APPENDIX

WETLAND
DELINEATION AND
FUNCTIONAL
ASSESSMENTS

HIGHWAY 101 CAMBRIDGE INTERCHANGE AND CONNECTOR ROADS EA

WETLAND DELINEATION AND FUNCTIONAL ASSESSMENTS

MAY 25, 2022







HIGHWAY 101 CAMBRIDGE INTERCHANGE

WETLAND DELINEATION AND FUNCTIONAL ASSESSMENTS

NOVA SCOTIA DEPARTMENT OF PUBLIC WORKS

WSP PROJECT NO.: 211-04152-00

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EXECUTIVE SUMMARY

As a component to the proposed Highway 101 Cambridge Interchange and Connector Roads Environmental Assessment (EA), WSP Canada Inc. was contracted by Nova Scotia Department of Public Works to identify and evaluate wetlands found within the proposed project site.

A desktop review of site conditions using available mapping and data for the area was conducted prior to field surveys. The desktop review was conducted to identify known mapped wetlands and potential unmapped wetlands and assist in scoping field surveys. Wetland field delineations and assessments were conducted between August 18 - September 30, 2021. Additional areas with suspected wetland habitat were screened during the field surveys to identify and confirm the presence / absence of wetlands.

A total of twelve (12) wetlands were identified and evaluated during the field studies, with a total of 58.28 hectares (ha) of wetland delineated within the project area. A summary table of wetlands at the site is found below, with further detailed descriptions and functional evaluation data found in **Section 2**.

Wetland ID	Wetland Type	Size (ha)
Wetland 1	Forested Swamp/ Fen Complex	28
Wetland 2	Riparian Shrub Swamp	6.75
Wetland 3	Forested Swamp	0.29
Wetland 4	Vernal pool	0.045
Wetland 5	Forested/Shrub swamp complex	0.4
Wetland 6	Forested/Shrub swamp complex	0.73
Wetland 7	Riparian Shrub Swamp	3.1
Wetland 8	Forested Swamp	0.08
Wetland 9	Forested/Shrub swamp Complex	8.75
Wetland 10	Riparian Graminoid Marsh	7.25
Wetland 11	Riparian Shrub Swamp	4
Wetland 12	Vernal pool	0.007



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1 INTRODUCTION

WSP Canada Inc. (WSP) was retained by Nova Scotia Department of Public Works (NSDPW) to undertake and complete an environmental assessment registration, under the Nova Scotia *Environment Act*, for a proposed interchange and connector roads from Highway 101 to Trunk 1 and Brooklyn Street in Cambridge, Nova Scotia (the Project). The proposed interchange is located between Coldbrook and Berwick (Exits 14 and 15 respectively) in Cambridge, Nova Scotia, just west of the Annapolis Valley First Nation. It will feature a 2 kilometre (km) connector road southerly to Trunk 1, and a 1.6 km northerly connection to Brooklyn Street. The connector road to Trunk 1 will be a controlled access minor arterial roadway owned by NSPW with a limited number of access points to adjacent lands. At Trunk 1 the new intersection will be constructed as a roundabout just east of County Home Road, with a new 600 m southerly connection to Waterville Mountain Road.

As a component to the environmental assessment, WSP completed wetland delineation and field assessments within the project area to confirm the presence / absence of mapped and unmapped wetlands and assess the functions of wetlands identified within the project area.

1.1 BACKGROUND MAPPING REVIEW

Prior to the commencement of field work, a desktop review of Nova Scotia Department of Natural Resources and Renewables (NSDNRR) Significant Habitat Database, Service Nova Scotia and Municipal Relations Property Online, topographic mapping, and available satellite imagery was completed. The locations of known mapped wetlands wetlands were recorded for ground-truthing during field work. Review of the site topography and distribution of natural features also allowed the site visit to be focused on areas with an elevated potential for wetlands not shown on mapping.

1.2 WETLAND IDENTIFICATION

Wetland screening and assessments were completed between August $18-20^{\text{th}}$ and September $28-30^{\text{th}}$. The presence / absence of wetlands was evaluated in accordance with the U.S. Army Corps of Engineers *Wetlands Delineation Manual and the Northcentral and Northeastern Interim Regional Supplement* (U.S. Army Corps of Engineers , 2012). During field work, forested areas with typical wetland characteristics were screened to confirm the presence / absence of wetlands.

The vegetation, soil and hydrology of any perspective wetland area was evaluated to determine whether the conditions present constitute a wetland. When a wetland was identified, the boundary was determined in accordance with the protocol and the boundary location was recorded using a Differential Global Positioning System (GPS) unit. The wetland was classified using the U.S. Army Corps of Engineers Wetland Delineation Manual (Environmental Laboratory, 1987). A functional assessment for each wetland was completed using the Wetland Ecosystem Services Protocol for Atlantic Canada (WESP-AC), Nova Scotia Version 2.0 (NS ECC, 2021). The wetland delineation assessment methodology is described in Section 2 – Wetland Delineation.

2 WETLAND DELINEATION

2.1 METHODOLOGY

Wetlands were identified and delineated in accordance with the Corps of Engineers Wetland Delineation Manual and the Northcentral and Northeast Interim Regional Supplement (Corps Manual) (U.S. Army Corps of Engineers,

2012). For an area to be identified as wetland it must show positive indicators in all three areas of assessment. The areas of assessment used were: hydrophytic vegetation, hydric soils, and wetland hydrology.

The soil, vegetation, and hydrology were evaluated at a test pit location. If a wetland was identified, an upland test pit location was selected and evaluated for the same criteria. A wetland boundary was determined between the upland and wetland test pit locations; this boundary was then extended around the exterior of the wetland and recorded using a Differential GPS unit. When necessary, additional soil probes were excavated to confirm the boundary.

2.1.1 HYDROPHYTIC VEGETATION

As defined in the Corps Manual, hydrophytic vegetation is the community of macrophytes that occur in areas where inundation or soil saturation is either permanent or of sufficient frequency and duration to exert a controlling influence on the plant species present. The vegetation is assessed based on the indicator status of the dominant plant species in each strata (tree, shrub and herbaceous stratum). Vegetation indicator status defines the frequency of a specific species to occur within upland or wetland areas and its general tolerance for habitat variability. The indicator status varies from obligate (>99% of occurrences are in a wetland) to upland (<1% of occurrences are in a wetland). An assessment for hydrophytic vegetation is carried out at the wetland and upland test pit locations.

2.1.2 HYDRIC SOILS

Hydric soils are soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper layers. Hydric soil indicators are formed predominantly by the accumulations or loss of iron, manganese, sulphur, or carbon compounds in a saturated and anaerobic environment. Examples of hydric soils include organic deposits caused by the accumulation of organic matter (lack of oxygen preventing decomposition) and mineral soils with gleyed or depleted matrices (soils stripped of iron and manganese). Soil profiles are observed in any suspected wetland, and the presence or absence of a positive indicator for hydric soils is noted. The soil profile is also observed at the upland test pit location to help determine the boundary location.

2.1.3 WETLAND HYDROLOGY

A site is considered to show a positive indicator for wetland hydrology when either one primary indicator or two secondary indicators are observed. Common primary and secondary indicators are listed below:

Primary Indicators

- Surface water, high water table, saturation
- Water marks on trees
- Sediment deposits
- Water-stained leaves
- Drift deposits

Secondary Indicators

- Drainage patterns
- Stunted or stressed plants
- Dry-season water table

2.2 RESULTS

Twelve wetlands were identified during the site survey and are shown in **Appendix A**. The total wetland area delineated on the project site is approximately 58.28 hectares (ha) which represents 8.9% of the total site area (approximately 307 ha).

Wetland 1 is classified as a forested swamp / fen complex and has an approximate area of 28 ha. Dominant species found within the tree stratum of the fen area were Black Spruce (*Picea mariana*), and Yellow Birch (*Betula*

alleghaniensis). The tree stratum of the forested swamp area was dominated by Red Maple (*Acer rubrum*) and Eastern Larch (*Larix laricina*). Dominant species found within the shrub stratum of the fen area were Eastern Larch and Black Spruce. The shrub stratum in the forested swamp area was dominated by Red Maple and Eastern Larch. The dominant species in the herbaceous layer of the fen area of the wetland was Leatherleaf (*Chamaedaphne calyculata*) and the dominant herbaceous species within the forested swamp area was Bladder Sedge (*Carex intumescens*). The soil profile and hydric soil indicator within this wetland was organic (Histosol [A1]) with a depth of greater than 50 centimetres (cm). Wetland hydrology indicators present within this wetland included surface water (A1), high water table (A2), and saturation (A3).

Wetland 1 coordinates: 368773.50 m E, 4991830.20 m N, UTM 20T

Wetland 2 is classified as a riparian shrub swamp and occurs along a small permanent watercourse. The approximate area of the wetland is 6.75 ha within the project area. However, the wetland extends upstream beyond the project boundary for several hundred meters to the northwest. Dominant species found within the tree stratum was Red Maple. Dominant species found within the shrub stratum was Speckled Alder (*Alnus incana*). Dominant species found within the herbaceous stratum were Bluejoint Reed-grass (*Calamagrostis canadensis*), Spotted Jewelweed (*Impatiens capensis*), and Bladder Sedge. The soil profile and hydric soil indicator within this wetland was organic (Histosol [A1]) with a depth of greater than 50 cm. Wetland hydrology indicators present within this wetland included surface water (A1), high water table (A2), and saturation (A3).

Wetland 2 Coordinates: 369422.00 m E, 4992463.00 m N, UTM 20T

Wetland 3 is classified as a forested swamp and had an approximate area of 0.29 ha. A small intermittent watercourse was detected flowing diagonally though the wetland from the northeast to the southwest. The channel was mostly dry at the time of the assessment. The dominant species within the tree stratum was Red Maple. The dominant species found within the shrub stratum was Speckled Alder. The Herbaceous stratum was dominated by Spotted Jewelweed. The soil profile within this wetland was fines, 7.5 YR, 2.5/2, 100 % (0-15 cm), and sandy loam 7.5 YR 4/2, 100% (15-40 cm), and refusal (rock) at 40+ cm. Hydric soil indicators included thin dark surface (S9). Wetland hydrology indicators present within this wetland included surface water (A1), high water table (A2), and saturation (A3).

Wetland 3 Coordinates: 368962.80 m E, 4989942.29 m N, UTM 20T

Wetland 4 is classified as a vernal pool and had an approximate area of 450 m². The pool was mostly dry during the assessment in late August 2021. Dominant species found within the tree stratum was Quaking Aspen (*Populus tremuloides*). Dominant species within the shrub stratum was Pussy-Willow (*Salix discolor*). Dominant species within the herbaceous stratum was Sallow Sedge (*Carex lurida*). The soil profile within this wetland was fines 7.5 YR 2.5/1 100% (0-7 cm), sandy loam 7.5 YR 6/2 100% (7-35 cm), and fines 7.5 YR 3/4 100% (35-50+ cm). Hydric soil indicators included thin dark surface (S9). Wetland hydrology indicators present within this wetland included surface water (A1), high water table (A2), and saturation (A3).

Wetland 4 Coordinates: 369030.96 m E, 4991278.69 m N, UTM 20T

Wetland 5/6/9: Wetlands 5 and 6 were originally delineated and later found to be part of the larger Wetland 9, which occurs between Wetlands 5 and 6, and forms a complex of the three wetlands. Small areas of marginal upland habitat separate the wetlands. The approximate overall area of the combined wetland was approximately 8.75 ha. Dominant tree species within the wetland area was Black Spruce. Dominant species within the shrub stratum were Balsam Fir (*Abies balsamea*), Speckled Alder, Common Winterberry (*Ilex verticillata*), and Black Cherry (*Prunus serotina*). Dominant species within the herbaceous stratum were Wool-Rush (*Scirpus cyperinus*) and Cinnamon Fern (*Osmunda cinnamomea*). Soil profile within the wetland was histosol 0-50+cm, hydric soil indicators included Histosol (A1). Hydric soil indicators included surface water (A1), and saturation (A3)

Wetland 5/6/9 Complex Coordinates: 369011.20 m E, 4992141.37 m N, UTM 20T

Wetland 7 is classified as a riparian shrub swamp and has an approximate area of 3.1 ha. This wetland is found bordering a large permanent watercourse. Dominant species within the tree stratum was Red Maple. Dominant species found within the shrub stratum was Speckled Alder. Dominant species within the herbaceous stratum were Rice Cutgrass (*Leersia oryzoides*) and Reed Canary Grass (*Phalaris arundinacea*). The soil profile and hydric soil

indicator within this wetland was organic (Histosol [A1]) with a depth of greater than 50 cm. Wetland hydrology indicators present within this wetland included surface water (A1), high water table (A2), and saturation (A3).

Wetland 7 Coordinates: 369859.95 m E, 4992155.93 m N, UTM

Wetland 8 is a classified as a forested swamp and has an approximate area of 887 m². Dominant species found within the tree stratum were Red Maple and Largetooth Aspen (*Populus grandientata*). Dominant species found within the shrub stratum were Red Maple and Gray Birch (*Betula populifolia*). Dominant species found within the herbaceous stratum were Bristly Dewberry (*Rubus hispidus*) and Cinnamon Fern. Soil profile within the wetland was fines 7.5 YR 3/2 100% (0-5 cm), fines 7.5 YR 5/1 100% (5-15 cm), and fines 5 YR 4/4 100% (15-25 cm). Refusal (rock) was reached at 25 cm. Hydric soil indicators for this wetland included thin dark surface (S9). Wetland hydrology indicators included saturation (A3).

Wetland 8 coordinates: 369444.00 m E, 4991739.00 m N, UTM 20T

Wetland 10 is classified as a riparian graminoid marsh and occurs along the Cornwallis River. The area of delineated wetland within the project area is approximately 7.25 ha, however this wetland extends outside the project area for several kilometers along the Cornwallis River riparian corridor. Dominant species within the tree stratum was an unidentified Willow species (*Salix spp.*). Dominant species within the shrub stratum was a Hawthorn species (*Crataegus spp.*). Dominant species found within the herb stratum was Reed Canary Grass. Soil profile within this wetland was fines 5 YR 5/1 60%, 5YR 5/8 40% (0-50+ cm). Hydric soil indicators included depleted matrix (F3). Wetland hydrology indicators present within this wetland included surface water (A1), high water table (A2), and saturation (A3).

Wetland 10 Coordinates: 368934.00 m E, 4990991.00 m N, UTM 20T

Wetland 11 is classified as a riparian shrub swamp which borders a small permanent stream. The area of delineated wetland within the project area is approximately 4 ha, however this wetland extends outside the project area for several hundred meters south. Dominant species within the tree stratum was Black Cherry. Dominant species found within the shrub stratum was Speckled Alder. Dominant species found within the herbaceous stratum was Sensitive Fern. Soil profile within this wetland was fines 7.5 YR 3/1 100% (0-15 cm), and coarse 7.5 YR 5/1 100% (15-50 cm). Hydric soil indicators for this wetland included Thin Dark Surface (S9). Wetland hydrology indicators present within this wetland included surface water (A1), high water table (A2), and saturation (A3).

Wetland 11 Coordinates: 368998.02 m E, 4989608.29 m N UTM 20T

Wetland 12 is classified as a vernal pool, with an approximate area of 70 m². The vernal pool was mostly dry at the time of the assessment and is below the minimum size of regulated wetlands in Nova Scotia (>100m²). Dominant species within the tree stratum was Red Maple. Dominant species within the shrub stratum was a Serviceberry species (*Amelanchier spp.*). No dominant species were noted within the herbaceous stratum. Soil profile within this wetland was organic (0-10 cm), loamy 5 YR 2.5/1, 100% (10-25 cm), and sandy loam 7.5 YR 4/2, 100% (25-40 cm). Refusal (rock) was encountered at 40 cm. Hydric soil indicators for this wetland included thin dark surface (S9). Wetland hydrology indicators included saturation (A3).

Wetland 12 Coordinates: 369087.72 m E, 4991077.31 m N UTM 20T

3 WETLAND FUNCTIONAL ASSESSMENT

3.1 METHODOLOGY

An assessment of wetland function and value was carried out during wetland screening field assessments. The functional assessments were conducted using the WESP-AC version 2.0 for Nova Scotia, which is a combined field and desktop evaluation method designed to assess the condition and function of Nova Scotia's wetlands. WESP-AC generates scores (0 to 10) and ratings (Lower, Moderate, and Higher) for each of a wetland's functions and benefits. The assessment is completed in a consistent and transparent manner to ensure the scores and ratings can be used to make informed decisions about wetland avoidance, minimisation, and replacement. It can also help to ensure that wetland restoration mitigates against unavoidable loss of specific functions and benefits (NBDELG, 2017). **Table 1**, extracted from the Manual for Wetland Ecosystem Services Protocol for Atlantic Canada (WESP-AC) NBDELG, 2017, describes the wetlands functions and their benefits that are measured by the WESP-AC.

Table 1: Benefits of Wetland Functions Scored by WESP-AC

FUNCTION	DEFINITION	POTENTIAL BENEFITS				
Hydrologic Functions:						
Water Storage & Delay	The effectiveness for storing runoff or delaying the downslope movement of surface water for long or short periods.	Flood control, maintain ecological systems.				
Stream Flow Support	The effectiveness for contributing water to streams especially during the driest part of a growing season.	Support fish and other aquatic life.				
Water Quality Maintenance Functi	ions:					
Water Cooling	The effectiveness for maintaining or reducing temperature of downslope waters.	Support coldwater fish and other aquatic life.				
Sediment Retention & Stabilization	The effectiveness for intercepting and filtering suspended inorganic sediments thus allowing their deposition, as well as reducing energy of waves and currents, resisting excessive erosion, and stabilising underlying sediments or soil.	Maintain quality of receiving waters. Protect shoreline structures from erosion.				
Phosphorus Retention	The effectiveness for retaining phosphorus for long periods (>1 growing season).	Maintain quality of receiving waters.				
Nitrate Removal & Retention	The effectiveness for retaining particulate nitrate and converting soluble nitrate and ammonium to nitrogen gas while generating little	Maintain quality of receiving waters.				

FUNCTION	DEFINITION	POTENTIAL BENEFITS
	or no nitrous oxide (a potent greenhouse gas).	
Carbon Sequestration	The effectiveness of a wetland both for retaining incoming particulate and dissolved carbon, and through the photosynthetic process, converting carbon dioxide gas to organic matter (particulate or dissolved). And to then retain that organic matter on a net annual basis for long periods while emitting little or no methane (a potent greenhouse gas).	Maintain quality of receiving waters.
Organic Nutrient Export	The effectiveness for producing and subsequently exporting organic nutrients (mainly carbon), either particulate or dissolved.	Support food chains in receiving waters.
Ecological Habitat Functions:		
Fish Habitat	The capacity to support an abundance and diversity of native fish (both anadromous and resident species).	Support recreational and ecological values
Aquatic Invertebrate Habitat	The capacity to support or contribute to an abundance or diversity of invertebrate animals which spend all or part of their life cycle underwater or in moist soil. Includes dragonflies, midges, clams, snails, water beetles, shrimp, aquatic worms, and others.	Support salmon and other aquatic life. Maintain regional biodiversity.
Amphibian & Reptile Habitat	The capacity to support or contribute to an abundance or diversity of native frogs, toads, salamanders, and turtles.	Maintain regional biodiversity.
Waterbird Feeding Habitat	The capacity to support or contribute to an abundance or diversity of waterbirds that migrate or winter but do not breed in the region.	The capacity to support or contribute to an abundance or diversity of waterbirds that migrate or winter but do not breed in the region.
Waterbird Nesting Habitat	The capacity to support or contribute to an abundance or diversity of waterbirds that nest in the region.	Maintain regional biodiversity.
Songbird, Raptor, & Mammal Habitat	The capacity to support or contribute to an abundance or diversity of native songbird, raptor, and mammal species and functional groups, especially those that are	Maintain regional biodiversity.

FUNCTION	DEFINITION	POTENTIAL BENEFITS
	most dependent on wetlands or water.	
Native Plant and Pollinator Habitat	The capacity to support or contribute to a diversity of native, hydrophytic, vascular plant species, communities, and/or functional groups, as well as the pollinating insects linked to them.	Maintain regional biodiversity and food chains.
Public Use & Recognition*	Prior designation of the wetland, by a natural resource or environmental agency, as some type of special protected area. Also, the potential and actual use of a wetland for low-intensity outdoor recreation, education, or research.	Commercial and social benefits of recreation. Protection of prior public investments.
* a benefit rather than a function of w	vetlands	

3.2 RESULTS

The findings of the WESP-AC for Wetlands found within the project area are summarized in Table 2 to Table 5. A full listing of the functional assessment data is included in the WESP-AC data forms in Appendix C.

Table 2: Wetland WESP-AC Function Scores (Wetland 1 – Wetland 7)

WETLAND FUNCTIONS OR OTHER	WETLAND 1		WETLAND 2		WETLAND 3		WETLAND 4		WETLAND 5*		WETLAND 6*		WETLAND 7	
ATTRIBUTES:	FUNCTION RATING	BENEFITS RATING												
Water Storage & Delay (WS)	Lower	Higher	Lower	Higher	Lower	Higher	Moderate	Moderate	Lower	Higher	Lower	Higher	Lower	Higher
Stream Flow Support (SFS)	Higher	Lower	Moderate	Moderate	Lower	Moderate	Lower	Lower	Lower	Lower	Moderate	Lower	Moderate	Moderate
Water Cooling (WC)	Lower	Lower	Higher	Higher	Higher	Moderate	Moderate	Lower	Moderate	Moderate	Lower	Lower	Higher	Higher
Sediment Retention & Stabilization (SR)	Moderate	Higher	Moderate	Higher	Lower	Higher	Higher	Moderate	Lower	Higher	Lower	Higher	Moderate	Higher
Phosphorus Retention (PR)	Lower	Higher	Lower	Higher	Lower	Higher	Higher	Moderate	Lower	Higher	Lower	Higher	Lower	Higher
Nitrate Removal & Retention (NR)	Lower	Higher	Higher	Higher	Moderate	Higher	Higher	Moderate	Moderate	Higher	Lower	Moderate	Moderate	Higher
Carbon Sequestration (CS)	Higher	,	Lower		Lower		Lower		Lower	'	Moderate		Lower	<u> </u>
Organic Nutrient Export (OE)	Moderate		Moderate		Lower		Lower		Lower		Moderate		Moderate	
Anadromous Fish Habitat (FA)	Lower	Lower	Higher	Higher	Lower	Higher	Higher							
Resident Fish Habitat (FR)	Lower	Lower	Higher	Moderate	Lower	Moderate	Higher							
Aquatic Invertebrate Habitat (INV)	Moderate	Lower	Higher	Higher	Lower	Moderate	Moderate	Higher	Moderate	Moderate	Moderate	Lower	Higher	Moderate
Amphibian & Turtle Habitat (AM)	Lower	Lower	Higher	Moderate	Moderate	Moderate	Higher	Moderate	Higher	Moderate	Lower	Lower	Moderate	Moderate
Waterbird Feeding Habitat (WBF)	Lower	Lower	Higher	Moderate	Moderate	Moderate	Higher	Moderate	Moderate	Moderate	Lower	Lower	Moderate	Moderate
Waterbird Nesting Habitat (WBN)	Lower	Lower	Higher	Moderate	Moderate	Moderate	Higher	Moderate	Moderate	Moderate	Lower	Lower	Moderate	Moderate
Songbird, Raptor, & Mammal Habitat (SBM)	Moderate	Moderate	Higher	Moderate	Higher	Moderate	Moderate	Moderate	Higher	Moderate	Moderate	Moderate	Moderate	Moderate
Pollinator Habitat (POL)	Moderate	Moderate	Moderate	Moderate	Higher	Lower	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Higher	Moderate
Native Plant Habitat (PH)	Lower	Lower	Moderate	Lower	Moderate	Lower	Lower	Lower	Lower	Moderate	Lower	Lower	Moderate	Lower
Public Use & Recognition (PU)		Moderate		Lower		Moderate		Moderate		Moderate		Moderate		Higher
Wetland Sensitivity (Sens)		Higher		Moderate		Moderate		Lower		Moderate		Higher		Higher
Wetland Ecological Condition (EC)		Higher		Higher		Lower		Lower		Moderate		Lower		Higher
Wetland Stressors (STR) (higher score means more stress)		Higher		Higher		Higher		Moderate		Higher		Higher		Higher

Note: The threshold used to separate Lower, Moderate and Higher are based on natural breaks in the statistical distribution of scores among the calibration wetlands for each function or beneficent, determined objectively using a statistical procedure known as Jenks Optimization (NBELG, 2017)

*Wetlands 5,6, and 9 are all parts of the same wetland complex, differing conditions within parts of the complex warranted additional functional indicate functions or benefits not calculated by the WESP-AC formula, and does not indicate missing data from the assessments.

Table 3: Wetland WESP-AC Scores (Wetland 8 – Wetland 12)

WETLAND FUNCTIONS OR OTHER	WETLAND 8		WETLAND 9*		WETLA	AND 10	WETL	AND 11	WETLAND 12		
ATTRIBUTES:	FUNCTION RATING	BENEFITS RATING	FUNCTION RATING	BENEFITS RATING	NG FUNCTION RATING BENEFITS RATING FUNCTION RATING		BENEFITS RATING	FUNCTION RATING	BENEFITS RATING		
Water Storage & Delay (WS)	Moderate	Moderate	Lower	Lower	Lower	Higher	Lower	Moderate	n/a	n/a	
Stream Flow Support (SFS)	Lower	Lower	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	n/a	n/a	
Water Cooling (WC)	Lower	Lower	Moderate	Moderate	Moderate	Higher	Higher	Moderate	n/a	n/a	
Sediment Retention & Stabilization (SR)	Moderate	Higher	Lower	Higher	Moderate	Higher	Lower	Higher	n/a	n/a	
Phosphorus Retention (PR)	Lower	Higher	Lower	Higher	Lower	Higher	Lower	Higher	n/a	n/a	
Nitrate Removal & Retention (NR)	Moderate	Moderate	Lower	Higher	Moderate	Higher	Lower	Higher	n/a	n/a	
Carbon Sequestration (CS)	Moderate		Lower		Lower		Lower		n/a		
Organic Nutrient Export (OE)	Moderate		Moderate		Higher		Higher		n/a		
Anadromous Fish Habitat (FA)	Lower	Lower	Lower	Lower	Higher	Higher	Higher	Higher	n/a	n/a	
Resident Fish Habitat (FR)	Lower	Lower	Lower	Lower	Higher	Moderate	Moderate	Higher	n/a	n/a	
Aquatic Invertebrate Habitat (INV)	Lower	Lower	Lower	Moderate	Moderate	Higher	Higher	Higher	n/a	n/a	
Amphibian & Turtle Habitat (AM)	Lower	Lower	Moderate	Moderate	Higher	Higher	Moderate	Moderate	n/a	n/a	
Waterbird Feeding Habitat (WBF)	Lower	Lower	Moderate	Moderate	Higher	Moderate	Moderate	Moderate	n/a	n/a	
Waterbird Nesting Habitat (WBN)	Lower	Lower	Moderate	Moderate	Higher	Higher	Moderate	Higher	n/a	n/a	
Songbird, Raptor, & Mammal Habitat (SBM)	Moderate	Moderate	Higher	Moderate	Moderate	Moderate	Higher	Moderate	n/a	n/a	
Pollinator Habitat (POL)	Moderate	Lower	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	n/a	n/a	
Native Plant Habitat (PH)	Lower	Lower	Moderate	Moderate	Moderate	Lower	Moderate	Moderate	n/a	n/a	
Public Use & Recognition (PU)		Moderate		Moderate		Higher		Moderate		n/a	
Wetland Sensitivity (Sens)		Higher		Higher		Higher		Moderate		n/a	
Wetland Ecological Condition (EC)		Lower		Lower		Lower		Moderate		n/a	
Wetland Stressors (STR) (higher score means more stress)		Higher		Higher		Higher		Higher		n/a	

Note: The threshold used to separate Lower, Moderate and Higher are based on natural breaks in the statistical distribution of scores among the calibration wetlands for each function or beneficent, determined objectively using a statistical procedure known as Jenks Optimization (NBELG, 2017)

*Wetlands 5,6, and 9 are all parts of the same wetland complex, differing conditions within parts of the complex warranted additional functional assessments to better illustrate overall functionality. Shaded cells indicate functions or benefits not calculated by the WESP-AC formula, and does not indicate missing data from the assessments.

Table 4: WESP- AC Summary Ratings for Grouped Functions, Wetland Condition and Wetland Risk (Wetland 1 – Wetland 7)

WETLAND FUNCTIONS OR OTHER ATTRIBUTES:	WETLAND 1		WETLAND 2		WETLAND 3		WETLAND 4		WETLAND 5*		WETLAND 6*		WETLAND 7	
	FUNCTION RATING	BENEFITS RATING												
Hydrologic Group	Higher	Moderate	Higher	Higher	Higher	Higher	Higher	Higher						
Water Quality Support Group	Lower	Higher	Lower	Higher	Lower	Higher	Higher	Moderate	Lower	Higher	Lower	Higher	Lower	Higher
Aquatic Support Group	Moderate	Lower	Higher	Higher	Moderate	Moderate	Lower	Moderate	Lower	Moderate	Lower	Lower	Moderate	Higher
Aquatic Habitat Group	Lower	Lower	Higher	Moderate	Moderate	Moderate	Higher	Moderate	Moderate	Moderate	Lower	Lower	Moderate	Higher
Transition Habitat Group	Moderate	Lower	Higher	Lower	Higher	Lower	Moderate	Lower	Higher	Lower	Moderate	Lower	Higher	Lower
Wetland Condition		Higher		Higher		Lower		Lower		Moderate		Lower		Higher
Wetland Risk (Average of Sensitivity & Stressors)		Higher		Higher		Moderate		Moderate		Higher		Higher		Higher

^{*}Wetlands 5,6, and 9 are all parts of the same wetland complex, differing conditions within parts of the complex warranted additional functional assessments to better illustrate overall functionality. Shaded cells indicate functions or benefits not calculated by the WESP-AC formula, and does not indicate missing data from the assessments.

Table 5: WESP- AC Summary Ratings for Grouped Functions, Wetland Condition and Wetland Risk (Wetland 8 – Wetland 12)

WETLAND FUNCTIONS OR OTHER ATTRIBUTES:	: WETLAND 8		WETLAND 9		WETLA	AND 10	WETL	AND 11	WETLAND 12	
	FUNCTION RATING	BENEFITS RATING								
Hydrologic Group	Moderate	Moderate	Lower	Lower	Lower	Higher	Lower	Moderate	n/a	n/a
Water Quality Support Group	Moderate	Higher	Lower	Higher	Moderate	Higher	Lower	Higher	n/a	n/a
Aquatic Support Group	Moderate	Lower	Moderate	Lower	Higher	Higher	Higher	Moderate	n/a	n/a
Aquatic Habitat Group	Lower	Lower	Moderate	Moderate	Higher	Higher	Moderate	Higher	n/a	n/a
Transition Habitat Group	Moderate	Lower	Higher	Lower	Moderate	Lower	Higher	Lower	n/a	n/a
Wetland Condition		Lower		Lower		Lower		Moderate		n/a
Wetland Risk (Average of Sensitivity & Stressors)		Higher		Higher		Higher		Higher		n/a

^{*}Wetlands 5,6, and 9 are all parts of the same wetland complex, differing conditions within parts of the complex warranted additional functional assessments to better illustrate overall functionality. Shaded cells indicate functions or benefits not calculated by the WESP-AC formula, and does not indicate missing data from the assessments.

3.3 DISCUSSION

A review of the grouped function results for wetlands found within the project area appear to mostly have higher functions or benefits relating to the water quality support group. Wetlands 2, 7, 10, and 11 all border permanent watercourses and as such have better overall functions and benefits relating to aquatic habitat. All of the watercourses identified within wetlands on site are tributaries of the Cornwallis River, and have potential of accommodating anadromous fish species at some point during a typical year. A functional assessment was not completed on Wetland 12, as its area is below the minimum size threshold to be considered a regulated wetland under provincial wetland legislation.

The wetland risk grouped function was rated higher at the majority of the wetlands within the project area. A "Higher" rating in this category indicates more risk or potential for degradation than that of a typical wetland found in an undeveloped area. This may be a result of the extensive agricultural operations found throughout the project area, and the associated potential sedimentation, and input of nutrients and contaminants from ploughing, tilling, pesticide application, livestock, etc. Due to differing size, morphology, and condition, wetlands at the site show a reflective amount of variance in the function and benefits from one wetland to the next.

Several of the wetlands evaluated had "Higher" ratings in two or more of the grouped function results, which may increase the probability of a Wetland of Special Significance (WSS) designation due to recent changes to the interpretation of the Nova Scotia *Environment Act*. Beginning in spring of 2022, wetland functional assessment results, along with confirmed species at risk sightings or usage, will be integrated into the decision-making process regarding Special Significance designations.

4 CONCLUSION

Approximately 58.28 ha of wetland was identified and assessed during field assessments at the proposed Highway 101 Cambridge Interchange and Connector Roads project site. The data within this document has been compiled to inform regulators and stakeholders of wetland size, condition, and location within the site as part of the environmental assessment process.

The Nova Scotia *Wetland Policy* requires that alteration applications includes functional assessment of the wetland(s) and a compensation project to offset the loss of wetland habitat, typically at a ratio of 2:1 (two square metres of compensation for every square metre altered). A wetland alteration includes not only infilling of a wetland, but also direct or indirect changes made to inflow or outflow characteristics. A compensation agreement will be required to provide sufficient information to facilitate approval from the Nova Scotia Department of Environment and Climate Change of any proposed wetland alterations.

This report has been prepared for the sole benefit of NSDPW. Any other person or entity may not rely on this report without the express written consent of WSP and NSDPW. WSP accepts no responsibility for damages suffered by any third party as a result of decisions made, or actions conducted based on this report. No other warranties are implied or expressed. This report has been prepared by Brady Leights, B. Et., and reviewed by Cody Pytlak, B.A.

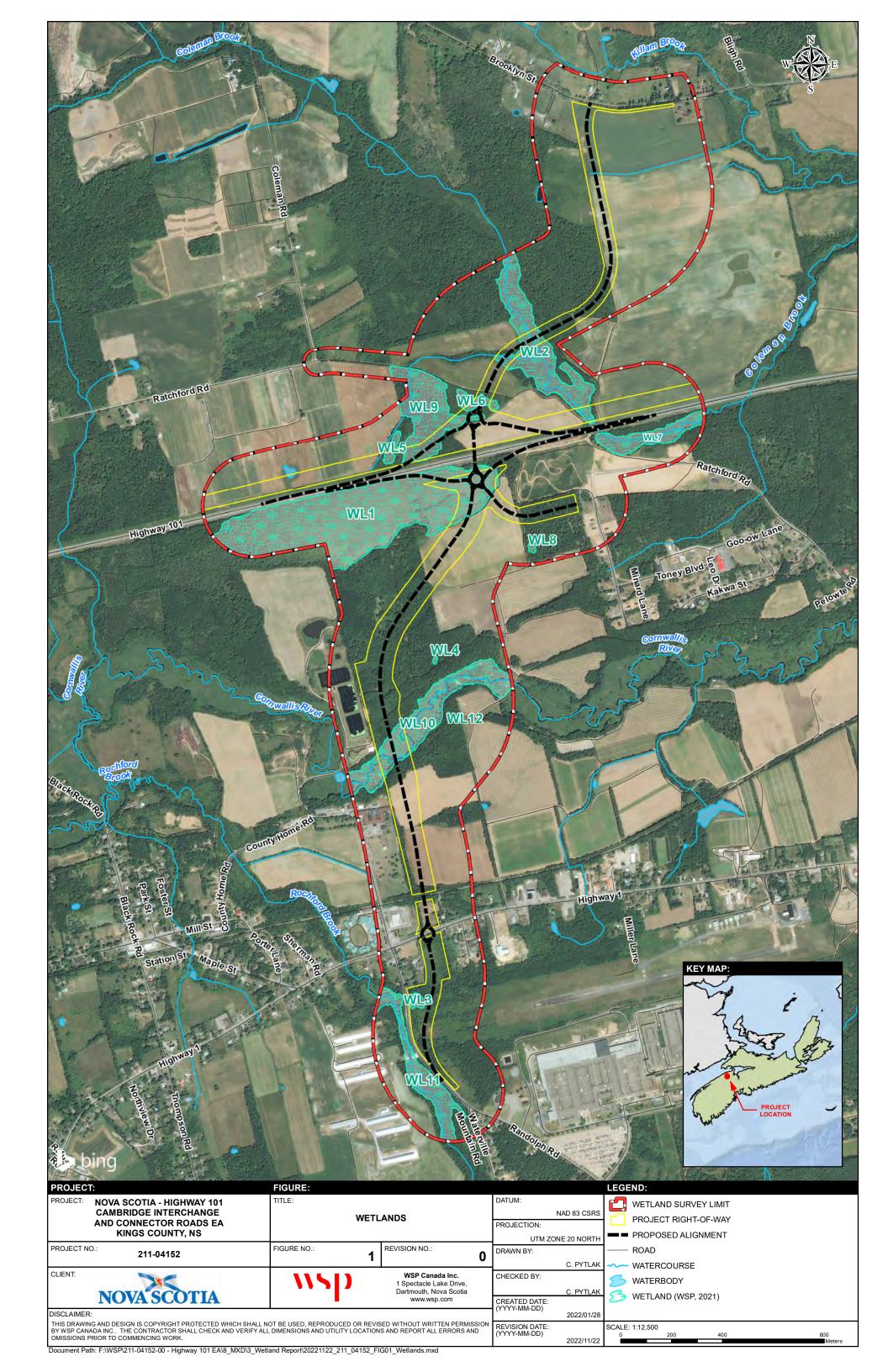
The findings presented in this report are based on field observations made between August $18 - 20^{th}$ and September September $28 - 30^{th}$, 2021. These results rely on conditions identified during the site visits which may alter over time. We trust that this report meets your requirements at this time. If there are any questions, please do not hesitate to contact our office.

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APPENDIX





APPENDIX

B WETLAND PHOTOGRAPHIC LOGS





Photo 1: Cambridge Wetland 1 eastern section, May 4 2021.



Photo 2: Cambridge Wetland 1 looking east, August 18 2021.



Photo 3: Cambridge Wetland 1 looking north, August 18 2021.



Photo 4: Cambridge Wetland 1 shrub and emergents, May 4 2021.





Photo 5: Stunted black spruce at Cambridge Wetland 1, August 18 2021.



Photo 6: Cambridge Wetland 1 shrub and overmature trees, May 4 2021.



Photo 7: Wetland 1 plot location, August 18 2021.



Photo 8: Upland edge at wetland 1, August 18, 2021.





Photo 1: Cambridge Wetland 2 northern view, September 28 2021.



Photo 2: Cambridge Wetland 2 western view, September 28 2021.



Photo 3: Cambridge Wetland 2 edge condition, September 28 2021.



Photo 4: Cambridge Wetland 2 herbaceous community, September 28 2021.





Photo 5: Cambridge Wetland 2 upland edge, September 28 2021.



Photo 6: Cambridge Wetland 2 upland edge continued, September 28 2021.



Photo 7: Cambridge Wetland 2 upland soil plot, September 28 2021.





Photo 1: Cambridge Wetland 3 northern view, August 19 2021.



Photo 2: Cambridge Wetland 3 eastern view, August 19 2021.



Photo 3: Cambridge Wetland 3 western view, August 19 2021.



Photo 4: Cambridge Wetland 3 southern view, August 19 2021.





Photo 5: Cambridge Wetland 3 wetland soil, August 19 2021.



Photo 6: Cambridge Wetland 3 upland soil, August 19 2021.





Photo 1: Cambridge Wetland 5 northern view, August 20 2021.



Photo 2: Cambridge Wetland 5 western view, August 20 2021..



Photo 3: Cambridge Wetland 5 shrub canopy, August 20 2021.



Photo 4: Cambridge Wetland 5 shrub canopy, August 20 2021.





Photo 5: Cambridge Wetland 5 eastern view, August 20 2021.



Photo 6: Cambridge Wetland 5 southern view, August 20 2021.



Photo 7: Cambridge Wetland 5 herbaceous vegetation, August 20 2021.



Photo 8: Cambridge Wetland 5 herbaceous vegetation, August 20 2021.





Photo 1: Cambridge Wetland 6 northern view, August 20 2021.



Photo 2: Cambridge Wetland 6 eastern view, August 20 2021.



Photo 3: Cambridge Wetland 6 western view, August 20 2021.



Photo 4: Cambridge Wetland 6 southern view, August 20 2021.





Photo 5: Cambridge Wetland 6 shrub habitat, August 20 2021.



Photo 6: Cambridge Wetland 6 immature conifer, August 20 2021.



Photo 7: Cambridge Wetland 6, August 20 2021.



Photo 8: Cambridge Wetland 6, August 20 2021.





Photo 1: Cambridge Wetland 7 northern view, September 28 2021.



Photo 2: Cambridge Wetland 7 eastern view, September 28 2021.



Photo 3: Cambridge Wetland 7 watercourse, September 28 2021.



Photo 4: Cambridge Wetland 7 western view, September 28 2021.





Photo 5: Cambridge Wetland 7 southern view, September 28 2021.



Photo 6: Cambridge Wetland 7 shrub habitat, September 28 2021.



Photo 7: Cambridge Wetland 7 downed wood, September 28 2021.



Photo 8: Cambridge Wetland 7 herbaceous vegetation, September 28 2021..





Photo 1: Cambridge Wetland 8 northern view, September 28 2021.



Photo 2: Cambridge Wetland 8 eastern view, September 28 2021.



Photo 3: Cambridge Wetland 8 southern view, September 28 2021.



Photo 4: Cambridge Wetland 8 western view, September 28 2021.





Photo 5: Cambridge Wetland 8 canopy, September 28 2021.



Photo 6: Cambridge Wetland 8 bare ground, September 28 2021.



Photo 7: Cambridge Wetland 8 bare ground, September 28 2021.



Photo 8: Cambridge Wetland 8 bare ground, September 28 2021.





Photo 1: Cambridge Wetland 9, September 28 2021.



Photo 2: Cambridge Wetland 9, September 28 2021.



Photo 3: Cambridge Wetland 9, September 28 2021.



Photo 4: Cambridge Wetland 9, September 28 2021.





Photo 5: Cambridge Wetland 9, September 28 2021.



Photo 6: Cambridge Wetland 9, September 28 2021.



Photo 7: Cambridge Wetland 9, September 28 2021.



Photo 8: Cambridge Wetland 9, September 28 2021.





Photo 1: Cambridge Wetland 10 watercourse, September 21 2021.



Photo 2: Cambridge Wetland 10 eastern view, September 21 2021.



Photo 3: Cambridge Wetland 10, September 21 2021.



Photo 4: Cambridge Wetland 10 western view, September 21 2021.





Photo 5: Cambridge Wetland 10 vegetation, September 21 2021.



Photo 6: Cambridge Wetland 10, September 21 2021.



Photo 7: Cambridge Wetland 10 northern view, September 21 2021.



Photo 8: Cambridge Wetland 10, September 21 2021.





Photo 1: Cambridge Wetland 11, May 5 2021.



Photo 2: Cambridge Wetland 11, May 5 2021.



Photo 3: Cambridge Wetland 11, May 5 2021.



Photo 4: Cambridge Wetland 11, September 21 2021.





Photo 5: Cambridge Wetland 11, September 21 2021.



Photo 6: Cambridge Wetland 11, September 21 2021.



Photo 7: Cambridge Wetland 11, May 5 2021.



Photo 8: Cambridge Wetland 11, September 21 2021.





Photo 1: Cambridge Wetland 12 eastern view, September 30 2021.



Photo 2: Cambridge Wetland 12 western view, September 30 2021.



Photo 3: Cambridge Wetland 12 northern view, September 30 2021.



Photo 4: Cambridge Wetland 12 southern view, September 30 2021.





Photo 5: Cambridge Wetland 12, September 30 2021..



Photo 6: Cambridge Wetland 12, September 30 2021.



Photo 7: Cambridge Wetland 12 upland soil, September 30 2021.



Photo 8: Cambridge Wetland 12 wetland soil, September 30 2021.

APPENDIX

WETLAND FUNCTIONAL ASSESSMENT RESULTS

Cambridge interchange Wetland 1
BL
18 August, 2021
Waterville, NS
368716
4991808
Yes
~30
90
90
90
No
Yes
Yes
>100

	Α	В	C	D	Е
	Date: 18 Aug 2020		Site Identifier: Cambridge Wetland 1	Investiga	ator: BL
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.
5			New Brunswick	0	In the function and benefits models, it also triggers the automatic exclusion of indicators for which no spatial data exists in a particular province.
6			Nova Scotia	1	Spatial data Cxists III 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
10			<0.01 hectare (about 10 m x 10 m).	0	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 menu). [i 11, 35ivi, wbivj
13			1 to 10 hectares.	1	
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.	0	
20			1 to 10 hectares.	1	
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		0	Exclude confliet plantations only if it is obvious that frees were planted in tows. [Aivi, PH, 5Bivi, 5eris]
24		Comadi	<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 30			100 to 1000 hectares.	0	
30			>1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	Ü	

Source of Large Vegetable facts Programmed facts Annual supervision for the Annual distance from the degree of the AN to the AN		Α	В	С	D	E
Separation larger than 29 Reconstruction and a special color of the property o						=
56 m. and not supported from the 25-bits regarded control part with the process carrier. On the Author Controls 25th the process carrier. On the Author Controls 25th the process carrier. On the Author Controls 25th the process carrier. On the pro	31		Vegetated Tract	plantation) larger than 375 hectares (about 2 km on a side), is:		
and completed service. Cithe Art Notice control is 3 - 5 for it wygstation. [This is shown for a creame in notatively underelooped advantages of the many of the control is a special control in 275 for its segretation of the control is a special control in 275 for its segretation of the control is a special control in 275 for its segretation of the control is a special control in 275 for its segretation of the control is a special control in 275 for its segretation of the control is a special control in 275 for its segretation of the control is a control in 275 for its segretation of the contro				<50 m, and not separated from the 375-ha vegetated area by any width ofpaved roads, stretches of open water, row crops, bare ground,	0	
Some but comprising sparaned from the 247-bit weighted and area by those features, and AA does not corran > 30 had vegetated. 5. Som, world's appared by pure features. 5. Som, world's appared by pure features. 6. Som, world's proposed by the features. 6. Som, world's proposed by						
5500 m. put and speparated. 500 m. put and	32			landscapes.]		
35 100				<50 m, but completely separated from the 375-ha vegetated area by those features, and AA does not contain >375 ha of vegetation.	0	
Section Sect						
55 - 5 km, and not speaked. 5 - 5 km, and				50-500 m, and not separated.	0	
25 - 5 km, but specialistic cover is -10% horizones. 0 0 0	35			50-500 m, but separated by those features.	1	
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Heturesous Unequences OFF Mode Synoglating rower is 10th Activations (see in 10th Activations of the present o	37			0.5 - 5 km, but separated by those features.	0	
OF7. If not, consider. The AAK septialine access was 10% herbacous cover. If so, enter "2" and continue to OF7, if not, consider. The AAK septialine access was 10% herbacous cover. If so, enter "1". If NOTE: Exclude learns, row crops, heavily grazed lands, tonds in beautiful form of the workland edge have 10% herbacous own. If so, enter "1". If NOTE: Exclude learns, row crops, heavily grazed lands, forest, shouldands, include most as well as grassifile glants in this use of Notest access was should an included in the purple menu. IAMA, PHA. PCV., SBM, WBPV, WBPV, WBPV, WBPV, Clarifornia in Coopie Earth Pro by clicking on the Ruter kan, then Circle in the pup-up-menu. IAMA, PHA. PCV., SBM, WBPV, WBPV, WBPV, WBPV, Clarifornia in Coopie Earth Pro by clicking on the Ruter kan, then Circle in the pup-up-menu. IAMA, PHA. PCV., SBM, WBPV, WBPV, WBPV, WBPV, Clicking on the Ruter kan, then Circle in the pup-up-menu. IAMA, PHA. PCV., SBM, WBPV, W	38			None of the above (the closest patches or corridors which are that large are >5 km away).	0	
The AAX vegistation cases is 10% herbaceaus; but uplands within 100 m of the wetland edge have <10% herbaceaus; cover. If so, certain 17 in AX vegistation is 10% wordy by grazed lands, forest, shrubands, firstly in 100 m of the wetland edge have <10% host of the population in the p		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
OF. If mot, consider: The AAX-wegulation cover is 10% herbacous cover. If so, enter 1. PNOTE: buckde lawns, row crops, heavily grazed lands, forest, struktands. Include moss as well as grassifile plants in this use of herbacous cover. If so, enter 2 and continue to OF8. If not, consider: The AAX-wegulation is 10% woody but uplands within 10 m of the wetland edge have <10% woody cover. If so, enter 2 and continue to OF8. If not, consider: The AAX-wegulation is 10% woody but uplands within 10 m of the wetland edge have <10% woody cover. If so, enter 2 and continue to OF8. If not, consider: The AAX-wegulation is 10% woody but uplands within 100 m of the wetland edge have <10% woody cover. If so, enter 2 and continue to OF8. If not, consider. The AAX-wegulation is 10% woody but uplands within 100 m of the wetland edge have <10% woody cover. If so, enter 2 and continue to OF8. If not, consider. The AAX-wegulation is 10% woody but uplands within 100 m of the wetland edge have <10% woody cover. If so, enter 2 and continue to OF8. If not, consider. The AAX-wegulation is 10% woody but uplands within 100 m of the wetland edge have <10% woody cover. If so, enter 2 and continue to OF8. If not, consider conterplantation is 10% woody cover. If so, enter 2 and continue to OF8. If not, consider conterplantation is 10% woody cover. If so, enter 2 and continue to OF8. If not, consider conterplantation is 10% woody cover. If so, enter 2 and continue to OF8. If not, consider conterplantation is 10% woody cover. If so, enter 2 and continue to OF8. If not, consider conterplantation is 10% woody cover. If so, enter 2 and continue to OF8. If not, consider conterplantation is 10% woody cover. If so, enter 2 and continue to OF8. If not, consider conterplantation is 10% woody cover. If so, enter 2 and continue to OF8. If not, consider conterplantation is 10% woody cover. If so, enter 2 and continue to OF8. If not, consider conterplantation is 10% woody cover. If so, enter 2 and continue to OF8. If not, consider conterplantation is 10% wo						
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Consider: The ANS 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 ANS vegetation is >10% woody" but uplands within 100 not file wetland edge have <10% woody cover. If so, enter "1" [1 NOTE: woody cover - Iress & shrubs baller than 1 m.] OF8 OF8 OF8 OF8 OF8 OF8 OF8 OF		OF7	Woody Uniqueness	ů ·	Λ	See above. Do not consider conifer plantations to be forest if it is obvious that trees were planted in
The AA's expetation is 10% woody cut uplands within 1 km have <10% woody cover. If so enter '2' and continue to OF& If not consider: The AA's expetation is 10% woody but uplands within 10m not the welland edge have <10% woody cover. If so, enter '1' The AA's expetation is > 10% woody but uplands within 10m not the welland edge have <10% woody cover. If so, enter '1' The AA's expetation is > 10% woody but uplands within 10m not the welland edge have <10% woody cover. If so, enter '1' The AA's expetation is > 10% woody but uplands within 10m not the welland edge have <10% woody cover. If so, enter '1' The AA's expetation is > 10% woody but uplands within 10m not the welland edge have <10% woody cover. If so, enter '1' The AA's expetation is > 10% woody but uplands within 10m not he welland edge have <10% woody cover. If so, enter '1' The AA's expetation is > 10% woody but uplands within 10m not he welland edge have <10% woody cover. If so, enter '1' The AA's expetation is > 10% woody but uplands within 10m not he welland edge have <10% woody cover. If so, enter '1' The AA's expetation is > 10% woody but uplands within 10m not he welland edge have <10% woody cover. If so, enter '1' The AA's expetation is > 10% woody but uplands within 10m not expetation is > 10% woody cover. If so, enter '1' The AA's expetation is > 10% of the land. 1		01 7	woody oniqueness		U	
consider: The AA's vegelated cover Percentage AB Coral Vegetated Cover Percentage AB Coral Vegeta						
FNOTE: wordy cover = trees & shrubts taller than 1 m.]						
OF8 Local Vegetated Cover Percentage Percent				The AA's vegetation is >10% woody* but uplands within 100 m of the wetland edge have <10% woody cover. If so, enter "1"		
hat is wooded or unmanaged herbaceous vegetation (NOT lawn, row crops, bare or heavily grazed land, clearcuts, or confier plantations) Sc.						
41			•			, ,
42 43 44 44 44 44 45 46 46 47 47 47 48 48 48 48 48	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]
43 44 45 46 46 46 46 46 46				IS:	0	
44						
45 60 to 90% of the land. SkIP to OF10. 50 to 90% o						
46 September						
Type of Land Cover Alteration Type of Land Cover Alteratio	45				-	
Alleration Impervious surface, e.g., paved road, parking lot, building, exposed rock. Bare pervious surface, e.g., lawn, recent (<5 yrs ago) clearcut, dirt or gravel road, cropland, landslide, conifer plantation. So		050	Time of Land Cause		U	[AM CDM]
Impervious surface, e.g., paved road, parking lot, building, exposed rock. 0	47	UF9		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]
OF10 Distance by Road to Nearest Population Center Nearest Population Center Solution Center Measured along the maintained road nearest the AA, the distance to the nearestpopulation center is: Solution S	48		Alteration	Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0	
Nearest Population Center Nearest Population Center of the Ruler Center of the Ruler Standard measure the Path, and draw and measure the Population Center of the Ruler Standard measure the Path, and draw and measure the Path, and draw and measure the Path, and draw and measure the Path, and Center of the Ruler Standard measure the Path, and Center of the Ruler Standard measure the Path, and Center of the Ruler Standard measure the Path, and Center of the Ruler Standard measure the Path, and Center of the Ruler Standard measure the Path, and Center of the Ruler Standard measure the Path, and Center of the Ruler Standard measure the Path Ruler Stan	49			Bare pervious surface, e.g., lawn, recent (<5 yrs ago) clearcut, dirt or gravel road, cropland, landslide, conifer plantation.	1	
Solution Center	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
100 - 500 m. 1 0.5 - 1 km. 0 0 1 - 5 km. 0 0 0 0 0 0 0 0 0			•	<100 m	0	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			Center			route. [FAv, FRv, NRv, PH, PU, SBM, WBFv]
1-5 km. 0 5 km	52					1
Standard No. Stan						1
Distance to Nearest Maintained Road 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 From the center of the AA, the distance to the nearest maintained public road (dirt or paved) is: Contact	55			·		1
Maintained Road State		∩F11	Distance to Mearest		J	Determine this by viewing perial imageny in Google Earth Pro and measuring with the Pulos Line
57 <10 m.	56			Trom the control of the AA, the distance to the hearest maintained public toda (ulit of paved) is.		, , , , , , , , , , , , , , , , , , , ,
59 25 - 50 m. 0 60 50 - 100 m. 0 61 100 - 500 m. 0					1	[,,,,,,
60 50 - 100 m. 0 61 100 - 500 m. 0						
61 100 - 500 m. 0				25 - 50 m.	0	
01	60			50 - 100 m.	0	
62 >500 m	61			100 - 500 m.	0	
0	62			>500 m.	0	

