CHALEUR VENTUS WIND ENERGY PROJECT

APPENDIX K - VEGETATION AND WETLANDS REPORT

CHALEUR VENTUS LIMITED PARTNERSHIP

November 2019







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1 INTRODUCTION

This report provides a summary of the Vegetation and Wetland Studies completed in support of the Chaleur Ventus Wind Energy Project (Project) Registration Document that was submitted to the Sustainable Development, Planning and Impact Evaluation Branch, Department of Environment and Local Government in September of 2019.

The purpose of this report is to present the methods and results of the vegetation and wetland surveys completed in support of this Project.

1.1 PROJECT OVERVIEW

Chaleur Ventus Limited Partnership (CVLP) is proposing the development of the Project. The Project is located on privately owned land south of route 303 in Gloucester County, New Brunswick, and will have an aggregate electrical capacity of 20 megawatts (MW). The Project will consist of five wind energy converters (WECs), access roads, collection system, substation, and associated temporary laydown areas required for construction. An approximate 9 kilometre (km) transmission line is proposed that runs south and southwest from the Project area to a proposed substation that will be located on Crown land approximately 2.8 km southeast of Saint-Leolin.

The Project is expected to consist of Enercon E-126 WECs with a nominal power of 4 MW. Each assembly will consist of the tower, hub, nacelle, rotor blades, and controller, with a total height of 179.5 to 194.5 metres (m) and is dependent on WEC availability from Enercon. The total WEC rotor diameter will be 127 m. It is anticipated that each WEC will be erected on a concrete foundation. The dimensions, depth, and type of foundation will depend on an evaluation of the local soil, surficial geology characteristics, wind forces at the location, and site-specific details of each location.

2 METHODS

2.1 STUDY AREAS

Two study areas were selected for the vegetation and wetlands field programs and are defined as follows:

- **WEC Site Study Area:** Includes the five WEC locations selected for the Project and one alternative location. The WEC Site Study Area is bordered by Route 320, Chemin Downing, Route 303 and Rue Acadie.
- **Tapline Study Area:** A 30 m right of way on an approximately 9 km long tapline that runs south and southwest from the Project area to a proposed substation that will be located on Crown land.

2.2 BACKGROUND REVIEW

For the purposes of this report, species of conservation concern (SOCC) are identified as floral or faunal species that are ranked by the Atlantic Canada Conservation Data Centre (ACCDC), protected by the New Brunswick *Species at Risk Act (NB SARA)*, designated by Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as threatened, endangered, or special concern or protected by the federal *Species at Risk Act (SARA)*. Although many SOCC ranked by the ACCDC are considered rare in New Brunswick, those protected or listed by federal and provincial legislation are of particular concern.

Prior to completing field surveys, the following sources were reviewed to evaluate the potential for SOCC within the general area of the proposed Project and within the study areas:

- ACCDC
- The federal Species at Risk Registry
- COSEWIC
- GeoNB

- High resolution aerial photography
- Environmentally Significant Areas database
- Ecological Reserves in the Maritimes

In addition, a desktop review of provincial databases, topographic mapping, and available satellite imagery was conducted to assist in the identification of wetland areas within the study areas. Provincially mapped wetlands were identified using Geo NB.

2.3 VEGETATION

Field surveys were conducted within the WEC Site Study Area from August 21 to 22, 2018 in representative habitats within the WEC Site Study Area. Additional vegetation surveys were conducted as part of wetland delineation and functional assessment within the WEC Site Study Area and along the Tapline Study Area during the dates presented in Section 2.4. Observations were recorded for vegetation species and for areas of potential unique or pristine vegetation communities. Vegetation was identified using the Flora of New Brunswick (Hinds et al., 2000).

2.4 WETLAND DELINEATION AND FUNCTIONAL ASSESSMENT

2.4.1 WETLAND IDENTIFICATION AND DELINEATION

Targeted surveys to confirm and delineate wetland habitat were conducted in the areas identified in the background review and site reconnaissance completed between spring and summer of 2018. Field surveys were conducted within the WEC Site Study Area June 12 and 13, July 1 to 5, and July 11, 2018. Field surveys were conducted along the Tapline Study Area July 23 and 24 and September 5, 2019. Figures showing the sample locations within the WEC Site Study Area and the Tapline Study Area are presented in Appendix A, Figures A-1 and A-2, respectively. Selected locations were established in representative areas within each wetland type so they did not straddle two or more types of vegetation.

Wetland type was determined using the Canadian Wetland Classification System (NWWG, 1998). Wetlands were evaluated in accordance with the U.S. Army Corps of Engineers Wetlands Delineation Manual (Corps Manual) and the Northcentral and Northeastern Interim Regional Supplement (U.S. Army Corps of Engineers, 2012). The targeted surveys consisted of traversing the landscape using a set of evenly spaced transects (approximately 50 to 100 m apart) in search of areas showing typical wetland characteristics. For an area to be identified as wetland, it must contain indicators of hydrophytic vegetation, hydric soils, and wetland hydrology as described in the following subsections.

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 influence the plant species present. Hydrophytic indicators are plant species that require or can tolerate either continuous or seasonal periods of saturated soil conditions. Indicator status varies from obligate (> 99% of occurrences are in a wetland) to upland (< 1% of occurrences are in a wetland). Information on hydrophytic vegetation was collected and recorded by stratum (i.e., tree, shrub, and herb) as defined in the Corps Manual. Vegetation was identified using the Flora of New Brunswick (Hinds et al., 2000).

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 soil layers. Hydric soil indicators are formed predominantly by the accumulations of organic matter, and/or reduction, translocation, or accumulation of iron or other reducible elements in a saturated and anaerobic environment. Examples of hydric indicators include the presence of an organic soil (or Histosol) and mineral soils with gleyed (reduced) or mottled (oxidized) matrices.

Soil test pits were advanced in suspected wetland areas using a shovel and handheld auger. Hydric soil indicators were recorded. The Munsell Soil Color Charts (Munsell Color [Firm]) and the Northeastern U.S. Hydric Soil Indicators with Probable Application in Nova Scotia (Adapted from: Regional Supplement to the Corps of Engineers Wetland Delineation Manual Northcentral and Northeast Region. Version 2.0, 2012) were used.

WETLAND HYDROLOGY

Wetland hydrology indicators are used in combination with hydrophytic vegetation and hydric soil indicators. Wetland hydrology indicators provide evidence that a location has a continuing wetland hydrological regime and that the hydrophytic vegetation and hydric soil indicators are not only present because of a past hydrologic regime. 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

WETLAND DELINEATION

Once a wetland was identified, a soil test pit was advanced at an adjacent upland location (i.e., paired pit) and evaluated for the same criteria to help determine the location of the wetland boundary. Once the wetland boundary was determined, the wetland area was delineated by walking the boundary of the wetland. Wetland data and boundary points were recorded using a Differential GPS system, which has an accuracy of 1 to 2 m depending on tree cover. When necessary, additional soil pits were advanced to confirm the boundary.

2.4.2 FUNCTIONAL ASSESSMENT

Wetland functional assessments were completed within the WEC Site Study Area September 5, 2019, and along the Tapline Study Area July 23 to 25, 2019. A functional assessment for each wetland was completed using the Wetland Ecosystem Services Protocol for Atlantic Canada (NBDELG, 2018; WESP-AC Version 1.2.1, October 2017), which is a standardized desktop and field evaluation method designed to assess the condition and function of New Brunswick's wetlands. WESP-AC generates scores (0 to 10) and ratings (Lower, Moderate, and Higher) for each of the following attributes:

- Water Storage and Delay
- Stream Flow Support
- Water Cooling
- Sediment Retention and Stabilisation
- Phosphorus Retention
- Nitrate Removal and Retention

- Amphibian and Turtle Habitat
- Waterbird Feeding Habitat
- Waterbird Nesting Habitat
- Songbird, Raptor, and Mammal Habitat
- Pollinator Habitat
- Native Plant Habitat

- Carbon Sequestration
- Organic Nutrient Export
- Anadromous Fish Habitat
- Resident Fish Habitat
- Aquatic Invertebrate Habitat

- Public Use and Recognition
- Wetland Sensitivity
- Wetland Ecological Condition (higher score means more stress)
- Wetland Stressors

This is done in a consistent and transparent manner so that the scores and ratings can be used to make informed decisions about wetland avoidance, minimization, and replacement. It can also help to support wetland restoration balances unavoidable loss of specific functions and benefits (NBDELG, 2018). Table 1 describes the wetland functions and their benefits that are measured by the WESP-AC.

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

FUNCTION	DEFINITION	POTENTIAL BENEFITS								
Hydrologic Functions										
Water Storage and 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 Mai	ntenance Functions									
Water Cooling	The effectiveness for maintaining or reducing temperature of downslope waters.	Support cold water fish and other aquatic life.								
Sediment Retention and 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 and Retention	The effectiveness for retaining particulate nitrate and converting soluble nitrate and ammonium to nitrogen gas while generating little or no nitrous oxide (a potent greenhouse gas).	Maintain quality of receiving waters.								
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 and Reptile Habitat	The capacity to support or contribute to an abundance or diversity of native frogs, toads, salamanders, and turtles.	Maintain regional biodiversity.								

FUNCTION	DEFINITION	POTENTIAL BENEFITS
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, and 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 most dependent on wetlands or water.	Maintain regional biodiversity.
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 and Recognition ^(a)	some type of special protected area. Also, the potential and actual use of a wetland for	

Notes: extracted from NBDELG (2018)
(a) a benefit rather than a function of wetlands

3 RESULTS

3.1 BACKGROUND REVIEW

According to the ACCDC records review, there are six records of four species of vegetation SOCC that have been historically observed within 5 km of the Project's study areas (ACCDC, 2018; Table 2). No records of nonvascular plant SOCC have been documented within 5 km. Based on GeoNB mapping, no provincially significant wetlands are present within the Project's study areas.

Table 2 Plant SOCC Identified within 5 km of the Project

COMMON NAME	SCIENTIFIC NAME	PROVINCIAL RARITY RANK ^(A)	PROVINCIAL GENERAL STATUS RANK	NUMBER OF RECORDS	HABITAT PREFERENCE; LOCATION SIGHTING
Twisted Whitlow- grass	Draba incana	S1	May be at Risk	2	Rocky seashore, dry sloping juniper forests, riverside meadows. Found 2.8 km northwest of the Project
Northern Comandra	Geocaulon lividum	S3S4	Secure	1	Moist, boreal type forest. Found 3.7 km east of the Project
Dwarf Alkali Grass	Puccinella ambigua	S1	Undetermined	1	Wetland areas. Found 3.3 km northwest of the Project
Cloudberry	Rubus chamaemorus	S3S4	Secure	2	Swamps, bogs, peaty moors, wet areas. Found 3.3 km east of the Project

Note: None of these species are designated by COSEWIC, or protected by SARA or NB SARA

⁽a) Provincial Rarity Rank, where:

S1 - Extremely rare in province

S3S4 - A numeric range rank is used to indicate any range of uncertainty about the status of the species or community. S3 Uncommon in province. S4 Widespread, common and apparently secure in province

3.2 VEGETATION

The Project area is found in the Atlantic Maritime Ecozone. This Ecozone encompasses Quebec's Gaspe peninsula, as well as the entirety of Nova Scotia, Prince Edward Island, and New Brunswick. The ecozone is heavily influenced by the Atlantic Ocean, which provides cooler summers and warmer winters than many areas found inland. Agriculture and forestry are popular in this ecozone, contributing to the lack of old growth forest.

The ecoregion inside the Atlantic Maritime ecozone is called the Eastern Lowlands. This Ecoregion is a broad wedge of flat to gently rolling terrain. The region extends from Bathurst in the north, to Sackville in the south. The coastal area has a fringe of sand dunes, salt marshes, and lagoons which provide habitat for a distinct mix of flora and fauna. Further inland, peatlands are considered extensive, and host both common and rare plant species. Forests in this area are conifer-dominant, and resemble a boreal-type forest, which is a stark contrast from the deciduous-dominated valley lowlands found adjacent to this ecoregion. Due to the low local relief of the area, extensive peatlands and wet areas are found throughout, with discontinuous stands of black spruce and tamarack. Ericaceous shrubs are common in this low-lying area, and this ecoregion contains more wetland area than any other ecoregion in New Brunswick.

The local plant communities found in the Project area include wetland habitats, along with some areas of shrub, softwood, and to a lesser extent, hardwood, thinned areas with hardwood regeneration, clear-cut areas, and anthropogenic areas dominated by bare sand and soil. A total of 169 vegetation species were observed within the WEC Site Study Area and 229 species along the Tapline Study Area (Appendix B, Tables B-1 and B-2). The majority of species observed were native to New Brunswick, however 34 non-native or exotic species were observed within the WEC Site Study Area and 30 along the Tapline Study Area. Species commonly identified in the area include eastern white cedar (*Thuja occidentalis*), black spruce (*Picea mariana*), balsam fir (*Abies balsamea*), and tamarack (*Larix laricina*) in the tree stratum, however red maple (*Acer rubrum*), and trembling aspen (*Populus tremuloides*) may occur. Shrub species included speckled alder (*Alnus incana*), sheep laurel (*Kalmia angustifolia*), choke cherry (*Prunus virginiana*), mountain holly (*Nemopanthus mucronatus*), blueberry (*Vaccinium* spp.), wild raisin (*Viburnum nudum*), and rhodora (*Rhododendron canadense*). Herbaceous vegetation identified include cottongrass (*Eriophorum* spp.), three seeded sedge (*Carex trisperma*), cinnamon fern (*Osmunda cinnamomea*), sensitive fern (*Onoclea sensibilis*), yellow bluebead lily (*Clintonia borealis*), starflower (*Trientalis borealis*), and twinflower (*Linnaea borealis*).

3.2.1 PLANT SPECIES OF CONSERVATION CONCERN

Five plant SOCCs were observed within the WEC Site Study Area and three along the Tapline Study Area during the 2018 and 2019 field surveys (Table 3). None of the species identified during the background review (Section 3.1) were identified during field surveys. Although no other plant SOCC were observed during the site visit or historically observed, it does not preclude the possibility for other plant SOCC to be present. Occurrences can be missed due to timing of the field surveys, because species presence can vary annually and locally. In addition, climatic fluctuations might not allow adequate time for plants to mature and produce flowers, making the species more difficult to spot and identify. Available microhabitats can also vary over time and space. The plant surveys cannot confirm the absence of listed plant species or communities; it can only confirm their presence at the time of observation.

Table 3 Plant SOCC Identified during the 2018 and 2019 Field Surveys

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COMMON NAME	SCIENTIFIC NAME	PROVINCIAL RARITY RANK ^(A)	PROVINCIAL GENERAL STATUS RANK	HABITAT PREFERENCE; LOCATION SIGHTING
Field Wormwood	Artemesia campestris	S3	Secure	Open woods, grasslands, and disturbed areas; WEC Site Study Area
Wiegand's Sedge	Carex wiegandii	S3	Secure	Bogs, openings in acidic conifer, mixed, or alder swamps, wet acidic sandy or peaty meadows; WEC Site Study Area
Spotted Coralroot	Corallorhiza maculata	S3S4	Sensitive	Shady woodlands; Tapline Study Area
Marsh Horsetail	Equisetum palustre	S3	Secure	Marshes and swamps; WEC Site Study Area
White Fringed Orchid	Platanthera blephariglottis	S3	Secure	Open sphagnum bogs and moist sandy and peaty meadows; WEC Site Study Area
Lesser Pyrola	Pyrola minor	S3	Secure	Moist, often mossy sites in coniferous and boreal forests, thickets, stream banks; Tapline Study Area
Gmelin's Water Buttercup	Ranunculus gmeilinii	S3	Secure	Water or drying mud, wet meadows, swamps, marshes, ponds, shores of rivers; Tapline Study Area
River Bulrush	Schoenoplectus fluviatilis	S3	Sensitive	Fresh shores, inland marshes, coastal estuaries; WEC Site Study Area

Note: None of these species are designated by COSEWIC, or protected by SARA or NB SARA

S3S4 - A numeric range rank is used to indicate any range of uncertainty about the status of the species or community. S3 Uncommon in province. S4 Widespread, common and apparently secure in province

3.3 WETLAND DELINEATION AND FUNCTIONAL ASSESSMENT

3.3.1 WEC SITE STUDY AREA

The wetland delineation data sheets, photographic log, and functional assessment spreadsheets for the wetlands associated with the WEC Site Study Area are available in Appendices C, D and E, respectively. Parcel Identification Numbers for WEC Site Study Area wetlands are in Appendix F, Table F-1. Summaries of the functional assessment results are presented in Tables 4 and 5. The subsections following Tables 4 and 5 describe the characteristics of each of the five wetlands that were delineated within the WEC Site Study Area (see Appendix A; Figure A-1). A sixth previously mapped wetland is present within the southeastern section of the WEC Site Study Area, but wetland delineation and functional assessments were not completed for this wetland because of it's distance from the proposed footprint.

All the wetlands observed within the WEC Site Study Area were classified as swamps. Swamps are treed or tall shrub dominated wetlands occurring on either mineral or organic soils (NWWG, 1998). The typical features of a swamp are the dominance of tall woody vegetation and a wood-rich organic layer laid down by this vegetation. The total wetland area delineated within the WEC Site Study Area is approximately 375 hectares (ha).

⁽a) Provincial Rarity Rank, where:

S3 - Uncommon in province

Table 4 Non-tidal WESP-AC Function Scores for the WEC Site Study Area

	WL-A		WL-B+C		WL-D		WL-E	
Wetland Functions or Other Attributes	Function Rating	Benefits Rating	Function Rating	Benefits Rating	Function Rating	Benefits Rating	Function Rating	Benefits Rating
Water Storage and Delay	Higher	Moderate	Moderate	Moderate	Moderate	Lower	Higher	Lower
Stream Flow Support	Lower	Higher	Moderate	Higher	Lower	Moderate	Lower	Higher
Water Cooling	Moderate	Lower	Lower	Lower	Moderate	Lower	Moderate	Lower
Sediment Retention and Stabilisation	Moderate	Lower	Lower	Lower	Moderate	Lower	Moderate	Lower
Phosphorus Retention	Moderate	Lower	Moderate	Lower	Lower	Lower	Lower	Moderate
Nitrate Removal and Retention	Lower	Moderate	Lower	Moderate	Moderate	Lower	Moderate	Moderate
Carbon Sequestration	Moderate	-	Moderate	-	Moderate	-	Moderate	-
Organic Nutrient Export	Moderate	-	Moderate	-	Moderate	-	Higher	-
Anadromous Fish Habitat	Lower							
Resident Fish Habitat	Lower							
Aquatic Invertebrate Habitat	Lower	Moderate						
Amphibian and Turtle Habitat	Higher	Higher	Moderate	Moderate	Higher	Moderate	Higher	Moderate
Waterbird Feeding Habitat	Moderate							
Waterbird Nesting Habitat	Moderate	Moderate	Moderate	Moderate	Moderate	Lower	Moderate	Moderate
Songbird, Raptor, and Mammal Habitat	Higher	Moderate	Higher	Higher	Higher	Lower	Higher	Lower
Pollinator Habitat	Higher	Moderate	Higher	Moderate	Higher	Lower	Higher	Lower
Native Plant Habitat	Lower	Higher	Higher	Higher	Moderate	Moderate	Moderate	Moderate
Public Use and Recognition	-	Moderate	-	Lower	-	Lower	-	Moderate
Wetland Sensitivity	-	Moderate	-	Higher	-	Lower	-	Moderate
Wetland Ecological Condition	-	Moderate	-	Moderate	-	Higher	-	Higher
Wetland Stressors	-	Lower	-	Higher	-	Lower	-	Lower

Table 5 Non-tidal WESP-AC Summary Ratings for Grouped Functions for the WEC Site Study Area

Summary Ratings for Grouped	WL-A		WL-B+C		WL-D		WL-E	
Functions	Function Rating	Benefits Rating	Function Rating	Benefits Rating	Function Rating	Benefits Rating	Function Rating	Benefits Rating
Hydrologic Group	Moderate	Moderate	Moderate	Moderate	Lower	Lower	Lower	Lower
Water Quality Support Group	Moderate	Lower	Lower	Lower	Lower	Lower	Moderate	Lower
Aquatic Support Group	Moderate	Higher	Lower	Higher	Moderate	Moderate	Moderate	Higher
Aquatic Habitat Group	Moderate	Moderate	Moderate	Moderate	Moderate	Lower	Moderate	Moderate
Transition Habitat Group	Higher	Higher	Higher	Higher	Higher	Moderate	Higher	Moderate
Wetland Condition	-	Moderate	-	Moderate	-	Higher	-	Higher
Wetland Risk ^(a)	-	Moderate	-	Higher	-	Lower	-	Moderate

⁽a) Average of sensitivity and stressors.

WETLAND A (WL-A) - FORESTED SWAMP COMPLEX

WL-A is the most northwestern wetland within the WEC Site Study Area and is characterized as a 121 ha natural origin, terrene, flat, and isolated wetland that is seasonally flooded and permanently saturated.

Pre-existing anthropogenic effects include adjacent clear/partial cutting, clear/partial cutting within the wetland, road development and ATV trails. The wetlands primary and secondary indicators and attributes are described as follows:

Dominant wetland (hydrophytic) vegetation:

The dominant species in the tree stratum within WL-A is red maple, with speckled alder dominating the shrub stratum, and common lady fern (*Athyrium filix-femina*) and sensitive fern dominating the herbaceous layer. The vegetation community identified in WL-A is considered a hydrophytic vegetation community.

Soil profile:

- 0-3 centimetres (cm) organic
- 3-21 cm sandy with depleted redox features in matrix
- 21-32 cm clay; Gley-1 with depleted redox features in matrix
- 32 cm restrictive clay layer

Hydric soil indicator:

Depleted matrix

Primary wetland hydrology indicators present:

Primary indicators of wetland hydrology observed were high water table, saturation, and water stained leaves.

Functional Assessment:

Overall, based on the results of the WESP-AC functional assessment, WL-A functions highest at storing water or delaying the downslope movement of surface water, amphibian, turtle, songbird, raptor, mammal and pollinator habitat.

WETLAND B (WL-B) - MIXED WOOD SWAMP

WL-B is the largest of the five wetlands identified within the WEC Site Study Area, with an approximate area of 201 ha. This wetland is characterized as a natural origin, terrene, flat, and isolated wetland that is seasonally flooded and permanently saturated.

Pre-existing anthropogenic effects include adjacent clear/partial cutting, clear/partial cutting within the wetland, road development and ATV trails. The wetlands primary and secondary indicators and attributes are described as follows:

Dominant wetland (hydrophytic) vegetation:

The dominant species in the tree stratum within WL-B are red maple and balsam fir, with speckled alder and balsam fir dominating the shrub stratum, and bluejoint reed grass (*Calamagrostis canadensis*) dominating the herbaceous layer.

Soil profile:

- 0-22 cm organic
- 22-65 cm sandy with depleted redox features in matrix

Hydric soil indicator:

Histic Epipedon

Primary wetland hydrology indicators present:

Primary indicators of wetland hydrology observed were high water table, saturation and water stained leaves.

Functional Assessment:

Overall, based on the results of the WESP-AC functional assessment, WL-B functions highest as songbird, raptor, mammal, pollinator and native plant habitat.

WETLAND C (WL-C) - FORESTED WETLAND COMPLEX

WL-C is separated by a road from WL-B; it has an approximate area of 46 ha. This wetland is characterized as a natural origin, terrene, flat, and isolated wetland that is seasonally flooded and permanently saturated.

Pre-existing anthropogenic effects include adjacent clear/partial cutting, clear/partial cutting within the wetland, road development and ATV trails. The wetlands primary and secondary indicators and attributes are described as follows:

Dominant wetland (hydrophytic) vegetation:

The dominant species in the tree stratum within WL-C is black spruce, with black spruce and mountain holly dominating the shrub stratum, and three-leaved false Solomon's seal (*Maianthemum trifolium*) and three-seeded sedge dominating the herbaceous layer.

Soil profile:

- 0-36 cm organic
- 36 cm dark wet sandy soil

Hydric soil indicator:

Histic Epipedon

Primary wetland hydrology indicators present:

Primary hydrological indicators of wetland hydrology observed were high water table and saturation.

Functional Assessment:

Overall, based on the results of the WESP-AC functional assessment, WL-C functions highest as songbird, raptor, mammal, pollinator and native plant habitat.

WETLAND D (WL-D) - CONIFEROUS SWAMP

WL-D and is found in the northern section of the WEC Site Study Area, with an approximate area of 3 ha. This wetland is characterized as a natural origin, terrene, flat, and isolated wetland that is seasonally flooded and permanently saturated.

Pre-existing anthropogenic effects include a road/trail through the northern section of the wetland. The wetlands primary and secondary indicators and attributes are described as follows:

Dominant wetland (hydrophytic) vegetation:

The dominant species in the tree stratum within WL-D is black spruce, with black spruce and wild raisin dominating the shrub layer, and cinnamon fern and three-seeded sedge dominating the herbaceous layer.

Soil profile:

• 0-40 cm organic

Hydric soil indicator:

Histosol

Primary wetland hydrology indicators present:

The primary hydrological indicator of wetland hydrology observed was saturation.

Functional Assessment:

Overall, based on the results of the WESP-AC functional assessment, WL-D functions highest as amphibian, turtle, songbird, raptor, mammal and pollinator habitat.

WETLAND E (WL E) - DECIDUOUS SWAMP

WL-E is found north of WL-D, with an approximate area of 3 ha. This wetland is characterized as a natural origin, terrene, flat, and isolated wetland that is seasonally flooded and permanently saturated.

Pre-existing anthropogenic effects include a road running north-south through the centre of the wetland, adjacent clear-cut, and partial cut through most of the wetland (according to available land cover mapping. The wetlands primary and secondary indicators and attributes are described as follows:

Dominant wetland (hydrophytic) vegetation:

The dominant species in the tree stratum within WL-E are red maple and balsam fir, with speckled alder and wild raisin dominating the shrub stratum, and whorled wood aster (*Oclemena acuminata*) and cinnamon fern dominating the herbaceous layer.

Soil profile:

- 0-8 cm organic
- 8-40 cm sandy with depleted redox features in matrix

Hydric soil indicator:

Sandy redox

Primary wetland hydrology indicators present:

Primary hydrological indicators of wetland hydrology observed were saturation and water stained leaves.

Functional Assessment:

Overall, based on the results of the WESP-AC functional assessment, WL-D functions highest at water storage and delay, organic nutrient export, and as amphibian, turtle, songbird, raptor, mammal and pollinator habitat.

3.3.2 TAPLINE STUDY AREA

The wetland delineation data sheets, photographic logs, and functional assessment spreadsheets of the wetlands along the Tapline Study Area are available in Appendices C, D and E, respectively. Parcel Identification Numbers for Tapline Study Area wetlands are in Appendix F, Table F-2. Summaries of the functional assessment results are presented in Tables 6 and 7. The subsections following Tables 6 and 7 describe the characteristics of each of the seven wetlands that were delineated within the Tapline Study Area (see Appendix A; Figure A-2). All of the wetlands observed along the Tapline Study Area were classified as swamps. Wetlands were only delineated to the edge of the Tapline Study Area; therefore, the total area of wetland habitat is not available. The delineated wetland area that could be potentially disturbed by the Project is approximately 7.82 ha.

Table 6 Non-tidal WESP-AC Function Scores along the Tapline Study Area

	WL-1		WL-2		WL-3		WL-4	
Wetland Functions or Other Attributes	Function Rating	Benefits Rating	Function Rating	Benefits Rating	Function Rating	Benefits Rating	Function Rating	Benefits Rating
Water Storage and Delay	Lower	Higher	Lower	Lower	Moderate	Higher	Higher	Moderate
Stream Flow Support	Moderate	Higher	Higher	Moderate	Lower	Higher	Lower	Lower
Water Cooling	Higher	Lower						
Sediment Retention and Stabilisation	Moderate	Moderate	Moderate	Moderate	Moderate	Lower	Higher	Lower
Phosphorus Retention	Moderate	Higher	Lower	Higher	Lower	Lower	Higher	Lower
Nitrate Removal and Retention	Moderate	Higher	Lower	Higher	Moderate	Moderate	Higher	Moderate
Carbon Sequestration	Moderate	-	Moderate	-	Lower	-	Higher	-
Organic Nutrient Export	Higher	-	Lower	-	Higher	-	Higher	-
Anadromous Fish Habitat	Lower	Lower	Higher	Higher	Lower	Lower	Lower	Lower
Resident Fish Habitat	Lower	Lower	Moderate	Higher	Lower	Lower	Lower	Lower
Aquatic Invertebrate Habitat	Higher	Moderate	Moderate	Higher	Moderate	Moderate	Moderate	Moderate
Amphibian and Turtle Habitat	Moderate	Higher	Moderate	Higher	Moderate	Moderate	Moderate	Higher
Waterbird Feeding Habitat	Moderate	Higher	Moderate	Moderate	Moderate	Moderate	Moderate	Higher
Waterbird Nesting Habitat	Moderate	Lower	Moderate	Moderate	Moderate	Moderate	Moderate	Lower
Songbird, Raptor, and Mammal Habitat	Higher	Higher	Higher	Moderate	Higher	Moderate	Higher	Higher
Pollinator Habitat	Higher	Lower	Higher	Lower	Higher	Lower	Higher	Lower
Native Plant Habitat	Higher	Moderate	Higher	Moderate	Moderate	Moderate	Higher	Moderate
Public Use and Recognition	-	Lower	-	Lower	-	Lower	-	Lower
Wetland Sensitivity	-	Higher	-	Higher	-	Higher	-	Higher
Wetland Ecological Condition	-	Moderate	-	Moderate	-	Lower	-	Moderate
Wetland Stressors	-	Moderate	-	Lower	-	Higher	-	Lower

Table 6 Non-tidal WESP-AC Function Scores along the Tapline Study Area - Continued

	WL-5		W	L-6	WL-7		
Wetland functions or other attributes	Function Rating	Benefits Rating	Function Rating	Benefits Rating	Function Rating	Benefits Rating	
Water Storage and Delay	Higher	Higher	Moderate	Lower	Lower	Higher	
Stream Flow Support	Lower	Lower	Lower	Higher	Higher	Higher	
Water Cooling	Higher	Lower	Lower	Lower	Moderate	Moderate	
Sediment Retention and Stabilisation	Higher	Lower	Moderate	Lower	Lower	Lower	
Phosphorus Retention	Higher	Lower	Lower	Lower	Moderate	Moderate	
Nitrate Removal and Retention	Higher	Moderate	Moderate	Lower	Lower	Moderate	
Carbon Sequestration	Moderate	-	Higher	-	Higher	-	
Organic Nutrient Export	Higher	-	Higher	-	Higher	-	
Anadromous Fish Habitat	Lower	Lower	Lower	Lower	Lower	Lower	
Resident Fish Habitat	Lower	Lower	Lower	Lower	Lower	Lower	
Aquatic Invertebrate Habitat	Lower	Moderate	Higher	Lower	Lower	Moderate	
Amphibian and Turtle Habitat	Moderate	Moderate	Lower	Lower	Moderate	Moderate	
Waterbird Feeding Habitat	Moderate	Moderate	Lower	Lower	Moderate	Moderate	
Waterbird Nesting Habitat	Moderate	Moderate	Lower	Lower	Moderate	Moderate	
Songbird, Raptor, and Mammal Habitat	Higher	Moderate	Moderate	Higher	Higher	Higher	
Pollinator Habitat	Higher	Moderate	Moderate	Lower	Higher	Lower	
Native Plant Habitat	Higher	Higher	Moderate	Moderate	Moderate	Moderate	
Public Use and Recognition	-	Lower	-	Lower	-	Lower	
Wetland Sensitivity	-	Higher	-	Higher	-	Higher	
Wetland Ecological Condition	-	Moderate	-	Higher	-	Higher	
Wetland Stressors	-	Higher	-	Lower	-	Moderate	

Table 7 Non-tidal WESP-AC Summary Ratings for Grouped Functions along the Tapline Study Area

	WL-1		WL-2		WL-3		WL-4	
Wetland Functions or Other Attributes	Function Rating	Benefits Rating	Function Rating	Benefits Rating	Function Rating	Benefits Rating	Function Rating	Benefits Rating
Hydrologic Group	Moderate	Higher	Higher	Lower	Moderate	Higher	Higher	Moderate
Water Quality Support Group	Lower	Higher	Lower	Higher	Moderate	Moderate	Higher	Moderate
Aquatic Support Group	Higher	Higher	Moderate	Higher	Higher	Higher	Moderate	Moderate
Aquatic Habitat Group	Moderate	Higher	Higher	Moderate	Moderate	Moderate	Moderate	Higher
Transition Habitat Group	Higher	Higher	Higher	Moderate	Higher	Moderate	Higher	Higher
Wetland Condition	-	Moderate	-	Moderate	-	Lower	-	Moderate
Wetland Risk ^(a)	-	Higher	-	Moderate	-	Higher	-	Higher

⁽a) Average of sensitivity and stressors.

Table 7 Non-tidal WESP-AC Summary Ratings for Grouped Functions along the Tapline Study Area - Continued

	WL-5		WI	L-6	WL-7		
Wetland functions or other attributes	Function Rating	Benefits Rating	Function Rating	Benefits Rating	Function Rating	Benefits Rating	
Hydrologic Group	Higher	Higher	Moderate	Lower	Higher	Higher	
Water Quality Support Group	Higher	Lower	Moderate	Lower	Lower	Moderate	
Aquatic Support Group	Moderate	Moderate	Moderate	Higher	Higher	Higher	
Aquatic Habitat Group	Moderate	Moderate	Lower	Lower	Moderate	Moderate	
Transition Habitat Group	Higher	Higher	Moderate	Higher	Higher	Higher	
Wetland Condition	-	Moderate	-	Higher	-	Higher	
Wetland Risk ^(a)	-	Higher	-	Higher	-	Moderate	

⁽a) Average of sensitivity and stressors.

WETLAND 1 (WL-1) – MATURE CONIFEROUS SWAMP

WL-1 is characterized as a lotic stream fringe wetland. Trees and tall shrubs taller than 1 m comprise more than 25% of the vegetated cover, and surface water is mostly absent or inundates the vegetation only seasonally.

Pre-existing anthropogenic effects include excavation within the wetland, artificial drains or ditches in or near the wetland, trails through the wetland and Chemin des Boudreau goes through it.

Dominant wetland (hydrophytic) vegetation:

The dominant species in the tree stratum within WL-1 is eastern white cedar, with eastern white cedar dominating the shrub stratum, and cinnamon fern and dwarf red raspberry (*Rubus pubescens*) dominating the herbaceous layer.

Soil profile:

- 0-5 cm organic
- 5-13 cm silty organic
- 13-28 cm sandy
- 28-38 cm sandy clay with depleted redox features in matrix

Hydric soil indicator:

Depleted matrix

Primary wetland hydrology indicators present:

Primary hydrological indicators of wetland hydrology include high water table and saturation.

Functional Assessment:

Overall, based on the results of the WESP-AC functional assessment, WL-1 functions highest at water cooling, and organic nutrient export, aquatic invertebrate, songbird, raptor, mammal, pollinator and native plant habitat.

WETLAND 2 (WL-2) – MATURE HARDWOOD SWAMP

WL-2 is characterized as a lotic stream fringe wetland. Trees and tall shrubs taller than 1 m comprise more than 25% of the vegetated cover, and surface water is mostly absent or inundates the vegetation only seasonally.

No pre-existing anthropogenic effects were observed.

Dominant wetland (hydrophytic) vegetation:

The dominant species in the tree stratum within WL-2 are red maple and yellow birch (*Betula alleghaniensis*), with mountain maple (*Acer spicatum*) dominating the shrub stratum, and sensitive fern dominating the herbaceous layer.

Soil profile:

- 0-2 cm organic
- 2-48 cm sandy with depleted redox features in matrix

Hydric soil indicator:

Depleted matrix

Primary wetland hydrology indicators present:

Primary hydrological indicators of wetland hydrology observed were high water table and saturation.

Functional Assessment:

Overall, based on the results of the WESP-AC functional assessment, WL-2 functions highest at stream flow support, water cooling, anadromous fish habitat, songbird, raptor, mammal, pollinator and native plant habitat.

WETLAND 3 (WL-3) – IMMATURE DECIDUOUS SWAMP

WL-3 is characterised as a terrene wetland.

Pre-existing anthropogenic effects include a logging road on one side of the wetland and there is water impounded on the eastern side of the wetland.

Dominant wetland (hydrophytic) vegetation:

The dominant species in the tree stratum within WL-3 is red maple, with speckled alder dominating the shrub stratum, and sensitive fern dominating the herbaceous later.

Soil profile:

- 0-5 cm organic
- 5-24 cm sandy with depleted redox features in matrix
- 24-36 cm sandy with depleted redox features in matrix, over roots/rock

Hydric soil indicator:

Depleted matrix

Primary wetland hydrology indicators present:

Primary hydrological indicators of wetland hydrology observed were high water table and saturation.

Functional Assessment:

Overall, based on the results of the WESP-AC functional assessment, WL-3 functions highest at water cooling, organic nutrient transport, as well as songbird, raptor, mammal, and pollinator habitat.

WETLAND 4 (WL-4) - MIXEDWOOD BASIN SWAMP

WL-4 is characterised as a terrene wetland.

Pre-existing anthropogenic effects include a small portion of the wetland that was logged approximately 10 years

Dominant wetland (hydrophytic) vegetation:

The dominant species in the tree stratum within WL-4 are red maple and white cedar, with wild raisin and red maple dominating the shrub stratum, and three-seeded sedge dominating the herbaceous layer.

Soil profile:

- 0-10 cm organic
- 10-22 cm sandy with depleted redox features in matrix
- 22-47 cm sandy with depleted redox features in matrix

Hydric soil indicator:

Depleted matrix

Primary wetland hydrology indicators present:

Primary hydrological indicators of wetland hydrology observed were saturation and water stained leaves.

Functional Assessment:

Overall, based on the results of the WESP-AC functional assessment, WL-4 functions highest at water storage and delay, water cooling, sediment retention and stabilisation, phosphorous retention, nitrate removal and retention, carbon sequestration, organic nutrient export, as well as songbird, raptor, mammal, pollinator and native plant habitat.

WETLAND 5 (WL-5) - CONIFEROUS SWAMP

WL-5 is characterised as a terrene wetland.

Pre-existing anthropogenic effects include ditching and forest clearing.

Dominant wetland (hydrophytic) vegetation:

The dominant species in the tree stratum within WL-5 is black spruce, with sheep laurel, black spruce, mountain holly and wild raisin dominating the shrub stratum, and three-seeded sedge dominating the herbaceous layer.

Soil profile:

0-32 cm organic over rock

Hydric soil indicator:

Histosol

Primary wetland hydrology indicators present:

Primary hydrological indicators of wetland hydrology observed were high water table and saturation.

Functional Assessment:

Overall, based on the results of the WESP-AC functional assessment, WL-5 functions highest at water storage and delay, water cooling, sediment retention and stabilisation, phosphorous retention, nitrate removal and retention, organic nutrient export, songbird, raptor, mammal, pollinator, and native plant habitat.

WETLAND 6 (WL-6) – MATURE CONIFEROUS SWAMP

WL-6 is characterised as a terrene wetland.

Pre-existing anthropogenic effects include a nearby unnamed road that travels south from Chemin des Boudreau, though there are not currently an observable impact from the road on the wetland.

