of the upland edge.	0	
117		5-50% of the upland edge.	0	1
118		most (>50%) of the upland edge.	0	
F22 119	Fringe Wetland	During most of the year, open water within or adjacent to the vegetated part of the wetland is much wider than the maximum width of the vegetated zone within the wetland. Enter "1" if true, "0" if false.	0	[WBF, WBN, WCv]
F23 120	Lacustrine Wetland	The vegetated part of the AA is within or adjacent to a body of non-tidal standing open water whose size exceeds 8 hectares during most of a normal year.	0	[FR, PR, PU, WBF, WBN]
F24	% of AA Without	The percentage of the AA that <u>never contains surface</u> water during an average year (that is, except perhaps for a few hours after		1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m, 1000 m
121	Surface Water	snowmelt or rainstorms), but which is still a wetland, is:		by 10 m, or similar. [AM, FA, FR, INV, NR, PH, PR, SBM, Sens, SRv, WBF, WBN, WC]
122		<1%. In other words, all or nearly all of the AA is covered by water permanently or at least seasonally.	0	
123		1-25% of the AA, or <1% but >0.01 ha never contains surface water.	0	
124		25-50% of the AA never contains surface water.	0	
125		50-75% of the AA never contains surface water.	1	
126		75-99% of the AA never contains surface water, OR >99% and there is at least one persistently ponded water body larger than 1 ha in the AA.	0	
127		99-100%. AND there is no persistently ponded water body larger than 1 ha within the AA. Enter "1" and SKIP to F42 (Channel Connection).	0	
F25	% of AA with	Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during the driest		If you are unable to determine the condition at the driest time of year, ask the land owner or
	Persistent Surface	times of a normal year, i.e., when the AA's surface water is at its lowest annual level. At that time, the percentage of the AA that still		neighbors about it if possible. Indicators of persistence may include fish, some dragonflies, beaver,
128	Water	contains surface water is:		and muskrat. [AM, CS, FA, FR, INV, NR, POL, PR, SBM, WBF, WBN]
129		None. The AA dries up completely (no water in channels either) or never has surface water during most years. SKIP to F27.	1	1
130		1-20% of the AA.	0	
131		20-50% of the AA.	0	1
132		50-95% of the AA.	0	1
		>95% of the AA. True for many fringe wetlands.	0	4