A	В	С	D	E
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 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	Draw the 5 km circle in Google Earth Pro using the Circle tool and search for roads and wetlands 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
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	wetlands that appear to be permanently flooded. [AM, PH, SBM, Sens, WBF, WBN]
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.	1	1
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	
OF14	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	1
75		1 - 2 km.	0	1
76		2-5 km.	0	
77		5-10 km.	1	
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.	0	
84		10-40 km.	1	
85		>40 km.	0	

Г	А	В	C	D	F
86	OF16	Upland Edge Contact	Select one:	Ь	[NR, SBM, Sens]
87	7		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	3		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	
9()		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	
92		Flood Damage from Non tidal Waters	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 finer elevational resolution useful for flood modeling. [WSv]
93	3	tidai waters	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	provide finer elevational resolution userun of flood finodelling. [w.sv]
94	ı		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 levees, upriver dams, or other measures may partly limit damage or risk from smaller events.	0	
95	5		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure vulnerable to river flooding unrelated to tidal storm surges.	0	
96	5		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there isno infrastructure vulnerable to river flooding unrelated to tidal storm surges.	1	
97		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 watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-min).	0.08	[FA, NR, Sens, SFSv, WCv, WSv]
98			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]

	A	В	С	D	E
	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.		
			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	
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	
100			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.		
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		
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 area. The result is:		
110			<0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	1	
111			0.01 to 0.1.	0	
112			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 raisec	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%.	0	
116			10 to 25%.	0	
117			>25%.	1	
	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.		
118			This statement is:		
119			Mostly true.	0	
120			Somewhat true.	1	
121			Mostly untrue.	0	
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.	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 Nova Scotia Topo as the Raseman. Also enable the layer Forestry-WAM Predicted Flow. Then
<u> </u>					INDIVA SCORA TODOLAS THE BASEMAD. AISO EDADIE THE TAVEL FORESTLYSWAM PREDICTED FLOW. THEN

А	В	С	D	E
128		10 - 50 m.	0	measure the inlet-outlet distance. [NR, OE, PR, SR, WS]
129		50 - 100 m.	1	incusure the finet dutiet distance. [fixt, OE, Fix, OK, WO]
130		100 - 1000 m.	0	
131		1- 2 km.	0	1
132		>2 km, or wetland lacks an inlet and outlet.	0	
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.	2200	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 stocked. [AM, FA, FR, INV, WBF, WBN]
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	Deerl Stocked, [AW, 1 A, 1 K, IIVV, WDI , WDIV]
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	<u> </u>	Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	1	<u> </u>
OF29	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 ar approved protocol. For birds, also check eBird.org. [AMv, EC, PHv, POLv, SBMv, Sens, WBFv,
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	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	Incompate at Dind Acco	None of the above, or no data.	1	The arrange of this larger which when did be absoluted a said disable for made to a in-
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 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]
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 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]
OF32	Wintering Deer or Moose Concentration Areas	If AA is on private land with no information, change to blank (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.		[SBM]
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]
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]
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.		[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 to blank .		[AM, FA, FR, INV, PH]
OF38	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]

A	В	C	D	Е
54		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	
55		Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are allowed.	0	
56		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable or not) is in place.	0	
57		Ownership is private and owner does not allow access, or access permission unknown, and not a conservation easement.	1	

	Α	В	С	D	E	
	Date: 18 August 2021		Site Identifier Cambridge interchange wetland 1	Investigat	itor: BL, CP	
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 F	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.		They include Produce Industrials 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 (Carex rarifior 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	
ii c t	The AA include " adjac describ	A should also include par the open water part ac cent " is used synonymo ned 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. For the water area of adjacent ponded water larger than 8 ha and adjacent rivers wider than 20 m. Specifically, the AA should be different 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.		
11 F	F2	Wetland Types -	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		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
12		Adjoining or Subordinate	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.		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 (nonwoody) 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
18			coniferous trees (may include tamarack) taller than 3 m.	3	trees/shrubs is <25% moss, then question F1 might be "B1". [CS, INV, NR, PH, POL, SBM, Sens]

FieldF form - Non-tidal Page 1 of 10

Section of the process of the content of the cont		Α	В	С	D	E
Section 2 and 1 an	19			deciduous trees taller than 3 m.	3	
profession or intercase, which of milet of description between company of after registron. 1	20			coniferous or ericaceous shrubs or trees 1-3 m tall not directly below the canopy of trees.	4	
profession or intercase, which of milet of description between company of after registron. 1	21			deciduous shrubs or trees 1-3 m tall not directly below the canopy of trees.	3	
Second	22			coniferous or ericaceous shrubs <1 m tall not directly below the canopy of taller vegetation.	3	
Descriptions of Mys. Abundance	23			deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	3	
Demination of Notes Abundant Share A	24	Note:	If none of top 4 rows in	n F3 was marked 2 or greater, SKIP to F9 (N fixers).		
Manufact Name Process agreed recording to 98 of 1925 courses	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]
Part				those species together comprise > 50% of such cover.	1	
Classons Section (Among Prince of the Control of the Section of the Control of the Control of the Section of the Section of the Control of the Section o	27		Species	1 9	0	
continues. 19 on Beamons and a Final Standard St	20	F5	,			
Image Search Colorate 1 mill Colorate Color			Classes		1	
Conference, 10-19 or damente.						13 1
The content of the	30					
Sal Signature of the second discussions 2-9 com discretion: A						
transit-leaved declubus 2-9-0 cm diamete. 20	22					
conference, 3-0 or distinutes. Section Class 6 Holght Class 10 Holght C	24			·		
Food Food Calcus Food	25					
Fishight Class Interspersion Fishing Class Interspersion Fishing Class Interspersion Fishing Class Fishing Clas						
Interspersion A Neither the vegetation solution taller than 1 in nor the vegetation shorter than that comprise >10% of the vegetated part of the AA. They <u>each comprise 38 30 79%. Choose between A1 and A2 and mark the choice with a1 in the adjoining column. Otherwise go to B bolow. A1. The two height classes are mostly seathered and intermised throughout the AA. A2. Not A1. The two height classes are mostly seathered and intermised throughout the AA. B3. Ellither the vegetation shorter than 1 in comprises >70% of the vegetated part of the AA. The Value of the A. The two height classes is mostly scattered and intermised within the provision to the A. The vegetation shorter than 1 in comprises >70% of the vegetated part of the AA. The vegetated part of the AA. The Value of the Value of</u>		F6	Height Class		-	[AM INV NR PH SRM Sens]
A Treatment in the degenation taken and in the native degenation shorter than that complete 30 Policy. Choose between Al and A2 and mark the orbit own all in the adjoining column. Otherwise go to 8 below. A1. The two height classes are mostly scattered and intermixed throughout the AA. A2. Not A1. The two height classes are mostly in separate zones or bands, or in proportionately large culture. B. Either the sepatation briter than in an orange so thanks, or in proportionately large culture. B. Either the sepatation briter than in an orange so thanks, or in proportionately large culture. B. The two height classes are mostly in separate zones or bands, or in proportionately large culture. B. The three	37		•			(min, mee, min, som, som)
A2 No A1. The two height classes are morely in separate zenos or bands, or in proportionately large clumps. B. Either the vegetation shorter than 1 m comprises 70% of the vegetation better than 1 m comprises 70% of the vegetation better than 1 m comprises 70% of the vegetation better than 1 m comprises 70% of the vegetation better than 1 m comprises 70% of the vegetation better than 1 m comprises 70% of the vegetation better than 1 m comprises 70% of the vegetation better than 1 m comprises 70% of the vegetation better 1 m band ones of the part of the AA. A2 No A1. The two height classes are morely in separate zenos or bands, or in proportionately large clumps. B. Either the vegetation shorter than 1 m comprises 70% of the vegetation of the separate zenos or clumps, or is completely absent. B. The less provalent height class is mostly located apart from the prevalent one. B. No B1. The less prevalent height class is mostly located apart from the prevalent one. B. No B1. The less prevalent height class is mostly located apart from the prevalent one. B. No B1. The less prevalent height class is mostly located apart from the prevalent one. B. No B1. The less prevalent height class is mostly located apart from the prevalent one. B. No B1. The less prevalent height class is mostly located apart from the prevalent one. B. No B1. The less prevalent height class is mostly located apart from the prevalent one. B. No B1. The less prevalent height class is mostly located apart from the prevalent one. B. No B2. The number of large snags (planeter 20 cm) in the AA plus adjacent uplant area within 10 m of the wettand edge is: Bno Coveral (-\$ Minches) the number of large snags (planeter 20 cm) in the AA plus adjacent uplant area within 10 m or the weetand edge is: Bno Coveral (-\$ Shindars) the harm of large snags (planeter) than 10 m is within 1 km. Bno Coveral (-\$ Shindars) that the snags of large snags (planeter) than 10 m is within 1 km. Bno Coveral (-\$ Shindars) than 10 m is within 1 km. Bno Coveral (-\$ S	38		interaporatori	· · · · · · · · · · · · · · · · · · ·		
B. Eliber the vegetation shorter than 1 in comprises 20% of the vegetation taller than that does. One size class might even be totally absent. Choose between B1 and B2 and mark the choice with a 1 in the adjoining column. B1. The less prevalent height class is mostly scattered and intermixed within the prevalent one. B2. No B2. No B3. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is completely absent. The number of large snags (claimeter >20 cm) in the AA plus adjacent upland area within 10 m of the wetland edge is: None, or fewer than 87 hectare which exceed this diameter. None, or fewer	39			A1. The two height classes are mostly scattered and intermixed throughout the AA.	0	
das might even be totally absent. Choose between B1 and 82 and mark the choice with a 1 in the adjoining column: B1. The less prevalent height class is mostly scattered and intermixed within the prevalent one. B2. Not B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is completely absent. The number of 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: The number of large snags (diameter >20 cm) in the AA plus adjacent upland area within 10 m of the wetland edge is: The number of large snags (diameter >20 cm) in the AA plus adjacent upland area within 10 m of the wetland edge is: The number of large snags (diameter >20 cm) in the AA plus adjacent upland area within 10 m of the wetland edge is: The number of large snags (diameter >20 cm) in the AA plus adjacent upland area within 10 m of the wetland edge is: The number of large snags (diameter >20 cm) in the AA plus adjacent upland area within 10 m of the wetland edge is: The number of large snags (diameter >20 cm) in the AA plus adjacent upland area within 10 m of the wetland edge is: The number of downed wood places longer than 2 m and with diameter >10 cm, and not persistently submerged, is: Few or none that meet these criteria. The number of downed wood places longer than 2 m and with diameter >10 cm, and not persistently submerged, is: Few or none that meet these criteria. The percentage of the AA's vegetated cover, in the AA or along its water edge (whichever has more). The vegetated cover, in the AA or along its water edge (whichever has more). The vegetated cover, in the AA or along its water edge (whichever has more). The vegetated cover, in the AA or along its water edge (whichever has more). The vegetated cover, in the AA or along its water edge (whichever has more). The vegetated cover, in the AA or along its water edge (whichever has more). The vegetated cover, in th	40			A2. Not A1. The two height classes are mostly in separate zones or bands, or in proportionately large clumps.	1	
B1. The less prevalent height class is mostly scattered and intermixed within the prevalent one. B2. Not B1. The less prevalent height class is mostly scattered and intermixed within the prevalent one, in separate zones or clumps, or is completely obsent. The number of large snags (diameter >20 cm) in the AA plus adjacent upland area within 10 m of the wetland edge is: None, or fever than 8f hectare which exceed this diameter. None, or fever than 8f hectare which exceed this diameter. Several (-58hectare) and above not true. The number of downed wood pieces longer than 2 m and with diameter >10 cm, and not persistently submerged, is: Few or none that meet these criteria. Several (-5 if AA is >5 hectares, less for smaller AAs) meet these criteria. Several (-5 if AA is >5 hectares, less for smaller AAs) meet these criteria. Several (-5 if AA is >5 hectares, less for smaller AAs) meet these criteria. The percentage of the AA's vegetated cover, in the AA or along its water edge (whichever has more). 125.50% of the vegetated cover, in the AA or along its water edge (whichever has more). 576 F10 Sphagnum Moss Extent F10 Sphagn				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		
B2, No B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is completely absent. 44 47	41			class might even be totally absent. Choose between B1 and B2 and mark the choice with a 1 in the adjoining column:		
absent	42			B1. The less prevalent height class is mostly scattered and intermixed within the prevalent one.	0	
F7 Large Snags (Dead Slanding Trees) The number of large snags (diameter >20 cm) in the AA plus adjacent upland area within 10 m of the wetland edge is: None, or fower than 81 hectare which exceed this diameter None, or fower fower fower than 81 hectare which exceed this diameter None, or fower fower fower than 81 hectare which exceed this diameter None, or fower fowe	43				0	
None, or fewer than 87 hectare which exceed this diameter. Several (>8hectare) and a poin, lake, or slow-flowing water wider than 10 m is within 1 km. Several (>8hectare) and a poin, lake, or slow-flowing water wider than 10 m is within 1 km. The number of downed wood pieces longer than 2 m and with diameter >10 cm, and not persistently submerged, is: Few or none that meet these criteria. Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria. The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa, other legumes) is: 152 153 154 155 155 155 156 157 158 158 158 158 158 158 158		F7	0 0 .			
Several (>8/hectare) but above not true. O	45		Standing frees)	None, or fewer than 8/ hectare which exceed this diameter.	0	at least 2 III tall. [FOL, 3DIVI, WDIV]
Ag F8 Downed Wood The number of downed wood pieces longer than 2 m and with diameter >10 cm, and not persistently submerged, is: Few or none that meet these criteria.	46			Several (>8/hectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km.	1	
Few or none that meet these criteria. Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria. O Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria. O N Fixers The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa, other legumes) is: 10	47			Several (>8/hectare) but above not true.	0	
Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria. F9	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]
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) is: 152	49			Few or none that meet these criteria.	0	
S1	50			Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria.	0	
S2 C1% or none. C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cove	51	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) is:		Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
1-25% of the vegetated cover, in the AA or along its water edge (whichever has more). 1 25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 50-75% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 50-75% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the		1		<1% or none.	0	
25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). 0	53	1		1-25% 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). 56 50-75% of the vegetated cover, in the AA or along its water edge (whichever has more). 57 Sphagnum Moss The cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured by taller sedges and other plants rooted in it, is: 58 Extent Sedges and other plants rooted in it, is: 58 50-25% of the vegetated part of the AA. 59 50-25% of the vegetated part of the AA. 60 25-50% of the vegetated part of the AA. 60 50-95% of the vegetated part of the AA. 60 50-95% of the vegetated part of the AA. 60 50-95% of the vegetated part of the AA. 60 50-95% of the vegetated part of the AA. 60 50-95% of the vegetated part of the AA. 60 50-95% of the vegetated part of the AA.	54				0	
56 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0		1		50-75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
F10 Sphagnum Moss Extent Sedges and other plants rooted in it, is: 58 Sphagnum Moss Extent Sedges and other plants rooted in it, is: 58 Sphagnum Moss Extent Sedges and other plants rooted in it, is: 58 Sphagnum Moss Extent Sedges and other plants rooted in it, is: 58 Sphagnum Moss Exclude moss growing on trees and rocks. [CS, PH] 59 Sphagnum Moss Sphagnum Mos				v v v	0	
57 Extent sedges and other plants rooted in it, is: 58 <5% of the vegetated part of the AA.		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]
58 <5% of the vegetated part of the AA.				sedges and other plants rooted in it, is:		
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		1		<5% 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		1		5-25% of the vegetated part of the AA.	0	
	60			25-50% of the vegetated part of the AA.	0	
62 >95% of the vegetated part of the AA.				50-95% of the vegetated part of the AA.	0	
	62			>95% of the vegetated part of the AA.	1	

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	A	В	С	D	E
	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,	_	Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that is
63		Thatch	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 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 68			Other conditions.	0	-
68	F12	Cround Irrogularity	Not applicable. Surface water (either open or obscured by emergent plants) covers all of the AA all the time.	0	The depressions may be of human or natural origin. [AM, EC, INV, NR, PH, POL, PR, SBM, SR, WS]
	F 12	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 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 numarror natural origin. [AW, EC, MV, NR, PH, POL, PR, SBW, SR, WS]
			depressed >10 cm compared to most of the area within a few meters surrounding them is:		
69				0	-
70			Few or none (minimal microtopography; <1% of the land has such features, or entire AA is always water-covered). Intermediate.		
71				1	
72	F10	Haland Inchesions	Several (extensive micro-topography).	0	[AM ND CDM]
73	F13	Upland Inclusions	Within the AA, inclusions of upland are:		[AM, NR, SBM]
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).]		
			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	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.	1	
81			Shallow Peat or organic <40 cm deep.	0	
82			Coarse: includes sand, loamy sand, gravel, cobble, soils that do not make a ribbon when moistened, rolled, squeezed, and extended	0	
02	F15	Shorebird Feeding	between thumb and forefinger. 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	1 13	Habitats	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 samppers, provers, and related species. [VOI]
84		Tiabilats	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	-
	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	, , , , , , , , , , , , , , , , , , ,		[,
		vegetated vveitaria	<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 250/ of the vegetated part of the AA	0	-{
90			5-25% of the vegetated part of the AA.		-
91			25-50% of the vegetated part of the AA.	0	
92 93			50-95% of the vegetated part of the AA.	1	
93	F17	F C	>95% of the vegetated part of the AA.	0	Fisher and Browning plants. Do not include account and an analysis of the area of the first transition.
94	F1/	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, or others that lack showy flowers. [POL]
95			<5% of the herbaceous part of the AA.	0	of others that lack showy howers. [FOL]
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	F18	Sedge Cover	Sedges (Carex spp.) and cottongrass (Eriophorum spp.) occupy:		[CS]
100			<5% of the vegetated area, or none.	0	1
101			5-50% of the vegetated area.	1	
102					

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	Α	В	С	D	E
103	3		50-95% of the vegetated area.	0	
104	ı		>95% of the vegetated area.	0	
			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	5	Abundant Herbaceous	aquatic plants). Then choose one of the following:		

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	Α	В	С	D	E
106		Species	those species together comprise > 50% of the areal cover of herbaceous plants at any time during the year.	0	-
			those species together do not comprise > 50% of the areal cover of herbaceous plants at any time during the year.	1	
107 108	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		3.	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	
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]
121		% 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]
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	
126			75-99% of the AA never contains surface water, or >99% AND there is at least one persistent water body larger than 1 ha in the AA.	0	
127			99-100%. AND there is no persistent ponded water body larger than 1 ha within the AA. Enter "1" and SKIP to F42 (Channel Connection).	1	
		% of AA with Persistent Surface	Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during the driest 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		If you are unable to determine the condition at the driest time of year, ask the land owner or neighbors 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		vator	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.	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	
\vdash	26	% 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	within the AA at that time is:		
135			<5% of the water is shaded, or no surface water is present then.	0	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 F	-27	% 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	Danktul neight and visualising where that would intercept the land along the river. [CS, FA, INV, NR, OE, PH, SR, WBF, WBN, WS]
5					OL, I II, OK, WUI, WUN, WU

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A	В	С	D	E
144		50-95% of the AA.	0	
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.	0	PH, PR, SR, WBN, WS]
149		0.5 - 1 m change.	0	1
150		1-2 m change.	0	1
151		>2 m change.	0	
Is the	AA plus adjacent ponde nection).	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	
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.	0	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
157		1 - 2 m deep.	0	well as ponded areas. [CS, FA, FR, INV, OE, PH, PR, Sens, SFS, SR, WBF, WBN, WC]
158		>2 m deep. True for many fringe wetlands.	0	
F20	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,
159	Evenness of		_	WBF, WBN]
160	Proportions	One depth class that comprises >90% of the AA's inundated area (use the classes in the question above).	0	
161		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	
F31 163	% 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]
164	orided (not riowing)	<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	-
165		30-70% of the water.	0	
166		70-95% of the water.	0	-
167 168		>95% of the water.	0	-
	Dandad Onen Weter			
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 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).	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.
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:		[AW, CS, FA, FK, INV, INK, OE, FK, SK, WDI, WDI, WO]
171	паста Орен	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	
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	U	"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.	0	
181		30 - 49 m.	0	1
182		50 - 100 m.	0	1
183		> 100 m, or open water is absent at that time.	0	1
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	s. s.is.siiio Extolit	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	1
186		1-25% of the water edge.	0	1
187		25-50% of the water edge.	0	1
.07	1			

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partly above and partly below the water
partly above and partly below the water
partly above and partly below the water
e water surface. Estimates of underwater
e unreliable so should not be attempted.
er is frozen. The "downslope stream
eventually connect to the ocean. If this
c maps perhaps by viewing these online
I) [CS, FA, FR, NR, OE, PR, Sens,
h iic

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	Α	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	1
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="" wetland,<="" years).=""><td>0</td><td></td></once>	0	
211			ditch, or lake that lacks an outlet. SKIP to F47 (pH Measurement).		
212 F	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	1
			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	1	1
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 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	0	F42 above. [NRv, PH, PRv, SRv]
216			further upslope. If no, SKIP to F47 (pH Measurement).	J	
F	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]
215		Temperature	water in the AA during part of most years. Enter 1= yes, 0= no.		
217	- 14	Th	During its travel through the AA at the time of peak appeal flow water arriving in channels (select only the ONE		[FA FD INV ND OF DD CD WC]
	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 incoming water].		[FA, FR, INV, NR, OE, PR, SR, WS]
218		Resistance	• •	_	4
			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	
219			channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond or lake.		
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	1
221					
222			Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels.	0	1
			Bumps into tree trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or braided).	0	1
223					
224 F	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
			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	or make depressions in peat in order to provide water for this measurement. Avoid measuring near
226			peatland (e.g., Labrador tea) are prevalent. Enter "1".		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".	1	1
228 F	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.]	0	1
230			Conductivity is [Enter the reading in µS/cm in the column to the right.]	–	1
231			Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1".	0	1
			was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Effet 1.		
232			Naither of shove		
232 F	-49	Reaver Probability	Neither of above	1	ΓΕΔ FR PH SRM Sens WRF WRNI
232 233	F49	Beaver Probability	Use of the AA by beaver during the past 5 years is (select most applicable ONE):	1	[FA, FR, PH, SBM, Sens, WBF, WBN]
233 F	F49	Beaver Probability			[FA, FR, PH, SBM, Sens, WBF, WBN]
	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 (snags).	0	[FA, FR, PH, SBM, Sens, WBF, WBN]
233 F	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 (snags). Likely based on known occurrence in the region and proximity to suitable habitat, which may include: (a) a persistent freshwater wetland,	1	[FA, FR, PH, SBM, Sens, WBF, WBN]
233 F	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 (snags). 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	0	[FA, FR, PH, SBM, Sens, WBF, WBN]
233 F	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 (snags). 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	[FA, FR, PH, SBM, Sens, WBF, WBN]
233 F 234 235	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 (snags). 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	0	[FA, FR, PH, SBM, Sens, WBF, WBN]
233 F 234 235 236		,	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, 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.	0	
233 F 234 235 236	F50	Groundwater Strength	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, 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	Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other
233 F 234 235 236	F50	,	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, 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. Select first applicable choice: Springs are known to be present within the AA, or if groundwater levels have been monitored, that has demonstrated that groundwater	0	Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other evidence. Consult topographic maps to detect breaks in slope described here. Rust deposits
233 F 234 235 236 237 F	F50	Groundwater Strength	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, 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. Select first applicable choice:	0 0	Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other
233 F 234 235 236	F50	Groundwater Strength	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, 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. Select first applicable choice: 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 0 1	Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or 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
233 F 234 235 236 237 F 238	F50	Groundwater Strength	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, 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. Select first applicable choice: 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. 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 0	Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or 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
233 F 234 235 236 237 F	F50	Groundwater Strength	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, 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. Select first applicable choice: 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. 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 0 1 0	Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or 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
233 F 234 235 236 237 F 238	F50	Groundwater Strength	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, 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. Select first applicable choice: 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. 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 0 1	Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or 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

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	A	В	C	D	E
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)	1	outlet, divided by the flow-distance between them and converted to percent. If available, use a
243			· · · · · · · · · · · · · · · · · · ·	0	
244			6-10%.	0	
245			>10%.	0	
-	Note fo	or the next three guest	tions: If the AA lacks an upland edge, evaluate based on the AA's entire perimeter, and moving outward into whatever areas		
	are adj	acent. In many situation	ns, these questions are best answered by measuring from aerial images.		
	F52	9			[AM, FA, FR, INV, NRv, PH, POL, PRv, SBM, Sens, SRv, STR, WBN]
247		of Perimeter		_	
248					
249					
250					
251 252					
252	F53	Turne of Course in	Ÿ	U	TAM FA INV ND, DIL DOL COM CTD WDNI
253		* .			[AIVI, FA, INV, NRV, PH, POL, SDIVI, STR, WDN]
254		Dullel	·	1	
255				_	
	F54	Ruffer Slone			(NRv PRv Sens SRv)
256	1 54	buller Slope			[MW, FW, JGIS, JW]
257			· ·	0	
258					1
259				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.	0	
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.	1	
269	F57	The result Gradient The gradient along most of the flow poin within the AA is: 28 or of the AA has no surface water cubic floor even seasonally). 29 or of the AA has no surface water cubic floor even seasonally). 29 or of 10%. 30 or of 10%.			
270					
271			, ,		
272			, ,		
273	F58	Vioibility		1	[DIL CTD WDF-]
274	F 36	V121DIIIII			[FU, SIK, WDFV]
				0	1
275 276					1
276				11	
	F59	Non-consumptive	Assuming access permission was granted, select ALL statements that are true of the AA as it currently exists:		[PU, STR]
278	,	Uses - Actual or			, 5, 5y
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.	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	
			Within or near the AA, there is an interpretive center, trails with interpretive signs or brochures, and/or regular guided interpretive tours.	0	
281					

FieldF form - Non-tidal Page 9 of 10

	Α	В	С	D	E
282	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	3		<5% and no inhabited building is within 100 m of the AA.	0	
284	4		<5% and inhabited building is within 100 m of the AA.	0	
285 286	5		5-50% and no inhabited building is within 100 m of the AA.	0	
286	5		5-50% and inhabited building is within 100 m of the AA.	0	
287	7		50-95%, with or without inhabited building nearby.	1	
288	8		>95% of the AA with or without inhabited building nearby.	0	
289	9	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	0		<5%. If F60 was answered ">95%" (mostly never visited), SKIP to F64.	1	
291	1		5-50%.	0	
292	2		50-95%.	0	
293			>95% of the AA.	0	
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]
295		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]
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	7	(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	0	
298	8	Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0	
298 299	9		Waterfowl hunting.	0	
300)		Fishing.	0	
301	1		Trapping of furbearers.	0	
302	2		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	5		100-500 m. away.	0	1
306	5		>500 m. away, or no information.	1	
307	F66 7	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

Investigator: BL, CP	Site Identifier: Cambridge Wetland 1	Date: 18 Aug 2021	•
Stressor (S) Data Form for Non-Tidal	Wetlands. 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 the	eir volume) to shift by hours, days, or weeks, becoming either more m	nuted (smaller or less frequent neaks spread over longer	
times, more temporal homogeneity of flow or water levels) or more fla			atea (Smaller of less frequent peaks spread over longer	
Stormwater from impervious surfaces that drains directly to the wetl	and.			
Water subsidies from wastewater effluent, septic system leakage, s	now storage areas, or irrigation.			
Regular removal of surface or groundwater for irrigation or other con	nsumptive use.			
Flow regulation in tributaries or water level regulation in adjoining w	ater body, or other control structure at water entry points that req	gulates inflow to the wetland.		
A dam, dike, levee, weir, berm, or fill within or downgradient from	the wetland that interferes with surface or subsurface flow in/o	out of the AA (e.g., road fill, wellpads, pipelines).		
Excavation within the wetland, e.g., dugout, artificial pond, dead-end	d ditch.			
Artificial drains or ditches in or near the wetland.				
Accelerated downcutting or channelization of an adjacent or interna	I channel (incised below the historical water table level).			
Logging within the wetland.				
Subsidence or compaction of the wetland's substrate as a result of	machinery, livestock, fire, drainage, or off road vehicles.			
Straightening, ditching, dredging, and/or lining of tributary channels.				
If any items were checked above, then for each row of the table belo rows. To estimate effects, contrast the current condition with the con		no measurable effect on the timing of water conditions in any part of sent.	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.	
When most of the timing shift began:	<3 yrs ago.	3-9 yrs ago.	10-100 yrs ago.	
Score the following 2 rows only if the altered inputs began within pas	t 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.	
Flashiness or muting:	Became very flashy or controlled.	Intermediate.	Became mildly flashy or controlled.	
			Sum=	=
			Stressor subscore	=
Accelerated Inputs of Contaminants and/or	Salts			
In the last column, place a check mark next to any item occurring i	in either the wetland or its CA that is likely to have accelerated	the inputs of contaminants or salts to the AA. [AM, FA, PH, POL, STI	RJ	
Stormwater or wastewater effluent (including failing septic systems)	, landfills, industrial facilities.			
Metals & chemical wastes from mining, shooting ranges, snow stora npri/default.asp?lang=En&n=B85A1846-1	age areas, oil/ gas extraction, other sources (download many loc	ations 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, o	r other areas in the CA.			
If any items were checked above, then for each row of the table belo following rows. To estimate effects, contrast the current condition wit		not cumulatively expose the AA to significantly higher levels of contai onger present.	minants 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.	
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=	

Accelerated Inputs of Nutrients				
In the last column, place a check mark next to any item occu	rring in either the wetland or its CA that is likely to have accelerated th	he inputs of nutrients to the wetland. [NRv, PRv, STR]		
Stormwater or wastewater effluent (including failing septic sys	tems), landfills.			
Fertilizers applied to lawns, ag lands, or other areas in the CA				1
Livestock, dogs.				1
Artificial drainage of upslope lands.				
	e below, assign points. However, if you believe the checked items did no on if the checked items never occurred or were no longer present.	ot cumulatively expose the AA to significantly more nutrients, then	leave the "0's" for the scores in the following rows. To	
	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.	2
Frequency & duration of input:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.	2
AA proximity to main sources (actual or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.	2
		·	Sum	6
			Stressor subscore	

-	ting Area			
In the last column, place a check mark next to any item present in the	e CA that is likely to have elevated the load of waterborne or win	dborne sediment reaching the wetland from its CA. [FA, FR, INV,	PH, SRv, STR]	
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 ex	straction.			
Accelerated channel downcutting or headcutting of tributaries due to	altered land use.			
Other human-related disturbances within the CA.				
If any items were checked above, then for each row of the table belov then leave the "O's" for the scores in the following rows. To estimate e			add 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.	
• ,	avalion, crosion with or without veg removal, how-intensity- ve	g removal only with little or no apparent erosion or disturbance of	Sum=	
soil or sediment.	avalion, crosion will or williour veg removal, low-intensity- ve	g removal only with little of the apparent erosion of distulbance of	Sum= Stressor subscore-	
• ,		g removal only with little of the apparent erosion of distulbance of		
soil or sediment.	ssment Area		Stressor subscore:	
Soil or Sediment. Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the	ssment Area e wetland that is likely to have compacted, eroded, or otherwise		Stressor subscore:	
Soil or sediment. Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR]	ssment Area e wetland that is likely to have compacted, eroded, or otherwise		Stressor subscore:	
Soil or Sediment. Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai	essment Area e welland that is likely to have compacted, eroded, or otherwise n bikes, especially during wetter periods.		Stressor subscore:	
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour.	essment Area e wetland that is likely to have compacted, eroded, or otherwise n bikes, especially during wetter periods.	altered the wetland's soil. Consider only items occurring within pas	Stressor subscore:	
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native place)	essment Area e wetland that is likely to have compacted, eroded, or otherwise n bikes, especially during wetter periods.	altered the wetland's soil. Consider only items occurring within pas	Stressor subscore:	
Soil or Sediment. Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing org.	essment Area e wetland that is likely to have compacted, eroded, or otherwise n bikes, especially during wetter periods.	altered the wetland's soil. Consider only items occurring within pas	Stressor subscore:	
Soil or Sediment. Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing organization.	e welland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. Intis). Intis anic amendments (compost, etc.) or small amounts of topsoil in	altered the wetland's soil. Consider only items occurring within pas	Stressor subscore:	
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native played in the played in t	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. Intis). anic amendments (compost, etc.) or small amounts of topsoil in e erosion or stir bottom sediments.	altered the wetland's soil. Consider only items occurring within pas	Stressor subscore:	
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native plays in the plays of the p	e wetland that is likely to have compacted, eroded, or otherwise. In bikes, especially during wetter periods. Inits). Inits). Inits in the period in the	altered the wetland's soil. Consider only items occurring within pass	Stressor subscores	
Soil or Sediment Alteration Within the Asses in the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native play Fill or riprap, excluding small amounts of upland soils containing organization. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause short Artificial water level or flow manipulations sufficient to cause erosion of the suffer suffer suffer suffer sufficient to cause erosion of the suffer suffer suffer suffer sufficient to cause erosion of the suffer suffer suffer suffer sufficient to cause erosion of the suffer suffer suffer sufficient sufficient to cause erosion of the suffer suffer suffer sufficient sufficient to cause erosion of the suffer sufficient suffic	e wetland that is likely to have compacted, eroded, or otherwise. In bikes, especially during wetter periods. Inits). Inits). Inits in the period in the	altered the wetland's soil. Consider only items occurring within pass	Stressor subscores	
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Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native play Fill or riprap, excluding small amounts of upland soils containing organization. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause short Artificial water level or flow manipulations sufficient to cause erosion If any items were checked above, then for each row of the table below.	e welland that is likely to have compacted, eroded, or otherwise on bikes, especially during wetter periods. In this in the sequence of the s	altered the wetland's soil. Consider only items occurring within passing ported from another wetland. not measurably alter the soil structure and/or topography, then lea	Stressor subscores st 100 years or since welland was created or restored we the "0's" for the scores in the following rows. To estimate Mild (1 point)	
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing orga Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause short Artificial water level or flow manipulations sufficient to cause erosion If any items were checked above, then for each row of the table below effects, contrast the current condition with the condition if the checked. Spatial extent of altered soil:	e welland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. Intis). Intis). Intis in the period in the p	altered the wetland's soil. Consider only items occurring within pass reported from another wetland. mot measurably alter the soil structure and/or topography, then leas Medium (2 points) 5-95% of wetland or 5-95% of its upland edge (if any).	Stressor subscores st 100 years or since wetland was created or restored ve the "0's" for the scores in the following rows. To estimate Mild (1 point) <5% of wetland and <5% of its upland edge (if any).	

Stressor subscore=

0.00

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)	3.07	Lower	8.91	Higher	4.24	3.95
Stream Flow Support (SFS)	7.24	Higher	1.90	Lower	5.83	1.24
Water Cooling (WC)	0.00	Lower	0.00	Lower	0.00	0.00
Sediment Retention & Stabilisation (SR)	5.02	Moderate	4.54	Higher	6.11	2.22
Phosphorus Retention (PR)	3.84	Lower	8.57	Higher	6.15	6.67
Nitrate Removal & Retention (NR)	0.53	Lower	8.67	Higher	3.25	8.67
Carbon Sequestration (CS)	6.77	Higher			8.40	
Organic Nutrient Export (OE)	4.32	Moderate			4.45	
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)	3.65	Moderate	0.21	Lower	5.03	1.39
Amphibian & Turtle Habitat (AM)	0.56	Lower	0.64	Lower	3.36	2.77
Waterbird Feeding Habitat (WBF)	0.00	Lower	0.00	Lower	0.00	0.00
Waterbird Nesting Habitat (WBN)	0.00	Lower	0.00	Lower	0.00	0.00
Songbird, Raptor, & Mammal Habitat (SBM)	5.79	Moderate	3.33	Moderate	4.99	3.33
Pollinator Habitat (POL)	7.59	Moderate	3.33	Moderate	6.29	3.33
Native Plant Habitat (PH)	2.98	Lower	4.87	Lower	5.10	4.87
Public Use & Recognition (PU)			2.45	Moderate		1.98
Wetland Sensitivity (Sens)			7.07	Higher		4.89
Wetland Ecological Condition (EC)			8.26	Higher		9.17
Wetland Stressors (STR) (higher score means more stress)			10.00	Higher		6.43
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	10.00	Higher	8.91	Higher	4.24	3.95
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	4.07	Lower	7.96	Higher	7.19	7.26
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	5.52	Moderate	1.30	Lower	4.83	1.13
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)		Lower	0.38	Lower	2.02	1.66
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	6.52	Moderate	4.36	Lower	5.87	4.36
WETLAND CONDITION (EC)			8.26	Higher		9.17
WETLAND RISK (average of Sensitivity & Stressors)			8.53	Higher		5.66

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.

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	
	Cambridge Interchange Wetland 2
Investigator Name:	BL
Date of Field Assessment:	19 August 2021
Nearest Town:	Waterville, NS
Latitude (decimal degrees):	369422
Longitude (decimal degrees):	4992463
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	7.5
AA as percent of entire wetland (approx.). Attach sketch map if AA is smaller than the entire contiguous wetland.	50%
What percent (approx.) of the wetland were you able to visit?	50%
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.	Yes
How many wetlands have you assessed previously using WESP-AC? (approx.)	>100
Comments about the site or this WESP-AC assessment (attach extra page if desired):	

	A	В	C	D	Е
	Date: 19 August 2021		Site Identifier: Cambridge wetland 2	Investiga	tor: BL
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.
5			New Brunswick	0	In the function and benefits models, it also triggers the automatic exclusion of indicators for which no spatial data exists in a particular province.
6			Nova Scotia	1	Spatial data exists 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
10			<0.01 hectare (about 10 m x 10 m).	0	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.	1	up menu). [i ri, solvi, word
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.	0	
20			1 to 10 hectares.	0	
21			10 to 100 hectares.	1	
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		Vegetated Tract of Corridor		0	Exclude confiler prantations only if it is obvious that frees were planted in tows. [Aivi, PH, SBIVI, 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.	1	
29			100 to 1000 hectares.	0	
30			>1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	0	

	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	Ė	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,	0	
			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			50.500		
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.	1	
38	25/		None of the above (the closest patches or corridors which are that large are >5 km away).	0	F
	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
			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:		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]
			"1".		
			[* 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, consider:	0	See above. Do not consider conifer plantations to be forest if it is obvious that trees were planted in 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,		IOWS. [AIVIV, PTV, POLV, SDIVIV]
			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.]		
	SAC	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
4.		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:	0	
42			<5% of the land. 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	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:	0	[AM, SBM]
47	JF9	Alteration			[AIVI, SDIVI]
48		Attendation	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
51		Nearest Population	<100 m.	0	square kilometer. In Google Earth Pro, click on the Ruler icon, then Path, and draw and measure the
52		Center	100 - 500 m.	1	route. [FAv, FRv, NRv, PH, PU, SBM, WBFv]
53			0.5- 1 km.	0	
54			1 - 5 km.	0	
55			>5 km.	0	
	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
56		Maintained Road	<10 m.	0	tool. [AM, FAv, FRv, NRv, PH, PU, SBM, STR, WBN]
58			10 - 25 m.	0	
59			10 - 25 III. 25 - 50 m.	0	
60			25 - 30 III. 50 - 100 m.	0	
			30 - 100 m.	1	
62			>500 m.	0	
62			>300 III.	U	

A		В	С	D	E
0F1	2 Wil	ildlife 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 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	Draw the 5 km circle in Google Earth Pro using the Circle tool and search for roads and wetlands within it, being alert for roads hidden under forest canopy. [AM, SBM, STR]
64 OF1	3 Dis Wa	stance 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
65	vva	atei	<50 m, and not separated by any width of paved roads, stretches of open water, row crops, lawn, bare ground, or impervious surface.	0	wetlands that appear to be permanently flooded. [AM, PH, SBM, Sens, WBF, WBN]
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	1
71			None of the above (the closest patches or corridors that large are >1 km away).	0	1
72 OF1		stance to Large onded 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	1
75			1 - 2 km.	0	1
76			2-5 km.	0	1
77			5-10 km.	1	1
78			>10 km.	0	1
79 OF1	5 Tid	dal 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.	0	
84			10-40 km.	1	
85			>40 km.	0	

Г	А	В	C	D	F
86	OF16	Upland Edge Contact	Select one:	Ь	[NR, SBM, Sens]
87	7		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	3		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	
9()		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	
92		Flood Damage from Non tidal Waters	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 finer elevational resolution useful for flood modeling. [WSv]
93	3	tidai waters	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	provide finer elevational resolution userun of flood finodelling. [w.sv]
94	ı		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 levees, upriver dams, or other measures may partly limit damage or risk from smaller events.	0	
95	5		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure vulnerable to river flooding unrelated to tidal storm surges.	0	
96	5		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there isno infrastructure vulnerable to river flooding unrelated to tidal storm surges.	1	
97		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 watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-min).	0.08	[FA, NR, Sens, SFSv, WCv, WSv]
98			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]

	A	В	С	D	E
	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, N
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.		
400			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	Dograded Water	all wetlands in this region.		May use existing data or manifer waters so next of this watered accessment. [MDv. DDv. CDv.]
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		Downstream	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	
			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	
108	OE22	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):
	UFZZ	Contributing Area (Catchment)	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		http://atlas.gc.ca/toporama/en/index.html [NR, PR, Sens, SR, WS]
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 area. The result is:		
110			<0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	1	
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	0	
113	OE22	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 :		[1 A, 11VV, 1VKV, FKV, SKV, STK, WCV, WSV]
115		J	<10%.	0	
116			10 to 25%.	0	
117			>25%.	1	
	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.		
110			This statement is:		
119			Mostly true.	0	
120			Somewhat true.	1	
121			Mostly untrue.	0	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.	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
120		(Path Length)	<10 m.	0	and which are outlets) and augment by field inspection. With the Provincial Landscape Viewer, select
14/			NIO III.	U	Nova Scotia Tono as the Raseman. Also enable the laver Forestry>WAM Predicted Flow. Then

A	В	С	D	E
128	Б	10 - 50 m.	0	measure the inlet-outlet distance. [NR, OE, PR, SR, WS]
129		50 - 100 m.	0	incusure the finet outlet distance. [MA, OE, FIA, SIA, WS]
130		100 - 1000 m.	1	1
131		1- 2 km.	0	1
132		>2 km, or wetland lacks an inlet and outlet.	0	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.	2200	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 stocked. [AM, FA, FR, INV, WBF, WBN]
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	Deell Stocked. [AWI, FA, FR, INV, WDF, WDN]
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.	1	
137		is probably is not accessed by any anadromous fish species but is known or likely to haveother fish at least seasonally.	0	1
138		Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	0	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 ar approved protocol. For birds, also check eBird.org. [AMv, EC, PHv, POLv, SBMv, Sens, WBFv,
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	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	1 1 1 1 1 1 1 1 1 1	None of the above, or no data.	1	
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]
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 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]
OF32	Wintering Deer or Moose Concentration Areas	If AA is on private land with no information, change to blank (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]
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]
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]
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 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 to blank .	0	[AM, FA, FR, INV, PH]
OF38	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]

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54		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	
55		Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are allowed.	0	
56		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable or not) is in place.	0	
57		Ownership is private and owner does not allow access, or access permission unknown, and not a conservation easement.	1	

	A	В	C	D	E	
	Date: 19 august 2021		1 Site Identifier: Cambridge wetland 2		Investigator: BL	
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. 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.		They include module individual 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 (Carex rariflora). 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).	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.	1	
11	The An include " adja d describ	A should also include par 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. For the water area of adjacent ponded water larger than 8 ha and adjacent rivers wider than 20 m. Specifically, the AA should dijacent to wetland vegetation and equal in width to the average width of that vegetated zone. Throughout this data form, busly 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	F2	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	1		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 (nonwoody) vegetation, these percentages should not sum to 100%.		Deciduous shrubs in this region usually include buttonbush, Labrador tea, bayberry (<i>Morella</i>), 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
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]

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	A	В	С	D	E
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.	1	
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.	2	
23			deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	3	
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
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 species. [AM, CS, POL, SBM, Sens, WBN]
30			broad-leaved deciduous 1-9 cm diameter and >1 m tall.	1	species. [Aivi, C3, FOL, 3bivi, 3eits, Wbiv]
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]
		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	
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	F7	Large Snags (Dead	absent. 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
44	. ,	Standing Trees)			at least 2 m tall. [POL, SBM, WBN]
45		J,	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	D	Several (>8/hectare) but above not true.	0	E. J.
48	Fδ	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	
٠.	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) is:		Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
51			10.	_	
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 56			50-75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
36	F10	Cabagaum Mass	>75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	Evolude mass growing on trees and rocks [CS_DLI]
57		Sphagnum Moss	The cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured by taller sedges and other plants rooted in it, is:		Exclude moss growing on trees and rocks. [CS, PH]
57 58		Extent	<5% of the vegetated part of the AA.	0	
			5-25% of the vegetated part of the AA.	1	
59			5-25% of the vegetated part of the AA. 25-50% of the vegetated part of the AA.	0	
60			25-50% of the vegetated part of the AA. 50-95% of the vegetated part of the AA.	0	
62			>95% of the vegetated part of the AA.	0	
02			27370 of the vegetated part of the AA.	U	

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A	В	С	D	E
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,		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that is
63	Thatch	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 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. Other conditions.	0	-
67 68			0	-
F12	Cround Irrogularity	Not applicable. Surface water (either open or obscured by emergent plants) covers all of the AA all the time.	U	The depressions may be of human or natural origin. [AM, EC, INV, NR, PH, POL, PR, SBM, SR, WS]
F 12	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 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 human of hadra origin. [Aivi, EC, IIVV, IVK, FH, FOL, FK, 36ivi, 3K, W3]
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 71		rew or none (minimar inicrolopography, < 1% of the land has such readdles, or entire AA is always water-covered). Intermediate.	0	
72			1	
E12	Unland Inclusions	Several (extensive micro-topography).	1	[AM, NR, SBM]
73	Upland Inclusions	Within the AA, inclusions of upland are:		[AIVI, IVR, 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).]		
		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	1	
79		forefinger.	0	
80		Deep Peat, to 40 cm depth or greater.	0	-
81		Shallow Peat or organic <40 cm deep.	0	-
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.	U	
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	
F14	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 F 10	Vegetated Wetland			
89	J J	<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	1
91		25-50% of the vegetated part of the AA.	0	1
92		50-95% of the vegetated part of the AA.	1	
93		>95% of the vegetated part of the AA.	0	1
E4.7	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,
94 F17	I OID COVE			or others that lack showy flowers. [POL]
95		<5% of the herbaceous part of the AA.	0	or outdook and task shorty northogon (i. o.e.)
96		5-25% of the herbaceous part of the AA.	1	
97		25-50% of the herbaceous part of the AA.	0	1
98		50-95% of the herbaceous part of the AA.	0	1
99		>95% of the herbaceous part of the AA.	0	
100 F18	Sedge Cover	Sedges (<i>Carex</i> spp.) and cottongrass (<i>Eriophorum</i> spp.) occupy:		[CS]
101		<5% of the vegetated area, or none.	0	1
102		5-50% of the vegetated area.	1	1

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	Α	В	С	D	E
103	3		50-95% of the vegetated area.	0	
104	ı		>95% of the vegetated area.	0	
			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	5	Abundant Herbaceous	aquatic plants). Then choose one of the following:		

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	A	В	С	D	E
106		Species	those species together comprise > 50% of the areal cover of herbaceous plants at any time during the year.	1	_
			those species together do not comprise > 50% of the areal cover of herbaceous plants at any time during the year.	0	
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 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	1
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]
121		% 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]
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.	1	
125			50-75% of the AA never contains surface water.	0	
126			75-99% of the AA never contains surface water, or >99% AND there is at least one persistent water body larger than 1 ha in the AA.	0	
127			99-100%. AND there is no persistent ponded water body larger than 1 ha within the AA. Enter "1" and SKIP to F42 (Channel Connection).	0	
127		% of AA with Persistent Surface	Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during the driest 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		If you are unable to determine the condition at the driest time of year, ask the land owner or neighbors 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		Water	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.	0	
131			20-50% of the AA.	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 within the AA that is shaded by vegetation and other features that are		[FA, WC]
134		Water that Is Shaded	within the AA at that time is:		
135			<5% of the water is shaded, or no surface water is present then.	0	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.	1	
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]
]				·	OL, ITI, OK, TIDI, TIDII, TIDI

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	Α	В	C	D	E
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.	0	PH, PR, SR, WBN, WS]
149			0.5 - 1 m change.	1	
150			1-2 m change.	0	
151			>2 m change.	0	
	ls the <i>l</i> (Conne		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	
		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 the spatial median depth that occurs during most of that time, even if inundation is only seasonal or
154			<10 cm deep (but >0).	0	temporary. If inundation in most but not all of the wetland is brief, the answer will be based on the depth
155			10 - 50 cm deep.	1	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).	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	
163		% 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]
164			<5% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34.	1	·
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.	0	
169		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 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).	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.
170		% of Ponded Water that is 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:		[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]
171		шастѕ Орен	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	1
174			30-70% of the ponded water.	0	
175			70-99% of the ponded water.	0	
176			100% of the ponded water.	0	
177		Width of Vegetated Zone within Wetland	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 adjoining uplands from open water within the AA is:		"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,
178		ZONE WITHIN WETIANU	<1 m.	0	SBM, Sens, SR, WBN]
179			1 · 9 m.	0	·
180			10 - 29 m.	0	
181			30 - 49 m.	1	
182			50 - 100 m.	0	
183			> 100 m, or open water is absent at that time.	0	1
100	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	. 55	I Id. SHOTCHING EXICHT	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	1
186			1-25% of the water edge.	0	1
187			25-50% of the water edge.	1	
			·		

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	Α	В	C	D	E
188			50-75% of the water edge.	0	_
189			>75% of the water edge.	0	
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 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.	1	
193			25-75% of the emergent vegetation.	0	
194			>75%, of the emergent vegetation.	0	
195		Interspersion of Emergents & Open	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]
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	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	growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection).		
200		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 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 be attempted.
200		Aquatic Cover	Little or none.	1	[AM, FA, FR, INV]
201			Intermediate.	0	, , , , , , , , , , , , , , , , , , , ,
202			Intermediate. Extensive.	0	
203	F40	lantad laland	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	•	[WBN]
204	F4U	Isolated Island	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 support a waterbird nest.	U	[MRM]
	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".		
201		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 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,
200			Persistent (surface water flows out for >9 months/year).	1	SFS, SR, WCv, WS]
207			Persistent (surface water flows out for 14 days to 9 months/year, not necessarily consecutive).	0	
208			Seasonal (surface water nows out for 14 days to 7 months/year, not necessarily consecutive).	U	