Dominant wetland (hydrophytic) vegetation:

The dominant species in the tree stratum within WL-6 is black spruce, with mountain holly dominating the shrub stratum, and bunchberry (*Cornus canadensis*) and three-leaved false Solomon's seal dominating the herbaceous layer.

Soil profile:

0-40 cm organic

Hydric soil indicator:

Histosol

Primary wetland hydrology indicators present:

Primary hydrological indicators of wetland hydrology observed were high water table, saturation and water stained leaves.

Functional Assessment:

Overall, based on the results of the WESP-AC functional assessment, WL-6 functions highest at carbon sequestration, organic nutrient export, and as aquatic invertebrate habitat.

WETLAND 7 (WL-7) - CONIFEROUS SWAMP/BOG COMPLEX

WL-7 is characterised as a terrene wetland.

Pre-existing anthropogenic effects include an adjacent blueberry field.

Dominant wetland (hydrophytic) vegetation:

The dominant species in the tree stratum within WL-7 is Black spruce, with sheep laurel and rhodora dominating the shrub stratum, and three-leaved false Solomon's seal and three-seeded sedge dominating the herbaceous layer.

Soil profile:

- 0-16 cm organic
- 16-34 cm sandy with depleted redox features in matrix, over roots

Hydric soil indicator:

Depleted matrix

Primary wetland hydrology indicators present:

Primary hydrological indicators of wetland hydrology observed were high water table, saturation and water stained leaves.

Functional Assessment:

Overall, based on the results of the WESP-AC functional assessment, WL-7 functions highest at stream flow support, carbon sequestration, organic nutrient export, as well as songbird, raptor, mammal, and pollinator habitat.

3.3.3 WETLANDS IDENTIFIED TO SUPPORT AVIAN SPECIES OF CONSERVATION CONCERN

Important wetland habitat was identified in the Project's study areas (Table 8). Canada Warbler (*Cardellina canadensis*) was recorded in one of the wetlands delineated in the WEC Site Study Area, and Canada Warbler, Common Nighthawk (*Chordeiles minor*), and Olive-sided Flycatcher (*Contopus cooperi*) were recorded in three wetlands along the Tapline Study Area. For more information see Section 3 of Appendix G - Avian Survey Report, Residual Environmental Effects and Determination of Significance.

Table 8 Wetlands within the WEC Site and Tapline Study Areas that support Avian Species at Risk

Wetland ID	Wetland Type	Species	SARA	NB SARA	WEC Site	Tapline
WL-C	Forested wetland complex	Canada Warbler	Threatened (Schedule 1)	Threatened	✓	-
WL-1	Mature coniferous swamp	Canada Warbler	Threatened (Schedule 1)	Threatened	-	✓
WL-6	Mature coniferous swamp	Common Nighthawk	Threatened (Schedule 1)	Threatened	-	✓
WL-6	Mature coniferous swamp/bog complex	Olive-sided Flycatcher	Threatened (Schedule 1)	Threatened	-	✓
WL-7	Mature coniferous swamp/bog complex	Common Nighthawk	Threatened (Schedule 1)	Threatened	-	✓

3.4 LOSS OF WETLAND AREA OR FUNCTION

WEC T6 is in proximity to a wetland area that is currently delineated on the GeoNB Wetlands Map Viewer and wetland B delineated for this Project (Appendix A, Figure A-1). WEC T6 is outside of the 30-m buffer zone and is sited within a disturbed area. The access road to WEC T6 crosses approximately 660 m of delineated wetland B which includes 48 m of GeoNB wetland. WEC T5 is about 5 m inside of the 30-m buffer of delineated wetland B. Although the tapline crosses wetlands, the majority of the tapline route follows an existing road (Appendix A, Figure A-2). There is approximately 845 m of GeoNB and delineated wetlands that will be crossed by the tapline.

There is also a wetland where the tapline crosses Rivière du Nord and it is expected that the power poles will be located at roughly 15 to 25 m from the stream. No provincially significant wetlands will be affected by the Project.

4 ADDITIONAL RECOMMENDED MITIGATIONS

As outlined in the Registration Document, the Project has been sited to avoid disturbances to wetland and drainage edges to the extent possible. If alteration is required for any wetlands inside of the planned Project footprint, then a Watercourse and Wetland Alteration (WAWA) Permit application will be submitted. Access roads that cannot avoid wetlands and will cross watercourses and wetlands will follow the guidelines from the Watercourse and Wetland Alteration Technical Guidelines and the conditions as listed on the WAWA.

The following mitigations have been identified, in addition to those in the Registration Document:

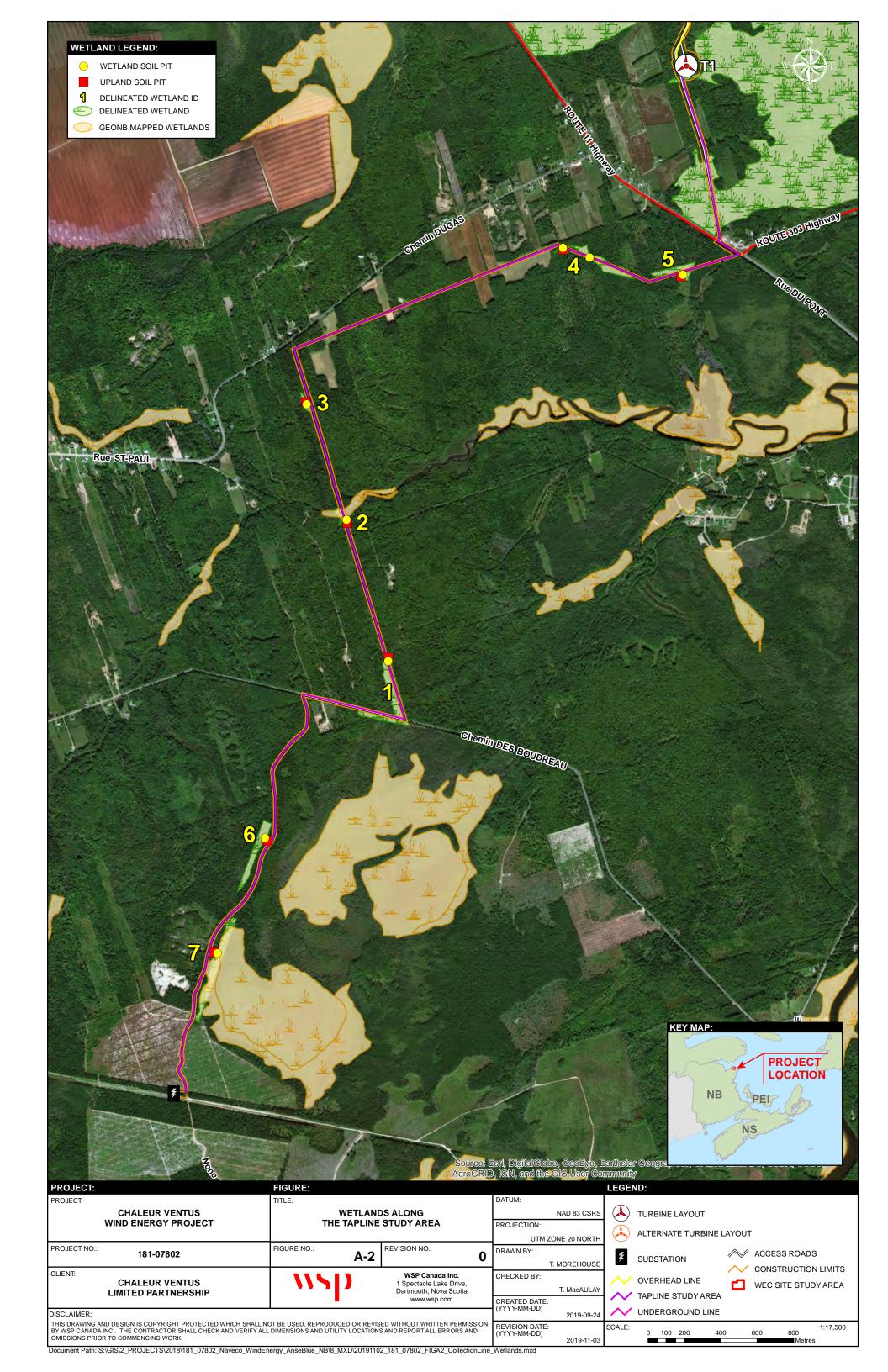
- The conditions listed on the WAWA may include requirements for wetland compensation if determined to be required for the Project. If compensation is determined to be required, then it will be completed as per the WAWA permit conditions
- Machinery will be operated on land above the high-water-mark or in another manner that minimizes disturbance to the banks and beds of any watercourse
- Appropriate equipment and work access routes will be selected to reduce damage to riparian vegetation and watercourse banks
- Effective sediment and erosion control measures will be installed and maintained prior to any work in and around watercourses and wetlands
- Wetland disturbances shall be minimized to the extent possible to complete the work
- Temporary lay down areas, temporary work areas, and temporary materials storage shall not be completed within wetland areas

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A FIGURES





B VEGETATION MASTER SPECIES LISTS

Table B-1 Master Plant List for the WEC Site Study Area

COMMON NAME	SCIENTIFIC NAME	PROVINCIAL RARITY RANK ^(a)	PROVINCIAL GENERAL STATUS RANK
Balsam Fir	Abies balsamea	S5	Secure
Striped Maple	Acer pensylvanicum	S5	Secure
Red Maple	Acer rubrum	S5	Secure
Sugar Maple	Acer saccharum	S5	Secure
Red Baneberry	Actaea rubra	S5	Secure
Northern Water Plantian	Alisma triviale	S5	Secure
Speckled Alder	Alnus Incana	S5	Secure
Pearly Everlasting	Anaphalis margaritacea	S5	Secure
Field Chamomile	Anthemis arvensis	SNA	Exotic
Dogbane	Apocynum androsaemifolium	S5	Secure
Wild Sarsaparilla	Aralia nudicaulis	S5	Secure
Bristly Sarsaparilla	Aralia hispida	S5	Secure
Common Burdock	Arctium minus	SNA	Exotic
Field Wormwood	Artemisia campestris	S3	Secure
Common Wormwood	Artemisia vulgaris	SNA	Exotic
Common Lady Fern	Athyrium filix-femina	S5	Secure
Thin-leaved Orache	Atriplex prostrata	S5	Secure
Yellow Birch	Betula alleghaniensis	S5	Secure
Paper Birch	Betula papyrifera	S5	Secure
Gray birch	Betula populifolia	S5	Secure
Nodding Beggartick	Bidens cernua	S5	Secure
Bluejoint Reed Grass	Calamagrostis canadensis	S5	Secure
Silvery Sedge	Carex canescens	S5	Secure
Crawford's Sedge	Carex crawfordii	S5	Secure
Fringed Sedge	Carex crimita	S5	Secure
White-edged Sedge	Carex debilis	S5	Secure
Graceful Sedge	Carex gracillima	S5	Secure
Bristly-stalked Sedge	Carex gractitima Carex leptalea	S5	Secure
Broom Sedge	-	S5	Secure
Three-seeded Sedge	Carex scoparia	S5	Secure
Wiegand's Sedge	Carex trisperma	S3	Secure
Fireweed	Carex wiegandii	S5	
	Chamerion angustifolium		Secure
Common Lamb's Quarters	Chenopodium album	SNA	Exotic Secure
Prince's Pine	Chimaphila umbellata	S5	
Spotted Water-Hemlock	Cicuta maculata	S5	Secure
Small Enchanter's Nightshade	Circaea alpina	S5	Secure
Canada Thistle	Cirsium arvense	SNA	Exotic
Yellow Bluebead Lily	Clintonia borealis	S5	Secure
Sweetfern	Comptonia peregrina	S5	Secure
Goldthread	Coptis trifolia	S5	Secure
Bunchberry	Cornus canadensis	S5	Secure
Red Osier Dogwood	Cornus sericea	S5	Secure
Beaked Hazelnut	Corylus cornuta	S5	Secure
Pink Lady's Slipper	Cypripedium acaule	S5	Secure
Poverty Oat Grass	Danthonia spicata	S5	Secure
Smooth Crab Grass	Digitaria ischaemum	SNA	Exotic
Hairy Flat-top White Aster	Doellingeria umbellata	S5	Secure
Spinulose Wood Fern	Dryopteris carthusiana	S5	Secure
Crested Wood Fern	Dryopteris cristata	S5	Secure
Evergreen Wood Fern	Dryopteris intermedia	S5	Secure

COMMON NAME	SCIENTIFIC NAME	PROVINCIAL RARITY RANK ^(a)	PROVINCIAL GENERAL STATUS RANK
Marginal Wood Fern	Dryopteris marginalis	S5	Secure
Large Barnyard Grass	Echinochloa crus-galli	SNA	Exotic
Blunt Spikerush	Eleocharis obtusa	S5	Secure
Quack Grass	Elymus repens	SNA	Exotic
willowherb	Epilobium ciliatum	S5	Secure
Marsh Willowherb	Epilobium palustre	S5	Secure
Broad-leaved Helleborine	Epipactis helleborine	SNA	Exotic
Water Horsetail	Equisetum fluviatile	S5	Secure
Marsh Horsetail	Equisetum palustre	S3	Secure
Woodland Horsetail	Equisetum Sylvaticum	S5	Secure
Variegated Horsetail	Equisetum variegatum	S4	Secure
Annual Fleabane	Erigeron annuus	S4S5	Secure
Sweet Joe-Pye Weed	Eupatorium purpureum	S5	Secure
Common Eyebright	Euphrasia nemorosa	SNA	Exotic
Grass-leaved Goldenrod	Euthamia graminifolia	S5	Secure
Wild Strawberry	Fragaria virginiana	S5	Secure
Black Ash	Fraxinus nigra	S4S5	Secure
Common Hemp-nettle	Galeopsis tetrahit	SNA	Exotic
Common Marsh Bedstraw	Galium palustre	S5	Secure
Three-flowered Bedstraw	Galium triflorum	S5	Secure
Black Huckleberry	Gaylussacia baccata	S5	Secure
Rattlesnake Mannagrass	Glyceria canadensis	S5	Secure
Fowl Manna Grass	Glyceria striata	S5	Secure
Common Oak Fern	Gymnocarpium dryopteris	S5	Secure
Common Hawkweed	Hieracium lachenalii	SNA	Exotic
Northern St John's-Wort	Hypericum boreale	S5	Secure
Harlequin Blue Flag	Iris versicolor	S5	Secure
Jointed Rush	Juncus articulatus	S5	Secure
Narrow-Panicled Rush	Juncus brevicaudatus	S5	Secure
Soft Rush	Juncus effusus	S5	Secure
Sheep Laurel	Kalmia angustifolia	S5	Secure
Tamarack	Larix laricina	S5	Secure
Lesser Duckweed	Lemna minor	SNA	Exotic
Oxeye Daisy	Leucanthemum vulgare	SNA	Exotic
Butter and Eggs	Linaria vulgaris	SNA	Exotic
Twinflower	Linnaea borealis	S5	Secure
Canada Fly Honeysuckle	Lonicera canadensis	S5	Secure
Garden Bird's-foot Trefoil	Lotus corniculatus	SNA	Exotic
American Water Horehound	Lycopus americanus	S5	Secure
Northern Water Horehound	Lycopus uniflorus	S5	Secure
Northern Starflower	Lysimachia borealis	S5	Secure
Swamp Candles	Lysimachia terrestris	S5	Secure
Canada Mayflower	Maianthemum canadense	S5	Secure
Starry False Solomon's Seal	Maianthemum stellatum	S4S5	Secure
Three-leaved False Soloman's Seal	Maianthemum trifolium	S5	Secure
Pineapple Weed	Matricaria discoidea	SNA	Exotic
Indian Cucumber Root	Medeola virginiana	S5	Secure
Yellow Sweet Clover	Melilotus officinalis	SNA	Exotic
Naked Bishop's-Cap	Mitella nuda	SINA S5	Secure
Indian Pipe	Monotropa uniflora	S5	Secure
forget me not	Myosotis arvensis	SNA	Exotic
Mountian Holly	Nemopanthus mucronatus	SNA S5	Secure
Wiouiiiaii Hoiry	ivemopuninus mucronatus	33	Secure

COMMON NAME	SCIENTIFIC NAME	PROVINCIAL RARITY RANK ^(a)	PROVINCIAL GENERAL STATUS RANK
Whorled Wood Aster	Oclemena acuminata	S5	Secure
Red Bartsia	Odontites vulgaris	SNA	Exotic
Common Evening Primrose	Oenothera biennis	S5	Secure
Sensitive Fern	Onoclea sensibilis	S5	Secure
One-sided wintergreen	Orthilia secunda	S5	Secure
Cinnamon Fern	Osmunda cinnamomea	S5	Secure
Inturrupted Fern	Osmunda claytoniana	S5	Secure
Common Wood Sorrel	Oxalis montana	S5	Secure
Common Witch Grass	Panicum capillare	S5	Secure
Northern Beech Fern	Phegopteris connectilis	S5	Secure
Common Timothy	Phleum pratense	SNA	Exotic
Black Spruce	Picea mariana	S5	Secure
Club Spur Orchid	Platanthera clavellata	S4S5	Secure
White Fringed Orchid	Platanthera blephariglottis	S3	Secure
Eurasian Black Bindweed	Polygonum convolvulus	SNA	Exotic
False Waterpepper	Polygonum hydropiperoides	S4	Secure
Spotted Lady's-thumb	Polygonum persicaria	SNA	Exotic
Balsam Poplar	Populus balsamifera	S5	Secure
Trembling Aspen	Populus tremuloides	S5	Secure
Rough Cinquefoil	Potentilla norvegica	S5	Secure
Field Ciniquifoil	Potentilla simplex	S5	Secure
Self-heal	Prunella vulgaris	S5	Secure
Pin Cherry	Prunus pensylvanica	S5	Secure
Bracken Fern	Pteridium aquilinum	S5	Secure
Round-leaf Pyrola	Pyrola americana	S4S5	Secure
Common Buttercup	Ranunculus acris	SNA	Exotic
Rhodora	Rhododendron canadense	S5	Secure
Skunk Currant	Ribes glandulosum	S5	Secure
Shining Rose	Rosa nitida	S5	Secure
Alleghaney Blackberry	Rubus allegheniensis	S5	Secure
	Rubus idaeus	S5	Secure
Red raspberry		S5	Secure
Dwarf Red Raspberry	Rubus pubescens	SNA	
Long-leaved Dock Bebb's Willow	Rumex longifolius Salix Bebbiana	SINA S5	Exotic
	•		Secure
Pussy Willow	Salix discolor	S5	Secure
Shining willow	Salix lucida	S5	Secure
Black Elderberry	Sambucus nigra	S5	Secure
River Bulrush	Schoenoplectus fluviatilis	S3	Sensitive
Black-girdled Bulrush	Scirpus atrocinctus	S5	Secure
Woolgrass	Scirpus cyperinus	S5	Secure
Tansy Ragwort	Senecio jacobaea	SNA	Exotic
Sticky Ragwort	Senecio viscosus	SNA	Exotic
Three-Toothed Cinquefoil	Sibbaldiopsis tridentata	S5	Secure
Canada Goldenrod	Solidago canadensis	S5	Secure
Zigzag Goldenrod	Solidago flexicaulis	S5	Secure
Rough-stemmed Goldenrod	Solidago rugosa	S5	Secure
Sow Thistle	Sonchus arvensis	SNA	Exotic
American Mountian Ash	Sorbus americana	S5	Secure
White Meadowsweet	Spiraea alba	S5	Secure
Steeplebush	Spiraea tomentosa	S5	Secure
Purple Stemmed Aster	Symphyotrichum puniceum	S5	Secure
Common dandelion	Taraxacum officinale	SNA	Exotic

COMMON NAME	SCIENTIFIC NAME	PROVINCIAL RARITY RANK ^(a)	PROVINCIAL GENERAL STATUS RANK
Canada Yew	Taxus canadensis	S5	Secure
Tall Meadow-rue	Thalictrum pubescens	S5	Secure
Eastern White Cedar	Thuja occidentalis	S5	Secure
Marsh St Johns Wort	Triadenum fraseri	S5	Secure
Yellow Clover	Trifolium aureum	SNA	Exotic
Rabbits foot clover	Trifolium arvense	SNA	Exotic
Red Clover	Trifolium pratense	SNA	Exotic
Painted Trillium	Trillium undulatum	S5	Secure
Coltsfoot	Tussilago farfara	SNA	Exotic
Narrow-leaved Cattail	Typha angustifolia	S5	Secure
Lowbush Blueberry	Vaccinium angustifolium	S5	Secure
Velvet-leaved Blueberry	Vaccinium myrtilloides	S5	Secure
Small Cranberry	Vaccinium oxycoccos	S5	Secure
Northern Wild Raisin	Viburnum nudum	S5	Secure
Cow Vetch	Vicia cracca	SNA	Exotic
Marsh Blue Violet	Viola cucullata	S5	Secure

Notes: Species of Conservation Concern are highlighted in **bold**.

None of these species are designated by COSEWIC, or protected by SARA or NB SARA

(a) Provincial Rarity Rank, where:

S3 - Uncommon in province

S3 - Uncommon in province
S4 - Widespread, common and apparently secure in province
S5 - Widespread, abundant and demonstrably secure in province
S#S# - A numeric range rank is used to indicate any range of uncertainty about the status of the species or community.
SNA - Ranking not applicable in province

Table B-2 **Master Plant List for the Tapline Study Area**

COMMON NAME	SCIENTIFIC NAME	PROVINCIAL RARITY RANK ^(a)	PROVINCIAL GENERAL STATUS RANK
Balsam Fir	Abies balsamea	S5	Secure
Striped Maple	Acer pensylvanicum	S5	Secure
Red Maple	Acer rubrum	S5	Secure
Silver Maple	Acer saccharinum	S4	Secure
Mountain Maple	Acer spicatum	S5	Secure
Northern Yarrow	Achillea borealis	S5	Secure
Red Baneberry	Actaea rubra	S5	Secure
Upland Bent Grass	Agrostis perennans	S5	Secure
Speckled Alder	Alnus incana	S5	Secure
Short-awned Foxtail	Alopecurus aequalis	S4S5	Secure
Common Ragweed	Ambrosia artemisiifolia	S5	Secure
Bartram's Serviceberry	Amelanchier bartramiana	S5	Secure
Pearly Everlasting	Anaphalis margaritacea	S5	Secure
Canada Anemone	Anemonastrum canadense	S5	Secure
Spreading Dogbane	Apocynum androsaemifolium	S5	Secure
Wild Sarsaparilla	Aralia nudicaulis	S5	Secure
Jack-in-the-pulpit	Arisaema triphyllum	S5	Secure
Common Lady Fern	Athyrium felix-femina	S5	Secure
Yellow Birch	Betula alleghaniensis	S5	Secure
Heart-leaved Birch	Betula cordifolia	S5	Secure
Devil's Beggarticks	Bidens frondosa	S5	Secure
Bearded Short-husk	Brachyelytrum erectum	SH	Undetermined
Bluejoint Reed Grass	Calamagrostis canadensis	S5	Secure
Yellow Marsh Marigold	Caltha palustris	S4S5	Secure
Black Sedge	Carex arctata	S5	Secure
Brownish Sedge	Carex brunnescens	S5	Secure
Silvery Sedge	Carex canescens	S5	Secure

COMMON NAME	SCIENTIFIC NAME	PROVINCIAL RARITY RANK ^(a)	PROVINCIAL GENERAL STATUS RANK
Fibrous-Root Sedge	Carex communis	S5	Secure
White-edged Sedge	Carex debilis	S5	Secure
Dewey's Sedge	Carex deweyana	S5	Secure
Two-seeded Sedge	Carex disperma	S5	Secure
Star Sedge	Carex echinata	S5	Secure
Nodding Sedge	Carex gynandra	S5	Secure
Bladder Sedge	Carex intumescens	S5	Secure
Bristly-stalked Sedge	Carex leptalea	S5	Secure
Sallow Sedge	Carex lurida	S5	Secure
Boreal Bog Sedge	Carex magellanica	S5	Secure
New England Sedge	Carex novae-angliae	S5	Secure
Cyperuslike Sedge	Carex pseudocyperus	S5	Secure
Broom Sedge	Carex scoparia	S5	Secure
Awl-fruited Sedge	Carex stipata	S5	Secure
Blunt Broom Sedge	Carex tribuloides	S4S5	Secure
Three-seeded Sedge	Carex trisperma	S5	Secure
Black Knapweed	Centaurea nigra	SNA	Exotic
Leatherleaf	Chamaedaphne calyculata	S5	Secure
Fireweed	Chamaenerion angustifolium	S5	Secure
White Turtlehead	Chelone glabra	S5	Secure
Common Lamb's Quarters	Chenopodium album	SNA	Exotic
Common Pipsissewa	Chimaphila umbellata	S5	Secure
Spotted Water-Hemlock	Cicuta maculata	S5	Secure
Small Enchanter's Nightshade	Circaea alpina	S5	Secure
Virginia Clematis	Clematis virginiana	S5	Secure
Yellow Bluebead Lily	Clintonia borealis	S5	Secure
Goldthread	Coptis trifolia	S5	Secure
Spotted Coralroot	Corallorhiza maculata	S3S4	Sensitive
Alternate-leaved Dogwood	Cornus alternifolia	S5	Secure
Bunchberry	Cornus anernyona Cornus canadensis	S5	Secure
Red Osier Dogwood	Cornus sericea	S5	Secure
Beaked Hazel	Corylus cornuta	S5	Secure
a Hawthorn		-	Secure
Pink Lady's-Slipper	Crataegus spp. Cypripedium acaule	S5	Secure
	17 7		
Poverty Oat Grass	Danthonia spicata	S5 S5	Secure
Round-branched Tree-clubmoss	Dendrolycopodium dendroideum		Secure
Woolly Panic Grass	Dichanthelium acuminatum	SNA	Exotic
Northern Panic Grass	Dichanthelium boreale	S5	Secure
Northern Bush Honeysuckle	Diervilla lonicera	S5	Secure
Hairy Flat-top White Aster	Doellingeria umbellata	S5	Secure
Spinulose Wood Fern	Dryopteris carthusiana	S5	Secure
Crested Wood Fern	Dryopteris cristata	S5	Secure
Evergreen Wood Fern	Dryopteris intermedia	S5	Secure
Trailing Arbutus	Epigaea repens	S5	Secure
Helleborine	Epipactis helleborine	SNA	Exotic
Field Horsetail	Equisetum arvense	S5	Secure
Woodland Horsetail	Equisetum sylvaticum	S5	Secure
Spotted Spurge	Euphorbia maculata	SNA	Exotic
Low Rough Aster	Eurybia radula	S5	Secure
Grass-leaved Goldenrod	Euthamia graminifolia	S5	Secure
American Beech	Fagus grandifolia	S4	Secure
Fringed Black Bindweed	Fallopia cilinodis	S5	Secure

COMMON NAME	SCIENTIFIC NAME	PROVINCIAL RARITY RANK ^(a)	PROVINCIAL GENERAL STATUS RANK
Red Fescue	Festuca rubra	S5	Secure
Wild Strawberry	Fragaria virginiana	S5	Secure
White Ash	Fraxinus americana	S4S5	Secure
Common Hemp-nettle	Galeopsis tetrahit	SNA	Exotic
Rough Bedstraw	Galium asprellum	S5	Secure
Three-petaled Bedstraw	Galium trifidum	S5	Secure
Creeping Snowberry	Gaultheria hispidula	S5	Secure
Eastern Teaberry	Gaultheria procumbens	S5	Secure
Black Huckleberry	Gaylussacia baccata	S5	Secure
Water Avens	Geum rivale	S5	Secure
Canada Manna Grass	Glyceria canadensis	S5	Secure
Rough Manna Grass	Glyceria maxima	SNA	Exotic
Slender Manna Grass	Glyceria melicaria	S5	Secure
Fowl Manna Grass	Glyceria striata	S5	Secure
Common Oak Fern	Gymnocarpium dryopteris	S5	Secure
Common Hawkweed	Hieracium lachenalii	SNA	Exotic
a hop plant	Humulus spp.	-	-
Fraser's St. John's-wort	Hypericum fraseri	S5	Secure
Common St. John's-wort	Hypericum perforatum	SNA	Exotic
Pinesap	Hypopitys monotropa	S4	Secure
Mountain Holly	Ilex mucronata	S5	Secure
Common Winterberry	Ilex verticillata	S5	Secure
Spotted Jewelweed	Impatiens capensis	S5	Secure
Harlequin Blue Flag	Iris versicolor	S5	Secure
Soft Rush	Juncus effusus	S5	Secure
Knotted Rush	Juncus nodosus	S4S5	Secure
Slender Rush	Juncus tenuis	S5	Secure
Sheep Laurel	Kalmia angustifolia	S5	Secure
Tall Blue Lettuce	Lactuca biennis	S5	Secure
Canada Nettle	Laportea canadensis	S5	Secure
Tamarack	Larix laricina	S5	Secure
Rice Cut Grass	Leersia oryzoides	S5	Secure
Oxeye Daisy	Leucanthemum vulgare	SNA	Exotic
Twinflower	Linnaea borealis	S5	Secure
Tall Fescue	Lolium arundinaceum	SNA S5	Exotic
Canada Fly Honeysuckle	Lonicera canadensis		Secure
Mountain Fly Honeysuckle	Lonicera villosa	S5	Secure
Garden Bird's-foot Trefoil	Lotus corniculatus	SNA	Exotic
Common Woodrush	Luzula multiflora	S5	Secure
Stiff Clubmoss	Lycopodium annotinum	S5	Secure
Northern Water Horehound	Lycopus uniflorus	S5	Secure
Northern Starflower	Lysimachia borealis	S5	Secure
Swamp Yellow Loosestrife	Lysimachia terrestris	S5	Secure
Wild Lily-of-The-Valley	Maianthemum canadense	S5	Secure
Starry False Solomon's Seal	Maianthemum stellatum	S4S5	Secure
Three-leaved False Soloman's Seal	Maianthemum trifolium	S5	Secure
Pineapple Weed	Matricaria matricariodes	SNA	Exotic
Ostrich Fern	Matteuccia struthiopteris	S5	Secure
American Cow Wheat	Melampyrum lineare	S5	Secure
Yellow Sweet-clover	Melilotus officinalis	SNA	Exotic
Partridgeberry	Mitchella repens	S5	Secure
Naked Bishop's-Cap	Mitella nuda	S5	Secure

COMMON NAME	SCIENTIFIC NAME	PROVINCIAL RARITY RANK ^(a)	PROVINCIAL GENERAL STATUS RANK
Convulsion-Root	Monotropa uniflora	S5	Secure
Three-leaved Rattlesnakeroot	Nabalus trifoliolatus	S5	Secure
Broad-Lip Twayblade	Neottia convallarioides	S4	Secure
Common Evening Primrose	Oenothera biennis	S5	Secure
Sensitive Fern	Onoclea sensibilis	S5	Secure
One-sided Wintergreen	Orthilia secunda	S5	Secure
Cinnamon Fern	Osmunda cinnamomea	S5	Secure
Interrupted Fern	Osmunda claytoniana	S5	Secure
Common Wood Sorrel	Oxalis montana	S5	Secure
False Waterpepper	Persicaria hydropiperoides	S4	Secure
Northern Beech Fern	Phegopteris connectilis	S5	Secure
Common Timothy	Phleum pratense	SNA	Exotic
White Spruce	Picea glauca	S5	Secure
Black Spruce	Picea mariana	S5	Secure
Red Spruce	Picea rubens	S5	Secure
Meadow Hawkweed	Pilosella caespitosa	SNA	Exotic
Jack Pine	Pinus banksiana	S5	Secure
Eastern White Pine	Pinus strobus	S5	Secure
Common Plantain	Plantago major	SNA	Exotic
Small Purple Fringed Orchid	Platanthera psycodes	S4	Secure
Canada Blue Grass	Poa compressa	SNA	Exotic
Fowl Blue Grass	Poa palustris	S5	Secure
Kentucky Blue Grass	Poa pratensis	S5	Secure
Mild Water-pepper	Polygonum hydropiperoides	S5	Secure
Balsam Poplar	Populus balsamifera	S5	Secure
Large-toothed Aspen	Populus grandidentata	S5	Secure
Trembling Aspen	Populus tremuloides	S5	Secure
Old Field Cinquefoil	Potentilla simplex	S5	Secure
Common Self-heal	Prunella vulgaris	S5	Secure
Black Cherry	Prunus serotina	S5	Secure
Bracken Fern	Pteridium aquilinum	S5	Secure
Pink Pyrola	Pyrola asarifolia	S5	Secure
Shinleaf	Pyrola elliptica	S5	Secure
Lesser Pyrola	Pyrola minor	S3	Secure
Northern Red Oak	Quercus rubra	S5	Secure
Kidney-Leaved Buttercup	Ranunculus abortivus	S5	Secure
Common Buttercup	Ranunculus acris	SNA	Exotic
Gmelin's Water Buttercup	Ranunculus gmelinii	S3	Secure
Creeping Buttercup	Ranunculus repens	SNA	Exotic
Little Yellow Rattle	Rhinanthus minor	SNA	Secure
Rhodora	Rhododendron canadense	SNA S5	
Common Labrador Tea	Rhododendron groenlandicum	S5	Secure Secure
Skunk Currant	Ribes glandulosum	S5	Secure
Smooth Gooseberry	Ribes hirtellum	S5 S5	Secure
Bristly Black Current	Ribes lacustre	S5 S5	Secure
Swamp Red Currant	Ribes triste		Secure
Bog Yellowcress	Rorippa palustris	S5	Secure
Carolina Rose	Rosa carolina	S4S5	Secure
Alleghaney Blackberry	Rubus allegheniensis	S5	Secure
Red Raspberry	Rubus idaeus	S5	Secure
Dwarf Red Raspberry	Rubus pubescens	S5	Secure
Dewdrop	Rubus repens	S5	Secure

COMMON NAME	SCIENTIFIC NAME	PROVINCIAL RARITY RANK ^(a)	PROVINCIAL GENERAI STATUS RANK
Black-Eyed Susan	Rudbeckia hirta	SNA	Exotic
Sheep Sorrel	Rumex acetosella	SNA	Exotic
Bebb's Willow	Salix bebbiana	S5	Secure
Pussy Willow	Salix discolor	S5	Secure
Red Elderberry	Sambucus racemosa	S5	Secure
Black-girdled Bulrush	Scirpus atrocinctus	S5	Secure
Common Woolly Bulrush	Scirpus cyperinus	S5	Secure
Mosquito Bulrush	Scirpus hattorianus	S5	Secure
Small-fruited Bulrush	Scirpus microcarpus	S5	Secure
Marsh Skullcap	Scutellaria galericulata	S5	Secure
Mad-dog Skullcap	Scutellaria lateriflora	S5	Secure
Common Water Parsnip	Sium suave	S5	Secure
Canada Goldenrod	Solidago canadensis	S5	Secure
Zigzag Goldenrod	Solidago flexicaulis	S5	Secure
Downy Goldenrod	Solidago puberula	S5	Secure
Rough-stemmed Goldenrod	Solidago rugosa	S5	Secure
Field Sow Thistle	Sonchus arvensis	SNA	Exotic
American Mountain Ash	Sorbus americana	SSNA S5	Secure
Ruby Sandspurrey White Meadowsweet	Spergularia rubra Spiraea alba	SNA S5	Exotic
	1		Secure
Clasping-leaved Twisted-stalk	Streptopus amplexifolius	S5	Secure
Purple-stemmed Aster	Symphyotrichum puniceum	S5	Secure
Common Tansy	Tanacetum vulgare	SNA	Exotic
Canada Yew	Taxus canadensis	S5	Secure
Tall Meadow-Rue	Thalictrum pubescens	S5	Secure
New York Fern	Thelypteris noveboracensis	S5	Secure
Eastern Marsh Fern	Thelypteris palustris	S5	Secure
Eastern White Cedar	Thuja occidentalis	S5	Secure
Heart-leaved Foamflower	Tiarella cordifolia	S4	Secure
Alsike Clover	Trifolium hybridum	SNA	Exotic
Red Clover	Trifolium pratense	SNA	Exotic
Nodding Trillium	Trillium cernuum	S5	Secure
Painted Trillium	Trillium undulatum	S5	Secure
Coltsfoot	Tussilago farfara	SNA	Exotic
Narrow-Leaved Cattail	Typha angustifolia	S5	Secure
Broad-leaved Cattail	Typha latifolia	S5	Secure
Late Lowbush Blueberry	Vaccinium angustifolium	S5	Secure
Velvet-leaved Blueberry	Vaccinium myrtilloides	S5	Secure
Common Mullein	Verbascum thapsus	SNA	Exotic
Marsh Speedwell	Veronica scutellata	S5	Secure
Thyme-Leaved Speedwell	Veronica serpyllifolia	SNA	Secure
Hobblebush	Viburnum lantanoides	S5	Secure
Northern Wild Raisin	Viburnum nudum	S5	Secure
			Secure
·	*		Exotic
			Secure
Hobblebush Northern Wild Raisin Highbush Cranberry Tufted Vetch Marsh Blue Violet otes: Species of Conservation Concern are be	Viburnum lantanoides Viburnum nudum Viburnum opulus Vicia cracca Viola cucullata	S5 S5 S4 SNA S5	

C WETLAND DELINEATION DATA SHEETS

New Brunswick Department of Environment Wetland Delineation Data Sheet Sample Point WL- A wet Project Site Chalcus Ventus Wind Energy Project Date Tulu 5. Field Investigator(s) Dercick Mitchell Christing la Elemente Applicant/Owner Naveco Coordinates 20T 341926.88 mE 5298618.89 mN County Chloucester Do normal environmental conditions exist on-site? Yes V No PID if no explain: Atypical Situation? Yes ☐ No ✓ Explain_ Is this a potential Problem Area? Yes No X Explain_ Wetland Determination (Check One Only For Each Criteria) Wetland _Yes√ No Dominant Hydrophytic Vegetation (50/20 rule)_ Determination -Yes√ No Wetland Hydrology -----Hydric Soils -Wetland Type: Forested Swamp Complex Rational for Determination: Convoluen Wetland Classicication Sustem (CWCS) Vegetation -Tree Stratum: (Plot size: 10m2) %Cover **Dominant Species** Indicator Status **Dominance Test Worksheet:** # of Dominant Species Acer rubrum that are OBL, FACW, FAC: _(A) 3 Total # of Dominant Species across all strata: 70 = Total Cover % of Dominant Species Shrub Stratum: (Plot size: 5m2 that are OBL, FACW, FAC: \<u>(\O)</u> (A/B) 1. Alnus incom Prevalence Index Worksheet: Total % Cover of: Multiply by: 3 **OBL Species** x1 =**FACW Species** 162 81 x2 =50 = Total Cover **FAC Species** x3 =351 x4 = 12 **FACU Specie** x5 =Herb Stratum: (Plot size: 1 m2) **UPL Species** Column Totals: x1 =1. Athurium cilix -comping 2. amotea sensibilis 20 Prevalence Index = B/A = 2.61 3. Bubus pubescens 10 4. Thatictrum puberiens facw **Hydrophytic Vegetation Indicators:** facw 5. Calyceria striata Rapid Test for Hydrophytic Vegetation 81 = Total Cover ✓ Dominance Test is >50% გ 5 fac Doellingeria umbellata ✓ Prevalence Index is ≤3.01 fac. Pheoppleris connectilis Morphological Adaptations¹ (explain) fac u 3 Oclemena acuminala Problematic Hydrophytic Vegetation (explain) fac W Carex leptalea Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Comments_NIA Hydrophytic Vegetation Present? Yes____ No__