FieldF form - Non-tidal Page 4 of 9

A	В	С	D	E
F26	% of Summertime	At mid-day during the warmest time of year, the area of surface water within the AA that is shaded by vegetation and other features that		[FA, WC]
134	Water that Is Shaded	are <u>within</u> the AA at that time is:		
135		<5% of the water is shaded, or no surface water is present then.	0	
136		5-25% of the water is shaded.	0	
137		25-50% of the water is shaded.	0	
138		50-75% of the water is shaded.	0	
139		>75% of the water is shaded.	0	
F27	% of AA that is	The percentage of the AA's area that is between the annual high water and the annual low water (surface water) is:		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not
140	Flooded Only	None of 0.01 houses and 40/ of the AA CMD to F20	0	fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial)
141	Seasonally	None, or <0.01 hectare and <1% of the AA. SKIP to F29.	_	plant species. In riverine systems, the extent of this zone can be estimated by multiplying by 2 the
142		1-20% of the AA, or <1% but >0.01 ha.	1	bankful height and visualising where that would intercept the land along the river. [CS, FA, INV, NR,
143		20-50% of the AA. 50-95% of the AA.		OE, PH, SR, WBF, WBN, WS]
144			0	
145	A	>95% of the AA.	0	Look for flood marks (occupants). Decouse the appual range of water levels is difficult to estimate
146 F28	Annual Water	The annual fluctuation in surface water level within most of the parts of the AA that contain surface water at least temporarily is:		Look for flood marks (see above). Because the annual range of water levels is difficult to estimate without multiple visits, consider asking the land owner or neighbors about it. [AM, CS, INV, NR, OE,
147	Fluctuation Range	<10 cm change (stable or nearly so).	0	PH, PR, SR, WBN, WS
148		10 cm - 50 cm change.	1	,,
149		0.5 - 1 m change.	0	
150		1-2 m change.	0	
151		>2 m change.	0	
Is the	AA plus adjacent ponde	d water smaller than 0.01 hectare (about 10m x 10m, or 1m x 100 m)? If so, enter "1" in column D and SKIP TO F42	0	
152 (Conn	ection).			
F29	Predominant Depth	During most of the time when surface water is present during the growing season, its depth, averaged over the entire inundated part of		If a boat is unavailable, estimate this by considering wetland size and local topography. Or if timing
153	Class	the AA, is:		and safety allow, depths may be measured by drilling through winter ice. This question is asking
154		<10 cm deep (but >0).	1	about the spatial median depth that occurs during most of that time, even if inundation is only
155		10 - 50 cm deep.	0	seasonal or temporary. If inundation in most but not all of the wetland is brief, the answer will be
156		0.5 - 1 m deep.	0	based on the depth of the most persistently inundated part of the wetland. Include surface water in channels and ditches as well as ponded areas. [CS, FA, FR, INV, OE, PH, PR, Sens, SFS, SR,
157		1 - 2 m deep.	0	WBF, WBN, WC
158		>2 m deep. True for many fringe wetlands.	0	,,
159 F30	Depth Classes -	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. [FR, INV,
160	Evenness of	One depth class that comprises >90% of the AA's inundated area (use the classes in the question above).	1	WBF, WBN]
161	Proportions	One depth class that comprises 50-90% of the AA's inundated area (use the classes in the question above).	0	
162		Neither of above. There are 3 or more depth classes and none occupy >50%.	0	
	% of Water That Is	During most times when surface water is present, the percentage that is (1) ponded (stagnant, or flows so slowly that fine sediment is not	U	Nearly all wetlands with surface water have some ponded water. [AM, CS, INV, NR, OE, PR, Sens,
		held in suspension) AND (2) is likely to be deeper than 0.5 m in some places, is:		SR, WBF, WBN, WC, WS]
164	r onded (not r lowing)	<5% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34.	0	
165		5-30% of the water.	0	
166		30-70% of the water.	0	
167		70-95% of the water.	0	
168		>95% of the water.	1	
F32	Ponded Open Water -	During most of the growing season, the largest patch of open water that is ponded and is in or bordering the AA is >0.01 hectare (about	0	Open water is not obscured by vegetation in aerial ("duck's eye") view. It includes vegetation
1 32	Minimum Size	10 m by 10 m) and mostly deeper than 0.5 m. If true enter "1" and continue, If false, enter "0" and SKIP to F41 (Floating Algae &	0	floating on the water surface or entirely submersed beneath it.
		Duckweed).		· · · · · · · · · · · · · · · · · · ·
169				
F33	% of Ponded Water	In ducks-eye aerial view, the percentage of the ponded water that is open (lacking emergent vegetation during most of the growing		[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]
170	that is Open	season, and unhidden by a forest or shrub canopy) is:		
171		None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	0	
172		1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	0	
173		5-30% of the ponded water.	0	
174		30-70% of the ponded water.	0	
175		70-99% of the ponded water.	0	
176		100% of the ponded water.	0	
			_	

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A	В	С	D	E
F34	Width of Vegetated	At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in the AA that separates		"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may
177	Zone within Wetland	adjoining uplands from open water within the AA is:		include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH,
178		<1 m.	0	PR, SBM, Sens, SR, WBN]
179		1 - 9 m.	0	
180		10 - 29 m.	0	
181		30 - 49 m.	0	
182		50 - 100 m.	0	
183		> 100 m, or open water is absent at that time.	0	
F35	Flat Shoreline Extent	During most of the part of the growing season when water is present, the percentage of the AA's water edge length that is nearly flat (a		If several isolated pools are present in early summer, estimate the percent of their collective
184		alled		
185				
186		1-25% of the water edge.	0	
187		25-50% of the water edge.	0	
188		50-75% of the water edge.	0	
189		>75% of the water edge.	0	
F36	Robust Emergents	The percentage of the emergent vegetation cover in the AA that is cattail (<i>Typha</i> spp.), common reed (<i>Phragmites</i>), or tall (>1m)		Emergent vegetation is herbaceous plants whose stems are partly above and partly below the
190	J	bulrush is:		water surface during most of the time water is present. [WBN]
191		<1% of the emergent vegetation, or emergent vegetation is absent. SKIP to F38.	0	
192		1-25% of the emergent vegetation.	0	
193		25-75% of the emergent vegetation.	0	
194		>75%, of the emergent vegetation.	0	
F37		3 1 3 3 1 1 1 3 3		[AM, FA, FR, INV, NR, OE, PH, PR, SBM, SR, WBF, WBN]
195				
196	Time			
197			neductive wooded ripartan areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR, SBM, Sens, SR, WBN] If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentile stope. [SR, WBN] If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentile stope. [SR, WBN] If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentile stope. [SR, WBN] If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentile stope. [SR, WBN] If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentile stope. [SR, WBN] If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentile stope. [SR, WBN] If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentile stope. [SR, WBN] If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentile stope. [SR, WBN] If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentile stope. [SR, WBN] If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentile stope. [SR, WBN] If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentile stope. [SR, WBN] If several isolated pools are present in early summer, estimate the percent of the surface and solated pools are present in early summer, estimate the percent of the surface. If several isolated pools are p	
100		i i i	0	
198			_	
F38	'		U	
199	Alea	the growing season, enter 1 and continue. If not, enter 0 and SNF to 142.(Connection).		
F39	9			
200	Aquatic Cover	provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is:		
201		Little or none.	0	be attempted. [AM, FA, FR, INV]
202		Intermediate.	0	
203			0	
F40			0	[WBN]
204				
F41	Floating Algae &		0	[EC, PR, WBF]
205	Duckweed	blanket >50% of the underwater substrate. If true, enter "1" in next column. If untrue or uncertain, enter "0".		
203				