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1 I A	В	С	D	E
209		Temporary (surface water flows out for <14 days, not necessarily consecutive).	0	-
	1	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	1
210		Measurement).		
	1	No surface water flows out of the wetland except possibly during extreme events (<once 10="" a="" flows="" into="" only="" or,="" per="" td="" water="" wetland,<="" years).=""><td>0</td><td></td></once>	0	
211		ditch, or lake that lacks an outlet. SKIP to F47 (pH Measurement).		
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.	1	
214		Leaves through natural exits (channels or diffuse outflow), not mainly through artificial or temporary features.	1	
		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	1	F42 above. [NRv, PH, PRv, SRv]
216		further upslope. If no, SKIP to F47 (pH Measurement).		
F45		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	Theoretic	During its travel through the AA at the time of peak annual flow water arriving is changely feelest only the CNICt	1	[FA FD INIV ND OF DD CD WC]
F46		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]
218	Resistance	<u> </u>		
	1	Does not bump into many plant stems as it travels through the AA. Nearly all the water continues to travel in unvegetated (often incised)	1	
219		channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond or lake.		
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 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
		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	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]
226		peatland (e.g., Labrador tea) are prevalent. Enter "1".		Todas of in paddies formed only by recent faint. [Awi, FA, FK, WE, FTH, FK, Sens, WEF, WEFY]
227		Neither of above. Enter "1".	1	
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.]	0	1
230		Conductivity is [Enter the reading in µS/cm in the column to the right.]		
231	1	Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1".	0	1
232		Neither of above	1	
E/10	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	Souver 1 robubility	, , , , , , , , , , , , , , , , , , ,		end on the first of the first o
1 1	1	Evident from direct observation or presence of gnawed limbs, dams, tracks, dens, lodges, or extensive stands of water-killed trees (snags).	0	
1				
234			_	1
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	0	
234		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.		
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	
235	Groundwater Strengt	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.		Adhere to these criteria strictly do not use personal judament based on fen conditions. pH. or other
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 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. Select first applicable choice:	1	Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other evidence. Consult topographic maps to detect breaks in slope described here. Rust deposits
235	Groundwater Strengt of Evidence	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. Select first applicable choice: Springs are known to be present within the AA, or if groundwater levels have been monitored, that has demonstrated that groundwater		
235 236 237 F50		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. Select first applicable choice:	1	evidence. Consult topographic maps to detect breaks in slope described here. Rust deposits
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 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. Select first applicable choice: 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	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
235 236 237 F50 238		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. Select first applicable choice: 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. 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	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
235 236 237 F50		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. Select first applicable choice: 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. 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	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
235 236 237 F50 238		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. Select first applicable choice: 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. 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	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

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	A	В	C	D	E
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).	1	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 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 fo	or the next three guest	tions: If the AA lacks an upland edge, evaluate based on the AA's entire perimeter, and moving outward into whatever areas		
	are adj	acent. In many situation	ns, these questions are best answered by measuring from aerial images.		
2.45	F52	9	Within a zone extending 30 m laterally from the AA's edge with upland and/or other wetlands, the percentage that containsperennial 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]
247		of Perimeter	vegeration cover (except lawns, row crops, neavily grazed land, conner plantations) is: <5%.	0	
248			5 to 30%.	0	
249 250			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	
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	U	[AM, FA, INV, NRv, PH, POL, SBM, STR, WBN]
253		Buffer	ONE):		[AW, FA, HVV, WKV, FTI, FOE, JOW, JTK, WON]
254		Dullei	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		Barror Gropo	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.	0	
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.	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			Burned within past 5 years.	0	
271			Burned 6-10 years ago.	0	
272			Burned 11-30 years ago.	0	
273	FEO	Vicibility	Burned >30 years ago, or no evidence of a burn and no data.	1	[DIL CTD WDF-]
274	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 public maintained trails that intersect, adjoin, or are within 100 m of the AA (select one) is:		[PU, STR, WBFv]
			public maintained traits that intersect, adjoin, or are within 100 m or the AA (select one) is. <25%.	1	
275 276			25·50%.	0	
276			>50%.	0	1
	F59	Non-consumptive	Assuming access permission was granted, select ALL statements that are true of the AA as it currently exists:		[PU, STR]
278	. 37	Uses - Actual or			, 5,5y
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	0	
			contiguous waters. Within or near the AA, there is an interpretive center, trails with interpretive signs or brochures, and/or regular guided interpretive tours.	0	
281					

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	A	В	С	D	E
282	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	
285 286			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	
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.	1	
291			5-50%.	0	
292			50-95%.	0	
293			>95% of the AA.	0	
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]
295		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]
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	1	(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	0	
298 299	1	Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0	
299	1		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	1		100-500 m. away.	0	
306	1		>500 m. away, or no information.	1	
307	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.	0	[PH, PR]

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Investigator: BL	Site Identifier: Cambridge Wetland 2	Date: 19 Aug 2021	
Stressor (S) Data Form for Non-Tidal	Wetlands. WESP-AC for Nova Scotia version 2.		Data

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 the	eir volume) to shift by hours, days, or weeks, becoming either more m	nuted (smaller or less frequent peaks spread over longer						
times, more temporal homogeneity of flow or water levels) or more fl			(
Stormwater from impervious surfaces that drains directly to the wet	land.								
Water subsidies from wastewater effluent, septic system leakage, snow storage areas, or irrigation.									
Regular removal of surface or groundwater for irrigation or other co									
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.									
A dam, dike, levee, weir, berm, or fill within or downgradient from	m, 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, dead-en	d ditch.								
Artificial drains or ditches in or near the wetland.									
Accelerated downcutting or channelization of an adjacent or internal	Il channel (incised below the historical water table level).								
Logging within the wetland.									
Subsidence or compaction of the wetland's substrate as a result of	machinery, livestock, fire, drainage, or off road vehicles.								
Straightening, ditching, dredging, and/or lining of tributary channels									
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 "O's" for the scores in the follow 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.						
When most of the timing shift began:	<3 yrs ago.	3-9 yrs ago.	10-100 yrs ago.						
Score the following 2 rows only if the altered inputs began within pas	t 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.						
Flashiness or muting:	Became very flashy or controlled.	Intermediate.	Became mildly flashy or controlled.						
			Sum=	=					
			Stressor subscore=						
Accelerated Inputs of Contaminants and/or	Salts	•							
In the last column, place a check mark next to any item occurring i	in either the wetland or its CA that is likely to have accelerated	the inputs of contaminants or salts to the AA. [AM, FA, PH, POL, STI	RJ						
Stormwater or wastewater effluent (including failing septic systems)	, landfills, industrial facilities.			1					
Metals & chemical wastes from mining, shooting ranges, snow storapri/default.asp?lang=En&n=B85A1846-1	age areas, oil/ gas extraction, other sources (download many loc	ations 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	r other areas in the CA.								
If any items were checked above, then for each row of the table belo following rows. To estimate effects, contrast the current condition win		not cumulatively expose the AA to significantly higher levels of contar onger present.	minants 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.						
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=	_					

Accelerated Inputs of Nutrients									
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 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.									
Livestock, dogs.									
Artificial drainage of upslope lands.									
	below, assign points. However, if you believe the checked items did no n if the checked items never occurred or were no longer present.	ot cumulatively expose the AA to significantly more nutrients, then	leave the "O's" for the scores in the following rows. To						
	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.	2					
Frequency & duration of input:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.	1					
AA proximity to main sources (actual or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.	2					
	·		Sum=	5					
			Stressor subscore=	0.56					

-	ting Area										
In the last column, place a check mark next to any item present in the	e CA that is likely to have elevated the load of waterborne or win	dborne sediment reaching the wetland from its CA. [FA, FR, INV,	PH, SRv, STR]								
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 extraction.											
Accelerated channel downcutting or headcutting of tributaries due to	altered land use.										
Other human-related disturbances within the CA.											
If any items were checked above, then for each row of the table below, assign points (3, 2, or 1 as shown in header) in the last column. However, if you believe the checked items did not cumulatively add significantly more sediment or suspended solids to the AA, 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)								
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.								
	cavation, erosion with or without veg removal; low-intensity= ve										
soil or sediment.		greational only warning of the apparent decision of disturbance of	Sum=								
• ,		greater and the state of the apparent creater of distalburies of	Sum= Stressor subscore=								
• ,		greater and the control apparent election of distalburies of									
soil or sediment.	ssment Area		Stressor subscore:								
Soil or Sediment. Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the	ssment Area e wetland that is likely to have compacted, eroded, or otherwise		Stressor subscore:								
Soil or sediment. Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR]	ssment Area e wetland that is likely to have compacted, eroded, or otherwise		Stressor subscore:								
Soil or Sediment. Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai	essment Area e welland that is likely to have compacted, eroded, or otherwise n bikes, especially during wetter periods.		Stressor subscore:								
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour.	essment Area e wetland that is likely to have compacted, eroded, or otherwise n bikes, especially during wetter periods.	altered the wetland's soil. Consider only items occurring within pas	Stressor subscore:								
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native place)	essment Area e wetland that is likely to have compacted, eroded, or otherwise n bikes, especially during wetter periods.	altered the wetland's soil. Consider only items occurring within pas	Stressor subscore:								
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Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native played in the played in t	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. Intis). anic amendments (compost, etc.) or small amounts of topsoil in e erosion or stir bottom sediments.	altered the wetland's soil. Consider only items occurring within pas	Stressor subscore:								
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native plays in the plays of the p	e wetland that is likely to have compacted, eroded, or otherwise. In bikes, especially during wetter periods. Inits). Inits). Inits in the period of the	altered the wetland's soil. Consider only items occurring within pass	Stressor subscores								
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Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing orge Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause short Artificial water level or flow manipulations sufficient to cause erosion If any items were checked above, then for each row of the table below effects, contrast the current condition with the condition if the checked	e welland that is likely to have compacted, eroded, or otherwise on bikes, especially during wetter periods. In this in the sequence of the s	altered the wetland's soil. Consider only items occurring within passing ported from another wetland. not measurably alter the soil structure and/or topography, then lea	Stressor subscores st 100 years or since welland was created or restored we the "0's" for the scores in the following rows. To estimate Mild (1 point)								
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing orga Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause short Artificial water level or flow manipulations sufficient to cause erosion If any items were checked above, then for each row of the table below effects, contrast the current condition with the condition if the checked. Spatial extent of altered soil:	e welland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. Intis). Intis). Intis in the period in the p	altered the wetland's soil. Consider only items occurring within pass reported from another wetland. mot measurably alter the soil structure and/or topography, then lease Medium (2 points) 5-95% of wetland or 5-95% of its upland edge (if any).	Stressor subscores st 100 years or since wetland was created or restored ve the "0's" for the scores in the following rows. To estimate Mild (1 point) <5% of wetland and <5% of its upland edge (if any).								

Stressor subscore=

0.00

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)	2.08	Lower	8.91	Higher	3.50	3.95
Stream Flow Support (SFS)	1.66	Moderate	4.28	Moderate	1.33	2.79
Water Cooling (WC)	7.70	Higher	9.62	Higher	5.13	5.13
Sediment Retention & Stabilisation (SR)	4.71	Moderate	10.00	Higher	5.87	5.25
Phosphorus Retention (PR)	0.74	Lower	9.73	Higher	4.21	7.57
Nitrate Removal & Retention (NR)	4.78	Higher	10.00	Higher	6.28	10.00
Carbon Sequestration (CS)	2.52	Lower			6.39	
Organic Nutrient Export (OE)	5.44	Moderate			4.86	
Anadromous Fish Habitat (FA)	5.56	Higher	4.62	Higher	3.64	2.94
Resident Fish Habitat (FR)	7.44	Higher	4.22	Moderate	3.95	2.64
Aquatic Invertebrate Habitat (INV)	7.94	Higher	8.12	Higher	6.77	5.44
Amphibian & Turtle Habitat (AM)	8.11	Higher	3.60	Moderate	7.33	5.06
Waterbird Feeding Habitat (WBF)	6.76	Higher	3.33	Moderate	5.19	3.33
Waterbird Nesting Habitat (WBN)	8.14	Higher	3.33	Moderate	5.91	3.33
Songbird, Raptor, & Mammal Habitat (SBM)	7.72	Higher	3.33	Moderate	6.65	3.33
Pollinator Habitat (POL)	6.74	Moderate	3.33	Moderate	5.58	3.33
Native Plant Habitat (PH)	5.51	Moderate	5.19	Lower	6.10	5.19
Public Use & Recognition (PU)			0.56	Lower		0.68
Wetland Sensitivity (Sens)			4.56	Moderate		4.13
Wetland Ecological Condition (EC)			6.52	Higher		8.33
Wetland Stressors (STR) (higher score means more stress)			7.80	Higher		3.93
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	10.00	Higher	8.91	Higher	3.50	3.95
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	4.09	Lower	9.96	Higher	6.04	8.80
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	6.81	Higher	8.48	Higher	5.65	4.95
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	7.67	Higher	4.22	Moderate	6.27	4.26
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	7.19	Higher	4.57	Lower	6.38	4.57
WETLAND CONDITION (EC)			6.52	Higher		8.33
WETLAND RISK (average of Sensitivity & Stressors)			6.18	Higher		4.03

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.

WESP-AC version 2
Cambridge Interchange Wetland 3
BL
19 Aug 2021
Waterville, NS
368964
4989943
Yes
0.3
100
100
100
No
Yes
Yes
>100

	Α	В	C	D	Е
	Date: 19 Aug 2021		Site Identifier: Cambridge Interchange Wetland 3	Investiga	itor: BL
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.
5			New Brunswick	0	In the function and benefits models, it also triggers the automatic exclusion of indicators for which no spatial data exists in a particular province.
6			Nova Scotia	1	spatial data exists 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
10			<0.01 hectare (about 10 m x 10 m).	0	extends beyond 1 km, include only the part within 1 km. Do not include tidal areas. Measure the
11			0.01 - 0.1 hectare.	1	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 mena). [i 11, 35livi, vvoiv]
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.	0	
20			1 to 10 hectares.	1	
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. [<i>This is nearly always the answer in relatively undeveloped landscapes</i> .]	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,	0	
			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.	1	
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	0	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, WBNv]
			11 .		
			[* 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,	0	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 area		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	050	T (1 10	>90% of the land. SKIP to OF10.	0	TALL COM
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		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
51		Nearest Population	<100 m.	1	square kilometer. In Google Earth Pro, click on the Ruler icon, then Path, and draw and measure the
52		Center	100 - 500 m.	0	route. [FAv, FRv, NRv, PH, PU, SBM, WBFv]
53			0.5- 1 km.	0	
54			1 - 5 km.	0	
55			>5 km.	0	1
	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
56		Maintained Road	· · · · · · ·	0	tool. [AM, FAv, FRv, NRv, PH, PU, SBM, STR, WBN]
57			<10 m.		
58			10 - 25 m. 25 - 50 m.	0	
59			25 - 50 m. 50 - 100 m.	0	
60			30 - 100 m.	0	
61			>500 m.	0	
02		<u> </u>	2000 H.	U	

	Λ	В	C	D	E
63)F12	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 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 toblank if there are no other wetlands within 5 km.	0	Draw the 5 km circle in Google Earth Pro using the Circle tool and search for roads and wetlands within it, being alert for roads hidden under forest canopy. [AM, SBM, STR]
64 65 66 67 68 69 70		Distance to Ponded Water	The distance from the AA center to the closest (but separate) ponded water body visible in GoogleEarth imagery is: <50 m, and not separated by any width of paved roads, stretches of open water, row crops, lawn, bare ground, or impervious surface. <50 m, but completely separated by those features. 50-500 m, and not separated. 50-500 m, but separated by those features. 0.5 - 1 km, and not separated. 0.5 - 1 km, but separated by those features. None of the above (the closest patches or corridors that large are >1 km away).	0 0 0 0 0 0	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]
72 73 74 75 76 77 78		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: 100 m. 100 m - 1 km. 1 - 2 km. 2-5 km. 5-10 km. >10 km.	0 0 0 0 0	Determine this by viewing aerial imagery in Google Earth. [Sens, WBF, WBN]
79 80 81 82 83 84 85)F15	Tidal Proximity	The distance from the AA edge to the closesttidal water body (regardless of its salinity) is: <100 m. 100 m - 1 km. 1 - 5 km. 5-10 km. 10-40 km. >40 km.	0 0 0 0 1	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 for NS (NS Headtide). Points shown in those files are only an approximation, so local information if available may be preferable. [FA, WBF]

	Δ	В	C	D	F
86	OF16	Upland Edge Contact	Select one:	Ь	[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	
9()		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	
92		Flood Damage from Non tidal Waters	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
93		tidai waters	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	provide finer elevational resolution useful for flood modeling. [WSv]
94			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 levees, upriver dams, or other measures may partly limit damage or risk from smaller events.	0	
95			Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure vulnerable to river flooding unrelated to tidal storm surges.	0	
96			Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there isno infrastructure vulnerable to river flooding unrelated to tidal storm surges.	1	
97		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 watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-min).	0.13	[FA, NR, Sens, SFSv, WCv, WSv]
98			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]

	Α	В	С	D	E
	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.		
			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	
			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.		
	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		
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 area. The result is:		
110			<0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	1	
111			0.01 to 0.1.	0	
112			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 raisec	0	
113			boa).	Ů	
	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%.	0	
116			10 to 25%.	0	
117			>25%.	1	
	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.		
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			Northward (N, NE). north-facing contributing area.	0	
123			Southward (N, NE). north-facing contributing area.	1	
124			Other (E, SE, W, NW), or no detectable uphill slope or input channel (flat).	0	
123	OF26	Internal Flow Distance	The horizontal flow distance from the wetland's inlet to outlet is:	U	Identify inlets and outlets, if any, from topographic maps (use elevations to determine which are inlets
126	OF20	(Path Length)			and which are outlets) and augment by field inspection. With the Provincial Landscape Viewer, select
127		(i. dair Eorigan)	<10 m.	0	Nova Scotia Topo as the Baseman. Also enable the laver Forestry>WAM Predicted Flow. Then

A	В	С	D	E
128	Б	10 - 50 m.	0	measure the inlet-outlet distance. [NR, OE, PR, SR, WS]
129		50 - 100 m.	1	incusure the finet outlet distance. [MA, OE, FIA, SIA, WS]
130		100 - 1000 m.	0	1
131		1- 2 km.	0	1
132		>2 km, or wetland lacks an inlet and outlet.	0	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.	2200	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 stocked. [AM, FA, FR, INV, WBF, WBN]
135		Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. Go to Provincial Landscape Viewers-Wildlifes-Significant Habitats-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	Deell Stocked. [AWI, FA, FR, INV, WDF, WDN]
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 haveother fish at least seasonally.	0	1
138		Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	1	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 ar approved protocol. For birds, also check eBird.org. [AMv, EC, PHv, POLv, SBMv, Sens, WBFv,
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	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	1 1 D' 1 A	None of the above, or no data.	1	
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]
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 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]
OF32	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]
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 tollank (not 0).	0	[PU]
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]
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 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]
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 o the Manual). Enter "0" if false. If no information, change to blank .	0	[AM, FA, FR, INV, PH]
OF38 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]

A	В	C	D	Е
54		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	
55		Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are allowed.	0	
56		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable or not) is in place.	0	
57		Ownership is private and owner does not allow access, or access permission unknown, and not a conservation easement.	1	

	A	В	C	D	E
	Date: 19 August 2021		Site Identifier: Cambridge Interchange WL-3	Investigator: BL	
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.		They include Produce Industrials 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 lauret, and a sedge (Carex rarifiora). 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	
	The AA include " adjac describ	A should also include par the open water part ac ent " is used synonymo ned 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 lijacent 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.		
11	F2	Wetland Types -	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		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
12		Adjoining or Subordinate	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.		10 m, or similar. [AM, INV, SBM, WBF]
13			A1.	0	
14 15			A2. B1.	0	
15			B1. 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 (nonwoody) 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
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]

FieldF form - Non-tidal Page 1 of 10

	Α	В	С	D	E
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.	2	
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.	2	
23			deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	2	
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
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.	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	
43			B2. Not B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is completely absent.	0	
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
		Standing Trees)	None, or fewer than 8/ hectare which exceed this diameter.	1	at least 2 m tall. [POL, SBM, WBN]
45 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	
	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]
48		Downed Wood		1	Endade temporary Sumprisor [188] 1877 F. SEL SENI
49 50			Few or none that meet these criteria.	0	
30		N Fixers	Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria. The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa, other legumes)	U	Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
51	17	IN I INCI 2	is:		DO NOU INCIDUDE IN-INING AIGAE OF INCIDENS. [FM, FK, INV, INV, DE, FN, SEIVI, SENS]
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	
30	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	1		50-95% of the vegetated part of the AA.	0	
62	1		>95% of the vegetated part of the AA.	0	
<u> </u>			•		

FieldF form - Non-tidal Page 2 of 10

	A	В	С	D	E
	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,		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that is
63		Thatch	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	0	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	1	
65			AA.		
66			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	
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]
		orouna mogularity	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	1
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.	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	-
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	1 17	Joil Texture	at least 3 widely spaced locations, and use the soil texture key (in Appendix A of the Manual).]		[65, WK, 6E, 111, 11K, 3613, 315, W5]
- / /			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	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	1	
79			forefinger.		
80			Deep Peat, to 40 cm depth or greater.	0	_
81			Shallow Peat or organic <40 cm deep.	0	
82			Coarse: includes sand, loamy sand, gravel, cobble, soils that do not make a ribbon when moistened, rolled, squeezed, and extended	0	
82	F15	Shorebird Feeding	between thumb and forefinger. 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	1 13	Habitats	unshaded waters shallower than 6 cm is: [Include also any area that is adjacent to the AA.]		This addresses needs of maily but not all milgratory sandpipers, provers, and related species. [WDF]
84		Tabitats	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	
	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	, , , , , , , , , , , , , , , , , , ,	_	<u> </u>
89		,	<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	
93			>95% of the vegetated part of the AA.	0	1
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,
			<5% of the herbaceous part of the AA.	0	or others that lack showy flowers. [POL]
95 96			5-25% of the herbaceous part of the AA.	1	<u> </u>
96			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	1
	F18	Sedge Cover	Sedges (<i>Carex</i> spp.) and cottongrass (<i>Eriophorum</i> spp.) occupy:	Ů	[CS]
100	-		2	_	"
101			<5% of the vegetated area, or none.	0	-
102			5-50% of the vegetated area.	1	

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	Α	В	С	D	Е
103	3		50-95% of the vegetated area.	0	
104	ı		>95% of the vegetated area.	0	
			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	5	Abundant Herbaceous	aquatic plants). Then choose one of the following:		

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	Α	В	С	D	E
106	А	Species	those species together comprise > 50% of the areal cover of herbaceous plants at any time during the year.	1	L
		Ороско	those species together do not comprise > 50% of the areal cover of herbaceous plants at any time during the year.	0	
107					
	-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		[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	4
113	-0.1		invasive species comprise >50% of the herb cover (or woody cover, if the invasives are woody).	0	16 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
l		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 plant		If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an exotic
114		Upland Edge	species is:		species, assume the unidentified plant to also be exotic. If vegetation is so senesced that exotic species cannot be identified, answer "none". [PH, STR]
115			none of the upland edge (invasives apparently absent), or AA has no upland edge.	1	species carriot be identified, answer florie . [F11, 511]
116			some (but <5%) of the upland edge.	0	_
117			5-50% of the upland edge.	0	
118	-00	F	most (>50%) of the upland edge.	0	NIDE WINN WO I
	-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	0	[WBF, WBN, WCv]
119			vegetated zone within the wetland. Enter "1" if true, "0" if false.		
	-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	0	[FR, PR, PU, WBF, WBN]
120			a normal year.		
		% 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	_
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 persistent water body larger than 1 ha in the AA.	0	
120			99-100%. AND there is no persistent ponded water body larger than 1 ha within the AA. Enter "1" and SKIP to F42 (Channel Connection).	0	1
105			77 100%. And and is no persistent period water body larger than 1 ha main the 7%. Ellier 1 discount to 1.42 (ordinar connection).		
127	- DE	0/ of A A with	Identify the norte of the AA that still contain surface water (flowing or nonded once or hidden beneath vagetation) even during the driest		If you are unable to determine the condition at the driest time of year, sell the land owner or neighbors
		% of AA with Persistent Surface	Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during the driest 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		If you are unable to determine the condition at the driest time of year, ask the land owner or neighbors about it if possible. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat.
120		Water	surface water is:		[AM, CS, FA, FR, INV, NR, POL, PR, SBM, WBF, WBN]
128		water	None. The AA dries up completely (no water in channels either) or never has surface water during most years. SKIP to F27 .	0	
129 130			1-20% of the AA.	1	
130			1-20% of the AA.	0	
131			50-95% of the AA.	0	1
132			>95% of the AA. True for many fringe wetlands.	0	1
133	-26	% of Summertime	At mid-day during the warmest time of year, the area of surface waterwithin the AA that is shaded by vegetation and other features that are	U	[FA, WC]
134		Water that Is Shaded	within the AA at that time is:		[m, moj
135		vvator triat is straucu	<5% of the water is shaded, or no surface water is present then.	0	1
136			5-25% of the water is shaded.	0	1
137			25-50% of the water is shaded.	0	1
138			50-75% of the water is shaded.	0	1
139			>75% of the water is shaded.	1	
	- 27	% 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	-1	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.	0	plant species. In riverine systems, the extent of this zone can be estimated by multiplying by 2 the
142		ocasonany	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]

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	Α	В	С	D	E
144			50-95% of the AA.	1	
145			>95% of the AA.	0	
146 F		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.	1	PH, PK, SK, WDIV, WSJ
149			0.5 - 1 m change.	0	
150			1-2 m change.	0	
151			>2 m change.	0	
		AA plus adjacent ponded ection).	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	
153		Predominant Depth Class	During most of the time when surface water is present during the growing season, its depth, averaged over the entire inundated part of the AA, is:		If a boat is unavailable, estimate this by considering wetland size and local topography. Or if timing 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	well as pullued aleas. [C3, FA, FK, IIVV, OE, FH, FK, Sells, SF3, SK, WDF, WDIV, WC]
158			>2 m deep. True for many fringe wetlands.	0	
159 F		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	
	31	% 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,
163		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.	1	
166			30-70% of the water.	0	
167			70-95% of the water.	0	
168			>95% of the water.	0	
169		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 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).	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.
		% of Ponded Water that is 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:		[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]
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	
177		Width of Vegetated Zone within Wetland	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 adjoining uplands from open water within the AA is:		"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,
178			<1 m.	0	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	
184	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 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.	0	
187			25-50% of the water edge.	0	

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	Α	В	С	D	E
188			50-75% of the water edge.	0	_
189			>75% of the water edge.	0	
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.	0	
194			>75%, of the emergent vegetation.	0	
195		Interspersion of Emergents & Open	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]
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.	0	
	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	
199		Area .	growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection).		
200		3	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 be attempted.
200		Aquatic Cover	Little or none.	0	[AM, FA, FR, INV]
201			Intermediate.	0	[111] [11]
202			Intermediate. Extensive.	0	
203		lantata di Internal	Extensive. 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	·	[WBN]
204	F4U	Isolated Island	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 support a waterbird nest.	U	[MRM]
	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".		
201			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 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,
200	1		Persistent (surface water flows out for >9 months/year).	0	SFS, SR, WCv, WS]
207	-		Persistent (surface water flows out for 14 days to 9 months/year, not necessarily consecutive).	1	
208			Deasonal (surface water nows out for 14 days to 7 months/year, not necessarily consecutive).	1	

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	Α	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	1
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="" wetland,<="" years).=""><td>0</td><td></td></once>	0	
211			ditch, or lake that lacks an outlet. SKIP to F47 (pH Measurement).		
212 F	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.	1	1
			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	1
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 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	1	F42 above. [NRv, PH, PRv, SRv]
216			further upslope. If no, SKIP to F47 (pH Measurement).		
F	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	- 14	Th	During its travel through the AA at the time of peak appeal flow water arriving in channels (select only the ONE		[FA FD IMV MD OF DD CD MC]
	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 incoming water].		[FA, FR, INV, NR, OE, PR, SR, WS]
218		Resistance	• •		4
			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	
219			channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond or lake.		
220			Bumps into herbaceous vegetation but mostly remains in fairly straight channels.	1	
			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	1
			Bumps into tree trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or braided).	0	1
223					
224 F	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
			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	or make depressions in peat in order to provide water for this measurement. Avoid measuring near
226			peatland (e.g., Labrador tea) are prevalent. Enter "1".		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".	1	
228 F	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.]	0	1
230			Conductivity is [Enter the reading in µS/cm in the column to the right.]	- u	•
231			Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1".	0	1
231			Neither of above	1	
232	- 10			-	(EA ED DIL COM C MOE MON)
1 10		Reguer Prohability	Il Iso of the ΔΔ by heaver during the past 5 years is (select most applicable ONE):		
233 F	-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]
	-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 (snags).	0	[FA, FR, PH, SBM, Sens, WBF, WBN]
233 F	-49	Beaver Probability	Evident from direct observation or presence of gnawed limbs, dams, tracks, dens, lodges, or extensive stands of water-killed trees (snags).		[FA, FR, PH, SBM, Sens, WBF, WBN]
	-49	Beaver Probability	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,	0	[FA, FR, PH, SBM, Sens, WBF, WBN]
234	-49	Beaver Probability	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, 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		[FA, FR, PH, SBM, Sens, WBF, WBN]
	-49	Beaver Probability	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, 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	[FA, FR, PH, SBM, Sens, WBF, WBN]
234	-49	Beaver Probability	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, 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		[FA, FR, PH, SBM, Sens, WBF, WBN]
234 235 236		,	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, 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.	0	
234 235 236	F50	Groundwater Strength	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, 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. Select first applicable choice:	0	Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other
234 235 236	F50	,	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, 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. Select first applicable choice: Springs are known to be present within the AA, or if groundwater levels have been monitored, that has demonstrated that groundwater	0	Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other evidence. Consult topographic maps to detect breaks in slope described here. Rust deposits
234 235 236 237	F50	Groundwater Strength	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, 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. Select first applicable choice:	0	Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other
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234 235 236 237 F	F50	Groundwater Strength	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, 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. Select first applicable choice: 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. 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	Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or 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
234 235 236 237	F50	Groundwater Strength	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, 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. Select first applicable choice: 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. 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 1 0 0	Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or 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
234 235 236 237 F	F50	Groundwater Strength	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, 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. Select first applicable choice: 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. 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 0	Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or 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

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	A	В	C	D	E
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
	Note fo	or the next three guest	tions: If the AA lacks an upland edge, evaluate based on the AA's entire perimeter, and moving outward into whatever areas		
	are adj	acent. In many situation	ns, these questions are best answered by measuring from aerial images.		
	F52	9	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	
251 252			60 to 90%.	0	
252	F53	Tune of Cover in	>90%, or all the area within 30 m of the AA edge is other wetlands. SKIP to F55.	U	[AM EA INIV NID, DLI DOL CDM CTD WIDN]
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		Dullel	Impervious surface, e.g., paved road, parking lot, building, exposed rock.	1	
255			Bare or nearly bare pervious surface or managed vegetation, e.g., lawn, row crops, unpaved road, dike, landslide.	0	
	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	1 54	buller Slope	percent slope of:		[MAY, TAY, SCIS, SAY]
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%.	0	
260			>30%.	1	
	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.	0	
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.	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			Burned within past 5 years.	0	
271			Burned 6-10 years ago.	0	
272			Burned 11-30 years ago.	0	
273	F58	Vioibility	Burned >30 years ago, or no evidence of a burn and no data.	1	(DLL CTD, WDF ₂)
274	F 36	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]
			public maintained traits triat intersect, adjoin, or are within 100 m or the AA (select one) is. <25%.	1	
275 276			25·50%.	0	
276			>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]
-,3		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.		
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					

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	Α	В	С	D	E
282	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	
285 286			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	
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.	1	
291			5-50%.	0	
292			50-95%.	0	
293			>95% of the AA.	0	
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]
295		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]
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	1	(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	0	
298 299	1	Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0	
299	1		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.	1	
305	1		100-500 m. away.	0	
306	1		>500 m. away, or no information.	0	
307	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.	0	[PH, PR]

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Investigator: BL	Site Identifier: Cambridge Wetland 3	Date: 20 aug 2021	
Stressor (S) Data Form for Non-Tidal	Wetlands. WESP-AC for Nova Scotia version 2.		Data

Aberrant Timing of Water Inputs								
	ely to have caused the timing of water inputs (but not necessarily the re flashy (larger or more frequent spikes but over shorter times). [FA	eir volume) to shift by hours, days, or weeks, becoming either more m., , FR, INV, PH, STR]	nuted (smaller or less frequent peaks spread over longer					
Stormwater from impervious surfaces that drains directly to the	wetland.							
Water subsidies from wastewater effluent, septic system leakag	e, snow storage areas, or irrigation.							
Regular removal of surface or groundwater for irrigation or other	consumptive use.							
Flow regulation in tributaries or water level regulation in adjoining	g water body, or other control structure at water entry points that reg	gulates inflow to the wetland.						
A dam, dike, levee, weir, berm, or fill within or downgradient fi	rom the wetland that interferes with surface or subsurface flow in/o	out of the AA (e.g., road fill, wellpads, pipelines).						
Excavation within the wetland, e.g., dugout, artificial pond, dead-end ditch.								
Artificial drains or ditches in or near the wetland.								
Accelerated downcutting or channelization of an adjacent or inte	ernal channel (incised below the historical water table level).			1				
Logging within the wetland.				1				
Subsidence or compaction of the wetland's substrate as a resul	of machinery, livestock, fire, drainage, or off road vehicles.			1				
Straightening, ditching, dredging, and/or lining of tributary chann	nels.							
	below, assign points. However, if you believe the checked items had condition if the checked items never occurred or were no longer pre:	no measurable effect on the timing of water conditions in any part of sent.	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.	T				
When most of the timing shift began:	<3 yrs ago.	3-9 yrs ago.	10-100 yrs ago.					
Score the following 2 rows only if the altered inputs began within	the following 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.					
Flashiness or muting:	Became very flashy or controlled.	Intermediate.	Became mildly flashy or controlled.					
	•		Sum=	-				
			Stressor subscore	=				
Accelerated Inputs of Contaminants and/	or Salts							
In the last column, place a check mark next to any item occurri	ing in either the wetland or its CA that is likely to have accelerated	the inputs of contaminants or salts to the AA. [AM, FA, PH, POL, STI	RJ	П				
Stormwater or wastewater effluent (including failing septic syste	ms), landfills, industrial facilities.			Т				
Metals & chemical wastes from mining, shooting ranges, snow s pri/default.asp?lang=En&n=B85A1846-1	storage areas, oil/ gas extraction, other sources (download many loc	ations from National Pollutant Release Inventory and view KMZ overl	ay in Google Earth. https://www.ec.gc.ca/inrp-					
Road salt.				T				
Spraying of pesticides, as applied to lawns, croplands, roadside	s, or other areas in the CA.							
	below, assign points. However, if you believe the checked items did a with the condition if the checked items never occurred or were no lo	not cumulatively expose the AA to significantly higher levels of contai onger present.	minants and/or salts, then leave the "O's" for the scores in the	Ī				
	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.					
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=	-				
-								

Accelerated Inputs of Nutrients								
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 the inputs of nutrients to the wetland. [NRv, PRv, STR]								
Stormwater or wastewater effluent (including failing septic system)	ems), 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 estimate effects, contrast the current condition with the condition	below, assign points. However, if you believe the checked items did no if the checked items never occurred or were no longer present.	ot cumulatively expose the AA to significantly more nutrients, then	leave the "O's" for the scores in the following rows. To					
	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.	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				

Excessive Sediment Loading from Contribut	ting Area			
In the last column, place a check mark next to any item present in the	e CA that is likely to have elevated the load of waterborne or wir	dborne sediment reaching the wetland from its CA. [FA, FR, INV,	PH, SRv, STR]	
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 ex	straction.			
Accelerated channel downcutting or headcutting of tributaries due to	altered land use.			
Other human-related disturbances within the CA.				
If any items were checked above, then for each row of the table below then leave the "O's" for the scores in the following rows. To estimate e			add 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, exc	cavation, erosion with or without veg removal; low-intensity= ve	g removal only with little or no apparent erosion or disturbance of	Sum=	
soil or sediment.			Suill=	
Isoil or sediment.			Stressor subscore=	
	ssment Area			
soil or Sediment. Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the		allered the wetland's soil. Consider only items occurring within pa	Stressor subscore=	
Soil or Sediment Alteration Within the Asses		altered the wetland's soil. Consider only items occurring within pa	Stressor subscore=	
Soil or Sediment Alteration Within the Asses	e wetland that is likely to have compacted, eroded, or otherwise	altered the wetland's soil. Consider only items occurring within pa.	Stressor subscore=	
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR]	e wetland that is likely to have compacted, eroded, or otherwise	allered the welland's soil. Consider only items occurring within pa	Stressor subscore=	
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain	e wetland that is likely to have compacted, eroded, or otherwise n bikes, especially during wetter periods.	allered the wetland's soil. Consider only items occurring within pa	Stressor subscore=	
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour.	e wetland that is likely to have compacted, eroded, or otherwise n bikes, especially during wetter periods.		Stressor subscore=	
Soil or Sediment Alteration Within the Assess In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native place)	e wetland that is likely to have compacted, eroded, or otherwise n bikes, especially during wetter periods.		Stressor subscore=	
Soil or Sediment Alteration Within the Assess In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountal Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native plate) Fill or riprap, excluding small amounts of upland soils containing org	e wetland that is likely to have compacted, eroded, or otherwise n bikes, especially during wetter periods.		Stressor subscore=	
Soil or Sediment Alteration Within the Assess In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native place) Fill or riprap, excluding small amounts of upland soils containing org Excavation.	e wetland that is likely to have compacted, eroded, or otherwise n bikes, especially during wetter periods. ants). anic amendments (compost, etc.) or small amounts of topsoil in		Stressor subscore=	
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing org Excavation. Ditch cleaning or dredging in or adjacent to the wetland.	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants). anic amendments (compost, etc.) or small amounts of topsoil in e erosion or stir bottom sediments.		Stressor subscore=	
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing org Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause shore	e wetland that is likely to have compacted, eroded, or otherwise In bikes, especially during wetter periods.	nported from another wetland.	Stressor subscore= st 100 years or since wetland was created or restored	
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing org Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause shor Artificial water level or flow manipulations sufficient to cause erosion If any items were checked above, then for each row of the table below	e wetland that is likely to have compacted, eroded, or otherwise In bikes, especially during wetter periods.	nported from another wetland.	Stressor subscore= st 100 years or since wetland was created or restored	
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Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing org Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause shor Artificial water level or flow manipulations sufficient to cause erosion If any items were checked above, then for each row of the table below effects, contrast the current condition with the condition if the checked. Spatial extent of altered soil:	e wetland that is likely to have compacted, eroded, or otherwise In bikes, especially during wetter periods. Inits). Inits). Inits). Inits in the periods in the periods in the period in the per	nported from another wetland. not measurably alter the soil structure and/or topography, then lea Medium (2 points) 5-95% of wetland or 5-95% of its upland edge (if any).	Stressor subscore= st 100 years or since wetland was created or restored ve the "0's" for the scores in the following rows. To estimate Mild (1 point) <5% of wetland and <5% of its upland edge (if any).	

Sum=

0

Stressor subscore=

0.00

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.

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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)	2.89	Lower	6.37	Higher	4.10	2.83
Stream Flow Support (SFS)	1.34	Lower	2.17	Moderate	1.08	1.42
Water Cooling (WC)	6.29	Higher	2.52	Moderate	4.19	1.35
Sediment Retention & Stabilisation (SR)	2.21	Lower	10.00	Higher	3.92	5.07
Phosphorus Retention (PR)	0.08	Lower	9.91	Higher	3.80	7.71
Nitrate Removal & Retention (NR)	2.43	Moderate	10.00	Higher	4.61	10.00
Carbon Sequestration (CS)	2.45	Lower			6.35	
Organic Nutrient Export (OE)	4.12	Lower			4.37	
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)	2.57	Lower	3.87	Moderate	4.60	3.26
Amphibian & Turtle Habitat (AM)	5.25	Moderate	4.06	Moderate	5.83	5.41
Waterbird Feeding Habitat (WBF)	5.05	Moderate	5.00	Moderate	3.88	5.00
Waterbird Nesting Habitat (WBN)	3.48	Moderate	5.00	Moderate	2.52	5.00
Songbird, Raptor, & Mammal Habitat (SBM)	8.54	Higher	5.00	Moderate	7.36	5.00
Pollinator Habitat (POL)	7.89	Moderate	0.00	Lower	6.53	0.00
Native Plant Habitat (PH)	4.73	Moderate	4.63	Lower	5.79	4.63
Public Use & Recognition (PU)			2.72	Moderate		2.16
Wetland Sensitivity (Sens)			4.60	Moderate		4.14
Wetland Ecological Condition (EC)			3.62	Lower		6.94
Wetland Stressors (STR) (higher score means more stress)			7.09	Higher		3.59
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	10.00	Higher	6.37	Higher	4.10	2.83
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	2.00	Lower	9.99	Higher	5.51	8.80
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	4.94	Moderate	3.36	Moderate	4.08	2.64
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	4.00	Moderate	3.91	Moderate	4.14	4.25
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	7.80	Higher	4.11	Lower	6.96	4.11
WETLAND CONDITION (EC)			3.62	Lower		6.94
WETLAND RISK (average of Sensitivity & Stressors)			5.85	Higher		3.86
	NOTE: A coor	o of 0 door not	moon the fund	tion or honofit i	c abcont from t	ho wotland It

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.

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	
	Cambridge interchange Wetland 4
Investigator Name:	BL
Date of Field Assessment:	19 Aug 2021
Nearest Town:	Waterville
Latitude (decimal degrees):	369030.96 m E
Longitude (decimal degrees):	4991278.69 m N, UTM 20T
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	450 m2
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.	Yes
How many wetlands have you assessed previously using WESP-AC? (approx.)	>100
Comments about the site or this WESP-AC assessment (attach extra page if desired):	

A	В	C	D	Е
Date: 19 Aug 2021		Site Identifier: Cambridge Wetland 4	Investigat	tor: BL, CP

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.
5			New Brunswick	0	In the function and benefits models, it also triggers the automatic exclusion of indicators for which no spatial data exists in a particular province.
6			Nova Scotia	1	Spatial data exists in a particular province.
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
10			<0.01 hectare (about 10 m x 10 m).	0	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.	1	up nienu). [FTI, SDIVI, WDIVI]
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.	0	
20			1 to 10 hectares.	0	
21			10 to 100 hectares.	1	
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 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			50.500		
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	
	25/		None of the above (the closest patches or corridors which are that large are >5 km away).		F
	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
			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:		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]
			"1".		
			[* NOTE: Exclude lawns, row crops, heavily grazed lands, forest, shrublands. Include moss as well as grasslike plants in this use of		
39			"herbaceous vegetation"]	_	
	JF/	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, consider:	0	See above. Do not consider conifer plantations to be forest if it is obvious that trees were planted in 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,		IOWS. [AIVIV, PTV, POLV, SDIVIV]
			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			is: <5% of the land.	0	
42			5 to 20% of the land.	0	
43			20 to 60% of the land.	1	
45			60 to 90% of the land.	0	
46			>90% of the land. SKIP to OF10.	0	
	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:	U	[AM, SBM]
47	J1 7	Alteration			נאוין, סטווין
48		, moranori	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
51		Nearest Population Center	<100 m.	0	square kilometer. In Google Earth Pro, click on the Ruler icon, then Path, and draw and measure the route. [FAv, FRv, NRv, PH, PU, SBM, WBFv]
52		Certiei	100 - 500 m.	0	Todie. [I Av, I IXV, IVIXV, I II, I O, ODIVI, WOI V]
53			0.5- 1 km.	1	
54			1 - 5 km.	0	
55			>5 km.	0	
56	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
57		Maintained Road	<10 m.	0	tool. [AM, FAv, FRv, NRv, PH, PU, SBM, STR, WBN]
58			10 - 25 m.	0	
59			25 - 50 m.	0	
60			50 - 100 m.	0	
61			100 - 500 m.	0	
62			>500 m.	1	
52			····		

A	В	С	D	E
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 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	Draw the 5 km circle in Google Earth Pro using the Circle tool and search for roads and wetlands 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
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	wetlands that appear to be permanently flooded. [AM, PH, SBM, Sens, WBF, WBN]
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.	1	1
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	
OF14	F14 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	1
75		1 - 2 km.	0	1
76		2-5 km.	0	
77		5-10 km.	1	
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.	0	
84		10-40 km.	1	
85		>40 km.	0	

Г	А	В	C	D	F
86	OF16	Upland Edge Contact	Select one:	Ь	[NR, SBM, Sens]
87	7		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	3		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	
92		Flood Damage from Non tidal Waters	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
93	3	tidai waters	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	provide finer elevational resolution useful for flood modeling. [WSv]
94	ı		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 levees, upriver dams, or other measures may partly limit damage or risk from smaller events.	0	
95	5		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure vulnerable to river flooding unrelated to tidal storm surges.	0	
96	5		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there isno infrastructure vulnerable to river flooding unrelated to tidal storm surges.	1	
97		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 watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-min).	0.01	[FA, NR, Sens, SFSv, WCv, WSv]
98			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]

	A	В	С	D	E
	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 flowi nto 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	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	
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	
			Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in either the AA or inflowing waters.	0	
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	1
108			all wetlands in this region.		
	OF22	Wetland as a % of Its Contributing Area	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		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]
		(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		ξ , , , , , , , , , , , , , , , , , , ,
			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.	1	
111			0.01 to 0.1.	0	
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	
	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%.	0	
116			10 to 25%.	0	
117			>25%.	1	
	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.		
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	
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 Nova Scotia Topo as the Raseman. Also enable the layer Forestry-WAM Predicted Flow. Then
12/	L				INDVA SCOUA TODO AS THE BASEMAD. AISO ENABLE THE TAVEL FORESTRY-WAM PREDICTED FLOW. THEN

A	В	С	D	E
128	Б	10 - 50 m.	0	measure the inlet-outlet distance. [NR, OE, PR, SR, WS]
129		50 - 100 m.	0	incusure the finet outlet distance. [MA, OE, FIA, SIA, WS]
130		100 - 1000 m.	0	1
131		1- 2 km.	0	1
132		>2 km, or wetland lacks an inlet and outlet.	1	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.	2200	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 stocked. [AM, FA, FR, INV, WBF, WBN]
135		Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. Go to Provincial Landscape Viewers-Wildlifes-Significant Habitats-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	Deell Stocked. [AWI, FA, FR, INV, WDF, WDN]
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 haveother fish at least seasonally.	0	1
138		Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	1	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 ar approved protocol. For birds, also check eBird.org. [AMv, EC, PHv, POLv, SBMv, Sens, WBFv,
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	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	1 1 D' 1 A	None of the above, or no data.	1	
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]
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 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]
OF32	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]
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 tollank (not 0).	0	[PU]
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.		[PU]
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 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]
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 o the Manual). Enter "0" if false. If no information, change to blank .	0	[AM, FA, FR, INV, PH]
OF38 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]

A	В	C	D	E
		New timber harvest, roads, mineral extraction, and intensive summer recreation (e.g., off-road vehicles) are permanently prohibited.	0	
		Includes many publicly-owned Protected Lands, and private lands under long-term (30+ year) legal agreements to maintain nearly-		
154		unaltered conditions.		
155		Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are allowed.	0	
		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable or not) is in place.	0	
156				
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: 19 Aug 2021		Site Identifier: Cambridge Wetland 4	Investiga	ator: BL
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. 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.		They include induced induced in a data, swamp raduet, real interior, Labrador tea, and oniers, worst 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).	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.	1	
11	The An include "adjac describe their ed	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. or of the water area of adjacent ponded water larger than 8 ha and adjacent rivers wider than 20 m. Specifically, the AA should lijacent 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.		
	F2	Wetland Types - Adjoining or	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.		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		Subordinate	Do not mark again the type marked in F1.		io in oi. siimai. [aiii] iii [oi.ii]
13			A1.	0	
14			A2. B1.	0	
15			B2.	0	
13	F3	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 (nonwoody) 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 trees/shrubs is <25% moss, then question F1 might be "B1". [CS, INV, NR, PH, POL, SBM, Sens]
18	: [ĺ	coniferous trees (may include tamarack) taller than 3 m.	1	11 (C3, 1144), 147, FT, POL, 3014, 3015

FieldF form - Non-tidal Page 1 of 10

	Α	В	С	D	E
19			deciduous trees taller than 3 m.	1	
20			coniferous or ericaceous shrubs or trees 1-3 m tall not directly below the canopy of trees.	1	
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.	1	
27		Species	those species together do not comprise > 50% of such cover.	0	
		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 minimum 5% canopy requirement in this question. The trees and shrubs need not be wetland
29			coniferous, 1-9 cm diameter and >1 m tall.	0	species. [AM, CS, POL, SBM, Sens, WBN]
30			broad-leaved deciduous 1-9 cm diameter and >1 m tall.	1	species. [Aivi, C3, FOE, 3bivi, 3ciis, wbivj
31			coniferous, 10-19 cm diameter.	0	
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	
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.	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	1	
43			absent.		
44	F/	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		Standing Trees)	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			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) is:		Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
51			10/ or none	- 0	
52			<1% or none.	0	
53			1-25% of the vegetated cover, in the AA or along its water edge (whichever has more).	_	
54			25-50% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
55 56			50-75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
36	E10	Cabagaum Mass	>75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	Evolude mass grouing on trees and rocks [CS_DLI]
		Sphagnum Moss	The cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured by taller sedges and other plants rooted in it, is:		Exclude moss growing on trees and rocks. [CS, PH]
57		Extent	· ·	4	
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.		
61			50-95% of the vegetated part of the AA.	0	
62			>95% of the vegetated part of the AA.	0	

FieldF form - Non-tidal Page 2 of 10

	A	В	С	D	E
	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,		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that is
63		Thatch	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	0	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, SBM, Sens]
64					Sbivi, Serisj
			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	1	
66			AA	1	
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).	1	
71			Intermediate.	0	
72			Several (extensive micro-topography).	0	
73	F13	Upland Inclusions	Within the AA, inclusions of upland are:		[AM, NR, SBM]
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).]		
			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	1	
79 80			forefinger.	0	
			Deep Peat, to 40 cm depth or greater. Shallow Peat or organic <40 cm deep.	0	-
81			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.	0	
	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	
88		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	1
89			• • • • • • • • • • • • • • • • • • • •		
90			5-25% of the vegetated part of the AA.	0	<u> </u>
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.	1	
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.	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	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.	0	1
-02			·		

FieldF form - Non-tidal Page 3 of 10

	A	В	С	D	E
103	3		50-95% of the vegetated area.	1	
104			>95% of the vegetated area.	0	
			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]
103	5	Abundant Herbaceous	aquatic plants). Then choose one of the following:		

FieldF form - Non-tidal Page 4 of 10

	A	В	С	D	E
106		Species	those species together comprise > 50% of the areal cover of herbaceous plants at any time during the year.	1	_
			those species together do not comprise > 50% of the areal cover of herbaceous plants at any time during the year.	0	
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 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	1
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]
121		% 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]
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.	1	
124			25-50% of the AA never contains surface water.	0	
125			50-75% of the AA never contains surface water.	0	
126			75-99% of the AA never contains surface water, or >99% AND there is at least one persistent water body larger than 1 ha in the AA.	0	
127			99-100%. AND there is no persistent ponded water body larger than 1 ha within the AA. Enter "1" and SKIP to F42 (Channel Connection).	0	
127		% of AA with Persistent Surface	Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during the driest 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		If you are unable to determine the condition at the driest time of year, ask the land owner or neighbors 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		Water	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.	0	
131			20-50% of the AA.	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 within the AA that is shaded by vegetation and other features that are		[FA, WC]
134		Water that Is Shaded	within the AA at that time is:		
135			<5% of the water is shaded, or no surface water is present then.	0	1
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.	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]
				·	סבן דוון סוגן זוטון זוטוון זוטן

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	Α	В	С	D	E
144			50-95% of the AA.	0	
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 A (Conne		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	
132			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
157			1 - 2 m deep.	0	well as ponded areas. [CS, FA, FR, INV, OE, PH, PR, Sens, SFS, SR, WBF, WBN, WC]
158			>2 m deep. True for many fringe wetlands.	0	
	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,
159	. 00	Evenness of			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		Торогиона	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	
162		% 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 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		Ponded (not Flowing)		0	Sit, WDI , WDIV, WC, WOJ
164			<5% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34.		
165			5-30% of the water.	0	
166			30-70% of the water. 70-95% of the water.	0	
167 168				0	
168	F22	Dandad Onen Weter	>95% of the water.	0	
169		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 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).	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.
102	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	
		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, PR,
178			<1 m.	1	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	
184	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 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]
104			<1% of the water edge.	1	macriae seen a germe sieper (sir, troit)
185			<1% of the water edge. 1-25% of the water edge.	0	
180			1-25% of the water edge. 25-50% of the water edge.	0	
18/			23-3076 of the water edge.	U	

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	Α	В	С	D	E
188	3		50-75% of the water edge.	0	_
189	-		>75% of the water edge.	0	
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	2		1-25% of the emergent vegetation.	0	
193	5		25-75% of the emergent vegetation.	1	
194	Ī		>75%, of the emergent vegetation.	0	
195		Interspersion of Emergents & Open	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]
196		Water	Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water.	1	
197	7		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.	0	
	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	1	
199)	Area .	growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection).		
200			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 be attempted.
200	-	Aqualic Cover	Little or none.	1	[AM, FA, FR, INV]
202	-		Intermediate.	0	
202			Extensive.	0	
20.		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	•	[WBN]
204			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 support a waterbird nest.	o o	[septi]
	-	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".		
204		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 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,
200	 		Persistent (surface water flows out for >9 months/year).	0	SFS, SR, WCv, WS]
208	1		Seasonal (surface water flows out for 14 days to 9 months/year, not necessarily consecutive).	0	1
200	1				

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	A	В	С	D	E
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	
210			No surface water flows out of the wetland except possibly during extreme events (<once 10="" a="" flows="" into="" only="" or,="" per="" td="" water="" wetland,<="" years).=""><td>1</td><td></td></once>	1	
211			ditch, or lake that lacks an outlet. SKIP to F47 (pH Measurement).	_	
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,
212			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	0	F42 above. [NRv, PH, PRv, SRv]
216			further upslope. If no, SKIP to F47 (pH Measurement).		
	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.		
_	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	. 10	Resistance	incoming water].		property and activity may
			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	1
			channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond or lake.		
219					4
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	1
			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	E 47	nH Manguramant		_	Professibly measure this in larger gross of pended surface water within the AA or in streams that have
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 bassed through (not along) most of the AA. Unless surface water is completely absent, do not did holes
	F47	pH Measurement	The pH in most of the AA's surface water: Was measured, and is: [enter the reading in the column to the right.]		
224 225	F47	pH Measurement	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	0	passed through (not along) most of the AA. Unless surface water is completely absent, do not dig holes
224 225 226	F47	pH Measurement	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 peatland (e.g., Labrador tea) are prevalent. Enter "1".	0	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
224 225 226 227	F47		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 peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1".		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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
224 225 226 227 228	F47	TDS and/or	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 peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information):	0	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
224 225 226 227 228 229	F47		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 peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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.]	0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
224 225 226 227 228 229 230	F47	TDS and/or	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 peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 µS/cm in the column to the right.]	0 1 0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
224 225 226 227 228 229 230 231	F47	TDS and/or	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 peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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 1 0 0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
224 225 226 227 228 229 230 231 232		TDS and/or Conductivity	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 peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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 1 0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
224 225 226 227 228 229 230 231		TDS and/or	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 peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". Neither of above Use of the AA by beaver during the past 5 years is (select most applicable ONE):	0 1 0 0 1	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
224 225 226 227 228 229 230 231 232 233		TDS and/or Conductivity	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 peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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 1 0 0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
224 225 226 227 228 229 230 231 232		TDS and/or Conductivity	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 peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". 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).	0 0 0 1	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
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	Α	В	С	D	E
241	-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 and
241			<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			2.5%.	1	clinometer to measure this. Free clinometer apps can be downloaded to smartphones. If the wetland is
244			6-10%.	0	large (longer than ~1 km), this may be estimated using Google Earth to determine the minimum and
244			>10%.	0	maximum elevation within the AA, then dividing by length and multiplying by 100. [CS, NR, OE, PR, SR, WBF, WBN, WS]
-	Vote fo	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	Ť	
246	are adj	acent. In many situatio	ns, these questions are best answered by measuring from aerial images.		
247	-52	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%.	0	
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 .	1	AND THE WILLIAM BOLL OF LANDING
253	-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	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%.	0	
259			5-30%.	1	
260			>30%.	0	
Ī	-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)	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).		D. 1
	-56	New or Expanded	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]
262		Wetland			[OJ, MIN, OL, FIT, JUID]
263 264			No. Yes, and created or expanded 20 - 100 years ago.	0	1
264			Yes, and created or expanded 3-20 years ago.	0	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.	1	
	-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]
269		,		0	
270 271			Burned within past 5 years. Burned 6-10 years ago.	0	1
271			Burned 6-10 years ago. Burned 11-30 years ago.	0	1
273			Burned >30 years ago, or no evidence of a burn and no data.	1	
-	-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	30	visionity	public maintained trails that intersect, adjoin, or are within 100 m of the AA (select one) is:		[5,5,15, 1,5,1]
275			<25%.	1	
276			25-50%.	0	
277			>50%.	0	1
278 F	-59	Non-consumptive Uses - Actual or	Assuming access permission was granted, select ALL statements that are true of the AA as it currently exists:		[PU, STR]
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.	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	
			Within or near the AA, there is an interpretive center, trails with interpretive signs or brochures, and/or regular guided interpretive tours.	0	

FieldF form - Non-tidal Page 9 of 10

	Α	В	С	D	E
282	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	
285 286			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	
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.	1	
291			5-50%.	0	
292			50-95%.	0	
293			>95% of the AA.	0	
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]
295		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]
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	1	(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	0	
298 299	1	Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0	
299	1		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	1		100-500 m. away.	0	1
306	1		>500 m. away, or no information.	0	
307	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.	0	[PH, PR]

FieldF form - Non-tidal Page 10 of 10

Investigator:	Site Identifier:	Date:				
Stressor (S) Data Form for Non-Tidal Wetlands. WESP-AC for Nova Scotia version 2.						