— Hydro	OUT TO BE A SECURE	A Children	TO PERSONAL PROPERTY.	A DOMESTIC AND ADDRESS.						
_ Surface W	rological Indicators later (A1) er Table (A2)	: (minimu	m of one is requir	✓ Wat	all that appl er Stained I atic Fauna	_ _eaves (B9)			
Saturation Water Mar	(A3)			Marl Deposits (B15) Hydrogen Sulfide Odor (C1)						
Sediment	Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots (C3) Presence of Reduced Iron (C4)									
Drift Depo Algal Mat	sits (B3) or Crust (B4)			Rec	ent Iron red	uction in till	(C4) led Soils (C6)			
Iron Depos	sits (B5) ı Visible on Aerial Im	agery (B7	')		Muck Surfa er (Explain i)			
	/egetated Concave S			0	or (Explain)	TT TOTAL	,			
	dicators: (minimum oil Cracks (B6)	of two re	guired)	Stur	nted or Stres	ssed Plants	s (D1)			
Drainage I	Patterns (B10)			Geo	morphic Po	sition (D2)	, (51)			
Dry-Seaso	Lines (B16) on Water Table (C2)			Micr	llow Aquitar otopograph	ic Relief (D	94)			
	lurrows (C8) Visible on Aerial Im	agery (C9))	FAC	C-Neutral Te	est (D5)				
eld Observa										
	r Present? Yes		• —							
ater Table F			Depth <u>5cm</u>				Wetland Hyd	irology Present? Yes // No		
aturation Pre			Depth Ocm							
omments:										
— Soil P	rofile —									
ofile Descr	iption: (Describe to	_	-	Redox	Features					
rofile Descr epth(cm)	iption: (Describe to	the depth ————————————————————————————————————	needed to docum			onfirm the a	<u>Texture</u>	ators) Remarks		
rofile Descr epth(cm)	iption: (Describe to	<u>%</u>	-	Redox %	Features					
rofile Descr epth(cm)	iption: (Describe to Matrix Color(moist)	 % 1∞0	Color(moist)	Redox <u>%</u> — 5	Features Type ¹	Loc ²	Texture arganic			
epth(cm)	Matrix Color(moist) 7.5 ur 5/2		Color(moist)	Redox <u>%</u> — 5	Type ¹	Loc²—	Texture arganic sandy			
ofile Descr opth(cm)	iption: (Describe to Matrix Color(moist) 7.5 ur 5/2 Gieyl		Color(moist)	Redox <u>%</u> — 5	Type ¹	Loc²—	Texture organic sandy clay	Remarks		
ofile Descripth(cm) -3 -21	iption: (Describe to Matrix Color(moist) 7.5 ur 5/2 Gieyl		Color(moist)	Redox <u>%</u> — 5	Type ¹	Loc²—	Texture organic sandy clay	Remarks		
ofile Descr epth(cm) 3-3 3-21 1-32 2-	Matrix Color(moist) 7.5 yr 5/2 Coloy Coloy	% 100 95 75 —	Color(moist) 7.5 yr 6/4 7.5 yr 6/4	Redox % 5 25	Type¹ D D	<u>Loc²</u> <u>M</u> <u>M</u> —	Texture arganic sandy clay clay	Remarks		
rofile Descr epth(cm) 3-3 3-21 1-32 2-	iption: (Describe to Matrix Color(moist) 7.5 ur 5/3 Colory cloy moderntration, D=Deple	% 100 95 75 —	Color(moist) 7.5 yr 6/4 7.5 yr 6/4	Redox % 5 25	Type¹ D D	<u>Loc²</u> <u>M</u> <u>M</u> —	Texture arganic sandy clay clay	Remarks restrictive layer		
rofile Descrepth(cm) 3-3 3-21 1-32 2- ype: C=Cor	Matrix Color(moist) 7.5 ur 5/2 Colory Colory colory colory colory colory colory colory colory	% 100 95 75 —	Color(moist) 7.5 yr 6/4 7.5 yr 6/4	Redox % 5 25 CS=Cover	Type¹ D D red or Coate	Loc² M M ed Sand Gr	Texture arganic sandy clay clay	Remarks restrictive layer		
rofile Descr epth(cm) 3-3 3-21 3-32 2- Type: C=Cor	iption: (Describe to Matrix Color(moist) 7.5 ur 5/2 Colou Colou cloud matrix Part 5/2 A1) Dedon (A2)	% 100 95 75 —	Color(moist) 7.5 yr 6/4 7.5 yr 6/4	Redox % 5 25 CS=Cover	Type¹ D D red or Coate	Loc² M M Ged Sand Gr	Texture arganic sandy clay clay	Remarks restrictive layer		
rofile Descrepth(cm) 3-3 3-21 1-32 2- Type: C=Correptive Correptive Correction Correcti	matrix Color(moist) 7.5 ur 5/3 Colory Color	% 100 95 75 —	Color(moist) 7.5 yr 6/4 7.5 yr 6/4	Redox %	red or Coate A Redox (S5 ad Matrix (S6 surfaces (S7 slue Below S	Loc² M M ed Sand Gr	Texture arganic sandy clay clay clay ains. 2Location: P	Remarks restrictive layer		
ype: C=Cor Histosol (Histosol (Histo Epil Black Hist Hydrogen Stratified I Depleted	matrix Color(moist) 7.5 ur 5/3 C/cul clay clay clay clay clay clay clay cla	% 100 95 35 — — tion, RM=	Color(moist) 7.5 yr 6/4 7.5 yr 6/4	Redox %	red or Coate A Redox (S5 and Matrix (S6 urfaces (S7 ulue Below S ark Surface of Gleyed Ma	Loc² M M ed Sand Gr Surface (S8 (S9) trix (F2)	Texture arganic sandy clay clay clay ains. 2Location: P	Remarks restrictive layer		
rofile Descrepth(cm) 2-3 3-21 3-32 2- Type: C=Coreption Histosol (A Histo Epigl Black Hist Hydrogen Stratified I Depleted Thick Darl	matrix Color(moist) 7.5 ur 5/3 C/cul clay clay clay clay clay clay clay cla	% 100 95 35 — — tion, RM=	Color(moist) 7.5 yr 6/4 7.5 yr 6/4	Redox %	red or Coate Redox (S5 ed Matrix (S6 surfaces (S7 slue Below S ark Surface Gleyed Ma ed Matrix (F	Loc² M M M ed Sand Gr Surface (S8 (S9) ttrix (F2)	Texture arganic sandy clay clay clay ains. 2Location: P	Remarks restrictive layer		
rofile Descrepth(cm) 3-3 3-21 3-32 2- Type: C=Corepter Corepter C=Corepter C	Matrix Color(moist) 7.5 ur 5/3 Colory Colo	% 100 95 35 — — tion, RM=	Color(moist) 7.5 yr 6/4 7.5 yr 6/4	Redox % 5 25 CS=Cover Sandy Strippe Dark S Polyva Thin D Loamy Loamy Deplet Redox Deplet	red or Coate A Redox (S5 ad Matrix (S6 ark Surfaces (S7 alark Surfaces (S7 alark Surfaced Matrix (F6 Dark Surfaced Matrix (F6 Dark Surfaced D	Loc² M M M ed Sand Gr Surface (S8 (S9) trix (F2) 3) ce (F6) fface (F7)	Texture arganic sandy clay clay clay ains. 2Location: P	Remarks restrictive layer		
rofile Descrepth(cm) 3-3 3-21 3-32 2- Type: C=Coreptric Soil II Histosol (II Histo	matrix Color(moist) 7.5 ur 5/3 Colory Color	% 100 95 75 — — tion, RM=	Color(moist) 7.5 yr 6/4 7.5 yr 6/4 Reduced Matrix,	Redox %	red or Coate A Redox (S5 ad Matrix (S6 surfaces (S7 liue Below S ark Surface of Gleyed Ma ed Matrix (F Dark Surface	Loc² M M M ed Sand Gr Surface (S8 (S9) trix (F2) 3) ce (F6) fface (F7)	Texture arganic sandy clay clay clay ains. 2Location: P	Remarks Trestrictive lauter PL=Pore Lining, M=Matrix		
rofile Descrepth(cm) 3-3 3-21 3-32 2- Type: C=Convertified Interpretable Interpretab	Matrix Color(moist) 7.5 ur 5/3 Colory Colo	% 100 95 75 — tion, RM=	Color(moist) 7.5 yr 6/4 7.5 yr 6/4 Reduced Matrix,	Redox %	red or Coate A Redox (S5 ad Matrix (S6 ark Surfaces (S7 alark Surfaces (S7 alark Surfaced Matrix (F6 Dark Surfaced Matrix (F6 Dark Surfaced D	Loc² M M M ed Sand Gr Surface (S8 (S9) trix (F2) 3) ce (F6) fface (F7)	Texture arganic sandy clay clay clay ains. 2Location: P	Remarks restrictive layer		

New Brunswick Department of Environment Wetland Delineation Data Sheet Project Site Chalcur Ventus Wind Everay Project Date July 5, 2018 Sample Point WL-A UD Field Investigator(s) Derrick Mitchell / Christina Laflamore Applicant/Owner Naveco Coordinates 20T 341916.03 m E 5291613.77 m N County Glowcester Do normal environmental conditions exist on-site? Yes V No PID if no explain: Atypical Situation? Yes No V Explain Is this a potential Problem Area? Yes No Explain **Wetland Determination** (Check One Only For Each Criteria) Wetland Dominant Hydrophytic Vegetation (50/20 rule)_ Determination Wetland Hydrology -Hydric Soils -Wetland Type:_ Rational for Determination: Vegetation -Tree Stratum: (Plot size: 10 m2) %Cover **Dominant Species** Indicator Status **Dominance Test Worksheet:** # of Dominant Species 1. Betula papyricera face 2. Acer rubrum that are OBL, FACW, FAC: fac. 3. Abies balsomen foc Total # of Dominant Species across all strata: 5 65 = Total Cover % of Dominant Species Shrub Stratum: (Plot size: 5m2) that are OBL, FACW, FAC: __(A/B) 1. Abies balsamea Prevalence Index Worksheet: 2. Nemaponibus mucromius Total % Cover of: Multiply by: 3 5 **OBL Species** x1 = **FACW Species** x2 =ЧШ 30 = Total Cover **FAC Species** x3 =**FACU Specie** x4 =37 148 Herb Stratum: (Plot size: 1m2) **UPL Species** x5 =Column Totals: 1. Aralia nudicaulis Fac 2. Maianthemum mondense 25 Sac Prevalence Index = B/A = 3.2 3. Cornus canadensis 30 Cat 4. Captis tricolia 5 Fac **Hydrophytic Vegetation Indicators:** 5. Trientalis borealis fac Rapid Test for Hydrophytic Vegetation = Total Cover 79 ✓ Dominance Test is >50% Oclemena acuminala facu Prevalence Index is ≤3.01 Morphological Adaptations (explain) Problematic Hydrophytic Vegetation (explain) Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Comments All hough the sample point has budkop but is regetation the lack of hydric soil and waterd hydrology Hydrophytic Vegetation Present? Yes Yes No

— Hydro									
rimary Hydi	rological Indicators	(minimu	m of one is requ	ired; check	all that app	oly)			
Saturation Water Mar Sediment Drift Depo Algal Mat Iron Depos Inundation	er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4)			Aqu Mar Hyd Oxic Pres Rec Thir	atic Fauna I Deposits (Progen Sulfidized Rhized Rhized Sence of Resent Iron reconding Muck Surface)	(B15) de Odor (C1 spheres on educed Iron duction in till	Living Roots (C3) (C4) led Soils (C6)		
Surface S Drainage Moss Trim Dry-Seaso Crayfish B	ndicators: (minimum oil Cracks (B6) Patterns (B10) In Lines (B16) In Water Table (C2) Burrows (C8) I Visible on Aerial Ima			Geo Sha Mici	morphic Pollow Aquita	nic Relief (D			
eld Observa	tions:								
	r Present? Yes								
ater Table F		No <u> /</u> C					Wetland Hydro	ology Present? Yes No	<u> </u>
aturation Pre		.No <u> //</u> [· —						
omments:									
— Soil P	rofile —								
— Soil P rofile Descr	iption: (Describe to Matrix	_0	-	Redox	Features				
rofile Descr epth(cm)	iption: (Describe to	the depth	needed to doce	Redox		confirm the a	Texture	rs) <u>Remarks</u>	
rofile Descr epth(cm)	iption: (Describe to Matrix		-	Redox	Features		Texture		
rofile Descr epth(cm)	Matrix Color(moist)	<u>%</u>	-	Redox	Features		Texture arguata		
rofile Descr epth(cm)	Matrix Color(moist)	<u>%</u>	-	Redox	Features		Texture arguata		
rofile Descr epth(cm)	Matrix Color(moist)	<u>%</u>	-	Redox	Features		Texture arguata		
rofile Descr epth(cm)	Matrix Color(moist)	<u>%</u>	-	Redox	Features		Texture arguata		
rofile Descr epth(cm)	Matrix Color(moist) 7.5yr 5/1	% 100 100 —	Color(moist)	<u>%</u>	Type ¹	Loc ²	Texture argumic Sandy		
rofile Descr epth(cm)	Matrix Color(moist) 3.5yr 5/1	% 100 100 —	Color(moist)	<u>%</u>	Type ¹	Loc ²	Texture argumic Sandy	Remarks	
rofile Descr epth(cm) つ-ち 5- 43 Type: C=Cor	Matrix Color(moist) 3.5yr 5/1 concentration, D=Deple	% 100 100 —	Color(moist)	Redox %	Type¹ red or Coat	Loc²	Texture argumic Sandy	Remarks	
rofile Descr epth(cm) 0-5 5-43 Type: C=Cor	Matrix Color(moist)	% 100 100 —	Color(moist)	Redox %	Type ¹ Type ¹ Redox (Sed Matrix (S	Loc ² Loc ² And Graded Sand Grades	Texture argumic Sandy	Remarks	
rofile Descrepth(cm) 0-5	Matrix Color(moist)	% 100 100 —	Color(moist)	Redox %	red or Coat / Redox (Sed Matrix (Sourfaces	Loc²	Texture Organic Sondy ———————————————————————————————————	Remarks	
rofile Descrepth(cm) 2-5 5-43 Type: C=Corepth(cm) Histosol (note the content of the content	Matrix Color(moist)	% 100 — — tion, RM=	Color(moist)	Redox % Sandy Stripper Dark S Polyva Thin D Loamy	red or Coat / Redox (Significant Sourfaces (Sturfaces	Loc² Sed Sand Grades Surface (S8) e (S9) eatrix (F2)	Texture Organic Sondy ———————————————————————————————————	Remarks	
rofile Descrepth(cm) 3-5	Matrix Color(moist) 3.54x 5/1	% 100 — — tion, RM=	Color(moist)	Redox % Sandy Strippr Dark S Polyva Thin D Loamy Deplet	red or Coat y Redox (Signification	Loc²	Texture Organic Sondy ———————————————————————————————————	Remarks	
rofile Descr epth(cm) 2-5 43 Type: C=Cor Waric Soil II Histosol (A Histic Epi Black Hist Hydrogen Stratified Thick Dar Sandy Mu 5cm Muck	Matrix Color(moist)	% 100 — — tion, RM=	Color(moist)	Redox % Sandy Strippe Dark S Polyva Loamy Deplet Redox	red or Coat / Redox (Significant Sourfaces (Sturfaces	Loc² Loc² Solution (Sand Grade) Surface (S8) e (S9) atrix (F2) F3) ace (F6) urface (F7)	Texture Organic Sondy ———————————————————————————————————	Remarks	
rofile Descr epth(cm) 0-5 5-43 Type: C=Cor Waric Soil II Histosol (And Histic Epinon Black Histic Hydrogen Stratified Depleted Thick Darly Sandy Much Sandy Gleen Sandy G	Matrix Color(moist)	% 100 — — — tion, RM=	Color(moist)	Redox % Sandy Strippe Dark S Polyva Thin D Loamy Deplet Redox Redox	red or Coat A Redox (Signature) Redox (Signature) Features A Redox (Signature) Features Fe	Loc² Loc² Solution (Sand Grade) Surface (S8) e (S9) atrix (F2) F3) ace (F6) urface (F7)	Texture crownic Sondy ains. 2Location: PL=	Remarks	
rofile Descrepth(cm) 0-5 5-43 Type: C=Cor Wedric Soil II Histosol (in Histic Epi) Black Histic Hydrogen Stratified In Depleted Thick Darl Sandy Much Sandy Gleeterictive Lage	Matrix Color(moist)	% 100 ——————————————————————————————————	Color(moist)	Redox % Sandy Strippe Dark S Polyva Thin D Loamy Deplet Redox Deplet Redox	red or Coat / Redox (Sign access (Sourfaces (Sourfaces (Sourfaces (Sourface) (Park Surface) (Pa	Loc² Seed Sand Grades Surface (S8) e (S9) atrix (F2) F3) ace (F6) urface (F7) ns (F8)	Texture crownic Sondy ains. 2Location: PL=	Remarks	

New Brunswick Department of Environment Wetland Delineation Data Sheet Project Site Chaleur Ventus Wind Frency Project Date July 4, 2018 Sample Point WL-B wet Field Investigator(s) Derrick Mitchell / Christing La Flamme Applicant/Owner Daveco Coordinates 20T 343192, 38 m E 5296717, 47 m N County Gloucester Do normal environmental conditions exist on-site? Yes 🔽 No 🗌 PID if no explain: Atypical Situation? Yes ☐ No ✓ Explain_ Is this a potential **Problem Area?** Yes No Explain **Wetland Determination** (Check One Only For Each Criteria) Wetland Dominant Hydrophytic Vegetation (50/20 rule)_ Determination Wetland Hydrology -YES NO -Yes ✓ No Hydric Soils -Wetland Type: Forested Swamp Complex Rational for Determination: CWCS Vegetation Tree Stratum: (Plot size: 10 m2) %Cover **Dominant Species** Indicator Status **Dominance Test Worksheet:** # of Dominant Species 1. Acer rubrum that are OBL, FACW, FAC: (A) 2. Abirs balsamea 3. Larix laricina fac 10 Total # of Dominant Species across all strata: (B) 5 60 = Total Cover % of Dominant Species Shrub Stratum: (Plot size: 5m2) that are OBL, FACW, FAC: 1. Alnus incana Prevalence Index Worksheet: 2. Abies balsamec fac 3. Betula papyrisera Total % Cover of: Multiply by: <u>fac u</u> 4. Acer rubrum **OBL Species** 20 x1 =5 **FACW Species** 40 x2 =RO HO = Total Cover **FAC Species** 115 x3 =345 FACU Specie x4 =20 Herb Stratum: (Plot size: 1m2) **UPL Species** x5 =Column Totals: x1 =465 1BC 1. Calamagrostis candensis 20 facw 2. Doellingeria umbellata 15 fac Prevalence Index = B/A = _ 2.58 3. Equisitum sylvaticum fac 4. Carevarisperma 15 001 **Hydrophytic Vegetation Indicators:** 5. Viala cucullata 10 fac Rapid Test for Hydrophytic Vegetation = Total Cover ✓ Dominance Test is >50% fac Trientalis borealis 10 ✓ Prevalence Index is ≤3.0¹ 061 5 Carex canescens Morphological Adaptations (explain) Problematic Hydrophytic Vegetation (explain) Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Comments N/A Hydrophytic Vegetation Present? Yes ✓ No_

	ogical Indicators:	: (minimu	m of one is require				.					
Surface Wate ✓ High Water T					ter Stained l Jatic Fauna)					
✓ Saturation (A	\3)			Marl Deposits (B15)								
Water Marks				Hydrogen Sulfide Odor (C1)								
	Sediment Deposits (B2) Drift Deposits (B3)					Oxidized Rhizospheres on Living Roots (C3) Presence of Reduced Iron (C4)						
Algal Mat or	Crust (B4)			Rec	ent Iron red	uction in till	ed Soils (C6)					
Iron Deposits					n Muck Surf							
Inundation Vi	isible on Aerial Ima getated Concave S	agery (B7	() 28/	Oth	er (Explain i	n Remarks)					
Sparsely veg	getated Concave C	Surface (L	30)									
Secondary India	cators: (minimum	of two re	<u>quired)</u>									
Surface Soil Drainage Pat	Cracks (B6)				nted or Stre omorphic Po		(D1)					
Moss Trim Li	ines (B16)				allow Aquitai							
Dry-Season \	Water Table (C2)			Mic	rotopograph	ic Relief (D	4)					
Crayfish Burr	rows (C8) isible on Aerial Ima	00004/00	1	FAC	C-Neutral Te	st (D5)						
		agery (US	"									
Field Observation		No. / F	lonth									
Suπace water P Water Table Pre	resent? Yes		-				Wetland Hades	agu Bracanta Van / Na				
	· · · · · · · · · · · · · · · · · · ·		Depth_25cm				vvetiana Hyarol	ogy Present? Yes 🗸 No				
Saturation Prese			Depth_Ocm									
Comments:												
_												
— Soil Pro	file ———											
Profile Descript	tion: (Describe to	the depth	needed to docum	ent the in	ndicator or c	onfirm the a	bsence of indicators	s)				
Depth(cm)	Matrix	_		Redox	Features							
	Color(moist)	%	Color(moist)	<u>%</u>	Type ¹	Loc ²	Texture	Remarks				
0-22	1000	100	Section 2				proprie					
22-65	7.54r 4/1	95	7.5yr 613	5	RM	<u> </u>	sandu					
	1100	13	110 91 015				201214					
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80-0J				Ξ	\equiv	=						
					Ξ	\equiv	\equiv					
				Ξ	\equiv	=	\equiv					
			Reduced Matrix		red or Coats	ed Sand Gr	ains ² l ocation: PL =	Pore Lining M=Matrix				
		 tion, RM=	Reduced Matrix,	CS=Cove	red or Coate	ed Sand Gra	ains. ² Location: PL=F	Pore Lining, M=Matrix				
	entration, D=Deple	 tion, RM=	Reduced Matrix,	CS=Cove	red or Coate	ed Sand Gra	ains. ² Location: PL=F	Pore Lining, M=Matrix				
¹ Type: C=Conce Hydric Soil Indi Histosol (A1)	entration, D=Deple	 tion, RM=	Reduced Matrix,	Sandy	y Redox (S5)	ains. ² Location: PL=F	Pore Lining, M=Matrix				
Type: C=Conce Hydric Soil Indi Histosol (A1) ✓ Histic Epiped	entration, D=Deplericators:) don (A2)	 tion, RM=	Reduced Matrix,	Sandy	y Redox (S5 ed Matrix (S) 6)	ains. ² Location: PL=F	Pore Lining, M=Matrix				
Type: C=Conce Hydric Soil Indi Histosol (A1) Histic Epiped Black Histic (entration, D=Deplericators:) don (A2) (A3)	 tion, RM=	Reduced Matrix,	Sandy Strippe Dark S	y Redox (S5 ed Matrix (S Surfaces (S7) 6))		Pore Lining, M=Matrix				
Type: C=Conce Hydric Soil Indi Histosol (A1) ✓ Histic Epipec Black Histic (Hydrogen Su	icators:) don (A2) (A3) uflide (A4)	 tion, RM=	Reduced Matrix,	Sandy Strippo Dark S Polyva	y Redox (S5 ed Matrix (S Surfaces (S7 alue Below S) 6)) Surface (S8)		Pore Lining, M=Matrix				
Hydric Soil Indi Histosol (A1) Histic Epiped Black Histic (Hydrogen Su Stratified Lay	icators:) don (A2) (A3) uflide (A4)		Reduced Matrix,	Sandy Strippo Dark S Polyva Thin D	y Redox (S5 ed Matrix (S Surfaces (S7) 6)) Surface (S8) (S9)		Pore Lining, M=Matrix				
Type: C=Conce Hydric Soil Indi Histosol (A1) Histic Epipec Black Histic (Hydrogen Su Stratified Lay Depleted Bel Thick Dark S	entration, D=Depleticators:) don (A2) (A3) uffide (A4) yers (A5) low Dark Surface (Surface (A12)		Reduced Matrix,	Sandy Strippo Dark S Polyva Thin D Loamy Deplet	y Redox (S5 ed Matrix (S Gurfaces (S7 alue Below S Dark Surface y Gleyed Ma ted Matrix (F) 6)) Surface (S8) (S9) trix (F2)		Pore Lining, M=Matrix				
Hydric Soil Indi Histosol (A1) Histic Epiped Black Histic (Hydrogen St. Stratified Lay Depleted Bel Thick Dark S Sandy Muck	entration, D=Depleticators:) don (A2) (A3) uflide (A4) yers (A5) low Dark Surface (Surface (A12) y Mineral (S1)		Reduced Matrix,	Sandy Strippe Dark S Polyva Thin D Loamy Deplet Redox	y Redox (S5 ed Matrix (S Surfaces (S7 alue Below S Dark Surface y Gleyed Ma ted Matrix (F c Dark Surfa) 6)) Surface (S8) (S9) trix (F2) (3) ce (F6)		Pore Lining, M=Matrix				
Type: C=Conce Hydric Soil Indi Histosol (A1) Histic Epipeo Black Histic (Hydrogen Su Stratified Lay Depleted Bark Thick Dark S Sandy Mucky 5cm Mucky F	entration, D=Depleticators:) don (A2) (A3) uflide (A4) yers (A5) llow Dark Surface (Surface (A12) y Mineral (S1) Peat or Peat (S3)			Sandy Strippe Dark S Polyva Thin D Loamy Deplet Redox Deplet	y Redox (S5 ed Matrix (S Surfaces (S7 alue Below S Dark Surface y Gleyed Ma ted Matrix (F t Dark Surfa ted Dark Su) 6)) Surface (S8) (S9) trix (F2) (3) ce (F6) face (F7)		Pore Lining, M=Matrix				
Type: C=Conce Hydric Soil Indi Histosol (A1) Histic Epipeo Black Histic (Hydrogen St Stratified Lay Depleted Bel Thick Dark S Sandy Mucky F Sandy Gleye	entration, D=Depleticators:) don (A2) (A3) uflide (A4) yers (A5) low Dark Surface (S0) y Mineral (S1) Peat or Peat (S3) ed Matrix (S4)	(A11)		Sandy Strippo Dark S Polyva Thin D Loamy Deplet Redox Deplet Redox	y Redox (S5 ed Matrix (S Surfaces (S7 alue Below S Dark Surface y Gleyed Ma ted Matrix (F c Dark Surfa) 6)) Surface (S8) (S9) trix (F2) (3) ce (F6) face (F7)						
Type: C=Conce Hydric Soil Indi Histosol (A1) Histic Epipeo Black Histic (Hydrogen Su Stratified Lay Depleted Bel Thick Dark S Sandy Mucky Sem Mucky F Sandy Gleyer Restrictive Layer	entration, D=Depleticators:) don (A2) (A3) uflide (A4) yers (A5) llow Dark Surface (Surface (A12) y Mineral (S1) Peat or Peat (S3)	(A11) De	Depth:	Sandy Strippo Dark S Polyva Thin D Loamy Deplet Redox Deplet Redox	y Redox (S5 ed Matrix (S Surfaces (S7 alue Below S Dark Surface y Gleyed Ma ted Matrix (F t Dark Surfa ted Dark Su) 6)) Surface (S8) (S9) trix (F2) (3) ce (F6) face (F7)		Pore Lining, M=Matrix Present? Yes No				

New Brunswick Department of Environment Wetland Delineation Data Sheet Project Site Chaleur Ventus Wind Energy Project Sample Point WL-B Up Date July 4, 2018 Field Investigator(s) Derrick Mitchell Christing LaFlomme Applicant/Owner Naveco Coordinates 20T 343211.59mE 5296723.98 mN County Gloucester Do normal environmental conditions exist on-site? Yes V No PID if no explain: Atypical Situation? Yes No V Explain Is this a potential Problem Area? Yes No V Explain **Wetland Determination** (Check One Only For Each Criteria) Wetland (50/20 rule)_ Dominant Hydrophytic Vegetation Determination Wetland Hydrology --Hydric Soils -Wetland Type:_ Rational for Determination: Vegetation Tree Stratum: (Plot size: 10 m2) %Cover Indicator Status **Dominance Test Worksheet: Dominant Species** # of Dominant Species 1. Acerrubrum that are OBL, FACW, FAC: 2. Abies balsamea fac 3. Bet ula papyrivera FAC U Total # of Dominant Species across all strata: 65_= Total Cover % of Dominant Species Shrub Stratum: (Plot size: 5m that are OBL, FACW, FAC: 1. Vibumum nudum Prevalence Index Worksheet: 2. Acer rubrum Total % Cover of: Multiply by: **OBL Species** x1 =**FACW Species** x2 = 10 = Total Cover FAC Species x3 =**FACU Specie** 33 132 x4 =Herb Stratum: (Plot size: 1m2) x5 =**UPL Species** Column Totals: x1 =1. Drugoleris intermedia 20 fac 2. Aratia nudicaulis 20 Fac Prevalence Index = B/A = 3.22 3. Clintonia borealis fac 10 4. Pteridium aquilinum fac **Hydrophytic Vegetation Indicators:** 5. Ribes alandulasum Rapid Test for Hydrophytic Vegetation = Total Cover ✓ Dominance Test is >50% facu Octemena acuminada Prevalence Index is ≤3.01 Morphological Adaptations (explain) Problematic Hydrophytic Vegetation (explain) Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Comments Although the sample point has hydrophytic vegetation, the lack of hydric soil and welland by drology identifies this site as upland Hydrophytic Vegetation Present? Yes Yes No

	ired: check all that apply)
Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8)	Water Stained Leaves (B9) Aquatic Fauna (B13) Marl Deposits (B15) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots (C3) Presence of Reduced Iron (C4) Recent Iron reduction in tilled Soils (C6) Thin Muck Surface (C7) Other (Explain in Remarks)
Secondary Indicators: (minimum of two required) Surface Soil Cracks (B6) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9)	 Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? YesNo_\(\nu\) Depth Water Table Present? YesNo_\(\nu\) Depth	Wetland Hydrology Present? Yes No <u>✓</u>
Saturation Present? Yes_No_v Depth	
Comments:	
Soil Drofile	
— Soil Profile —	
Profile Description: (Describe to the depth needed to docu	ument the indicator or confirm the absence of indicators)
Profile Description: (Describe to the depth needed to docu Depth(cm) Matrix	ment the indicator or confirm the absence of indicators) Redox Features
Profile Description: (Describe to the depth needed to docu- Depth(cm)	ument the indicator or confirm the absence of indicators) Redox Features Marks Remarks
Profile Description: (Describe to the depth needed to docu- Depth(cm) Matrix Color(moist) % Color(moist) O-\$ \(\sigma \)	ment the indicator or confirm the absence of indicators) Redox Features M Type¹ Loc² Texture Remarks Cropic Texture Remarks
Profile Description: (Describe to the depth needed to docu- Depth(cm) Matrix Color(moist)	ument the indicator or confirm the absence of indicators) Redox Features Marks Remarks
Profile Description: (Describe to the depth needed to docu- Depth(cm) Matrix Color(moist) % Color(moist) O-\$ \(\sigma \)	ment the indicator or confirm the absence of indicators) Redox Features M Type¹ Loc² Texture Remarks Cropic Texture Remarks
Profile Description: (Describe to the depth needed to docu- Depth(cm) Matrix Color(moist) % Color(moist) O - \$ \QQ \qquad \qquad \qquad \qquad \qquad \qqqqq \qqqqqq	ment the indicator or confirm the absence of indicators) Redox Features M Type¹ Loc² Texture Remarks Cropic Texture Remarks
Profile Description: (Describe to the depth needed to docu- Depth(cm) Matrix Color(moist) % Color(moist) O-\$ \QQ	ment the indicator or confirm the absence of indicators) Redox Features M Type¹ Loc² Texture Remarks Cropic Texture Remarks
Profile Description: (Describe to the depth needed to docu- Depth(cm) Matrix Color(moist) % Color(moist) O-\$ \(\sigma \)	ment the indicator or confirm the absence of indicators) Redox Features M Type¹ Loc² Texture Remarks Cropic Texture Remarks
Profile Description: (Describe to the depth needed to document	ment the indicator or confirm the absence of indicators) Redox Features Marks Type¹ Loc² Texture Remarks Sandy Sandy
Profile Description: (Describe to the depth needed to document	ment the indicator or confirm the absence of indicators) Redox Features M Type¹ Loc² Texture Remarks Croppole
Profile Description: (Describe to the depth needed to document	ment the indicator or confirm the absence of indicators) Redox Features Marks Type¹ Loc² Texture Remarks Sandy Sandy
Profile Description: (Describe to the depth needed to document	## A section of the absence of indicators Redox Features
Profile Description: (Describe to the depth needed to document	ment the indicator or confirm the absence of indicators) Redox Features Marks Type Loc Texture Remarks Sandy CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix Sandy Redex (S5) Stripped Matrix (S6)
Profile Description: (Describe to the depth needed to document	ment the indicator or confirm the absence of indicators) Redox Features Marks Type Loc Texture Remarks Sandy CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix Sandy Redex (S5) Stripped Matrix (S6) Dark Surfaces (S7)
Profile Description: (Describe to the depth needed to document	Redox Features % Type¹ Loc² Texture Remarks — Cognol xundu c, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix — Sandy Redex (S5) Stripped Matrix (S6) Dark Surfaces (S7) Polyvalue Below Surface (S8) Thin Dark Surface (S9)
Profile Description: (Describe to the depth needed to document	ment the indicator or confirm the absence of indicators) Redox Features % Type¹ Loc² Texture Remarks Crossill Sandy Redex (S5) Stripped Matrix (S6) Dark Surfaces (S7) Polyvalue Below Surface (S8) Thin Dark Surface (S9) Loamy Gleyed Matrix (F2)
Profile Description: (Describe to the depth needed to document	ment the indicator or confirm the absence of indicators) Redox Features % Type¹ Loc² Texture Remarks — Sandy Redox (S5) Stripped Matrix (S6) Dark Surfaces (S7) Polyvalue Below Surface (S8) Thin Dark Surface (S9) Loamy Gleyed Matrix (F2) Depleted Matrix (F3)
Profile Description: (Describe to the depth needed to document	ment the indicator or confirm the absence of indicators) Redox Features % Type¹ Loc² Texture Remarks — Croppolic Standy A CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix — Sandy Redex (S5) Stripped Matrix (S6) Dark Surfaces (S7) Polyvalue Below Surface (S8) Thin Dark Surface (S9) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F6) Depleted Dark Surface (F7)
Profile Description: (Describe to the depth needed to document	ment the indicator or confirm the absence of indicators) Redox Features % Type¹ Loc² Texture Remarks — Sandy Redex (S5) Stripped Matrix (S6) Dark Surfaces (S7) Polyvalue Below Surface (S8) Thin Dark Surface (S9) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6)
Profile Description: (Describe to the depth needed to document to the depth (Color (Moist)) Color (Moist)	ment the indicator or confirm the absence of indicators) Redox Features % Type¹ Loc² Texture Remarks — Crightic — Sundy — Sandy Redex (S5) — Stripped Matrix (S6) — Dark Surfaces (S7) — Polyvalue Below Surface (S8) — Thin Dark Surface (S9) — Loamy Gleyed Matrix (F2) — Depleted Matrix (F3) — Redox Dark Surface (F6) — Depleted Dark Surface (F6) — Depleted Dark Surface (F7)

New Brunswick Department of Environment Wetland Delineation Data Sheet Project Site Chaleur Ventus Wind Energy Project Date Tulu 6. 2018 Sample Point WY-C Wet Field Investigator(s) Derrick Hil chell / Christing LaFlamme Applicant/Owner Naveco Coordinates 20T 343586,05mE 5298770.07mN County Gloucester Do normal environmental conditions exist on-site? Yes No PID if no explain: Atypical Situation? Yes No Explain_ Is this a potential Problem Area? Yes No Explain_ Wetland Determination (Check One Only For Each Criteria) Wetland Dominant Hydrophytic Vegetation (50/20 rule)_ Determination Wetland Hydrology ---Yes ✓ No 🗌 Hydric Soils -Wetland Type: Forested Welland Complex Rational for Determination: こいとら Vegetation -Tree Stratum: (Plot size: \Om2) %Cover **Dominant Species** Indicator Status **Dominance Test Worksheet:** Picea moriama # of Dominant Species that are OBL, FACW, FAC: 2 3 Total # of Dominant Species across all strata: אנ = Total Cover % of Dominant Species that are OBL, FACW, FAC: 100 (A/B) Shrub Stratum: (Plot size: 5m2) 1. Picea mariana Prevalence Index Worksheet: 2. Nemoporthus mucronius Fac 3. Kalmia angustifalia fas Total % Cover of: Multiply by: 4. Vaccinium murtillaides **OBL Species** x1 =5. **FACW Species** 90 x2 =36 = Total Cover **FAC Species** x3 =93 **FACU Specie** x4 =0 Herb Stratum: (Plot size: 1m2) **UPL Species** x5 =0 Column Totals: x1 =1. Haiga therawa tricolum 2. Carex Irisperma Prevalence Index = B/A = 1.86 3. Osmunda cinnamomea Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Vegetation 60 = Total Cover ✓ Dominance Test is >50% ✓ Prevalence Index is ≤3.0¹ Morphological Adaptations (explain) Problematic Hydrophytic Vegetation (explain) Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Comments NIA Hydrophytic Vegetation Present? Yes ✓ No_

mary riyar	ological Indicators:	(minimur	m of one is requir	ed; check	all that app	ly)		
Drift Depos Algal Mat o Iron Depos Inundation	or Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4)	agery (B7 Surface (B	r) 188)	Aqua Mark Hydo Oxido Pres Reco Thin	sence of Re	(B13) B15) de Odor (C' spheres on duced Iron luction in till ace (C7)	1) Living Roots (C3 (C4) led Soils (C6)	3)
Surface SoDrainage FMoss TrimDry-SeasoCrayfish B	dicators: (minimum oil Cracks (B6) Patterns (B10) Lines (B16) on Water Table (C2) Eurrows (C8) Visible on Aerial Ima			Geo Shal Micr	nted or Streemorphic Pollow Aquitar totopograph C-Neutral Te	osition (D2) rd (D3) nic Relief (D	,	
ield Observat	tions:							
Surface Water		No <u>√</u> D	• —					
Vater Table P		No D	-				Wetland Hyd	Irology Present? Yes 📈 No
Saturation Pre	esent? Yes_✓	No D	epth_Ocm					
comments:								
	iption: (Describe to	the depth	needed to docum			onfirm the a	absence of indica	tors)
rofile Descri lepth(cm)		the depth	needed to docum		dicator or co	onfirm the a	Texture	Remarks
rofile Descri epth(cm)	iption: (Describe to Matrix	<u>%</u>	-	Redox	Features		Texture	
rofile Descri epth(cm)	iption: (Describe to Matrix	<u>%</u>	-	Redox	Features		Texture	Remarks
rofile Descri lepth(cm)	iption: (Describe to Matrix	<u>%</u>	-	Redox	Features		Texture	Remarks
Profile Descri Depth(cm)	iption: (Describe to Matrix	<u>%</u>	-	Redox	Features		Texture	Remarks
Profile Descri	Matrix Color(moist)	% \ <u>0</u> 0 — — —	Color(moist)	% — — — — — — — — — — — — — — — — — — —	Features Type¹	<u>Loc²</u>	Texture arganic sondy	Remarks Los wello colour
Profile Descri	Matrix Color(moist)	% \ <u>0</u> 0 — — —	Color(moist)	% — — — — — — — — — — — — — — — — — — —	Features Type¹	<u>Loc²</u>	Texture arganic sondy	Remarks
Profile Descri	Matrix Color(moist) Generation, D=Deple	% \ <u>0</u> 0 — — —	Color(moist)	% — — — — — — — — — — — — — — — — — — —	Features Type¹	<u>Loc²</u>	Texture arganic sondy	Remarks Los wello colour
Profile Descri Depth(cm) 0 - 36 36 - Type: C=Con Histosol (A Histic Epip Black Histi Hydrogen Stratified L Depleted L Thick Dark Sandy Mu 5cm Muck	Matrix Color(moist) centration, D=Deple ndicators: A1) pedon (A2)	% \ <u>oo</u> — — — tion, RM=	Color(moist)	Redox % Sandy Strippe Dark S Polyva Thin D Loamy Deplete Redox Deplete Deplete Redox Deplete	Features Type¹	Loc² Loc² G) 66) 7) Sourface (S8 6 (S9) atrix (F2) 3) ce (F6) rface (F7)	Texture arganic sandy	Remarks Los wello colour
Profile Descri Depth(cm) O - 36 36 - Type: C=Con Histosol (A Histic Epip Black Histi Hydrogen Stratified L Depleted E Thick Dark Sandy Mu Scm Muck Sandy Gle	Matrix Color(moist) Matrix Ma	% \ <u>CC</u> tion, RM=	Color(moist)	Redox % Sandy Strippe Dark S Polyva Thin D Loamy Deplete Redox Deplete Deplete Redox Deplete	red or Coate A Redox (S5 ad Matrix (S6 dufaces (S7 lue Below S6 ark Surfaces Gleyed Ma ed Matrix (F6 Dark Surfa ed Dark Surfa ed Dark Surfa ed Dark Surfa	Loc² Loc² G) 66) 7) Sourface (S8 6 (S9) atrix (F2) 3) ce (F6) rface (F7)	Texture arganic sandy arins. 2Location: P	Remarks Los wello colour