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F4		В	C	D	E
206	42	Channel Connection & Outflow Duration	The most persistent surface water connection (outlet channel or pipe, ditch, or overbank water exchange) between the AA and a downslope stream network is: [Note: If the AA represents only part of a welland, answer this according to whichever is the least permanent surface connection: the one between the AA and the rest of the welland, or the surface connection between the welland and the downslope stream network.]		Consider the connection regardless of whether the surface water is frozen. The "downslope stream network" could consist of ditches, rivers, ponds, or lakes which eventually connect to the ocean. If this cannot be determined while visiting the AA, consult topographic maps perhaps by viewing these online with Toporama (http://atlas.nrcan.gc.ca/toporama/en/index.html) [CS, FA, FR, NR, OE, PR, Sens, SFS, SR, WCv, WS]
207			Persistent (surface water flows out for >9 months/year).	0	Solid, St. St., Wor, Woj
208			Seasonal (surface water flows out for 14 days to 9 months/year, not necessarily consecutive).	0	
209			Temporary (surface water flows out for <14 days, not necessarily consecutive).	0	
210			None but maps show a stream network downslope from the AA and within a distance that is less than the AA's length. SKIP to F47 (pH Measurement).	0	
211			No surface water flows out of the wetland except possibly during extreme events (<once (ph="" 10="" a="" an="" ditch,="" f47="" flows="" into="" lacks="" lake="" measurement).<="" only="" or="" or,="" outlet.="" per="" skip="" td="" that="" to="" water="" wetland,="" years).=""><td>1</td><td></td></once>	1	
212 F4	43	Outflow Confinement	During major runoff events, in the places where surface water exits the AA or connected waters nearby, the water:		"Major runoff events" would include biennial high water caused by storms and/or rapid snowmelt.
213			Mostly passes through a pipe, culvert, narrowly breached dike, berm, beaver dam, or other partial obstruction (other than natural topography) that does not appear to drain the wetland artificially during most of the growing season.	0	[CS, NR, OE, PR, Sens, SR, STR, WS]
214			Leaves through natural exits (channels or diffuse outflow), not mainly through artificial or temporary features.	0	
215			Is exported more quickly than usual due to ditches or pipes within the AA or connected to its outlet, or within 10 m of the AA's edge, which drain the wetland artificially, or water is pumped out of the AA.	0	
216	14	Tributary Channel	At least once annually, surface water from a tributary channel that is >100 m long moves into the AA. Or, surface water from a larger permanent water body adjacent to the AA spills into the AA. If it enters only via a pipe, that pipe must be fed by a mapped stream or lake further upslope. If no, SKIP to F47 (pH Measurement).	0	If inlet tributaries cannot be searched for due to inaccessibility of part of the AA, follow suggestions in F42 above. [NRv, PH, PRv, SRv]
F4	45	Input Water Temperature	Based on lack of shade, water source characteristics, or actual temperature measurements, the inflow is likely to be warmer than surface water in the AA during part of most years. Enter 1= yes, 0= no.	0	[WCv]
218	46	Throughflow Resistance	During its travel through the AA at the time of peak annual flow, water arriving in channels: [select only the ONE encountered by most of the incoming water].		[FA, FR, INV, NR, OE, PR, SR, WS]
219			Does not bump into many plant stems as it travels through the AA. Nearly all the water continues to travel in unvegetated (often incised) channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond or lake.	0	
220			Bumps into herbaceous vegetation but mostly remains in fairly straight channels.	0	
221			Bumps into herbaceous vegetation and mostly spreads throughout, or is in widely meandering, multi-branched, or braided channels.	0	
222			Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels.	0	
223			Bumps into tree trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or braided).	0	
Outflow Duration During major runoff events, Mostly passes through a pip topography) that does not a Leaves through natural exits is exported more quickly the drain the wetland artificially, and the wetland artifici	The pH in most of the AA's surface water:		Preferably, measure this in larger areas of ponded surface water within the AA, or in streams that		
225			Was measured, and is: [enter the reading in the column to the right.]		have passed through (not along) most of the AA. Unless surface water is completely absent, do not dig holes or make depressions in peat in order to provide water for this measurement. Avoid
226			Was not measured but surface water is present and is darkly tea-coloured. Or if no surface water, then mosses and plants that indicate peatland (e.g., Labrador tea) are prevalent. Enter "1".	1	measuring near roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
227				0	
228 F4	48		The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information):		See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
229		Conductivity	TDS is: [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.]		
			Conductivity is [Enter the reading in µS/cm in the column to the right.]		
			Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1".	0	
232				1	(F) FD DU ODU O WDF WDW
233 F4	49	Beaver Probability	Use of the AA by beaver during the past 5 years is (select most applicable ONE): Evident from direct observation or presence of gnawed limbs, dams, tracks, dens, lodges, or extensive stands of water-killed trees	0	[FA, FR, PH, SBM, Sens, WBF, WBN]
234			· · · · · · · · · · · · · · · · · · ·		
			Likely based on known occurrence in the region and proximity to suitable habitat, which may include: (a) a persistent freshwater wetland, pond, or lake, or a perennial low or mid-gradient (<10%) channel, and (b) a corridor or multiple stands of hardwood trees and shrubs in vegetated areas near surface water.	0	
			Unlikely because site characteristics above are deficient, and/or this is a settled area or other area where beaver are routinely removed.	1	