Aberrant Timing of Water Inputs							
	ely to have caused the timing of water inputs (but not necessarily the re flashy (larger or more frequent spikes but over shorter times). [FA	eir volume) to shift by hours, days, or weeks, becoming either more m , FR, INV, PH, STR]	uted (smaller or less frequent peaks spread over longer				
Stormwater from impervious surfaces that drains directly to the wetland.							
Water subsidies from wastewater effluent, septic system leakag	e, snow storage areas, or irrigation.						
Regular removal of surface or groundwater for irrigation or other	consumptive use.						
Flow regulation in tributaries or water level regulation in adjoining	g water body, or other control structure at water entry points that req	gulates inflow to the wetland.					
A dam, dike, levee, weir, berm, or fill within or downgradient fi	om the wetland that interferes with surface or subsurface flow in/o	out of the AA (e.g., road fill, wellpads, pipelines).					
Excavation within the wetland, e.g., dugout, artificial pond, dead							
Artificial drains or ditches in or near the wetland.							
Accelerated downcutting or channelization of an adjacent or inte	ernal channel (incised below the historical water table level).						
Logging within the wetland.							
Subsidence or compaction of the wetland's substrate as a resul	of machinery, livestock, fire, drainage, or off road vehicles.						
Straightening, ditching, dredging, and/or lining of tributary chann	nels.						
	nelow, assign points. However, if you believe the checked items had condition if the checked items never occurred or were no longer pre	no measurable effect on the timing of water conditions in any part of sent.	the AA, then leave the "0'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.				
When most of the timing shift began:	<3 yrs ago.	3-9 yrs ago.	10-100 yrs ago.				
Score the following 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.				
Flashiness or muting:	Became very flashy or controlled.	Intermediate.	Became mildly flashy or controlled.				
			Sun	n=			
			Stressor subscor	e=			
Accelerated Inputs of Contaminants and/	or Salts						
In the last column, place a check mark next to any item occurn	ng in either the wetland or its CA that is likely to have accelerated	the inputs of contaminants or salts to the AA. [AM, FA, PH, POL, STI	RJ				
Stormwater or wastewater effluent (including failing septic syste	ms), landfills, industrial facilities.						
Metals & chemical wastes from mining, shooting ranges, snow snpri/default.asp?lang=En&n=B85A1846-1	storage areas, oil/ gas extraction, other sources (download many loc	rations 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, roadside	s, or other areas in the CA.						
	nelow, assign points. However, if you believe the checked items did with the condition if the checked items never occurred or were no la	not cumulatively expose the AA to significantly higher levels of contai onger present.	minants and/or salts, then leave the "O's" for the scores in the	ne e			
	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.				
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	ก=			

Accelerated Inputs of Nutrients								
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 the inputs of nutrients to the wetland. [NRv, PRv, STR]								
Stormwater or wastewater effluent (including failing septic system)	ems), 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 estimate effects, contrast the current condition with the condition	below, assign points. However, if you believe the checked items did no if the checked items never occurred or were no longer present.	ot cumulatively expose the AA to significantly more nutrients, then	leave the "O's" for the scores in the following rows. To					
	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.	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				

Excessive Sediment Loading from Contribute	ting Area								
In the last column, place a check mark next to any item present in the	e CA that is likely to have elevated the load of waterborne or wir	ndborne sediment reaching the wetland from its CA. [FA, FR, INV,	PH, SRv, STR]						
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 ex	Sediment from road sanding, gravel mining, other mining, oil/ gas extraction.								
Accelerated channel downcutting or headcutting of tributaries due to	altered land use.								
Other human-related disturbances within the CA.									
If any items were checked above, then for each row of the table below then leave the "O's" for the scores in the following rows. To estimate e			add 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, exc	cavation, erosion with or without veg removal; low-intensity= ve	eg removal only with little or no apparent erosion or disturbance of	Sum=						
soil or sediment.			Suii-						
soil or sediment.			Stressor subscore=	:					
	ssment Area								
soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the		altered the wetland's soil. Consider only items occurring within pa	Stressor subscore=						
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR]	e wetland that is likely to have compacted, eroded, or otherwise	altered the wetland's soil. Consider only items occurring within pa	Stressor subscore=						
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain	e wetland that is likely to have compacted, eroded, or otherwise	altered the wetland's soil. Consider only items occurring within pa	Stressor subscore=						
Soil or Sediment Alteration Within the Assess In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour.	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods.	altered the wetland's soil. Consider only items occurring within pa	Stressor subscore=						
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods.	allered the wetland's soil. Consider only items occurring within pa	Stressor subscore=						
Soil or Sediment Alteration Within the Assess In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour.	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants).		Stressor subscore=						
Soil or Sediment Alteration Within the Assess In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native place)	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants).		Stressor subscore=						
Soil or Sediment Alteration Within the Assess In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native plays in the property of the plays of t	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants).		Stressor subscore=						
Soil or Sediment Alteration Within the Assess In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native place) Fill or riprap, excluding small amounts of upland soils containing org Excavation.	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants). ganic amendments (compost, etc.) or small amounts of topsoil in		Stressor subscore=						
Soil or Sediment Alteration Within the Assess In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native played in the played played in the pla	in bikes, especially during wetter periods. ants). ganic amendments (compost, etc.) or small amounts of topsoil in		Stressor subscore=						
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing org Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause shor	in bikes, especially during wetter periods. ants). ganic amendments (compost, etc.) or small amounts of topsoil in re erosion or stir bottom sediments. n or stir bottom sediments. w, assign points. However, if you believe the checked items did	nported from another wetland.	Stressor subscore= st 100 years or since wetland was created or restored						
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing org Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause shor Artificial water level or flow manipulations sufficient to cause erosion If any items were checked above, then for each row of the table below	in bikes, especially during wetter periods. ants). ganic amendments (compost, etc.) or small amounts of topsoil in re erosion or stir bottom sediments. n or stir bottom sediments. w, assign points. However, if you believe the checked items did	nported from another wetland.	Stressor subscore= st 100 years or since wetland was created or restored						
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing org Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause shor Artificial water level or flow manipulations sufficient to cause erosion If any items were checked above, then for each row of the table below	in bikes, especially during wetter periods. ants). ganic amendments (compost, etc.) or small amounts of topsoil in re erosion or stir bottom sediments. n or stir bottom sediments. w, assign points. However, if you believe the checked items did ditems never occurred or were no longer present.	nported from another wetland. not measurably alter the soil structure and/or topography, then lea	Stressor subscorest 100 years or since welland was created or restored we the "0's" for the scores in the following rows. To estimate						
Soil or Sediment Alteration Within the Assess In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native place in riprap, excluding small amounts of upland soils containing orgen excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause short Artificial water level or flow manipulations sufficient to cause erosion. If any items were checked above, then for each row of the table below effects, contrast the current condition with the condition if the checked.	in bikes, especially during wetter periods. ants). ganic amendments (compost, etc.) or small amounts of topsoil in re erosion or stir bottom sediments. n or stir bottom sediments. w, assign points. However, if you believe the checked items did ditems never occurred or were no longer present. Severe (3 points)	nported from another wetland. not measurably alter the soil structure and/or topography, then lea	Stressor subscore= st 100 years or since welland was created or restored we the "0's" for the scores in the following rows. To estimate Mild (1 point)						
Soil or Sediment Alteration Within the Assess In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native place in riprap, excluding small amounts of upland soils containing orgest Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause short Artificial water level or flow manipulations sufficient to cause erosion. If any items were checked above, then for each row of the table below effects, contrast the current condition with the condition if the checked. Spatial extent of altered soil:	in bikes, especially during wetter periods. ants). panic amendments (compost, etc.) or small amounts of topsoil in the erosion or stir bottom sediments. nor stir bottom sediments. w, assign points. However, if you believe the checked items did tiems never occurred or were no longer present. Severe (3 points) >95% of wetland or >95% of its upland edge (if any).	nported from another wetland. not measurably alter the soil structure and/or topography, then lea Medium (2 points) 5-95% of wetland or 5-95% of its upland edge (if any).	Stressor subscores st 100 years or since wetland was created or restored eve the "0's" for the scores in the following rows. To estimate Mild (1 point) <5% of wetland and <5% of its upland edge (if any).						

Sum=

0

Stressor subscore=

0.00

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)	6.76	Moderate	5.70	Moderate	6.99	2.53
Stream Flow Support (SFS)	0.00	Lower	0.00	Lower	0.00	0.00
Water Cooling (WC)	2.04	Moderate	0.00	Lower	1.36	0.00
Sediment Retention & Stabilisation (SR)	10.00	Higher	2.72	Moderate	10.00	1.33
Phosphorus Retention (PR)	10.00	Higher	2.57	Moderate	10.00	2.00
Nitrate Removal & Retention (NR)	10.00	Higher	4.67	Moderate	10.00	4.67
Carbon Sequestration (CS)	0.75	Lower			5.55	
Organic Nutrient Export (OE)	3.30	Lower			4.07	
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)	5.15	Higher	6.51	Higher	5.64	4.62
Amphibian & Turtle Habitat (AM)	9.90	Higher	3.96	Moderate	8.27	5.34
Waterbird Feeding Habitat (WBF)	8.69	Higher	3.33	Moderate	6.68	3.33
Waterbird Nesting Habitat (WBN)	9.34	Higher	3.33	Moderate	6.77	3.33
Songbird, Raptor, & Mammal Habitat (SBM)	6.97	Moderate	3.33	Moderate	6.00	3.33
Pollinator Habitat (POL)	7.55	Moderate	3.33	Moderate	6.26	3.33
Native Plant Habitat (PH)	2.11	Lower	5.20	Lower	4.75	5.20
Public Use & Recognition (PU)			1.78	Moderate		1.52
Wetland Sensitivity (Sens)			2.78	Lower		3.59
Wetland Ecological Condition (EC)			0.72	Lower		5.56
Wetland Stressors (STR) (higher score means more stress)			4.68	Moderate		2.43
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	10.00	Higher	5.70	Moderate	6.99	2.53
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	10.00	Higher	3.99	Moderate	9.44	3.67
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	3.89	Lower	4.34	Moderate	4.20	3.08
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	7.74	Higher	3.04	Moderate	6.31	3.87
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	6.55	Moderate	4.58	Lower	5.96	4.58
WETLAND CONDITION (EC)			0.72	Lower		5.56
WETLAND RISK (average of Sensitivity & Stressors)			3.73	Lower		3.01

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.

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	
	Cambridge Wetland 5
Investigator Name:	BL
Date of Field Assessment:	20 Aug 2021
Nearest Town:	Waterville, NS
Latitude (decimal degrees):	368842.27 m E
Longitude (decimal degrees):	4992081.85 m N (UTM 20 T)
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	0.75 ha
AA as percent of entire wetland (approx.). Attach sketch map if AA is smaller than the entire contiguous wetland.	15
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.	Yes
How many wetlands have you assessed previously using WESP-AC? (approx.)	>100
Comments about the site or this WESP-AC assessment (attach extra page if desired):	wl-5 is part of a larger complex including wetlands 6 and 9 as well.

	A	В	С	D	E
	Date 20 Aug 2021		Site Identifier: Cambridge Wetland 5	Investiga	itor: BL
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.
5			New Brunswick	0	In the function and benefits models, it also triggers the automatic exclusion of indicators for which no spatial data exists in a particular province.
6			Nova Scotia	1	Spatial data exists 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
10			<0.01 hectare (about 10 m x 10 m).	0	extends beyond 1 km, include only the part within 1 km. Do not include tidal areas. Measure the
11			0.01 - 0.1 hectare.	1	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 menu). [i 11, 35ivi, wbivj
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.	0	
20			1 to 10 hectares.	0	
21			10 to 100 hectares.	1	
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		0	Exclude confliet plantations only if it is obvious that frees were planted in tows. [Aivi, PH, 5Bivi, 5eris]
24		Comadi	<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 30			100 to 1000 hectares.	0	
30			>1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	Ü	

	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,	0	
			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			TO FOO.		
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	25/	Hadean III	None of the above (the closest patches or corridors which are that large are >5 km away).	1	
	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
			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:		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]
			n1".		
			[* 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, consider:	0	See above. Do not consider conifer plantations to be forest if it is obvious that trees were planted in 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,		TOWS. [AIVIV, PTIV, POLV, SHIVIV]
			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			is: <5% of the land.	0	
42			5 to 20% of the land.	0	
43			20 to 60% of the land.	1	
45			60 to 90% of the land.	0	
46			>90% of the land. SKIP to OF10.	0	
	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:	U	[AM, SBM]
47	J1 7	Alteration			[איין, אַטוּאין]
48		, moralion	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
51		Nearest Population Center	<100 m.	0	square kilometer. In Google Earth Pro, click on the Ruler icon, then Path, and draw and measure the route. [FAv, FRv, NRv, PH, PU, SBM, WBFv]
52		Center	100 - 500 m.	0	Toute. [FAV, 110, WICV, 111, 1 O, JOIN, WED V]
53			0.5- 1 km.	1	
54			1 - 5 km.	0	
55			>5 km.	0	
56	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
57		Maintained Road	<10 m.	0	tool. [AM, FAv, FRv, NRv, PH, PU, SBM, STR, WBN]
58			10 - 25 m.	0	
59			25 - 50 m.	0	
60			50 - 100 m.	0	
61			100 - 500 m.	0	
62			>500 m.	1	
52			····		

A	В	С	D	E
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 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	Draw the 5 km circle in Google Earth Pro using the Circle tool and search for roads and wetlands 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
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	wetlands that appear to be permanently flooded. [AM, PH, SBM, Sens, WBF, WBN]
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.	1	1
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	
OF14	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	1
75		1 - 2 km.	0	1
76		2-5 km.	0	
77		5-10 km.	1	
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.	0	
84		10-40 km.	1	
85		>40 km.	0	

	Α	В	С	D	E
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	7		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	
92		Flood Damage from Non tidal Waters	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
93		tidai waters	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	provide finer elevational resolution useful for flood modeling. [WSv]
94			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 levees, upriver dams, or other measures may partly limit damage or risk from smaller events.	0	
95			Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure vulnerable to river flooding unrelated to tidal storm surges.	0	
96			Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there isno infrastructure vulnerable to river flooding unrelated to tidal storm surges.	1	
97		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 watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-min).	0.10	[FA, NR, Sens, SFSv, WCv, WSv]
98		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]

	Α	В	С	D	E
	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.		
			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	
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	
100			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.		
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	
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		
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		
109			area. The result is: <0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	1	
110			0.01 to 0.1.	0	
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 raisec	0	
113			boa).	U	
	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%.	0	
116			10 to 25%.	0	
117			>25%.	1	
	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.		
118			This statement is:		
119			Mostly true.	0	
120			Somewhat true.	1	
121			Mostly untrue.	0	
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).	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 Nova Scotia Topo as the Raseman. Also enable the layer ForestrysWAM Predicted Flow. Then
12/	L				INONA 20019 TODO 92 THE BASEMAD. AISO EDADIG THE TAVEL FORESTLY SWAM FLEGICIED FIOW. TUEN

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128	Б	10 - 50 m.	0	measure the inlet-outlet distance. [NR, OE, PR, SR, WS]
129		50 - 100 m.	1	incusure the finet outlet distance. [MA, OE, FIA, SIA, WS]
130		100 - 1000 m.	0	1
131		1- 2 km.	0	1
132		>2 km, or wetland lacks an inlet and outlet.	0	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.	2200	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 stocked. [AM, FA, FR, INV, WBF, WBN]
135		Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. Go to Provincial Landscape Viewers-Wildlifes-Significant Habitats-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	Deeli Sluckeu. [Alvi, FA, FK, IIVV, WDF, WDIV]
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 haveother fish at least seasonally.	0	1
138		Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	1	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 ar approved protocol. For birds, also check eBird.org. [AMv, EC, PHv, POLv, SBMv, Sens, WBFv,
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	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	1 1 D' 1 A	None of the above, or no data.	1	
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]
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 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]
OF32	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]
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 tollank (not 0).	0	[PU]
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]
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 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]
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 o the Manual). Enter "0" if false. If no information, change to blank .	0	[AM, FA, FR, INV, PH]
OF38 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]

A	В	C	D	Е
54		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	
55		Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are allowed.	0	
56		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable or not) is in place.	0	
57		Ownership is private and owner does not allow access, or access permission unknown, and not a conservation easement.	1	

	Α	В	C	D	Е
	Date: 20 Aug 2021		Site Identifier: Cambridge wetland 5	Investigat	tor BL
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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.		They include Produce Industrials 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 lauret, and a sedge (Carex rarifiora). 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	
	The AA include " adjac describ	A should also include par the open water part ac ent " is used synonymo ned 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 lijacent 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.		
11	F2	Wetland Types -	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		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
12		Adjoining or Subordinate	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.		10 m, or similar. [AM, INV, SBM, WBF]
13			A1.	0	
14 15			A2. B1.	0	
15			B1. 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 (nonwoody) 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
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]

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	A	В	С	D	E
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.	1	
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.	2	
23			deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	3	
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
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.	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]
-		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	F7	Larra Crass /Dand	absent.		
44	F /	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		Standing 17003)	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			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	
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	F10	C. b	>75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	Fusing the same and same (CC DU)
		Sphagnum Moss	The cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured by taller sedges and other plants rooted in it, is:		Exclude moss growing on trees and rocks. [CS, PH]
57		Extent			
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	

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A	В	С	D	E
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,		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that is
63	Thatch	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 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. Other conditions.	0	-
67 68		Not applicable. Surface water (either open or obscured by emergent plants) covers all of the AA all the time.	0	-
F12	Cround Irrogularity		U	The depressions may be of human or natural origin. [AM, EC, INV, NR, PH, POL, PR, SBM, SR, WS]
F 12	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 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 human of hadra origin. [AW, EC, MV, WK, FH, FOL, FK, 36W, 3K, W3]
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 71		Intermediate.	1	
72			0	
E12	Unland Inclusions	Several (extensive micro-topography).		[AM, NR, SBM]
73	Upland Inclusions	Within the AA, inclusions of upland are:		[AIVI, IVK, 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).]		
		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	1	
79		forefinger.	0	
80		Deep Peat, to 40 cm depth or greater.	0	-
81		Shallow Peat or organic <40 cm deep.	0	-
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.	U	
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	
Г14	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			
89	.,	<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	1
91		25-50% of the vegetated part of the AA.	0	1
92		50-95% of the vegetated part of the AA.	1	
93		>95% of the vegetated part of the AA.	0	1
E47	Forb Cover	Within parts of the AA having herbaceous cover (excluding SAV), the areal cover of forbs reaches an annual maximum of:	٠,	Forbs are flowering plants. Do not include grasses, sedges, cattail, other graminoids, ferns, horsetails,
94	I OLD COACI			or others that lack showy flowers. [POL]
95		<5% of the herbaceous part of the AA.	0	
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	<u> </u>	>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	1
102		5-50% of the vegetated area.	1	
102	1			

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	Α	В	С	D	E
103	3		50-95% of the vegetated area.	0	
104	ı		>95% of the vegetated area.	0	
			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	5	Abundant Herbaceous	aquatic plants). Then choose one of the following:		

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	Α	В	С	D	E
106		Species	those species together comprise > 50% of the areal cover of herbaceous plants at any time during the year.	1	_
			those species together do not comprise > 50% of the areal cover of herbaceous plants at any time during the year.	0	
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 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	1
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]
121		% 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]
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.	1	
124			25-50% of the AA never contains surface water.	0	
125			50-75% of the AA never contains surface water.	0	
126			75-99% of the AA never contains surface water, or >99% AND there is at least one persistent water body larger than 1 ha in the AA.	0	
127			99-100%. AND there is no persistent ponded water body larger than 1 ha within the AA. Enter "1" and SKIP to F42 (Channel Connection).	0	
127		% of AA with Persistent Surface	Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during the driest 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		If you are unable to determine the condition at the driest time of year, ask the land owner or neighbors 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		Water	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	
-	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	within the AA at that time is:		
135			<5% of the water is shaded, or no surface water is present then.	0	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.	1	
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]
				·	OL, ITI, ON, WOI, WOI, WO

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A	В	C	D	E
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).	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	
152 (Conn	ection).	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	
F29 153	Predominant Depth Class	During most of the time when surface water is present during the growing season, its depth, averaged over the entire inundated part of the AA, is:		If a boat is unavailable, estimate this by considering wetland size and local topography. Or if timing 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
155		10 - 50 cm deep.	0	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
157		1 - 2 m deep.	0	well as ponded areas. [CS, FA, FR, INV, OE, PH, PR, Sens, SFS, SR, WBF, WBN, WC]
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).	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	
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,
163	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.	1	
168		>95% of the water.	0	
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 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).	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.
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 most of the growing season, and unhidden by a forest or shrub canopy) is:		[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]
171	triat 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	
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	1
175		70-99% of the ponded water.	0	1
176		100% of the ponded water.	0	1
F34 177	Width of Vegetated Zone within Wetland	At the time during the growing season when the AA's water level is lowest, the average width of vegetated areain the AA that separates adjoining uplands from open water within the AA is:		"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,
178	1	<1 m.	0	SBM, Sens, SR, WBN]
179		1 - 9 m.	0	
180		10 - 29 m.	0	
181		30 - 49 m.	0	1
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'swater 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.	0	1
		25-50% of the water edge.	0	4

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	Α	В	С	D	E
188			50-75% of the water edge.	0	
189	-		>75% of the water edge.	0	
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.	0	
194			>75%, of the emergent vegetation.	0	
195		Interspersion of Emergents & Open	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]
196		Water	Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water.	0	
197		Trato.	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.	0	
170	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	
199		Area	growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection).	ŭ	
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 be attempted.
201	-	riquatic cover	Little or none.	0	[AM, FA, FR, INV]
202	-		Intermediate.	0	
202			Extensive.	0	
20.		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]
204			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 support a waterbird nest.		()
-	-	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".		
204			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 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,
200	1		Persistent (surface water flows out for >9 months/year).	0	SFS, SR, WCv, WS]
205	1		Seasonal (surface water flows out for 14 days to 9 months/year, not necessarily consecutive).	1	
200	'1		Seasonal Surface water nows out for 11 days to 7 months year, not necessarily consecutive).	_	

FieldF form - Non-tidal Page 7 of 10

	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).	_	
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	
	E13	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,
212	143	Outnow Commentent			NR, OE, PR, Sens, SR, STR, WS
			Mostly passes through a pipe, culvert, narrowly breached dike, berm, beaver dam, or other partial obstruction (other than natural topography)	0	1114 02/114 03/15/014/014/110/
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.	1	-
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		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	1	F42 above. [NRv, PH, PRv, SRv]
216			further upslope. If no, SKIP to F47 (pH Measurement).		
	F45	Input Water	Based on lack of shade, water source characteristics, or actual temperature measurements, the inflow is likely to be warmer than surface	1	[WCv]
		Temperature	water in the AA during part of most years. Enter 1= yes, 0= no.		
217		<u> </u>			
	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		Resistance	incoming water].		
			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	
219			channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond or lake.		
220			Bumps into herbaceou s vegetation but mostly remains in fairly straight channels.	1	
220			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 braided).	0	
223					
223	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
	F47	pH Measurement	The pH in most of the AA's surface water: 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
224 225	F47	pH Measurement	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	0	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
224 225 226	F47	pH Measurement	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".		passed through (not along) most of the AA. Unless surface water is completely absent, do not dig holes
224 225	F47		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". Neither of above. Enter "1".	0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
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224 225 226 227 228 229 230 231 232	F48	TDS and/or	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 pScm in the column to the right.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1".	0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
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224 225 226 227 228 229 230 231 232 233 234 235	F49	TDS and/or Conductivity Beaver Probability	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". 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, 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. Select first applicable choice: Springs are known to be present within the AA, or if groundwater levels have been monitored, that has demonstrated that groundwater	0 0 1 0 0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other evidence. Consult topographic maps to detect breaks in slope described here. Rust deposits
224 225 226 227 228 229 230 231 232 233 234 235 236 237	F49	TDS and/or Conductivity Beaver Probability	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". 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, 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.	0 0 1 0 0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or 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
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	A	В	C	D	E
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
-	Note fo	or the next three guest	tions: If the AA lacks an upland edge, evaluate based on the AA's entire perimeter, and moving outward into whatever areas		
	are adj	acent. In many situation	ns, these questions are best answered by measuring from aerial images.		
	F52	9	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	
251 252			60 to 90%.	0	
252	F53	Tune of Cover in	>90%, or all the area within 30 m of the AA edge is other wetlands. SKIP to F55.	U	[AM EA INV NID, DLI DOL CDM CTD WDN]
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		Dullel	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	1 54	buller Slope	percent slope of:		[MAY, FRA, SCIS, SRA]
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.	0	
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.	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			Burned within past 5 years.	0	
271			Burned 6-10 years ago.	0	
272			Burned 11-30 years ago.	0	
273	EE0	Violbility	Burned >30 years ago, or no evidence of a burn and no data.	1	[DIL CTD WDF]
274	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 public maintained trails that intersect, adjoin, or are within 100 m of the AA (select one) is:		[PU, STR, WBFv]
274			public maintained traits that intersect, adjoin, or are within 100 in or the AA (select one) is: <25%.	1	
275 276			<25%. 25-50%.	0	
276			25·30%. >50%.	0	1
	E50	Non consumptive	Assuming access permission was granted, select ALL statements that are true of the AA as it currently exists:	J	[PU, STR]
278	1 J7	Non-consumptive Uses - Actual or			i oʻ oʻni
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.	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	
			Within or near the AA, there is an interpretive center, trails with interpretive signs or brochures, and/or regular guided interpretive tours.	0	
281					

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	A	В	С	D	E
282	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	
285 286			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	
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.	1	
291			5-50%.	0	
292			50-95%.	0	
293			>95% of the AA.	0	
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]
295		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]
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	1	(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	0	
298 299	1	Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0	
299	1		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	1		100-500 m. away.	0	
306	1		>500 m. away, or no information.	1	
307	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.	0	[PH, PR]

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Investigator: BL	Site Identifier: Cambridge Wetland 5	Date: 20 August 2021	
Stressor (S) Data Form for Non-Tidal	Wetlands. WESP-AC for Nova Scotia version 2.		Data

Aberrant Timing of Water Inputs							
	ely to have caused the timing of water inputs (but not necessarily the re flashy (larger or more frequent spikes but over shorter times). [FA	eir volume) to shift by hours, days, or weeks, becoming either more m , FR, INV, PH, STR]	uted (smaller or less frequent peaks spread over longer				
Stormwater from impervious surfaces that drains directly to the wetland.							
Water subsidies from wastewater effluent, septic system leakage, snow storage areas, or irrigation.							
Regular removal of surface or groundwater for irrigation or other	consumptive use.						
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.							
A dam, dike, levee, weir, berm, or fill within or downgradient fi	om the wetland that interferes with surface or subsurface flow in/o	out of the AA (e.g., road fill, wellpads, pipelines).					
Excavation within the wetland, e.g., dugout, artificial pond, dead-end ditch.							
Artificial drains or ditches in or near the wetland.							
Accelerated downcutting or channelization of an adjacent or inte	ernal channel (incised below the historical water table level).						
Logging within the wetland.							
Subsidence or compaction of the wetland's substrate as a resul	of machinery, livestock, fire, drainage, or off road vehicles.						
Straightening, ditching, dredging, and/or lining of tributary chann	nels.						
	nelow, assign points. However, if you believe the checked items had condition if the checked items never occurred or were no longer pre	no measurable effect on the timing of water conditions in any part of sent.	the AA, then leave the "0'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.				
When most of the timing shift began:	<3 yrs ago.	3-9 yrs ago.	10-100 yrs ago.				
Score the following 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.				
Flashiness or muting:	Became very flashy or controlled.	Intermediate.	Became mildly flashy or controlled.				
			Sun	n=			
			Stressor subscor	e=			
Accelerated Inputs of Contaminants and/	or Salts						
In the last column, place a check mark next to any item occurn	ng in either the wetland or its CA that is likely to have accelerated	the inputs of contaminants or salts to the AA. [AM, FA, PH, POL, STI	RJ				
Stormwater or wastewater effluent (including failing septic syste	ms), landfills, industrial facilities.						
Metals & chemical wastes from mining, shooting ranges, snow snpri/default.asp?lang=En&n=B85A1846-1	storage areas, oil/ gas extraction, other sources (download many loc	rations 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, roadside	s, or other areas in the CA.						
	nelow, assign points. However, if you believe the checked items did with the condition if the checked items never occurred or were no la	not cumulatively expose the AA to significantly higher levels of contai onger present.	minants and/or salts, then leave the "O's" for the scores in the	ne e			
	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.				
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	ก=			

Accelerated Inputs of Nutrients							
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 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				1			
Livestock, dogs.							
Artificial drainage of upslope lands.							
	e below, assign points. However, if you believe the checked items did n on if the checked items never occurred or were no longer present.	ot cumulatively expose the AA to significantly more nutrients, then	leave the "O's" for the scores in the following rows. To				
	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.	2			
Frequency & duration of input:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.	2			
AA proximity to main sources (actual or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.	2			
	•	·	Sum=	6			
			Stressor subscore=	0.67			

	ting Area							
In the last column, place a check mark next to any item present in the	e CA that is likely to have elevated the load of waterborne or win	dborne sediment reaching the wetland from its CA. [FA, FR, INV,	PH, SRv, STR]					
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 extraction.								
Accelerated channel downcutting or headcutting of tributaries due to	altered land use.							
Other human-related disturbances within the CA.								
If any items were checked above, then for each row of the table below, assign points (3, 2, or 1 as shown in header) in the last column. However, if you believe the checked items did not cumulatively add significantly more sediment or suspended solids to the AA, 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)					
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, exc	cavation, erosion with or without veg removal; low -intensity= ve	g removal only with little or no apparent erosion or disturbance of	Sum=					
soil or sediment.			Sum-					
soil or sediment.			Stressor subscore:					
soil or sediment. Soil or Sediment Alteration <i>Within the Asses</i>	ssment Area			=				
		allered the wetland's soil. Consider only items occurring within pas	Stressor subscore=					
Soil or Sediment Alteration Within the Asses	e wetland that is likely to have compacted, eroded, or otherwise	allered the wetland's soil. Consider only items occurring within pas	Stressor subscore=					
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR]	e wetland that is likely to have compacted, eroded, or otherwise	altered the wetland's soil. Consider only items occurring within pas	Stressor subscore=					
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods.	altered the wetland's soil. Consider only items occurring within pas	Stressor subscore=					
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour.	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants).		Stressor subscore=					
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Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing org Excavation. Ditch cleaning or dredging in or adjacent to the wetland.	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants). anic amendments (compost, etc.) or small amounts of topsoil in the erosion or stir bottom sediments.		Stressor subscore=					
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing org Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause shore	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants). anic amendments (compost, etc.) or small amounts of topsoil in the erosion or stir bottom sediments. or stir bottom sediments. w, assign points. However, if you believe the checked items did it.	ported from another wetland.	Stressor subscores					
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing org Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause shor Artificial water level or flow manipulations sufficient to cause erosion If any items were checked above, then for each row of the table below	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants). anic amendments (compost, etc.) or small amounts of topsoil in the erosion or stir bottom sediments. or stir bottom sediments. w, assign points. However, if you believe the checked items did it.	ported from another wetland.	Stressor subscores					
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Soil or Sediment Alteration Within the Assess In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native play Fill or riprap, excluding small amounts of upland soils containing orgest Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause short Artificial water level or flow manipulations sufficient to cause erosion of any items were checked above, then for each row of the table below effects, contrast the current condition with the condition if the checked	e wetland that is likely to have compacted, eroded, or otherwise. In bikes, especially during wetter periods. In bikes, especially during wetter periods.	nported from another wetland. not measurably alter the soil structure and/or topography, then lea	Stressor subscores st 100 years or since wetland was created or restored ve the "0's" for the scores in the following rows. To estimate Mild (1 point)					
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing org Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause shor Artificial water level or flow manipulations sufficient to cause erosion If any items were checked above, then for each row of the table below effects, contrast the current condition with the condition if the checked. Spatial extent of altered soil:	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants). anic amendments (compost, etc.) or small amounts of topsoil im the erosion or stir bottom sediments. or stir bottom sediments. w, assign points. However, if you believe the checked items did titems never occurred or were no longer present. Severe (3 points) >95% of wetland or >95% of its upland edge (if any).	nported from another wetland. not measurably alter the soil structure and/or topography, then lea Medium (2 points) 5-95% of wetland or 5-95% of its upland edge (if any).	Stressor subscores st 100 years or since wetland was created or restored ve the "0's" for the scores in the following rows. To estimate Mild (1 point) <5% of wetland and <5% of its upland edge (if any).					

Stressor subscore=

0.00

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)	2.16	Lower	9.02	Higher	3.56	4.00
Stream Flow Support (SFS)	1.17	Lower	0.00	Lower	0.94	0.00
Water Cooling (WC)	3.63	Moderate	1.75	Moderate	2.42	0.93
Sediment Retention & Stabilisation (SR)	1.94	Lower	10.00	Higher	3.71	5.04
Phosphorus Retention (PR)	0.00	Lower	9.73	Higher	3.72	7.57
Nitrate Removal & Retention (NR)	2.39	Moderate	10.00	Higher	4.58	10.00
Carbon Sequestration (CS)	2.25	Lower			6.26	
Organic Nutrient Export (OE)	4.13	Lower			4.38	
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)	3.10	Moderate	4.60	Moderate	4.81	3.64
Amphibian & Turtle Habitat (AM)	7.22	Higher	3.66	Moderate	6.86	5.11
Waterbird Feeding Habitat (WBF)	5.82	Moderate	3.33	Moderate	4.47	3.33
Waterbird Nesting Habitat (WBN)	4.10	Moderate	3.33	Moderate	2.97	3.33
Songbird, Raptor, & Mammal Habitat (SBM)	8.73	Higher	3.33	Moderate	7.52	3.33
Pollinator Habitat (POL)	7.16	Moderate	3.33	Moderate	5.94	3.33
Native Plant Habitat (PH)	3.18	Lower	5.60	Moderate	5.18	5.60
Public Use & Recognition (PU)			1.95	Moderate		1.64
Wetland Sensitivity (Sens)			4.24	Moderate		4.03
Wetland Ecological Condition (EC)			4.78	Moderate		7.50
Wetland Stressors (STR) (higher score means more stress)			7.39	Higher		3.73
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	10.00	Higher	9.02	Higher	3.56	4.00
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	1.92	Lower	9.96	Higher	5.41	8.77
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	3.57	Lower	3.36	Moderate	3.97	2.58
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	5.32	Moderate	2.87	Moderate	4.86	3.73
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	7.55	Higher	4.84	Lower	6.87	4.84
WETLAND CONDITION (EC)			4.78	Moderate		7.50
WETLAND RISK (average of Sensitivity & Stressors)			5.81	Higher		3.88

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.

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	
	Cambridge Wetland 6
Investigator Name:	BL, CP
Date of Field Assessment:	20 Aug 2021
Nearest Town:	Waterville, NS
Latitude (decimal degrees):	369196.52 m E
Longitude (decimal degrees):	4992295.66 m N (UTM 20T)
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	~ 1 ha
AA as percent of entire wetland (approx.). Attach sketch map if AA is smaller than the entire contiguous wetland.	20%
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?	Yes
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.	Yes
How many wetlands have you assessed previously using WESP-AC? (approx.)	>100
Comments about the site or this WESP-AC assessment (attach extra page if desired):	wl-6 is part of a larger complex including wetlands 5 and 9 as well.

A	В	C	D	Е
Date: 20 Aug 2021		Site Identifier: Cambridge Wetland 6	Investigat	tor: BL, CP

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.
5			New Brunswick	0	In the function and benefits models, it also triggers the automatic exclusion of indicators for which no spatial data exists in a particular province.
6			Nova Scotia	1	Spatial data exists 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
10			<0.01 hectare (about 10 m x 10 m).	0	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.	1	up menu). [i 11, 35ivi, wbivj
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	OF4	Size of Largest Nearby	>100 hectares. The largest vegetated patch or corridor that includes the AA's vegetation plus alladjacent upland vegetation that is not lawn, row crops,	U	See definition of adjacent in OF2. Use Google Earth Pro's polygon ruler (as described above).
	UF4	Vegetated Tract or	heavily grazed lands, conifer plantation is:		Exclude conifer plantations only if it is obvious that trees were planted in rows. [AM, PH, SBM, Sens]
23		Corridor	<0.01 hectare (about 10 m x 10 m).	0	Exclude control plantations only in this abvious that alees were planted in rows. [710]
24 25			0.01 - 0.1 hectare.	0	
26			0.0 - 0.1 hectare.	0	
27			1 to 10 hectares.	0	
28			10 to 100 hectares.	1	
29			100 to 1000 hectares.	0	
30			>1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	0	
50			2 1000 fictidies. [This is fically diveays the driswer in reliaively drideveloped landscapes.]	U	

	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,	0	
			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			50.500		
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.	1	
38	25/	Hadean Halania	None of the above (the closest patches or corridors which are that large are >5 km away).	0	F
	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
			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:		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]
			"1".		
			[* 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, consider:	0	See above. Do not consider conifer plantations to be forest if it is obvious that trees were planted in 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,		IOWS. [AIVIV, PTV, POLV, SDIVIV]
			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
4.		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:	0	
42			<5% of the land. 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	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:	U	[AM, SBM]
47	JF9	Alteration			[AIVI, SDIVI]
48		Alleration	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
51		Nearest Population	<100 m.	0	square kilometer. In Google Earth Pro, click on the Ruler icon, then Path, and draw and measure the
52		Center	100 - 500 m.	0	route. [FAv, FRv, NRv, PH, PU, SBM, WBFv]
53			0.5- 1 km.	1	
54			1 - 5 km.	0	
55			>5 km.	0	
	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
56		Maintained Road		0	tool. [AM, FAv, FRv, NRv, PH, PU, SBM, STR, WBN]
57			<10 m. 10 - 25 m.	0	
58 59			10 - 25 m. 25 - 50 m.	0	
			25 - 50 m. 50 - 100 m.	0	
60			30 - 100 III. 100 - 500 m.	0	
62			100 - 500 m. >500 m.	1	
02			200V III.	ı	

A	В	С	D	E
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 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	Draw the 5 km circle in Google Earth Pro using the Circle tool and search for roads and wetlands 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
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	wetlands that appear to be permanently flooded. [AM, PH, SBM, Sens, WBF, WBN]
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.	1	1
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	
OF14	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	1
75		1 - 2 km.	0	1
76		2-5 km.	0	
77		5-10 km.	1	
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.	0	
84		10-40 km.	1	
85		>40 km.	0	

	А	В	C	D	F
80	OF16	Upland Edge Contact	Select one:	Ь	[NR, SBM, Sens]
8′	7		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	3		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	
9:			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	
92		Flood Damage from Non tidal Waters	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 finer elevational resolution useful for flood modeling. [WSv]
93	3	tidai waters	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	provide inter elevational resolution useral for modelling. [wsv]
94	ı		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 levees, upriver dams, or other measures may partly limit damage or risk from smaller events.	0	
9:	5		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure vulnerable to river flooding unrelated to tidal storm surges.	0	
90	5		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there isno infrastructure vulnerable to river flooding unrelated to tidal storm surges.	1	
91		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 watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-min).	0.09	[FA, NR, Sens, SFSv, WCv, WSv]
98			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]

	A	В	С	D	E
	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.		
400			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	Dograded Water	all wetlands in this region.		May use existing data or manifer waters so next of this watered accessment. [MDv. DDv. CDv.]
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		Downstream	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	
			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	
108	OE22	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):
	UFZZ	Contributing Area (Catchment)	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		http://atlas.gc.ca/toporama/en/index.html [NR, PR, Sens, SR, WS]
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 area. The result is:		
110			<0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	1	
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	0	
113	OE22	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 :		[1 A, 11VV, 1VKV, FKV, 3KV, 3TK, WCV, W3V]
115		J	<10%.	0	
116			10 to 25%.	0	
117			>25%.	1	
	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.		
110			This statement is:		
119			Mostly true.	0	
120			Somewhat true.	1	
121			Mostly untrue.	0	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.	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
120		(Path Length)	<10 m.	0	and which are outlets) and augment by field inspection. With the Provincial Landscape Viewer, select
14/			NIO III.	U	Nova Scotia Tono as the Raseman. Also enable the laver Forestry>WAM Predicted Flow. Then

A	В	С	D	E
128	Б	10 - 50 m.	1	measure the inlet-outlet distance. [NR, OE, PR, SR, WS]
129		50 - 100 m.	0	incusure the finet outlet distance. [MA, OE, FIA, SIA, WS]
130		100 - 1000 m.	0	1
131		1- 2 km.	0	1
132		>2 km, or wetland lacks an inlet and outlet.	0	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.	2200	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 stocked. [AM, FA, FR, INV, WBF, WBN]
135		Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. Go to Provincial Landscape Viewers-Wildlifes-Significant Habitats-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	Deell Stocked. [AW, FA, FK, INV, WDF, WDN]
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 haveother fish at least seasonally.	0	1
138		Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	1	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 ar approved protocol. For birds, also check eBird.org. [AMv, EC, PHv, POLv, SBMv, Sens, WBFv,
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	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	7
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]
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 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]
OF32	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]
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 tollank (not 0).	0	[PU]
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]
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 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]
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 o the Manual). Enter "0" if false. If no information, change to blank .	0	[AM, FA, FR, INV, PH]
OF38 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]

A	В	C	D	Е
54		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	
55		Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are allowed.	0	
56		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable or not) is in place.	0	
57		Ownership is private and owner does not allow access, or access permission unknown, and not a conservation easement.	1	

	Α	В	С	D	E
	Date: 20 Aug 2021		Site Identifier: Cambridge Wetland 6	Investigator: BL, CP	
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.
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.		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	
i	The AA include " adjac describ	A should also include part the open water part acent " is used synonymoted 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. For the water area of adjacent ponded water larger than 8 ha and adjacent rivers wider than 20 m. Specifically, the AA should be the water area of adjacent ponded water larger than 8 ha and adjacent rivers wider than 20 m. Specifically, the AA should be the water of the water area of adjacent to wetland 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.		
11	-2	Wetland Types -	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		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
12		Adjoining or Subordinate	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.		10 m, or similar. [AM, INV, SBM, WBF]
13			A1.	0	
14			A2.	0	
15			B1.	0	
16	-3	Moody Hoight & Form	B2. Following EACH row below, indicate with a number code the percentage of the living vegetation in the AA which is occupied by that feature	0	Deciduous shrubs in this region usually include buttonbush, Labrador tea, bayberry (Morella),
17		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-woody) vegetation, these percentages should not sum to 100%.		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
18			coniferous trees (may include tamarack) taller than 3 m.	1	trees/shrubs is <25% moss, then question F1 might be "B1". [CS, INV, NR, PH, POL, SBM, Sens]

FieldF form - Non-tidal Page 1 of 10

	A	В	С	D	E
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.	2	
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.	2	
23			deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	3	
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
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 species. [AM, CS, POL, SBM, Sens, WBN]
30			broad-leaved deciduous 1-9 cm diameter and >1 m tall.	1	Species. [Aivi, C.S, POL, Solvi, Seris, Wolvj
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]
		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	F7	Large Snags (Dead	absent. 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
44	. ,	Standing Trees)			at least 2 m tall. [POL, SBM, WBN]
45		, , , , , , , , , , , , , , , , , , ,	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	D I.W I	Several (>8/hectare) but above not true.	0	E. J.
48	Fδ	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) lic-		Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
51			10.	_	
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 56			50-75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
36	F10	Cabagaum Mass	>75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	Evolude mass growing on trees and rocks [CS_DLI]
57		Sphagnum Moss	The cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured by taller sedges and other plants rooted in it, is:		Exclude moss growing on trees and rocks. [CS, PH]
57 58		Extent	<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	
02			7.7070 of the vegetation part of the rint.	U	

FieldF form - Non-tidal Page 2 of 10

A	В	С	D	E
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,		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that is
63	Thatch	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	0	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	1	
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).	1	
71		intermediate.	0	
72		Several (extensive micro-topography).	0	1
E12	Upland Inclusions	Within the AA, inclusions of upland are:		[AM, NR, SBM]
73	opiana molasions	·		(
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).]		
		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	1	
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.		
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	
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		(30% of the vegetated part of the AA of <0.01 nectate (whichever is less), mark it here alid SKIP to F20 (invasive Plant Cover).	U	
90		5-25% of the vegetated part of the AA.	1	
91		25-50% of the vegetated part of the AA.	0	
		50-95% of the vegetated part of the AA.	0	-
92 93		>95% of the vegetated part of the AA.	0	-
Г17	Forb Cover	5 1	U	Forbs are flavoring plants. Do not include grocopy and the state of the flavoring plants.
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, or others that lack showy flowers. [POL]
95		<5% of the herbaceous part of the AA.	1	UI UITIEIS IITAI TAUK SITUWY HUWEIS. [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	1
99		>95% of the herbaceous part of the AA.	0	1
F18	Sedge Cover	Sedges (<i>Carex</i> spp.) and cottongrass (<i>Eriophorum</i> spp.) occupy:		[CS]
100	Souge Cover	11 11 11 11 11 11 11 11 11 11 11 11 11		
101		<5% of the vegetated area, or none. 5-50% of the vegetated area.	0	

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	Α	В	С	D	E
103	3		50-95% of the vegetated area.	0	
104	ı		>95% of the vegetated area.	0	
			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	5	Abundant Herbaceous	aquatic plants). Then choose one of the following:		

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	A	В	С	D	E
106	А	Species	those species together comprise > 50% of the areal cover of herbaceous plants at any time during the year.	1	L
		Ороблов	those species together do not comprise > 50% of the areal cover of herbaceous plants at any time during the year.	0	
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			invasive species comprise >50% of the herb cover (or woody cover, if the invasives are woody).	0	
		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 plant		If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an exotic
114		Upland Edge	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	
118			most (>50%) of the upland edge.	0	
	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	
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 persistent water body larger than 1 ha in the AA.	0	
126					
			99-100%. AND there is no persistent ponded water body larger than 1 ha within the AA. Enter "1" and SKIP to F42 (Channel Connection).	1	
127					
	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.	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	1
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
140 141		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)
		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
142			1-20% of the AA, of <1% but >0.01 ha.	0	bankful height and visualising where that would intercept the land along the river. [CS, FA, INV, NR,
143			ZU-SU /s UI IIIE MA.	U	OE, PH, SR, WBF, WBN, WS]

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A	В	С	D	E
144		50-95% of the AA.	0	
145		>95% of the AA.	0	
146 F28	Annual Water Fluctuation Range	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		<10 cm change (stable or nearly so).	0	
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	
Is the	AA plus adjacent ponde nection).	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	
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.	0	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
157		1 - 2 m deep.	0	well as ponded areas. [CS, FA, FR, INV, OE, PH, PR, Sens, SFS, SR, 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).	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%.	0	
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	0	Nearly all wetlands with surface water have some ponded water. [AM, CS, INV, NR, OE, PR, Sens,
163	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	i orided (not riowing)	<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	
165		30-70% of the water.	0	
166		70-95% of the water.	0	
167 168		>95% of the water.	0	
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
169	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.
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:		[AW, CO, FA, FIX, WV, WK, OE, FIX, OK, WDI, WDI, WO]
171	ина из Орен	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	
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	Ť	"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.	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'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	Onoronno Extern	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.	0	
187		25-50% of the water edge.	0	
107	1	==	ŭ	