New Brunswick Department of Environment Wetland Delineation Data Sheet Sample Point WL-C Up Project Site Chaleur Ventus Wind Energy Protect Date Tulu 6, 2018 Field Investigator(s) Derrick Milchell Christina La Flamme Applicant/Owner Noveco County Glaucester Coordinates 20T 343600.74mE 5298777,27mN Do normal environmental conditions exist on-site? Yes V No PID if no explain: Atypical Situation? Yes No Explain Is this a potential Problem Area? Yes No Explain_ **Wetland Determination** (Check One Only For Each Criteria) Wetland Dominant Hydrophytic Vegetation (50/20 rule) Determination Wetland Hydrology ----YES Hydric Soils --Yes ☐ No 🗸 Wetland Type:_ Rational for Determination: Vegetation -Tree Stratum: (Plot size: 10 m2) %Cover **Dominant Species** Indicator Status Dominance Test Worksheet: 1. Acer ruhrum 30 fac # of Dominant Species that are OBL, FACW, FAC: 2. Abies balsamea FAC 3. Betula papyricesa Facu 20 Total # of Dominant Species across all strata: ৰ্ = Total Cover % of Dominant Species Shrub Stratum: (Plot size: 5m2 that are OBL, FACW, FAC: (A/B) 1. Picea mariana Prevalence Index Worksheet: 2. Acer rubrum 3. Abies balsamea Total % Cover of: Multiply by: **OBL Species** x1 =**FACW Species** x2 = 10 12 = Total Cover FAC Species x3 =195 **FACU Specie** x4 = 160 40 Herb Stratum: (Plot size: 1m2) **UPL Species** x5 =0 Column Totals: 110 1. Pteridium aquilinum 2. Clintonia borralis Prevalence Index = B/A = 3.32 3. Halanthernum candone fac **Hydrophytic Vegetation Indicators:** 5. Rapid Test for Hydrophytic Vegetation 28 = Total Cover ✓ Dominance Test is >50% Prevalence Index is ≤3.01 Morphological Adaptations¹ (explain) Problematic Hydrophytic Vegetation (explain) Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Comments Allhough the sample point has hydrophytic vegetation the lock of hydric soil and welland Hydrophytic Vegetation Present? Yes V No

— Hydrol										
rimary Hydr	ological Indicators:	(minimun	n of one is requir	ed; check a	Il that appl	X)				
Saturation Water Mari Sediment I Drift Depos Algal Mat o Iron Depos Inundation	r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4)			Aquai Marl I Hydro Oxidi; Press Rece Thin I	tic Fauna (Deposits (345) le Odor (C1 spheres on duced Iron uction in till	l) Living Roots (C3) (C4) ed Soils (C6)			
Surface So Drainage F Moss Trim Dry-Seaso Crayfish B	dicators: (minimum- bit Cracks (B6) Patterns (B10) Lines (B16) on Water Table (C2) urrows (C8) Visible on Aerial Ima			Geon Shallo Micro	norphic Po ow Aquitar	d (D3) ic Relief (D	, ,			
Field Observa	tions:									
Surface Water	r Present? Yes		• —							
Water Table P		V0 <u> ✓</u> D					Wetland Hydi	ology Pres	ent? Yes No_	
Saturation Pre	esent? YesI	Vo <u>✓</u> D	epth							
Comments:										
	iption: (Describe to t	he depth	needed to docur			onfirm the a	absence of indicat	ors)		
		he depth % 100 100	needed to docur	ment the ind Redox F %		Loc ²	Texture organic sandy sandy		marks	5
Profile Descr Depth(cm) O -6 6-16 16-28	Matrix Color(moist)	% 100 100	Color(moist)	Redox F	Type ¹	Loc ²	Texture Organic Sandy Sandy	Re		
Profile Descr Depth(cm) O -6 6-16 16-28	Matrix Color(moist) 3.5 yr 5/1 3.5 yr 6/4	% 100 100	Color(moist)	Redox F	Type ¹	Loc ²	Texture Organic Sandy Sandy	Re		
Profile Descr Depth(cm) O - 6 O - 16 16 - 28 Type: C=Cor Hydric Soil II Histosol (i Histic Epi Black Hist Hydrogen Stratified Depleted Thick Dar Sandy Mu Sam Mucl	Matrix Color(moist) 3.5 yr 5/1 3.5 yr 6/1 matrix Color(moist) Deplete to the second of the secon	% 100 100 100 — — — ion, RM=	Color(moist)	Redox F % Sandy Strippee Dark St Polyval Loamy Deplete Redox Deplete Deplete	Redox (S5d Matrix (Surfaces (S7d)	ed Sand Gr Surface (S8 (S9) ttrix (F2) face (F6) rface (F7)	Texture corporate Scardy Scardy Scardy Scardy Scardy Scardy Scardy	Re		
Profile Descr Depth(cm) O -6 O-16 16-28 Type: C=Cor Hydric Soll II Histosol (i Histic Epi Black Hist Hydrogen Stratified Depleted Thick Dan Sandy Mu Sandy Gli	Matrix Color(moist) 3.5 yr 5/1 3.5 yr 5/1 3.5 yr 6/1 3.5 yr 6/	% 100 100 100 — — — ion, RM=	Color(moist)	Redox F % Sandy Strippee Dark St Polyval Loamy Deplete Redox Deplete Deplete	Redox (S5d Matrix (Surfaces (S7ark Surfaces (S7ark Surfaced Matrix (F) Dark Surfaced D	ed Sand Gr Surface (S8 (S9) ttrix (F2) face (F6) rface (F7)	Texture corporate Scardy Scardy ains. 2Location: Pl	Re		
Profile Descr Depth(cm) O -6 O-16 16-28 Type: C=Cor Hydric Soll II Histosol (r Histic Epi Black Hist Hydrogen Stratified Depleted Thick Dar Sandy Mu Sandy Glo Restrictive La	Matrix Color(moist) 3.5 yr 5/1 3.5 yr 6/1 3.5 yr 6/1	% 100 100 100 — — — — — — — — — — — — — —	Color(moist) Reduced Matrix,	Redox F % CS=Covere Sandy Strippee Dark St. Polyval Thin Da Loamy Deplete Redox Deplete Redox 28cm	Redox (S5d Matrix (Surfaces (S7ue Below Sark Surface Gleyed Matrix (F) Dark Surfaced D	Loc² Ged Sand Gr Ged Sand Gr	Texture corporate Scardy Scardy Scardy Scardy Hydric S		g, M=Matrix	

New Brunswick Department of Environment Wetland Delineation Data Sheet Project Site Chalcur Ventus Wind Energy Project Date Tuly 11, 2018 Sample Point WI-D wet Field Investigator(s) Derrick Hitchell /Christing Lot James Applicant/Owner Noveco Coordinates 20T 343129.33 mE 5298609.10 m N County Coloucester Do normal environmental conditions exist on-site? Yes No PID if no explain: Atypical Situation? Yes No X Explain Is this a potential Problem Area? Yes No Kexplain **Wetland Determination** (Check One Only For Each Criteria) Wetland Dominant Hydrophytic Vegetation (50/20 rule) Determination Wetland Hydrology -YES NO -Yes ✓ No Hydric Soils -Wetland Type: Convergus Swamp Rational for Determination: CWCS - Vegetation -Tree Stratum: (Plot size: 10m2) %Cover **Dominant Species** Indicator Status **Dominance Test Worksheet:** 1. Picea mariana # of Dominant Species fac W that are OBL, FACW, FAC: 2. Acer rubrum fac 3. Larix Inricina fac Total # of Dominant Species across all strata: **⇒** = Total Cover % of Dominant Species Shrub Stratum: (Plot size: 5m2) that are OBL, FACW, FAC: _\OO__(A/B) 1. Picea mariana Prevalence Index Worksheet: 2. Viburnum nudum 3. Nemopont hus mycronoly fac Total % Cover of: Multiply by: 70 **OBL Species** x1 =**FACW Species** 70 x2 =140 1入 = Total Cover 42 FAC Species x3 =126 **FACU Specie** x4 =0 0 Herb Stratum: (Plot size: \m^2) **UPL Species** x5 =Column Totals: x1 =336 1. Osmunda connomonica 2. Carex trisperma Prevalence Index = B/A = \.35 3. Majanthemirm tricollim 10 **Hydrophytic Vegetation Indicators:** Rapid Test for Hydrophytic Vegetation 95 = Total Cover ✓ Dominance Test is >50% ✓ Prevalence Index is ≤3.0¹ Morphological Adaptations (explain) Problematic Hydrophytic Vegetation (explain) Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Comments NIA Hydrophytic Vegetation Present? Yes ✓ No

red; check all that apply)
Water Stained Leaves (B9) Aquatic Fauna (B13) Marl Deposits (B15) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots (C3) Presence of Reduced Iron (C4) Recent Iron reduction in tilled Soils (C6) Thin Muck Surface (C7) Other (Explain in Remarks)
 Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
W. H L
Wetland Hydrology Present? Yes <u>✓</u> No
nent the indicator or confirm the absence of indicators)
Redox Features
% <u>Type¹ Loc² Texture</u> <u>Remarks</u>
organic
20.00
CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix
Sandy Redox (S5) Stripped Matrix (S6) Dark Surfaces (S7) Polyvalue Below Surface (S8) Thin Dark Surface (S9) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8)
Hydric Soil Present? Yes ✓ No

New Brunswick Department of Environment Wetland Delineation Data Sheet Project Site Chaleur Ventus Wind Energy Project Sample Point WI-D NO Date_ Tulu 11, 2012 Applicant/Owner Naveco Field Investigator(s) Derrick Milchell / Christing La Florence Coordinates 20T 343140.48 mE 5298619.85 mN County Gloucester Do normal environmental conditions exist on-site? Yes No PID if no explain: Atypical Situation? Yes No V Explain Is this a potential Problem Area? Yes No Explain **Wetland Determination** (Check One Only For Each Criteria) Wetland Dominant Hydrophytic Vegetation (50/20 rule)_ Determination Wetland Hydrology -Hydric Soils -Wetland Type: Rational for Determination: Vegetation Tree Stratum: (Plot size: 10 m2) %Cover **Dominance Test Worksheet: Dominant Species** Indicator Status 25 # of Dominant Species 1. Ahres balsamea 2. Acer rubrum that are OBL, FACW, FAC: (A) tor 3. Betula papyrifera Fac U 4. Picea mariana 10 facul Total # of Dominant Species across all strata: 5. 70 = Total Cover % of Dominant Species Shrub Stratum: (Plot size: 5m2 that are OBL, FACW, FAC: (A/B) 1. Abus balsamea Prevalence Index Worksheet: 2. Betula papyricera Total % Cover of: Multiply by: 3. Picca mariana facw 5 **OBL Species** x1 =**FACW Species** x2 =30 50 = Total Cover FAC Species 130 390 x3 =35 x4 =**FACU Specie** 140 Herb Stratum: (Plot size: \m^1) **UPL Species** 0 x5 =0 Column Totals: 560 x1 =Hayanthemum considerac 2. Aralia nudicaulis Prevalence Index = B/A = 3.11 3. Cornus canadensis 4. Pteridium aquilinum fac **Hydrophytic Vegetation Indicators:** 5. Linnaea borealis fac Rapid Test for Hydrophytic Vegetation = Total Cover ✓Dominance Test is >50% Prevalence Index is ≤3.01 Morphological Adaptations (explain) Problematic Hydrophytic Vegetation (explain) Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Comments Allhough the sample point has hudrophytic vegetation. the lack of budric soil and welland hydrology identifies this site as upland Hydrophytic Vegetation Present? Yes V No

rimary Hyd	rological Indicators	: (minimur	m of one is requir	ed; check al	II that app	ly)				
Surface W High Water Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundation	ary Hydrological Indicators: (minimum of one is required urface Water (A1) Igh Water Table (A2) Igh Water Table (A2) Igh Water Table (A2) Igh Water Table (B1) Igh Water Table (B2) Igh Warks (B1) Igh Warks (B1) Igh Warks (B3) Igh Water (B3) Igh Water (B3) Igh Water (B4) Igh Water (B4) Igh Water (B4) Igh Water (B5) Igh Water (B6) Igh Wa				Water Stained Leaves (B9) Aquatic Fauna (B13) Marl Deposits (B45) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots (C3) Presence of Reduced Iron (C4) Recent Iron reduction in tilled Soils (C6) Thin Muck Surface (C7) Other (Explain in Remarks)					
Surface S Drainage Moss Trin Dry-Seas Crayfish E	ndicators: (minimum oil Cracks (B6) Patterns (B10) n Lines (B16) on Water Table (C2) Burrows (C8) n Visible on Aerial Im		Geom Shalld Micros	norphic Po ow Aquitai	ic Relief (D	. ,				
Field Observa		N 45	0.							
surrace vvate Vater Table I	r Present? Yes Present? Yes	. No <u>. /</u> . D					Wetland Hydroi	ogy Present? Yes No_ <u>~</u>		
Saturation Pr		No <u>~</u> D								
Comments:_										
	rofile									
- Soil P	Tollie ———									
	ription: (Describe to	the depth	needed to docum	nent the indi	icator or c	onfirm the a	absence of indicators	;)		
Profile Desc		the depth	needed to docun	nent the indi Redox Fo		onfirm the a	bsence of indicators	s)		
Profile Desc	ription: (Describe to	the depth	needed to docum			onfirm the a	absence of indicators <u>Texture</u>	s) <u>Remarks</u>		
Profile Desc Depth(cm)	Matrix Color(moist)	_	August an ext	Redox Fe	eatures					
Profile Describenth (Com.) O-5 5-10	Matrix Color(moist) 1.5yr 5/1	<u>%</u>	August an ext	Redox Fe	eatures		<u>Texture</u>			
Profile Describenth (Com.) O-5 5-10	Matrix Color(moist)	% 100	August an ext	Redox Fe	eatures		Texture propie			
Profile Description Depth(cm) 0-5 5-10	Matrix Color(moist) 1.5yr 5/1	% 100 100	August an ext	Redox Fe	eatures		Texture exganic sordy			
Profile Describenth (Com.) O-5 5-10	Matrix Color(moist) 1.5yr 5/1	% 100 100	August an ext	Redox Fe	eatures		Texture exganic sordy			
Profile Description Depth(cm) 0-5 5-10	Matrix Color(moist) 1.5yr 5/1	% 100 100	August an ext	Redox Fe	eatures		Texture exganic sordy			
Profile Desc Depth(cm) 0 - 5 5- 10	Matrix Color(moist) 1.5yr 5/1	% 100 100	August an ext	Redox Fe	eatures		Texture exganic sordy			
Profile Description Depth(cm) 0-5 5-10 0-42	Tiption: (Describe to Matrix Color(moist) 1.5yr 5/1 7.5yr 4/6	% 100 100 —	Color(moist)	Redox Fe	eatures Type¹	<u>Loc²</u>	Texture proporic sorrly somy			
<u>0-5</u> <u>5-10</u> 10-42 Type: C=Coi	ription: (Describe to Matrix Color(moist) 1.5yr 5/1 7.5yr 4/6	% 100 100 —	Color(moist)	Redox Fe	eatures Type¹	<u>Loc²</u>	Texture proporic sorrly somy	Remarks		
Profile Desc Depth(cm) 0-5 5-10 0-42 Type: C=Col	Tiption: (Describe to Matrix Color(moist) 3.5 yr 5/1 3.5 yr 4/6 modicators:	% 100 100 —	Color(moist)	Redox Fe	eatures Type¹	Loc²	Texture proporic sorrly somy	Remarks		
Profile Desc Depth(cm) 0-5 5-10 0-42 Type: C=Col	niption: (Describe to Matrix Color(moist) 1.5yr 5/1 7.5yr 4/6 matrix Color(moist) 1.5yr 5/1 1.5yr 4/6 matrix Deple	% 100 100 —	Color(moist)	Redox Fe	eatures Type¹ do or Coate Redox (St. Matrix (St.	Loc² ———————————————————————————————————	Texture proporic sorrly somy	Remarks		
Profile Desc Depth(cm) Depth(cm) Depth(cm) Depth(cm) Type: C=Column Type: C=Column Hydric Soil I Histosol (Histic Epi Black His	niption: (Describe to Matrix Color(moist) 1.5yr 5/1 7.5yr 4/6 matrix Color(moist) 1.5yr 5/1 Poly 4/6 matrix Deple	% 100 100 —	Color(moist)	Redox Fo	eatures Type ¹ ed or Coate Redox (Standard Standard S	Loc² ed Sand Gra	Texture Proposite Sorrdy So	Remarks		
Profile Desc Depth(cm) Depth(cm) Depth(cm) Depth(cm) Depth(cm) Type: C=Col Hydric Soil I Histosol (Histic Epi Black His Hydroger	niption: (Describe to Matrix Color(moist) 1.5yr 5/1 7.5yr 4/6 Incentration, D=Deple Indicators: A1) pedon (A2) tic (A3) It Suffide (A4)	% 100 100 —	Color(moist)	Redox Fe	eatures Type ¹ ed or Coate Redox (Standard Standard S	Loc² ed Sand Gra 6) 7) Surface (S8)	Texture Proposite Sorrdy So	Remarks		
Profile Description Depth(cm) Depth(cm) Depth(cm) Depth(cm) Depth(cm) Type: C=Color Hydric Soil I Histosol (Histic Epi Black His Hydroger Stratified Depleted	ndlcators: A1) pedon (A2) tic (A3) Below Dark Surface	% 100 100 	Color(moist)	Redox Fe	Redox (St. Harrix (St. January St.	ed Sand Gra	Texture Proposite Sorrdy So	Remarks		
Profile Description Depth(cm) Depth(cm) Depth(cm) Depth(cm) Depth(cm) Type: C=Color Hydric Soil I Histosol (Histic Epi Black His Hydroger Stratified Depleted Thick Dar	ndlcators: A1) pedon (A2) tic (A3) Suffice (A4) Layers (A5) Below Dark Surface k Surface (A12)	% 100 100 	Color(moist)	Redox Fe % CS=Covere Sandy I Stripped Dark Su Polyvalu Thin Da Loamy C Depleted	Redox (State Below Strk Surfaces Gleyed Matrix (Figure 2)	Loc ² Loc ² Coc ²	Texture Proposite Sorrdy So	Remarks		
Profile Description Depth(cm) Depth(cm) Depth(cm) Depth(cm) Type: C=Color Hydric Soil I Histosol (Histic Epi Black His Hydroger Stratified Depleted Thick Dar Sandy Mue	ncentration, D=Deple ndicators: A1) pedon (A2) tic (A3) pelon (A4) Layers (A5) Below Dark Surface k Surface (A12) ucky Mineral (S1) ky Peat or Peat (S3)	% 100 100 	Color(moist)	Redox Fe % CS=Covere Sandy I Stripped Dark Su Polyvalu Thin Dal Loamy (Depleted Redox D Depleted	Redox (State of the Surfaces (State of Surfaces (State of Surfaces (State of Surfaces (State of Surfaces of Surfaces (State of Surfaces of	ed Sand Gra Solution (F2) F3) 6) 6) F3) F4 (S9) F5 (F2) F6) F6 (F7)	Texture Proposite Sorrdy So	Remarks		
Profile Descripe Depth(cm) O-5 5-10 O-42 Type: C=Con Histosol (Histic Epi Black His Hydroger Stratified Depleted Thick Dar Sandy Min 5cm Muce	ncentration, D=Deple ndlcators: A1) pedon (A2) tic (A3) pelow Dark Surface k Surface (A12) ucky Mineral (S1)	% 100 100 	Color(moist)	Redox Fe % CS=Covere Sandy I Stripped Dark Su Polyvalu Thin Dal Loamy (Depleted Redox D Depleted	Redox (Standard Standard Stand	ed Sand Gra Solution (F2) F3) 6) 6) F3) F4 (S9) F5 (F2) F6) F6 (F7)	Texture Proposite Sorrdy So	Remarks		
Profile Description Depth(cm) Depth(cm) Depth(cm) Depth(cm) Type: C=Con Histosol (Histic Epi Black His Hydroger Stratified Depteted Thick Dar Sandy Mi Scm Mue Sandy Gl	ncentration, D=Deple ndicators: A1) pedon (A2) tic (A3) pelon (A4) Layers (A5) Below Dark Surface k Surface (A12) ucky Mineral (S1) ky Peat or Peat (S3)	% 100 100 100 — — — tion, RM=	Color(moist)	Redox Fe % CS=Covere Sandy I Stripped Dark Su Polyvalu Thin Dal Loamy (Depleted Redox D Depleted	Redox (State of the Surfaces (State of Surfaces (State of Surfaces (State of Surfaces (State of Surfaces of Surfaces (State of Surfaces of	ed Sand Gra Solution (F2) F3) 6) 6) F3) F4 (S9) F5 (F2) F6) F6 (F7)	Texture Proposite Sorrdy Sorrdy Sorrdy And y ains. 2 Location: PL=F	Remarks		
Profile Description Depth(cm) Depth(cm) Depth(cm) Depth(cm) Type: C=Color Hydric Soil I Histosol (Histic Epi Black His Hydroger Stratified Depleted Thick Dar Sandy Muc Sandy Gl Restrictive La	ncentration, D=Depleration (A2) tic (A3) suffice (A4) Layers (A5) Below Dark Surface (A12) ucky Mineral (S1) ky Peat or Peat (S3) eyed Matrix (S4)	% 100 100 100 — — — etion, RM=	Color(moist) Reduced Matrix,	Redox Fe % CS=Covere Sandy I Stripped Dark Su Polyvalu Thin Dai Loamy (Depleted Redox D Redox D	Redox (St. Harris (St. Harris (St. Harris (St. Harris (St. Harris (St. Harris (F. Harris (Harris (Harr	Loc² ———————————————————————————————————	Texture Proposite Sorrdy Sorrdy Sorrdy And y ains. 2 Location: PL=F	Remarks Pore Lining, M=Matrix		

Autrace Water Present? YesNo/ Depth	Tillial V TIVU.	Important Indicators	/minimum	o of one is requi	od: chack	all that ann	(he)		
Surface Soil Cracks (B6)	Surface W High Wate Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundation Sparsely	Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8)				er Stained atic Fauna I Deposits (rogen Sulfi dized Rhizo sence of Re ent Iron rec Muck Surf	Leaves (B9 (B13) (B15) de Odor (C spheres on educed Iron duction in til face (C7)	1) Living Roots (C3) (C4) lled Soils (C6)	
Wetland Hydrology Present? Yes No_ Depth Ocm Saturation Present? Yes No_ Depth Ocm De	Surface S Drainage Moss Trim Dry-Sease Crayfish E	Soil Cracks (B6) Patterns (B10) n Lines (B16) on Water Table (C2) Burrows (C8)			Geo Shal Micr	morphic Po llow Aquita otopograph	osition (D2) rd (D3) nic Relief (E		
Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators) Depth(cm) Matrix Redox Features Color(moist) % Color(moist) % Type¹ Loc² Texture Remarks 0-2 Texture Remarks 1-40 Texture R	Surface Wate Water Table F Saturation Pre	er Present? Yes Present? Yes! esent? Yes/_!	No <u>v</u> De	epth				Wetland Hydro	logy Present? Yes <u>√</u> No
Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators) Depth(cm) Matrix Redox Features Color(moist) % Color(moist) % Type¹ Loc² Texture Remarks C-8 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \									
Redox Features Color(moist) Color(moist) Redox Features Color(moist)	— Soil P	rofile —							
Color(moist) % Color(moist) % Type¹ Loc² Texture Remarks A-YO 3-Sur 5/L 90 3-Sur 6/H LO RH H Surdu Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix Hydric Soil Indicators: Histool (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Suflide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Restrictive Layer (if observed): Type Rock Depth: 32cm Hydric Soil Present? Yes ✓ No									
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M=Matrix Hydric Soil Indicators: Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Dark Surfaces (S7) Hydrogen Sufflide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Restrictive Layer (if observed): Type Rock Depth: 32cm Hydric Soil Present? Yes No	Profile Desci	ription: (Describe to t	he depth i	needed to docur	nent the ind	dicator or c	onfirm the	absence of indicator	(s)
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix Hydric Soil Indicators: Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Dark Surfaces (S7) Hydrogen Sufflide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Seandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Restrictive Layer (if observed): Type Rock Depth: 32cm Hydric Soil Present? Yes No	Profile Descr Depth(cm)	Matrix	= ,	-	Redox	Features			
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. **Location: PL=Pore Lining, M=Matrix** **Hydric Soil Indicators:** Histosol (A1)	Depth(cm)	Matrix	<u>%</u>	-	Redox	Features		Texture	
Hydric Soil Indicators:	Depth(cm)	Matrix Color(moist)	<u>%</u>	Color(moist)	Redox I	Features Type ¹	Loc ²	<u>Texture</u>	
Hydric Soil Indicators:	Depth(cm)	Matrix Color(moist)	<u>%</u>	Color(moist)	Redox I	Features Type ¹	Loc ²	<u>Texture</u>	
Hydric Soil Indicators:	Depth(cm)	Matrix Color(moist)	<u>%</u>	Color(moist)	Redox I	Features Type ¹	Loc ²	<u>Texture</u>	
Hydric Soil Indicators:	Depth(cm)	Matrix Color(moist)	<u>%</u>	Color(moist)	Redox I	Features Type ¹	Loc ²	<u>Texture</u>	
Hydric Soil Indicators:	Depth(cm)	Matrix Color(moist)	<u>%</u>	Color(moist)	Redox I	Features Type ¹	Loc ²	<u>Texture</u>	
Hydric Soil Indicators:	Depth(cm)	Matrix Color(moist)	<u>%</u>	Color(moist)	Redox I	Features Type ¹	Loc ²	<u>Texture</u>	
Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sufflide (A4) Stripped Matrix (S6) Dark Surfaces (S7) Polyvalue Below Surface (S8) Thin Dark Surface (S9) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Peat or Peat (S3) Sandy Gleyed Matrix (S4) Restrictive Layer (if observed): Type Back Depth: 32cm Hydric Soil Present? Yes ✓ No	<u>0 - 8</u> <u>パ - 40</u>	Matrix Color(moist) 7.5yr 5/1	% \co 90 —	Color(moist) 7.5 yr 6/4	## Redox I	Type ¹ RH	<u>Loc²</u> <u>H</u> —	Texture organic sandy	Remarks
Histic Epipedon (A2) Black Histic (A3) Hydrogen Suflide (A4) Stripped Matrix (S6) Dark Surfaces (S7) Polyvalue Below Surface (S8) Thin Dark Surface (S9) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Peat or Peat (S3) Sandy Gleyed Matrix (S4) Restrictive Layer (if observed): Type Bock Depth: 32cm Hydric Soil Present? Yes ✓ No	<u>0 - 8</u> <u>パ - 40</u>	Matrix Color(moist) 7.5yr 5/1	% \co 90 —	Color(moist) 7.5 yr 6/4	## Redox I	Type ¹ RH	<u>Loc²</u> <u>H</u> —	Texture organic sandy	Remarks
	Depth(cm) ハー& ハーリー ハーリー Type: C=Cor	Matrix Color(moist) 7.5yr 5/1 matrix Depletion	% \co 90 —	Color(moist) 7.5 yr 6/4	## Redox I	Type ¹ RH	<u>Loc²</u> <u>H</u> —	Texture organic sandy	Remarks
Comments:	Depth(cm) O-8 A-YO Type: C=Cor Hydric Soil In Histosol (/ Histic Epip Black Hist Hydrogen I Stratified I Depleted I Thick Darl Sandy Mu 5cm Muck	Matrix Color(moist)	% \co. 90 — — — ion, RM=F	Color(moist) 7.5 yr 6/4	Redox I % —————————————————————————————————	Redox (Starfaces (Silue Below Stark Surfaces (Gleyed Matrix (Dark Surfaced Dark Surfac	ed Sand Gi Sourface (S8 e (S9) strix (F2) =3) ce (F6) rface (F7)	Texture arganic sandy rains. 2Location: PL=	Remarks
	Depth(cm) O - \$ \$ - \left\ O A - \left\ O Type: C=Cor Hydric Soil In Histosol (A Histic Epip Black Hist Hydrogen Stratified I Depleted In Thick Dark Sandy Mu 5cm Muck Sandy Gle	Matrix Color(moist)	% \ <u>CO</u> . 90	Color(moist) 3.5 yr 6 l4 Reduced Matrix,	Redox I % —— \(\sum_{\infty} \) CS=Cover Sandy Strippe Dark S Polyval Thin Da Loamy Deplete Redox Deplete Redox	Redox (Standards (Stan	ed Sand Gi Sourface (S8 e (S9) strix (F2) =3) ce (F6) rface (F7)	Texture crigonic sondy and a series are a	Remarks Pore Lining, M=Matrix
	Type: C=Cor Hydric Soil II Histosol (/ Histic Epip Black Hist Hydrogen Stratified I Depleted I Thick Darl Sandy Mu Scm Muck Sandy Gle	Matrix Color(moist)	% 100. 90 — — ion, RM=F	Color(moist) 3.5 yr 6 / H Reduced Matrix,	Redox I % —— LO Sandy Strippe Dark S Polyval Thin Da Loamy Deplete Redox Redox Redox Redox 32cm	Redox (Standards (Stan	ed Sand Gi Sourface (S8 e (S9) strix (F2) =3) ce (F6) rface (F7)	Texture crigonic sondy and a series are a	Remarks Pore Lining, M=Matrix

New Brunswick Department of Environment Wetland Delineation Data Sheet Project Site Chaleur Ventus Wind Energy Project Date Tuly 11, 2018 Sample Point WL-E wet Field Investigator(s) Derrick Mitchell / Christing Lat lamme Applicant/Owner Naveco Coordinates 20T 343303.44 mE 5298926.24 m N County Glaucester Do normal environmental conditions exist on-site? Yes No No PID if no explain: Atypical Situation? Yes No X Explain Is this a potential Problem Area? Yes No Explain Wetland Determination (Check One Only For Each Criteria) Wetland Dominant Hydrophytic Vegetation (50/20 rule) Determination Wetland Hydrology ----Yes V No Hydric Soils -Wetland Type: Deciduous Swamo Rational for Determination: _ C w c S Vegetation -Tree Stratum: (Plot size: 10 m2) %Cover **Dominant Species** Indicator Status Dominance Test Worksheet: 1. Acer rubrum 40 # of Dominant Species that are OBL, FACW, FAC: 2. Abies balsamea Cac 3. Retula papyricera fac u Total # of Dominant 4. Thusa occidentalis Fac. W Species across all strata: **7** ≥ Total Cover % of Dominant Species Shrub Stratum: (Plot size: 5m2 that are OBL, FACW, FAC: 1. Abies balsamea Prevalence Index Worksheet: 2. Alous incana fac 3. Scrbus americana Total % Cover of: Multiply by: Fac 4. Viburnum nudum fac 5. **OBL Species** x1 = **FACW Species** 13 x2 =FAC Species 104 x3 =312 **FACU Specie** 30 x4 =120 Herb Stratum: (Plot size: \m^2) UPL Species x5 =Column Totals: x1 =1. Octomera acuminala 2. Pris versicolor facw 3. Carex conescens Prevalence Index = B/A = 3.03 abl 4.05munda cinnamonia Fac Hydrophytic Vegetation Indicators: 5. Clintonia borealis fac Rapid Test for Hydrophytic Vegetation = Total Cover ✓ Dominance Test is >50% fac Aralia nudicaulis Prevalence Index is ≤3.01 Maianthemum tripolium 3 ldo Morphological Adaptations (explain) Problematic Hydrophytic Vegetation (explain) Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Comments NIA Hydrophytic Vegetation Present? Yes V No____

New Brunswick Department of Environment Wetland Delineation Data Sheet Project Site Chaleur Ventus Wind Energy Project Date July 11, 2018 Sample Point WL-E UD Field Investigator(s) Derrick Mitchell / Christina La Flamme Applicant/Owner Naveco Coordinates 20T 343309.71 mE 5298912.00 m N County Chloucester PID_ Do normal environmental conditions exist on-site? Yes 🗸 No 🗌 if no explain: Atypical Situation? Yes No V Explain Is this a potential Problem Area? Yes No Fexplain_ Wetland Determination (Check One Only For Each Criteria) Wetland Dominant Hydrophytic Vegetation (50/20 rule) Determination Wetland Hydrology ---YES Hydric Soils --Yes ☐ No 🗸 Wetland Type:_ Rational for Determination: Vegetation -Tree Stratum: (Plot size:)0 m3) %Cover **Dominant Species** Indicator Status **Dominance Test Worksheet:** # of Dominant Species Acerrubrum $t^{\sigma c}$ 2. Abies balsamea that are OBL, FACW, FAC: (A) fac 3. Total # of Dominant Species across all strata: ∃ও = Total Cover % of Dominant Species Shrub Stratum: (Plot size: 5m2) that are OBL, FACW, FAC: (A/B) 1. Acerruhrum **Prevalence Index Worksheet:** 2. Abies balsomea Total % Cover of: 3. Viburoum nudum Multiply by: 4. Thuja occidentaris FACW **OBL Species FACW Species** x2 =10 55 = Total Cover 180 FAC Species 540 x3 =**FACU Specie** x4 =0 0 x5 = Herb Stratum: (Plot size: 1m2) **UPL Species** Column Totals: x1 = 190 560 1. Druppleris intermedia 2. Cornus canadensis Prevalence Index = B/A = 2.95 3. Clintonia borealis fac 4. Aralia oudicaulis Fac **Hydrophytic Vegetation Indicators:** 65 = Total Cover Rapid Test for Hydrophytic Vegetation ✓ Dominance Test is >50% ✓ Prevalence Index is ≤3.0³ Morphological Adaptations (explain) Problematic Hydrophytic Vegetation (explain) Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Comments Although the sample point has hydrophylic regelation, the lack of hydric soil and welland hydrology identifice this stear upland Hydrophytic Vegetation Present? Yes ✓ No

ımarv Hvdi	rological Indicators	(minimur	n of one is requir	ed: check a	all that appl	v)			
Surface W High Wate Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Inundation	Vater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) osits (B3) or Crust (B4)	agery (B7)	Wate Aqua Marl Hydro Oxidi Pres Rece Thin	er Stained L atic Fauna (Deposits (I ogen Sulfid ized Rhizos ence of Re	eaves (B9 B13) B15) le Odor (C1 spheres on duced Iron uction in till ace (C7)	1) Living Roots (C3) (C4) led Soils (C6)		
Surface S Drainage Moss Trin Dry-Sease Crayfish E	ndicators: (minimum foil Cracks (B6) Patterns (B10) n-Lines (B16) on Water Table (C2) Burrows (C8) n Visible on Aerial Imi			Geor Shall Micro	ted or Stres norphic Po low Aquitar otopograph -Neutral Te	sition (D2) d (D3) ic Relief (D	, ,		
ield Observa									
ourface Wate Vater Table F	Present? Yes	No <u>~</u> D No <u>~</u> D	epth				Wetland Hydr	ology Prese	nt? Yes No <u></u>
Saturation Pro	esent? Yes	No_VD	epth						
comments:						-			
	ription: (Describe to	the depth	needed to docur	nent the inc	dicator or co	onfirm the a	absence of indicate	ors)	
epth(cm)		the depth	Color(moist)	nent the inc Redox F		Loc ²	<u>Texture</u>		narks
Profile Desci Depth(cm)	ription: (Describe to Matrix	<u>%</u>		Redox F	- eatures	. 2			narks
Profile Descripenth(cm)	ription: (Describe to Matrix Color(moist)	<u>%</u> 100		Redox F	- eatures	. 2	Texture		narks
Profile Descripenth(cm)	ription: (Describe to Matrix Color(moist)	<u>%</u> 100		Redox F	- eatures	. 2	Texture		narks
Profile Desci Depth(cm)	ription: (Describe to Matrix Color(moist)	<u>%</u> 100		Redox F	- eatures	. 2	Texture		narks
Profile Descripenth(cm)	ription: (Describe to Matrix Color(moist)	<u>%</u> 100		Redox F	- eatures	. 2	Texture		narks
Profile Descripeth(cm) O-9 9-42	ription: (Describe to Matrix Color(moist)	% LCO LCO — —	Color(moist)	Redox F % — — — — — — — — — — — — — — — —	Type ¹	<u>Loc²</u>	Texture organic scody	Rem	
Profile Descripenth (cm)	ription: (Describe to Matrix Color(moist)	% LCO LCO — —	Color(moist)	Redox F % — — — — — — — — — — — — — — — —	Type ¹	<u>Loc²</u>	Texture organic scody	Rem	
Profile Descripe Depth(cm) Q-Q Q-U2 Type: C=Cor Histosol (Histic Epi Black His Hydrogen Stratified Depleted Thick Dar Sandy Mi 5cm Muc	matrix Color(moist)	% LCQ LCQ ———————————————————————————————	Color(moist)	Redox F % Sandy Strippe Dark Si Polyval Thin Da Loamy Deplete Redox Deplete	Type ¹	Loc²	Texture organic scrody ains. 2Location: PL	Rem	
Profile Descripe Depth(cm) Q-Q Q-U2 Type: C=Cor Histosol (Histic Epi Black His Hydrogen Stratified Depleted Thick Dar Sandy Mi 5cm Muc Sandy Gl	matrix Color(moist)	% \GO \OO 	Color(moist)	Redox F % Sandy Strippe Dark Strippe	Redox (S5 d Matrix (Surfaces (S7 wife Below Selow Selow Selow Selow Selow Selow Selow Selow Surfaced Matrix (Foark Surfaced Dark Surfaced	Loc²	Texture organic scrody ains. 2Location: PL	Rem	
Profile Descripe Depth(cm) Q-Q Q-U2 Type: C=Cor Hydric Soil I Histosol (Histic Epi Black His Hydrogen Stratified Depleted Thick Dar Sandy Mi Sandy Gl Restrictive La	matrix Color(moist)	% 100 100	Color(moist) Reduced Matrix,	Redox F % Sandy Strippe Dark St Polyval Thin Da Loamy Deplete Redox Redox	Redox (S5 d Matrix (Surfaces (S7 ue Below Sark Surface Gleyed Maed Matrix (FDark Surfaced Dark Surfa	Loc² ———————————————————————————————————	Texture organic scrody ains. 2Location: PL	=Pore Lining	, M=Matrix