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A	В	С	D	E
237 F50	Groundwater Strength	Select first applicable choice:		Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or
238	of Evidence	Springs are known to be present within the AA, or if groundwater levels have been monitored, that has demonstrated that groundwater primarily discharges to the wetland for longer periods during the year than periods when the wetland recharges the groundwater.	0	other evidence. Consult topographic maps to detect breaks in slope described here. Rust deposits associated with groundwater seeps may be most noticeable as orange discoloration in ice formations along streams during early winter. [AM, CS, FA, FR, INV, NR, OE, PH, PRv, SFS, WC, WS]
239		Most of the AA has a slope of >5%, or is very close to the base of a natural slope longer than 100 and much steeper than the slope of the AA, AND the pH of surface water, if known, is >5.5.	0	
240		Neither of above is true, although some groundwater may discharge to or flow through the AA. Or groundwater influx is unknown.	1	
241 F51	Internal Gradient	The gradient along most of the flow path within the AA is:		This is not the same as the shoreline slope. It is the elevational difference between the AA's inlet
		<2% or the AA has no surface water outlet (not even seasonally).	0	and outlet, divided by the flow-distance between them and converted to percent. If available, use a
		2-5%.	1	clinometer to measure this. Free clinometer apps can be downloaded to smartphones. If the wetland is large (longer than ~1 km), this may be estimated using Google Earth to determine the minimum
244		6-10%.	0	and maximum elevation within the AA, then dividing by length and multiplying by 100. [CS, NR, OE,
245		>10%.	0	PR, SR, WBF, WBN, WS]
	· · · · · · · · · · · · · · · · · · ·	stions: If the AA lacks an upland edge, evaluate based on the AA's entire perimeter, and moving outward into whatever areas ons, these questions are best answered by measuring from aerial images.		
F52 247	Vegetated Buffer as % of Perimeter	Within a zone extending 30 m laterally from the AA's edge with upland and/or other wetlands, the percentage that contains perennial vegetation cover (except lawns, row crops, heavily grazed land, conifer plantations) is:		[AM, FA, FR, INV, NRv, PH, POL, PRv, SBM, Sens, SRv, STR, WBN]
237 F50 Groundwa of Evidence 238		<5%.	0	
		5 to 30%.	0	
		30 to 60%.	1	
251		60 to 90%.	0	
252		>90%, or all the area within 30 m of the AA edge is other wetlands. SKIP to F55.	0	
	Type of Cover in Buffer	Within 30 m upslope of where the wetland transitions to upland, the upland land cover that is NOT perennial vegetation is mostly (mark ONE):		[AM, FA, INV, NRv, PH, POL, SBM, STR, WBN]
254		Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0	
-		Bare or nearly bare pervious surface or managed vegetation, e.g., lawn, row crops, unpaved road, dike, landslide.	1	
	Buffer Slope	The steepest and/or most disturbed part of the upland area that is within 30 m of the wetland and occupies >10% of that upland area has a percent slope of:		[NRv, PRv, Sens, SRv]
		<1% (flat almost no noticeable slope) or all the area within 30 m of the AA edge is other wetlands.	0	
			1	
			0	
238		0		
	Cliffs or Steep Banks	In the AA or within 100 m, there are elevated terrestrial features such as cliffs, talus slopes, stream banks, or excavated pits (but not riprap) that extend at least 2 m nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den areas. Enter 1 (yes) or 0 (no).	0	Do not include upturned trees as potential den sites. [POL, SBM]
	•	Human actions within or adjacent to the AA have persistently expanded a naturally occurring wetland or created a wetland where there previously was none (e.g., by excavation, impoundment):		Determine this using historical aerial photography, old maps, soil maps, or permit files as available [CS, NR, OE, PH, Sens]
263		No.	0	
264		Yes, and created or expanded 20 - 100 years ago.	0	
265		Yes, and created or expanded 3-20 years ago.	1	
266		Yes, and created or expanded within last 3 years.	0	
		Yes, but time of origin or expansion unknown.	0	
		Unknown if new or expanded within 20 years or not.	0	
269	Burn History	More than 1% of the AA's previously vegetated area:		Look for charred soil or stumps (in multiple widely-spaced locations) or ask landowner. [CS, PH, STR]
		Burned within past 5 years.	0	
		Burned 6-10 years ago.	0	
		Burned 11-30 years ago.	0	
273		Burned >30 years ago, or no evidence of a burn and no data.	1	