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	Α	В	C	D	E
188			50-75% of the water edge.	0	
189	-		>75% of the water edge.	0	
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	1		25-75% of the emergent vegetation.	0	
194			>75%, of the emergent vegetation.	0	
195		Interspersion of Emergents & Open	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]
196		Water	Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water.	0	
197		rator	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.	0	
170	_	Persistent Deepwater	lf 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			growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection).		
200			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 be attempted.
201	-	Aqualic Cover	Little or none.	0	[AM, FA, FR, INV]
201	-		Intermediate.	0	
202			Extensive.	0	
203		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	·	[WBN]
204			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 support a waterbird nest.	Ü	įvonj
	_	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".		
206		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 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,
207	1		Persistent (surface water flows out for >9 months/year).	0	SFS, SR, WCv, WS]
208	1		Seasonal (surface water flows out for 14 days to 9 months/year, not necessarily consecutive).	0	

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1 1	A	В	С	D	E
209			Temporary (surface water flows out for <14 days, not necessarily consecutive).	1	
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	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="" wetland,<="" years).=""><td>0</td><td>1</td></once>	0	1
211			ditch, or lake that lacks an outlet. SKIP to F47 (pH Measurement).	Ů	
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. [CS,
212			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.	Ü	
214			Leaves through natural exits (channels or diffuse outflow), not mainly through artificial or temporary features.	1	
			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.		
F4	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 in
216			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	45	Innut Water		0	[MC-1
F-4	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.	U	[WCv]
217		remperature	rates in the 70° during part of most yours. Effect 1- you, o- no.		
F	46	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		Resistance	incoming water].		
			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	
219			channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond or lake.		
220			Bumps into herbaceous vegetation but mostly remains in fairly straight channels.	0	1
220			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.	1	
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	
E/	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
224			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
223					
1 1				0	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	0	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]
226 227				0	
227	48	TDS and/or	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".		
227 228 F4		TDS and/or Conductivity	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information):		roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
227			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". Neither of above. Enter "1".	1	roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
227 228 229 230 231			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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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.]	1	roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
227 228 229 230			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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 µS/cm in the column to the right.]	0	roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
227 228 229 230 231			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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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	roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
227 228 229 230 231 232		Conductivity	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". Neither of above	0	roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
227 228 229 230 231 232		Conductivity	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". Neither of above Use of the AA by beaver during the past 5 years is (select most applicable ONE):	0 0 1	roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
227 228 F ² 229 230 231 232 233 F ²		Conductivity	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". 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,	0 0 1	roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
227 228 F ² 229 230 231 232 233 F ² 234		Conductivity	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 pScm in the column to the right.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". 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, 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 0 1	roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
227 228 F ² 229 230 231 232 233 F ²		Conductivity	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". Neither of above. Enter "1". The TDS (lotal dissolved solids) or conductivity off the AA's 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 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". 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, 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 0 1 0 0	roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
227 228 F ² 229 230 231 232 233 F ² 234		Conductivity	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 pScm in the column to the right.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". 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, 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 0 1	roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
227 228 F4 229 230 231 232 233 F4 234 235 236 EF	49	Conductivity Beaver Probability	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". 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, 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.	0 0 1 0 0	roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
227 228 F4 229 230 231 232 233 F4 234 235 236	49	Conductivity	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". Neither of above. Enter "1". The TDS (lotal dissolved solids) or conductivity off the AA's 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 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". 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, 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.	0 0 1 0 0	roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN]
227 228 F4 229 230 231 232 233 F4 234 235 236 EF	49	Conductivity Beaver Probability Groundwater Strength	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". 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, 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. Select first applicable choice: Springs are known to be present within the AA, or if groundwater levels have been monitored, that has demonstrated that groundwater	0 0 1 0 0	roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or 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
227 228 F ² 229 230 231 232 233 F ² 234 235 236 237 F ⁸	49	Conductivity Beaver Probability Groundwater Strength	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". Neither of above. Enter "1". The TDS (lotal dissolved solids) or conductivity off the AA's 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 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". 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, 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.	0 0 1 0 0	roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other evidence. Consult topographic maps to detect breaks in slope described here. Rust deposits
227 228 F4 229 230 231 232 233 F4 234 235 236 EF	49	Conductivity Beaver Probability Groundwater Strength	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". 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, 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. Select first applicable choice: Springs are known to be present within the AA, or if groundwater levels have been monitored, that has demonstrated that groundwater	0 0 1 0 0	roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or 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
227 228 F ² 229 230 231 232 233 F ² 234 235 236 237 F ⁸	49	Conductivity Beaver Probability Groundwater Strength	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". Neither of above. Enter "1". The TDS (lotal dissolved solids) or conductivity off the AA's 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 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". 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, 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. Select first applicable choice: 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. 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 0 1 0 0	roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or 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
227 228 229 230 231 232 233 234 235 236 237 E8 238	49	Conductivity Beaver Probability Groundwater Strength	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". Neither of above. Enter "1". The TDS (lotal dissolved solids) or conductivity off the AA's 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 pSicm in the column to the right.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". 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, 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. Select first applicable choice: 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. 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 0 1 0 0	roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or 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

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	A	В	С	D	E
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
241			<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			<27% of the AA has no surface water outlet (not even seasonally). 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
244			>10%.	0	maximum elevation within the AA, then dividing by length and multiplying by 100. [CS, NR, OE, PR, SR, WBF, WBN, WS]
213	Note fo	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	j	
246	are adj	jacent. In many situatio	ns, these questions are best answered by measuring from aerial images.		
247	F52	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 containsperennial 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%.	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	AMERICAN PROPERTY OF THE PROPE
253	F53	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	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%.	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	
265 266			Yes, and created or expanded 3-20 years ago. Yes, and created or expanded within last 3 years.	0	
266			Yes, but time of origin or expansion unknown.	0	
268			Unknown if new or expanded within 20 years or not.	1	
	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		Daill History			22 20. o. stamps (in manipo mass) spaced locations) of asiciandomics. [05,111, 511]
270			Burned within past 5 years.	0	
271			Burned 6-10 years ago.	0	
272 273			Burned 11-30 years ago.	0	
2/3	F58	Vicibility	Burned >30 years ago, or no evidence of a burn and no data. The maximum percentage of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings, or	1	[PU, STR, WBFv]
274	1 00	Visibility	public maintained trails that intersect, adjoin, or are within 100 m of the AA (select one) is:		[r u, 31K, vvoi 4]
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.	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	

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	A	В	С	D	E
282	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	
285 286			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	
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.	1	
291			5-50%.	0	
292			50-95%.	0	
293			>95% of the AA.	0	
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]
295		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]
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	1	(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	0	
298 299	1	Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0	
299	1		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	1		100-500 m. away.	0	
306	1		>500 m. away, or no information.	1	
307	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.	0	[PH, PR]

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Investigator: BL, CP	Site Identifier: Cambridge Wetland 6	Date: 20 Aug 2021	
Stressor (S) Data Form for Non-Tidal	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 the	eir volume) to shift by hours, days, or weeks, becoming either more n	nutad (smaller or less fraguent neaks spread over langer			
times, more temporal homogeneity of flow or water levels) or more fl			uteu (smailer of less frequent peaks spread over longer			
Stormwater from impervious surfaces that drains directly to the wet	land.					
Water subsidies from wastewater effluent, septic system leakage, s	now storage areas, or irrigation.					
Regular removal of surface or groundwater for irrigation or other co	nsumptive use.					
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. 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).						
Artificial drains or ditches in or near the wetland.						
Accelerated downcutting or channelization of an adjacent or internal	Il channel (incised below the historical water table level).					
Logging within the wetland.						
Subsidence or compaction of the wetland's substrate as a result of	machinery, livestock, fire, drainage, or off road vehicles.					
Straightening, ditching, dredging, and/or lining of tributary channels						
If any items were checked above, then for each row of the table belo rows. To estimate effects, contrast the current condition with the con		no measurable effect on the timing of water conditions in any part of sent.	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.			
When most of the timing shift began:	<3 yrs ago.	3-9 yrs ago.	10-100 yrs ago.			
Score the following 2 rows only if the altered inputs began within pas	t 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.			
Flashiness or muting:	Became very flashy or controlled.	Intermediate.	Became mildly flashy or controlled.			
			Sum=	:		
			Stressor subscore=	-		
Accelerated Inputs of Contaminants and/or	Salts			Т		
In the last column, place a check mark next to any item occurring i	in either the wetland or its CA that is likely to have accelerated	the inputs of contaminants or salts to the AA. [AM, FA, PH, POL, ST	<i>RJ</i>	П		
Stormwater or wastewater effluent (including failing septic systems)	, landfills, industrial facilities.					
Metals & chemical wastes from mining, shooting ranges, snow stora npri/default.asp?lang=En&n=B85A1846-1	age areas, oil/ gas extraction, other sources (download many loc	rations 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, o	r other areas in the CA.					
If any items were checked above, then for each row of the table belo following rows. To estimate effects, contrast the current condition wit		not cumulatively expose the AA to significantly higher levels of contai onger present.	minants 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.			
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=			

Accelerated Inputs of Nutrients								
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 the inputs of nutrients to the wetland. [NRv, PRv, STR]								
Stormwater or wastewater effluent (including failing septic sys	tems), landfills.							
Fertilizers applied to lawns, ag lands, or other areas in the CA				1				
Livestock, dogs.								
Artificial drainage of upslope lands.								
	e below, assign points. However, if you believe the checked items did n on if the checked items never occurred or were no longer present.	ot cumulatively expose the AA to significantly more nutrients, then	leave the "O's" for the scores in the following rows. To					
	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.	2				
Frequency & duration of input:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.	2				
AA proximity to main sources (actual or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.	2				
	•	·	Sum=	6				
			Stressor subscore=	0.67				

Excessive Sediment Loading from Contributing Area							
In the last column, place a check mark next to any item present in the	e CA that is likely to have elevated the load of waterborne or win	dborne sediment reaching the wetland from its CA. [FA, FR, INV,	PH, SRv, STR]				
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 ex	draction.						
Accelerated channel downcutting or headcutting of tributaries due to	altered land use.						
Other human-related disturbances within the CA.							
If any items were checked above, then for each row of the table below then leave the "O's" for the scores in the following rows. To estimate e			add 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, 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 or sediment.			Sum=				
soil or sediment.			Stressor subscore:				
soil or sediment. Soil or Sediment Alteration <i>Within the Asses</i>	ssment Area			=			
		allered the wetland's soil. Consider only items occurring within pas	Stressor subscore=				
Soil or Sediment Alteration Within the Asses	e wetland that is likely to have compacted, eroded, or otherwise	allered the wetland's soil. Consider only items occurring within pas	Stressor subscore=				
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR]	e wetland that is likely to have compacted, eroded, or otherwise	altered the wetland's soil. Consider only items occurring within pas	Stressor subscore=				
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods.	altered the wetland's soil. Consider only items occurring within pas	Stressor subscore=				
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour.	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants).		Stressor subscore=				
Soil or Sediment Alteration Within the Assessing the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native place)	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants).		Stressor subscore=				
Soil or Sediment Alteration Within the Assess In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountal Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native plating or property).	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants).		Stressor subscore=				
Soil or Sediment Alteration Within the Assess In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native plates in the plates of	in bikes, especially during wetter periods. ants). anic amendments (compost, etc.) or small amounts of topsoil im		Stressor subscore=				
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing org Excavation. Ditch cleaning or dredging in or adjacent to the wetland.	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants). anic amendments (compost, etc.) or small amounts of topsoil in the erosion or stir bottom sediments.		Stressor subscore=				
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing org Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause shore	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants). anic amendments (compost, etc.) or small amounts of topsoil in the erosion or stir bottom sediments. or stir bottom sediments. w, assign points. However, if you believe the checked items did it.	ported from another wetland.	Stressor subscores				
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing org Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause shor Artificial water level or flow manipulations sufficient to cause erosion If any items were checked above, then for each row of the table below	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants). anic amendments (compost, etc.) or small amounts of topsoil in the erosion or stir bottom sediments. or stir bottom sediments. w, assign points. However, if you believe the checked items did it.	ported from another wetland.	Stressor subscores				
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing org Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause shor Artificial water level or flow manipulations sufficient to cause erosion If any items were checked above, then for each row of the table below	e wetland that is likely to have compacted, eroded, or otherwise. In bikes, especially during wetter periods. In bikes, especially during wetter periods.	ported from another wetland. not measurably alter the soil structure and/or topography, then lea	Stressor subscores st 100 years or since welland was created or restored ve the "0's" for the scores in the following rows. To estimate				
Soil or Sediment Alteration Within the Assess In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native play Fill or riprap, excluding small amounts of upland soils containing orgest Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause short Artificial water level or flow manipulations sufficient to cause erosion of any items were checked above, then for each row of the table below effects, contrast the current condition with the condition if the checked	e wetland that is likely to have compacted, eroded, or otherwise. In bikes, especially during wetter periods. In bikes, especially during wetter periods.	nported from another wetland. not measurably alter the soil structure and/or topography, then lea	Stressor subscores st 100 years or since wetland was created or restored ve the "0's" for the scores in the following rows. To estimate Mild (1 point)				
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing org Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause shor Artificial water level or flow manipulations sufficient to cause erosion If any items were checked above, then for each row of the table below effects, contrast the current condition with the condition if the checked. Spatial extent of altered soil:	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants). anic amendments (compost, etc.) or small amounts of topsoil im the erosion or stir bottom sediments. or stir bottom sediments. w, assign points. However, if you believe the checked items did titems never occurred or were no longer present. Severe (3 points) >95% of wetland or >95% of its upland edge (if any).	nported from another wetland. not measurably alter the soil structure and/or topography, then lea Medium (2 points) 5-95% of wetland or 5-95% of its upland edge (if any).	Stressor subscores st 100 years or since wetland was created or restored ve the "0's" for the scores in the following rows. To estimate Mild (1 point) <5% of wetland and <5% of its upland edge (if any).				

Stressor subscore=

0.00

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)	3.30	Lower	8.97	Higher	4.41	3.98
Stream Flow Support (SFS)	1.52	Moderate	1.96	Lower	1.22	1.28
Water Cooling (WC)	0.00	Lower	0.00	Lower	0.00	0.00
Sediment Retention & Stabilisation (SR)	1.88	Lower	4.91	Higher	3.67	2.41
Phosphorus Retention (PR)	0.00	Lower	8.57	Higher	3.04	6.67
Nitrate Removal & Retention (NR)	1.93	Lower	6.67	Moderate	4.25	6.67
Carbon Sequestration (CS)	5.31	Moderate			7.71	
Organic Nutrient Export (OE)	4.17	Moderate			4.39	
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)	3.54	Moderate	0.76	Lower	4.99	1.67
Amphibian & Turtle Habitat (AM)	3.14	Lower	0.78	Lower	4.72	2.88
Waterbird Feeding Habitat (WBF)	0.00	Lower	0.00	Lower	0.00	0.00
Waterbird Nesting Habitat (WBN)	0.00	Lower	0.00	Lower	0.00	0.00
Songbird, Raptor, & Mammal Habitat (SBM)	6.17	Moderate	3.33	Moderate	5.32	3.33
Pollinator Habitat (POL)	5.27	Moderate	3.33	Moderate	4.37	3.33
Native Plant Habitat (PH)	2.38	Lower	4.34	Lower	4.86	4.34
Public Use & Recognition (PU)			1.95	Moderate		1.64
Wetland Sensitivity (Sens)			6.47	Higher		4.71
Wetland Ecological Condition (EC)			1.88	Lower		6.11
Wetland Stressors (STR) (higher score means more stress)			9.06	Higher		4.53
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	10.00	Higher	8.97	Higher	4.41	3.98
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	1.60	Lower	7.64	Higher	6.19	5.96
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	3.24	Lower	1.44	Lower	3.82	1.33
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	1.89	Lower	0.47	Lower	2.83	1.73
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	5.39	Moderate	4.00	Lower	5.08	4.00
WETLAND CONDITION (EC)			1.88	Lower		6.11
WETLAND RISK (average of Sensitivity & Stressors)			7.76	Higher		4.62

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.

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	
	Cambridge wetland 7
Investigator Name:	BL, CP
Date of Field Assessment:	28 Sept 2021
Nearest Town:	Waterville, NS
Latitude (decimal degrees):	369903.85 m E
Longitude (decimal degrees):	4992163.41 m N (UTM 20 T)
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	~ 3 ha
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.	Yes
How many wetlands have you assessed previously using WESP-AC? (approx.)	>100
Comments about the site or this WESP-AC assessment (attach extra page if desired):	

	A	В	C	D	Е
	Date: 28 Sept 2021		Site Identifier: Cambridge Wetland 7	Investiga	ator: BL, CP
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.

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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.
5			New Brunswick	0	In the function and benefits models, it also triggers the automatic exclusion of indicators for which no spatial data exists in a particular province.
6			Nova Scotia	1	Spatial data Chists III 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
10			<0.01 hectare (about 10 m x 10 m).	0	extends beyond 1 km, include only the part within 1 km. Do not include tidal areas. Measure the
11			0.01 - 0.1 hectare.	1	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 menu). [i 11, 35ivi, wbiv]
13			1 to 10 hectares.	0	
14			10 to 100 hectares.	0	
15			>100 hectares.	0	
	OF3	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		See definition of adjacent in OF2. If the AA's wetland vegetation extends beyond 1 km, include only
16		welland wilnin 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.	0	
20			1 to 10 hectares.	0	
22			10 to 100 hectares.	0	
	OF4	Size of Largest Nearby	> rou nectares. The largest vegetated patch or corridor that includes the AA's vegetation plus alladjacent upland vegetation that is not lawn, row crops,	U	See definition of adjacent in OF2. Use Google Earth Pro's polygon ruler (as described above).
23	UF4	Vegetated Tract or	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		Corridor	<0.01 hectare (about 10 m x 10 m).	0	2.0.0.0.0 solimo piantationo only in the obtrode that a coo not o piantod in totals. [- int, 1-17] const
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.	1	
30			>1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	0	
بت			[[

	A	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,	0	
			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			50.500		
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.	1	
38	25/		None of the above (the closest patches or corridors which are that large are >5 km away).	0	F
	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
			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:		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]
			"1".		
			[* NOTE: Exclude lawns, row crops, heavily grazed lands, forest, shrublands. Include moss as well as grasslike plants in this use of		
39			"herbaceous vegetation"]		
	JF/	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, consider:	0	See above. Do not consider conifer plantations to be forest if it is obvious that trees were planted in 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,		IOWS. [AIVIV, PTV, POLV, SDIVIV]
			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
4.		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:	0	
42			<5% of the land. 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	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:	0	[AM, SBM]
47	JF9	Alteration			[AIVI, SDIVI]
48		Attendation	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
51		Nearest Population	<100 m.	0	square kilometer. In Google Earth Pro, click on the Ruler icon, then Path, and draw and measure the
52		Center	100 - 500 m.	1	route. [FAv, FRv, NRv, PH, PU, SBM, WBFv]
53			0.5- 1 km.	0	
54			1 - 5 km.	0	
55			>5 km.	0	
	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
56		Maintained Road	<10 m.	0	tool. [AM, FAv, FRv, NRv, PH, PU, SBM, STR, WBN]
58			10 - 25 m.	1	
59			10 - 25 III. 25 - 50 m.	0	
60			25 - 30 III. 50 - 100 m.	0	
			30 - 100 m.	0	
62			>500 m.	0	
62			>300 III.	U	

A	В	С	D	E
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 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	Draw the 5 km circle in Google Earth Pro using the Circle tool and search for roads and wetlands 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
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	wetlands that appear to be permanently flooded. [AM, PH, SBM, Sens, WBF, WBN]
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	1
69		0.5 - 1 km, and not separated.	0	
70		0.5 - 1 km, but separated by those features.	1	
71		None of the above (the closest patches or corridors that large are >1 km away).	0	
OF14	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	1
75		1 - 2 km.	0	1
76		2-5 km.	0	
77		5-10 km.	1	
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.	0	
84		10-40 km.	1	
85		>40 km.	0	

Г	А	В	C	D	F
86	OF16	Upland Edge Contact	Select one:	Ь	[NR, SBM, Sens]
87	7		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	3		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	
92		Flood Damage from Non tidal Waters	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
93	3	tidai waters	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	provide finer elevational resolution useful for flood modeling. [WSv]
94	ı		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 levees, upriver dams, or other measures may partly limit damage or risk from smaller events.	0	
95	5		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure vulnerable to river flooding unrelated to tidal storm surges.	0	
96	5		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there isno infrastructure vulnerable to river flooding unrelated to tidal storm surges.	1	
97		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 watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-min).	0.01	[FA, NR, Sens, SFSv, WCv, WSv]
98			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]

	Α	В	С	D	E
	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.		
			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	
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	
100			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.		
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		
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 area. The result is:		
110			<0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	1	
111			0.01 to 0.1.	0	
112			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 raisec	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%.	0	
116			10 to 25%.	0	
117			>25%.	1	
	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.		
118			This statement is:		
119			Mostly true.	0	
120			Somewhat true.	1	
121			Mostly untrue.	0	
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 Nova Scotia Topo as the Raseman. Also enable the layer ForestrysWAM Predicted Flow. Then
لنحت					INDIVA SCORA TORO AS THE RASEURO. AISO EDRIDIE THE TAVEL FORESTLY SWAM FREDICIED FLOW. THEN

A	В	С	D	E
128	Б	10 - 50 m.	0	measure the inlet-outlet distance. [NR, OE, PR, SR, WS]
129		50 - 100 m.	0	incusure the finet outlet distance. [MA, OE, FIA, SIA, WS]
130		100 - 1000 m.	1	1
131		1- 2 km.	0	1
132		>2 km, or wetland lacks an inlet and outlet.	0	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.	2200	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 stocked. [AM, FA, FR, INV, WBF, WBN]
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	Deell Stocked. [AWI, FA, FR, INV, WDF, WDN]
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.	1	
137		is probably is not accessed by any anadromous fish species but is known or likely to haveother fish at least seasonally.	0	1
138		Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	0	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 ar approved protocol. For birds, also check eBird.org. [AMv, EC, PHv, POLv, SBMv, Sens, WBFv,
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	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	1 1 1 1 1 1 1 1 1 1	None of the above, or no data.	1	
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]
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 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]
OF32	Wintering Deer or Moose Concentration Areas	If AA is on private land with no information, change to blank (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]
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]
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]
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 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 to blank .	0	[AM, FA, FR, INV, PH]
OF38	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]

A	В	C	D	Е
54		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	
55		Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are allowed.	0	
56		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable or not) is in place.	0	
57		Ownership is private and owner does not allow access, or access permission unknown, and not a conservation easement.	1	

	A	В	С	D	E	
	Date: 28 Sept 2021		Site Identifier: Cambridge WL-7		Investigator: BL, CP	
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.		They include Produce Industrials 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 lauret, and a sedge (Carex rarifiora). 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	
	The AA include " adjac describ	A should also include par the open water part ac ent " is used synonymo ned 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 lijacent 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.		
11	F2	Wetland Types -	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		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
12		Adjoining or Subordinate	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.		10 m, or similar. [AM, INV, SBM, WBF]
13			A1.	0	
14 15			A2. B1.	0	
15			B1. 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 (nonwoody) 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
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]

FieldF form - Non-tidal Page 1 of 10

Section Continue for the Text of the Continue for the Text of the Continue for the Contin		Α	В	С	D	E
Section 2 and 1 an	19			deciduous trees taller than 3 m.	3	
profession of information and was the designation through of the company of sider registration. Proceeding of section 1 and processing of the company of sider registration. 2	20			coniferous or ericaceous shrubs or trees 1-3 m tall not directly below the canopy of trees.	1	
profession of information and was the designation through of the company of sider registration. Proceeding of section 1 and processing of the company of sider registration. 2	21			deciduous shrubs or trees 1-3 m tall not directly below the canopy of trees.	4	
Second	22			coniferous or ericaceous shrubs <1 m tall not directly below the canopy of taller vegetation.	1	
Definitions of Mys. Applications of Mys. A	23			deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	2	
Demination of Montal Abundance of Montal Abund	24	Note:	If none of top 4 rows in	n F3 was marked 2 or greater, SKIP to F9 (N fixers).		
Manufact Name Price species legister countries - 98% of such cover. Price species legister countries - 98% of such cover. Price species legister countries - 98% of such cover. Price species legister countries - 98% of such cover. Price species Price specie	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]
Position				those species together comprise > 50% of such cover.	1	
Classons Section (April Control Co	27		Species	, ,	0	
continues, 1.9 on Bermore and 2-1 most some diseased eclosures, 1.9 on dismeters and 2-1 most some diseased eclosures, 1.9 or dismeters and 2-1 most some diseased eclosures, 1.9 or dismeters and 2-1 most some diseased eclosures, 1.9 or dismeters are continues, 2.9 or dismeters, 2.9 or dism	20		,			
race fewerd excitous 1 years disorder and 5 in total. 1			CIGSSES		1	
Conference, 10-10 or diameter. 1						13 1
Second Second Accordance 20-00 on diameter 1	30					
Sale Services, 20 4 on dismeter. 13 Services of Services, 20 4 on dismeter. 13 Services of Services, 20 4 on dismeter. 14 Services of S						
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das might even be totally absent. Choose between B1 and 82 and mark the choice with a 1 in the adjoining column: B1. The less prevalent height class is mostly scattered and intermixed within the prevalent one. B2. Not B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is completely absent. The number of 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: The number of large snags (diameter >20 cm) in the AA plus adjacent upland area within 10 m of the wetland edge is: The number of large snags (diameter >20 cm) in the AA plus adjacent upland area within 10 m of the wetland edge is: None, or fewer than 8/ hoctare which exceed this diameter. Several (-58-facter) but above not tree. The number of downed wood places longer than 2 m and with diameter >10 cm, and not persistently submerged, is: Few or none that meet these criteria. The percentage of the AA's vegetated cover, in the AA or along its water edge (whichever has more). 1.25% of the vegetated cover, in the AA or along its water edge (whichever has more). 5.75% of the vegetated cover, in the AA or along its water edge (whichever has more). 5.75% of the vegetated cover, in the AA. 5.95% of the vegetated cover, in the AA. 5.95% of the vegetated part of the AA.	40			A2. Not A1. The two height classes are mostly in separate zones or bands, or in proportionately large clumps.	0	
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B2, No IB 1. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is completely absent. F7	41			class might even be totally absent. Choose between B1 and B2 and mark the choice with a 1 in the adjoining column:		
absent	42			B1. The less prevalent height class is mostly scattered and intermixed within the prevalent one.	0	
F7 Large Snags (Dead Slanding Trees) The number of large snags (diameter >20 cm) in the AA plus adjacent upland area within 10 m of the wetland edge is: None, or fewer than 81 hectare which exceed this diameter Several (>8thectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km. O Several (>8thectare) but above not true. O 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) Exclude temporary "burn piles." (AM, INV, POL, SBM, Sen) Exclude temporary "burn piles." (AM, INV, POL, SBM, Sen) Exclude temporary "burn piles." (AM, INV, POL, S	43				0	
None, or fewer than 87 hectare which exceed this diameter. Several (5-8hectare) and a point, lake, or slow-flowing water wider than 10 m is within 1 km. Several (5-8hectare) and a point, lake, or slow-flowing water wider than 10 m is within 1 km. Downed Wood The number of downed wood pieces longer than 2 m and with diameter >10 cm, and not persistently submerged, is: Few or none that meet these criteria. Do several (5-5 if AA is >5 hectares, less for smaller AAs) meet these criteria. The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa, other legumes) is: 12. Synaghum Moss F10 Sphagnum Moss Extent Several (5-8 if Ae a cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured by taller Several (5-8 of the vegetated part of the AA. Do so 95% of the vegetated part of the AA.	44	F7	0 0 .			
Several (>8/hectare) but above not true. O	45		Statiulity Trees)	None, or fewer than 8/ hectare which exceed this diameter.	1	at least 2 in tail. [i OE, Obivi, wolvi]
Ag F8 Downed Wood The number of downed wood pieces longer than 2 m and with diameter >10 cm, and not persistently submerged, is: Few or none that meet these criteria.	46			Several (>8/hectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km.	0	
Few or none that meet these criteria. Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria. The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa, other legumes) is: 10	47			Several (>8/hectare) but above not true.	0	
Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria. F9	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]
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) is: 152	49			Few or none that meet these criteria.	0	
S1	50			Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria.	1	
Company of the vegetated cover, in the AA or along its water edge (whichever has more). Company of the vegetated cover, in the AA or along its water edge (whichever has more). Company of the vegetated cover, in the AA or along its water edge (whichever has more). Company of the vegetated cover, in the AA or along its water edge (whichever has more). Company of the vegetated cover, in the AA or along its water edge (whichever has more). Company of the vegetated cover, in the AA or along its water edge (whichever has more). Company of the vegetated cover, in the AA or along its water edge (whichever has more). Company of the vegetated cover, in the AA or along its water edge (whichever has more). Company of the vegetated cover, in the AA or along its water edge (whichever has more). Company of the vegetated cover, in the AA or along its water edge (whichever has more). Company of the vegetated cover, in the AA or along its water edge (whichever has more). Company of the vegetated cover, in the AA or along its water edge (whichever has more). Company of the AA or along its water edge (whichever has more). Company of the vegetated part of the AA or along its water edge (whichever has more). Company of the vegetated part of the AA or along its water edge (whichever has more). Company of the vegetated part of the AA or along its water edge (whichever has more). Company of the vegetated part of the AA or along its water edge (whichever has more). Company of the vegetated part of the AA or along its water edge (whichever has more). Company of the vegetated part of the AA or along its water edge (whichever has more). Company of the vegetated part of the AA or along its water edge (whichever has more). Company of the vegetated part of the AA or along its water edge (whichever has more). Company of the vegetated part of the AA or along its water edge (whichever has more). Company of the vegetated cover, in the AA or along its water edge (whichever has more). Company of the v	51	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) is:		Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
1-25% of the vegetated cover, in the AA or along its water edge (whichever has more). 0				<1% or none.	0	
25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). 1 50 50-75% of the vegetated cover, in the AA or along its water edge (whichever has more). 3 75% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 1 1 1 1 1 1 1 1 1	53			1-25% 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). 56 50-75% of the vegetated cover, in the AA or along its water edge (whichever has more). 57 Sphagnum Moss The cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured by taller sedges and other plants rooted in it, is: 58 Extent Sedges and other plants rooted in it, is: 58 50-25% of the vegetated part of the AA. 59 50-25% of the vegetated part of the AA. 60 50-95% of the vegetated part of the AA. 60 50-95% of the vegetated part of the AA. 60 50-95% of the vegetated part of the AA. 60 50-95% of the vegetated part of the AA. 60 50-95% of the vegetated part of the AA. 60 50-95% of the vegetated part of the AA. 60 50-95% of the vegetated part of the AA.	54				0	
56 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0				0 0.	1	
F10 Sphagnum Moss Extent Sedges and other plants rooted in it, is: 58 Sphagnum Moss Extent Sedges and other plants rooted in it, is: 58 Sphagnum Moss Extent Sedges and other plants rooted in it, is: 58 Sphagnum Moss Extent Sedges and other plants rooted in it, is: 58 Sphagnum Moss Exclude moss growing on trees and rocks. [CS, PH] 59 Sphagnum Moss Exclude moss growing on trees and rocks. [CS, PH] 50 Sphagnum Moss		1			0	
57 Extent sedges and other plants rooted in it, is: 58 <5% of the vegetated part of the AA.		F10	Sphagnum Moss			Exclude moss growing on trees and rocks. [CS, PH]
58 <5% of the vegetated part of the AA.	57					
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				<5% 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				5-25% of the vegetated part of the AA.	1	
	60			25-50% of the vegetated part of the AA.	0	
62 >95% of the vegetated part of the AA.				50-95% of the vegetated part of the AA.	0	
	62			>95% of the vegetated part of the AA.	0	

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	Α	В	С	D	E
	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,	_	Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that is
63		Thatch	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 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.		
66			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	
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	1
- 00	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]
		orouna mogularity	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).	1	
71			Intermediate.	0	
72			Several (extensive micro-topography).	0	1
73	F13	Upland Inclusions	Within the AA, inclusions of upland are:		[AM, NR, SBM]
74]	Few or none.	1	
75			Intermediate (1 - 10% of vegetated part of the AA).	0	
76			Many (e.q., 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	0	[CS, NR, OE, PH, PR, Sens, SFS, WS]
77	1 17	Soil Texture	at least 3 widely spaced locations, and use the soil texture key (in Appendix A of the Manual).]		[OS, MIX, OE, FTI, FTX, SCHS, SFS, WO]
- / /			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	1
78			between thumb and forefinger.	ŭ	
			Fines: includes silt, clay, silt, soils that make a ribbon longer than 2 cm when moistened, rolled, squeezed, and extended between thumb and	1	
79			forefinger.		
80			Deep Peat, to 40 cm depth or greater.	0	
81			Shallow Peat or organic <40 cm deep.	0	
82			Coarse: includes sand, loamy sand, gravel, cobble, soils that do not make a ribbon when moistened, rolled, squeezed, and extended	0	
82	F15	Shorebird Feeding	between thumb and forefinger. 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	1 13	Habitats	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 samppers, provers, and related species. [VOI]
84		Tabitats	None, or <100 sq. m.	1	
85			100-1000 sq. m.	0	
86			1000 – 10,000 sq. m.	0	1
87			>10,000 sq. m.	0	1
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	4
89		-	(SO/O OF the vegetaled part of the AA OF (U.U.) Hectale (WillChever is less), wark in the and SKIP to FZO (INVASIVE Plant Cover).	U	
90			5-25% of the vegetated part of the AA.	0	1
91			25-50% of the vegetated part of the AA.	0	1
92			50-95% of the vegetated part of the AA.	1	i
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.	1	1
96			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
	F18	Sedge Cover	Sedges (<i>Carex</i> spp.) and cottongrass (<i>Eriophorum</i> spp.) occupy:		[CS]
100			2	^	√ ′
101			<5% of the vegetated area, or none. 5-50% of the vegetated area.	0	
102			o-oute of the vegetated area.	1	

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	Α	В	С	D	E
103	3		50-95% of the vegetated area.	0	
104	ı		>95% of the vegetated area.	0	
			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	5	Abundant Herbaceous	aquatic plants). Then choose one of the following:		

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	Α	В	С	D	E
106		Species	those species together comprise > 50% of the areal cover of herbaceous plants at any time during the year.	0	
		·	those species together do not comprise > 50% of the areal cover of herbaceous plants at any time during the year.	1	
107 F 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		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		3,	none of the upland edge (invasives apparently absent), or AA has no upland edge.	0	species cannot be identified, answer "none". [PH, STR]
116			some (but <5%) of the upland edge.	1	
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]
121		% 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]
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 persistent water body larger than 1 ha in the AA.	0	
127			99-100%. AND there is no persistent ponded water body larger than 1 ha within the AA. Enter "1" and SKIP to F42 (Channel Connection).	0	
		% of AA with Persistent Surface	Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during the driest 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		If you are unable to determine the condition at the driest time of year, ask the land owner or neighbors 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		vator	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.	0	
131			20-50% of the AA.	1	
132			50-95% of the AA.	0	
133			>95% of the AA. True for many fringe wetlands.	0	
F	26	% 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	within 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 F		% 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]
					received and the first test

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12 12 13 15 15 15 15 15 15 15		A	В	C	D	E
A Areal Water Fig. 2 Areal water Fig. 2 Areal water Fig. 2 Areal water Fig. 3 Areal water Fig. 4 Area	144			50-95% of the AA.	1	
The Author Range The Author	145			>95% of the AA.	0	
1	146			The annual fluctuation in surface water level within most of the parts of the AA that contain surface water at least temporarily is:		
Early Commonwealth Commonwealt			Fluctuation Range	<10 cm change (stable or nearly so).	0	
15 15 15 15 15 15 15 15				10 cm - 50 cm change.	0	PH, PR, SR, WDIV, WSJ
15 15 2 in change 15 2				0.5 - 1 m change.	0	
Sm Carbony Company Carbony Company Company Company Carbony Company Company Company Carbony Company Company Carbony Company Com				1-2 m change.	1	
Section Proceedings Proceedings Procedure Process Proceedings Procedure Process Procedure Process Procedure Process Procedure Process Procedure Process Procedure Process Procedure Pr				>2 m change.	0	
All Company	152			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	
19. 50 m deep. 19. 50 m deep.	153					and safety allow, depths may be measured by drilling through winter ice. This question is asking about
10. Sept. Cacces. 10. To deep. 10. To mode,				<10 cm deep (but >0).		
150 10 months				10 - 50 cm deep.	0	
1-7 missep 1-7				0.5 - 1 m deep.	1	
Depth Classes - When prevent surface water in most of the Act saudy consists of cleect one). Depth Classes - Consistency of C				1 - 2 m deep.	0	well as political aleas. [65, 174, 114, 1144, 66, 1111, 114, 56, 13, 51, 51, 51, 48, 486, 486]
Everinosis of Proportions One dight class that comprises \$90% of the AAS inundiated area (use the classes in the question above). 1	158			>2 m deep. True for many fringe wetlands.	0	
One degen cases that Comprises > Most of the ARS instructions are leaves the classes on the question accords. Proportions One degen cases that Comprises > Most of the ARS instructions are leaves to the classes of the ARS instructions are leaves to the processing behalf of the processing behalf of the processing behalf of the ARS and singles of the ARS and singles from point and singles of the provided water. One degen cases that Comprises > Most of the water. One degen cases that Comprises > Most of the water. One degen cases that Comprises > Most of the water. One degen cases that Comprises > Most of the water. One degen cases and mone coupty > SMP. Sold Water That Is Ponded (not Flowing) Note of the water. One degen cases and mone coupty > SMP. Sold of the water. One degen cases and mone coupty > SMP. Sold of the water. One degen cases and comprises > Most of the water. One degen cases and comprises > Most of the water. One degen cases and mone coupty > SMP. Sold of the water. One degen cases and comprises > Most of the water. One degen case and comprises > Most of the water. One degen case and comprises > Most of the water. One degen case and comprises > Most of the water. One degen case and comprises > Most of the water. One degen case and comprises > Most of the water. One degen case and comprises > Most of the water. One degen case and comprises > Most of the water. One degen case and comprises > Most of the water. One degen case and comprises > Most of the water. One degen case and comprises > Most of the water. One degen case and comprises > Most of the water. One degen case and comprises > Most of the water. One degen case and comprises > Most of the water. One degen case and comprises > Most of the water. One degen case and comprises > Most of the water. One degen case and comprises > Most of the water. One degen case and comprises > Most of the water. One degen case and comprises > Most of the water. One degen case and comprises > Most of the water. One degen ca	159	F30		When present, surface water in most of the AA usually consists of (select one):		
Projections Service (and project and services 50 95% of the AAN's inundated area. 100	160			One depth class that comprises >90% of the AA's inundated area (use the classes in the question above).	1	WBF, WBN]
Relimber of above. There are all or more depth classes and name scoapy 550%. Valent That Is Ponded (not Flowing)			Proportions	One depth class that comprises 50-90% of the AA's inundated area.	0	
Ponded (not Flowing) Ponded (n				Neither of above. There are 3 or more depth classes and none occupy >50%.	0	
165 165						
Satisfied the water. 0 0 0 0 0 0 0 0 0			Ponded (not Flowing)			SR, WBF, WBN, WC, WS]
30 / 20% of the water. 30 / 20% of the ponded water. 30 / 20% of				<5% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34 .	1	
105 70.95% of the water. 70.95% of the				5-30% of the water.	0	
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 is >0.01 hectare (about 10 not he water surface or entirely submersed beneath it. F34						
F32 Ponded Open Water - Minimum Size F33 Ponded Open Water - Minimum Size F34 Ponded Open Water - Minimum Size F35 Ponded Water that is Open F36 Ponded Water that is Open F37 Ponded Water that is Open F38 Ponded Water that is Open F39 Ponded Water that is Open F30 Ponded						
Minimum Size 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 % of Ponded Water 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 & Duckweed). F34	168					
F33 % of Ponded Water that is Open factoring most of the growing season, and unhidden by a forest or shrub cancepy) is:	169				0	
1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).						[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]
To compose the ponded water. Compose of the ponded water.				None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	0	
To compose the ponded water. Compose of the ponded water.	172			1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	0	
To To To To To To To To	173			5-30% of the ponded water.	0	
Total Content of the ponded water. Total Content of the proving season when the AA's water level is lowest, the average width of vegetated area in the AA that separates adjoining uplands from open water within the AA is: Total Content of the proving season when the AA's water level is lowest, the average width of vegetated area in the AA that separates adjoining uplands from open water within the AA is: Total Content of the proving season when the AA's water level is lowest, the average width of vegetated area in the AA that separates adjoining uplands from open water within the AA is: Total Content of the proving season when the AA's water level is lowest, the average width of vegetated area in the AA that separates include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR, SBM, Sens, SR, WBN] Som the proving season when the AA's water level is lowest, the average width of vegetated area in the AA that separates include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR, SBM, Sens, SR, WBN] Som the proving season when the AA's water level is lowest, the average width of vegetated area in the AA that separates include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR, SBM, Sens, SR, WBN] Som the proving water is absent at that time.	174			30-70% of the ponded water.	0	
F34 Width of Vegetated Zone within Wetland 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 adjoining uplands from open water within the AA is: 178				70-99% of the ponded water.	0	
Zone within Wetland Zone within Wetland Adjoining uplands from open water within the AA is: 178	176			1	0	
179 1 - 9 m. 0 1 1 - 9 m. 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			•			include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR,
179 1-9 m.				<1 m.	0	SBM, Sens, SR, WBN]
181 30 - 49 m. 0 50 - 100 m. 0 182	179			1 - 9 m.	0	
50 - 100 m. 0	180			10 - 29 m.	1	
F35 Flat Shoreline Extent	181			30 - 49 m.	0	
F35 Flat Shoreline Extent 184				50 - 100 m.		
184slope 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.	183			> 100 m, or open water is absent at that time.	0	
185 <1% of the water edge.	184	F35	Flat Shoreline Extent			
186 1-25% of the water edge. 0				<1% of the water edge.	1	
187 25-50% of the water edge. 0	186			1-25% of the water edge.	0	
	187			25-50% of the water edge.	0	

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	Α	В	С	D	E
188			50-75% of the water edge.	0	_
189	-		>75% of the water edge.	0	
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.	1	
192	-		1-25% of the emergent vegetation.	0	
193			25-75% of the emergent vegetation.	0	
194			>75%, of the emergent vegetation.	0	
195		Interspersion of Emergents & Open	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]
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.	0	
	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	1	
199		Area .	growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection).		
		3	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	[7101, 174, 175, 1100]
202			Intermediate.	1	
203			Extensive.	0	August .
204		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 to support a waterbird nest.	0	[WBN]
	-	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".		
201			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 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,
200	1		Persistent (surface water flows out for >9 months/year).	1	SFS, SR, WCv, WS]
20%	1		Seasonal (surface water flows out for 14 days to 9 months/year, not necessarily consecutive).	0	
200	1		Deadonal Surface water non-5 out for 14 days to 7 months/year, not necessarily consecutive.		

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	Α	В	С	D	E
209			Temporary (surface water flows out for <14 days, not necessarily consecutive).	0	
Ħ			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	1
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="" wetland,<="" years).=""><td>0</td><td></td></once>	0	
211			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. [CS,
			Mostly passes through a pipe, culvert, narrowly breached dike, berm, beaver dam, or other partial obstruction (other than natural topography)	1	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	1
			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	1
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 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	1	F42 above. [NRv, PH, PRv, SRv]
216			further upslope. If no, SKIP to F47 (pH Measurement).		
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	14	Theoretian	During its travel through the AA at the time of peak appeal flow water arriving in channels (select only the ONE		[FA FD INV ND OF DD CD WC]
	46	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 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)	1	
219			channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond or lake.		
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	1
221					
222			Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels.	0	1
			Bumps into tree trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or braided).	0	1
223					
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
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
			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	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]
226			peatland (e.g., Labrador tea) are prevalent. Enter "1".		loads of itt puddles toffied offly by recent failt. [Aivi, FA, FR, WK, WBF, FH, FK, Sells, WBF, WBN]
227			Neither of above. Enter "1".	1	
228 F	48	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.]	0	1
230			Conductivity is [Enter the reading in µS/cm in the column to the right.]	ٽ	1
231			Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1".	0	1
232			Neither of above	1	
Е	49	D D L . L . 171		_	[FA ED DIL CDM C WDE WDM]
233		RESIVER PROPORTION	Illse at the AA by heaver during the past 5 years is (select most applicable ONE).		
233	"	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]
	,,	Beaver Probability	Use of the AA by beaver during the past 5 years is (select most applicable ONL): Evident from direct observation or presence of gnawed limbs, dams, tracks, dens, lodges, or extensive stands of water-killed trees (snags).	0	[FA, FK, PH, SBW, Sells, WBF, WBN]
234	.,	Beaver Probability	Evident from direct observation or presence of gnawed limbs, dams, tracks, dens, lodges, or extensive stands of water-killed trees (snags).		[FA, FR, PH, SBW, Sells, WBF, WBN]
		Beaver Probability	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,	0	[FA, FR, PH, SBW, Sells, WBF, WBN]
234		Beaver Prodability	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, 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		[FA, FR, PH, SBW, Sells, WBF, WBN]
		Beaver Prodability	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, 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	[FA, FR, PH, SBW, Sells, WBF, WBN]
234		Beaver Probability	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, 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		[FA, FR, PH, SBM, Sells, WBF, WBN]
234 235 236		,	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, 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.	0	
234 235 236	50	Groundwater Strength	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, 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	Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other
234 235 236	50	,	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, 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. Select first applicable choice: Springs are known to be present within the AA, or if groundwater levels have been monitored, that has demonstrated that groundwater	0	Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other evidence. Consult topographic maps to detect breaks in slope described here. Rust deposits
234 235 236 237	50	Groundwater Strength	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, 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. Select first applicable choice:	0	Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other
234 235 236	50	Groundwater Strength	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, 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. Select first applicable choice: 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 1 0	Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or 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
234 235 236 237 F	50	Groundwater Strength	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, 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. Select first applicable choice: 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. 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	Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or 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
234 235 236 237	50	Groundwater Strength	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, 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. Select first applicable choice: 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. 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 1 0 0	Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or 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
234 235 236 237 F	50	Groundwater Strength	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, 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. Select first applicable choice: 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. 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 0	Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or 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

FieldF form - Non-tidal Page 8 of 10

	A	В	С	D	E
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
	Note fo	or the next three guest	tions: If the AA lacks an upland edge, evaluate based on the AA's entire perimeter, and moving outward into whatever areas		
	are adj	acent. In many situation	ns, these questions are best answered by measuring from aerial images.		
	F52	3	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	
251 252			60 to 90%.	0	
252	F53	Tune of Cover in	>90%, or all the area within 30 m of the AA edge is other wetlands. SKIP to F55.	U	[AM EA INIV NID, DLI DOL CDM CTD WDN]
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		Dullel	Impervious surface, e.g., paved road, parking lot, building, exposed rock.	1	
255			Bare or nearly bare pervious surface or managed vegetation, e.g., lawn, row crops, unpaved road, dike, landslide.	0	
_	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	1 54	Duller Slope	percent slope of:		[MAY, TAY, SCIS, SAY]
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%.	0	
260			>30%.	1	
	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.	0	
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.	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			Burned within past 5 years.	0	
271			Burned 6-10 years ago.	0	
272			Burned 11-30 years ago.	0	
273	FF0	V P - 11-121	Burned >30 years ago, or no evidence of a burn and no data.	1	(DU CTD WDF)
274	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 public maintained trails that intersect, adjoin, or are within 100 m of the AA (select one) is:		[PU, STR, WBFv]
				0	
275			<25%. 25-50%.	0	
276 277			25·30%. >50%.	1	
	E50	Non-consumptive	Assuming access permission was granted, select ALL statements that are true of the AA as it currently exists:	1	[PU, STR]
278	1 J7	Uses - Actual or			ը o, ∍ng
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.	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.	1	
281			Within or near the AA, there is an interpretive center, trails with interpretive signs or brochures, and/or regular guided interpretive tours.	0	
201					

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	A	В	С	D	E
282	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	
285 286			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	
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.	1	
291			5-50%.	0	
292			50-95%.	0	
293			>95% of the AA.	0	
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]
295		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]
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	1	(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	0	
298 299	1	Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0	
299	1		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	1		100-500 m. away.	0	
306	1		>500 m. away, or no information.	1	
307	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.	0	[PH, PR]

FieldF form - Non-tidal Page 10 of 10

Investigator: BL, CP	Site Identifier: Cambridge wetland 7	Date: 28 Sept 2021	
Stressor (S) Data Form for Non-Tidal	Wetlands. WESP-AC for Nova Scotia version 2.		Data

Aberrant Timing of Water Inputs								
	ely to have caused the timing of water inputs (but not necessarily the re flashy (larger or more frequent spikes but over shorter times). [FA	eir volume) to shift by hours, days, or weeks, becoming either more m , FR, INV, PH, STR]	uted (smaller or less frequent peaks spread over longer					
Stormwater from impervious surfaces that drains directly to the	wetland.			\top				
Water subsidies from wastewater effluent, septic system leakag	Water subsidies from wastewater effluent, septic system leakage, snow storage areas, or irrigation.							
Regular removal of surface or groundwater for irrigation or other	consumptive use.							
Flow regulation in tributaries or water level regulation in adjoining	g water body, or other control structure at water entry points that req	gulates inflow to the wetland.						
A dam, dike, levee, weir, berm, or fill within or downgradient fi	om the wetland that interferes with surface or subsurface flow in/o	out of the AA (e.g., road fill, wellpads, pipelines).						
Excavation within the wetland, e.g., dugout, artificial pond, dead	-end ditch.							
Artificial drains or ditches in or near the wetland.								
Accelerated downcutting or channelization of an adjacent or internal channel (incised below the historical water table level). Logging within the wetland.								
							Subsidence or compaction of the wetland's substrate as a resul	of machinery, livestock, fire, drainage, or off road vehicles.
Straightening, ditching, dredging, and/or lining of tributary chann	nels.							
	nelow, assign points. However, if you believe the checked items had condition if the checked items never occurred or were no longer pre	no measurable effect on the timing of water conditions in any part of sent.	the AA, then leave the "0'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.					
When most of the timing shift began:	<3 yrs ago.	3-9 yrs ago.	10-100 yrs ago.					
Score the following 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.					
Flashiness or muting:	Became very flashy or controlled.	Intermediate.	Became mildly flashy or controlled.					
			Sun	n=				
			Stressor subscor	e=				
Accelerated Inputs of Contaminants and/	or Salts							
In the last column, place a check mark next to any item occurn	ng in either the wetland or its CA that is likely to have accelerated	the inputs of contaminants or salts to the AA. [AM, FA, PH, POL, STI	RJ					
Stormwater or wastewater effluent (including failing septic syste	ms), landfills, industrial facilities.							
Metals & chemical wastes from mining, shooting ranges, snow snpri/default.asp?lang=En&n=B85A1846-1	storage areas, oil/ gas extraction, other sources (download many loc	rations 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, roadside	s, or other areas in the CA.							
	nelow, assign points. However, if you believe the checked items did with the condition if the checked items never occurred or were no la	not cumulatively expose the AA to significantly higher levels of contai onger present.	minants and/or salts, then leave the "O's" for the scores in the	ne e				
	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.					
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	ก=				

Accelerated Inputs of Nutrients								
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 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.								
Livestock, dogs.								
Artificial drainage of upslope lands.								
If any items were checked above, then for each row of the table estimate effects, contrast the current condition with the condition	below, assign points. However, if you believe the checked items did no if the checked items never occurred or were no longer present.	ot cumulatively expose the AA to significantly more nutrients, then	leave the "O's" for the scores in the following rows. To					
	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.	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=								
			Stressor subscore=	0.00				

In the last column, place a check mark next to any item present in the	e CA that is likely to have elevated the load of waterborne or win	ndborne sediment reaching the wetland from its CA. [FA, FR, INV,	PH, SRv, STR]					
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 extraction.								
Accelerated channel downcutting or headcutting of tributaries due to	o altered land use.							
Other human-related disturbances within the CA.								
If any items were checked above, then for each row of the table belo then leave the "O's" for the scores in the following rows. To estimate			add 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.					
			Stressor subscore=					
Soil or Sediment Alteration Within the Asse	ssment Area		Stressor subscore=					
		altered the wetland's soil. Consider only items occurring within pas						
In the last column, place a check mark next to any item present in the	e wetland that is likely to have compacted, eroded, or otherwise	altered the wetland's soil. Consider only items occurring within pas						
In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR]	e wetland that is likely to have compacted, eroded, or otherwise	altered the wetland's soil. Consider only items occurring within pas						
In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mounta	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods.	altered the wetland's soil. Consider only items occurring within pas						
In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountal Leveling or other grading not to the natural contour.	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants).							
In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountal Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native place)	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants).							
In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mounta Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native place) is placed to the place of th	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants).							
In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountal Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native plants or riprap, excluding small amounts of upland soils containing organisation.	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants). ganic amendments (compost, etc.) or small amounts of topsoil in							
In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountal Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native place) fill or riprap, excluding small amounts of upland soils containing organization. Ditch cleaning or dredging in or adjacent to the wetland.	in bikes, especially during wetter periods. ants). ganic amendments (compost, etc.) or small amounts of topsoil in the erosion or stir bottom sediments.							
In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mounta Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native plant or riprap, excluding small amounts of upland soils containing orgen excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause show the sufficient water level or flow manipulations sufficient to cause erosion of the sufficient to cause erosion.	in bikes, especially during wetter periods. ants). ganic amendments (compost, etc.) or small amounts of topsoil in the erosion or stir bottom sediments. nor stir bottom sediments. w, assign points. However, if you believe the checked items did	nported from another wetland.	st 100 years or since wetland was created or restored					
In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mounta Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native plant or riprap, excluding small amounts of upland soils containing orgen excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause show the sufficient water level or flow manipulations sufficient to cause erosion of the sufficient to cause erosion.	in bikes, especially during wetter periods. ants). ganic amendments (compost, etc.) or small amounts of topsoil in the erosion or stir bottom sediments. nor stir bottom sediments. w, assign points. However, if you believe the checked items did	nported from another wetland.	st 100 years or since wetland was created or restored					
In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mounta Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native plant or riprap, excluding small amounts of upland soils containing orgen excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause show the sufficient water level or flow manipulations sufficient to cause erosion of the sufficient to cause erosion.	in bikes, especially during wetter periods. ants). ganic amendments (compost, etc.) or small amounts of topsoil in the erosion or stir bottom sediments. n or stir bottom sediments. w, assign points. However, if you believe the checked items did ditems never occurred or were no longer present.	nported from another wetland. not measurably alter the soil structure and/or topography, then lea	st 100 years or since wetland was created or restored ve the "O's" for the scores in the following rows. To estimate					
In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountal Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native place). Fill or riprap, excluding small amounts of upland soils containing organization. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause show the sufficient water level or flow manipulations sufficient to cause erosion of the sufficient experiments and the sufficient erosion of the sufficient erosion erosio	in bikes, especially during wetter periods. ants). panic amendments (compost, etc.) or small amounts of topsoil in the erosion or stir bottom sediments. nor stir bottom sediments. w, assign points. However, if you believe the checked items did ditems never occurred or were no longer present. Severe (3 points) >95% of wetland or >95% of its upland edge (if any). Current & ongoing.	nported from another wetland. not measurably alter the soil structure and/or topography, then lea	st 100 years or since wetland was created or restored ve the "0's" for the scores in the following rows. To estimate Mild (1 point)					
Compaction from machinery, off-road vehicles, livestock, or mountal 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 or excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause shown an exception of the sufficient to cause erosion. If any items were checked above, then for each row of the table below effects, contrast the current condition with the condition if the checked.	in bikes, especially during wetter periods. ants). panic amendments (compost, etc.) or small amounts of topsoil in the erosion or stir bottom sediments. nor stir bottom sediments. w, assign points. However, if you believe the checked items did tiems never occurred or were no longer present. Severe (3 points) >95% of wetland or >95% of its upland edge (if any).	nported from another wetland. not measurably alter the soil structure and/or topography, then lea Medium (2 points) 5-95% of wetland or 5-95% of its upland edge (if any).	st 100 years or since wetland was created or restored ve the "0's" for the scores in the following rows. To estimate Mild (1 point) <5% of wetland and <5% of its upland edge (if any).					