New Brunswick Department of Environment Wetland Delineation Data Sheet Sample Point WI-1 wet Project Site Chaleur Ventus Wind Energy Project Date July 23, 2019 Field Investigator(s) Derrick Milechell Applicant/Owner Naveca County Colonicester Coordinates 20T 340651, 55 mE 5293947.90 m N PID Do normal environmental conditions exist on-site? Yes V No if no explain: Atypical Situation? Yes No V Explain Is this a potential Problem Area? Yes No V Explain **Wetland Determination** (Check One Only For Each Criteria) Wetland Dominant Hydrophytic Vegetation (50/20 rule)_ Determination Wetland Hydrology --YES NO Hydric Soils -Wetland Type: Mature conscerous swamp Rational for Determination: Congdon welland Classicication Vegetation Tree Stratum: (Plot size: 10 m2) %Cover **Dominance Test Worksheet: Dominant Species** Indicator Status 1. Thus occidentalis facw # of Dominant Species that are OBL.FACW.FAC: (A) 2. Betula cordifolia facu 3. Abies balsamea Car Total # of Dominant Species across all strata: గర = Total Cover % of Dominant Species Shrub Stratum: (Plot size: 5m2) that are OBL, FACW, FAC: facw . Thuja occidentalis Prevalence Index Worksheet: 2. Acer spiratum Total % Cover of: Multiply by: 3. Abies balsamea 4. Populus balsamirero SAC W **OBL Species** x1 =5. Ribes lacustre facu **FACW Species** x2 = 138 fac Viburnum nudum 59 = Total Cover **FAC Species** 177 x3 =**FACU Specie** x4 = 60 Herb Stratum: (Plot size: 1m2) x5 =**UPL Species** 0 0 x1 =Column Totals: 372 fac 1. Osmunda cinnamomea 2. Rubus pubescens Fac Prevalence Index = B/A = 2.59 3. Cornus canadensis fac 4. Equiselum sulvaticum for **Hydrophytic Vegetation Indicators:** 5. Grumpacarpium druppers fac Rapid Test for Hydrophytic Vegetation = Total Cover ✓ Dominance Test is >50% 061 Carex Lysperma ✓ Prevalence Index is ≤3.0¹ Morphological Adaptations (explain) Problematic Hydrophytic Vegetation (explain) Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Comments N/A Hydrophytic Vegetation Present? Yes V No

Primary Hydrological Indicators: (minimum of one is required; check all that apply) Surface Water (A1) ✓ High Water Table (A2) ✓ Saturation (A3) — Water Marks (B1) — Sediment Deposits (B2) — Drift Deposits (B3) — Iron Deposits (B5) — Inundation Visible on Aerial Imagery (B7) — Sparsely Vegetated Concave Surface (B8) Secondary Indicators: (minimum of two required) — Surface Soil Cracks (B6) — Drainage Patterns (B10) — Moss Trim Lines (B16) — Dry-Season Water Table (C2) — Crayfish Burrows (C8) — Surface Water Present? Yes No ✓ Depth Evaluation Visible on Aerial Imagery (C9) Field Observations: Water Stained Leaves (B9) — Aquatic Fauna (B13) — Aquatic Fauna (B13) — Aquatic Fauna (B13) — Aquatic Fauna (B13) — Water Stained Leaves (B9) — Oxidized Rhizospheres on Living Roots (C3) — Presence of Reduced Iron (C4) — Recent Iron reduction in tilled Soils (C6) — Thin Muck Surface (C7) — Other (Explain in Remarks) — Stunted or Stressed Plants (D1) — Geomorphic Position (D2) — Shallow Aquitard (D3) — Microtopographic Relief (D4) — FAC-Neutral Test (D5) — FAC-Neutral Test (D5) — FAC-Neutral Test (D5)	
Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Surface Soil Cracks (B6)	
Surface Soil Cracks (B6) Stunted or Stressed Plants (D1) Drainage Patterns (B10) Geomorphic Position (D2) Moss Trim Lines (B16) Shallow Aquitard (D3) Dry-Season Water Table (C2) Microtopographic Relief (D4) Crayfish Burrows (C8) FAC-Neutral Test (D5) Saturation Visible on Aerial Imagery (C9) Field Observations: Surface Water Present? Yes No _✓ Depth	
Surface Water Present? Yes No Depth	
	0 W
Water Table Present? Yes VNo Depth 30cm Wetland Hydrology Present	? Yes <u>.</u> No
Saturation Present? Yes V No Depth Ocm	
Comments:	
Depth(cm) Matrix Redox Features	<u>ks</u>
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2Location: PL=Pore Lining, N	л=Matrix
Hydric Soil Indicators:	
Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Suflide (A4) Stratified Layers (A5) Sandy Redox (S5) Stripped Matrix (S6) Dark Surfaces (S7) Polyvalue Below Surface (S8) Thin Dark Surface (S9)	
 Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Scm Mucky Peat or Peat (S3) Sandy Gleyed Matrix (S4) Loamy Gleyed Matrix (F2) Pepleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) 	
Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Som Mucky Peat or Peat (S3) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7)	Yes <u>√</u> No

New Brunswick Department of Environment Wetland Delineation Data Sheet Project Site Chaleux Ventus Wind Energy Project Date Tuly 24 2019 Sample Point Wトー Ub Applicant/Owner Naucco Field Investigator(s) Derrick Milchell County Gloucester Coordinates 20T 340651.44 mE 5293968.16 mN PID_C Do normal environmental conditions exist on-site? Yes 🗸 No 🗍 if no explain:_ Atypical Situation? Yes No V Explain_ Is this a potential Problem Area? Yes No Explain_ Wetland Determination (Check One Only For Each Criteria) Wetland Dominant Hydrophytic Vegetation (50/20 rule)_ Determination Wetland Hydrology ----YES Hydric Soils -Wetland Type:_ Rational for Determination: Vegetation -Tree Stratum: (Plot size: 10 m2) %Cover **Dominant Species** Indicator Status Dominance Test Worksheet: 1. Acer rubrum # of Dominant Species that are OBL, FACW, FAC: 2. Betulacordisolia tac n 3. Populus tremolairles tar Total # of Dominant 4. Abies balsamea <u>fac</u> Species across all strata: 5. Thuis orcidentalis facw = Total Cover % of Dominant Species Shrub Stratum: (Plot size: 5m2) that are OBL, FACW, FAC: (A/B) 1. Abjes balsamea 2. Papulus Iremulaidies Prevalence Index Worksheet: 3. Acer pensylvanicum Total % Cover of: Multiply by: fac u **OBL Species** x1 = FACW Species x2 = 10 12 _= Total Cover 102 FAC Species x3 =306 FACU Specie 27 x4 = 108 Herb Stratum: (Plot size: 1m2) **UPL Species** x5 =Column Totals: 1. Aralia nudicaulis 2. Cornus conndensis Prevalence Index = B/A = 3.16 3. Trientalis borealis fac 4. Maint bemum annderse fac **Hydrophytic Vegetation Indicators:** 5. Dryopteris intermedia Rapid Test for Hydrophytic Vegetation = Total Cover ✓ Dominance Test is >50% Prevalence Index is ≤3.01 Morphological Adaptations (explain) Problematic Hydrophytic Vegetation (explain) Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Comments Although The sample point has hydrophytic vegetation, the lack of hijdric soil and justiand by dialogy identities it as upland Hydrophytic Vegetation Present? Yes_ No V

	ological Indicators	: (minimur	n of one is requir	ed; check a	all that app	ly)			
_ Drift Depos _ Algal Mat o _ Iron Depos _ Inundation	r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4)			Aqua Marl Hydr Oxid Pres Rece Thin	atic Fauna Deposits (I ogen Sulfic ized Rhizo: ence of Re ent Iron red Muck Surf	B15) de Odor (C' spheres on duced Iron luction in till	1) Living Roots (C3) (C4) led Soils (C6)		
Surface So Drainage F Moss Trim Dry-Seaso Crayfish B	dicators: (minimum pil Cracks (B6) Patterns (B10) Lines (B16) In Water Table (C2) Urrows (C8) Visible on Aerial Im			Geor Shall Micro	morphic Po Iow Aquitai	ic Relief (D			
ield Observat	tions:								
Surface Water		No_∠ D	• —					B	
/ater Table P		No <u>~</u> D					Wetland Hydrol	logy Present? Y	es No_ <u>V</u>
aturation Pre	sent? Yes	No <u> </u>	eptn						
omments:									
	iption: (Describe to	the depth	needed to docum			onfirm the a	absence of indicator	s)	
rofile Descri		### the depth ### 100	needed to docur		dicator or c	Loc ²	Texture Somy	Remarks	
Profile Descripenth(cm)	Matrix Color(moist) 5 yr 5/2	<u>%</u> <u>\</u> \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Color(moist)	Redox F %	Type ¹	<u>Loc²</u>	Texture	Remarks	atrix
Profile Descri	iption: (Describe to Matrix Color(moist) 5uc 5/2	<u>%</u> <u>\</u> \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Color(moist)	Redox F %	Type ¹	<u>Loc²</u>	Texture Croan(C Sardy	Remarks	atrix
Profile Descripe Depth(cm) O-6 G-44 Type: C=Con Histosol (A Histic Epip Black Hist Hydrogen Stratified I Depleted II Thick Dark Sandy Mu 5cm Muck	iption: (Describe to Matrix Color(moist) 5uc 5/2 centration, D=Depleted on (A2)	% — \QQ — — etion, RM=	Color(moist)	Redox F % Sandy Strippe Dark S Polyval Loamy Loamy Deplete Redox Deplete	Redox (Std Matrix (Sturfaces (St	Loc ² Loc ² ed Sand Gr solution (S8 et (S9)) atrix (F2) atrix (F2) atrix (F2) atrix (F7)	Texture Organic Sardy rains. 2Location: PL=	Remarks	atrix
Profile Descripent (cm) O-6 G-44 Type: C=Con Histosol (A Histic Epir Black Hist Hydrogen Stratified I Depleted I Thick Dark Sandy Mu 5cm Muck Sandy Gle	matrix Color(moist) Sur 5/2 Sur 5/2 Coentration, D=Depleted adicators: A1) Dedon (A2) Ici (A3) Suffide (A4) Layers (A5) Below Dark Surface Surface (A12) Cky Mineral (S1) Ty Peat or Peat (S3)	% 	Color(moist)	Redox F % Sandy Strippe Dark S Polyval Loamy Loamy Deplete Redox Deplete	Redox (SS d Marix (Surfaces (SS Gleyed Matrix (Foundation of the Control of the C	Loc ² Loc ² ed Sand Gr solution (S8 et (S9)) atrix (F2) atrix (F2) atrix (F2) atrix (F7)	Texture Croan(C Sardy rains. 2Location: PL=	Remarks	

New Brunswick Department of Environment Wetland Delineation Data Sheet Project Site chaleur Ventus wind Energy Project Date Tuly 24, 2019 Sample Point WL - 2 Wet Applicant/Owner Naveco Field Investigator(s) Derrick Mitchell Coordinates 20T 340421.61 mE 5294726.20mN County Colourester Do normal environmental conditions exist on-site? Yes 🗸 No 🗍 PID if no explain: Atypical Situation? Yes No V Explain Is this a potential Problem Area? Yes ✓ No Explain_ Wetland Determination (Check One Only For Each Criteria) Wetland Dominant Hydrophytic Vegetation (50/20 rule)_ Determination Wetland Hydrology ----YES -Yes ✓ No Hydric Soils -Wetland Type: Mature hardward Swamp Rational for Determination: CLUCS Vegetation -Tree Stratum: (Plot size: 10 m2) %Cover **Dominant Species Indicator Status Dominance Test Worksheet:** # of Dominant Species 1. Acer rubrum 40 2. Betula alleghaniensis that are OBL, FACW, FAC: (A) 20 Cac 3. Thuis oscidentalis Fac W 4. Betula cordifolia Total # of Dominant FACU Species across all strata: (B) ७५ = Total Cover % of Dominant Species Shrub Stratum: (Plot size: 5m2) that are OBL,FACW,FAC: __ 100 _(A/B) 1. Abies balsamea **Prevalence Index Worksheet:** 2. Alnusincana fac w Total % Cover of: Multiply by: 3. Acerspicatum CAC 4. Complet corneta fac **OBL Species** 10 x1 =**FACW Species** 69 x2 =FAC Species 20 = Total Cover x3 =255 FACU Specie x4 =Herb Stratum: (Plot size: 1 m2) **UPL Species** x5 = 0 Column Totals: x1 =1. Onaclea sensibilis 2. alyerria melicaria Prevalence Index = B/A = 2.48 3. Thoughtum puberens Facu 4. Bubus puberens fac **Hydrophytic Vegetation Indicators:** 5. Equisation sulvaticum = Total Cover Rapid Test for Hydrophytic Vegetation ✓ Dominance Test is >50% ✓ Prevalence Index is ≤3.0¹ Morphological Adaptations1 (explain) Problematic Hydrophytic Vegetation¹ (explain) Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Comments Hydrophytic Vegetation Present? Yes 🔨 No

— Hydrol	logy ———			O'G LA					
rimary Hydro	ological Indicators:	(minimur	n of one is requir	ed; check al	I that apply	V)			
_ Drift Depos _ Algal Mat o _ Iron Depos _ Inundation _ Sparsely V	r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) Visible on Aerial Im/ /egetated Concave S	Surface (B	i8)	Aquat Marl I Hydro Oxidiz Prese Recer Thin M	tic Fauna (Deposits (E Deposi	315) e Odor (C1 pheres on duced Iron uction in till) Living Roots (C3) (C4) ed Soils (C6)		
Surface So Drainage F Moss Trim Dry-Seaso Crayfish Bo	n Water Table (C2)			Geom Shallo	orphic Pos ow Aquitar	d (D3) c Relief (D			
ield Observat	tions:								
	Present? Yes						188.41	-1 D	/N-
ater Table P		-	Depth_35cm				wetland Hydro	ology Present? Yes <u>/</u>	_ NO
aturation Pre			epth Ocm						
omments:									
rofile Descri	iption: (Describe to	the depth	needed to docum			onfirm the a	absence of indicato	ors)	
Soil Profile Descripepth(cm)		the depth	Color(moist) Sur 6/5	nent the indi Redox Fo		Loc²	Texture	Remarks	
rofile Descri	iption: (Describe to Matrix Color(moist) Sur 4/1	% \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Color(moist) Sur 6/5	Redox Fe	eatures Type¹ RM	<u>Loc²</u> <u>M</u> —	Texture Organic Sandy		
Type: C=Con Hydric Soil In Histosol (A Histic Epip Black Histi Hydrogen Stratified I Depleted I Thick Dark Sandy Mu 5cm Muck	Matrix Color(moist) Sur 4/1 centration, D=Deple	% \co 95 — — tion, RM=	Color(moist) Sur 6/5	Redox Fo	Redox (S5 I Matrix (Surfaces (S7 Le Below Sirk Surface Gleyed Ma	Loc² ———————————————————————————————————	Texture Organic Sondy ains. 2Location: PL	Remarks	
rofile Descrienth(cm) O-3 2-48 Fype: C=Con Wedric Soil In Histosol (A Histic Epip Black Histi Hydrogen Stratified L Depleted Br Thick Darl Sandy Mu 5cm Muck Sandy Gle	matrix Color(moist) Syr 4/1 Syr 4/1 concentration, D=Deplet andicators: A1) pedon (A2) tic (A3) Suffide (A4) Layers (A5) Below Dark Surface k Surface (A12) toky Mineral (S1) ty Peat or Peat (S3)	% \00 95 — — tion, RM=	Color(moist) Sur 6/5	Redox Fo	Redox (S5 d Matrix (Sirfaces (S7 de Below Sirfaces (Bleyed Mad Matrix (Foark Surfaced Dark Surfaced	Loc² ———————————————————————————————————	Texture Organic Sondy ains. 2Location: PL	Remarks	•
rofile Descrienth(cm) O-2 2-48 Type: C=Con Mydric Soil In Histosol (A Histic Epip Black Histi Hydrogen Stratified I Depleted E Thick Dark Sandy Mu Scm Muck Sandy Gle Restrictive Lag	Matrix Color(moist) Syr 4/1 Syr 4/1 Color(moist) Decentration, D=Depleted on (A2) Color(moist) Matrix Color(moist) Matrix Color(moist) Syr 4/1 Matrix Color(moist) Syr 4/1 Matrix Color(moist) Matrix Color(moist) Matrix Matrix Color(moist) Matrix Matrix Color(moist) Matrix Matrix Color(moist) Matrix Matrix	% \co 95 tion, RM=	Color(moist) Sur 6/5 Reduced Matrix,	Redox Formal Redox	Redox (S5 d Matrix (Si Infaces (S7 ue Below Si rk Surface Gleyed Mad d Matrix (F) Oark Surface Depression	Loc² ———————————————————————————————————	Texture Organic Sondy ains. 2Location: PL	Remarks =Pore Lining, M=Matrix	•

New Brunswick Department of Environment Wetland Delineation Data Sheet Project Site Chalcur Ventus Wind Energy Project Sample Point wh- 2 up Date <u>July 24, 2019</u> Applicant/Owner Noveco Field Investigator(s) Derrick Mitchell County Gloucester Coordinates 20T 340425.66m E 5294708.78 mN PID _Do normal environmental conditions exist on-site? Yes 🗸 No 🗌 if no explain: Atypical Situation? Yes No V Explain Is this a potential Problem Area? Yes No Explain **Wetland Determination** (Check One Only For Each Criteria) Wetland Dominant Hydrophytic Vegetation (50/20 rule) Determination Wetland Hydrology -YES Hydric Soils Wetland Type:_ Rational for Determination: Vegetation -Tree Stratum: (Plot size: 10m2) %Cover **Dominant Species** Indicator Status **Dominance Test Worksheet:** 1. Betula alleghanienis 40 fac # of Dominant Species 2. Betulacardicalia that are OBL, FACW, FAC: (A) 10 foru 3. Picea glauca fac 4. Acer rubrum Total # of Dominant 10 fac 5. Populus Irecrutordes Species across all strata: fric Thuja occidentalis 2 37 = Total Cover facw % of Dominant Species Shrub Stratum: (Plot size: 5m that are OBL,FACW,FAC: ___\OO (A/B) 1. Abies balamca **Prevalence Index Worksheet:** 2. Acerspicatum Sac 3. Betula alleghaniensis Total % Cover of: Multiply by: FCLC 4. Acer pensylvanicum facu fac **OBL Species** x1 = 5. Lonicera canadensis Acer saccharum facu **FACW Species** x2 =4 = Total Cover **FAC Species** 115 x3 =56 FACU Specie 14 x4 =Herb Stratum: (Plot size: 1m2) **UPL Species** x5 =Column Totals: 405 1. Dryopteris intermedia 2. Oxalis mentana 3. Maianihemum caroderse Prevalence Index = B/A = FAC 4. Cornus canadensis fac **Hydrophytic Vegetation Indicators:** Rapid Test for Hydrophytic Vegetation 32 = Total Cover ✓ Dominance Test is >50% Prevalence Index is ≤3.01 Morphological Adaptations' (explain) Problematic Hydrophytic Vegetation¹ (explain) Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Comments Although the sample point has hidro phuti reactation the lack of hydric soil and welland hydrology identities it as uplant. Hydrophytic Vegetation Present? Yes V No_

imary Hydro	ological Indicators:	(minimun	n of one is requir	ed; check al	that apply	2			
Surface Wa High Water Saturation (Water Mark Sediment D Drift Deposi Algal Mat oo Iron Deposi	ater (A1) Table (A2) (A3) s (B1) Deposits (B2) sits (B3) or Crust (B4)	agery (B7)	Water Aquat Aquat Marl E Hydro Oxidiz Prese Recer	Stained Le ic Fauna (E Deposits (B gen Sulfide ed Rhizos nce of Red	eaves (B9) 313) 15) • Odor (C1 pheres on I luced Iron (action in tille ce (C7)) Living Roots (C3) (C4) ed Soils (C6)		
Surface Soi Drainage P Moss Trim Dry-Seasor Crayfish Bu	dicators: (minimum platterns (B40) Lines (B16) n Water Table (C2) urrows (C8) Visible on Aerial Ima			Geom Shalld Microt	ed or Stres orphic Pos ow Aquitard topographic Neutral Tes	sition (D2) 1 (D3) c Relief (D4			
ield Observati	ions:								
	Present? Yes		. —				Watland Hirler	logy Present?	Yes No
Water Table Pr		No <u>√</u> D No <u>√</u> D					vveuand nydro	ivyy rieseiil (169100
Saturation Pres	sent? Yes	140 <u>1</u> 7_0	epui						
Comments:									
Soil Pr	rofile								
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	rofile ————————————————————————————————————	the depth	needed to docur	nent the ind	icator or co	onfirm the a	absence of indicator	rs)	
Profile Descri		the depth	needed to docur	nent the ind		onfirm the a	absence of indicator	s)	
Profile Descri	iption: (Describe to	_	needed to docur			onfirm the a	absence of indicator	rs)	<u>s</u>
Profile Descri	iption: (Describe to Matrix			Redox F	eatures		<u>Texture</u>	Remark	
Profile Descri	Matrix Color(moist)	 % (CC		Redox F	eatures		<u>Texture</u>	Remark	
Profile Descri	iption: (Describe to Matrix			Redox F	eatures		<u>Texture</u>	Remark	
Profile Descri	Matrix Color(moist)	 % (CC		Redox F	eatures		<u>Texture</u>	Remark	
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Profile Descriper (Company) O-2 2-2-25 Type: C=Cond Hydric Soil In Histosol (A Histic Epipt Black Histic Hydrogen Stratified L Depleted E	iption: (Describe to Matrix Color(moist) Syr 6/2 And the syr 6/2 And	<u>%</u> (CQ LQQ —————————————————————————————————	Color(moist)	Redox F % CS=Covered Sandy Strippec Dark St. Polyvalu Thin Da Loamy	Redox (S5 di Matrix (Si urfaces (S7 ue Below Sark Surface Gleyed Ma	Loc² Loc² Ad Sand Graded San	Texture crossoric soody/silt crains. 2Location: PL=	Remark	
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Type: C=Cone Hydric Soil In Histosol (A Histic Epip Black Histi Hydrogen Stratified L Depleted E Thick Dark Sandy Mu 5cm Muck	iption: (Describe to Matrix Color(moist) Sur 6/2 Sur 6/2 A1) Decentration, D=Depletic (A3) Suffice (A4) Layers (A5) Below Dark Surface (A12) Layers (A5) Ky Peat or Peat (S3)	<u>%</u> (CQ LQQ —————————————————————————————————	Color(moist)	Sandy Strippec Dark SC Polyvali Thin Da Loamy Deplete Redox I Deplete	Redox (S5 d Matrix (Si urfaces (S7 urk Surface Gleyed Mark Surface dd Matrix (Foark Surface dd Dark Surface	Loc² ———————————————————————————————————	Texture crossoric soody/silt crains. 2Location: PL=	Remark	
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Type: C=Cond Hydric Soil In Histosol (A Histic Epip Black Histi Hydrogen Stratified L Depleted E Thick Dand Sandy Mu Sandy Gle	iption: (Describe to Matrix Color(moist) Sur 6/2 Sur 6/2 Incentration, D=Depleting (A2) Incedon (A2) Incedon (A2) Incedon (A4) Layers (A5) Below Dark Surface (A12) Incely Mineral (S1) Incelor (S4) Incelor (S4) Incelor (S4)	% (CS) LCD — — — — stion, RM=	Color(moist)	Sandy Strippec Dark SC Polyvali Thin Da Loamy Deplete Redox I Deplete	Redox (S5 d Matrix (Si urfaces (S7 urk Surface Gleyed Mark Surface dd Matrix (Foark Surface dd Dark Surface	Loc² ———————————————————————————————————	Texture crossoric sondy/silt crains. 2Location: PL=	Remark	=Matrix
Profile Descri Depth(cm) O-2 2-2-25 Type: C=Cone Hydric Soil In Histosol (A Histic Epip Black Histi Hydrogen Stratified L Depleted E Thick Dark Sandy Mu 5cm Muck Sandy Gle Restrictive Lag	iption: (Describe to Matrix Color(moist) Sur 6/2 Sur 6/2 A1) Decentration, D=Depletic (A3) Suffice (A4) Layers (A5) Below Dark Surface (A12) Layers (A5) Ky Peat or Peat (S3)	% (CO) 100 100 100 100 100 100 100 100 100 10	Color(moist) Reduced Matrix,	Sandy Strippec Dark St. Polyvalu Thin Da Loamy Deplete Redox I Deplete Redox I	Redox (S5 d Matrix (Si urfaces (S7 ue Below S urk Surface Gleyed Ma d Matrix (F Dark Surface Depression	Loc² Loc² Ad Sand Gradian (S9) Surface (S8 (S9) trix (F2) 3) ce (F6) face (F7) is (F8)	Texture croscocic scoody/silt crains.2Location: PL=	Remark Pore Lining, M	=Matrix

New Brunswick Department of Environment Wetland Delineation Data Sheet Project Site Chaleur Ventus Wind Energy Project Date Tulu 24, 2019 Sample Point WL-3 wet Applicant/Owner_Naveco Field Investigator(s) Derrick Mitchell County Coloucester Coordinates 20T 340201.92 m E 5295361.90 m N PID Do normal environmental conditions exist on-site? Yes 🗸 No 🗍 if no explain: Atypical Situation? Yes No V Explain_ Is this a potential Problem Area? Yes 🗸 No Explain_ **Wetland Determination** (Check One Only For Each Criteria) Wetland Dominant Hydrophytic Vegetation (50/20 rule)_ Determination Wetland Hydrology -Hydric Soils --Yes 🔽 No 🗀 Wetland Type: Immature deciduous Swamp Rational for Determination: _ こいころ Vegetation -Tree Stratum: (Plot size: 10m2) %Cover Dominant Species Indicator Status Dominance Test Worksheet: # of Dominant Species 1. Acer rubrum that are OBL, FACW, FAC: 2. Populus tremulaides __(A) 3 Total # of Dominant Species across all strata: 35 = Total Cover % of Dominant Species that are OBL,FACW,FAC: _ Shrub Stratum: (Plot size: 5m2) 100 (A/B) 1. Alous income Prevalence Index Worksheet: 2. Corness Serices Total % Cover of: 3. Multiply by: **OBL Species** x1 = **FACW Species** 100 x2 = 200 ል5 = Total Cover FAC Species x3 = 240 **FACU Specie** 0 x4 = 0 Herb Stratum: (Plot size: 1 m2) **UPL Species** x5 = 0 0 Column Totals: 190 x1 =450 1. Poa palustris 2. Glyceria striata 3. Equiselum sylvatrum facw Prevalence Index = B/A = 2.37 fac 4. Rubus pubescens 10 fac **Hydrophytic Vegetation Indicators:** 5. Carex trisperma ahl Rapid Test for Hydrophytic Vegetation = Total Cover ✓ Dominance Test is >50% Solidogo rugosa Athyrium filiv-cemina fac ✓ Prevalence Index is ≤3.0 fac Carex leptalea in Facw Morphological Adaptations (explain) Problematic Hydrophytic Vegetation (explain) Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Comments NIA Hydrophytic Vegetation Present? Yes_____ No_____

	ogy ———								
rimary Hydro	ological Indicators:	(minimun	n of one is require	ed; check al	I that apply	D)			
Surface Wa High Water Saturation Water Mark Sediment D Drift Depos Algal Mat o Iron Depos Inundation Sparsely V	r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4)	agery (B7 Jurface (B) 8)	Aquat Marl I Hydro Oxidiz _/ Prese Recer Thin M	ence of Rec	313) 15) e Odor (C1 pheres on duced Iron action in till ce (C7)	Living Roots (C3) (C4) led Soils (C6)		
Surface So Drainage P Moss Trim Dry-Seaso Crayfish Bo Saturation	Visible on Aerial Ima			Geom Shallo	ed or Stres norphic Pos ow Aquitard topographi Neutral Tes	sition (D2) d (D3) c Relief (D			
ield Observat		N= V D							
Surface Water Vater Table P	_	No <u>✓</u> D No ✓ D	-				Wetland Hydro	logy Present	? Yes <u>√</u> No
Saturation Pre		No_ <u>/</u> _ D							
	36III: 163		-y						
	iption: (Describe to	the depth	needed to docum	nent the ind		onfirm the a	absence of indicator	s)	
Profile Descri		the depth % 100 93	Color(moist) 3.5 yr 3/1 3.5 yr 6/5	Redox F % 		Loc² M M	absence of indicator <u>Texture</u> عصمعاد عصمایا خدمایا	s) Remai	<u>ks</u>
Profile Descripenth(cm)	iption: (Describe to the Matrix Color(moist)	% 100 93 1 5 —	Color(moist)	Redox F %	Eeatures Type1 RM RM	Loc²	Texture anguaric sandy sandy	Remar	
Profile Descri	Matrix Color(moist) 7.5yr H/1	% 100 93 1 5 —	Color(moist)	Redox F %	Eeatures Type1 RM RM	Loc²	Texture anguaric sandy sandy	Remar	
Profile Descripents Depth(cm) 0-5 5-24 24-36 Type: C=Con Histosol (A Histic Epip Black Hist Hydrogen Stratified I Depleted I Thick Darl Sandy Mu 5cm Muck	Matrix Color(moist) 3.5yr 4/1 7.5yr 4/1 concentration, D=Deple	% 100 9å 	Color(moist)	Redox F %	Redox (S5 d Matrix (Surfaces (S7 ue Below Sark Surface Gleyed Matrix (S)	Loc² M M M M M M M M M	Texture argueric seredy seredy	Remar	
Profile Descripents Depth(cm) 0-5 5-24 24-36 Type: C=Con Histosol (A Histic Epip Black Hist Hydrogen Stratified I Depleted I Thick Dari Sandy Mu Scm Muck Sandy Gle	Matrix Color(moist)	% 100 92 	Color(moist) 3.5 yr 3/1 3.5 yr 6/5	Redox F %	Redox (S5d Matrix (Surfaces (S7ue Below Surface Gleyed Mark Surfaced Dark Surfaced Dar	Loc² M M M M M M M M M	Texture argueric seredy seredy rains. 2Location: PL=	Reman	

New Brunswick Department of Environment Wetland Delineation Data Sheet Project Site Chaleur Vealus Wind Energy Project Date July 24, 2019 Sample Point Wh-3 up Applicant/Owner Naveco Field Investigator(s) Decrick Mitchell County Caloucester Coordinates 20T 340198, 43 m E 5295374.55 m N _Do normal environmental conditions exist on-site? Yes 📝 No 🗍 PID if no explain:_ Atypical Situation? Yes No Y Explain Is this a potential Problem Area? Yes No Kexplain_ Wetland Determination (Check One Only For Each Criteria) Wetland Dominant Hydrophytic Vegetation (50/20 rule)_ Determination Wetland Hydrology ---YES Hydric Soils -Wetland Type: Rational for Determination: Vegetation -**Dominance Test Worksheet:** Tree Stratum: (Plot size: 10m2) %Cover **Dominant Species** Indicator Status 1. Acer rubrum fac # of Dominant Species that are OBL, FACW, FAC: (A) 2. Populus tremulaides Fac 3. Betula corditalia facu Total # of Dominant fac 4. Abies bakamea fac Species across all strata: 5. Picra glauca = Total Cover % of Dominant Species Shrub Stratum: (Plot size: 5m2) that are OBL, FACW, FAC: 100 (A/B) Populus tremulaides Prevalence Index Worksheet: 2. Abies balsomea Total % Cover of: Multiply by: 3. Nemocrathus mucrorodus **OBL Species** x1 = **FACW Species** x2 = 9_= Total Cover FAC Species x3 = 393 **FACU Specie** x4 =Herb Stratum: (Plot size: \m2) x5 = **UPL Species** x1 = Column Totals: 401 1. Cornus canadensis 2. Maianthernum canadense_ fac Prevalence Index = B/A = 3.02 3. Araba pudicaulis Fac 4. Trientalis borealis Fac **Hydrophytic Vegetation Indicators:** 5. Osmunda cincomorca fac Rapid Test for Hydrophytic Vegetation = Total Cover ✓ Dominance Test is >50% Prevalence Index is ≤3.01 Morphological Adaptations (explain) Problematic Hydrophytic Vegetation (explain) Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Comments Although the sample point has hydrophylic regelation, the lack of hydric soil and ivetland hydralian identifies it as upland Hydrophytic Vegetation Present? Yes ✓ No

			4.740.77		200		
Primary Hydrological Indicators	s: (minimur	n of one is requir	ed; check a	Il that appl	Y)		
Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)			Aqua Marl I Hydro	tic Fauna (Deposits (E ogen Sulfid	315) le Odor (G	1)	
 Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) 	Oxidized Rhizospheres on Living Roots (C3) Presence of Reduced Iron (C4) Recent Iron reduction in tilled Soils (C6) Thin Muck Surface (C7)						
Inundation Visible on Aerial In Sparsely Vegetated Concave					n Rèmarks)	
Secondary Indicators: (minimum Surface Soil Cracks (B6) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Im			Geon Shall Micro	norphic Po ow Aquitar	ic Relief (D	, ,	
Field Observations:							
Surface Water Present? Yes	_ No <u>-</u> < D	epth					
	_No <u>-/</u> _ D	•				Wetland Hydrol	ogy Present? Yes No
to the second se	_No <u> </u>	epth					
Comments:							
Soil Profile							
Profile Description: (Describe to	the depth	needed to docur	nent the ind Redox F		onfirm the a	absence of indicators	Remarks
Profile Description: (Describe to Depth(cm) Matrix	_		Redox F	eatures			
Profile Description: (Describe to Depth(cm) Matrix Color(moist)			Redox F	eatures		<u>Texture</u>	
Profile Description: (Describe to Depth(cm) Matrix Color(moist) 0-5 1.5 yr 5/1	<u>%</u> 100		Redox F	eatures		Texture arganic	
Profile Description: (Describe to Depth(cm) Matrix Color(moist) 0-5 1.5 yr 5/1	700 100 %		Redox F	eatures		Texture arganic sandy	
Profile Description: (Describe to Depth(cm) Matrix Color(moist) 5-22 1.5yr 5/1	700 100 %		Redox F	eatures		Texture arganic sandy	
Profile Description: (Describe to Depth(cm) Matrix Color(moist) 5-22 1.5yr 5/1	700 100 %		Redox F	eatures		Texture arganic sandy	
Profile Description: (Describe to Depth(cm) Matrix Color(moist) 5-22 1.5yr 5/1 22-34 7.5yr 3/3	700 700 700 700	Color(moist)	Redox F % — — — — — — — — — — — — — — — — —	Type ¹	Loc²	Texture arganic sandy sandy	Remarks
Profile Description: (Describe to Depth(cm) Matrix Color(moist) 0-5 5-22 3.5 yr 5/1	700 700 700 700	Color(moist)	Redox F % — — — — — — — — — — — — — — — — —	Type ¹	Loc²	Texture arganic sandy sandy	Remarks
Profile Description: (Describe to Depth(cm) Matrix Color(moist) 5-22 1.5yr 5/1 22-34 3.5yr 3/3 Type: C=Concentration, D=Depl Hydric Soil Indicators: Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Suflide (A4)	700 700 700 700	Color(moist)	Redox F % CS=Covere Sandy Strippee Dark Si Polyvali	Redox (S5 d Matrix (Surfaces (S7 ue Below S	ed Sand Gr	Texture acgasic sandy sandy sandy rains. 2Location: PL=	Remarks
Profile Description: (Describe to Depth(cm) Matrix Color(moist) 5-32 1.5yx 5/1 22-34 7.5yx 3/3 Type: C=Concentration, D=Depl Hydric Soil Indicators: Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Suffide (A4) Stratified Layers (A5) Depleted Below Dark Surface Thick Dark Surface (A12) Sandy Mucky Mineral (S1)	% 100 100 — — etion, RM=	Color(moist)	Redox F % CS=Covered Sandy Stripped Dark Si Polyvall Thin Da Loamy Deplete Redox I	Redox (S5d Matrix (Surfaces (S7ark Surface Gleyed Mark Surface Gle	Loc²	Texture acgasic sandy sandy sandy rains. 2Location: PL=	Remarks
Profile Description: (Describe to Depth(cm) Matrix Color(moist) 5-22 1.5 yr 5/1 22-34 3.5 yr 3/3 Type: C=Concentration, D=Depl Hydric Soil Indicators: Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Suflide (A4) Stratified Layers (A5) Depleted Below Dark Surface Thick Dark Surface (A12)	% 100 100 — — etion, RM=	Color(moist)	Redox F % CS=Covere Sandy Strippee Dark Si Polyvalu Thin Deplete Redox I Depletes	Redox (S5d Matrix (Surfaces (S7race Below Sark Surface Gleyed Matrix (February 1997)	ed Sand Gr	Texture acgasic sandy sandy sandy rains. 2Location: PL=	Remarks
Profile Description: (Describe to Depth(cm) Matrix Color(moist) 5-22 1.5 yr 5/1 22-34 1.5 yr 3/3 Type: C=Concentration, D=Depl Hydric Soil Indicators: Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sufflide (A4) Stratified Layers (A5) Depleted Below Dark Surface Thick Dark Surface (A12) Sandy Mucky Mineral (S1) 5cm Mucky Peat or Peat (S3)	% \co \co \co etion, RM=	Color(moist) Reduced Matrix,	Redox F % CS=Covere Sandy Strippee Dark St Polyvale Thin Da Loamy Deplete Redox I Deplete Redox I	Redox (S5 d Matrix (S urfaces (S7 ue Below S ark Surface Gleyed Ma ed Matrix (F Dark Surface Depression	Loc²	Texture acgasic sardy sandy sandy rains. 2Location: PL=1	Remarks Pore Lining, M=Matrix