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A	В	C	D	Е
A B	The maximum percentage of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings,		[PU, STR, WBFv]	
274		or public maintained trails that intersect, adjoin, or are within 100 m of the AA (select one) is:		
275		<25%.	0	
276		25-50%.	0	
277		>50%.	1	
278 F59		Assuming access permission was granted, select ALL statements that are true of the AA as it currently exists:		[PU, STR]
279		For an average person, walking is physically possible <u>in</u> (not just near) >5% of the AA during most of the growing season, e.g., free of deep water and dense shrub thickets.	1	
280		Maintained roads, parking areas, or foot-trails are within 10 m of the AA, or the AA can be accessed part of the year by boats arriving via contiguous waters.	0	
281		Within or near the AA, there is an interpretive center, trails with interpretive signs or brochures, and/or regular guided interpretive tours.	0	
	Unvisited Core Area	The percentage of the AA almost never visited by humans during an average growing season probably comprises: [Note: Only include the part actually walked or driven (not simply viewed from) with a vehicle or boat. Do not include visitors on trails outside of the AA unless more than half the wetland is visible from the trails and they are within 30 m of the wetland edge. In that case include only the area occupied by the trail.]		[AM, FAv, FRv, PH, PU, SBM, STR, WBF, WBN]
283		<5% and no inhabited building is within 100 m of the AA.	1	
284		<5% and inhabited building is within 100 m of the AA.	0	
285		5-50% and no inhabited building is within 100 m of the AA.	0	
286		5-50% and inhabited building is within 100 m of the AA.	0	
287		50-95%, with or without inhabited building nearby.	0	
288		>95% of the AA with or without inhabited building nearby.	0	
		The part of the AA visited by humans almost daily for several weeks during an average growing season probably comprises: [See note above.]		[AM, PH, PU, SBM, STR, WBF, WBN]
290		<5%. If F60 was answered ">95%" (mostly never visited), SKIP to F64.	1	
291		5-50%.	0	
292		50-95%.	0	
293		>95% of the AA.	0	
	BMP - Soils	Boardwalks, paved trails, fences or other infrastructure and/or well-enforced regulations appear to effectively prevent visitors from walking on soil within nearly all of the AA when the soil is unfrozen. Enter "1" if true.	0	[PH, PU]
		Fences, observation blinds, platforms, paved trails, exclusion periods, and/or well-enforced prohibitions on motorised boats, off-leash pets, and off road vehicles appear to effectively exclude or divert visitors and their pets from the AA at critical times in order to minimize disturbance of wildlife (except during hunting seasons). Enter "1" if true.	0	[AM, PU, WBF, WBN]
296 F64		Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select ALL that apply.		[FAv, FRv, WBFv]
297	F59	Low-impact commercial timber harvest (e.g., selective thinning).	1	
298		Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0	
299		Waterfowl hunting.	0	
300		Fishing.	0	
301		Trapping of furbearers.	0	
302		None of the above.	0	
303	Domestic Wells	The closest wells or water bodies that currently provide drinking water are:		[NRv]
		Within 0-100 m. of the AA.	0	
		100-500 m. away.	0	
306	282 283 284 285 286 287 288 F61 Frequently Visited Area 290 291 292 293 F62 BMP - Soils 294 F63 BMP - Wildlife Protection 295 296 F64 Consumptive Uses (Provisioning Services) 297 298 300 301 302 303 F65 Domestic Wells 304 305 306 F66 Calcareous Fen	>500 m. away, or no information.	1	
	Calcareous Fen	The AA is, or is part of, a calcareous fen. See the Plants_Calcar worksheet in the accompanying Supplnfo file for list of plant indicators (calciphiles). Enter 1 If more than two Strong or more than five Moderate calciphile species are present; otherwise enter 0, but if not able to identify those and no information, change to blank.		[PH, PR]
307		and the state of t		