Stressor subscore=

0.00

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)	2.46	Lower	8.52	Higher	3.78	3.78
Stream Flow Support (SFS)	3.72	Moderate	2.99	Moderate	3.00	1.95
Water Cooling (WC)	6.55	Higher	8.01	Higher	4.37	4.28
Sediment Retention & Stabilisation (SR)	4.20	Moderate	10.00	Higher	5.47	5.66
Phosphorus Retention (PR)	1.04	Lower	10.00	Higher	4.40	8.13
Nitrate Removal & Retention (NR)	3.41	Moderate	10.00	Higher	5.30	10.00
Carbon Sequestration (CS)	2.91	Lower			6.57	
Organic Nutrient Export (OE)	6.83	Moderate			5.37	
Anadromous Fish Habitat (FA)	4.68	Higher	6.48	Higher	3.07	4.12
Resident Fish Habitat (FR)	5.20	Moderate	6.11	Higher	2.76	3.82
Aquatic Invertebrate Habitat (INV)	5.03	Moderate	5.61	Moderate	5.59	4.16
Amphibian & Turtle Habitat (AM)	4.14	Moderate	4.04	Moderate	5.24	5.40
Waterbird Feeding Habitat (WBF)	6.65	Moderate	5.83	Moderate	5.11	5.83
Waterbird Nesting Habitat (WBN)	3.72	Moderate	5.00	Moderate	2.70	5.00
Songbird, Raptor, & Mammal Habitat (SBM)	7.06	Moderate	5.00	Moderate	6.08	5.00
Pollinator Habitat (POL)	8.00	Higher	3.33	Moderate	6.63	3.33
Native Plant Habitat (PH)	4.57	Moderate	5.35	Lower	5.73	5.35
Public Use & Recognition (PU)			4.75	Higher		3.56
Wetland Sensitivity (Sens)			9.57	Higher		5.64
Wetland Ecological Condition (EC)			6.52	Higher		8.33
Wetland Stressors (STR) (higher score means more stress)			9.43	Higher		4.71
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	10.00	Higher	8.52	Higher	3.78	3.78
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	3.54	Lower	10.00	Higher	6.00	8.96
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	6.18	Moderate	6.78	Higher	5.09	3.87
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	5.77	Moderate	5.99	Higher	4.51	5.33
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	7.27	Higher	4.95	Lower	6.39	4.95
WETLAND CONDITION (EC)			6.52	Higher		8.33
WETLAND RISK (average of Sensitivity & Stressors)			9.50	Higher		5.18
	NOTE: A sees	o of 0 door not		4:	4 6 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.

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	
	101 Cambridge WL-8
Investigator Name:	BL, CP
Date of Field Assessment:	28 Sept, 2021
Nearest Town:	Coldbrook, NS
Latitude (decimal degrees):	369406.86 m E
Longitude (decimal degrees):	4991734.08 m N
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	891 m2
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.	Yes
How many wetlands have you assessed previously using WESP-AC? (approx.)	>100
Comments about the site or this WESP-AC assessment (attach extra page if desired):	

	A	В	C	D	Е
	Date: 28 Sept 2021		Site Identifier: Cambridge wetland 8	Investiga	ator: BL, CP
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.	
5			New Brunswick	0	In the function and benefits models, it also triggers the automatic exclusion of indicators for which no spatial data exists in a particular province.
6			Nova Scotia	1	spatial data exists in a particular province.
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
10			<0.01 hectare (about 10 m x 10 m).	0	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.	1	up nienu). [FTI, SDIVI, WDIV]
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	4		0.1 - 1 hectare.	0	
20	4		1 to 10 hectares.	0	
21			10 to 100 hectares.	1	
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	4		10 to 100 hectares.	1	
29			100 to 1000 hectares.	0	
30			>1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	0	

	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,	0	
			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).	1	
	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	0	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:		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]
39			[* NOTE: Exclude lawns, row crops, heavily grazed lands, forest, shrublands. Include moss as well as grasslike plants in this use of "herbaceous vegetation"]		
39	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,	0	See above. Do not consider conifer plantations to be forest if it is obvious that trees were planted in
	OI /	woody offiqueness	consider:	U	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,		Tons. [Panty, 1 114, 1 OEV, OBINV]
			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 nearestpopulation 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	
54			1 - 5 km.	0	
55	0544	D' 1 1 1 1 1 1	>5 km.	0	
56	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
57		Maintained Road	<10 m.	0	tool. [AM, FAv, FRv, NRv, PH, PU, SBM, STR, WBN]
58			10 - 25 m.	0	
59			25 - 50 m.	0	
60			50 - 100 m.	0	
61			100 - 500 m.	1	
62			>500 m.	0	1
		!		-	

A	В	С	D	E
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 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	Draw the 5 km circle in Google Earth Pro using the Circle tool and search for roads and wetlands 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
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	wetlands that appear to be permanently flooded. [AM, PH, SBM, Sens, WBF, WBN]
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	1
69		0.5 - 1 km, and not separated.	0	
70		0.5 - 1 km, but separated by those features.	1	
71		None of the above (the closest patches or corridors that large are >1 km away).	0	
OF14	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	1
75		1 - 2 km.	0	1
76		2-5 km.	0	
77		5-10 km.	1	
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.	0	
84		10-40 km.	1	
85		>40 km.	0	

	Δ	В	C	D	F
80	OF16	Upland Edge Contact	Select one:	Ь	[NR, SBM, Sens]
8′	7		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	3		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	
9:			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	
92		Flood Damage from Non tidal Waters	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 finer elevational resolution useful for flood modeling. [WSv]
93	3	tidai waters	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	provide inter elevational resolution useral for modelling. [wsv]
94	ı		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 levees, upriver dams, or other measures may partly limit damage or risk from smaller events.	0	
9:	5		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure vulnerable to river flooding unrelated to tidal storm surges.	0	
90	5		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there isno infrastructure vulnerable to river flooding unrelated to tidal storm surges.	1	
91		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 watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-min).	0.13	[FA, NR, Sens, SFSv, WCv, WSv]
98			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]

	Α	В	С	D	E
	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.		
			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	0504	D 1 11W 1	all wetlands in this region.		Market Company of the
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		Downstream	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	
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.		
	OF22	Wetland as a % of Its Contributing Area	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		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]
		(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.	1	
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	0	
113			bog).		
		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%.	0	
116 117			10 to 25%. >25%.	0	
	OE24	Transport From Upslope	>25%. 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]
	UF24	mansport From Opsiope	indicated by the following:		[INRV, 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.		
110			This statement is:		
118			Mactly true	^	
119 120			Mostly true. Somewhat true,	0	
120			Mostly untrue.	1	
	OF25	∆snect	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 23	поросі	·		المسر بسر على المن المن المن المن المن المن المن المن
123			Northward (N, NE). north-facing contributing area.	0	
124			Southward (S, SW), south-facing contributing area.	1	
125	0507	1 1 1 5 1 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Other (E, SE, W, NW), or no detectable uphill slope or input channel (flat).	0	
126	OF26	Internal Flow Distance (Path Length)	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 and which are outlets) and augment by field inspection. With the Provincial Landscape Viewer, select
127		u aui cengui)	<10 m.	0	Nova Scotia Topo as the Baseman. Also enable the laver Forestry>WAM Predicted Flow. Then
_					THE THE PARTY OF THE PROPERTY AND ENGINE THE RIVER FOR THE WAS A SAFETY OF THE PROPERTY OF THE PARTY OF THE P

I A	В	С	D	E
128	<u> </u>	10 - 50 m.	0	measure the inlet-outlet distance. [NR, OE, PR, SR, WS]
129		50 - 100 m.	0	incasare the filet dates distance. [MN, OE, TN, SN, WS]
130		100 - 1000 m.	0	
131		1- 2 km.	0	1
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.	1800	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 stocked. [AM, FA, FR, INV, WBF, WBN]
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	Deen Stuckeu. [AIVI, FA, FK, IIVV, WDF, WDIV]
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	<u> </u>
OF29	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 ar approved protocol. For birds, also check eBird.org. [AMv, EC, PHv, POLv, SBMv, Sens, WBFv,
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	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	Incompate at Diad Associ	None of the above, or no data.	1	The arrange of this larger which when did be absoluted a said disable for made to a in-
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 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]
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 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]
OF32	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]
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 t blank (not 0).	0	[PU]
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]
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]
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 o the Manual). Enter "0" if false. If no information, change to blank .	0	[AM, FA, FR, INV, PH]
OF38	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]

A	В	C	D	Е
54		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	
55		Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are allowed.	0	
56		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable or not) is in place.	0	
57		Ownership is private and owner does not allow access, or access permission unknown, and not a conservation easement.	1	

	A	В	C	D	E
	Date: 28 Sept 2021		Site Identifier:Cambridge WL-8	Investiga	ator: BL, CP
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. 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.		They include module individual 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 An include " adja d describ	A should also include part the open water part accent " 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. For the water area of adjacent ponded water larger than 8 ha and adjacent rivers wider than 20 m. Specifically, the AA should dijacent to wetland vegetation and equal in width to the average width of that vegetated zone. Throughout this data form, busly 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	F2	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 (nonwoody) vegetation, these percentages should not sum to 100%.		Deciduous shrubs in this region usually include buttonbush, Labrador tea, bayberry (<i>Morella</i>), 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
18			coniferous trees (may include tamarack) taller than 3 m.	3	trees/shrubs is <25% moss, then question F1 might be "B1". [CS, INV, NR, PH, POL, SBM, Sens]

FieldF form - Non-tidal Page 1 of 10

A	В	C	D	E
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.	2	
23		deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	2	
24 Note	: If none of top 4 rows i	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
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	
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.	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	
43		B2. Not B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is completely absent.	0	
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.	0	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	
EO	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]
48		Few or none that meet these criteria.	0	
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)	j	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	
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	

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	A	В	С	D	E
	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,		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that is
63		Thatch	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	0	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, SBM, Sens]
64					John, Jensj
65			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	
63			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	1	
66			AA	1	
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.	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).]		
			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.	0	-
80			Deep Peat, to 40 cm depth or greater. Shallow Peat or organic <40 cm deep.	0	-
81			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.	U	
	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	
88		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	1
89			, , , , , , , , , , , , , , , , , , , ,		
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	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.	1	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.	1	
102			5-50% of the vegetated area.	0	1
102					· ·

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	Α	В	С	D	Е
103	3		50-95% of the vegetated area.	0	
104	ı		>95% of the vegetated area.	0	
			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	5	Abundant Herbaceous	aquatic plants). Then choose one of the following:		

FieldF form - Non-tidal Page 4 of 10

A	В	С	D	E
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	
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	
F21 114	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	
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 121	% 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]
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	
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).	1	
F25	% of AA with Persistent Surface	Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during the driest 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		If you are unable to determine the condition at the driest time of year, ask the land owner or neighbors 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	within 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.	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]
				OL, ITI, OK, TIDI, TIDI, TIDI

FieldF form - Non-tidal Page 5 of 10

A	В	С	D	E
144		50-95% of the AA.	0	
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).	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	1
150		1-2 m change.	0	1
151		>2 m change.	0	
Is the	AA plus adjacent ponde ection).	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	1	
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.	0	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
157		1 - 2 m deep.	0	well as ponded areas. [CS, FA, FR, INV, OE, PH, PR, Sens, SFS, SR, WBF, WBN, WC]
158		>2 m deep. True for many fringe wetlands.	0	1
F20	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,
159 F 30	Evenness of			-WBF, WBN]
160	Proportions	One depth class that comprises >90% of the AA's inundated area (use the classes in the question above).	0	
161	1 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	
F31 163	% 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]
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	1
168		>95% of the water.	0	1
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 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).	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.
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	1
172		1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	0	1
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	
F34 177	Width of Vegetated Zone within Wetland	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 adjoining uplands from open water within the AA is:		"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,
	ZONE WITHIN WELIAND		0	SBM, Sens, SR, WBN]
178		<1 m. 1 - 9 m.	0	- · · · · · · · · · · · · · · · · · · ·
179		10 - 29 m.	0	4
180		10 - 29 m. 30 - 49 m.	0	-
181		30 - 49 m. 50 - 100 m.		4
182			0	4
183	Flat Shoreline Extent	> 100 m, or open water is absent at that time.	U	If covered isolated peaks are present in early summers active to the execut of their collections.
FOF		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
F35 184	i lat Shoreline Extent	slope less than about 5% measured within 5 m landward of the water) is:		that has such a gentle slope. [SR, WBN]
	i lat Shoreline Extent	slope less than about 5% measured within 5 m landward of the water) is: <1% of the water edge.	0	inat nas such a genile slope. [SK, WBN]
184	Tat Shoreline Extent		0	unat nas such a gentie stope. [SK, WBN]

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	Α	В	C	D	E
188			50-75% of the water edge.	0	
189	-		>75% of the water edge.	0	
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	1		25-75% of the emergent vegetation.	0	
194			>75%, of the emergent vegetation.	0	
195		Interspersion of Emergents & Open	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]
196		Water	Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water.	0	
197		rator	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.	0	
170	_	Persistent Deepwater	lf 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			growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection).		
200			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 be attempted.
201	-	Aqualic Cover	Little or none.	0	[AM, FA, FR, INV]
201	-		Intermediate.	0	
202			Extensive.	0	
203		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	·	[WBN]
204			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 support a waterbird nest.	Ü	įvonj
	_	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".		
206		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 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,
207	1		Persistent (surface water flows out for >9 months/year).	0	SFS, SR, WCv, WS]
208	1		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).	1	
			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>0</td><td></td></once>	0	
	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,
212	1 13	Outnow Commencial			NR, OE, PR, Sens, SR, STR, WS]
212			Mostly passes through a pipe, culvert, narrowly breached dike, berm, beaver dam, or other partial obstruction (other than natural topography)	0	, , , , , , , , , ,
213			that does not appear to drain the wetland artificially during most of the growing season. Leaves through natural exits (channels or diffuse outflow), not mainly through artificial or temporary features.	1	
214			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	0	F42 above. [NRv, PH, PRv, SRv]
216			further upslope. If no, SKIP to F47 (pH Measurement).		
	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]
215		Temperature	water in the AA during part of most years. Enter 1= yes, 0= no.		
217	E14	Throughflow	During its travel through the AA at the time of peak appual flow water arriving in channels; (color) only the ONE apparent of the		[FA, FR, INV, NR, OE, PR, SR, WS]
218	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, INK, UE, MK, SK, WS]
218		VE212/91/CG	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	4
			channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond or lake.	ľ	
219]
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.	1	
221			Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels.	0	
222			Bumps into tree trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or braided).	0	-
			bumps into tree truins and/or strub stems and follows a fairly fruiteet patrifion entrance to exit (meandering, multi-branched, or braded).	U	
223					
223	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
224	F47	pH Measurement	•		passed through (not along) most of the AA. Unless surface water is completely absent, do not dig holes
	F47	pH Measurement	Was measured, and is: [enter the reading in the column to the right.]	0	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
224 225 226	F47	pH Measurement	•	0	passed through (not along) most of the AA. Unless surface water is completely absent, do not dig holes
224 225	F47	pH Measurement	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". Neither of above. Enter "1".	0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
224 225 226 227	F47	TDS and/or	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".		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
224 225 226 227 228	F47		Was neasured, 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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information):		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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
224 225 226 227	F47	TDS and/or	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". Neither of above. Enter "1".		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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
224 225 226 227 228 229	F47	TDS and/or	Was neasured, 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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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.]		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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
224 225 226 227 228 229 230	F47	TDS and/or	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 µS/cm in the column to the right.]	1	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
224 225 226 227 228 229 230 231 232	F47	TDS and/or	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 pScm in the column to the right.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1".	0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
224 225 226 227 228 229 230 231	F48	TDS and/or Conductivity	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". Neither of above Use of the AA by beaver during the past 5 years is (select most applicable ONE):	0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
224 225 226 227 228 229 230 231 232	F48	TDS and/or Conductivity	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information): 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 pS/cm in the column to the right.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". Neither of above	0 1	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
224 225 226 227 228 229 230 231 232 233	F48	TDS and/or Conductivity	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". Neither of above Use of the AA by beaver during the past 5 years is (select most applicable ONE):	0 1	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
224 225 226 227 228 229 230 231 232 233	F48	TDS and/or Conductivity	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". 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, 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 1	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
224 225 226 227 228 229 230 231 232 233	F48	TDS and/or Conductivity	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 µS/cm in the column to the right, if measured, or answer next row.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". 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, 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 1 0 0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
224 225 226 227 228 229 230 231 232 233 234	F48	TDS and/or Conductivity	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". 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, 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 1	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
224 225 226 227 228 229 230 231 232 233	F49	TDS and/or Conductivity Beaver Probability	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information): 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 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". 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, 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.	0 1 0 0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN]
224 225 226 227 228 229 230 231 232 233 234	F48 F50	TDS and/or Conductivity Beaver Probability	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information): 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 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". 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, 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.	0 1 0 0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other
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	Α	В	C	D	E
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).	1	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 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 guest	tions: If the AA lacks an upland edge, evaluate based on the AA's entire perimeter, and moving outward into whatever areas		
	are adj	acent. In many situation	ns, these questions are best answered by measuring from aerial images.		
247	F52	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 containsperennial 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		or r crimeter	<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			Bare or nearly bare pervious surface or managed vegetation, e.g., lawn, row crops, unpaved road, dike, landslide.	1	
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.	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.	0	
268			Unknown if new or expanded within 20 years or not.	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			Burned within past 5 years.	0	
271			Burned 6-10 years ago.	0	
272			Burned 11-30 years ago.	0	
273	F58	Vioibility	Burned >30 years ago, or no evidence of a burn and no data.	1	[DIL CTD WDF]
274	F 36	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]
			public maintained traits that intersect, adjoin, or are within 100 m or the AA (select one) is. <25%.	1	
275 276			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]
		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.		
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.	1	
			Within or near the AA, there is an interpretive center, trails with interpretive signs or brochures, and/or regular guided interpretive tours.	0	
281					

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	Α	В	С	D	E
282	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	
285 286			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	
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.	1	
291			5-50%.	0	
292			50-95%.	0	
293			>95% of the AA.	0	
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]
295		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]
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	1	(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	0	
298 299	1	Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0	
299	1		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	1		100-500 m. away.	0	
306	1		>500 m. away, or no information.	1	
307	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.	0	[PH, PR]

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Investigator: BL, CP	Site Identifier: Cambridge WL-8	Date: 28 Sep 2021	
Stressor (S) Data Form for Non-	Tidal Wetlands. WESP-AC for Nova Scotia version 2.		Data

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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 "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) Usual toxicity of most toxic contaminants: Industrial effluent, mining waste, unmanaged landfill. Frequency & duration of input: 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): 15-100 m. or in groundwater. In more distant part of contributing area.	0 0	storage areas, oil/ gas extraction, other sources (download many loc	ations from National Pollutant Release Inventory and view KMZ over	ay in Google Earth. https://www.ec.gc.ca/inrp-					
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 "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) Usual toxicity of most toxic contaminants: Industrial effluent, mining waste, unmanaged landfill. Frequency & duration of input: Frequency & duration of input: Frequent and year-round. Frequent but mostly seasonal. Infrequent & during high runoff events mainly. In more distant part of contributing area.	Road salt.								
Severe (3 points) Medium (2 points) Medium (2 points) Mild (1 point) Usual toxicity of most toxic contaminants: Industrial effluent, mining waste, unmanaged landfill. Frequency & duration of input: AA proximity to main sources (actual or potential): Severe (3 points) Medium (2 points) Mild (1 point) Cropland, managed landfill, pipeline or transmission rights-ofway. Low density residential. Frequent and year-round. Frequent but mostly seasonal. Infrequent & during high runoff events mainly. In more distant part of contributing area.	Spraying of pesticides, as applied to lawns, croplands, roadside	s, or other areas in the CA.							
Usual toxicity of most toxic contaminants: Industrial effluent, mining waste, unmanaged landfill. Frequency & duration of input: AA proximity to main sources (actual or potential): Industrial effluent, mining waste, unmanaged landfill. Frequent and year-round. Frequent but mostly seasonal. Infrequent & during high runoff events mainly. In more distant part of contributing area.				minants and/or salts, then leave the "O's" for the scores in the					
Usual toxicity of most toxic contaminants: Industrial effluent, mining waste, unmanaged landfill. 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.		Severe (3 points)	Medium (2 points)	Mild (1 point)					
AA proximity to main sources (actual or potential): 0 - 15 m. 15-100 m. or in groundwater. In more distant part of contributing area.	Usual toxicity of most toxic contaminants:	Industrial effluent, mining waste, unmanaged landfill.		Low density residential.					
Problems to the problems of th	Frequency & duration of input:		Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.					
Sum=	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=					

Accelerated Inputs of Nutrients						
In the last column, place a check mark next to any item occur	ing in either the wetland or its CA that is likely to have accelerated th	ne inputs of nutrients to the wetland. [NRv, PRv, STR]				
Stormwater or wastewater effluent (including failing septic syst	ems), landfills.					
Fertilizers applied to lawns, ag lands, or other areas in the CA.						
Livestock, dogs.				1		
Artificial drainage of upslope lands.						
If any items were checked above, then for each row of the table estimate effects, contrast the current condition with the condition	below, assign points. However, if you believe the checked items did no if the checked items never occurred or were no longer present.	ot cumulatively expose the AA to significantly more nutrients, then	leave the "O's" for the scores in the following rows. To			
	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.	2		
Frequency & duration of input:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.	2		
AA proximity to main sources (actual or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.	2		
			Sum=	6		
			Stressor subscore=	0.67		

In the last column, place a check mark next to any item present in the	e CA that is likely to have elevated the load of waterborne or win	adborne sediment reaching the wetland from its CA. [FA, FR, INV, I	PH, SRv, STR]					
Erosion from plowed fields, fill, timber harvest, dirt roads, vegetation	n 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 extraction.								
Accelerated channel downcutting or headcutting of tributaries due to	o altered land use.							
Other human-related disturbances within the CA.								
If any items were checked above, then for each row of the table belo then leave the "O's" for the scores in the following rows. To estimate			add 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.					
ioil or sediment.			Stressor subscore=					
			Stressor subscore=					
Soil or Sediment Alteration Within the Asse	ssment Area		Sitessor subscore=					
In the last column, place a check mark next to any item present in the		allered the wetland's soil. Consider only items occurring within pas						
In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR]	e wetland that is likely to have compacted, eroded, or otherwise	altered the wetland's soil. Consider only items occurring within pas						
In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mounta	e wetland that is likely to have compacted, eroded, or otherwise	altered the wetland's soil. Consider only items occurring within pas						
In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR]	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods.	altered the wetland's soil. Consider only items occurring within pas						
In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountal Leveling or other grading not to the natural contour.	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants).							
In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountal Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native place)	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants).							
In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mounta Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native place) is placed to the place of th	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants).							
In the last column, place a check mark next to any item present in the whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountated Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native plants or iprap, excluding small amounts of upland soils containing organisation.	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants). ganic amendments (compost, etc.) or small amounts of topsoil in							
In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountal Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native place) fill or riprap, excluding small amounts of upland soils containing organization. Ditch cleaning or dredging in or adjacent to the wetland.	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants). ganic amendments (compost, etc.) or small amounts of topsoil in the erosion or stir bottom sediments.							
In the last column, place a check mark next to any item present in the whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountateveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native plant or riprap, excluding small amounts of upland soils containing orgen excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause show the sufficient and it is a sufficient to cause erosion of the sufficient to cause erosion.	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants). ganic amendments (compost, etc.) or small amounts of topsoil in re erosion or stir bottom sediments. n or stir bottom sediments. w, assign points. However, if you believe the checked items did	nported from another wetland.	st 100 years or since wetland was created or restored					
In the last column, place a check mark next to any item present in the whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountateveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native plant or riprap, excluding small amounts of upland soils containing orgen excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause show the sufficient and it is a sufficient to cause erosion of the sufficient to cause erosion.	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants). ganic amendments (compost, etc.) or small amounts of topsoil in re erosion or stir bottom sediments. n or stir bottom sediments. w, assign points. However, if you believe the checked items did	nported from another wetland.	st 100 years or since wetland was created or restored					
In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mounta Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native plant or riprap, excluding small amounts of upland soils containing orgen excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause show the sufficient water level or flow manipulations sufficient to cause erosion of the sufficient to cause erosion.	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants). ganic amendments (compost, etc.) or small amounts of topsoil in re erosion or stir bottom sediments. In or stir bottom sediments.	nported from another wetland. not measurably alter the soil structure and/or topography, then lea	st 100 years or since wetland was created or restored ve the "O's" for the scores in the following rows. To estimate					
In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountal Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native place). Fill or riprap, excluding small amounts of upland soils containing organization. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause show the sufficient water level or flow manipulations sufficient to cause erosion of any items were checked above, then for each row of the table below the sufficient to cause the current condition with the condition if the checked spatial extent of altered soil:	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants). ganic amendments (compost, etc.) or small amounts of topsoil in re erosion or stir bottom sediments. n or stir bottom sediments. w, assign points. However, if you believe the checked items did ditems never occurred or were no longer present. Severe (3 points) >95% of wetland or >95% of its upland edge (if any). Current & ongoing.	nported from another wetland. not measurably alter the soil structure and/or topography, then lea Medium (2 points)	st 100 years or since wetland was created or restored ve the "0's" for the scores in the following rows. To estimate Mild (1 point)					
Compaction from machinery, off-road vehicles, livestock, or mountal 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 or excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause shown an exception of the sufficient to cause erosion. If any items were checked above, then for each row of the table below effects, contrast the current condition with the condition if the checked.	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. ants). ganic amendments (compost, etc.) or small amounts of topsoil in re erosion or stir bottom sediments. n or stir bottom sediments. w, assign points. However, if you believe the checked items did titems never occurred or were no longer present. Severe (3 points) >95% of wetland or >95% of its upland edge (if any).	nported from another wetland. not measurably alter the soil structure and/or topography, then lea Medium (2 points) 5-95% of wetland or 5-95% of its upland edge (if any).	st 100 years or since wetland was created or restored ve the "0's" for the scores in the following rows. To estimate Mild (1 point) <5% of wetland and <5% of its upland edge (if any).					

Stressor subscore=

0.00

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)	5.02	Moderate	6.37	Moderate	5.69	2.83
Stream Flow Support (SFS)	1.10	Lower	0.00	Lower	0.89	0.00
Water Cooling (WC)	0.00	Lower	0.00	Lower	0.00	0.00
Sediment Retention & Stabilisation (SR)	4.16	Moderate	3.59	Higher	5.44	1.76
Phosphorus Retention (PR)	0.00	Lower	8.57	Higher	3.49	6.67
Nitrate Removal & Retention (NR)	4.26	Moderate	6.67	Moderate	5.85	6.67
Carbon Sequestration (CS)	5.78	Moderate			7.93	
Organic Nutrient Export (OE)	6.88	Moderate			4.50	
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)	2.01	Lower	0.58	Lower	4.31	1.55
Amphibian & Turtle Habitat (AM)	2.47	Lower	1.87	Lower	4.42	3.30
Waterbird Feeding Habitat (WBF)	0.00	Lower	0.00	Lower	0.00	0.00
Waterbird Nesting Habitat (WBN)	0.00	Lower	0.00	Lower	0.00	0.00
Songbird, Raptor, & Mammal Habitat (SBM)	5.64	Moderate	5.00	Moderate	4.91	5.00
Pollinator Habitat (POL)	5.85	Moderate	0.00	Lower	4.85	0.00
Native Plant Habitat (PH)	1.02	Lower	3.25	Lower	4.31	3.25
Public Use & Recognition (PU)			3.80	Moderate		2.90
Wetland Sensitivity (Sens)			9.38	Higher		4.84
Wetland Ecological Condition (EC)			2.46	Lower		6.39
Wetland Stressors (STR) (higher score means more stress)			9.23	Higher		4.61
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	5.02	Moderate	6.37	Moderate	5.69	2.83
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	4.66	Moderate	7.42	Higher	6.81	5.85
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	4.69	Moderate	0.38	Lower	3.46	1.04
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	1.48	Lower	1.12	Lower	2.65	1.98
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	5.01	Moderate	3.88	Lower	4.80	3.88
WETLAND CONDITION (EC)			2.46	Lower		6.39
WETLAND RISK (average of Sensitivity & Stressors)			9.30	Higher		4.73

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.

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	
	Cambridge Interchange Wetland 9
Investigator Name:	BL, CP
Date of Field Assessment:	28 Aug 2021
Nearest Town:	Waterville, NS
Latitude (decimal degrees):	369019.73 m E
Longitude (decimal degrees):	4992168.61 m N (UTM 20T)
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	~ 8 ha
AA as percent of entire wetland (approx.). Attach sketch map if AA is smaller than the entire contiguous wetland.	85
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.	Yes
How many wetlands have you assessed previously using WESP-AC? (approx.)	>100
Comments about the site or this WESP-AC assessment (attach extra page if desired):	Wetland 9 is part of a complex including wetlands 5 & 6 as well.

	A	В	С	D	Е	
	Date: Sept 28, 2021		Site Identifier: Cambridge Interchange Wetland 9	Investigator: BL, CP		
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.
5			New Brunswick	0	In the function and benefits models, it also triggers the automatic exclusion of indicators for which no spatial data exists in a particular province.
6			Nova Scotia	1	Spatial data exists in a particular province.
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
10			<0.01 hectare (about 10 m x 10 m).	0	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.	1	up monu). [i 11, 35m, work]
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.	0	
20			1 to 10 hectares.	0	
21			10 to 100 hectares.	1	
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.	1	
30			>1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	0	

	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,	0	
			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			TO FOO.		
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	257	Hadean Halania	None of the above (the closest patches or corridors which are that large are >5 km away).	1	For this constitution of the constitution of t
	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
			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:		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]
			n1".		
			[* 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, consider:	0	See above. Do not consider conifer plantations to be forest if it is obvious that trees were planted in 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,		IOWS. [AIVIV, PTV, POLV, SDIVIV]
			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
4.		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:	0	
42			<5% of the land. 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	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:	U	[AM, SBM]
47	JF9	Alteration			[AW, SDW]
48		Alleration	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
51		Nearest Population	<100 m.	0	square kilometer. In Google Earth Pro, click on the Ruler icon, then Path, and draw and measure the
52		Center	100 - 500 m.	0	route. [FAv, FRv, NRv, PH, PU, SBM, WBFv]
53			0.5- 1 km.	1	
54			1 - 5 km.	0	
55			>5 km.	0	
	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
56		Maintained Road		0	tool. [AM, FAv, FRv, NRv, PH, PU, SBM, STR, WBN]
57			<10 m. 10 - 25 m.	0	
58 59			10 - 25 m. 25 - 50 m.	0	
			25 - 50 m. 50 - 100 m.	0	
60			30 - 100 III. 100 - 500 m.	1	
62			>500 m.	0	
02			2000 III.	U	

A	В	С	D	E
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 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	Draw the 5 km circle in Google Earth Pro using the Circle tool and search for roads and wetlands 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
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	wetlands that appear to be permanently flooded. [AM, PH, SBM, Sens, WBF, WBN]
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.	1	1
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	
OF14	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	1
75		1 - 2 km.	0	1
76		2-5 km.	0	
77		5-10 km.	1	
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.	0	
84		10-40 km.	1	
85		>40 km.	0	

	Δ	В	C	D	F
80	OF16	Upland Edge Contact	Select one:	Ь	[NR, SBM, Sens]
8′	7		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	3		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	
9:			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	
92		Flood Damage from Non tidal Waters	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 finer elevational resolution useful for flood modeling. [WSv]
93	3	tidai waters	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	provide inter elevational resolution useral for modelling. [wsv]
94	ı		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 levees, upriver dams, or other measures may partly limit damage or risk from smaller events.	0	
9:	5		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure vulnerable to river flooding unrelated to tidal storm surges.	0	
90	5		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there isno infrastructure vulnerable to river flooding unrelated to tidal storm surges.	1	
91		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 watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-min).	0.13	[FA, NR, Sens, SFSv, WCv, WSv]
98			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]

	A	В	С	D	E
	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.		
400			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	Dograded Water	all wetlands in this region.		May use existing data or manifer waters so next of this watered accessment. [MDv. DDv. CDv.]
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		Downstream	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	
			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	
108	OE22	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):
	UFZZ	Contributing Area (Catchment)	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		http://atlas.gc.ca/toporama/en/index.html [NR, PR, Sens, SR, WS]
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 area. The result is:		
110			<0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	1	
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	0	
113	OE22	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 :		[1 A, 11VV, 1VKV, FKV, 3KV, 3TK, WCV, W3V]
115		J	<10%.	0	
116			10 to 25%.	0	
117			>25%.	1	
	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.		
110			This statement is:		
119			Mostly true.	0	
120			Somewhat true.	1	
121			Mostly untrue.	0	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.	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
127		(Path Length)	<10 m.	0	and which are outlets) and augment by field inspection. With the Provincial Landscape Viewer, select
14/			NIO III.	U	Nova Scotia Tono as the Raseman. Also enable the laver Forestry>WAM Predicted Flow. Then

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128	Б	10 - 50 m.	0	measure the inlet-outlet distance. [NR, OE, PR, SR, WS]
129		50 - 100 m.	0	incusure the finet outlet distance. [MA, OE, FIA, SIA, WS]
130		100 - 1000 m.	1	1
131		1- 2 km.	0	1
132		>2 km, or wetland lacks an inlet and outlet.	0	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.	1800	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 stocked. [AM, FA, FR, INV, WBF, WBN]
135		Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. Go to Provincial Landscape Viewers-Wildlifes-Significant Habitats-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	Deell Stocked. [AWI, FA, FR, INV, WDF, WDN]
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 haveother fish at least seasonally.	0	1
138		Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	1	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 ar approved protocol. For birds, also check eBird.org. [AMv, EC, PHv, POLv, SBMv, Sens, WBFv,
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	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	1 1 D' 1 A	None of the above, or no data.	1	
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]
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 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]
OF32	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]
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 tollank (not 0).	0	[PU]
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]
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 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]
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 o the Manual). Enter "0" if false. If no information, change to blank .	0	[AM, FA, FR, INV, PH]
OF38 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]

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54		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	
55		Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are allowed.	0	
56		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable or not) is in place.	0	
57		Ownership is private and owner does not allow access, or access permission unknown, and not a conservation easement.	1	

	A	В	С	D	E
	Date: Sept 28, 2021		Site Identifier: Cambridge Interchange Wetland 9	Investiga	tor: BL, CP
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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.

A Moss and/or lichen cover more than 25% of the ground. Often dominated by vincacoous shrubs (e.g., but nabor less) or other acid-solerant startis (e.g., but ground with a limit of the ground. Often dominated by vincacoous shrubs (e.g., but nabor less) and starting (e.g., but ground with a limit of the starting shrubs and shrubs	2				
A Moss and/or lichner cover more than 25% of the ground. Often dominated by viricacoous shrubs (e.g., Lathrador (ea) or other acid-tolerant plants (e.g., to grantbury, pitcher plant, sandow, northol). Substate is manly undercomposed peat. Chrosos believen A1 and A2 and mark the chrolices with a1 in the interies give to believe. A1. Surface water is usually absort or. If present, pit is typically -4.5 and conductivity is usually -100 µScm (-64 ppm TDS). Times or observed or nearly so. Society cover usually spaces and/or inchine cover may be controlled. as well as clustedomy, lingorbory, shore jauret, and a sodieg (Carox rantino). Widenin surface and surrounding indiscage are soldom sloping and wetland other is domed convened in the and outlet chronels or a absort or or absort but controlled. The pit is supplied by -4.5 and conductivity is usually -100 µScm (-64 ppm TDS). Sodigo cover is usually extensive, and/or tree and tall shrub cover is extensive. Sometimes at the of slope or edge of water to tool, An out channel is usually process. Weter thin A1 and good digit may be cholorised; 2 mills. B. Mess and/or lichne cover less than 35% of the ground. Soil is mireral or decomposed organic (must). Chrone between 81 and 82 and mark the choice with a 11 in the adjustment of the supplied and power supplied cover. Surface water is mostly absent or mundates the vegetation and years and remarks the choice with a 11 in the adjustment of the process of the supplied of the water area of adjacent power waters and subjected to the supplied of the process. The process of the supplied of the water area of adjacent power and the process of the supplied of the water area of adjacent power and the process of the supplied of the water area of adjacent power and the process of the supplied of the water area of adjacent power and the power of the power and the power a	3 #	Indicators	Condition Choices	Data	
A Moss and/or lichner core more than 25% of the ground Offen commanded by exciscorus shrides (cg.), Labrador leagly common and add 2 and mark the choice with a 1 in their adjaining column. Otherwises go to 8 ib book. Al. Surface wants in swalph seam for II, presum, planty 5-45 and conductivity is usually -100 µScm (-64 ppm TDS). Trees are also assert or nearly so. Sodige cover usually spass or all season that columns are usually spass or all season that columns are usually spass or all season to columns and a sedige. Cover are usually spass or all season to columns and a sedige. Cover are usually spass or all season to columns and a sedige. Cover are usually spasses or all season to columns and a sedige. Cover are usually spasses or all season to columns. The spatial spatial spatial is a season of the sedige of the sediment of the se	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.
absent or nearly so. Sodge cover usually sparse or absent but cothorgass and/or lichen cover may be extensive, as well as cloudberry, lingrothery, Sheep leart, and a sedge (<i>Carer artikins</i>). Welload surbace and surrounding landscape are seldom sloping and welland often lis domed (convex). Inlet and cullet channels are usually absent. If known, pH of peal is <4.0. AZ. Not AT. Surface water, if present, has pH typically ~1.5 and conductivity is usually >100 µScm (~64 ppm TDS). Sedge cover is usually extensive, and/or toes and fall shrub cover is extensive. Sometimes at loc of stops or degle of water body. An exit channel is usually present. Wellot than All and peal depth may be shallowed; 2 ml). B. Moss ander lichen cover less than 25% of the regulated cover. Surface water is mostly absent or injundents the expectation of the vegetation of vegetation of the vegetation of vegetation of the vegetation of vegetation vegetation of vegetation of vegetation of vegetation v	5		plants (e.g., bog cranberry, pitcher plant, sundew, orchids). Substrate is mostly undecomposed peat. Choose between A1 and A2 and mark		acidic soil. Although not in the family Ericaceae, sweetgale (Myrica gale) should be counted also.
AZ Not A1 Surface water. If present, has pH hipidally 4-5 and conductivity is usually >100 µScm (>64 ppm TDS). Sedge cover is usually yetersike, and/or tree and fall shrub cover is extensive. Sometimes at toe of slope or edge of water body. An exit channel is usually present. Wetter han A1 and past depth may be shallower (< m). B. Moss and/or lichen cover less than 25% of the ground. Soil is minrated or decomposed organic (muck). Choose between B1 and B2 and mark the chlocie with a 1 in their adjoining column: B1. Trees and strubs faller than 1 m comprise more than 25% of the vegetated cover. Surface water is mostly absent or inundates the vegetation on year-apploans of flooplight). B2. Not B1. Tree & tall shrubs comprise less than than 25% of the vegetated cover. Vegetation is mostly herbaceoux, e.g., cattall, vegetation or present years and for the vegetated cover. Surface water is mostly absent or inundates the vegetation of year-application of year-application on year-application. In the vegetated cover of the vegetated cover of the vegetated cover. Vegetation is mostly herbaceoux, e.g., cattall, or efficiely. Reminder: For all questions, the A4 should include all persistent waters in ponds smaller than 8 hectares (-288 m on a side) that are adjacent to the AA. The AA should also include part of the water area of adjacent ponder water larger than 8 ha and adjacent threes wider than 20 m. Specifically, the A4 should include the open water part adjacent to welfand vegetation and equal in width to the average width of that vegetated zone. Throughout this data form, "adjacent" is used synonymously with abutting, adjoining, bordering, configuous - and means no upland (mammade or natural) completely separates the described features along their directly shared edge. Features joined only by a channel are not necessarily considered to be adjacent a large portion of their edges must match. The features do not have to be hydrologically connected in order to be considered adjacent. Adjoining or Subordinate F3	6		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 (Carex rariflora). Wetland surface and surrounding landscape are seldom sloping and wetland often		
B. Trees and shrubs later 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). B. Not B1. Tree & latel shrubs comprise less than than 25% of the vegetated cover. Vegetation is mostly herbaceous, e.g., cattail, bufus, burreed, pond lilly, horsetails. Surface water may be extensive and fluctuates seasonally, being either persistent or drying up partly or entirely. Reminder: For all questions, the AA should include all persistent waters in ponds smaller than 8 hectares (-283 m on a side) that are adjacent to the AA. The AA should also include part of the water area of adjacent ponded water larger than 8 he and adjacent rives wider than 20 m. Specifically, the AA should include the open water part adjacent to wetland vegetation and equal in width to the average width of that vegetated zone. Throughout this data form, "adjacent "is used synronymously with abutiling, adjoining, bordering, contiguous and means no upland (manmade or natural) completely separates the described features along their directly shared edge. Features joined only by a channel are not necessarily considered to be adjacent a large portion of their edges must match. The features do not have to be hydrologically connected in order to be considered adjacent. F2 Wetland Types - Adjoining or Substitute of 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. A1. A2. B1. A1. A2. B1. A2. B1. A3. 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 by unckleberry, cranberry, cloudberry, sweetgale, alder, willow, birch, ash, dogwood, vegetation, these percentages should not sum to 100%.	7		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	-	
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bullrush, burreed, pond lily, horsetail. Surface water may be extensive and fluctuates seasonally, being either persistent or drying up partly or entirely. Reminder: For all questions, the AA should include all persistent waters in ponds smaller than 8 hectares (~283 m on a side) that are adjacent to the AA. The AA should include part of the water area of adjacent ponded water larger than 8 ha and adjacent rivers wider than 20 m. Specifically, the AA should include the open water part adjacent to wetland vegetation and equal in width to the average width of that vegetated zone. Throughout this data form, "adjacent" is used synonymously with abutting, adjoining, bordering, contiquous and means no upload (manmade or natural) completely separates the described features along their directly shared edge. Features joined only by a channel are not necessarily considered adjacent. F2 Wetland Types - Adjoining or Subordinate F3 Wetland Types - Subordinate F4 Wetland Types - Subordinate F5 Wetland Types - Subordinate F6 Wetland Types - Adjoining or Subordinate F7 Wetland Types - Subordinate F7 Woody Height & Form Diversity F8 Woody Height & F	9		vegetation only seasonally (e.g., vernal pools or floodplain).	1	
The AA should also include part of the water area of adjacent ponded water larger than 8 ha and adjacent rivers wider than 20 m. Specifically, the AA should include the open water part adjacent to wetland vegetation and equal in width to the average width of that vegetated zone. Throughout this data form, "adjacent" is used synonymously with abutting, adjoining, bordering, contiguous and means no upland (manmade or natural) completely separates the described features along their directly shared edge. Features joined only by a channel are not necessarily considered to be adjacent a large portion of their edges must match. The features do not have to be hydrologically connected in order to be considered adjacent. F2 Wetland Types - If the AA is smaller than 1 ha, mark all other types thich 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. A1.	10		bulrush, burreed, pond lily, horsetail. Surface water may be extensive and fluctuates seasonally, being either persistent or drying up partly	0	
F2 Wetland Types - Adjoining or Subordinate 12 13 14 15 16 17 17 17 17 17 17 17	The A includ " adja descri their e	A should also include partet the open water part accent " is used synonymous ibed features along their	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, busly 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		
Subordinate Do not mark again the type marked in F1. A1. B1. B2. F3 Woody Height & Form Diversity Woody Height & Form Diversity F3 Woody Height as percentages should not sum to 100%. B3 Deciduous shrubs in this region usually include buttonbush, Labrador tea, bayben huckleberry, cranberry, cloudberry, sweetgale, alder, willow, birch, ash, dogwood, you assigned a code of 3 or higher to any of the first four choices and the ground of the gr					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
A2. B1. B2. Woody Height & Form Diversity F3 Woody Height & Form Diversity Woody) vegetation, these percentages should not sum to 100%. A2. B1. D0 B2. Deciduous shrubs in this region usually include buttonbush, Labrador tea, baybern huckleberry, cranberry, cloudberry, sweetgale, alder, willow, birch, ash, dogwood, you assigned a code of 3 or higher to any of the first four choices and the ground of th		, ,			10 m, or similar. [AM, INV, SBM, WBF]
B1. 0 B2. 0 B3. 0 B5. 0 B5. 0 B6. 0 B7. 0 B8. 0	13				
B2. 0 Woody Height & Form 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 (nonwoody) vegetation, these percentages should not sum to 100%. Deciduous shrubs in this region usually include buttonbush, Labrador tea, bayben huckleberry, cranberry, cloudberry, sweetgale, alder, willow, birch, ash, dogwood, you assigned a code of 3 or higher to any of the first four choices and the ground or same than the province of the living vegetation in the AA which is occupied by that feature huckleberry, cranberry, cloudberry, sweetgale, alder, willow, birch, ash, dogwood, you assigned a code of 3 or higher to any of the first four choices and the ground or same than the province of the living vegetation in the AA which is occupied by that feature huckleberry.	14				
F3 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 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 (nonwoody) vegetation, these percentages should not sum to 100%.	15			_	
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-woody) vegetation, these percentages should not sum to 100%.		Woody Height & Form		U	Deciduous shrubs in this region usually include buttonbush. Labrador tea. bayberry (Morella)
coniferous trees (may include tamarack) taller than 3 m.	17		(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 you assigned a code of 3 or higher to any of the first four choices and the ground cover beneath the
1. V I I I I I I I I I I I I I I I I I I	18		coniferous trees (may include tamarack) taller than 3 m.	3	trees/snrubs is <25% moss, then question F1 might be "B1". [CS, INV, NR, PH, POL, SBM, Sens]