New Brunswick Department of Environment Wetland Delineation Data Sheet Project Site Chalaur Ventus Wird Errena Project Sample Point WK-4 wet Date Tulu 24, 2019 Applicant/Owner Noveco Field Investigator(s) Derrick Mitchell Coordinates 20T 341613, 71 mE 5296224.55 mN County Gloucester Do normal environmental conditions exist on-site? Yes No PID if no explain:_ Atypical Situation? Yes No V Explain_ Is this a potential Problem Area? Yes No VExplain **Wetland Determination** (Check One Only For Each Criteria) Wetland (50/20 rule)_ Dominant Hydrophytic Vegetation Determination Wetland Hydrology -–Yes 🗸 No 🗌 Hydric Soils -Wetland Type: Hixedwood bosin Swomo Rational for Determination: _ CWCS Vegetation -Tree Stratum: (Plot size: 10 m2) %Cover **Dominant Species** Indicator Status **Dominance Test Worksheet:** Fac # of Dominant Species 1. Arer rubrum 20 that are OBL, FACW, FAC: (A) 2. Ahies balsamea fac 3. Picea mariana facul 15 Total # of Dominant 4. Thura occidentalis 20 Cac W Species across all strata: 5. Bet ula roiditatia fac U 10 ৪০ = Total Cover % of Dominant Species that are OBL,FACW,FAC: __(A/B) Shrub Stratum: (Plot size: 5m2) 100 -1. Viburnum nudum **Prevalence Index Worksheet:** 2. Acerrubrum Total % Cover of: Multiply by: 3 4 **OBL Species** 5. **FACW Species** OF x2 =25 = Total Cover **FAC Species** 79 x3 =237 **FACU Specie** 10 x4 = 40 Herb Stratum: (Plot size: \m2) **UPL Species** x5 = Column Totals: x1 =1. Carex trisperma 2. Margathemum canadense Prevalence Index = B/A = 2.66 3. Osmunda cipromomea 4. Clintonia borealis fac **Hydrophytic Vegetation Indicators:** 5. Cornes canadensis fac Rapid Test for Hydrophytic Vegetation = Total Cover ✓ Dominance Test is >50% fac Carex brunnescens ✓ Prevalence Index is ≤3.01 Morphological Adaptations (explain) Problematic Hydrophytic Vegetation (explain) Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Comments NJA Hydrophytic Vegetation Present? Yes ✓ No_

rimary Hydro	ological Indicators:	(minimur	m of one is requir	ed; check al	II that appl	y)			
Surface Wa High Water Saturation (Water Mark Sediment D Drift Depos Algal Mat o Iron Deposi Inundation Sparsely Vo Secondary Inc Surface So Drainage P	ed: check all that apply) Water Stained Leaves (B9) Aquatic Fauna (B13) Marl Deposits (B15) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots (C3) Presence of Reduced Iron (C4) Recent Iron reduction in tilled Soils (C6) Thin Muck Surface (C7) Other (Explain in Remarks) Stunted or Stressed Plants (D1)								
Moss Trim Dry-Seasor Crayfish Bu Saturation \	Lines (B16) n Water Table (C2) urrows (C8) Visible on Aerial Ima	igery (C9)	_ Shallo	ow Aquitar	ic Relief (D	4)		
Field Observati	ions: Present? Yes	No V D	onth						
Surrace water Nater Table Pr		No <u>'</u> D No <u>'</u> D					Wetland Hydro	ology Present? Yes 🗸 No	
Saturation Pres			epth_ocm						
Comments:			<u> </u>						
Profile Descri	ption: (Describe to t	he depth	needed to docum			onfirm the a	absence of indicator	rs)	
Profile Descrip Depth(cm)		he depth % ICU 95	needed to docum Color(moist) 7.5yr 3/1 3.5yr 6/3	Redox Fo		Loc² M M	Texture عتومت د عدمطیا خدمطیا	rs) Remarks	
Profile Descrip Depth(cm) O-10 10-22 22-47	Matrix Color(moist) 3.5yr 5/1 3.5yr 6/4	% 100 95 95 —	Color(moist) 7.5 yr 3/1 7.5 yr 6/3	Redox Fo	Eatures Type¹ RM RM	<u>Loc²</u> M M —	Texture erganic sendy sendy	Remarks	
0-10 10-22 22-47	Matrix Color(moist) 3.5yr 5/1 3.5yr 6/4 centration, D=Deplet	% 100 95 95 —	Color(moist) 7.5 yr 3/1 7.5 yr 6/3	Redox Fo	Eatures Type¹ RM RM	<u>Loc²</u> M M —	Texture erganic sendy sendy		
Profile Descrip Depth(cm) O-10 10-22 22-47 Type: C=Conc Hydric Soil Inc Histosol (A Histic Epipe Black Histic Hydrogen S Stratified Le Depleted B Thick Dark Sandy Muck Street Mucky	matrix Color(moist) 3.5yr 5/1 3.5yr 6/4 centration, D=Depleted dicators: 1) edon (A2) c (A3) Suffide (A4)	% NCV 95 95 — — — — ion, RM=	Color(moist) 7.5 yr 3/1 7.5 yr 6/3	Redox For % Sandy For Stripped Dark Sur Polyvalu Thin Dapleter Redox Duppleted Redox Duppleted	Redox (S5 d Matrix (Surfaces (S7 Le Below Surface Gleyed Ma	Loc² M M M Ged Sand Gri Sourface (S8 (S9) trix (F2) 3) ce (F6) face (F7)	Texture ergonic sendy sundy ains. 2Location: PL=	Remarks	
Profile Descrip Depth(cm) O - \O \O \O - \O \	matrix Color(moist) 3.5yr 5/1 3.5yr 6/4 2.5yr 6/4 centration, D=Depleted dicators: 1) edon (A2) c (A3) Suffide (A4) ayers (A5) elow Dark Surface (Surface (A12) cky Mineral (S1) / Peat or Peat (S3)	% 120 95 95 ion, RM=	Color(moist) 7.5 yr 3/1 7.5 yr 6/3	Redox For % Sandy For Stripped Dark Sur Polyvalu Thin Depleted Redox Depleted Depleted Depleted	Redox (S5 d Matrix (Sirfaces (S7 uk Surfaced Mad Matrix (For Cark Surfaced Dark Surfac	Loc² M M M Ged Sand Gri Sourface (S8 (S9) trix (F2) 3) ce (F6) face (F7)	Texture ergonic sendy sendy sendy ains.²Location: PL=	Remarks	

New Brunswick Department of Environment Wetland Delineation Data Sheet Project Site Chaleur Venlus Wind Energy Project Date Tuly 24, 2019 Sample Point WL-4 up Field Investigator(s) Derrick Mitchell Applicant/Owner_Noveco Coordinates 20T 341615.00 m E 5296213.58 mN County Coloucester Do normal environmental conditions exist on-site? Yes V No PID if no explain:_ Atypical Situation? Yes No W Explain_ Is this a potential Problem Area? Yes No Explain_ Wetland Determination (Check One Only For Each Criteria) Wetland Dominant Hydrophytic Vegetation (50/20 rule)_____ Determination Wetland Hydrology ----Hydric Soils -Wetland Type:_ Rational for Determination: Vegetation -Tree Stratum: (Plot size: 10m2) %Cover Indicator Status **Dominance Test Worksheet: Dominant Species** # of Dominant Species Abres balsamea Fac that are OBL, FACW, FAC: ____ 2. Picco glavia fac 3. Acer rubrum Total # of Dominant Species across all strata: ㅋ5 = Total Cover % of Dominant Species that are OBL,FACW,FAC: NOO (A/B) Shrub Stratum: (Plot size: 5m2) Abirs balkamea Prevalence Index Worksheet: Total % Cover of: Multiply by: **OBL Species** x1 =**FACW Species** x2 == Total Cover FAC Species x3 =x4 = **FACU Specie** 0 x5 = Herb Stratum: (Plot size: \(\sigma^{\lambda}\) UPL Species Column Totals: Prevalence Index = B/A = Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Vegetation = Total Cover ✓ Dominance Test is >50% ✓ Prevalence Index is ≤3.01 Morphological Adaptations¹ (explain) Problematic Hydrophytic Vegetation¹ (explain) Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Comments No herb stratum Although the sample point has hydrophytic negetation, the lack of hudric soil and welland hydrology identifies it as Hydrophytic Vegetation Present? Yes Yes <a href=

— Hydro	logy ———								
rimary Hydi	rological Indicators:	(minimu	m of one is requ	red; check al	I that app	ly)			
Saturation Water Mai Sediment Drift Depo Algal Mat Iron Depo: Inundation	er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4)			Aquat Marl II Hydro Oxidiz Prese Recer Thin M	tic Fauna Deposits (D	B15) de Odor (C1 spheres on duced Iron uction in till	Living Roots (C3) (C4) ed Soils (C6)		
Surface S Drainage Moss Trim Dry-Seaso Crayfish B	edicators: (minimum oil Cracks (B6) Patterns (B10) I Lines (B16) on Water Table (C2) Burrows (C8) I Visible on Aerial Ima			Geom Shallo	orphic Po w Aquitar	ic Relief (D	,		
ield Observa									
	r Present? Yes	-	-						
ater Table F		ام <u>ب</u> 0	• —				Wetland Hydro	logy Present? Yes I	lo <u>v</u>
aturation Pre			Depth						
omments:									
— Soil P	rofile ———								
	rofile —	he denth	needed to docu	ment the indi	icator or o	onfirm the o	beened of indicator	ma)	
rofile Descr	ription: (Describe to t	he depth	needed to docu			onfirm the a	bsence of indicator	rs)	
rofile Descr	iption: (Describe to t	_	-	Redox Fe	eatures				
rofile Descr epth(cm)	ription: (Describe to t	<u>%</u>	needed to docu			onfirm the a	<u>Texture</u>	Remarks	
ofile Descr epth(cm)	Matrix Color(moist)	<u>%</u>	-	Redox Fe	eatures		<u>Texture</u>	<u>Remarks</u>	_
rofile Descr epth(cm)	Matrix Color(moist) 7.5 yr 5/1	<u>%</u> \co	-	Redox Fe	eatures		Texture arganic scindy	Remarks	-
rofile Descr epth(cm)	Matrix Color(moist)	<u>%</u>	-	Redox Fe	eatures		<u>Texture</u>	<u>Remarks</u>	
rofile Descrepth(cm)	Matrix Color(moist) 7.5 yr 5/1	<u>%</u> \co	-	Redox Fe	eatures		Texture arganic scindy	<u>Remarks</u>	
rofile Descrepth(cm)	Matrix Color(moist) 7.5 yr 5/1	<u>%</u> \co	-	Redox Fe	eatures		Texture arganic scindy	<u>Remarks</u>	
rofile Descr epth(cm))-8 -12	Matrix Color(moist) 7.5 yr 5/1	<u>%</u> \co	-	Redox Fe	eatures		Texture arganic scindy	<u>Remarks</u>	
ofile Descr epth(cm)	Matrix Color(moist) 1.5 yr 5/1 1.5 yr 6/5		Color(moist)	Redox Fe	Type ¹	<u>Loc²</u>	Texture arganic surdy surdy	<u>Remarks</u>	
rofile Descr epth(cm)	Matrix Color(moist) 1.5 yr 6/5 2.5 yr 6/5 centration, D=Deplet		Color(moist)	Redox Fe	Type ¹	<u>Loc²</u>	Texture arganic surdy surdy	Remarks	
rofile Descr epth(cm)	Matrix Color(moist) 1.5 yr 5/1 1.5 yr 6/5 material contraction, D=Depleted		Color(moist)	Redox Fe	Type ¹	Loc² —— —— —— —— —— —— —— —— —— —— —— —— —	Texture arganic surdy surdy	Remarks	
rofile Descrepth(cm) 10-8 1-12 2-12 2-12 Yydric Soil II Histosol (i Histic Epi	Matrix Color(moist) 1.5 y 5/1 1.5 y 6/5 centration, D=Depleted		Color(moist)	Redox Fe	Type¹ Type¹ d or Coate	Loc²— ———————————————————————————————————	Texture arganic surdy surdy	Remarks	
rofile Descrepth(cm) 1-8 1-12 2-12 2-12 2-12 4-40 Type: C=Cor ydric Soil In Histosol (in Histic Epiq Black Hist Hydrogen	Matrix Color(moist) 1.5 ys 5/1 1.5 ys 6/5 ncentration, D=Depleted and icators: A1) Declor (A2) ic (A3) Suffice (A4)		Color(moist)	Redox Fe	Redox (S5 I Matrix (S)	Loc² Loc² God Sand Grades Si) Surface (S8)	Texture arganic surdy surdy ains. 2Location: PL=	Remarks	
rofile Descrepth(cm) 10-8 -12 -12 Verice Soil III Histosol (iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	Matrix Color(moist) 1.5 ys 5/1 1.5 ys 6/5 ncentration, D=Depleted and icators: A1) Deedon (A2) ic (A3) Suffide (A4) Layers (A5)	<u>%</u> \co \co \co ion, RM=	Color(moist)	Redox Fe	Redox (S5 I Matrix (S) rfaces (S7 k) Surfaces	Loc² Loc² Ged Sand Grades Surface (S8)	Texture arganic surdy surdy ains. 2Location: PL=	Remarks	
rofile Descrepth(cm) 2-8 -12 4-40 Type: C=Cor wdric Soil II Histosol (iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	Matrix Color(moist) 1.5 ys 5/1 1.5 ys 6/5 Alsux 6/5 accentration, D=Depleted on (A2) ic (A3) Suffide (A4) Layers (A5) Below Dark Surface (A12)	<u>%</u> \co \co \co ion, RM=	Color(moist)	Redox Fe % Sandy Fe Stripped Dark Su Polyvalu Thin Dar Loamy G Depleted	Redox (SSI Matrix (STriaces (STriace	Loc² ———————————————————————————————————	Texture arganic surdy surdy ains. 2Location: PL=	Remarks	
rofile Descrepth(cm) D-8 -12 A-40 Type: C=Cor wdric Soil III Histosol (I Histic Epi Black Hist Hydrogen Stratified Depleted Thick Dar Sandy Mu	Matrix Color(moist) 1.5 yr 5/1 1.5 yr 6/5 1.5 yr 6/5 Incentration, D=Depleted on (A2) sic (A3) Suffide (A4) Layers (A5) Below Dark Surface (A12) sicky Mineral (S1)	<u>%</u> \co \co \co ion, RM=	Color(moist)	Redox Fe	Redox (SSI Matrix (Straces (SSI k) Surfaces (SSI k) Surfaces (STI k) Surfaces (SI k) Surfaces	Loc² Loc² Ged Sand Grade (S8) Surface (S8) (S9) ttrix (F2) (S3) ce (F6)	Texture arganic surdy surdy ains. 2Location: PL=	Remarks	
ype: C=Cor Histosol (A Histosol (A Histic Epin Black Hist Hydrogen Stratified Depleted Thick Dar Sandy Mu	Matrix Color(moist) 1.5 ys 5/1 1.5 ys 6/5 Alsux 6/5 accentration, D=Depleted on (A2) ic (A3) Suffide (A4) Layers (A5) Below Dark Surface (A12)	<u>%</u> \co \co \co ion, RM=	Color(moist)	Redox Fe	Redox (SSI Matrix (Straces (SSI k) Surfaces (SSI k) Surfaces (STI k) Surfaces (SI k) Surfaces	Loc² Loc² G) 6) 6) 7) Sourface (S8) 1 (S9) 1 trix (F2) 13) 153 164 175 175 175 175 175 175 175 17	Texture arganic surdy surdy ains. 2Location: PL=	Remarks	
rofile Descrepth(cm) 1-8 1-12 2-40 Type: C=Cor Waric Soil II Histosol (in Histic Epine Black Hist Hydrogen Stratified Thick Dari Sandy Muctor Sandy Muctor Sandy Gleice	Matrix Color(moist) 1.5 yr 5/1 1.5 yr 6/5 A1) Declor (A2) dic (A3) Suffice (A4) Layers (A5) Below Dark Surface (k Surface (A12) dicky Mineral (S1) dy Peat or Peat (S3)	% \co \co \co ion, RM=	Color(moist)	Redox Fe	Redox (S5 I Matrix (S) rfaces (S7 ite Below S G) leyed Mad Matrix (F) and Matrix	Loc² Loc² G) 6) 6) 7) Sourface (S8) 1 (S9) 1 trix (F2) 13) 153 164 175 175 175 175 175 175 175 17	Texture arganic surdy surdy ains. 2Location: PL=	Remarks	
rofile Descrient (cm) O-8 A-12 A-40 Type: C=Cor Waric Soil In Histosol (A-Histic Epiper Black Hist Hydrogen Stratified In Depleted Thick Darl Sandy Much Sandy Gle Sestrictive La	Matrix Color(moist) 1.5 y 5/1 1.5 y 6/5 1.5 y 6/5 1.5 y 6/5 1.5 y 6/5 Decentration, D=Depleted of the color (A2) in (A3) Suffice (A4) Layers (A5) Below Dark Surface (A12) in (A12) in (A13) Surface (A13)	% \co \co 	Color(moist)	Redox Fe % Sandy Fe Stripped Dark Sur Polyvalu Thin Dar Loamy Ge Depleted Redox D Depleted Redox D	Redox (S5 I Matrix (S7 I Matrix (S7 I Matrix (S7 I Matrix (S7 I Matrix (F7 I Matrix	Ed Sand Grades (S8) Surface (S8) (S9) trix (F2) (F3) ca (F6) rface (F7) s (F8)	Texture arganic surdy surdy ains. 2Location: PL=	Remarks Pore Lining, M=Matrix Il Present? Yes No_	

New Brunswick Department of Environment Wetland Delineation Data Sheet Project Site Chaleur Ventus Wind Energy Project Sample Point WX-5 wet Date <u>Tuly 24, 2019</u> Field Investigator(s) Derrick Mitchell Applicant/Owner Naveco Coordinates 20T 342273.27 mE 5296074.92 mN County Gloucester Do normal environmental conditions exist on-site? Yes 🗸 No 🗍 PID_ if no explain: Atypical Situation? Yes No Explain_ Is this a potential Problem Area? Yes No VExplain_ Wetland Determination (Check One Only For Each Criteria) Wetland Dominant Hydrophytic Vegetation (50/20 rule)_ Determination ——Yes✓ No Wetland Hydrology ------Yes ✓ No Hydric Soils -Wetland Type: Conserous Swamp Rational for Determination: CWC5 Vegetation -**Dominance Test Worksheet:** Tree Stratum: (Plot size: 10 m2.) %Cover **Dominant Species** Indicator Status 1. Picea miriana # of Dominant Species 2. Aver rubrum that are OBL, FACW, FAC: fac 3. Total # of Dominant Species across all strata: → = Total Cover % of Dominant Species that are OBL,FACW,FAC: ___\ OO __ (A/B) Shrub Stratum: (Plot size: 5m2) . Kalmia amustifalia Prevalence Index Worksheet: 2. Picea mariana Fac W Total % Cover of: Multiply by: 3. Nemopanthus museralus Fac 4. Viburnum nudum FAC **OBL Species** x1 = 5. **FACW Species** x2 =25 = Total Cover FAC Species x3 =**FACU Specie** x4 =Herb Stratum: (Plot size: \lambda m2) **UPL Species** x5 = 330 Column Totals: x1 =1. Osmunda cinnomaria 2. Carex trisperma Prevalence Index = B/A = 1.29 3. Cornus canadensis Hydrophytic Vegetation Indicators: __ Rapid Test for Hydrophytic Vegetation &O = Total Cover ✓Dominance Test is >50% ✓ Prevalence Index is ≤3.0¹ Morphological Adaptations (explain) Problematic Hydrophytic Vegetation (explain) Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Comments NIA Hydrophytic Vegetation Present? Yes ____ No___

— Hydrology ————	
Primary Hydrological Indicators: (minimum of one is requi	ired; check all that apply)
Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8)	 ✓ Water Stained Leaves (B9) Aquatic Fauna (B13) Marl Deposits (B15) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots (C3) Presence of Reduced Iron (C4) Recent Iron reduction in tilled Soils (C6) Thin Muck Surface (C7) Other (Explain in Remarks)
Secondary Indicators: (minimum of two required) Surface Soil Cracks (B6) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? YesNo/ Depth	
Water Table Present? Yes ✓ No Depth \Qcm Saturation Present? Yes ✓ No Depth \Qcm	Wetland Hydrology Present? Yes No
Comments:	
— Soil Profile —	
Profile Description: (Describe to the depth needed to docur	ment the indicator or confirm the absence of indicators)
Depth(cm) Matrix	Redox Features
Color(moist) % Color(moist)	<u>% Type¹ Loc² Texture Remarks</u>
<u>0-32</u> <u>100</u>	
	*
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix,	c, CS=Covered or Coated Sand Grains. 2Location: PL=Pore Lining, M=Matrix
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Hydric Soll Indicators:	
✓ Histosol (A1) — Histic Epipedon (A2)	Sandy Redox (S5) Stripped Matrix (S6)
Black Histic (A3) Hydrogen Suflide (A4)	Dark Surfaces (\$7)
Stratified Layers (A5)	Polyvalue Below Surface (S8) Thin Dark Surface (S9)
Depleted Below Dark Surface (A11) Thick Dark Surface (A12)	Loamy Gleyed Matrix (F2) Depleted Matrix (F3)
Sandy Mucky Mineral (S1)	Redox Dark Surface (F6)
5cm Mucky Peat or Peat (S3) Sandy Gleyed Matrix (S4)	Depleted Dark Surface (F7) Redox Depressions (F8)
	32cm Hydric Soil Present? Yes ✓ No
Comments:	
odnimond	

New Brunswick Department of Environment Wetland Delineation Data Sheet Project Site Chaleur Ventus Word Freeze Project Date Tislu 24, 2019 Sample Point WIL-5 UD Field Investigator(s) Derrick Mitchell Applicant/Owner Naueco County Caloucester Coordinates 20T 342264, 16mE 5296064, 65 m N Do normal environmental conditions exist on-site? Yes V No PID_ if no explain: Atypical Situation? Yes No Kexplain Is this a potential Problem Area? Yes No Explain Wetland Determination (Check One Only For Each Criteria) Wetland Dominant Hydrophytic Vegetation (50/20 rule)_ Determination Wetland Hydrology ----YES Yes No Hydric Soils -Wetland Type: Rational for Determination: Vegetation -**Dominant Species Dominance Test Worksheet:** Tree Stratum: (Plot size: 10m2) %Cover Indicator Status 30 1. Picea mariana Facw # of Dominant Species that are OBL, FACW, FAC: (A) fac 2. Arer cubrum 3. Abies balsamea fac Total # of Dominant 4. Thusa occidentalis facw Species across all strata: → = Total Cover % of Dominant Species Shrub Stratum: (Plot size: 5 m2 that are OBL, FACW, FAC: 1. Thuis occidentalis Prevalence Index Worksheet: 2. Piceo mariana Total % Cover of: Multiply by: 3. Kalmic anausticolia 4. Vaccinium argustifetium Fac **OBL Species** x1 =**FACW Species** x2 =90 15_= Total Cover 195 FAC Species 65 x3 =**FACU Specie** 100 x4 =Herb Stratum: (Plot size: 1m2) UPL Species x5 = 0 Column Totals: 385 1. Pteridium aquilinum 2. Cornes canadansis Prevalence Index = B/A = 2.85 3. Chintonia borealis fac 4. Gaultheria procumbers fac **Hydrophytic Vegetation Indicators:** 5. Gaulheria hispidula Rapid Test for Hydrophytic Vegetation = Total Cover ✓Dominance Test is >50% Prevalence Index is ≤3.0¹ Morphological Adaptations (explain) Problematic Hydrophytic Vegetation (explain) Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Comments Although the sample point has hydrophytic regetation, the lack of hydrossoil and wellend hydrology identifies it as upland. Hydrophytic Vegetation Present? Yes V

imary Hydrological In	dicators: (minim	ım of one is requir	ed: check al	I that apply	1)		
Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B5) Inundation Visible on A Sparsely Vegetated Co econdary Indicators: (If Surface Soil Cracks (B5) Drainage Patterns (B1)	7) B8)	red; check all that apply) Water Stained Leaves (B9) Aquatic Fauna (B13) Marl Deposits (B15) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots (C3) Presence of Reduced Iron (C4) Recent Iron reduction in tilled Soils (C6) Thin Muck Surface (C7) Other (Explain in Remarks) Stunted or Stressed Plants (D1) Geomorphic Position (D2)					
Moss Trim Lines (B16 Dry-Season Water Tal				ow Aquitaro)4)	
Crayfish Burrows (C8) Saturation Visible on A		9)	FAC-1	Neutral Tes	st (D5)	·• ,	
ield Observations:	Van Na Al	Donth					
Surface Water Present? Vater Table Present?	YesNo_✓ YesNo_✓					Wetland Hydro	ology Present? Yes No
aturation Present?	YesNo_✓	· —				Welland Hydro	Nogy i tesents tes No_y
Comments:	10010						
	scribe to the dept	h needed to docur	nent the indi		nfirm the a	absence of indicato	rs)
Profile Description: (Description:	noist) %	Color(moist)			Loc ²	Texture Croconic Scarchy Scarchy	Remarks
Profile Description: (Description: Ma Depth(cm) Ma Color(m	noist) %		Redox Fe	eatures		Texture organic	
Profile Description: (Description: (Descript	1trix	Color(moist)	Redox Fe	eatures Type ¹	<u>Loc²</u> —— —— —— —— ——	Texture organic scandy sandy	Remarks
Profile Description: (Des Depth(cm) Ma Color(m	1trix	Color(moist)	Redox Fe	eatures Type ¹	<u>Loc²</u> —— —— —— —— ——	Texture organic scandy sandy	Remarks
Profile Description: (Description: (Descript	btrix loist) % 5/1 100 6/5 100	Color(moist)	Redox Fe	eatures Type ¹	Loc² ———————————————————————————————————	Texture organic sandy sandy sandy rains. 2Location: PL=	Remarks
Profile Description: (Description) Depth(cm) Ma Color(m) 10-10 10-15 15-37 15-37 Type: C=Concentration, I Hydric Soil Indicators: Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Suflide (A4 Stratified Layers (A5) Depleted Below Dark Thick Dark Surface (A Sandy Mucky Mineral 5cm-Mucky Peat or P	bitrix poist) % 5/1 poo 6/5 poo D=Depletion, RM Surface (A11) 12) (S1) eat (S3) (S4) rved): Type	Color(moist)	Redox Fe	Redox (S5) I Matrix (S6) Irfaces (S7) Irk Surface Gleyed Mat d Matrix (F6) Dark Surface d Dark Surface	Loc² ———————————————————————————————————	Texture organic sandy sandy sandy rains. 2Location: PL=	Remarks

New Brunswick Department of Environment Wetland Delineation Data Sheet Project Site Chaleur Ventus Wind Freegy Project Date September 5, 2019 Sample Point W1-6 wet Field Investigator(s) Derrick Mitchell Applicant/Owner Naveco Coordinates 20T 339973.22 m E 5292973.00 mN County Gloucester Do normal environmental conditions exist on-site? Yes 📝 No PID if no explain: Atypical Situation? Yes No V Explain_ Is this a potential Problem Area? Yes No Explain_ Wetland Determination (Check One Only For Each Criteria) Wetland (50/20 rule)______Yes V No Dominant Hydrophytic Vegetation Determination Wetland Hydrology ----——Yes ☑ No ☐ Hydric Soils -Wetland Type: Contrerous Swamp Rational for Determination: _________ Vegetation -**Dominance Test Worksheet:** Tree Stratum: (Plot size: 10m2) %Cover **Dominant Species** Indicator Status # of Dominant Species Picea miricina that are OBL, FACW, FAC: (A) 3 Total # of Dominant Species across all strata: ይር) = Total Cover % of Dominant Species Shrub Stratum: (Plot size: 5 m2) 1. Demography mucronalys **Prevalence Index Worksheet:** 2. Viburnum nudum fac Total % Cover of: Multiply by: 3. Kalmia amustifalia Fac 4. Acer rubrum fac **OBL Species** x1 = 5. Vaccinium myrtillaides **FACW Species** x2 =160 BO FAC Species x3 =252 52 = Total Cover 84 x4 = **FACU Specie** ۵ 0 x5 = 0 Herb Stratum: (Plot size: 1m2) UPL Species 0 424 Column Totals: x1 = Cornus canadensis 2. Cypripedium acaule fac Prevalence Index = B/A = ___ 2.41 3. Gaultheria procumbers 4. Carex tripperma abl Hydrophytic Vegetation Indicators: 5. Majorthrown trifalium Rapid Test for Hydrophytic Vegetation = Total Cover ✓ Dominance Test is >50% ✓ Prevalence Index is ≤3.01 Morphological Adaptations (explain) Problematic Hydrophytic Vegetation (explain) Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Comments NIA Hydrophytic Vegetation Present? Yes V. No

— Hydrology ————	
rimary Hydrological Indicators: (minimum o	of one is required; check all that apply)
Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8)	 Water Stained Leaves (B9) Aquatic Fauna (B13) Marl Deposits (B15) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots (C3) Presence of Reduced Iron (C4) Recent Iron reduction in tilled Soils (C6) Thin Muck Surface (C7) Other (Explain in Remarks)
econdary Indicators: (minimum of two requir Surface Soil Cracks (B6) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9)	Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
eld Observations:	
urface Water Present? YesNo Dept /ater Table Present? Yes_✓_No Dept aturation Present? Yes_✓_No Dept	th ⊋5cm Wetland Hydrology Present? Yes ✓ No
Such consists	™ <u>⊃</u> ⊊™
ommonio.	
Soil Profile	
	eded to document the indicator or confirm the absence of indicators)
rofile Description: (Describe to the depth ne	
rofile Description: (Describe to the depth neepth(cm) Matrix	eded to document the indicator or confirm the absence of indicators)
rofile Description: (Describe to the depth neepth(cm) Matrix Color(moist) % C	eded to document the indicator or confirm the absence of indicators) Redox Features
rofile Description: (Describe to the depth neepth(cm) Matrix Color(moist) % C	eded to document the indicator or confirm the absence of indicators) Redox Features Color(moist) % Type¹ Loc² Texture Remarks
rofile Description: (Describe to the depth neepth(cm) Matrix Color(moist) % C	eded to document the indicator or confirm the absence of indicators) Redox Features Color(moist) % Type¹ Loc² Texture Remarks
rofile Description: (Describe to the depth neepth(cm) Matrix Color(moist) % C	eded to document the indicator or confirm the absence of indicators) Redox Features Color(moist) % Type¹ Loc² Texture Remarks
rofile Description: (Describe to the depth neepth(cm) Matrix Color(moist) % C	eded to document the indicator or confirm the absence of indicators) Redox Features Color(moist) % Type¹ Loc² Texture Remarks
rofile Description: (Describe to the depth neepth(cm) Matrix Color(moist) % C	eded to document the indicator or confirm the absence of indicators) Redox Features Color(moist) % Type¹ Loc² Texture Remarks
rofile Description: (Describe to the depth neepth(cm) Matrix Color(moist) % C	eded to document the indicator or confirm the absence of indicators) Redox Features Color(moist) % Type¹ Loc²— Texture Remarks
rofile Description: (Describe to the depth neepth(cm) Matrix Color(moist) % C	eded to document the indicator or confirm the absence of indicators) Redox Features Color(moist) % Type¹ Loc² Texture Remarks
Depth(cm) Matrix Color(moist) % CO D-40 + LOC	eded to document the indicator or confirm the absence of indicators) Redox Features Color(moist) % Type¹ Loc²— Texture Remarks
rofile Description: (Describe to the depth neepth(cm) Matrix Color(moist) % C	eded to document the indicator or confirm the absence of indicators) Redox Features Color(moist) % Type¹ Loc² Texture Remarks Corgonal C duced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix Sandy Redox (S5) Stripped Matrix (S6) Dark Surfaces (S7) Polyvalue Below Surface (S8)
rofile Description: (Describe to the depth netepth(cm) Matrix Color(moist) % C Co	eded to document the indicator or confirm the absence of indicators) Redox Features Color(moist) % Type¹ Loc² Texture Remarks Color(moist) % Te
rofile Description: (Describe to the depth neepth(cm) Matrix Color(moist) % CO	eded to document the indicator or confirm the absence of indicators) Redox Features Color(moist) % Type¹ Loc² Texture Remarks Color(moist) % Te
rofile Description: (Describe to the depth neepth(cm) Matrix Color(moist) % C D-40 + C Type: C=Concentration, D=Depletion, RM=Ref Varic Soil Indicators: ✓ Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sufflide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) 5cm Mucky Peat or Peat (S3)	eded to document the indicator or confirm the absence of indicators) Redox Features Color(moist) % Type¹ Loc²— Texture Remarks — Cargons C duced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix — Sandy Redox (S5) — Stripped Matrix (S6) — Dark Surfaces (S7) — Polyvalue Below Surface (S8) — Thin Dark Surface (S9) — Loamy Gleyed Matrix (F2) — Depleted Matrix (F3) — Redox Dark Surface (F6) — Depleted Dark Surface (F7)

New Brunswick Department of Environment Wetland Delineation Data Sheet Project Site Chaleur Ventus Wind Freigy Project Date September 5, 2019 Sample Point W1-6 up Field Investigator(s) Derrick Mitchell Applicant/Owner Naveco Coordinates 20T 339985.50 mE 5292958.11 m N County Coloucester Do normal environmental conditions exist on-site? Yes V No PID if no explain: Atypical Situation? Yes No K Explain_ Is this a potential Problem Area? Yes No Explain_ Wetland Determination (Check One Only For Each Criteria) Wetland (50/20 rule)_____ Dominant Hydrophytic Vegetation Determination Wetland Hydrology ———— Hydric Soils -Wetland Type:_ Rational for Determination: Vegetation -**Dominance Test Worksheet:** Tree Stratum: (Plot size: 10 m2) %Cover **Dominant Species** Indicator Status # of Dominant Species OF that are OBL, FACW, FAC: (A) 3 Total # of Dominant Species across all strata: 70 = Total Cover % of Dominant Species 100. (A/B) that are OBL, FACW, FAC: _ Shrub Stratum: (Plot size: 5m2) Kalmia angusticalia Prevalence Index Worksheet: 2. Varrinium murtillado Total % Cover of: Multiply by: 3. Picea mariana **OBL Species** x1 =**FACW Species** 90 x2 = 니고_= Total Cover FAC Species x3 =x4 = **FACU Specie** 0 x5 = Herb Stratum: (Plot size: 1 m2) UPL Species Column Totals: 255 x1 =1. Cornus mandensis Prevalence Index = B/A = 2.22 3 **Hydrophytic Vegetation Indicators:** Rapid Test for Hydrophytic Vegetation = Total Cover ✓ Dominance Test is >50% ✓Prevalence Index is ≤3.01 Morphological Adaptations¹ (explain) Problematic Hydrophytic Vegetation¹ (explain) Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Comments Although the sample point has hydrophytic regulation, the lock of hydric soil and welland Hydrophytic Vegetation Present? Yes_____ No__