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stigator: Darcy Kavanagh & Jordan Davis	Site Identifier: WL50		Date: September 15, 2022					
ressor (S) Data Form for Non-Tida	al Wetlands. WESP-AC for Nova S	Scotia version 2.		Data				
Aberrant Timing of Water Inputs								
	y to have caused the timing of water inputs (but not necessarily their (larger or more frequent spikes but over shorter times). [FA, FR, INV		uted (smaller or less frequent peaks spread over longer times,					
Stormwater from impervious surfaces that drains directly to the w								
Water subsidies from wastewater effluent, septic system leakage,	snow storage areas, or irrigation.							
Regular removal of surface or groundwater for irrigation or other of	consumptive use.							
Flow regulation in tributaries or water level regulation in adjoining	water body, or other control structure at water entry points that regul	ates inflow to the wetland.						
A dam, dike, levee, weir, berm, or fill within or downgradient fro	m the wetland that interferes with surface or subsurface flow in/out	of the AA (e.g., road fill, wellpads, pipelines).						
Excavation within the wetland, e.g., dugout, artificial pond, dead-e	end ditch.							
Artificial drains or ditches in or near the wetland.								
Accelerated downcutting or channelization of an adjacent or interest	nal channel (incised below the historical water table level).							
Logging within the wetland.								
Subsidence or compaction of the wetland's substrate as a result of	of machinery, livestock, fire, drainage, or off road vehicles.							
Straightening, ditching, dredging, and/or lining of tributary channel	ls.							
	olow, assign points. However, if you believe the checked items had no condition if the checked items never occurred or were no longer prese.		the AA, then leave the "O's" for the scores in the following					
	Severe (3 points) Medium (2 points)		Mild (1 point)					
Spatial extent of timing shift within the wetland:	>95% of wetland.	5-95% of wetland.	<5% of wetland.	0				
When most of the timing shift began:	<3 yrs ago.	3-9 yrs ago.	10-100 yrs ago.	0				
Score the following 2 rows only if the altered inputs began within pa	ast 10 years, and only for the part of the wetland that experiences the	ose.						
Input timing now vs. previously:	Shift of weeks.	Shift of days.	Shift of hours or minutes.	0				
Flashiness or muting:	Became very flashy or controlled.	Intermediate.	Became mildly flashy or controlled.	0				
			Sum=	0				
			Stressor subscore=	0.00				
Accelerated Inputs of Contaminants and/o	r Salts							
In the last column, place a check mark next to any item occurring	g in either the wetland or its CA that is likely to have accelerated th	e inputs of contaminants or salts to the AA. [AM, FA, PH, POL, STF	?/					
Stormwater or wastewater effluent (including failing septic system	s), landfills, industrial facilities.							
Metals & chemical wastes from mining, shooting ranges, snow stonpri/default.asp?lang=En&n=B85A1846-1	orage areas, oil/ gas extraction, other sources (download many location)	ions from National Pollutant Release Inventory and view KMZ overl	ay in Google Earth. https://www.ec.gc.ca/inrp-					
Road salt.								
Spraying of pesticides, as applied to lawns, croplands, roadsides,	or other areas in the CA.							
	olow, assign points. However, if you believe the checked items did no with the condition if the checked items never occurred or were no long		ninants and/or salts, then leave the "O's" for the scores in the					
	Severe (3 points)	Medium (2 points)	Mild (1 point)					
Usual toxicity of most toxic contaminants:	Industrial effluent, mining waste, unmanaged landfill.	Cropland, managed landfill, pipeline or transmission rights-of- way.	Low density residential.	0				
Frequency & duration of input:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.	0				
AA proximity to main sources (actual or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.	0				
			Sum=	0				