FieldF form - Non-tidal Page 1 of 10

Second Second Content of the Conte		Α	В	С	D	E
Section 2 and 2 are read to 1 and an adverty bear in extractory or less software and extraction of the company of the extraction of the company of the registration. 2 and 2	19			deciduous trees taller than 3 m.	3	
Section of the control of the control of being and section of the composition of the co	20			coniferous or ericaceous shrubs or trees 1-3 m tall not directly below the canopy of trees.	2	
Section of the control of the control of being and section of the composition of the co	21			deciduous shrubs or trees 1-3 m tall not directly below the canopy of trees.	3	
Age Process of fay of control of post of p				coniferous or ericaceous shrubs <1 m tall not directly below the canopy of taller vegetation.	2	
Descriptions of Mys. Applications of Mys.				deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	2	
Demination of North Manufacture of North Manufactur	24	Note:	If none of top 4 rows in	n F3 was marked 2 or greater, SKIP to F9 (N fixers).		
Manufact Shrab Section		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]
Part			Abundant Shrub	those species together comprise > 50% of such cover	0	
No. Of the Dismoter Continued and Continued Continue	27		Species	, ,		
Classified Cla	<u> </u>	E5	Woody Diameter			Estimate the diameters at chest height. If small-diameter trees are overtooned (shaded) by larger
conformace, 1 or off attender and -1 math procedure declarace. 19 or off attender and -1 math procedure declarace. 19 or off attender and -1 math procedure declarace. 19 or off attender and -1 math procedure declarace. 19 or off attender and -1 math procedure declarace. 19 or off attender and -1 math procedure declarace. 19 or off attender and -1 math procedure declarace. 19 off off attender and -1 math procedure declarace. 19 off off attender.	28		,			
Second decisions 1 for an dismoter and 1 in tail. 1 1 1 1 1 1 1 1 1				coniferous, 1-9 cm diameter and >1 m tall.	1	13 1
Conference, 10-19 or administry Conference, 10-19 or administry Conference, 20-10 or administry Conf				broad-leaved deciduous 1-9 cm diameter and >1 m tall.	1	species. [AM, CS, POL, SBM, Sens, WBN]
Second Second Accessed and Accessed A	31			coniferous, 10-19 cm diameter.	1	
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troubleword declarace. 30 confirments. 40 conf	33			coniferous, 20-40 cm diameter.	1	
conference, 3-0 and dismates. See Height Class fine Sporsion A Neither the vegelation after than 1 m or nor the vegelation shorter than 1 m or nor there will have been shorted than 1 m or nor the vegelation shorter than 1 m or nor than 2 m or nor than 1 m or nor than 2 m or nor than 1 m or nor than 2 m or n	34			broad-leaved deciduous 20-40 cm diameter.	0	
Food Food Calcus Food	35			coniferous, >40 cm diameter.	0	
Interspersion A Reither the vegetation faller than 1 in nor the vegetation shorter than that comprise > 70% of the vegetated part of the AA. They <u>each comprise 98 70%. Choose between A1 and A2 and mark the choice with a1 in the adjoining column. Otherwise go to B below. A1. The two height classes are mostly scattered and litermised throughout the AA. A2. Not A1. The two height classes are mostly is separate zeroes or bands, or in proportionally lyange clumps. B. Elither the vegetation shorter than 1 in comprises > 70% of the vegetated part of the AA, or the vogetation and intermised within the greatent one. B. Elither the vegetation shorter than 1 in comprises > 70% of the vegetated part of the AA. The vegetation shorter than 1 in comprises > 70% of the vegetated part of the AA. The vegetation shorter than 1 in comprises > 70% of the vegetated part of the AA. The vegetation shorter than 1 in comprises > 70% of the vegetated part of the AA. A3. Not A1. The two height classes is mostly scattered and intermised within 1 in the adjoining column. B. Elither the vegetation shorter than 1 in comprises > 70% of the vegetated part of the AA. The vegetation shorter than 1 in comprises > 70% of the vegetated part of the AA. The vegetation shorter than 1 in comprises > 70% of the vegetated part of the AA. A3. Not A1. The two height classes is mostly is scattered and intermised within 1 in the adjoining columns. B. Elither the vegetation shorter than 1 in comprises > 70% of the vegetated part of the AA. A4. The A1. The two height classes are mostly in separate zeroes or bands or in the adjoining columns. B. Elither the vegetated part of the AA. A5. A1. A1. A1. The two height classes are mostly in separate zeroes or bands or in the adjoining columns. B. Elither the vegetated part of the AA. A5. Converted than 1 in comprises 20% of the vegetated cover in the AA or adding the vegetated cover in the AA or adding the vegetate</u>				broad-leaved deciduous >40 cm diameter.	0	
A Notice the vegetation before than that comprises > 70% of the vegetation part of the AA. They sach, comprises 30-70%. Choose between A1 and A2 and mark the choice with a 1 in the adjoining column. Otherwise go to B below. A1. The two height dissess are mostly started and intermitted throughout the AA. A2. But A1. The two height dissess are mostly started and intermitted throughout the AA. A3. But A1. The vegetation shorter than 1 in comprises > 70% of the vegetation faller than 1 than the sole of the AA. They sach. 41. B. Either the vegetation shorter than 1 in comprises > 70% of the vegetation faller than 1 than the does. One size dissingly even the basely absent. Choose between 81 and 82 and mark the choice with a 1 in the adjoining columns. 42. B. Either the vegetation shorter than 1 in comprises > 70% of the vegetation faller than 1 than the does. One size dissingly even the basely absent. 43. B. The less prevalent height class is mostly scalared and intermixed within the prevalent one. 44. B. Carge Snags (Dead Standing Trees) 45. B. The less prevalent height class is mostly scalared and intermixed within the prevalent one. 46. B. Large Snags (Dead Standing Trees) 47. B. Large Snags (Dead Standing Trees) 48. B. The less prevalent height class is mostly bload appart from the prevalent one, in separata zones or clumps, or is completely advantaged. 48. B. Large Snags (Dead Standing Trees) 49. B. Large Snags (Dead Standing Trees) 40. Several (-Shectare) and a pront, lask, or sisk-diswips) and sport flusty or sisk or	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]
comprise 30-70%. Choose between A1 and A2 and mark the choice with a 1 in the adjoining column. Otherwise go to B below. A1. The two height classes are mostly scattlered and intermixed throughout the AA. A2. Inot A1. The two height classes are mostly scattlered and intermixed throughout the AA. A2. Inot A1. The two height classes are mostly scattlered and intermixed throughout the AA. A2. Inot A1. The two height classes are mostly in separate zones or hards, or in proportionalely large clumps. B. Ether the vegetated nother than 1 in comprises >70% of the vegetated part of the AA. A2. Inot A1. The two height classes with the prevalent one in separate class might even be belay absent. Choose between B1 and B2 and mark the choice with a 1 in the adjoining column. B. I. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is completely absent. B. I. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is completely absent. B. I. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is completely absent. B. I. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is completely absent. B. I. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is completely absent. B. I. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is completely absent. B. I. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is completely absent. B. I. The less prevalent height class sent prevalent one, in separate zones or clumps, or is completely absent. B. I. The less prevalent height class sent prevalent one, in separate zones or clumps. B. I. The less prevalent height class sent prevalent one, in separate zones or c	31		Interspersion	A Neither the vagetation taller than 1 m nor the vagetation shorter than that comprise >70% of the vagetated part of the AA. They each		
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A2. No A1. The two height classes are morely in separate zenes or bands, or in proportionately large clumps. B. Either the vegetation shorter than 1 m comprises >70% of the vegetation table than that does. One size das might even be buildly absent. Choose between 81 and 82 and mark the choice with a 1 in the adjoining column. B1. The less prevalent height class is mostly located apart from the prevalent one. B2. Not B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zenes or clumps, or is completely absent. In the number of large snags (idiameter >20 cm) in the AA plus adjacent upland area within 10 m of the wettand edge is shorted. A8. Not B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zenes or clumps, or is completely absent. In the number of large snags (idiameter >20 cm) in the AA plus adjacent upland area within 10 m of the wettand edge is shorted. A8. None, or fewer than 97 hoctare which exceed this diameter. Several (-5 Albectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km. A8. Several (-5 Albectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km. A9. The number of downed wood pieces longer than 2 m and with diameter >10 cm, and not persistently submerged, is: Few or none that meet these criteria. Few or none that meet these criteria. The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgate, clover, lupine, alfalfa, other legumes) Section (S. FAR, FR, INV, NRV, OE, PH, SBM, Sens) The percentage of the AA's vegetated cover that AC arising its water edge (whichever has more). 1. 25% of the vegetated cover, in the AA or along its water edge (whichever has more). 2. 5. 5. 5. 6. 6. 5. 5. 6. 6. the vegetated power, in the AA or along its water edge (whichever has more). 3. 5. 5. 5. 6. 6. 1. 5. 5. 6. 6. the vegetated power, in the AA or along its water edge (whichever has more). 4. 5. 5. 6. 6. the vegetat				A1. The two height classes are mostly scattered and intermixed throughout the AA	0	
B. Eliber the vegetation shorter than 1 in comprises 20% of the vegetated part of the AA, or the vegetation taller than that does. One size class might even be totally absent. Choose between B1 and B2 and mark the choice with a 1 in the adjoining column: B1. The less prevalent height class is mostly scattered and intermixed within the prevalent one, in separate zones or clumps, or is completely absent. B2. Large Snags (Dead Standing Tirees) B2. We be a standing Tirees) B3. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is completely absent. B3. Eliber the vegetated and intermixed within the prevalent one, in separate zones or clumps, or is completely absent. B3. Large Snags (Dead Standing Tirees) B4. Large Snags (Dead Standing Tirees) B5. Large Snags (Gead Standing Tirees) B6. Downed Wood B7. Large Snags (Gead Standing Tirees) B8. Downed Wood B8. Liber the vegetated cover in the AA paid and pand, lake or slow-flowing water wider than 10 m is within 1 km. D8. Several (-8-Bit AA is 5-bit care, lises) or slow-flowing water wider than 10 m is within 1 km. D8. Several (-8-Bit AA is 5-bit care, lises) for smaller AAs) meet these criteria. B9. N Fixers B1. The less prevalent height class is mostly located apart with exceed this diameter. B1. The less prevalent height class is mostly located and intermixed within 10 m of the wettand edge is: B1. Large Snags (Dead Standing Tirees) B3. The under of lorewer than 40 heads and of lange and pand, lake or slow-flowing water within 10 m is within 10 m of the wettand edge is: B5. Several (-8-Bit AA is 5-bit care, list AA or along lis water edge (whichever has more). B5. Several (-8-Bit AA or along lis water edge (whichever has more). B5. Several (-8-Bit AA or along lis water edge (whichever has more). B5. Several (-8-Bit AA or along lis water edge (whichever has more). B5. Several (-8-Bit AA or along lis water edge (whichever has more). B5. Several (-8-Bit AA or along lis water edge (which	-			, ,		
dass might even be totally absent. Choose between B1 and 82 and mark the choice with a 1 in the adjoining column: B1. The less prevalent height class is mostly scattered and intermibed within the prevalent one. B2. Not B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is completely absent. The number of 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: The number of large snags (diameter >20 cm) in the AA plus adjacent upland area within 10 m of the wetland edge is: The number of large snags (diameter >20 cm) in the AA plus adjacent upland area within 10 m of the wetland edge is: Several (-8 hectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km. Several (-8 hectare) but above not tree. The number of downed wood pieces longer than 2 m and with diameter >10 cm, and not persistently submerged, is: Few or none that meet these criteria. The percentage of the AA's vegetated cover, the AA or along its water edge (whichever has more). Several (-8 hectare) The percentage of the AA's vegetated cover, in the AA or along its water edge (whichever has more). The vegetated cover, in the AA or along its water edge (whichever has more). The vegetated cover, in the AA or along its water edge (whichever has more). The vegetated cover, in the AA or along its water edge (whichever has more). The vegetated cover, in the AA or along its water edge (whichever has more). The vegetated cover, in the AA or along its water edge (whichever has more). The vegetated cover, in the AA or along its water edge (whichever has more). The vegetated part of the AA. So of the vegetated part of the AA.					_	
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B2, No B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is completely absent. The number of 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: None, or fewer than 87 hectare which exceed this diameter. Several (-8 hectare) and a pond, lake, or siew-flowing water wider than 10 m is within 1 km. Several (-8 hectare) but above not true. The number of downed wood pieces longer than 2 m and wilth diameter >10 cm, and not persistently submerged, is: Few or none that meet these criteria. The percentage of the AA's vegetated cover finate contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa, other legumes) is: 1 25 25 1 25 25 3 1-25% of the vegetated cover, in the AA or along its water edge (whichever has more). 5 3 4 25 50% of the vegetated cover, in the AA or along its water edge (whichever has more). 5 5 5 5 5 6 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 5 6 5 5 5 6 5 6 525% of the vegetated cover, in the AA or along its water edge (whichever has more). 5 6 5 5 5 6 6 1 5-25% of the vegetated cover, in the AA or along its water edge (whichever has more). 5 7 5 6 1 5 5 5 5 6 1 6 5-25% of the vegetated cover, in the AA or along its water edge (whichever has more). 5 8 6 5-25% of the vegetated part of the AA. 5 25 50 6 of the vegetated part of the AA. 5 25 50% of the vegetated part of the AA. 5 25 50% of the vegetated part of the AA. 5 25 50% of the vegetated part of the AA. 5 25 50% of the vegetated part of the AA. 5 25 50% of the vegetated part of the AA. 5 25 50% of the vegetated part of the AA. 5 25 50% of the vegetated part of the AA. 5 25 50% of the vegetated part of the AA. 5 25 50% of the vegetated part of the AA. 5 25 50% of the vegetated part of the AA. 5 25 50% of the vegetated part of the AA. 5 25 50% of the vegetated part of the AA. 5 25 50% of the				· · ·	0	
3 absent 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 welfand edge is: Snags are dead standing frees that often (not always) lack bark and foliage. Include only ones that are Annual Policy Annual Policy Sangs are dead standing frees that often (not always) lack bark and foliage. Include only ones that are Annual Policy Sangs are dead standing frees that often (not always) lack bark and foliage. Include only ones that are Annual Policy Sangs are dead standing frees that often (not always) lack bark and foliage. Include only ones that are Annual Policy Sangs are dead standing frees that often (not always) lack bark and foliage. Include only ones that are Annual Policy Sangs are dead standing frees that often (not always) lack bark and foliage. Include only ones that are Annual Policy Sangs are dead standing frees that often (not always) lack bark and foliage. Include only ones that are Annual Policy Sangs are dead standing frees that often (not always) lack bark and foliage. Include only ones that are Annual Policy Sangs are dead standing frees that often (not always) lack bark and foliage. Include only ones that are Annual Policy Annual Policy Sangs are dead standing frees that often (not always) lack bark and foliage. Include only ones that are Annual Policy Sangs are dead standing frees that often (not always) lack bark and foliage. Include only ones that are Annual Policy Annual Policy Sangs are dead standing frees that often (not always) lack bark and foliage. Include only ones that are Annual Policy Sangs are dead standing frees that often (not always) lack bark and foliage. Include only ones that are Annual Policy Sangs are dead standing frees that often 10 point Annual Policy Sangs are dead standing frees that often 10 point Annual Policy Sangs are dead standing frees that often 10 point Annual Policy Sangs are dead standing frees t	12			, ,	0	
Standing Trees Standing Trees None, or fewer than 8/ hectare which exceed this diameter. Several (~8/hectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km. 0 0	43					
None, or fewer than 87 hectare which exceed this diameter. Several (>8hectare) and appl, lake, or slow-flowing water wider than 10 m is within 1 km. Several (>8hectare) but above not true. The number of downed wood pieces longer than 2 m and with diameter >10 cm, and not persistently submerged, is: Few or ronne that meet these criteria. O Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria. The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa, other legumes) is: 10 not include N-fixing algae or lichens. [FA, FR, INV, NRV, OE, PH, SBM, Sens] 11 c // So or none. 12 c // So of the vegetated cover, in the AA or along its water edge (whichever has more). 13 c // So of the vegetated cover, in the AA or along its water edge (whichever has more). 14 c // So of the vegetated cover, in the AA or along its water edge (whichever has more). 15 c // So of the vegetated cover, in the AA or along its water edge (whichever has more). 16 c // So of the vegetated cover, in the AA or along its water edge (whichever has more). 17 c // So of the vegetated cover, in the AA or along its water edge (whichever has more). 18 c // So of the vegetated cover, in the AA or along its water edge (whichever has more). 19 c // So of the vegetated cover, in the AA or along its water edge (whichever has more). 10 c // So of the vegetated cover, in the AA or along its water edge (whichever has more). 19 c // So of the vegetated cover, in the AA or along its water edge (whichever has more). 20 c // So of the vegetated part of the AA. 21 c // So of the vegetated part of the AA. 22 c // So of the vegetated part of the AA. 23 c // So of the vegetated part of the AA. 24 c // So of the vegetated part of the AA. 25 c // So of the vegetated part of the AA. 26 c // So of the vegetated part of the AA. 27 c // So of the vegetated part of the AA. 28 c // So of the vegetated part of the AA. 29 c // So of the vegetated part of the AA.	44	F7	0 0 .	The number of large snags (diameter >20 cm) in the AA plus adjacent upland area within 10 m of the wetland edge is:		
Several (>8/hectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km.	45		Standing Trees)	None, or fewer than 8/ hectare which exceed this diameter.	1	at least 2 m tall. [POL, SBM, WBN]
Several (>8/hectare) but above not true. O	46			Several (>8/hectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km.	0	
Ag F8 Downed Wood The number of downed wood pieces longer than 2 m and with diameter >10 cm, and not persistently submerged, is: Few or none that meet these criteria.	47			Several (>8/hectare) but above not true.	0	
Few or none that meet these criteria. Several (> 6 if AA is > 5 hectares, less for smaller AAs) meet these criteria. The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa, other legumes) is: 1		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]
Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria. F9				Few or none that 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) is: 152	50					
S1	-	F9	N Fixers			Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
C1% or none. C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). C25-50% of the vege	51			is:		V V
1-25% of the vegetated cover, in the AA or along its water edge (whichever has more). 1 25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 50-75% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 50-75% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0 575% of the vegetated cover, in the				<1% or none.	0	
25-50% of the vegetated cover, in the AA or along its water edge (whichever has more). 0	53			1-25% 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). 56 50-75% of the vegetated cover, in the AA or along its water edge (whichever has more). 57 Sphagnum Moss The cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured by taller sedges and other plants rooted in it, is: 58 Extent Sedges and other plants rooted in it, is: 58 5-25% of the vegetated part of the AA. 59 5-25% of the vegetated part of the AA. 60 50-95% of the vegetated part of the AA. 60 50-95% of the vegetated part of the AA. 60 50-95% of the vegetated part of the AA. 60 50-95% of the vegetated part of the AA. 60 50-95% of the vegetated part of the AA. 60 50-95% of the vegetated part of the AA. 60 50-95% of the vegetated part of the AA.	54				0	
56 575% of the vegetated cover, in the AA or along its water edge (whichever has more). 0				0 0.	0	
F10 Sphagnum Moss Extent Sedges and other plants rooted in it, is: 58 Sphagnum Moss Extent Sedges and other plants rooted in it, is: 58 Sphagnum Moss Extent Sedges and other plants rooted in it, is: 58 Sphagnum Moss Exclude moss growing on trees and rocks. [CS, PH] 59 Sphagnum Moss Sphagnum		1			0	
57 Extent sedges and other plants rooted in it, is: 58 <5% of the vegetated part of the AA.		F10	Sphagnum Moss			Exclude moss growing on trees and rocks. [CS, PH]
58 <5% of the vegetated part of the AA.	57			sedges and other plants rooted in it, is:		
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				<5% of the vegetated part of the AA.	0	
60				5-25% of the vegetated part of the AA.	1	
	60			25-50% of the vegetated part of the AA.	0	
62 >95% of the vegetated part of the AA.	61			50-95% of the vegetated part of the AA.	0	
	62			>95% of the vegetated part of the AA.	0	

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	A	В	С	D	E
	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,		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that is
63		Thatch	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	0	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, SBM, Sens]
64					30Ni, 3613]
65			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	
03			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	1	
66			AA	1	
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	1
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	1
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	1	
79			forefinger.	0	
80			Deep Peat, to 40 cm depth or greater. Shallow Peat or organic <40 cm deep.	0	-
81			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.	U	
	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	
88		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	1
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	
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.	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	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	1
- 02		1	·		

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	Α	В	С	D	Е
103	3		50-95% of the vegetated area.	0	
104	ı		>95% of the vegetated area.	0	
			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	5	Abundant Herbaceous	aquatic plants). Then choose one of the following:		

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	Α	В	С	D	E
106		Species	those species together comprise > 50% of the areal cover of herbaceous plants at any time during the year.	1	ž
107			those species together do not comprise > 50% of the areal cover of herbaceous plants at any time during the year.	0	
F20 108	0 1	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	
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 plant		If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an exotic
114		Upland Edge	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	
118			most (>50%) of the upland edge.	0	
F22 119	2	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	3	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	4	% 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	
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 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		If you are unable to determine the condition at the driest time of year, ask the land owner or neighbors about it if possible. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat.
128		Persistent Surface Water	unies 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 suir contains 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	
133			>95% of the AA. True for many fringe wetlands.	0	
F26		% of Summertime Water that Is Shaded	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 within the AA at that time is:		[FA, WC]
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.	1	
139			>75% of the water is shaded.	0	
140 F27		% of AA that is Flooded Only	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 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.	0	plant species. In riverine systems, the extent of this zone can be estimated by multiplying by 2 the
142	ľ	Coasonany	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.	0	OE, PH, SR, WBF, WBN, WS]

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12 2		A	В	C	D	E
And Facility Support Comments of the Annual Process of the Comment	144			50-95% of the AA.	0	
The Charactery State of Angle State of analysis of the Control of State of Angle	145			>95% of the AA.	0	
Exclusion Full Part Commonwealth of the Co	146			The annual fluctuation in surface water level within most of the parts of the AA that contain surface water at least temporarily is:		
10			Fluctuation Range	<10 cm change (stable or nearly so).	0	
Section Sect					1	PH, PR, SR, WBN, WSJ
Section Part Company				-	0	
See A place agoined provide rather smaller than 0.01 became placed from a floring, in the A place agoined provide rather smaller than 0.01 became placed from a floring provide rather smaller than 0.01 became placed from a floring provide rather smaller than 0.01 became placed from a floring provide rather smaller than 0.01 became placed from a floring provide rather smaller than 0.01 became placed from a floring provide rather smaller than 0.01 became placed from a floring provide rather smaller than 0.01 became placed from a floring provide rather smaller than 0.01 became placed from a floring provide rather smaller than 0.01 became placed from the control provided from the contro				1-2 m change.	0	
Section 2 Commentation 3 was analose that to GD becare jabout files in 10 m, or 1 ms 100 m) or 1				-	0	
Projectional Depth Class Class A Note 100 more of the time when surface water is present during the growing season. Its depth, veneraged over the entire nundrised part of the surface of the Class of t	152				0	
All Comments All	132			During most of the time when surface water is present during the growing season, its denth, 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
Fig. 10 m length of the Courts during most of the latter, even if immediation is not yearound or flow most processor of the latter, even if immediation is not yearound or flow most processor of the latter, even if immediation is not yearound or flow most processor of the latter, even if immediation is not yearound or flow most processor of the latter, even if immediation is not yearound or flow most processor of the latter, even if immediation is not yearound or flow most processor of the latter, even if immediation is not yearound or flow most processor or flow most processor or included in classification in the most processor or included in the most processor or included in the most processor. See Not W. RML (in the most processor in the most processor in the most processor in the most processor. See Not W. RML (in the most processor in the most processor in the most processor. See Not W. RML (in the most processor in the most processor in the most processor. See Not W. RML (in the most processor. See Not W. RM	153					
15 15 15 15 15 15 15 15				<10 cm deep (but >0).	0	the spatial median depth that occurs during most of that time, even if inundation is only seasonal or
15 15 15 15 15 15 15 15						
1-2 middings				'	0	
Section Sect				·		well as ponded areas. [CS, FA, FR, INV, OE, PH, PR, Sens, SFS, SR, WBF, WBN, WC]
Depth Classes: Eventues of Proportions One depth class that comprises of 97% of the All susually consists of classes in the question above). Deep depth class that comprises of 97% of the All susually consists of classes in the question above). Deep depth class that comprises 97% of the All susually consists of classes in the question above). Deep depth class that comprises 97% of the All susually consists of classes in the question above). Deep depth class that comprises 97% of the All susually consists of classes in the question above). Deep depth class that comprises 97% of the All susually consists of classes in the question above). Deep depth class that comprises 97% of the All susually consists of classes in the question above). Deep depth class that comprises 97% of the All susually consists of classes in the question above). Deep depth class that comprises 97% of the All susually consists of classes in the question above). Deep depth class that comprises 97% of the All susually consists of classes in the question above). Deep depth class that comprises 97% of the All susually consists of classes in the question above). Deep depth class that comprises 97% of the All susually consists of classes in the question above). Deep depth class that comprises 97% of the All susually consists of classes in the question above). Deep depth class that comprises 97% of the All suspension above. Deep depth class that comprises 97% of the All suspension above. Deep depth class that comprises 97% of the All suspension above. Deep depth class that comprises 97% of the All suspension above. Deep depth class that comprises 97% of the All suspension above. Deep depth class that comprises 97% of the All suspension above. Deep depth class that comprises 97% of the All suspension above. Deep depth class that comprises 97% of the All suspension above. Deep depth class that comprises 97% of the All suspension above. Deep depth class that comprises 97% of the All suspension above. Deep depth class that compri				'		
Evertheess of Proportions		F30	Denth Classes -	, , ,	j	Estimate these proportions by considering the gradient and microtopography of the site TEP TMV
One degin case that comprises > 40% of the AAS includated area (lust the classes in the quasition active). Proportions One degin dates that comprises > 540% of the AAS includated area (lust the classes). Needing drives that comprises > 540% of the AAS includated area (lust the classes). Needing drives that comprises > 540% of the AAS includated area (lust the classes). Needing drives that comprises > 540% of the AAS includated area (lust the classes). Needing drives that is the classes of the AAS included and is not bordering the AAS included area (lust the classes). Proportions One did (not Flowing) from superiors) AADC (2) is lakely to to deport than 0.5 in its some places, is: 30. Will a superiors) AADC (2) is lakely to to deport than 0.5 in its some places, is: 30. Will a superiors) AADC (2) is lakely to to deport than 0.5 in its some places, is: 30. Will a superiors) AADC (2) is lakely to to deport than 0.5 in its some places, is: 30. Will a superiors) AADC (2) is lakely to to deport than 0.5 in its some places, is: 30. Will a superiors) AADC (2) is lakely to to deport than 0.5 in its some places, is: 30. Will a superiors) AADC (2) is lakely to to deport than 0.5 in its some places, is: 30. Will a superiors) AADC (2) is lakely to to deport than 0.5 in its some places, is: 30. Will a superiors) AADC (2) is lakely to to deport than 0.5 in its some places, is: 30. Will a superiors) AADC (2) is lakely to to deport than 0.5 in its some places, is: 30. Will a superiors) AADC (2) is lakely to a deport than 0.5 in its some places, is: 30. Will a superiors) AADC (2) is lakely to a deport than 0.5 in its some places, is: 30. Will a superiors) AADC (2) is lakely to a deport than 0.5 in its some places, is: 30. Will a superiors) AADC (2) is lakely to a deport than 0.5 in its some places, is: 30. Will a superiors) AADC (2) is lakely to a deport than 0.5 in its some places, is: 30. Will a superiors) AADC (2) is lakely to a deport than 0.5 in its some places, is: 30. Will a superiors) AADC (2) is						
Part						113.7 113.11
Start Mode			i Toportions	One depth class that comprises 50-90% of the AA's inundated area.		
Ponded (not Flowing) hed in suspension) AND (2) is likely to be deeper than 0.5 m in some places. Is -5% of the water of it occupies <100 sq. m canadathvely. Nearly all the surface water is flowing SKIP to F34. 50	162			1 17	0	
Sign of the water, or it occupies <100 sq.m. cumulatively, Nearly all the surface water is flowing, SKIP to F34.						
Satisfy of the water 100			Ponaea (not Flowing)			SK, WDF, WDIV, WC, WSJ
30-70% of the water 70-95% of the water				1 1 2		
10-55 10-5						
F32 Ponded Open Water- Minimum Size Ponded Open Water- Minimum Size Ponded Open Water- Minimum Size Ponded Open Water starts 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 or 10 on the water surface or entirely submersed beneath it.						
For Provided Open Water - Minimum Size For Minimum Size For Ponded Open Water - Minimum Size For Ponded Water - Minimum Size For Ponded Water - Minimum Size For Ponded Water - W						
Minimum Size 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 % of Ponded Water 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 & Duckweed). F34 Width of Vegetated Zone within Wetland Zone within Wetland Sone with Wetland Sone within W	168					
F33 % of Ponded Water that is Open that is Open that is Open that is Open facking emergent vegetation during most of the growing season, and unhidden by a forest or shrub canopy) is:	160				0	
None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	10)	F33	% of Ponded Water			[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]
1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 0			that is Open	3 13		
173 30,70% of the ponded water. 0 175 176 177 176 177 176 177 177 177 178						
Total Tota	172					
To To To To To To To To				'		
Total Content of the ponded water. Total Content of the proving season when the AA's water level is lowest, the average width of vegetated area in the AA that separates adjoining uplands from open water within the AA is: Total Content of the proving season when the AA's water level is lowest, the average width of vegetated area in the AA that separates adjoining uplands from open water within the AA is: Total Content of the proving season when the AA's water level is lowest, the average width of vegetated area in the AA that separates adjoining uplands from open water within the AA is: Total Content of the proving season when the AA's water level is lowest, the average width of vegetated area in the AA that separates include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR, SBM, Sens, SR, WBN] Som the proving season when the AA's water level is lowest, the average width of vegetated area in the AA that separates include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR, SBM, Sens, SR, WBN] Som the proving season when the AA's water level is lowest, the average width of vegetated area in the AA that separates include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR, SBM, Sens, SR, WBN] Som the proving water in the proving 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: Total Content of the proving 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: Total Content of the during the dees not include undenwater or floating leaved plants, i.e., aqualic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR, SBM, SSM, SSM, SSM, SSM, SSM, SSM, SSM				'		
F34 Width of Vegetated Zone within Wetland 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 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 adjoining uplands from open water within the AA is:				'		
Zone within Wetland 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, SBM, Sens, SR, WBN] Include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR, SBM, Sens, SR, WBN] Include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR, SBM, Sens, SR, WBN] Include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR, SBM, Sens, SR, WBN] Include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR, SBM, Sens, SR, WBN] Include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR, SBM, Sens, SR, WBN] Include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR, SBM, Sens, SR, WBN] Include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR, SBM, Sens, SR, WBN] Include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR, SBM, Sens, SR, WBN] Include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR, SBM, SEN, SEN, SEN, WBN] Include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR, SBM, SEN, SEN, SEN, SEN, WBN] Include wooded riparian areas if they have wetland soil or plant indicators. [AM, CS, NR, OE, PH, PR, SEN, SEN, SEN, SEN, SEN, SEN, SEN, SEN	176				0	
The several isolated pools are present in early summer, estimate the percent of their collective shorelines shope less than about 5% measured within 5 m landward of the water) is: The state of the water edge. The	177		•			
1-9 m. 0 10 - 29 m. 0 181 182 183 1-9 m. 0 30 - 49 m. 0 50 - 100 m. 0 50 - 100 m. 0 50 - 100 m. or open water is absent at that time. 0 184 184 185 185 186 1-25% of the water edge. 1 1-25% of the water edge. 0				<1 m.	0	SBM, Sens, SR, WBN]
180 10 - 29 m.					0	
181 30 - 49 m. 0 50 - 100 m. 0 182 183				10 - 29 m.	0	
50 - 100 m. 00 > 100 m, or open water is absent at that time. 00 F35 Flat Shoreline Extent slope less than about 5% measured within 5 m landward of the water) is: 185					0	
Flat Shoreline Extent Slope less than about 5% measured within 5 m landward of the water) is: 184 185 186 186 187 188 1					0	
F35 Flat Shoreline Extent 184						
184 slope less than about 5% measured within 5 m landward of the water) is: 185 that has such a gentle slope. [SR, WBN] 186 1-25% of the water edge. 0 1-25% of the water edge.		F35	Flat Shoreline Extent	'		If several isolated pools are present in early summer, estimate the percent of their collective shorelines
186 1-25% of the water edge. 0	184		Gridi Girio Extolit			
186 1-25% of the water edge. 0	185			<1% of the water edge.	0	
187 25-50% of the water edge. 0	186			1-25% of the water edge.	0	
	187			25-50% of the water edge.	0	

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partly above and partly below the water
partly above and partly below the water
partly above and partly below the water
e water surface. Estimates of underwater
e unreliable so should not be attempted.
er is frozen. The "downslope stream
eventually connect to the ocean. If this
c maps perhaps by viewing these online
I) [CS, FA, FR, NR, OE, PR, Sens,
h iic

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	Α	В	C	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	1
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="" wetland,<="" years).=""><td>0</td><td></td></once>	0	
211			ditch, or lake that lacks an outlet. SKIP to F47 (pH Measurement).		
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	1
			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	1	1
215			drain the wetland artificially, or water is pumped out of the AA.		
F	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	1	F42 above. [NRv, PH, PRv, SRv]
216			further upslope. If no, SKIP to F47 (pH Measurement).		
F	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]
		Temperature	water in the AA during part of most years. Enter 1= yes, 0= no.		
217		T. 10	No. 2 to 10		TEA ED INIV ND OF DD CD MC
	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		Resistance	incoming water].		
			Does not bump into many plant stems as it travels through the AA. Nearly all the water continues to travel in unvegetated (often incised)	1	
219			channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond or lake.		
220			Bumps into herbaceous vegetation but mostly remains in fairly straight channels.	0	
220			Bumps into herbaceous vegetation and mostly spreads throughout, or is in widely meandering, multi-branched, or braided channels.	0	1
221			building medicated regulation and mostly species in oughout, or is in mostly medicated my, main branched, or branched	ŭ	
222			Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels.	0	1
			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 F	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
223					or make depressions in peat in order to provide water for this measurement. Avoid measuring near
226				Λ	
			Was not measured but surface water is present and is darkly tea-coloured. Or if no surface water, then mosses and plants that indicate neatland (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]
			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	- 48	TDS and/or	peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1".		
227 228	F48	TDS and/or Conductivity	peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information):		roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
227 228 229	F48	TDS and/or Conductivity	peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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.]		
227 228 229 230	F48		peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 µS/cm in the column to the right.]	1	
227 228 229 230 231	F48		peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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	
227 228 229 230		Conductivity	peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". Neither of above	1	See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
227 228 229 230 231			peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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	
227 228 229 230 231 232		Conductivity	peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". Neither of above Use of the AA by beaver during the past 5 years is (select most applicable ONE):	0	See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
227 228 229 230 231 232		Conductivity	peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". Neither of above	0 1	See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
227 228 229 230 231 232 233		Conductivity	peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". Neither of above Use of the AA by beaver during the past 5 years is (select most applicable ONE):	0 1	See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
227 228 229 230 231 232 233		Conductivity	peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". 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).	0 1	See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
227 228 229 230 231 232 233		Conductivity	peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". 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,	0 1	See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
227 228 229 230 231 232 233 234		Conductivity	peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". 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 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	0 1	See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
227 228 229 230 231 232 233 234		Conductivity	peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". 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, 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 1 0 0	See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
227 228 229 230 231 232 233 234 234 236		Conductivity	peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". 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, 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 1 0 0	See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other
227 228 229 230 231 232 233 234	F49	Conductivity Beaver Probability	peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". 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, 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. Select first applicable choice:	0 1 0 0	See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other evidence. Consult topographic maps to detect breaks in slope described here. Rust deposits
227 228 229 230 231 232 233 234 235	F49	Conductivity Beaver Probability Groundwater Strength	peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". 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, 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. Select first applicable choice: Springs are known to be present within the AA, or if groundwater levels have been monitored, that has demonstrated that groundwater	0 1 0 0	See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or 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
227 228 F 229 230 231 232 233 F 234 235 236 237 F	F49	Conductivity Beaver Probability Groundwater Strength	peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". 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, 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. Select first applicable choice:	0 1 0 0	See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other evidence. Consult topographic maps to detect breaks in slope described here. Rust deposits
227 228 229 230 231 232 233 234 235	F49	Conductivity Beaver Probability Groundwater Strength	peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". 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, 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. Select first applicable choice: 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 1 0 0	See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or 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
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227 228 F 229 230 231 232 233 F 234 235 236 237 F 238	F49	Conductivity Beaver Probability Groundwater Strength	peatland (e.g., Labrador tea) are prevalent. Enter "1". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". 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, 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. Select first applicable choice: 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. 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 1 0 0 0	See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or 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

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	Α	В	С	D	E
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]
			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.		
247	F52	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 containsperennial 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	F53	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		2 " 2	Bare or nearly bare pervious surface or managed vegetation, e.g., lawn, row crops, unpaved road, dike, landslide.	1	
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	
261	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) 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]
261	FF4	Name of Francisco	•		Determine this using historical carial photography, ald many call many or normit files as available
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		vvelialiu	Mo	0	[00,1111, 02,111, 0013]
264			Yes, and created or expanded 20 - 100 years ago.	0	
265			Yes, and created or expanded 3-20 years ago.	0	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.	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			Burned within past 5 years.	0	
271			Burned 6-10 years ago.	0	
272			Burned 11-30 years ago.	0	
273	F58	Vicibility	Burned >30 years ago, or no evidence of a burn and no data.	1	IDII CTD WDEVI
274	гэв	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%.	0	
276			25-50%.	0	
277	TEO.	Non concumptive	>50%.	1	[DLL CTD]
278	F 29	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.	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	

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	Α	В	С	D	E
282	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	
285 286			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	
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.	1	
291			5-50%.	0	
292			50-95%.	0	
293			>95% of the AA.	0	
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]
295		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]
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	1	(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	0	
298 299	1	Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0	
299	1		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	1		100-500 m. away.	0	
306	1		>500 m. away, or no information.	1	
307	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.	0	[PH, PR]

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Investigator: BL, CP	Site Identifier: Cambridge Wetland 9	Date: 28 Sept 2021	
Stressor (S) Data Form for Non-Tidal	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 the	eir volume) to shift by hours, days, or weeks, becoming either more n	nutad (smaller or less fraguent neaks spread over langer		
times, more temporal homogeneity of flow or water levels) or more fl			uteu (smailer of less frequent peaks spread over longer		
Stormwater from impervious surfaces that drains directly to the wet	land.				
Water subsidies from wastewater effluent, septic system leakage, s	now storage areas, or irrigation.				
Regular removal of surface or groundwater for irrigation or other co	nsumptive use.				
Flow regulation in tributaries or water level regulation in adjoining w	rater body, or other control structure at water entry points that req	gulates inflow to the wetland.			
A dam, dike, levee, weir, berm, or fill within or downgradient from	the wetland that interferes with surface or subsurface flow in/o	out of the AA (e.g., road fill, wellpads, pipelines).			
Excavation within the wetland, e.g., dugout, artificial pond, dead-en-	d ditch.				
Artificial drains or ditches in or near the wetland.					
Accelerated downcutting or channelization of an adjacent or internal channel (incised below the historical water table level).					
Logging within the wetland.					
Subsidence or compaction of the wetland's substrate as a result of	machinery, livestock, fire, drainage, or off road vehicles.				
Straightening, ditching, dredging, and/or lining of tributary channels					
If any items were checked above, then for each row of the table belo rows. To estimate effects, contrast the current condition with the con		no measurable effect on the timing of water conditions in any part of sent.	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.		
When most of the timing shift began:	<3 yrs ago.	3-9 yrs ago.	10-100 yrs ago.		
Score the following 2 rows only if the altered inputs began within pas	t 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.		
Flashiness or muting:	Became very flashy or controlled.	Intermediate.	Became mildly flashy or controlled.		
			Sum=	:	
			Stressor subscore=	-	
Accelerated Inputs of Contaminants and/or	Salts			Т	
In the last column, place a check mark next to any item occurring i	in either the wetland or its CA that is likely to have accelerated	the inputs of contaminants or salts to the AA. [AM, FA, PH, POL, ST	<i>RJ</i>	П	
Stormwater or wastewater effluent (including failing septic systems)	, landfills, industrial facilities.				
Metals & chemical wastes from mining, shooting ranges, snow stora npri/default.asp?lang=En&n=B85A1846-1	age areas, oil/ gas extraction, other sources (download many loc	rations 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, o	r other areas in the CA.				
If any items were checked above, then for each row of the table belo following rows. To estimate effects, contrast the current condition wit		not cumulatively expose the AA to significantly higher levels of contai onger present.	minants 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.		
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=		

Accelerated Inputs of Nutrients									
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 the inputs of nutrients to the wetland. [NRv, PRv, STR]									
Stormwater or wastewater effluent (including failing septic system)	ems), 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 estimate effects, contrast the current condition with the condition	below, assign points. However, if you believe the checked items did no if the checked items never occurred or were no longer present.	ot cumulatively expose the AA to significantly more nutrients, then	leave the "O's" for the scores in the following rows. To						
	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.	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					

to the first extreme where extremely most according to the company of the company	uting Area	all and a discount work in all a south and form it. OA IFA FD INIV	DU CD. CTD!					
In the last column, place a check mark next to any item present in the	<u>, </u>	ndborne sediment reaching the wetland from its CA. [FA, FR, INV, I	PH, SRV, STRJ					
Erosion from plowed fields, fill, timber harvest, dirt roads, vegetation	on 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 e								
	ccelerated channel downcutting or headcutting of tributaries due to altered land use.							
Other human-related disturbances within the CA.								
If any items were checked above, then for each row of the table beld then leave the "0's" for the scores in the following rows. To estimate			add 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.					
To the proximity to detada or potential sources.	* 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							
* high-intensity= extensive off-road vehicle use, plowing, grading, ex	xcavation, erosion with or without veg removal; low-intensity= ve	eg removal only with little or no apparent erosion or disturbance of	Sum-					
1 3 1	xcavation, erosion with or without veg removal; low-intensity= ve	eg removal only with little or no apparent erosion or disturbance of	Sum=					
* high-intensity= extensive off-road vehicle use, plowing, grading, ex	xcavation, erosion with or without veg removal; low-intensity= ve	eg removal only with little or no apparent erosion or disturbance of	Sum= Stressor subscore:					
* high-intensity= extensive off-road vehicle use, plowing, grading, ex		eg removal only with little or no apparent erosion or disturbance of						
* high-intensity= extensive off-road vehicle use, plowing, grading, exsoll or sediment. Soil or Sediment Alteration Within the Asselute In the last column, place a check mark next to any item present in the	essment Area		Stressor subscore:					
* high-intensity= extensive off-road vehicle use, plowing, grading, exsoil or sediment. Soil or Sediment Alteration Within the Asselin the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR]	essment Area he wetland that is likely to have compacted, eroded, or otherwise		Stressor subscore:					
* high-intensity= extensive off-road vehicle use, plowing, grading, essoil or sediment. Soil or Sediment Alteration Within the Asselin the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mount.	essment Area he wetland that is likely to have compacted, eroded, or otherwise		Stressor subscore:					
high-intensity= extensive off-road vehicle use, plowing, grading, exsoil or sediment. Soil or Sediment Alteration Within the Asselin the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mount. Leveling or other grading not to the natural contour.	essment Area the wetland that is likely to have compacted, eroded, or otherwise ain bikes, especially during wetter periods.		Stressor subscore:					
high-intensity= extensive off-road vehicle use, plowing, grading, escoil or sediment. Soil or Sediment Alteration Within the Asselin the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mount. Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native present of the place of the properties of the place of the p	Pessment Area the wetland that is likely to have compacted, eroded, or otherwise ain bikes, especially during wetter periods.	altered the wetland's soil. Consider only items occurring within pas	Stressor subscore:					
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* high-intensity= extensive off-road vehicle use, plowing, grading, essoil or sediment. Soil or Sediment Alteration Within the Asselin the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mount. Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native period or riprap, excluding small amounts of upland soils containing or Excavation.	Pessment Area the wetland that is likely to have compacted, eroded, or otherwise ain bikes, especially during wetter periods.	altered the wetland's soil. Consider only items occurring within pas	Stressor subscore:					
* high-intensity= extensive off-road vehicle use, plowing, grading, essoil or sediment. Soil or Sediment Alteration Within the Asse In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mount. Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native properties). Fill or riprap, excluding small amounts of upland soils containing or Excavation. Ditch cleaning or dredging in or adjacent to the wetland.	Pessment Area the welland that is likely to have compacted, eroded, or otherwise ain bikes, especially during wetter periods. Polants). In ganic amendments (compost, etc.) or small amounts of topsoil in	altered the wetland's soil. Consider only items occurring within pas	Stressor subscore:					
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*high-intensity= extensive off-road vehicle use, plowing, grading, essoil or sediment. Soil or Sediment Alteration Within the Asselin the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mount. Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native presention). Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause show the sufficient water level or flow manipulations sufficient to cause erosic if any items were checked above, then for each row of the table belieffects, contrast the current condition with the condition if the checkers.	the welland that is likely to have compacted, eroded, or otherwise ain bikes, especially during wetter periods. Indicates the sepecially during wetter periods. Indicates the sepecial sepacial sepecial sep	altered the wetland's soil. Consider only items occurring within pass	Stressor subscores st 100 years or since welland was created or restored ave the "0's" for the scores in the following rows. To estimate Mild (1 point)					
*high-intensity= extensive off-road vehicle use, plowing, grading, essoil or sediment. Soil or Sediment Alteration Within the Asseln the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mount. Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native presentation). Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause shoth Artificial water level or flow manipulations sufficient to cause erosic if any items were checked above, then for each row of the table belieffects, contrast the current condition with the condition if the checked Spatial extent of altered soil:	the welland that is likely to have compacted, eroded, or otherwise ain bikes, especially during wetter periods. Identical plants). In granic amendments (compost, etc.) or small amounts of topsoil in or erosion or stir bottom sediments. In or stir bottom sediments. In or stir bottom sediments. In ow, assign points. However, if you believe the checked items did end items never occurred or were no longer present. Severe (3 points) >95% of wetland or >95% of its upland edge (if any).	altered the wetland's soil. Consider only items occurring within pass nported from another wetland. not measurably alter the soil structure and/or topography, then lea Medium (2 points) 5-95% of wetland or 5-95% of its upland edge (if any).	Stressor subscores st 100 years or since wetland was created or restored ave the "0's" for the scores in the following rows. To estimate Mild (1 point) <5% of wetland and <5% of its upland edge (if any).					

Stressor subscore=

0.83

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)	0.61	Lower	9.19	Higher	2.40	4.08
Stream Flow Support (SFS)	2.69	Moderate	1.92	Moderate	2.17	1.28
Water Cooling (WC)	5.04	Moderate	4.09	Moderate	3.36	2.22
Sediment Retention & Stabilisation (SR)	0.53	Lower	10.00	Higher	2.61	5.47
Phosphorus Retention (PR)	0.00	Lower	10.00	Higher	3.23	7.99
Nitrate Removal & Retention (NR)	1.17	Lower	10.00	Higher	3.62	10.00
Carbon Sequestration (CS)	0.00	Lower			4.86	
Organic Nutrient Export (OE)	6.50	Moderate			4.25	
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)	0.70	Lower	4.20	Moderate	3.78	3.50
Amphibian & Turtle Habitat (AM)	5.55	Moderate	3.99	Moderate	6.03	5.05
Waterbird Feeding Habitat (WBF)	5.87	Moderate	5.00	Moderate	4.47	5.00
Waterbird Nesting Habitat (WBN)	4.38	Moderate	3.33	Moderate	3.17	3.33
Songbird, Raptor, & Mammal Habitat (SBM)	8.45	Higher	3.33	Moderate	7.35	3.33
Pollinator Habitat (POL)	7.16	Moderate	3.33	Moderate	5.94	3.33
Native Plant Habitat (PH)	4.19	Moderate	5.54	Moderate	5.57	5.54
Public Use & Recognition (PU)			2.73	Moderate		2.17
Wetland Sensitivity (Sens)			7.92	Higher		4.43
Wetland Ecological Condition (EC)			2.46	Lower		6.39
Wetland Stressors (STR) (higher score means more stress)			10.00	Higher		5.62
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	0.61	Lower	9.19	Higher	2.40	4.08
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	0.80	Lower	10.00	Higher	4.22	8.91
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	5.12	Moderate	3.80	Lower	3.82	2.92
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	4.51	Moderate	3.73	Moderate	4.38	3.86
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	7.53	Higher	4.81	Lower	6.82	4.81
WETLAND CONDITION (EC)			2.46	Lower		6.39
WETLAND RISK (average of Sensitivity & Stressors)			8.96	Higher		5.02

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.

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	
	101 Cambridge Wetland 10
Investigator Name:	BL, CP
Date of Field Assessment:	29 Sept 2021
Nearest Town:	Coldbrook, Nova Scotia
Latitude (decimal degrees):	368934.00 m E,
Longitude (decimal degrees):	4990991.00 m N, UTM 20T
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	~7.20
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.	Yes
How many wetlands have you assessed previously using WESP-AC? (approx.)	>100
Comments about the site or this WESP-AC assessment (attach extra page if desired):	

	A	В	C	D	Е
	Date:	29 Sept 2021	Site Identifier: 101 Cambridge WL-10	Investiga	ator: BL, CP
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.
5			New Brunswick	0	In the function and benefits models, it also triggers the automatic exclusion of indicators for which no spatial data exists in a particular province.
6			Nova Scotia	1	Spatial data CXISIS III 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
10			<0.01 hectare (about 10 m x 10 m).	0	extends beyond 1 km, include only the part within 1 km. Do not include tidal areas. Measure the
11			0.01 - 0.1 hectare.	1	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 nichu). [i ri, 35livi, wolvi]
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.	0	
20			1 to 10 hectares.	0	
21			10 to 100 hectares.	1	
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
OF		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	1
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	1
OF	6	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:		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]
			1 . [* NOTE: Exclude lawns, row crops, heavily grazed lands, forest, shrublands. Include moss as well as grasslike plants in this use of		
39			"herbaceous vegetation"		
OF	7	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,	0	See above. Do not consider conifer plantations to be forest if it is obvious that trees were planted in
	,	woody oniqueness	consider:	O	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.]		
OF		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
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			IS:	0	
42			<5% of the land.		-
43			5 to 20% of the land.	0	-
44			20 to 60% of the land. 60 to 90% of the land.	0	-
45				0	-
46	0	T	>90% of the land. SKIP to OF10.	U	[AM CDM]
47 OF		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	•	Alleration	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	1
50 OF	10	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
51		Nearest Population	<100 m.	0	square kilometer. In Google Earth Pro, click on the Ruler icon, then Path, and draw and measure the
52		Center	100 - 500 m.	1	route. [FAv, FRv, NRv, PH, PU, SBM, WBFv]
53			0.5-1 km.	0	1
54			1 - 5 km.	0	1
55			>5 km.	0	1
OF	11	Distance to Nearest	From the center of the AA, the distance to the nearest maintained public road (dirt or paved) is:	J	Determine this by viewing aerial imagery in Google Earth Pro and measuring with the Ruler>Line
56		Maintained Road	· · · · · · ·		tool. [AM, FAv, FRv, NRv, PH, PU, SBM, STR, WBN]
57			<10 m.	0	(, , , , , , , , , , , , , , , , ,
58			10 - 25 m.	0	1
59			25 - 50 m.	0	
60			50 - 100 m.	0]
61			100 - 500 m.	1	
62			>500 m.	0	

	Λ	В	C	D	E
63)F12	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 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 toblank if there are no other wetlands within 5 km.	0	Draw the 5 km circle in Google Earth Pro using the Circle tool and search for roads and wetlands within it, being alert for roads hidden under forest canopy. [AM, SBM, STR]
64 65 66 67 68 69 70		Distance to Ponded Water	The distance from the AA center to the closest (but separate) ponded water body visible in GoogleEarth imagery is: <50 m, and not separated by any width of paved roads, stretches of open water, row crops, lawn, bare ground, or impervious surface. <50 m, but completely separated by those features. 50-500 m, and not separated. 50-500 m, but separated by those features. 0.5 - 1 km, and not separated. 0.5 - 1 km, but separated by those features. None of the above (the closest patches or corridors that large are >1 km away).	0 0 0 0 0 0	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]
72 73 74 75 76 77 78		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: 100 m. 100 m - 1 km. 1 - 2 km. 2-5 km. 5-10 km. >10 km.	0 0 0 0 0	Determine this by viewing aerial imagery in Google Earth. [Sens, WBF, WBN]
79 80 81 82 83 84 85)F15	Tidal Proximity	The distance from the AA edge to the closesttidal water body (regardless of its salinity) is: <100 m. 100 m - 1 km. 1 - 5 km. 5-10 km. 10-40 km. >40 km.	0 0 0 0 1	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 for NS (NS Headtide). Points shown in those files are only an approximation, so local information if available may be preferable. [FA, WBF]

	Δ	В	C	D	F
80	OF16	Upland Edge Contact	Select one:	Ь	[NR, SBM, Sens]
8'	7		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	
8:			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	
9			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	
92		Flood Damage from Non tidal Waters	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 finer elevational resolution useful for flood modeling. [WSv]
9:	3	tidai waters	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	provide liner elevational resolution useral for flood modelling. [wsv]
94	ı		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 levees, upriver dams, or other measures may partly limit damage or risk from smaller events.	0	
9:	5		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure vulnerable to river flooding unrelated to tidal storm surges.	1	
90	5		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there isno infrastructure vulnerable to river flooding unrelated to tidal storm surges.	0	
9'		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 watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-min).	0.01	[FA, NR, Sens, SFSv, WCv, WSv]
98			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]

	A	В	С	D	E
	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.		
			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	
			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.		
	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 (Catchment)	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		http://atlas.gc.ca/toporama/en/index.html [NR, PR, Sens, SR, WS]
		(Catchinent)	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	1
111			0.01 to 0.1.	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 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 Continbuting Area		0	
115			<10%. 10 to 25%.	0	-
116 117			>25%.	1	-
11/	OE34	Transport From Upslope	20%. A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as	ı	[NRv, PRv, SRv, WSv]
	UF24	Transport From Opsiope	Indicated by the following:		[NKV, 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.		
			This statement is:		
118			Marth. Inc.	^	!
119			Mostly true.	0	4
120			Somewhat true.	0	-
121	OESE	Acnost	Mostly untrue. The everland flow direction of most curface water (in streams, rivers, or runoff) that enters the AA is:		IAM NID CEC WC WC
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
14/					Nova Scotia Tono as the Baseman. Also enable the laver Forestry>WAM Predicted Flow. Then

A	В	С	D	E
128		10 - 50 m.	0	measure the inlet-outlet distance. [NR, OE, PR, SR, WS]
129		50 - 100 m.	0	incusure the finet dutiet distance. [fixt, OE, Fix, OK, WO]
130		100 - 1000 m.	0	
131		1- 2 km.	0	1
132		>2 km, or wetland lacks an inlet and outlet.	1	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.	2200	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 stocked. [AM, FA, FR, INV, WBF, WBN]
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	1	Deen Stuckeu. [AW, FA, FK, IIVV, WDF, WDIV]
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	1
138		Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	0	
OF29	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 ar approved protocol. For birds, also check eBird.org. [AMv, EC, PHv, POLv, SBMv, Sens, WBFv,
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	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.	1	
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	1 1 1 1 1 1 1 1 1	None of the above, or no data.	0	
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 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]
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 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]
OF32	Wintering Deer or Moose Concentration Areas	If AA is on private land with no information, change to blank (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]
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 t blank (not 0).	0	[PU]
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]
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.	1	[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 to blank .	0	[AM, FA, FR, INV, PH]
OF38	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]

A	В	C	D	Е
54		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	
55		Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are allowed.	0	
56		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable or not) is in place.	0	
57		Ownership is private and owner does not allow access, or access permission unknown, and not a conservation easement.	1	

	A	В	С	D	E
	Date: 29 September 2021		Site Identifier: Cambridge Wetland 10	Investiga	itor: BL, CP
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. 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.		They include induder induder indicated, a wamp raduer, lead in early, Labradon lea, and oriers, worst 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).	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.	1	
1:	The An include "adjac describe their ed	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. or of the water area of adjacent ponded water larger than 8 ha and adjacent rivers wider than 20 m. Specifically, the AA should ljacent 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.		
	F2	Wetland Types - Adjoining or	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.		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		Subordinate	Do not mark again the type marked in F1.		,,
13			A1.	0	
1:			A2. B1.	0	
10			B2.	0	
1'	F3	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 (nonwoody) 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 trees/shrubs is <25% moss, then question F1 might be "B1". [CS, INV, NR, PH, POL, SBM, Sens]
18	: [Ĭ	coniferous trees (may include tamarack) taller than 3 m.	2	ilices/siliubs is \2570 ilioss, then question FT might be DT. [C3, IIVV, IVK, FH, POL, SDW, Sells]

FieldF form - Non-tidal Page 1 of 10

	Α	В	С	D	E
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.	2	
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.	2	
23			deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	3	
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 55% of the woody canopy cover in the AA or >5% of the wooded areas (if any) along its upland edge (perimeter). The edge should include only the trees whose canopies extend into the AA.		Estimate the diameters at chest height. If small-diameter trees are overtopped (shaded) by larger
28		Classes	, , ,	1	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
29			coniferous, 1-9 cm diameter and >1 m tall.		species. [AM, CS, POL, SBM, Sens, WBN]
30			broad-leaved deciduous 1-9 cm diameter and >1 m tall.	1	
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.	1	
36	F./	11 1 1 1 01	broad-leaved deciduous >40 cm diameter.	0	THE PROPERTY OF THE PROPERTY O
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]
38		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.		
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.	0	
43			B2. Not B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is completely	1	
44	F7	Large Snags (Dead	absent. 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	
51		N Fixers	The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa, other legumes) is:		Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
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	1		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	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		Extorit	<5% of the vegetated part of the AA.	1	
59			5-25% of the vegetated part of the AA.	0	
60	1		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	
02	1		7070 of the regolated part of the 78 t.	J	

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	A	В	С	D	E
	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,		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that is
63		Thatch	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 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.		
66			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	
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	
- 00	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		and appropriate the first of th
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).	1	
71			Intermediate.	0	
72			Several (extensive micro-topography).	0	
	F13	Upland Inclusions	Within the AA, inclusions of upland are:		[AM, NR, SBM]
73		- h	·	-	
74			Few or none.	1	
75 76			Intermediate (1 - 10% of vegetated part of the AA).	0	
76	F14	C.T.T. I.	Many (e.g., wetland-upland "mosaic", >10% of the vegetated AA).	0	[CC ND OF DI DD C CFC WC]
	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 at least 3 widely spaced locations, and use the soil texture key (in Appendix A of the Manual).]		[CS, NR, OE, PH, PR, Sens, SFS, WS]
77				0	
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	1	
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.		
	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.	0	
85			100-1000 sq. m.	1	
86			1000 – 10,000 sq. m.	0	
87	Г14	Harbanaus ()/ of	>10,000 sq. m.	0	[AM WDF WDN]
88		Herbaceous % of Vegetated Wetland	In aerial ("ducks eye") view, the maximum annual cover of herbaceous vegetation (all non-woody plants except moss) is:		[AM, WBF, WBN]
1		vogetateu wettanu	<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			COCK of the constituted and of the AA		
90			5-25% of the vegetated part of the AA.	0	
91			25-50% of the vegetated part of the AA.	0	
92 93			50-95% of the vegetated part of the AA.	0	
	F17	Forb Cover	>95% of the vegetated part of the AA. Within parts of the AA baying borbacous cover (eveluding SAVA) the areal cover of forths reaches an annual maximum of	U	Early are flowering plants. Do not include grasses, codess, cottoil, other graminaids, force, herestails
94	1 17	I OID COVEI	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, or others that lack showy flowers. [POL]
95			<5% of the herbaceous part of the AA.	0	2. 2
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	F40		>95% of the herbaceous part of the AA.	0	loo!
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.	0]
102			o ook of the regelated area.		