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	ological Indicators:	(minimur	m of one is requ						
Surface W					r Stained I tic Fauna	Leaves (B9)			
right wate Saturation	r Table (A2) (A3)			Aqua Mari I	Deposits ((D13) R15)			
Water Mar				Hvdro	ogen Sulfic	de Odor (C1)		
	Deposits (B2)			Oxidi:	zed Rhizo	spheres on	Living Roots (C3)		
	Drift Deposits (B3)				ence of Re	duced Iron	(C4)		
	_ Algal Mat or Crust (B4) Iron Deposits (B5)						ed Soils (C6)		
	Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7)				Muck Surf	ace (C7) in Remarks)			
	egetated Concave S			_ Other	(Explain	iii Remaiks))		
	1000 1700 1000								
Secondary In	dicators: (minimum	of two red	guired)	.			(T.4)		
Surface So	oil Cracks (B6) Patterns (B10)					ssed Plants sition (D2)	(D1)		
Drainage i	Lines (B16)				ow Aquita				
	n Water Table (C2)					nic Relief (D	4)		
_Crayfish B	urrows (C8)				Neutral Te		,		
Saturation	Visible on Aerial Ima	agery (C9))						
Field Observa	tions:								
Surface Water		No <u></u> ∠ D	epth						
Vater Table P		No <u>v</u> D	-				Wetland Hydrol	ogy Preser	t? Yes No
Saturation Pre		No <u>√</u> D					•		
Comments:									
0.11.0	- £:1 -								
— Soil P	rofile ———								
	rofile ————iption: (Describe to t	the depth	needed to docu	ment the ind	icator or c	onfirm the a	bsence of indicators	;)	
Profile Descr		the depth	needed to docu	ment the ind		onfirm the a	bsence of indicators	3)	
Profile Descr	iption: (Describe to the Matrix	_	-	Redox F	eatures				arks
Depth(cm)	iption: (Describe to		needed to docu			onfirm the a	Texture	Rema	arks
Profile Descr Depth(cm)	Matrix Color(moist)		-	Redox F	eatures		Texture arganic		arks
Profile Descr Depth(cm) 0-5 5-27	Matrix Color(moist) 3.5 yr 6/3		-	Redox F	eatures		Texture		arks
Profile Descr Depth(cm) 0-5 5-27	Matrix Color(moist)		-	Redox F	eatures		Texture arganic		arks
Profile Descr Depth(cm) 0-5 5-27	Matrix Color(moist) 3.5 yr 6/3	100 100 %	-	Redox F	eatures		Texture arganic sandy		arks
Profile Descr Depth(cm) 0-5 5-17	Matrix Color(moist) 3.5 yr 6/3	100 100 %	-	Redox F	eatures		Texture arganic sandy		arks
Profile Descr Depth(cm) 0-5 5-17	Matrix Color(moist) 3.5 yr 6/3	100 100 %	-	Redox F	eatures		Texture arganic sandy		arks
Profile Descr Depth(cm) 0-5 5-17	Matrix Color(moist) 3.5 yr 6/3	100 100 %	-	Redox F	eatures		Texture arganic sandy		arks
Profile Descr Depth(cm) 0-5 5-17	Matrix Color(moist) 3.5 yr 6/3	100 100 %	-	Redox F	eatures		Texture arganic sandy		arks
Profile Descripenth(cm) 0-5 5-14 13-35	Matrix Color(moist) 3.5 yr 6/3		Color(moist)	Redox F	eatures Type¹	<u>Loc²</u>	Texture arganic sandy sandy	Rema	
Profile Descripenth(cm) 0-5 5-14 13-35	Matrix Color(moist) 3.5yr 6/3 3.5yr 4/6		Color(moist)	Redox F	eatures Type¹	<u>Loc²</u>	Texture arganic sandy sandy	Rema	
Profile Descripenth(cm) 0-5 5-14 23-35	iption: (Describe to the Matrix Color(moist) 3.5 yr 6/3 3.5 yr 4/6 centration, D=Deplet		Color(moist)	Redox F	eatures Type¹	<u>Loc²</u>	Texture arganic sandy sandy	Rema	
Profile Descr Depth(cm) 0-5 5-17 23-35 Type: C=Con	Matrix Color(moist) 3.5 yr 6/3 3.5 yr 4/6 centration, D=Depleted		Color(moist)	Redox F	eatures Type¹	Loc²	Texture arganic sandy sandy	Rema	
Profile Descripents (Company) O-5 5-27 23-35 Type: C=Con Hydric Soil In Histosol (A Histosol (A	Matrix Color(moist) 3.5 yr 6/3 3.5 yr 4/6 centration, D=Depleted on (A2)		Color(moist)	Redox F %	eatures Type¹ do or Coate	Loc² Loc² ed Sand Gra	Texture arganic sandy sandy	Rema	
Profile Descripents Depth(cm) 0-5 5-27 23-35 Type: C=Con Hydric Soil In Histosol (A Histic Epip Black Hist	Matrix Color(moist) 3.5 yr 6/3 3.5 yr 4/6 Contration, D=Depleted and icators: A1) Decided (A2) Dic (A3)		Color(moist)	Redox F % C, CS=Covere Sandy Stripped Dark Str	eatures Type¹ and or Coate Redox (Sa i Matrix (Sa infaces (Sa)	Loc² ed Sand Gra	Texture argasic arduj arduj ains. 2Location: PL=F	Rema	
Profile Descripents Depth(cm) 0-5 5-27 23-35 Type: C=Con Hydric Soil In Histosol (A Histic Epip Black Hist Hydrogen	Matrix Color(moist) 3.5 yr 6/3 3.5 yr 4/6 Contration, D=Depleted on (A2) ic (A3) Suffide (A4)		Color(moist)	Redox F % Sandy Stripped Dark Su Polyvalu	eatures Type¹ and or Coate Redox (S5 Matrix (S) Infaces (S7 Jue Below S	Loc² Loc² Grand	Texture argasic arduj arduj ains. 2Location: PL=F	Rema	
Profile Descripent (cm) 0-5 5-17 23-35 Type: C=Con Hydric Soll In Histosol (A Histic Epir Black Hist Hydrogen Stratified L	Matrix Color(moist) 3.5 yr 6/3 3.5 yr 4/6 centration, D=Depleted adicators: A1) bedon (A2) ic (A3) Suffide (A4) Layers (A5)	% (CC) 1CC) 1CC) — — — tion, RM=	Color(moist)	Redox F % Sandy Stripped Dark Su Polyvalu Thin Da	Redox (Standards (Stan	Loc ² Loc ² ed Sand Gra sign (6) color (58) color (58)	Texture argasic arduj arduj ains. 2Location: PL=F	Rema	
Profile Descripents O-5 5-27 Type: C=Con Hydric Soll In Histosol (A Histic Epip Black Hist Hydrogen Stratified L Depleted 8	Matrix Color(moist) 3.5 yr 6/3 3.5 yr 4/6 Contration, D=Depleted A1) Dedon (A2) ic (A3) Suffide (A4) Layers (A5) Below Dark Surface (A5)	% (CC) 1CC) 1CC) — — — tion, RM=	Color(moist)	Redox F % Sandy Stripped Dark Stripped Thin Da Loamy (Redox (S5 Infaces (S7 Le Below S7 K Surface Gleyed Material CS Gleyed Material CS Gleyed Material CS (S7 K Surface Gleyed Material C	Loc² Loc² S) ed Sand Gra sign (S9) strick (F2)	Texture argasic arduj arduj ains. 2Location: PL=F	Rema	
Profile Descripent (cm) 0-5 5-27 23-35 Type: C=Con Hydric Soll In Histosol (A Histoc Epigle Black Hist Hydrogen Stratified L Depleted B Thick Dark	Matrix Color(moist) 3.5 yr 6/3 3.5 yr 4/6 centration, D=Depleted adicators: A1) bedon (A2) ic (A3) Suffide (A4) Layers (A5)	% (CC) 1CC) 1CC) — — — tion, RM=	Color(moist)	Redox F % Sandy Stripped Dark Stripped Dark Stripped Loamy (Deplete	Redox (Standards (Stan	Loc² Loc² Solution (S8) Loc² Loca Loc	Texture argasic arduj arduj ains. 2Location: PL=F	Rema	
Profile Descripe Depth(cm) 0-5 5-21 23-35 Type: C=Con Hydric Soll Ir Histosol (A Histic Epir Black Hist Hydrogen Stratified I Depleted I Thick Darl Sandy Mu 5cm Muck	Matrix Color(moist) 3.5yr 6/3 3.5yr 4/6 3.5yr 4/6 Coentration, D=Depleted of the color (A2) (A3) Suffide (A4) Layers (A5) Below Dark Surface (A12) Cky Mineral (S1) By Peat or Peat (S3)	% (CC) 1CC) 1CC) — — — tion, RM=	Color(moist)	Redox F % Sandy Stripped Dark Su Polyvalu Thin Da Loamy (Deplete Redox D	Redox (Some Selow Some Selow Selo	Loc²	Texture argasic arduj arduj ains. 2Location: PL=F	Rema	
Profile Descripe Depth(cm) 0-5 5-21 23-35 Type: C=Con Histosol (A Histic Epir Black Histic Epir Black Histic Hydrogen Stratified L Depleted E Thick Darl Sandy Mu 5cm Muck	Matrix Color(moist) 3.5 yr 6/3 3.5 yr 4/6 Contraction, D=Depleted A1) Dedon (A2) ic (A3) Suffide (A4) Layers (A5) Below Dark Surface (A12) oky Mineral (S1)	% (CC) 1CC) 1CC) — — — tion, RM=	Color(moist)	Redox F % Sandy Stripped Dark Su Polyvalu Thin Da Loamy (Deplete Redox D	Redox (S5 If Matrix (S7 If Selows S1 K Surfaces (S7 If Selows S1 If S1 If Selows S1 If S1	Loc²	Texture argasic arduj arduj ains. 2Location: PL=F	Rema	
Profile Descripe Depth(cm) 0-5 5-27 23-35 Type: C=Con Histosol (A Histic Epip Black Hist Hydrogen Stratified L Depleted B Thick Depleted B Thick Sandy Mu Scan Muck Sandy Gle	Matrix Color(moist) 3.5yr 6/3 3.5yr 4/6 3.5yr 4/6 Coentration, D=Depleted of the color (A2) (A3) Suffide (A4) Layers (A5) Below Dark Surface (A12) Cky Mineral (S1) By Peat or Peat (S3)	% (A11)	Color(moist)	Redox F % Sandy Stripped Dark Su Polyvalu Thin Da Loamy (Deplete Redox D	Redox (S5 Infaces (S7 Infaces	Loc²	Texture August C Sandy Sandy Sandy Sandy Sandy Sandy Sandy PL=F	Rema	
Profile Describential Depth(cm) 0-5 5-24 3-35 Type: C=Con Histosol (A Histic Epip Black Hist Hydrogen Stratified L Depleted E Thick Darl Sandy Muck Sandy Gle Restrictive La	Matrix Color(moist)	% (A11)	Color(moist)	Redox F % Sandy Stripped Dark Su Polyvalu Thin Da Loamy (Deplete Redox D Redox D	Redox (S5 Infaces (S7 Infaces	Loc²	Texture August C Sandy Sandy Sandy Sandy Sandy Sandy Sandy PL=F	Rema	M=Matrix
Profile Describent (cm) 0-5 5-27 3-35 Type: C=Con Histosol (A Histic Epip Black Hist Hydrogen Stratified L Depleted B Thick Daft Sandy Mu Scm Muck Sandy Gle	Matrix Color(moist)	% (A11)	Color(moist)	Redox F % Sandy Stripped Dark Su Polyvalu Thin Da Loamy (Deplete Redox D Redox D	Redox (S5 Infaces (S7 Infaces	Loc²	Texture August C Sandy Sandy Sandy Sandy Sandy Sandy Sandy PL=F	Rema	M=Matrix

— Hydro	ology ———									
rimary Hyd	rological Indicators	: (minimu	m of one is requir	red; check	all that app	V)				
	er Table (A2)			✓Water Stained Leaves (B9) Aquatic Fauna (B13)						
✓ Saturation					Deposits (43			
Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8)					lrogen Sulfid dized Rhizo		1) Living Roots (C3)			
				Pres	sence of Re	duced Iron	(C4)			
				Rec	ent Iron red	uction in til	lèd Śoils (C6)			
					n Muck Surf er (Explain i		.1			
				0	е (⊏хріаіі і	II Neillaine) 			
econdary Indicators: (minimum of two required) Surface Soil Cracks (B6)				Stur	nted or Stre	ssed Plants	s (D1)			
_ _ Drainage I	Patterns (B10)			Geo	morphic Po	sition (D2)				
	n Lines (B16)				Illow Aquita		NAN			
	on Water Table (C2) Burrows (C8)				rotopograph C-Neutral Te)4)			
	Notice on Aerial Im	agery (C9))							
eld Observa	ations: r Present? Yes	No V)onth							
	·		Depth <u>lO</u> cm				Motional United	ogy Present? Yes_✓ No_		
/ater Table F aturation Pre			Depth_Ocm				wetiand nyuloi	ogy Presentr Tes <u>y</u> No_		
omments:										
— Soil P										
		the depth	needed to docur		dicator or c	onfirm the a	absence of indicators	s)		
rofile Descr	ription: (Describe to	the depth	needed to docur			onfirm the a	absence of indicators <u>Texture</u>	s) <u>Remarks</u>		
rofile Descr	ription: (Describe to Matrix	_	Same and	Redox	Features		<u>Texture</u>	·		
rofile Descr epth(cm)	ription: (Describe to Matrix Color(moist)	<u>%</u>	Color(moist)	Redox %	Features Type ¹	Loc ²		·		
rofile Descr epth(cm)	ription: (Describe to Matrix	<u>%</u>	Same and	Redox	Features		<u>Texture</u>	·		
rofile Descr epth(cm)	ription: (Describe to Matrix Color(moist)	<u>%</u>	Color(moist)	Redox %	Features Type ¹	Loc ²	<u>Texture</u>	·		
rofile Descr epth(cm)	ription: (Describe to Matrix Color(moist)	<u>%</u>	Color(moist)	Redox %	Features Type ¹	Loc ²	<u>Texture</u>	·		
rofile Descr epth(cm)	ription: (Describe to Matrix Color(moist)	<u>%</u>	Color(moist)	Redox %	Features Type ¹	Loc ²	<u>Texture</u>	·		
rofile Descr epth(cm)	ription: (Describe to Matrix Color(moist)	<u>%</u>	Color(moist)	Redox %	Features Type ¹	Loc ²	<u>Texture</u>	·		
rofile Descr lepth(cm) O-16 16 - 34	ription: (Describe to Matrix Color(moist) 7.5.yr 6/1	% 100 95 —	Color(moist) 3.5 yr 3/1	Redox %	Features Type¹ RH	Loc ²	Texture Organic Secoly	·		
rofile Descr lepth(cm) O-16 16 - 34	ription: (Describe to Matrix Color(moist) 1.5 yr 6/1	% 100 95 —	Color(moist) 3.5 yr 3/1	Redox %	Features Type¹ RH	Loc ²	Texture Organic Secoly	Remarks		
rofile Descr lepth(cm) O-\6 \(\(\rightarrow\) 34 \(\rightarrow\) C=Con \(\rightarrow\) Histosol (A	ription: (Describe to Matrix Color(moist) 1.5.yr 6/1 ncentration, D=Deple	% 100 95 —	Color(moist) 3.5 yr 3/1	Redox %	Features Type¹ RH ered or Coate	Loc² H ed Sand Gr	Texture Organic Secoly	Remarks		
rofile Descrienth(cm) O-\6 \(\rightarrow - 34 \rightarrow \) Type: C=Con Waric Soil In Histosol (A Histic Epip	niption: (Describe to Matrix Color(moist) 1.5 yr 6/1 ncentration, D=Deple	% 100 95 —	Color(moist) 3.5 yr 3/1	Redox %	Features Type¹ RH red or Coate / Redox (S5 ed Matrix (S	Loc² M ed Sand Gr	Texture Organic Secoly	Remarks		
rofile Descrepth(cm) O-\6 (6-34) Type: C=Con Widric Soil In Histosol (F Histic Epip Black Histi	niption: (Describe to Matrix Color(moist) 1.5 yr 6/1 ncentration, D=Deple indicators: A1) pedon (A2) ic (A3)	% 100 95 —	Color(moist) 3.5 yr 3/1	Redox % ———————————————————————————————————	Features Type¹ RH red or Coate / Redox (S5 ed Matrix (S5 Gurfaces (S7	Loc² M ed Sand Gr	Texture Cropanic Secoly Texture Tex	Remarks		
rofile Descrepth(cm) O -\6 \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(ncentration, D=Deple ndicators: A1) Deedon (A2) ic (A3) Suffide (A4) Layers (A5)	% (20 95 — — — tion, RM=	Color(moist) 3.5 yr 3/1	Redox %	red or Coate / Redox (S5 ed Matrix (S) surfaces (S7 liue Below S eark Surface	Loc² M ed Sand Gr 6) 6) ourface (S8 (S9)	Texture Cropanic Secoly Texture Tex	Remarks		
rofile Descrepth(cm) O-\6 16-34 Type: C=Con Waric Soil In Histosol (A Histic Epipe Black Histi Hydrogen Stratified L Depleted E	ndicators: A1) Dedon (A2) Dic (A3) Suffide (A4) Layers (A5) Below Dark Surface	% (20 95 — — — tion, RM=	Color(moist) 3.5 yr 3/1	Redox % Sandy Strippe Dark S Polyva Thin D Loamy	red or Coate / Redox (S5 ed Matrix (S) Gurfaces (S7 llue Below S ark Surface / Gleyed Ma	Loc² M ed Sand Gr burface (S8 (S9) trix (F2)	Texture Cropanic Secoly Texture Tex	Remarks		
rofile Description O-\6 \(\(\rightarrow\) - 34 \(\rightarrow\) - 34 Fype: C=Con Widric Soil In Histosol (A Histic Epip Black Histi Hydrogen Stratified L Depleted E Thick Dark	ndicators: A1) Dedon (A2) Dic (A3) Suffide (A4) Layers (A5) Below Dark Surface (A12)	% (20 95 — — — tion, RM=	Color(moist) 3.5 yr 3/1	Redox % Sandy Strippe Dark S Polyva Thin D Loamy Deplet	red or Coate / Redox (S5 ed Matrix (S7 llue Below S ark Surface / Gleyed Ma ed Matrix (F	Loc² M God Sand Gr Surface (S8 (S9) trix (F2) (3)	Texture Cropanic Secoly Texture Tex	Remarks		
rofile Descrepth(cm) O-\6 \(\(\begin{align*}{c}\) - 3\(\begin{align*}{c}\) - 3\(\begin{align*}{	ncentration, D=Deple ndicators: A1) bedon (A2) ic (A3) Suffide (A4) Layers (A5) Below Dark Surface (A Surface (A12) icky Mineral (S1)	% (20 95 — — — tion, RM=	Color(moist) 3.5 yr 3/1	Redox % Sandy Strippe Dark S Loamy Loamy Deplet Redox	red or Coate / Redox (S5 ed Matrix (S fourfaces (S7 lark Surface / Gleyed Ma ed Matrix (F Dark Surfa	Loc² M ed Sand Gr Surface (S8 (S9) trix (F2) 3) ce (F6)	Texture Cropanic Secoly Texture Tex	Remarks		
rofile Description O-\6 \(\(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(ndicators: A1) Dedon (A2) Dic (A3) Suffide (A4) Layers (A5) Below Dark Surface (A12)	% (20 95 — — — tion, RM=	Color(moist) 3.5 yr 3/1	Redox % Sandy Strippe Dark S Polyva Thia	red or Coate / Redox (S5 ed Matrix (S7 llue Below S ark Surface / Gleyed Ma ed Matrix (F	Loc² M ed Sand Gr Surface (S8 (S9) Cs(F2) 3) ce (F6) face (F7)	Texture Cropanic Secoly Texture Tex	Remarks		
rofile Descrepth(cm) O-\6 \(\(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\) \(ncentration, D=Deple mdicators: A1) Dedon (A2) ic (A3) Suffide (A4) Layers (A5) Below Dark Surface (A12) ic (A12) ic (A12) ic (A13) Suffide (A13) Cay Dark Surface (A14) Cay Peat or Peat (S3)	% (CO) 95 ———————————————————————————————————	Color(moist) 3.5 yr 3/1 Reduced Matrix,	Redox % Sandy Strippe Dark S Polyva Thia	red or Coate A Redox (S5 and Matrix (S6 ark Surfaces (S7 alue Below S ark Surface of Gleyed Ma ed Matrix (F Dark Surfa ed Dark Surfa Depression	Loc²	Texture Cropanic Secoly Tains. 2Location: PL=F	Remarks		
rofile Descrepth(cm) O-\6	ncentration, D=Deple ndicators: A1) Dedon (A2) ic (A3) Suffide (A4) Layers (A5) Below Dark Surface (A12) icky Mineral (S1) by Peat or Peat (S3) eyed Matrix (S4)	% (CO) 95 ———————————————————————————————————	Color(moist) 3.5 yr 3/1 Reduced Matrix,	Redox % Sandy Strippe Dark S Polyva Thin D Loamy Loamy Deplet Redox Deplete Redox	red or Coate A Redox (S5 and Matrix (S6 ark Surfaces (S7 alue Below S ark Surface of Gleyed Ma ed Matrix (F Dark Surfa ed Dark Surfa Depression	Loc²	Texture Cropanic Secoly Tains. 2Location: PL=F	Remarks Pore Lining, M=Matrix		

New Brunswick Department of Environment Wetland Delineation Data Sheet Date September 5, 2019 Sample Point WL-7 web. Project Site Chaleur Venlys Wind Energy Project Applicant/Owner Daveco Field Investigator(s) Derrick Mitchell County Gloucester Coordinates 20T 339711.23 m E 5292338.33 m N Do normal environmental conditions exist on-site? Yes No PID if no explain: Atypical Situation? Yes No X Explain Is this a potential Problem Area? Yes No Kexplain Wetland Determination (Check One Only For Each Criteria) Wetland Dominant Hydrophytic Vegetation (50/20 rule) Determination Wetland Hydrology -—Yes ✓ No Hydric Soils -Wetland Type: Conterious Swamp / bog complex Rational for Determination: _ C W C Vegetation -Tree Stratum: (Plot size: 10 m2) %Cover **Dominant Species** Indicator Status **Dominance Test Worksheet:** 1. Picea mariana fuc m # of Dominant Species that are OBL, FACW, FAC: (A) 2. Acer rubrum fac 3. Larix laricina fac Total # of Dominant Species across all strata: 57 = Total Cover % of Dominant Species that are OBL, FACW, FAC: 100 (A/B) Shrub Stratum: (Plot size: 5m2) 1 Kalmia amusticalia Prevalence Index Worksheet: 2. Rhododendron carademe Total % Cover of: Multiply by: 3. Viburnum nudum $f \wedge c$ 4. Vaccioium myrtilloides fac 5. Chamaedaphne calyculda Nemopanhus mucronalus **OBL Species** x1 = <u>ob 1</u> **FACW Species** fac x2 = _= Total Cover FAC Species x3 = FACU Specie **γ4** = Herb Stratum: (Plot size: m2) **UPL Species** x5 = Column Totals: x1 =<u> 294</u> 1. Maianthemum tricalum 2. Carex Irisperma Prevalence Index = B/A = 2.3 3. Hydrophytic Vegetation Indicators: 10. = Total Cover Rapid Test for Hydrophytic Vegetation ✓ Dominance Test is >50% ✓ Prevalence Index is ≤3.0¹ Morphological Adaptations (explain) Problematic Hydrophytic Vegetation¹ (explain) ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Comments NIA Hydrophytic Vegetation Present? Yes_ ✓ No____

New Brunswick Department of Environment Wetland Delineation Data Sheet Sample Point W1-7 up Project Site Chaleux Ventus Wind Energy Project. Date September 5, 2019 Applicant/Owner Noveco Field Investigator(s) Derrick Mitchell County Calcucester Coordinates 20T 339695, 78 mE 5292344, 27 mN Do normal environmental conditions exist on-site? Yes V No PID if no explain: Atypical Situation? Yes No V Explain_ Is this a potential Problem Area? Yes No DExplain_ **Wetland Determination** (Check One Only For Each Criteria) Wetland Dominant Hydrophytic Vegetation (50/20 rule) Determination Wetland Hydrology ----YES Hydric Soils -Wetland Type: Rational for Determination: Vegetation -Tree Stratum: (Plot size: 10 m2) %Cover **Dominant Species** Indicator Status **Dominance Test Worksheet:** 1. Panulus tremulaides # of Dominant Species that are OBL, FACW, FAC: 2. Acerrubrum Fac 3. Picea mariana FACW Total # of Dominant 4. Abies balsamea Fac Species across all strata: 5. Betula papyrifera facu = Total Cover % of Dominant Species Shrub Stratum: (Plot size: 5m2) that are OBL, FACW, FAC: (A/B) 1. Viburnum nudum Prevalence Index Worksheet: 2. Nemopanthus mucionalus Cac Total % Cover of: Multiply by: 3. Acer rubrum fac 4. Picea mariana fac W **OBL Species** 5. Vaccinium myrtillordes. fac FACW Species 10 x2 =20 50_= Total Cover **FAC Species** 118 x3 =354 FACU Specie x4 = <u>a5</u> 100 Herb Stratum: (Plot size: 1 m2) **UPL Species** x5 = 0 Column Totals: 474 1. Pteridium aguilinum 2. Margathemum condence fac 3. Cornus caraclensis Prevalence Index = B/A = ___ fac 4 Capullheria procumbers **Hydrophytic Vegetation Indicators:** Rapid Test for Hydrophytic Vegetation 33 = Total Cover ✓ Dominance Test is >50% Prevalence Index is ≤3.01 Morphological Adaptations (explain) Problematic Hydrophytic Vegetation (explain) Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Comments Allhough the sample point has bud applied is wendation the lack of hydric soil and incliand hudralogy identifies it as isoland Hydrophytic Vegetation Present? Yes V No_

High Water Ta	er (A1)			Wate	er Stained L	.eaves (B9)		
	able (A2)			Aqua	atic Fauna ((B13)		
_ Saturation (A3				— Marl	Deposits (E rogen Sulfid	e Odor (ed	5	
_ Water Marks (_ Sediment Der				Oxidi	ized Rhizos	spheres on	Living Roots (C3)	
_ Drift Deposits	Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5)					duced Iron	(C4)	
Algal Mat or C							ed Soils (C6)	
<pre>_ Iron Deposits _ Inundation Vis</pre>			Muck Surfa er (Explain i)			
_ inunuation vis _ Sparsely Veg	18)	_ 3c	. (,			
	cators: (minimum	1						
Surface Soil (40007		nted or Stres		; (D1)			
_ Surface Soil Cracks (B6) _ Drainage Patterns (B10)				Geor	morphic Po	sition (D2)		
_ Moss Trim Lin	nes (B16)				llow Aquitar otopograph		4)	
Cravfish Burn	Water Table (C2) rows (C8)				C-Neutral Te		• /	
_ Saturation Vis	sible on Aerial Ima	agery (C9))		_	-		
ield Observation	ns:							
	resent? Yes	No <u>v</u> D	epth					
/ater Table Pres	sent? Yes	No <u>v</u> [Depth				Wetland Hydrol	ogy Present? Yes No
aturation Prese	ent? Yes	No <u>√</u> [Depth					
Comments:								
rofile Descript Depth(cm)	tion: (Describe to to Matrix	tne deptr	needed to docun		dicator or c Features		absence of indicators	")
-opar(OH)	Color(moist)	<u>%</u>	Color(moist)	%	Type ¹	Loc ²	Texture	<u>Remarks</u>
0-3		<u>ν</u>					organic .	
3-15	7.5yr 6/1	ICO					Sarrly	
	•		-	-		_	Sand	
15-25	7.5yr 416	100	-	_		_	Aury.	
		_	-	-		_		
		_		-			-	
				-		_		
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Type: C=Conce	entration, D=Deple	tion, RM	=Reduced Matrix,	CS=Cover	red or Coat	ed Sand Gr	rains. ² Location: PL=	Pore Lining, M=Matrix
Hydric Soil Ind				0	u Doday /O	5)		
— Histosol (A1 Histic Epiper					y Redox (St ed Matrix (S			
Black Histic				_ Dark S	Surfaces (S	7)		
	ùflide (A4)			Polyva	alue Below	Surface (S8	3)	
Hydrogen Si	yers (A5)	(411)						
Hydrogen Stratified La		Territ			y Gieyed Mi ted Matrix (
Hydrogen Si Stratified La Depleted Be	THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER.			Redox	k Dark Surfa	ace (F6)		
Hydrogen Si Stratified La Depleted Be Thick Dark S Sandy Muck	cy-Mineral (S1)			Deplei	ted Dark Su			
Hydrogen Si Stratified La Depleted Be Thick Dark S Sandy Muck	cy-Mineral (S1) Peat or Peat (S3)				. D	no /=^		
Hydrogen Si Stratified La Depleted Be Thick Dark S Sandy Muck 5cm Mucky Sandy Gleye	ky Mineral (S1) Peat or Peat (S3) ed Matrix (S4)			Redox	x Depressio	ns (F8)		
Hydrogen Si Stratified La Depleted Be Thick Dark S Sandy Muck 5cm Mucky Sandy Gleye	ky Mineral (S1) Peat or Peat (S3) ed Matrix (S4) er (if observed): Ty	pe_Roc		Redox	<u>.</u>		Hydric Soi	Present? Yes No
	(A3) uflide (A4) yers (A5) elow Dark Surface	(A11)		Polyva Thin D Loamy Deplet Redox	alue Below and Surface of Surface	Surface (S8 e (S9) atrix (F2) F3) ace (F6) urface (F7)	3)	

D PHOTOGRAPHIC LOGS





Photo 1: Wetland A (WL-A) soil test pit, July 5, 2018.



Photo 3: WL-A, July 5, 2018.



Photo 2: WL-A vegetation, July 5, 2018.



Photo 4: WL-A, July 5, 2018.





Photo 5: WL-A upland soil test pit, July 5, 2018.



Photo 7: WL-A upland, July 5, 2018.



Photo 6: WL-A upland vegetation, July 5, 2018.



Photo 8: WL-B soil, July 4, 2018.





Photo 9: WL-B soil test pit, July 4, 2018.



Photo 11: WL-B, July 4, 2018.



Photo 10: WL-B vegetation, July 4, 2018.



Photo 12: WL-B upland soil test pit, July 4, 2018.





Photo 13: WL-B upland vegetation, July 4, 2018.



Photo 15: WL-C soil test pit, July 6, 2018.



Photo 14: WL-B upland vegetation, July 4, 2018.



Photo 16: WL-C vegetation, July 6, 2018.





Photo 17: WL-C upland soil test pit, July 6, 2018.



Photo 19: WL-D soil test pit, July 11, 2018.



Photo 18: WL-C vegetation, July 6, 2018.



Photo 20: WL-D vegetation, July 11, 2018.





Photo 21: WL-D upland soil test pit, July 11, 2018.



Photo 23: WL-D upland, July 11, 2018.



Photo 22: WL-D upland vegetation, July 11, 2018.



Photo 24: WL-E soil test pit, July 11, 2018.





Photo 25: WL-E vegetation, July 11, 2018.



Photo 27: WL-E upland soil test pit, July 11, 2018.



Photo 26: WL-E vegetation, July 11, 2018.



Photo 28: WL-E upland vegetation, July 11, 2018.





Photo 1: Wetland 1 soil test pit, July 24, 2019.



Photo 2: Wetland 1 soil, July 24, 2019.



Photo 3: Wetland 1, July 24, 2019.



Photo 4: Wetland 1, July 24, 2019.





Photo 5: Wetland 1 upland soil test pit, July 24, 2019.



Photo 6: Wetland 1 upland, July 24, 2019.



Photo 7: Wetland 1 upland, July 24, 2019.



Photo 8: Habitat 2, July 24, 2019.





Photo 9: Habitat 2, July 24, 2019.



Photo 10: Habitat 3, July 24, 2019.



Photo 11: Habitat 3, July 24, 2019.



Photo 12: Wetland 2 soil test pit, July 24, 2019.





Photo 13: Wetland 2, July 24, 2019.



Photo 14: Wetland 2, July 24, 2019.



Photo 15: Wetland 2 upland soil test pit, July 24, 2019.



Photo 16: Wetland 2 upland, July 24, 2019.





Photo 17: Wetland 2 upland, July 24, 2019.



Photo 18: Wetland 2 upland, July 24, 2019.



Photo 19: Wetland 2 upland, July 24, 2019.



Photo 20: Wetland 3 soil test pit, July 24, 2019.





Photo 21: Wetland 3, July 24, 2019.



Photo 22: Wetland 3, July 24, 2019.



Photo 23: Wetland 3 upland soil test pit, July 24, 2019.



Photo 24: Wetland 3 upland, July 24, 2019.





Photo 25: Wetland 3 upland, July 24, 2019.



Photo 26: Habitat 5, July 24, 2019.



Photo 27: Habitat 6, July 25, 2019.



Photo 28: Habitat 6, July 25, 2019.





Photo 29: Wetland 4 upland soil test pit, July 25, 2019.



Photo 30: Wetland 4 upland, July 25, 2019.



Photo 31: Wetland 4 soil test pit, July 25, 2019.



Photo 32: Wetland 4, July 25, 2019.





Photo 33: Wetland 4, July 25, 2019.



Photo 34: Wetland 5 soil test pit, July 25, 2019.



Photo 35: Wetland 5, July 25, 2019.



Photo 36: Wetland 5, July 25, 2019.





Photo 37: White-fringed bottle orchid in Wetland 5, July 25, 2019.



Photo 38: Wetland 5, July 25, 2019.





Photo 39: Wetland 6, September 5, 2019.



Photo 41: Wetland 7, September 5, 2019.



Photo 40: Wetland 6, September 5, 2019.



Photo 42: Wetland 7, September 5, 2019.

FUNCTIONAL ASSESSMENT SPREADSHEETS

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	Wind Energy Converter WL- A
Investigator Name:	Derrick Mitchell
Date of Field Assessment:	Sept 5, 2019
Nearest Town:	Grande Anse, NB
Latitude (decimal degrees):	47.8159
Longitude (decimal degrees):	-65.1115
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	1,062 ha
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?	75
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:	No
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):	

Date: Sept 5, 2019	Site Identifier: Wind Energy Converter WL-A	Investigator: DM, BL

Form OF (Office). Non-tidal Wetland Data Form. WESP-AC version 2 for New Brunswick 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

GeoNB: http://www.snb.ca/geonb1/ and http://www.snb.ca/geonb1/e/apps/apps-E.asp

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

#	Indicators	Condition Choices	Data	Definitions/Explanations	Cell Name	Comments
1	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		
		New Brunswick	1	automatic exclusion of indicators for which no spatial data exists in a particular	NB	
		Nova Scotia	0	province.	NS	
		Prince Edward Island	0		PEI	
		Newfoundland-Labrador	0		NL	
2		The area of surface water ponded during most of the growing season that is both (1) in or adjacent to the AA and (2)		"Adjacent" means not separated from the AA by a wide expanse (>50 m) of upland		
		within 1 km is:	0	(including roads >50 m wide). Include ponded areas likely to be hidden by wetland		
		<0.01 hectare (about 10 m x 10 m).	0	vegetation. If surface water extends beyond 1 km, include only the part within 1 km.		
		0.01 - 0.1 hectare.	0	Do not include tidal areas. Measure the area from aerial imagery using Google Earth		
		0.1 - 1 hectare.	0	Pro (click on Ruler icon in toolbar, then Polygon in pop-up menu). With the GeoNB viewer, enable the Wetlands layer, then measure with the Draw & Measure tool after		
		1 to 10 hectares.	0	specifying Aerial as the Basemap. However, do not rely entirely on wetland		
		10 to 100 hectares.	0	boundaries shown in online wetlands layers. [PH, SBM, WBN]		
		>100 hectares.	0	· · · · · · · · · · · · · · · · · · ·		
-3		The area of wetlands and surface water ponded during most of the growing season that is both (1) in or adjacent to		See definition of adjacent in OF2. If the AA's wetland vegetation extends beyond 1		
		the AA and (2) within 1 km is:	0	km, include only the part within 1 km. "Ponded" means not flowing in rivers or		
		<0.01 hectare (about 10 m x 10 m).	1	streams. [Sens, WBF]		
		0.01 - 0.1 hectare.	0			
		0.1 - 1 hectare.				
		1 to 10 hectares.	0			
		10 to 100 hectares.	0			
		>100 hectares.	0			
-4		The largest vegetated patch or corridor that includes the AA's vegetation plus all adjacent upland vegetation that is		See definition of adjacent in OF2. Use Google Earth Pro's polygon ruler (as described		
	, -	not lawn, row crops, heavily grazed lands, conifer plantation is:	0	above). Exclude conifer plantations only if it is obvious that trees were planted in		
		<0.01 hectare (about 10 m x 10 m).	0	rows. [AM, PH, SBM, Sens]		
		0.01 - 0.1 hectare.				
		0.1 - 1 hectare.	0			
		1 to 10 hectares.	0			
		10 to 100 hectares.	0			
		100 to 1000 hectares.	0			
		>1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	1			
5	_	The minimum distance from the edge of the AA to the edge of the closest vegetated land (but excluding row crops,		To measure distance, use Google Earth Pro (Ruler > Line tool). Or use Draw &		
	Vegetated Tract	lawn, conifer plantation) larger than 375 hectares (about 2 km on a side), is:		Measure tool at GeoNB. The 375-ha criterion is from the Fundy Model Forest Project.		

ı	Ī	TO an and ask assessed from the 275 has constant and the second of the s	A	l ,	ĺ	1
		<50 m, and not separated from the 375-ha vegetated area by any width of paved roads, stretches of open water,	1	[AM, PH, POL, SBM, Sens]		
		row crops, bare ground, lawn, or impervious surface. Or the AA itself contains >375 ha of vegetation. [This is often				
		the answer in relatively undeveloped landscapes.]	0			
		<50 m, but completely separated from the 375-ha vegetated area by those features, and AA does not contain >375	0			
		ha of vegetation.				
		50-500 m, and not separated.	Ü			
		50-500 m, but separated by those features.	0			
		0.5 - 5 km, and not separated.	0			
		0.5 - 5 km, but separated by those features.	0			
		None of the above (the closest patches or corridors which are that large are >5 km away).	0			
OF6	Harbasaus		2	For this greation only consider most to be harboneous vegetation. Determine the		
OFO	Herbaceous	The AA's vegetation cover is >10% herbaceous* but uplands within 5 km have <10% herbaceous cover. If so, enter	2	For this question only, consider moss to be herbaceous vegetation. Determine the		
1	Uniqueness	"3" and continue to OF7. If not, consider:		score by viewing aerial imagery in Google Earth after successively drawing or		
		The AA's vegetation cover is >10% herbaceous* but uplands within 1 km have <10% herbaceous cover. If so enter "2"		estimating the boundaries of the buffers of 5 km, 1 km, and 100 m radius focused on		
		and continue to OF7. If not, consider:		the center of the AA. Circles of specified radius can be drawn in Google Earth Pro by		
		The AA's vegetation cover is >10% herbaceous* but uplands within 100 m of the wetland edge have <10%		clicking on the Ruler icon, then Circle in the pop-up menu. [AMv, PHv, POLv, SBMv,		
		herbaceous cover. If so, enter "1".		WBFv, WBNv]		
		[* NOTE: Exclude lawns, row crops, heavily grazed lands, forest, shrublands. Include moss as well as grasslike plants				
		in this use of "herbaceous vegetation"]				
057	M/a a de l'Uniter	-	0	Consider to De mot consider configurate the state of the		
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	U	See above. Do not consider conifer plantations to be forest if it is obvious that trees		
		continue to OF8. If not, consider:		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, consider:				
		The AA's vegetation is >10% woody* but uplands within 100 m of the wetland edge have <10% woody cover. If so,				
		enter "1"				
		[* NOTE: woody cover = trees & shrubs taller than 1 m.]				
OF8	Local Vegetated	Draw a 5-km radius circle measured from the center of the AA. Ignoring all permanent water in the circle, the		In Google Earth, draw the 5 km buffer and then estimate land cover percentages, or		
OFO	=					
	Cover Percentage	percent of the remaining area that is wooded or unmanaged herbaceous vegetation (NOT lawn, row crops, bare or		do GIS analysis of an appropriate land cover layer. [AM, PH, POL, SBM, Sens]		
		heavily grazed land, clearcuts, or conifer plantations) is:	0			
		<5% of the land.	0			
		5 to 20% of the land.	0			
		20 to 60% of the land.	1			
		60 to 90% of the land.	0			
		>90% of the land. SKIP to OF10.	0			
OF9	* *	Within the 5-km radius circle, and ignoring all permanent water, the land area that is bare or non-perennial cover is		[AM, SBM]		
	Alteration	mostly:				
		Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0			
		Bare pervious surface, e.g., lawn, recent (<5 yrs ago) clearcut, dirt or gravel road, cropland, landslide, conifer	1			
		plantation.				
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-		
	Nearest Population	<100 m.	1	inhabited structures per square kilometer. In Google Earth, click on the Ruler icon,		
	Center	100 - 500 m.	0	then Path, and draw and measure the route. Or use the GeoNB's Draw & Measure		
		0.5- 1 km.	n	tool> Freehand Line to draw and measure the route to Settlements (click on Place		
			0	Names in menu) or other areas not close to mapped settlements but which meet the		
		1 - 5 km.	Ü	criteria.[FAv, FRv, NRv, PH, PU, SBM, WBFv]		
		>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 and measuring with the		
	Maintained Road	<10 m.	0	Ruler>Line tool. Or use the GeoNB's Draw Line tool. [AM, FAv, FRv, NRv, PH, PU,		
		10 - 25 m.	0	SBM, STR, WBN]		
		25 - 50 m.	0			
			0			
		50 - 100 m.	U			
		100 - 500 m.		<u> </u>		

I	I	>500 m.	0]	Ī
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	In NB, enable the Wetlands layer in GeoNB (despite its omissions) to show surrounding wetlands and roads, while estimating the location of the 5 km circle (or draw the 5 km circle in Google Earth Pro using the Circle tool and compare). Evaluate using Google Earth, being cautious to search for roads hidden under forest canopy.	
OF13	Distance to Ponded Water	The distance from the AA center to the closest (but separate) ponded water body visible in GoogleEarth imagery is:		In Google Earth, zoom in closely to examine the surrounding landscape for ponds, lakes, and wetlands that appear to be permanently flooded. Enable the GeoNB	
		<50 m, and not separated by any width of paved roads, stretches of open water, row crops, lawn, bare ground, or impervious surface.	0	viewer's Wetlands layer as well. [AM, PH, SBM, Sens, WBF, WBN]	
		<50 m, but completely separated by those features.	0		
		50-500 m, and not separated.	0		
		50-500 m, but separated by those features.	1		
		0.5 - 1 km, and not separated.	0		
		0.5 - 1 km, but separated by those features.	0		
		None of the above (the closest patches or corridors that large are >1 km away).	0		
OF14	Distance to Large	The distance from the AA center to the closest (but separate) non-tidal body of water that is ponded during most of		Determine this by viewing aerial imagery in Google Earth. [Sens, WBF, WBN]	
	Ponded Water	the year and is larger than 8 hectares during most of a normal year is: <100 m.	0		
		100 m 1 km.	1		
		1-2 km.	0		
			0		
		2-5 km. 5-10 km.	0		
			0		
0545	Tidal Bassinster	>10 km.	U	In Consider Forth American the distance to the constant of Freed American	
OF 15	Tidal Proximity	The distance from the AA edge to the closest tidal water body (regardless of its salinity) is:	0	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	
		<100 m. 100 m - 1 km.	1	KMZ file provided with this calculator for NB (NB Headtide). Points shown in those	
		1 - 5 km.	0	files are only an approximation, so local information if available may be preferable.	
		5-10 km.	0	[FA, WBF]	
		10-40 km.	0		
		>40 km.	0	-	
OE16	Unland Edge Contact		U	[ND_CDM_Cons]	
OF 10	Upland Edge Contact		0	[NR, SBM, Sens]	
		The AA has no upland edge (or upland is <1% of perimeter). The AA is entirely surrounded by (& contiguous with) other wetlands or water.	U		
		1-25% of the AA's perimeter abuts upland (including filled areas). The rest adjoins other wetlands or water that is	0		
		mostly wider than the AA.	0		
		25-50% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the	U		
		50-75% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the	0		
		More than 75% of the AA's perimeter abuts upland. Any remainder adjoins other wetlands or water that is mostly	1		
0545		wider than the AA. This will be true for most assessments done with WESP-AC.			
	Ŭ	Within 5 km downstream or downslope of the AA (select first true choice):		In the GeoNB map viewer: click on "More" in upper right, then "Flood Information".	
	Non-tidal Waters	Maps show Flood Zone or Flood Risk areas and there appears to be infrastructure vulnerable to river flooding not	0	Expand the menu under it by clicking on the arrow to its left and the slider to its right. Uncheck the first (Limits of Data) box. Where available, LiDAR imagery can	
		caused by tidal storm surges. Maps show Flood Zone or Flood Risk areas, but infrastructure is absent or is not vulnerable to floods from a non-tidal	n	provide finer elevational resolution useful for flood modeling. [WSv]	
		river. In some cases levees, upriver dams, or other measures may partly limit damage or risk from smaller events.	Ĭ	provide intel elevational resolution ascidi for modelling. [vv5v]	
		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to	0	1	
		be infrastructure vulnerable to river flooding unrelated to tidal storm surges.			
		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there is no	1		
		infrastructure vulnerable to river flooding unrelated to tidal storm surges.			