Accelerated Inputs of Nutrients									
In the last column, place a check mark next to any item occurring	g in either the wetland or its CA that is likely to have accelerated the	inputs of nutrients to the wetland. [NRv, PRv, STR]							
Stormwater or wastewater effluent (including failing septic systems), landfills.									
Fertilizers applied to lawns, ag lands, or other areas in the CA.									
Fertilizers applied to lawns, ag lands, or other areas in the CA. Livestock, dogs. Artificial drainage of upslope lands. If any items were checked above, then for each row of the table below, assign points. However, if you believe the checked items did not cumulatively expose the AA to significantly more nutrients, then leave the "O's" for the scores in effects, contrast the current condition with the condition if the checked items never occurred or were no longer present.									
Artificial drainage of upslope lands.									
		cumulatively expose the AA to significantly more nutrients, then le	eave the "0's" for the scores in the following rows. To estimate						
	Severe (3 points)	Medium (2 points)	Mild (1 point)						
Type of loading:	High density of unmaintained septic, some types of industrial sources.	Moderate density septic, cropland, secondary wastewater treatment plant.	Livestock, pets, low density residential.						
Frequency & duration of input:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.						
AA proximity to main sources (actual or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.						
			Sum=						
			Stressor subscore=						
Excessive Sediment Loading from Contrib	outing Area								
<u> </u>		are and importance in a the western different to CA IFA FD INIV DI	I CD., CTDI						
, , , , , , , , , , , , , , , , , , , ,	the CA that is likely to have elevated the load of waterborne or windbo	ine seament reacting the wettand from its CA. [FA, FK, INV, PA	, SKV, STKJ						
Erosion from plowed fields, fill, timber harvest, dirt roads, vegetat	ion clearing, tires.								
Erosion from construction, in-channel machinery in the CA.									
Erosion from off-road vehicles in the CA.									
Erosion from livestock or foot traffic in the CA.									
Stormwater or wastewater effluent.									
Sediment from road sanding, gravel mining, other mining, oil/ gas									
Accelerated channel downcutting or headcutting of tributaries due	e to altered land use.								
Other human-related disturbances within the CA.									
	elow, assign points (3, 2, or 1 as shown in header) in the last column. It te effects, contrast the current condition with the condition if the check		a significantly more sealment or suspended solids to the AA,						
	Severe (3 points)	Medium (2 points)	Mild (1 point)						
Erosion in CA:	Extensive evidence, high intensity.*	Potentially (based on high-intensity* land use) or scattered evidence.	Potentially (based on low-intensity* land use) with little or no direct evidence.						
Recentness of significant soil disturbance in the CA:	Current & ongoing.	1-12 months ago.	>1 yr ago.						
Duration of sediment inputs to the wetland:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.						
AA proximity to actual or potential sources:	0 - 15 m.	15-100 m.	In more distant part of contributing area.						
* high-intensity= extensive off-road vehicle use, plowing, grading, soil or sediment.	excavation, erosion with or without veg removal; low-intensity= veg r	removal only with little or no apparent erosion or disturbance of	Sum=						
.									

Soil or Sediment Alteration Within the Ass	essment Area			
In the last column, place a check mark next to any item present in is less). [CS, INV, NR, PH, SR, STR]	the wetland that is likely to have compacted, eroded, or otherwise all	ered the wetland's soil. Consider only items occurring within past 1	00 years or since wetland was created or restored (whichever	
Compaction from machinery, off-road vehicles, livestock, or mou	ntain bikes, especially during wetter periods.			
Leveling or other grading not to the natural contour.				
Tillage, plowing (but excluding disking for enhancement of native	plants).			
Fill or riprap, excluding small amounts of upland soils containing	organic amendments (compost, etc.) or small amounts of topsoil impo	orted from another wetland.		
Excavation.				
Ditch cleaning or dredging in or adjacent to the wetland.				
Boat traffic in or adjacent to the wetland and sufficient to cause s	hore erosion or stir bottom sediments.			
Artificial water level or flow manipulations sufficient to cause eros	sion or stir bottom sediments.			
If any items were checked above, then for each row of the table be effects, contrast the current condition with the condition if the checket.	elow, assign points. However, if you believe the checked items did no cked items never occurred or were no longer present.	t measurably alter the soil structure and/or topography, then leave	the "O's" for the scores in the following rows. To estimate	
	Severe (3 points)	Medium (2 points)	Mild (1 point)	
Spatial extent of altered soil:	>95% of wetland or >95% of its upland edge (if any).	5-95% of wetland or 5-95% of its upland edge (if any).	<5% of wetland and <5% of its upland edge (if any).	
Recentness of significant soil alteration in wetland:	Current & ongoing.	1-12 months ago.	>1 yr ago.	
Duration:	Long-lasting, minimal veg recovery.	Long-lasting but mostly revegetated.	Short-term, revegetated, not intense.	
Timing of soil alteration:	Frequent and year-round.	Frequent but mostly seasonal.	Mainly during one-time or scattered events.	
		•	Sum=	
			Stressor subscore=	0