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	A	В	С	D	E
103	3		50-95% of the vegetated area.	1	
104			>95% of the vegetated area.	0	
			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]
103	5	Abundant Herbaceous	aquatic plants). Then choose one of the following:		

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	Α	В	С	D	E
106	А	Species	those species together comprise > 50% of the areal cover of herbaceous plants at any time during the year.	1	L
		Ороблов	those species together do not comprise > 50% of the areal cover of herbaceous plants at any time during the year.	0	
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			invasive species comprise >50% of the herb cover (or woody cover, if the invasives are woody).	0	
		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 plant		If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an exotic
114		Upland Edge	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	
118			most (>50%) of the upland edge.	0	
	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	
123			1-25% of the AA, or <1% but >0.01 ha never contains surface water.	1	
124			25-50% of the AA never contains surface water.	0	
125			50-75% of the AA never contains surface water.	0	1
			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					
	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.	0	
131			20-50% of the AA.	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 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	1
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
140 141		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)
		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
142			1-20% of the AA, of <1% out >0.01 na.		bankful height and visualising where that would intercept the land along the river. [CS, FA, INV, NR,
143			ZU-DUW UI IIIE MA.	1	OE, PH, SR, WBF, WBN, WS]

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A	В	С	D	E
144		50-95% of the AA.	0	
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.	0	PH, PR, SR, WBN, WS]
149		0.5 - 1 m change.	0	1
150		1-2 m change.	0	1
151		>2 m change.	1	
Is the	e AA plus adjacent pondenection).	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	
F29 153	Predominant Depth Class	During most of the time when surface water is present during the growing season, its depth, averaged over the entire inundated part of the AA, is:		If a boat is unavailable, estimate this by considering wetland size and local topography. Or if timing 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.	0	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
157		1 - 2 m deep.	1	well as ponded areas. [CS, FA, FR, INV, OE, PH, PR, Sens, SFS, SR, WBF, WBN, WC]
158		>2 m deep. True for many fringe wetlands.	0	
F20	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,
159	Evenness of			WBF, WBN]
160	Proportions	One depth class that comprises >90% of the AA's inundated area (use the classes in the question above).	0	
161	'	One depth class that comprises 50-90% of the AA's inundated area.	1	
162	0/ - CM/-1 - Th - LL	Neither of above. There are 3 or more depth classes and none occupy >50%.	0	North all all all all all all all all all al
F31 163	% 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]
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.	1	
166		30-70% of the water.	0	
167		70-95% of the water.	0	
168		>95% of the water.	0	1
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 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).	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.
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	han hi chi	100% of the ponded water.	0	Wester Land Land Land and Land Land Land Conference and Land Land Land Land Land Land Land
F34 177	Width of Vegetated Zone within Wetland	At the time during the growing season when the AA's water level is lowest, the average width of vegetated areain the AA that separates adjoining uplands from open water within the AA is:		"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,
178		<1 m.	0	SBM, Sens, SR, WBN]
179		1 - 9 m.	0	
180		10 - 29 m.	0]
181		30 - 49 m.	1	
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'swater 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	1
186		1-25% of the water edge.	0	1
187		25-50% of the water edge.	0	1
107				

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	Α	В	С	D	E
188			50-75% of the water edge.	0	
189			>75% of the water edge.	1	
		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
190			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	
193			25-75% of the emergent vegetation.	1	
194			>75%, of the emergent vegetation.	0	
		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	Collection 1 to 2007 for the state of consultation to the state of the	_	
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	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	
		Area	growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection).		
199					Early and the state of the stat
			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 underwatel wood based only on observations from terrestrial viewpoints are unreliable so should not be attempted.
200		Aquatic Cover	little or none.	- 1	[AM, FA, FR, INV]
201			Intermediate.	0	[twi, tri, t K, nev]
202			Intermediate. Extensive.	0	
	F40	Isolated Island	Extensive. 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	1	[WBN]
	F4U	isolated Island	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	1	[WDN]
204			support a waterbird nest.		
204	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]
		Duckweed	>50% of the underwater substrate. If true, enter "1" in next column. If untrue or uncertain, enter "0".	0	[EG, FR, WDI]
205					
			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 connection: the one between the AA and the rest of the wetland, or the surface connection between the wetland and 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
			connection: the one between the AA and the rest of the welland, of the surface connection between the welland and the downslope stream network.]		with Toporama (http://atlas.nrcan.qc.ca/toporama/en/index.html) [CS, FA, FR, NR, OE, PR, Sens,
206			•		SFS, SR, WCv, WS]
207			Persistent (surface water flows out for >9 months/year).	1	
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	Е
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>0</td><td></td></once>	0	
	E13	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,
212	1 43	Outnow Commenterit			NR, OE, PR, Sens, SR, STR, WS
			Mostly passes through a pipe, culvert, narrowly breached dike, berm, beaver dam, or other partial obstruction (other than natural topography)	0	1114 02/114 03/15/014/014/110/
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.	1	-
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		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	1	F42 above. [NRv, PH, PRv, SRv]
216			further upslope. If no, SKIP to F47 (pH Measurement).		
_	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]
		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		Resistance	incoming water].		
			Does not bump into many plant stems as it travels through the AA. Nearly all the water continues to travel in unvegetated (often incised)	1	
219			channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond or lake.		
220			Bumps into herbaceou s vegetation but mostly remains in fairly straight channels.	0	
220			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 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
	F47	pH Measurement	The pH in most of the AA's surface water: 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
224 225	F47	pH Measurement	•	0	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
224 225 226	F47	pH Measurement	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".		passed through (not along) most of the AA. Unless surface water is completely absent, do not dig holes
224 225	F47		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". Neither of above. Enter "1".	0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
224 225 226 227 228	F47	TDS and/or	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".		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
224 225 226 227 228 229	F47		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". Neither of above. Enter "1".		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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
224 225 226 227 228 229 230	F47	TDS and/or	Was neasured, 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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information):		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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
224 225 226 227 228 229 230 231	F47	TDS and/or	Was neasured, 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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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.]		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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
224 225 226 227 228 229 230	F47	TDS and/or	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 µS/cm in the column to the right.]	1	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
224 225 226 227 228 229 230 231 232		TDS and/or	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 pScm in the column to the right.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1".	0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
224 225 226 227 228 229 230 231		TDS and/or Conductivity	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". Neither of above Use of the AA by beaver during the past 5 years is (select most applicable ONE):	0 1	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
224 225 226 227 228 229 230 231 232 233		TDS and/or Conductivity	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information): 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 pScm in the column to the right.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". Neither of above	0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
224 225 226 227 228 229 230 231 232		TDS and/or Conductivity	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". Neither of above Use of the AA by beaver during the past 5 years is (select most applicable ONE):	0 1	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
224 225 226 227 228 229 230 231 232 233		TDS and/or Conductivity	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information): 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 pS/cm in the column to the right.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". 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).	0 1	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
224 225 226 227 228 229 230 231 232 233		TDS and/or Conductivity	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 µS/cm in the column to the right, if measured, or answer next row.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". 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, 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 1	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
224 225 226 227 228 229 230 231 232 233 234		TDS and/or Conductivity	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". 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, 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 1	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
224 225 226 227 228 229 230 231 232 233	F49	TDS and/or Conductivity Beaver Probability	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information): 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 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". 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, 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.	0 1 0 0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN]
224 225 226 227 228 229 230 231 232 233 234		TDS and/or Conductivity Beaver Probability Groundwater Strength	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 µS/cm in the column to the right, if measured, or answer next row.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". 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, 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 1 0 0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other
224 225 226 227 228 229 230 231 232 233 234 235	F49	TDS and/or Conductivity Beaver Probability	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information): 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 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". 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, 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.	0 1 0 0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other evidence. Consult topographic maps to detect breaks in slope described here. Rust deposits
224 225 226 227 228 229 230 231 232 233 234 235 236 237	F49	TDS and/or Conductivity Beaver Probability Groundwater Strength	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information): 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 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". 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, 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.	0 1 0 0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or 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
224 225 226 227 228 229 230 231 232 233 234 235	F49	TDS and/or Conductivity Beaver Probability Groundwater Strength	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information): 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 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". 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, 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. Select first applicable choice: 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 1 0 0 1	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other evidence. Consult topographic maps to detect breaks in slope described here. Rust deposits
224 225 226 227 228 229 230 231 232 233 234 235 236 237	F49	TDS and/or Conductivity Beaver Probability Groundwater Strength	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". 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, 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. Select first applicable choice: 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. 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 0 0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or 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
224 225 226 227 228 229 230 231 232 233 234 235 236	F49	TDS and/or Conductivity Beaver Probability Groundwater Strength	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information): 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 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". 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, 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. Select first applicable choice: 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. 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 1 0 0 0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or 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
224 225 226 227 228 229 230 231 232 233 234 235 236 237	F49	TDS and/or Conductivity Beaver Probability Groundwater Strength	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". 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, 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. Select first applicable choice: 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. 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 0 0 1	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or 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

FieldF form - Non-tidal Page 8 of 10

ional difference between the AA's inlet and verted to percent. If available, use a ownloaded to smartphones. If the wetland is ogle Earth to determine the minimum and and multiplying by 100. [CS, NR, OE, PR,
verted to percent. If available, use a ownloaded to smartphones. If the wetland is ogle Earth to determine the minimum and and multiplying by 100. [CS, NR, OE, PR,
ogle Earth to determine the minimum and and multiplying by 100. [CS, NR, OE, PR,
and multiplying by 100. [CS, NR, OE, PR,
.,,,,
STR, WBN]
STR, WBN]
STR, WBN]
., SBM]
os, soil maps, or permit files as available
locations) or ask landowner. [CS, PH, STR]
iocations) of ask landowner. [CS, FH, STK]
0

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	Α	В	С	D	E
282	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	
285 286			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	
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.	1	
291			5-50%.	0	
292			50-95%.	0	
293			>95% of the AA.	0	
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]
295		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]
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	1	(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	0	
298 299	1	Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0	
299	1		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	1		100-500 m. away.	0	
306	1		>500 m. away, or no information.	1	
307	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.	0	[PH, PR]

FieldF form - Non-tidal Page 10 of 10

Investigator: BL, CP	Site Identifier: Cambridge Wetland 10	Date: 29 September 2021	
Stressor (S) Data Form for Non-Tidal	Wetlands. WESP-AC for Nova Scotia version 2.		Data

Aberrant Timing of Water Inputs							
	kely to have caused the timing of water inputs (but not necessarily th ore flashy (larger or more frequent spikes but over shorter times). [FA	eir volume) to shift by hours, days, or weeks, becoming either more m A, FR, INV, PH, STR]	uted (smaller or less frequent peaks spread over longer				
Stormwater from impervious surfaces that drains directly to the wetland.							
Water subsidies from wastewater effluent, septic system leaka	ge, snow storage areas, or irrigation.						
Regular removal of surface or groundwater for irrigation or other consumptive use.							
Flow regulation in tributaries or water level regulation in adjoini	ng water body, or other control structure at water entry points that re	gulates inflow to the wetland.					
A dam, dike, levee, weir, berm, or fill within or downgradient	from the wetland that interferes with surface or subsurface flow in/o	out of the AA (e.g., road fill, wellpads, pipelines).		\top			
Excavation within the wetland, e.g., dugout, artificial pond, dead-end ditch. Artificial drains or ditches in or near the wetland.							
							Accelerated downcutting or channelization of an adjacent or internal channel (incised below the historical water table level).
Logging within the wetland.							
Subsidence or compaction of the wetland's substrate as a resu	Ilt of machinery, livestock, fire, drainage, or off road vehicles.			\top			
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 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.				
When most of the timing shift began:	<3 yrs ago.	3-9 yrs ago.	10-100 yrs ago.				
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.				
Flashiness or muting:	Became very flashy or controlled.	Intermediate.	Became mildly flashy or controlled.				
		<u> </u>	Sum	1=			
			Stressor subscore	} =			
Accelerated Inputs of Contaminants and	or Salts	<u> </u>					
In the last column, place a check mark next to any item occur	ring in either the wetland or its CA that is likely to have accelerated	the inputs of contaminants or salts to the AA. [AM, FA, PH, POL, STR	RJ	T			
Stormwater or wastewater effluent (including failing septic syst	ems), landfills, industrial facilities.						
Metals & chemical wastes from mining, shooting ranges, snow npri/default.asp?lang=En&n=B85A1846-1	storage areas, oil/ gas extraction, other sources (download many loc	cations from National Pollutant Release Inventory and view KMZ overl	ay in Google Earth. https://www.ec.gc.ca/inrp-				
Road salt.				\top			
Spraying of pesticides, as applied to lawns, croplands, roadsid	es, or other areas in the CA.						
	below, assign points. However, if you believe the checked items did in with the condition if the checked items never occurred or were no l	not cumulatively expose the AA to significantly higher levels of contant longer present.	minants and/or salts, then leave the "O's" for the scores in th	е			
	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.				
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	1=			

Accelerated Inputs of Nutrients								
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 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.								
Livestock, dogs.								
Artificial drainage of upslope lands.								
If any items were checked above, then for each row of the table estimate effects, contrast the current condition with the condition	below, assign points. However, if you believe the checked items did no if the checked items never occurred or were no longer present.	ot cumulatively expose the AA to significantly more nutrients, then	leave the "O's" for the scores in the following rows. To					
	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.	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				

-	ting Area							
In the last column, place a check mark next to any item present in the	e CA that is likely to have elevated the load of waterborne or win	dborne sediment reaching the wetland from its CA. [FA, FR, INV,	PH, SRv, STR]					
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 extraction.								
Sediment from road sanding, gravel mining, other mining, oil/ gas extraction. Accelerated channel downcutting or headcutting of tributaries due to altered land use.								
Accelerated channel downcutting or headcutting of tributaries due to altered land use. Other human-related disturbances within the CA.								
v v								
If any items were checked above, then for each row of the table below then leave the "O's" for the scores in the following rows. To estimate e			add 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.					
• ,	.avation, erosion with or without veg removal, how-intensity= ve	g removal only with little or no apparent erosion or disturbance of	Sum=					
ingn-intensity= extensive on-road vehicle use, plowing, grading, exc soil or sediment.	avalion, erosion will or williour veg removal, Tow -Hitensity= ve	g removal only with little or no apparent erosion or disturbance of	Sum= Stressor subscore=					
• ,		g removal only with little or no apparent erosion or disturbance of						
soil or sediment.	ssment Area		Stressor subscore:					
Soil or Sediment. Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the	ssment Area e wetland that is likely to have compacted, eroded, or otherwise		Stressor subscore:					
Soil or sediment. Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR]	ssment Area e wetland that is likely to have compacted, eroded, or otherwise		Stressor subscore:					
Soil or Sediment. Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain	essment Area e welland that is likely to have compacted, eroded, or otherwise n bikes, especially during wetter periods.		Stressor subscore:					
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour.	essment Area e wetland that is likely to have compacted, eroded, or otherwise n bikes, especially during wetter periods.	altered the wetland's soil. Consider only items occurring within pas	Stressor subscore:					
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla	essment Area e wetland that is likely to have compacted, eroded, or otherwise n bikes, especially during wetter periods.	altered the wetland's soil. Consider only items occurring within pas	Stressor subscore:					
Soil or Sediment. Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native plane) Fill or riprap, excluding small amounts of upland soils containing organical containing or	essment Area e wetland that is likely to have compacted, eroded, or otherwise n bikes, especially during wetter periods.	altered the wetland's soil. Consider only items occurring within pas	Stressor subscore:					
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing organization.	e welland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. In this interval is a second of the second of	altered the wetland's soil. Consider only items occurring within pas	Stressor subscore:					
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native plant Fill or riprap, excluding small amounts of upland soils containing organization. Ditch cleaning or dredging in or adjacent to the wetland.	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods.	altered the wetland's soil. Consider only items occurring within pas	Stressor subscore:					
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing orgat Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause shore.	e wetland that is likely to have compacted, eroded, or otherwise. In bikes, especially during wetter periods.	altered the wetland's soil. Consider only items occurring within pass	Stressor subscores					
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing orga Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause shore Artificial water level or flow manipulations sufficient to cause erosion If any items were checked above, then for each row of the table below	e wetland that is likely to have compacted, eroded, or otherwise. In bikes, especially during wetter periods.	altered the wetland's soil. Consider only items occurring within pass	Stressor subscores					
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing orga Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause shore Artificial water level or flow manipulations sufficient to cause erosion If any items were checked above, then for each row of the table below effects, contrast the current condition with the condition if the checked	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. Ints). Ints). Ints in the period in the peri	altered the wetland's soil. Consider only items occurring within passing ported from another wetland.	Stressor subscores st 100 years or since welland was created or restored we the "0's" for the scores in the following rows. To estimate					
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing orga Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause shore Artificial water level or flow manipulations sufficient to cause erosion If any items were checked above, then for each row of the table below	e welland that is likely to have compacted, eroded, or otherwise on bikes, especially during wetter periods. In bikes, especially during wetter periods. I	altered the wetland's soil. Consider only items occurring within passing ported from another wetland. not measurably alter the soil structure and/or topography, then lead	Stressor subscores st 100 years or since welland was created or restored we the "0's" for the scores in the following rows. To estimate Mild (1 point)					
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing orgat Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause shore Artificial water level or flow manipulations sufficient to cause erosion If any items were checked above, then for each row of the table below effects, contrast the current condition with the condition if the checked. Spatial extent of altered soil:	e welland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. I	altered the wetland's soil. Consider only items occurring within pass reported from another wetland. mot measurably alter the soil structure and/or topography, then leas Medium (2 points) 5-95% of wetland or 5-95% of its upland edge (if any).	Stressor subscores st 100 years or since wetland was created or restored ve the "0's" for the scores in the following rows. To estimate Mild (1 point) <5% of wetland and <5% of its upland edge (if any).					

Stressor subscore=

0.00

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)	2.79	Lower	8.52	Higher	4.03	3.78
Stream Flow Support (SFS)	3.03	Moderate	3.76	Moderate	2.44	2.50
Water Cooling (WC)	5.17	Moderate	7.73	Higher	3.44	4.19
Sediment Retention & Stabilisation (SR)	5.18	Moderate	10.00	Higher	6.24	5.20
Phosphorus Retention (PR)	1.15	Lower	9.20	Higher	4.46	7.15
Nitrate Removal & Retention (NR)	4.09	Moderate	10.00	Higher	5.73	10.00
Carbon Sequestration (CS)	1.75	Lower			6.02	
Organic Nutrient Export (OE)	8.45	Higher			5.53	
Anadromous Fish Habitat (FA)	7.46	Higher	4.80	Higher	4.89	3.04
Resident Fish Habitat (FR)	8.19	Higher	4.39	Moderate	4.45	2.74
Aquatic Invertebrate Habitat (INV)	4.60	Moderate	8.36	Higher	5.37	5.75
Amphibian & Turtle Habitat (AM)	7.65	Higher	10.00	Higher	7.13	10.00
Waterbird Feeding Habitat (WBF)	7.49	Higher	5.00	Moderate	5.71	5.00
Waterbird Nesting Habitat (WBN)	8.37	Higher	5.00	Higher	6.07	5.00
Songbird, Raptor, & Mammal Habitat (SBM)	7.16	Moderate	5.00	Moderate	6.23	5.00
Pollinator Habitat (POL)	7.34	Moderate	3.33	Moderate	6.08	3.33
Native Plant Habitat (PH)	3.81	Moderate	5.22	Lower	5.42	5.22
Public Use & Recognition (PU)			5.76	Higher		4.25
Wetland Sensitivity (Sens)			7.45	Higher		4.29
Wetland Ecological Condition (EC)			3.04	Lower		6.67
Wetland Stressors (STR) (higher score means more stress)			6.58	Higher		3.35
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	2.79	Lower	8.52	Higher	4.03	3.78
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	4.11	Moderate	9.87	Higher	5.93	8.73
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	6.88	Higher	7.49	Moderate	4.86	4.95
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	8.10	Higher	7.92	Higher	6.39	7.58
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	6.72	Moderate	4.87	Lower	6.07	4.87
WETLAND CONDITION (EC)			3.04	Lower		6.67
WETLAND RISK (average of Sensitivity & Stressors)			7.02	Higher		3.82

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.

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	
	Cambridge Wetland 11
Investigator Name:	BL, CP
Date of Field Assessment:	29 September 2021
Nearest Town:	Waterville, NS
Latitude (decimal degrees):	368998.02 m E,
Longitude (decimal degrees):	4989608.29 m N UTM 20T
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	~4 ha
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.	Yes
How many wetlands have you assessed previously using WESP-AC? (approx.)	Yes
Comments about the site or this WESP-AC assessment (attach extra page if desired):	

	A	В	C	D	Е
	Date:	29 Sept 2021	Site Identifier: Highway 101 Cambridge Wetland 11	Investiga	ator: BL CP
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	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	Sparial data Oxido III 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
10			<0.01 hectare (about 10 m x 10 m).	0	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 popup menu). [PH, SBM, WBN]
12			0.1 - 1 hectare.	0	up monu). [i ri, oow, word]
13			1 to 10 hectares.	1	
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.	0	
20			1 to 10 hectares.	0	
21			10 to 100 hectares.	1	
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
()F5	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	
()F6	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:		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]
			1 . [* NOTE: Exclude lawns, row crops, heavily grazed lands, forest, shrublands. Include moss as well as grasslike plants in this use of		
39			"herbaceous vegetation"		
	DF7	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,	0	See above. Do not consider conifer plantations to be forest if it is obvious that trees were planted in
	, ,	woody oriiqueriess	consider:	O	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.]		
		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
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			IS:	0	
42			<5% of the land.		-
43			5 to 20% of the land.	0	-
44			20 to 60% of the land. 60 to 90% of the land.	0	-
45				0	
46)F9	T	>90% of the land. SKIP to OF10.	U	[AM CDM]
47)F9	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		Alleration	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)F10	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
51		Nearest Population	<100 m.	1	square kilometer. In Google Earth Pro, click on the Ruler icon, then Path, and draw and measure the
52		Center	100 - 500 m.	0	route. [FAv, FRv, NRv, PH, PU, SBM, WBFv]
53			0.5-1 km.	0	1
54			1 - 5 km.	0	1
55			>5 km.	0	
)F11	Distance to Nearest	From the center of the AA, the distance to the nearest maintained public road (dirt or paved) is:	J	Determine this by viewing aerial imagery in Google Earth Pro and measuring with the Ruler>Line
56		Maintained Road	· · · · · · ·		tool. [AM, FAv, FRv, NRv, PH, PU, SBM, STR, WBN]
57			<10 m.	1	[, , , , , , , , , , , , , , , , ,
58			10 - 25 m.	0	
59			25 - 50 m.	0	
60			50 - 100 m.	0	
61			100 - 500 m.	0	
62			>500 m.	0	

- A	4	В	С	D	Е
OF 63	12	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 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 toblank if there are no other wetlands within 5 km.	0	Draw the 5 km circle in Google Earth Pro using the Circle tool and search for roads and wetlands within it, being alert for roads hidden under forest canopy. [AM, SBM, STR]
64 OF		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
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	wetlands that appear to be permanently flooded. [AM, PH, SBM, Sens, WBF, WBN]
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.	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	OF14 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	1
75			1 -2 km.	0	1
76			2-5 km.	0	
77			5-10 km.	1	
78			>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
80			<100 m.	0	is closer. If you need to see how far upriver a river is tidal, see the KMZ file provided with this 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.	0	1
84			10-40 km.	1	1
85			>40 km.	0	

	Δ	В	C	D	F
86	OF16	Upland Edge Contact	Select one:	Ь	[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	
92		Flood Damage from Non tidal Waters	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 finer elevational resolution useful for flood modeling. [WSv]
93	1	tidai waters	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	provide finer elevational resolution userui to nood modeling. [w.sv]
94	ļ		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 levees, upriver dams, or other measures may partly limit damage or risk from smaller events.	0	
95	;		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure vulnerable to river flooding unrelated to tidal storm surges.	0	
96	5		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there isno infrastructure vulnerable to river flooding unrelated to tidal storm surges.	1	
97		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 watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-min).	0.02	[FA, NR, Sens, SFSv, WCv, WSv]
98			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]

	Α	В	С	D	E
	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.		
			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	
			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.		
	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 (Catchment)	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		http://atlas.gc.ca/toporama/en/index.html [NR, PR, Sens, SR, WS]
		(Catchinent)	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.	1	
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	0	
113			bog).		
		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%.	0	
116			10 to 25%.	1	
117	0524	T	>25%.	0	IND. DD. CD. MC.
	OF 24	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. This statement is:		
118					
119			Mostly true.	0	
120			Somewhat true.	0	
121	0505		Mostly untrue.	1	IAM ND CEC WO WEL
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.	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
14/					Nova Scotia Tono as the Raseman. Also enable the laver Forestry>WAM Predicted Flow. Then

A	В	С	D	E
128		10 - 50 m.	0	measure the inlet-outlet distance. [NR, OE, PR, SR, WS]
129		50 - 100 m.	0	induction and talest distance. [HIV] deep to deep
130		100 - 1000 m.	1	1
131		1- 2 km.	0	
132		>2 km, or wetland lacks an inlet and outlet.	0	
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.	2200	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 stocked. [AM, FA, FR, INV, WBF, WBN]
135		Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. Go to Provincial Landscape Viewers-Wildlifes-Significant Habitats-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	Deen Stuckeu. [AW, FA, FK, IIVV, WDF, WDIV]
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.	1	
137		Is probably is not accessed by any anadromous fish species but is known or likely to haveother fish at least seasonally.	0	1
138		Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	0	
OF29	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 ar approved protocol. For birds, also check eBird.org. [AMv, EC, PHv, POLv, SBMv, Sens, WBFv,
140		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 mapped Atlantic Coastal Plain Flora Buffer (go to Provincial Landscape Viewer> Wildlife> Special Management Practice Zones).	0	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 nestingsongbird 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.	0	
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 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]
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 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]
OF32	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]
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 t blank (not 0).	0	[PU]
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]
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]
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 o the Manual). Enter "0" if false. If no information, change to blank .	0	[AM, FA, FR, INV, PH]
OF38	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]

A	В	C	D	Е
54		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	
55		Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are allowed.	0	
56		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable or not) is in place.	0	
57		Ownership is private and owner does not allow access, or access permission unknown, and not a conservation easement.	1	

	Α	В	С	D	E
	Date: 29 Sept 2021		Site Identifier: Cambridge WL-11	Investigator: CP, BL	
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.		They include Produce Industrials 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 lauret, and a sedge (Carex rarifiora). 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	
	The AA include " adjac describ	A should also include par the open water part ac ent " is used synonymo ped 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 lijacent 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.		
11	F2	Wetland Types -	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		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
12		Adjoining or Subordinate	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.		10 m, or similar. [AM, INV, SBM, WBF]
13			A1.	0	
14 15			A2. B1.	0	
15			B1. 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 (nonwoody) 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
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]

FieldF form - Non-tidal Page 1 of 10

	A	В	C	D	E
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.	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	<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	
•		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 (perimeter). The edge should include only the trees whose canopies extend into the AA.		Estimate the diameters at chest height. If small-diameter trees are overtopped (shaded) by larger
28		Classes		1	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
29			coniferous, 1-9 cm diameter and >1 m tall.	1	species. [AM, CS, POL, SBM, Sens, WBN]
30			broad-leaved deciduous 1-9 cm diameter and >1 m tall.	1	
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		Height Class	Follow the key below and mark the ONE row that best describes MOST of the AA:		[AM, INV, NR, PH, SBM, Sens]
38		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.		
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	Ů	
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	F7	Lana Cana /Dand	absent.		
44	F/	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		otaliang 11000)	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			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	
51	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) is:		Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
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	
	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	
-			- '		

FieldF form - Non-tidal Page 2 of 10

	A	В	С	D	E
	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,	_	Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that is
63		Thatch	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 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 68			Other conditions.	0	-
68	F12	Cround Irrogularity	Not applicable. Surface water (either open or obscured by emergent plants) covers all of the AA all the time. Imagine the AA without any living vegetation. Excluding the portion of the AA that is always under water, the number of hummocks, small	0	The depressions may be of human or natural origin. [AM, EC, INV, NR, PH, POL, PR, SBM, SR, WS]
	ΓIZ	Ground Irregularity	pits, raised mounds, animal burrows, ruts, qullies, natural levees, microdepressions, and other areas of peat or mineral soil that are raised or		The depressions may be of numari of natural origin. [Aw, EC, 1144, 184, FH, FOL, FR, 36W, 3K, W3]
(0)			depressed >10 cm compared to most of the area within a few meters surrounding them is:		
69				0	-
70 71			Few or none (minimal microtopography; <1% of the land has such features, or entire AA is always water-covered). Intermediate.	1	
72			Several (extensive micro-topography).	0	
	F13	Upland Inclusions	Within the AA, inclusions of upland are:	- U	[AM, NR, SBM]
73	1 13	opianu inclusions	·		[AW, WA, DOW]
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.		
70			Fines: includes silt, clay, silt, soils that make a ribbon longer than 2 cm when moistened, rolled, squeezed, and extended between thumb and	1	
79 80			forefinger. Deep Peat, to 40 cm depth or greater.	0	
81			Shallow Peat or organic <40 cm deep.	0	-
81			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.	U	
	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	
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	4
89			<5% of the vegetated part of the AA of <0.01 flectate (whichever is less), mark if there alloaking to F20 (invasive Plant Cover).	U	
90			5-25% of the vegetated part of the AA.	1	
91			25-50% of the vegetated part of the AA.	0	1
92			50-95% of the vegetated part of the AA.	0	1
93			>95% of the vegetated part of the AA.	0	1
	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,
94	••				or others that lack showy flowers. [POL]
95			<5% of the herbaceous part of the AA.	0	
96			5-25% of the herbaceous part of the AA.	1	
97			25-50% of the herbaceous part of the AA.	0	1
98			50-95% of the herbaceous part of the AA.	0	4
99	F10	0 1 0	>95% of the herbaceous part of the AA.	0	[00]
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	

FieldF form - Non-tidal Page 3 of 10

	Α	В	С	D	E
103	3		50-95% of the vegetated area.	0	
104	ı		>95% of the vegetated area.	0	
			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	5	Abundant Herbaceous	aquatic plants). Then choose one of the following:		

FieldF form - Non-tidal Page 4 of 10

	Α	В	С	D	E
106		Species	those species together comprise > 50% of the areal cover of herbaceous plants at any time during the year.	0	-
		·	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 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).	0	
110			invasive species are present in more than trace amounts, but comprise <5% of herbaceous cover (or woody cover, if the invasives are woody).	1	
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	1
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]
121		% 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]
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	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.	1	
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	
12,		% of AA with Persistent Surface	Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during the driest 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		If you are unable to determine the condition at the driest time of year, ask the land owner or neighbors 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	
133			>95% of the AA. True for many fringe wetlands.	0	
134		% of Summertime Water that Is Shaded	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 within the AA at that time is:		[FA, WC]
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.	1	
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) plant species. In riverine systems, the extent of this zone can be estimated by multiplying by 2 the
142		Seasonally	1-20% of the AA, or <1% but >0.01 ha.	1	brank 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]

FieldF form - Non-tidal Page 5 of 10

	A	В	С	D	E
144			50-95% of the AA.	0	
145			>95% of the AA.	0	
146		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 A (Conne		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		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
157			1 - 2 m deep.	0	well as ponded areas. [CS, FA, FR, INV, OE, PH, PR, Sens, SFS, SR, WBF, WBN, WC]
158			>2 m deep. True for many fringe wetlands.	0	
	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,
159		Evenness of			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		Торогионз	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	
163		% 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]
164		onded (not nowing)	<5% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34.	1	
165			5-30% of the water.	0	
			30-70% of the water.	0	
166			70-95% of the water.	0	-
167 168					
168	F00	Decided Occasional	>95% of the water.	0	
169		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 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).	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.
107	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.	0	
176			100% of the ponded water.	0	
		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	
184	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 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.	0	1
187			25-50% of the water edge.	1	
10/			Lo do lo maior dago.		

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	Α	В	С	D	E
188		2	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) bulrush		Emergent vegetation is herbaceous plants whose stems are partly above and partly below the water
190		J	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.	1	
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 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	
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	1	
198	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	1	
			growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection).	1	
199		11			
		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.
201 202			Little or none.	0	[AM, FA, FR, INV]
202			Intermediate.	1	
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	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	J	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]
205		Duckweed	>50% of the underwater substrate. If true, enter "1" in next column. If untrue or uncertain, enter "0".		
	F42		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
			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,
207			Persistent (surface water flows out for >9 months/year).	1	SFS, SR, WCv, WS]
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	Е
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>0</td><td></td></once>	0	
	E13	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,
212	1 43	Outnow Commenterit			NR, OE, PR, Sens, SR, STR, WS
			Mostly passes through a pipe, culvert, narrowly breached dike, berm, beaver dam, or other partial obstruction (other than natural topography)	0	
213			that does not appear to drain the wetland artificially during most of the growing season.	-	4
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.	1	
	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	1	F42 above. [NRv, PH, PRv, SRv]
216			further upslope. If no, SKIP to F47 (pH Measurement).		
	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]
		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		Resistance	incoming water].		
			Does not bump into many plant stems as it travels through the AA. Nearly all the water continues to travel in unvegetated (often incised)	1	
219			channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond or lake.		
220			Bumps into herbaceous vegetation but mostly remains in fairly straight channels.	0	
220			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 braided).	0	
222					
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
	F47	pH Measurement	The pH in most of the AA's surface water: 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
224 225	F47	pH Measurement	·	0	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
224 225 226	F47	pH Measurement	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".		passed through (not along) most of the AA. Unless surface water is completely absent, do not dig holes
224 225	F47		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". Neither of above. Enter "1".	0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
224 225 226 227 228	F47	TDS and/or	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".		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
224 225 226 227 228 229	F47		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". Neither of above. Enter "1".		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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
224 225 226 227 228 229 230	F47	TDS and/or	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information):		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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
224 225 226 227 228 229 230 231	F47	TDS and/or	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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.]		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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
224 225 226 227 228 229 230	F47	TDS and/or	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 µS/cm in the column to the right.]	1	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
224 225 226 227 228 229 230 231 232	F47	TDS and/or	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information): 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 pScm in the column to the right.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1".	0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]
224 225 226 227 228 229 230 231	F48	TDS and/or Conductivity	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". Neither of above Use of the AA by beaver during the past 5 years is (select most applicable ONE):	0 1	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
224 225 226 227 228 229 230 231 232 233	F47	TDS and/or Conductivity	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information): 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 pS/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	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
224 225 226 227 228 229 230 231 232	F48	TDS and/or Conductivity	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". Neither of above Use of the AA by beaver during the past 5 years is (select most applicable ONE):	0 1	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
224 225 226 227 228 229 230 231 232 233	F48	TDS and/or Conductivity	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information): 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 pS/cm in the column to the right.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". 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).	0 1	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
224 225 226 227 228 229 230 231 232 233	F48	TDS and/or Conductivity	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 µS/cm in the column to the right, if measured, or answer next row.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". 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, 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 1	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
224 225 226 227 228 229 230 231 232 233 234	F48	TDS and/or Conductivity	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". 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 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	0 1	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]
224 225 226 227 228 229 230 231 232 233	F49	TDS and/or Conductivity Beaver Probability	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". 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, 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.	0 1 0 0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN]
224 225 226 227 228 229 230 231 232 233 234	F48 F50	TDS and/or Conductivity Beaver Probability Groundwater Strength	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 µS/cm in the column to the right, if measured, or answer next row.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". 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, 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 1 0 0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other
224 225 226 227 228 229 230 231 232 233 234 235	F49	TDS and/or Conductivity Beaver Probability	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's 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 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". 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, 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.	0 1 0 0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other evidence. Consult topographic maps to detect breaks in slope described here. Rust deposits
224 225 226 227 228 229 230 231 232 233 234 235 236 237	F49	TDS and/or Conductivity Beaver Probability Groundwater Strength	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information): 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 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". 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, 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.	0 1 0 0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or 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
224 225 226 227 228 229 230 231 232 233 234 235	F49	TDS and/or Conductivity Beaver Probability Groundwater Strength	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information): 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". 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, 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. Select first applicable choice: 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 1 0 0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or other evidence. Consult topographic maps to detect breaks in slope described here. Rust deposits
224 225 226 227 228 229 230 231 232 233 234 235 236 237	F49	TDS and/or Conductivity Beaver Probability Groundwater Strength	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". Neither of above. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information): 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 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". 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, 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. Select first applicable choice: 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. 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 0 0	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 roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] [FA, FR, PH, SBM, Sens, WBF, WBN] Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH, or 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
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В	C	D	E
nternal 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
		0	outlet, divided by the flow-distance between them and converted to percent. If available, use a
		1	clinometer to measure this. Free clinometer apps can be downloaded to smartphones. If the wetland is
		n	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, SR, WBF, WBN, WS]
r the next three quest		Ť	
cent. In many situation	ns, these questions are best answered by measuring from aerial images.		
/egetated Buffer as % of Perimeter	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]
		1	
		0	
		0	AMERICAN PROPERTY OF THE PROPE
Гуре 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]
	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	
	2-5%.	1	
	5-30%.	0	
	>30%.	0	
Cliffs or Steep Banks		0	Do not include upturned trees as potential den sites. [POL, SBM]
	•		
			Determine this using historical aerial photography, old maps, soil maps, or permit files as available
vetiand			[CS, NR, OE, PH, Sens]
	····		
	, , ,		
		1	
Burn History	, ,		Look for charred soil or stumps (in multiple widely-spaced locations) or ask landowner. [CS, PH, STR]
Sam i listory	. 3 0	0	
	, ,		
	, ,		
	,	1	
/isihility	, v	-	[PU, STR, WBFv]
risibility			[i o, o i i, i io i i]
	•	1	
	25-50%.	0	
	>50%.	0	
Von-consumptive	Assuming access permission was granted, select ALL statements that are true of the AA as it currently exists:		[PU, STR]
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.	1	
	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	
	Within or near the AA, there is an interpretive center, trails with interpretive signs or brochures, and/or regular guided interpretive tours.	0	
	cent. In many situation egetated Buffer as % f Perimeter type of Cover in uffer uffer Slope liffs or Steep Banks lew or Expanded /etland urn History isibility on-consumptive lses - Actual or	E5%.	the next three questions: If he AA lacks an upland edge, evaluate based on the AA's entire perimeter, and moving outward into whatever areas zent. In many situations, these questions are best answered by measuring from aerial images. egetated Buffer as % Within a zone extending 30 m laterally from the AA's edge with upland and/or other wetlands, the percentage that containsperential vegetation cover (except fearure, row cops, heavily grazed stand, contiler plantialisers) is: - 5% 10

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	Α	В	С	D	E
282	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	
285 286			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	
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.	1	
291			5-50%.	0	
292			50-95%.	0	
293			>95% of the AA.	0	
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]
295		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]
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	1	(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	0	
298 299	1	Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0	
299	1		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	1		100-500 m. away.	0	
306	1		>500 m. away, or no information.	1	
307	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.	0	[PH, PR]

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Investigator: BL, CP	Site Identifier: Cambridge Wetland 11	Date: 29 Sept 2021	•
Stressor (S) Data Form for Non-Tidal	Wetlands. 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 the	eir volume) to shift by hours, days, or weeks, becoming either more m	nuted (smaller or less frequent peaks spread over longer	₩			
times, more temporal homogeneity of flow or water levels) or more fl			atea (emaner er rese mequem peane opreda etter tenger				
Stormwater from impervious surfaces that drains directly to the wet	land.						
Water subsidies from wastewater effluent, septic system leakage, s	snow storage areas, or irrigation.						
Regular removal of surface or groundwater for irrigation or other co	nsumptive use.						
Flow regulation in tributaries or water level regulation in adjoining w	rater body, or other control structure at water entry points that reg	gulates inflow to the wetland.					
A dam, dike, levee, weir, berm, or fill within or downgradient from	the wetland that interferes with surface or subsurface flow in/or	out of the AA (e.g., road fill, wellpads, pipelines).					
Excavation within the wetland, e.g., dugout, artificial pond, dead-end ditch.							
Artificial drains or ditches in or near the wetland.							
Accelerated downcutting or channelization of an adjacent or internal	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	machinery, livestock, fire, drainage, or off road vehicles.						
Straightening, ditching, dredging, and/or lining of tributary channels							
If any items were checked above, then for each row of the table belo rows. To estimate effects, contrast the current condition with the con		no measurable effect on the timing of water conditions in any part of sent.	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.				
When most of the timing shift began:	<3 yrs ago.	3-9 yrs ago.	10-100 yrs ago.				
Score the following 2 rows only if the altered inputs began within pas	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.				
Flashiness or muting:	Became very flashy or controlled.	Intermediate.	Became mildly flashy or controlled.				
			Sum=	:			
			Stressor subscore=	-			
Accelerated Inputs of Contaminants and/or	Salts			Т			
In the last column, place a check mark next to any item occurring i	in either the wetland or its CA that is likely to have accelerated	the inputs of contaminants or salts to the AA. [AM, FA, PH, POL, STI	RJ	П			
Stormwater or wastewater effluent (including failing septic systems)), landfills, industrial facilities.						
Metals & chemical wastes from mining, shooting ranges, snow storapri/default.asp?lang=En&n=B85A1846-1	age areas, oil/ gas extraction, other sources (download many loc	ations 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	or other areas in the CA.						
If any items were checked above, then for each row of the table belo following rows. To estimate effects, contrast the current condition win		not cumulatively expose the AA to significantly higher levels of contar onger present.	minants 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.				
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=				

Accelerated Inputs of Nutrients									
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 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.									
Livestock, dogs.				1					
Artificial drainage of upslope lands.									
	e below, assign points. However, if you believe the checked items did no n if the checked items never occurred or were no longer present.	ot cumulatively expose the AA to significantly more nutrients, then	leave the "O's" for the scores in the following rows. To						
	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.	1					
Frequency & duration of input:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.	1					
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=	3					
			Stressor subscore=						

	ting Area								
In the last column, place a check mark next to any item present in the	e CA that is likely to have elevated the load of waterborne or win	dborne sediment reaching the wetland from its CA. [FA, FR, INV,	PH, SRv, STR]						
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 ex	straction.								
Accelerated channel downcutting or headcutting of tributaries due to	altered land use.								
Other human-related disturbances within the CA.									
If any items were checked above, then for each row of the table below, assign points (3, 2, or 1 as shown in header) in the last column. However, if you believe the checked items did not cumulatively add significantly more sediment or suspended solids to 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)						
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, excavation, erosion with or without veg removal; low-intensity= veg removal only with little or no apparent erosion or disturbance of soil or sediment.									
• ,	availon, crosion with or without veg removal, Tow-Intensity- ve	g removal only with little of no apparent erosion of disturbance of	Sum=						
• ,	zavation, crosson with or without veg removal, Tow-intensity- ve	g removal only with little of the apparent erosion of distulbance of	Sum= Stressor subscore=						
• ,	, , , , , , , , , , , , , , , , , , ,	g removal only with little of the apparent erosion of distulbance of							
soil or sediment.	ssment Area		Stressor subscore:						
Soil or Sediment. Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the	ssment Area e wetland that is likely to have compacted, eroded, or otherwise		Stressor subscore:						
Soil or sediment. Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR]	ssment Area e wetland that is likely to have compacted, eroded, or otherwise		Stressor subscore:						
Soil or Sediment. Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai	essment Area e welland that is likely to have compacted, eroded, or otherwise n bikes, especially during wetter periods.		Stressor subscore:						
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour.	essment Area e wetland that is likely to have compacted, eroded, or otherwise n bikes, especially during wetter periods.	altered the wetland's soil. Consider only items occurring within pas	Stressor subscore:						
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native place)	essment Area e wetland that is likely to have compacted, eroded, or otherwise n bikes, especially during wetter periods.	altered the wetland's soil. Consider only items occurring within pas	Stressor subscore:						
Soil or Sediment. Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing org.	essment Area e wetland that is likely to have compacted, eroded, or otherwise n bikes, especially during wetter periods.	altered the wetland's soil. Consider only items occurring within pas	Stressor subscore:						
Soil or Sediment. Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing organization.	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. Initis). Initialization amendments (compost, etc.) or small amounts of topsoil in	altered the wetland's soil. Consider only items occurring within pas	Stressor subscore:						
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native played in the played in t	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. Intis). anic amendments (compost, etc.) or small amounts of topsoil in e erosion or stir bottom sediments.	altered the wetland's soil. Consider only items occurring within pas	Stressor subscore:						
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native plays in riprap, excluding small amounts of upland soils containing organization. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause short	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. Inits). anic amendments (compost, etc.) or small amounts of topsoil in e erosion or stir bottom sediments. or stir bottom sediments. w, assign points. However, if you believe the checked items did	altered the wetland's soil. Consider only items occurring within pass	Stressor subscores						
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native play Fill or riprap, excluding small amounts of upland soils containing organization. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause short Artificial water level or flow manipulations sufficient to cause erosion If any items were checked above, then for each row of the table below.	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. Inits). anic amendments (compost, etc.) or small amounts of topsoil in e erosion or stir bottom sediments. or stir bottom sediments. w, assign points. However, if you believe the checked items did	altered the wetland's soil. Consider only items occurring within pass	Stressor subscores						
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing orge Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause short Artificial water level or flow manipulations sufficient to cause erosion If any items were checked above, then for each row of the table below effects, contrast the current condition with the condition if the checked	e wetland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. Inits). Inits). Inits). Inits in the period	allered the wetland's soil. Consider only items occurring within pass	Stressor subscores st 100 years or since welland was created or restored we the "0's" for the scores in the following rows. To estimate						
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native play Fill or riprap, excluding small amounts of upland soils containing organization. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause short Artificial water level or flow manipulations sufficient to cause erosion If any items were checked above, then for each row of the table below.	e welland that is likely to have compacted, eroded, or otherwise in bikes, especially during wetter periods. Inits). Inits). Inits in the period in the p	altered the wetland's soil. Consider only items occurring within pass	Stressor subscores st 100 years or since welland was created or restored we the "0's" for the scores in the following rows. To estimate Mild (1 point)						
Soil or Sediment Alteration Within the Asses In the last column, place a check mark next to any item present in the (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountai Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native pla Fill or riprap, excluding small amounts of upland soils containing orga Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause short Artificial water level or flow manipulations sufficient to cause erosion If any items were checked above, then for each row of the table below effects, contrast the current condition with the condition if the checked. Spatial extent of altered soil:	e welland that is likely to have compacted, eroded, or otherwise In bikes, especially during wetter periods. Initis). Initial: Initi	altered the wetland's soil. Consider only items occurring within pass reported from another wetland. not measurably alter the soil structure and/or topography, then leas Medium (2 points) 5-95% of wetland or 5-95% of its upland edge (if any).	Stressor subscores st 100 years or since wetland was created or restored ve the "0's" for the scores in the following rows. To estimate Mild (1 point) <5% of wetland and <5% of its upland edge (if any).						

Stressor subscore=

0.00

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)	0.31	Lower	4.34	Moderate	2.18	1.93
Stream Flow Support (SFS)	4.07	Moderate	3.25	Moderate	3.28	2.16
Water Cooling (WC)	8.90	Higher	4.87	Moderate	5.93	2.64
Sediment Retention & Stabilisation (SR)	1.80	Lower	10.00	Higher	3.60	4.95
Phosphorus Retention (PR)	0.00	Lower	9.46	Higher	3.73	7.36
Nitrate Removal & Retention (NR)	1.58	Lower	10.00	Higher	3.92	10.00
Carbon Sequestration (CS)	1.15	Lower			5.74	
Organic Nutrient Export (OE)	8.13	Higher			5.31	
Anadromous Fish Habitat (FA)	5.25	Higher	7.81	Higher	3.44	4.96
Resident Fish Habitat (FR)	5.02	Moderate	7.94	Higher	2.73	4.96
Aquatic Invertebrate Habitat (INV)	6.63	Higher	6.23	Higher	6.20	4.60
Amphibian & Turtle Habitat (AM)	4.15	Moderate	4.92	Moderate	5.30	5.81
Waterbird Feeding Habitat (WBF)	6.28	Moderate	5.00	Moderate	4.78	5.00
Waterbird Nesting Habitat (WBN)	5.08	Moderate	5.00	Higher	3.69	5.00
Songbird, Raptor, & Mammal Habitat (SBM)	8.80	Higher	5.00	Moderate	7.66	5.00
Pollinator Habitat (POL)	7.40	Moderate	3.33	Moderate	6.13	3.33
Native Plant Habitat (PH)	4.75	Moderate	5.71	Moderate	5.80	5.71
Public Use & Recognition (PU)			2.98	Moderate		2.34
Wetland Sensitivity (Sens)			7.02	Moderate		4.17
Wetland Ecological Condition (EC)			5.65	Moderate		7.92
Wetland Stressors (STR) (higher score means more stress)			10.00	Higher		5.96
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	0.31	Lower	4.34	Moderate	2.18	1.93
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	1.47	Lower	9.91	Higher	4.99	8.72
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	7.92	Higher	5.50	Moderate	5.69	3.87
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	5.72	Moderate	7.04	Higher	4.64	5.48
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	7.89	Higher	5.19	Lower	7.10	5.19
WETLAND CONDITION (EC)			5.65	Moderate		7.92
WETLAND RISK (average of Sensitivity & Stressors)			8.51	Higher		5.07

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.