Assessment Area (AA) Results:

Wetland ID: WL50

Date: September 15, 2022

Observer: Darcy Kavanagh & Jordan Davis

Latitude & Longitude (decimal degrees): 44.04631816166094, -64.82420164263868

Scores will appear below after data are entered in worksheets OF, F, and S. See Manual for definitions and descriptions of how scores were computed.

Function Score (Normalised)	Function Rating	Benefits Score (Normalised)	Benefits Rating	Function Score (raw)	Benefits Score (raw)
7.14	Moderate	4.85	Moderate	7.27	2.15
0.00	Lower	0.00	Lower	0.00	0.00
1.80	Lower	0.00	Lower	1.20	0.00
10.00	Higher	2.25	Moderate	10.00	1.10
10.00	Higher	1.61	Moderate	10.00	1.25
10.00	Higher	4.00	Moderate	10.00	4.00
3.70	Moderate			6.95	
6.67	Moderate			4.36	
0.00	Lower	0.00	Lower	0.00	0.00
0.00	Lower	0.00	Lower	0.00	0.00
2.56	Lower	3.45	Moderate	4.54	3.10
5.18	Moderate	3.06	Moderate	5.84	4.28
4.40	Moderate	4.17	Moderate	3.35	4.17
4.50	Moderate	3.33	Moderate	3.26	3.33
7.08	Moderate	3.33	Moderate	6.17	3.33
7.97	Higher	3.33	Moderate	6.60	3.33
3.19	Lower	5.37	Moderate	5.17	5.37
		2.27	Moderate		1.86
		10.00	Higher		5.08
		4.78	Moderate		7.50
		7.72	Higher		3.89
7.14	Moderate	4.85	Moderate	7.27	2.15
9.21	Higher	3.31	Moderate	9.62	3.06
4.71	Moderate	2.30	Lower	3.53	2.07
4.00	Moderate	3.14	Moderate	4.16	3.32
7.02	Higher	4.69	Lower	6.29	4.69
		4.78	Moderate		7.50
		8.86	Higher		4.48
	(Normalised) 7.14 0.00 1.80 10.00 10.00 10.00 3.70 6.67 0.00 0.00 2.56 5.18 4.40 4.50 7.08 7.97 3.19 7.14 9.21 4.71 4.00	Normalised Punction Rating	Normalised Function Rating (Normalised)	Normalised Function Nating Normalised Seneitis Nating	Normalised Function Rating (Normalised Seneits Rating (raw)

NOTE: A score of 0 does not mean the function or benefit is absent from the wetland. It means only that this wetland has a capacity that is equal or less than the lowest-scoring one, for that function or benefit, from among all the NS calibration wetlands that were assessed previously.

NOVA SCOTIA - Functional WSS Interpretation Tool

3. Functional WSS Interpretation Results

Function-Benefit Product (FBP)	FBP SCORE	FBP SCORE CATEGORY
SUPPORT SUPERGROUP - HYDROLOGIC	34.61276265	Low
SUPPORT SUPERGROUP - WATER QUALITY SUPPORT	30.49154412	Low
SUPPORT SUPERGROUP - AQUATIC SUPPORT	10.84083668	Low
HABITAT SUPERGROUP - AQUATIC HABITAT	12.55145223	Low
HABITAT SUPERGROUP - TRANSITION HABITAT	32.92905189	Low

3a. Functional WSS Determination: Automatic Method

Habitat Rule Satisfied? NO
Support Rule Satisfied? NO
Habitat/Support Hybrid Rule Satisfied? NO

CONCLUSION: Site is not a WSS