0540	5 1 .1 . El			(Table 1)	01 15	
UF18		In Google Earth, enable the Terrain layer (lower left menu) and open the NB_Watersheds KMZ file that accompanies		[FA, NR, Sens, SFSv, WCv, WSv]	ShedPos	
1	Watershed	this calculator. Then determine the AA's approximate elevation (bottom right, NOT the "eye alt"). Then move cursor	1.50		1	
		around to determine the watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-				
OF19	Water Quality	min) In Google Earth, open the KMZ file NB_Watershed Protected Area which accompanies this calculator. The AA is	0	If an ACCDC report is available for this AA, it also may contain such information.	1	
	-	within such an area. Enter 1= yes, 0= no.		[NRv]		
	or Area	, , , , , , , , , , , , , , , , , , , ,				
OF20	Degraded Water	Sampling indicates a problem with concentrations of metals, hydrocarbons , nutrients , or other substances		May use existing data, or sample those waters as part of this wetland assessment.		
	Upstream	(excluding bacteria, acidic water, high temperatures) being present at levels harmful to aquatic life or humans, and:		"Harmful" should be evaluated with regard to current federal or provincial water		
				quality standards. [AM, FA, FR, NRv, PRv, SRv, STR, WBF, WBN]		
		The condition is present within the AA.	0			
		The condition is present in waters within 1 km that flow into the AA, but has not been documented in the AA itself.	0			
		Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in	0			
		either the AA or inflowing waters. Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the	1			
		situation for nearly all wetlands in this region.				
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,		
0121	Downstream	The condition is present within 1 km downslope and connected to the AA by a channel.	0	PRv, SRv]		
	20 Wilder Calli		0	, 5,		
		The condition is present within 5 km downslope and connected to the AA by a channel, or within 1 km but not	U			
		connected to the AA by a channel. Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in	0	1	1	
		either the AA or inflowing waters.			1	
		Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the	1		1	
		situation for nearly all wetlands in this region.			<u> </u>	
OF22	Wetland as a % of Its	From a topographic map and field observations, estimate the approximate boundaries of the catchment (CA) of the		Topographic maps may be viewed online at the National Atlas of Canada		
	Contributing Area	entire wetland of which the AA may be only a part. Then adjust those boundaries if necessary based on your field		(Toporama): http://atlas.gc.ca/toporama/en/index.html [NR, PR, Sens, SR,	1	
	(Catchment)	observations of the surrounding terrain, and/or by using procedures described in the Manual. Divide the area of the		WS]		
		wetland (not just the AA) by the approximate area of its catchment excluding the area of the wetland itself. When				
		doing the calculation, if ponded water is adjacent to the wetland, include that in the wetland's area. The result is:				
		<0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	0			
		0.01 to 0.1.	0	1		
		0.1 to 1.	1			
		>1 (wetland is larger than its catchment (e.g., wetland with flat surrounding terrain and no inlet, or is entirely	0			
			U			
OF23	Unvegetated Surface	isolated by dikes, or is a raised bog). The proportion of the AA's contributing area (measured to no more than 1000 m upslope) that is comprised of		[FA, INV, NRv, PRv, SRv, STR, WCv, WSv]	+	
0, 20	_	buildings, roads, parking lots, other pavement, exposed bedrock, landslides, and other mostly-bare surface is about :		[,,,,,,,	1	
I	Area					
		<10%.	0	1	1	
I		10 to 25%.	1			
		>25%.	0			
OF24	Transport From	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as		[NRv, PRv, SRv, WSv]	1	
1	Upslope	runoff (surface water), as indicated by the following:			1	
		(a) input channel is present,			1	
		(b) input channels have been straightened,				
		(c) upslope wetlands have been ditched extensively,				
		(d) land cover is mostly non-forest,			1	
		(e) CA slopes are steep, and/or			1	
		(f) most CA soils are shallow (bedrock near surface) and/or have high runoff coefficients.				
		Mostly true.	0	1		
		Somewhat true.	0	1		
		Mostly untrue.	1			
		iviostry unitrue.				

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]		
0.20	7.100000	Northward (N, NE). north-facing contributing area.	1			
		Southward (S, SW). south-facing contributing area.	0			
		Other (E, SE, W, NW), or no detectable uphill slope or input channel (flat).	0			
OF26	Internal Flow	The horizontal flow distance from the wetland's inlet to outlet is:	·	Identify inlets and outlets, if any, from topographic maps (use elevations to		
0.20	Distance (Path	<10 m.	0	determine which are inlets and which are outlets) and augment by field inspection.		
	Length)	10 - 50 m.	0	[NR, OE, PR, SR, WS]		
		50 - 100 m.	0			
		100 - 1000 m.	0			
		1- 2 km.	0			
		>2 km, or wetland lacks an inlet and outlet.	1			
OF27	Growing Degree	In Google Earth, open the KMZ file that accompanies this calculator, called NB-PEI_GrowingDegreeDays. Place your		This layer was provided by Dr. Dan McKenney of the Canadian Forest Service [AM,	GrowD	
01 21	Davs	cursor over the AA and left-click. From the pop-up, enter the GRIDCODE in the next column.	1500	CS, FR, INV, NR, OE, PH, PR, Sens, SR, WBF, WCv, WS]	0.0112	
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. In NB, the list of stocked waters is at:		
		Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. In NB, consult	0	http://www2.gnb.ca/content/gnb/en/departments/erd/natural_resources/content/f		
		Figure A-2 in Appendix A of the Manual. Contact local fishery biologists, review the ACCDC report, and visit these		ish/content/StockedWaters.html		
		websites: http://www.salmonatlas.com/atlanticsalmon/canada-east/index.1.html		[AM, FA, FR, INV, WBF, WBN]		
		Has not been documented to support Atlantic salmon rearing and/or spawning, but is connected to nearby waters	0			
		likely to contain Atlantic salmon or other anadromous species or eels and is probably accessed by those during some				
		conditions.				
		Is probably is not accessed by any anadromous fish species but is known or likely to have other fish at least seasonally.	0			
		Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	1			
0500	Consider of	Milking the control of the AA / and the all and the al		December 1 to 1 ACCDC and 1 to 1 t		
OF29	Species of Conservation	Within the past 10 years, in the AA (or in its adjoining waters or wetland), qualified observers have documented [mark all applicable]:		Request information from ACCDC and/or conduct your own survey at an appropriate season using an approved protocol. For birds, also check eBird.org. [AMv, EC, PHv,		
	Concern	Presence of one or more of the plant species listed in the Plants Rare worksheet of the accompanying Supplinfo file,	0	POLv, SBMv, Sens, WBFv, WBNv]		
	Concern	or the AA is within a mapped Atlantic Coastal Plain Flora Buffer		octional in the control of the contr		
		Presence of one or more of the amphibian or reptile species (AM) of conservation concern as listed in the	0			
		Wildlife Rare worksheet of the accompanying Supplnfo file.	0			
		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.	Ü			
		Presence of one or more of the nesting songbird or raptor species (SBM) of conservation concern as listed in the	0			
		Wildlife_Rare worksheet of the accompanying SuppInfo file, during their nesting season (May-July for most species).				
		None of the above, or no data.	1			
OF30	Important Bird Area	In Google Earth, open the KMZ file that accompanies this calculator, called IBAs_Canada. The AA is all or part of an	0	The source of this layer, which should be checked periodically for updates, is:		
0.00	(IBA)	officially designated IBA. Enter 1= yes, 0= no.		http://www.ibacanada.com/mapviewer.jsp?lang=EN [SBMv, WBFv, WBNv]		
OE21	Plack Duck Nastins	In Google Earth, open the KMZ file that accompanies this calculator, called BlackDuck. Adjust its alignment and		This was provided by Dr. David Laska, [MDNIv]		
OFST	Black Duck Nesting Area	opacity. Determine the predicted density (pairs per 25 sq. km) of nesting American Black Duck in the AA's vicinity:	U	This was provided by Dr. David Leske. [WBNv]		
	Aicu	<10 (enter 0), 10-20 (enter 1), 20-30 (enter 2), >30 (enter 3). If outside of region shown in map, change to blank .				
OE33	Wintering Deer or	If AA is on private land with no information, change to blank (not 0). If on public/crown land, in Google Earth open	0	[SBM]		
01 32	Moose	the KMZ file that accompanies this report called NB_DeerWinteringAreas.Otherwise: Enter: yes= 1, no= 0.	U	[JDIVI]		
	Concentration Areas	and the decompanies and report cance to_beer writtering fleus. Other wise. Effect, yes= 1, 110= 0.				

OF33	Other Conservation	With GeoNB, click on Candidate PNA Map Viewer to identify Provincially Significant Wetland, Environmentally	0	[PU]	
	Designation	Significant Area, Protected Natural Area but also include if the AA is all or part of an area designated by		1	
		government, FIrst Nations, or the Nature Conservancy of Canada (NCC) for its exceptional ecological features or			
		highly intact natural conditions. Enter: yes= 1, no= 0. If uncertain, consult NCC and agencies for more recent			
		information			
OF34	Conservation	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve,	0	[PU]	
	Investment	create, restore, or enhance the wetland (excluding mitigation wetlands). Ask the property owner. Enter: yes= 1, no=			
		0. If no information, change to blank (not 0).			
OF35	Mitigation	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere. Ask the property owner. Enter:	0	[PU]	
	Investment	yes= 1, no= 0. If no information, change to blank.			
OF36	Sustained Scientific	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and		[PU]	
	Use	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 to blank			
OF37	Calcareous Region	The AA is in an area that is at least partly underlain by soil, sediment, or bedrock that is highly calcareous (enter 3 in	0	If GIS is available, you may use the Bedrock Geology shapefile obtainable at	
		next column), moderately calcareous (enter 2), or slightly calcareous (enter 1), none= 0. Limestone is typically a		http://www.snb.ca/geonb1/e/DC/catalogue-E.asp [AM, FA, FR, INV, PH]	
		major component (karst geology) and water is not acidic (pH is usually >8). See Figure A-6 in Appendix A of the			
		Manual. If no map coverage, change to blank.			
OF38	Ownership	Select the ONE ownership that covers the most of the AA. In Google Earth, open KMZ file called NB Crown lands.Use		"Private lands" may include those owned or leased by non-governmental	
		more recent information if available.		organizations, e.g., charitable conservation land trusts, DUC, TNC. [PU, STR]	
		New timber harvest, roads, mineral extraction, and intensive summer recreation (e.g., off-road vehicles) are	0	, , , , , ,	
		permanently prohibited. Includes many publicly-owned Protected Lands, and private lands under long-term (30+			
		vear) legal agreements to maintain nearly-unaltered conditions.			
		Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are	0		
		allowed.			
		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable	0		
		or not) is in place.			
		Ownership is private and owner does not allow access, or access permission unknown, and not a conservation	1		
		easement.			

te: Sept 5, 2019	Site Identifier: Wind Energy Converter WL - A	Investigator: DM, BL			
ards its core, in the Conduct the assest re allowed and soferring with the lastion pertains, sery, SFS= Stream Fitat, FA= Anadror	Non-tidal Wetland Data Form. WESP-AC version 2 for New part of the AA that is proposed for alteration. If no alteration is proposed, walk assement only after reading the accompanying Manual and the Explanations column to indicated. Answer these questions primarily based on your onsite observations are andowner or other knowledgable persons, and/or reviewing aerial imagery. For more the accompanying Interpretations form. For detailed descriptions of each WESP-Allow Support, WC= Water Cooling, SR= Sediment Retention & Stabilisation, PR= Phomous Fish Habitat, FR= Resident Fish Habitat, AM= Amphibian & Reptile Habitat, Wal= Native Plant Habitat, PU= Public Use & Recognition, EC= Ecological Condition, Se	in a portion that appears to be most representative of the data form. In the Data column, change the conditional interpretations. Do not write in shaded parts of cost wetlands, completing this field data form will receive. AC model, see Appendix B of the accompanying Mosphorus Retention, NR= Nitrate Removal, CS= Carly BF= Feeding Waterbird Habitat, WBN= Nesting Waterbird Habitat, WBN= Nesting Waterbird Habitat,	ve of the wetland overall. Walk only where it is safe and legal to do O (false) to a 1 (true) for the best choice, or for multiple choices If this data form. Answering some questions accurately may require equire 1-2 hours on a site. For a list of functions to which each anual. Codes for functions and values are: WS= Water Storage & bon Sequestration, OE= Organic Nutrient Export, INV= Invertebrat	e	
Indicators	Condition Choices	Data	Definitions/Explanations	Cell Name	Comments
Wetland Type	Follow the key below and mark the ONE row that best describes MOST of the vegetated part of		shrubs are ones in the heather family (Ericaceae). Most have leathery evergree	_	
violand Type	A. Moss and/or lichen cover more than 25% of the ground. Often dominated by ericaceous shacid-tolerant plants (e.g., bog cranberry, pitcher plant, sundew, orchids). Substrate is mostly up between A1 and A2 and mark the choice with a 1 in their adjoining column. Otherwise go to B A1. Surface water is usually absent or, if present, pH is typically <4.5 and conductivity is usus. Trees are absent or nearly so. Sedge cover usually sparse or absent but cottongrass and/or well as cloudberry, lingonberry, sheep laurel, and a sedge (Carex rariflor a). Wetland surface seldom sloping and wetland often is domed (convex). Inlet and outlet channels are usually a	hrubs (e.g., Labrador tea) or other undecomposed peat. Choose should be consulty <100 μS/cm (<64 ppm TDS). or lichen cover may be extensive, as the and surrounding landscape are leaves. They others. Most should be consulty <100 μS/cm (<64 ppm TDS).	r include rhododendron, azalea, swamp laurel, leatherleaf, Labrador tea, and require acidic soil. Although not in the family Ericaceae, sweetgale (<i>Myrica gale</i> unted also. [AM, CS, FA, FR, INV, NR, OE, PH, Sens, SFS, WBF, WBN]		
	A2. Not A1. Surface water, if present, has pH typically >4.5 and conductivity is usually >100 cover is usually extensive, and/or tree and tall shrub cover is extensive. Sometimes at toe of exit channel is usually present. Wetter than A1 and peat depth may be shallower (<2 m).	f slope or edge of water body. An 0		Fen_	
	B. Moss and/or lichen cover less than 25% of the ground. Soil is mineral or decomposed organd B2 and mark the choice with a 1 in their adjoining column:				
	B1. Trees and shrubs taller than 1 m comprise more than 25% of the vegetated cover. Surf inundates the vegetation only seasonally (e.g., vernal pools or floodplain).	ace water is mostly absent or			
	B2. Not B1. Tree & tall shrubs comprise less than than 25% of the vegetated cover. Veget cattail, bulrush, burreed, pond lily, horsetail. Surface water may be extensive and fluctuates or drying up partly or entirely.	•		Marsh	
	stions, the AA should include all persistent waters in ponds smaller than 8 hectares (~283 m	,			
	also include part of the water area of adjacent ponded water larger than 8 ha and adjacent r				
	uld include the open water part adjacent to wetland vegetation and equal in width to the aver lata form, " adjacent " is used synonymously with abutting, adjoining, bordering, contiguous -	•			
	ompletely separates the described features along their directly shared edge. Features joined	· ·			
•	to be adjacent a large portion of their edges must match. The features do not have to be h	, ,			
Wetland Types -	If the AA is smaller than 1 ha, mark all other types that occupy more than 1% of the vegetated	· ·	0,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m,]	
Adjoining or	mark all other types which are within or adjacent to the AA and occupy more than 1 ha, as visil from aerial imagery. Do not mark again the type marked in F1.	ble from the AA or as interpreted 1000 m by 10) m, or similar. [AM, INV, SBM, WBF]		
Subordinate	A1.	0			
1	A2.	1			
	B1.	0			
	B2.	0		_	
Woody Height & Form Diversity	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). largely herbaceous (non-woody) vegetation, these percentages should not sum to 100%.	If the vegetated part of the AA is huckleberry,	hrubs in this region usually include buttonbush, Labrador tea, bayberry (<i>Morella</i> cranberry, cloudberry, sweetgale, alder, willow, birch, ash, dogwood, and a few assigned a code of 3 or higher to any of the first four choices and the ground),	
	coniferous trees (may include tamarack) taller than 3 m.				

1 1	Just a service filled to a Aug		DU DOL CDM Coord
	deciduous trees taller than 3 m.	3	PH, POL, SBM, Sens]
	coniferous or ericaceous shrubs or trees 1-3 m tall not directly below the canopy of trees.	3	
	deciduous shrubs or trees 1-3 m tall not directly below the canopy of trees. coniferous or ericaceous shrubs <1 m tall not directly below the canopy of taller vegetation.	3	
	deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	1	
	()	1	
Note: If none of top 4 row	rs in F3 was marked 2 or greater, SKIP to F9 (N fixers).		
F4 Dominance of Most			[PH, POL, SBM, Sens]
Abundant Shrub	those species together comprise > 50% of such cover.	1	
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		Estimate the diameters at chest height. If small-diameter trees are overtopped (shaded) by
Classes	upland edge (perimeter). The edge should include only the trees whose canopies extend into the AA.		larger ones, visualise a "subcanopy" at the average height of the smaller-dbh trees, to serve
	coniferous, 1-9 cm diameter and >1 m tall.	1	as a basis for the minimum 5% canopy requirement in this question. The trees and shrubs
	broad-leaved deciduous 1-9 cm diameter and >1 m tall.	1	need not be wetland species. [AM, CS, POL, SBM, Sens, WBN]
	coniferous, 10-19 cm diameter.	1	
	broad-leaved deciduous 10-19 cm diameter.	1	
	coniferous, 20-40 cm diameter.	1	
	broad-leaved deciduous 20-40 cm diameter.	1	
	coniferous, >40 cm diameter.	0	-
F0	broad-leaved deciduous >40 cm diameter.	0	TAM INIV ND DU ODM O 1
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.		
	A1. The two height classes are mostly scattered and intermixed throughout the AA.	0	1
	A2. Not A1. The two height classes are mostly in separate zones or bands, or in proportionately large clumps.	0	1
	B. Either the vegetation shorter than 1 m comprises >70% of the vegetated part of the AA, or the vegetation taller than that does.		1
	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.	1	
	B2. Not B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is	0	
F7 Large Snags (Dead	completely 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
Standing Trees)	None, or fewer than 8/ hectare which exceed this diameter.	0	that are at least 2 m tall. [POL, SBM, WBN]
otanding 11000)	Several (>8/hectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km.	1	, , , , , ,
	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]
DOWNER VYOOR	Few or none that meet these criteria.	0	Exercises componery source prices. In this interpretation
	Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria.	1	
F9 N Fixers	The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa,	-	Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
IN I IVOIS	other legumes) is:		Do not molade It-living algae of horiens. [LA, LIV, HVV, HVV, OL, FTI, ODIVI, Octio]
	<1% or none.	0	1
	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	1
	50-75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	1
	>75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	1
F10 Sphagnum Moss	The cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured		Exclude moss growing on trees and rocks. [CS, PH]
Extent	by taller sedges and other plants rooted in it, is:		
	<5% of the vegetated part of the AA.	0	
	5-25% of the vegetated part of the AA.	1	
	25-50% of the vegetated part of the AA.	0	
	50-95% of the vegetated part of the AA.	0	
	>95% of the vegetated part of the AA.	0	

11 0	6 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		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that	
		ground layer, the predominant condition in those areas at that time is:		is present under a tree or shrub canopy should be counted. Boulders count as bare ground.	`
ľ		Little or no (<5%) bare ground is visible between erect stems or under canopy anywhere in the vegetated AA. Ground is	0	Wetlands with mineral soils and that are heavily shaded or are dominated by annual plant	
		extensively blanketed by dense thatch, moss, lichens, graminoids with great stem densities, or plants with ground-hugging		species tend to have more extensive areas that are bare during the early growing season.	
		foliage.		[AM, EC, INV, NR, OE, POL, PR, SBM, Sens]	
		Slightly bare ground (5-20% bare between plants) is visible in places, but those areas comprise less than 5% of the unflooded	1	•	
		parts of the AA.			
		Much bare ground (20-50% bare between plants) is visible in places, and those areas comprise more than 5% of the unflooded	0		
		parts of the AA.	-	4	
		Other conditions.	0		
		Not applicable. Surface water (either open or obscured by emergent plants) covers all of the AA all the time.	0		
12 (Ground Irregularity	Imagine the AA without any living vegetation. Excluding the portion of the AA that is always under water, the number of		The depressions may be of human or natural origin. [AM, EC, INV, NR, PH, POL, PR, SBM,	
		hummocks, small pits, raised mounds, animal burrows, ruts, gullies, natural levees, microdepressions, and other areas of peat or		SR, WS]	
		mineral soil that are raised or 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).	1		
		Intermediate.	0		
		Several (extensive micro-topography).	0	1	
2 1			U	IMP CDMI	-
3	Jpland Inclusions	Within the AA, inclusions of upland are:		[AM, NR, SBM]	
		Few or none.	1		
		Intermediate (1 - 10% of vegetated part of the AA).	0	1	
		Many (e.g., wetland-upland "mosaic", >10% of the vegetated AA).	0		
14	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		[CS, NR, OE, PH, PR, Sens, SFS, WS]	
		to check in at least 3 widely spaced locations, and use the soil texture key (in Appendix A of the Manual).]			
		Loamy: soils that may contain a little fine grit and do not make a "ribbon" longer than 2 cm when moistened, rolled, squeezed,	0		
		and extended between thumb and forefinger.		4	
		Fines: includes silt, clay, silt, soils that make a ribbon longer than 2 cm when moistened, rolled, squeezed, and extended	0		
		between thumb and forefinger. Deep Peat, to 40 cm depth or greater.	1		
		Shallow Peat or organic <40 cm deep.	0		
		ů i		-	
		Coarse : includes sand, loamy sand, gravel, cobble, soils that do not make a ribbon when moistened, rolled, squeezed, and extended between thumb and forefinger.	0		
15 5		During any 2 consecutive weeks of the growing season, the extent of mudflats, bare unshaded saturated areas not covered by		This addresses needs of many but not all migratory sandpipers, plovers, and related species.	
		thatch, and unshaded waters shallower than 6 cm is: [Include also any area that is adjacent to the AA.]		[WBF]	
ľ		None, or <100 sq. m.	1	(No.)	
		100-1000 sq. m.	0		
		1000 – 10,000 sq. m.	0	1	
		>10,000 sq. m.	0	1	
10 1		·	0	TAM MODE MODAL	_
		In aerial ("ducks eye") view, the maximum annual cover of herbaceous vegetation (all non-woody plants except moss) is:	_	[AM, WBF, WBN]	
'	egetated 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		NoHerb(
		5-25% of the vegetated part of the AA.	1		
		25-50% of the vegetated part of the AA.	0		
		· ·		4	
		50-95% of the vegetated part of the AA.	0	4	
		>95% of the vegetated part of the AA.	0		4
	orb 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,	
7 F		<5% of the herbaceous part of the AA.	1	horsetails, or others that lack showy flowers. [POL]	
7 F			0		
7 F		5-25% of the herbaceous part of the AA.	U		
7 F		25-50% of the herbaceous part of the AA.	0]	
17 F		·			
17 F		25-50% of the herbaceous part of the AA.	0		AllForb(
		25-50% of the herbaceous part of the AA. 50-95% of the herbaceous part of the AA. >95% of the herbaceous part of the AA.	0		AllForbC
	Sedge Cover	25-50% of the herbaceous part of the AA. 50-95% of the herbaceous part of the AA.	0	[CS]	AllForbC

		50-95% of the vegetated area.	0		
		>95% of the vegetated area.	0		
)	Dominance of Most	Determine which two herbaceous species comprise the greatest portion of the herbaceous cover (excluding mosses and floating-		For this question, include ferns as well as graminoids and forbs. [EC, INV, PH, POL, Sens]	1
	Abundant	leaved aquatic plants). Then choose one of the following:			
	Herbaceous 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		
0		How extensive is the cover of invasive plant species in the AA? For species, see Plants_invasive worksheet in the accompanying		[EC, PH, POL, Sens]	
		SuppInfo file.			
		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 woody).	0		
		invasive species comprise 5-20% of the herb cover (or woody cover, if the invasives are woody).	0		
		invasive species comprise 20-50% of the herb cover (or woody cover, if the invasives are woody).	0		
		invasive species comprise >50% of the herb cover (or woody cover, if the invasives are woody).	0		
1		Along the wetland-upland boundary, the percent of the upland edge (within 3 m upslope from the wetland) that is occupied by		If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an	1
		invasive plant species is:		exotic species, assume the unidentified plant to also be exotic. If vegetation is so senesced	1
		none of the upland edge (invasives apparently absent), or AA has no upland edge.	1	that exotic species cannot be identified, answer "none". [PH, STR]	1
		some (but <5%) of the upland edge.	0	,	
		5-50% of the upland edge.	0		1
		most (>50%) of the upland edge.	0		1
22		During most of the year, open water within or adjacent to the vegetated part of the wetland is much wider than the maximum		[WBF, WBN, WCv]	-
		width of the vegetated zone within the wetland. Enter "1" if true, "0" if false.	0	[٧٧٥١ , ٧٧٥١٩, ٧٧٥٧]	
23		The vegetated part of the AA is within or adjacent to a body of non-tidal standing open water whose size exceeds 8 hectares	0	[FR, PR, PU, WBF, WBN]	1
		during most of a normal year.	Ü		
24		The percentage of the AA that never contains surface water during an average year (that is, except perhaps for a few hours after		1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m,	
		snowmelt or rainstorms), but which is still a wetland, is:		1000 m by 10 m, or similar. [AM, FA, FR, INV, NR, PH, PR, SBM, Sens, SRv, WBF, WBN, WC	
		<1% . In other words, all or nearly all of the AA is covered by water permanently or at least seasonally.	1		
		1-25% of the AA, or <1% but >0.01 ha never contains surface water.	0		
		25-50% of the AA never contains surface water.	0		
		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	0		AllSat
		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		AllSat
25	% of AA with	Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during		If you are unable to determine the condition at the driest time of year, ask the land owner or	1
	, , , , , , , , , , , , , , , , , , , ,	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		neighbors about it if possible. Indicators of persistence may include fish, some dragonflies,	
		AA that still contains surface water is:		beaver, and muskrat. [AM, CS, FA, FR, INV, NR, POL, PR, SBM, WBF, WBN]	1
		None. The AA dries up completely (no water in channels either) or never has surface water during most years. SKIP to F27.	0		NoPer
		1-20% of the AA.	1		
		20-50% of the AA.	0		
		50-95% of the AA.	0		
		>95% of the AA. True for many fringe wetlands.	0		AllWet
26		At mid-day during the warmest time of year, the area of surface water within the AA that is shaded by vegetation and other		[FA, WC]	1
		features that are within the AA at that time is:		[[75, 110]	
	vvaloi iilai is Silaueu	< 5% of the water is shaded, or no surface water is present then.	0		1
		5-25% of the water is shaded.	0		1
		25-50% of the water is shaded.	0		
		50-75% of the water is shaded.	1		1
		>75% of the water is shaded.	0		1
27		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	1
	Flooded Only	None, or <0.01 hectare and <1% of the AA. SKIP to F29.	0	when not fully inundated. Also, such areas often have a larger proportion of upland and annual	NoSea
	i ioodod O iliy	tone; or other modern and are or an orall to 1201		(vs. perennial) plant species. In riverine systems, the extent of this zone can be estimated by	

		20-50% of the AA.	0	Tmultiplying by ∠ the banktul neight and visualising where that would intercept the land along the river. [CS, FA, INV, NR, OE, PH, SR, WBF, WBN, WS]	
		50-95% of the AA.	0	and made. [00, 175, max, max, 00, 111, orx, and , and a, and	
		>95% of the AA.	1		
28	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,	
		<10 cm change (stable or nearly so).	1	INV, NR, OE, PH, PR, SR, WBN, WS]	
		10 cm - 50 cm change.	0		
		0.5 - 1 m change.	0		
		1-2 m change.	0		
		>2 m change.	0	1	
	AA plus adjacent por F42 (Connection)	onded water smaller than 0.01 hectare (about 10m x 10m, or 1m x 100 m)? If so, enter "1" in column D and			TooSmall
		During most of the time when surface water is present during the growing season, its depth, averaged over the entire inundated		If a boat is unavailable, estimate this by considering wetland size and local topography. Or if	1
	Class	part of the AA, is:		timing and safety allow, depths may be measured by drilling through winter ice. This question is	
		<10 cm deep (but >0).	0	asking about the spatial median depth that occurs during most of that time, even if inundation	
		10 - 50 cm deep.	1	is only seasonal or temporary. If inundation in most but not all of the wetland is brief, the	
		0.5 - 1 m deep.	0	answer will be based on the depth of the most persistently inundated part of the wetland.	
		1 - 2 m deep.	0	Include surface water in channels and ditches as well as ponded areas. [CS, FA, FR, INV,	
		>2 m deep. True for many fringe wetlands.	0	OE, PH, PR, Sens, SFS, SR, WBF, WBN, WC]	
30	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,	1
	Evenness of	One depth class that comprises >90% of the AA's inundated area (use the classes in the question above).	1	INV, WBF, WBN]	
	Proportions	One depth class that comprises 50-90% of the AA's inundated area.	0		
	ropondono	Neither of above. There are 3 or more depth classes and none occupy >50%.	0	1	
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		Nearly all wetlands with surface water have some ponded water. [AM, CS, INV, NR, OE, PR,	1
	Ponded (not	sediment is not held in suspension) AND (2) is likely to be deeper than 0.5 m in some places, is:		Sens, SR, WBF, WBN, WC, WS]	
	Flowing)	<5% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34.	0	5010, 513, 1151, 1151, 116, 116]	NoPonded
	riowing)	5-30% of the water.	0		
		30-70% of the water.	0	1	
		70-95% of the water.	0	1	
		>95% of the water.	1		
-32	Dandad Onan 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	0	Open water is not obscured by vegetation in aerial ("duck's eye") view. It includes vegetation	OpenW
-32	Minimum Size	(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).	U	floating on the water surface or entirely submersed beneath it.	OpenW
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]	
	that 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		NoOpenPor
		1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	0		NoOpenPon
		5-30% of the ponded water.	0		
		30-70% of the ponded water.	0		
		70-99% of the ponded water.	0	7	
		100% of the ponded water.	0	1	AllOpenPon
34	Width of Vegetated	At the time during the growing season when the AA's water level is lowest, the average width of vegetated area <u>in the AA</u> that		"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed.	1
		separates adjoining uplands from open water within the AA is:		Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	
		<1 m.	0	CS, NR, OE, PH, PR, SBM, Sens, SR, WBN]	
		1 - 9 m.	0	1	
		10 - 29 m.	0	1	
		30 - 49 m.	0	1	
		50 - 100 m.	n	1	
		> 100 m, or open water is absent at that time.	0	1	
E2E	Flat Chareline Future			If according local and a property in early according to the manager of the in-ellipsets	4
F35	rial Shoreline Extent	During most of the part of the growing season when water is present, the percentage of the AA's water edge length that is nearly flat (a slope less than about 5% measured within 5 m landward of the water) is:		If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentle slope. [SR, WBN]	

		<1% of the water edge.	0		
		1-25% of the water edge.	0		
		25-50% of the water edge.	0		
		50-75% of the water edge.	0		
		>75% of the water edge.	0		
36	Robust Emergents	The percentage of the emergent vegetation cover in the AA that is cattail (Typha spp.), common reed (Phragmites), or tall		Emergent vegetation is herbaceous plants whose stems are partly above and partly below	
	i tobalot =o.go.iio	(>1m) bulrush is:		the water surface during most of the time water is present. [WBN]	
		<1% of the emergent vegetation, or emergent vegetation is absent. SKIP to F38.	0		NoRobustEm
		1-25% of the emergent vegetation.	0		
		25-75% of the emergent vegetation.	0		
		>75%, of the emergent vegetation.	0	1	
37	Interspersion of	During most of the part of the growing season when water is present, the spatial pattern of emergent vegetation within the water	- C	[AM, FA, FR, INV, NR, OE, PH, PR, SBM, SR, WBF, WBN]	-
	· '	is mostly:		[AIVI, FA, FK, IIVV, NK, OL, FH, FK, SDIVI, SK, WDI , WDIV]	
	Emergents & Open	Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water.	0		
	Water	Intermediate.	0		
		Clumped. More than 70% of such vegetation is in bands along the wetland perimeter or is clumped at one or a few sides of the	0	1	
		surface water area.	U		
8	Persistent Deenwater	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	0		DeepPersis
		weeks during the growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection).			200pi 01010
	7 11 0 04				
	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		For this question, consider only the wood that is at or above the water surface. Estimates of	
	Aquatic Cover	that is provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: Little or none.	0	underwater wood based only on observations from terrestrial viewpoints are unreliable so	
				should not be attempted. [AM, FA, FR, INV]	
		Intermediate.	0		
		Extensive.	0		
10	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	0	[WBN]	
		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			
11	Flooting Algon 0	sufficiently large and dense to support a waterbird nest. At some time of the year, mats of algae and/or duckweed are likely to cover >50% of the AA's otherwise-unshaded water surface,	0	[EC, PR, WBF]	4
	5 5	or blanket >50% of the underwater substrate. If true, enter "1" in next column. If untrue or uncertain, enter "0".	U	[EO, PR, WBF]	
	2 4 5 1 1 1 2 5 4				
12	Channel Connection	The most persistent surface water connection (outlet channel or pipe, ditch, or overbank water exchange) between the AA and a		Consider the connection regardless of whether the surface water is frozen. The "downslope	
	& Outflow Duration	downslope stream network is: [Note: If the AA represents only part of a wetland, answer this according to whichever is the least		stream network" could consist of ditches, rivers, ponds, or lakes which eventually connect to	
		permanent surface connection: the one between the AA and the rest of the wetland, or the surface connection between the		the ocean. If this cannot be determined while visiting the AA, consult topographic maps	
		wetland and the downslope stream network.1 Persistent (surface water flows out for >9 months/year).	0	perhaps by viewing these online with Toporama	
		· · ·	0	(http://atlas.nrcan.gc.ca/toporama/en/index.html) [CS, FA, FR, NR, OE, PR, Sens, SFS, SR,	
		Seasonal (surface water flows out for 14 days to 9 months/year, not necessarily consecutive).	0	WCv, WS]	
		Temporary (surface water flows out for <14 days, not necessarily consecutive).	1		0.01.4
		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		OutNone1
		No surface water flows out of the wetland except possibly during extreme events (<once 10="" a<="" flows="" into="" only="" or,="" per="" td="" water="" years).=""><td>0</td><td>1</td><td>Outnone</td></once>	0	1	Outnone
		wetland, ditch, or lake that lacks an outlet. SKIP to F47 (pH Measurement).			Gallone
13	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	
		Mostly passes through a pipe, culvert, narrowly breached dike, berm, beaver dam, or other partial obstruction (other than natural	0	snowmelt. [CS, NR, OE, PR, Sens, SR, STR, WS]	
		topography) 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		
		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	0	1	
		edge, which drain the wetland artificially, or water is pumped out of the AA.			
14	Tributary Channel	At least once annually, surface water from a tributary channel that is >100 m long moves into the AA. Or, surface water from a		If inlet tributaries cannot be searched for due to inaccessibility of part of the AA, follow	Inflows
		larger permanent water body adjacent to the AA spills into the AA. If it enters only via a pipe, that pipe must be fed by a mapped	0	suggestions in F42 above. [NRv, PH, PRv, SRv]	
		stream or lake further upslope. If no, SKIP to F47 (pH Measurement).			
15	Input Water	Based on lack of shade, water source characteristics, or actual temperature measurements, the inflow is likely to be warmer than	0	[WCv]	
	Temperature	surface water in the AA during part of most years. Enter 1= yes, 0= no.			
16	Throughflow	During its travel through the AA at the time of peak annual flow, water arriving in channels: [select only the ONE encountered by		[FA, FR, INV, NR, OE, PR, SR, WS]	
-	549511	- 5		, , , , , , , , , , , , , , , , , , , ,	

Does not bump into many plant stems as it travels through the AA. Nearly all the water continues to travel in unvegetated (often incised) channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond or lake. Bumps into herbaceous vegetation but mostly remains in fairly straight channels. Bumps into herbaceous vegetation and mostly spreads throughout, or is in widely meandering, multi-branched, or braided ochannels. Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels. Bumps into tree trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or braided). 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 pealland (e.g., Labrador beal are prevalent. Enter "1". The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information): TOS is: [Enter the reading in ppm or mg/L in the column to the right.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". To Neither of above. Enter "1". Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". 1 pass above for measurement guidance. [FR, INV, NRV, PH, PRV, Sens] 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 O [FA, FR, PH, SBM, Sens, WBF, WBN]	is completely ter for this
or lake. Bumps into herbaceous vegetation but mostly remains in fairly straight channels. Bumps into herbaceous vegetation and mostly spreads throughout, or is in widely meandering, multi-branched, or braided channels. Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels. Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels. Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels. Bumps into tree trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or braided). 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". PAS and/or 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.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". O Neither of above 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]	is completely ter for this
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indicate peatland (e.g., Labrador tea) are prevalent. Enter "1". TDS and/or Conductivity TDS is: [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.] Conductivity is [Enter the reading in ppm or mg/L in the column to the right.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". Text probability TDS and/or Conductivity is [Enter the reading in ppm or mg/L in the column to the right.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". Text probability 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] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] To size [Enter the reading in ppm or mg/L 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 Text probability Use of the AA by beaver during the past 5 years is (select most applicable ONE): [FA, FR, PH, SBM, Sens, WBF, WBN]	cent rain. [AM, FA,
TDS and/or Conductivity TDS is: [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.] Conductivity is [Enter the reading in 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". Description of above Beaver Probability Use of the AA by beaver during the past 5 years is (select most applicable ONE): F49 Beaver Probability F49 Beaver Probability F50 See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] F60 See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] F60 See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] F60 See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] F60 See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] F60 See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] F60 See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] F60 See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] F60 See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] F60 See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] F60 See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] F60 See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] F60 See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] F60 See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] F60 See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] F60 See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] F60 See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] F60 See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] F60 See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] F60 See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens] F60 See above for measurement guidance. [FR, INV, NRv, PH, PRv, Sens]	
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Neither of above Reaver 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 ONE): [FA, FR, PH, SBM, Sens, WBF, WBN]	
Evident from direct observation or presence of gnawed limbs, dams, tracks, dens, lodges, or extensive stands of water-killed 0	
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.	
Groundwater Select first applicable choice: Adhere to these criteria strictly do not use personal judgment based on fen condition	n conditions, pH,
Strength of Evidence Springs are known to be present within the AA, or if groundwater levels have been monitored, that has demonstrated that 0 or other evidence. Consult topographic maps to detect breaks in slope described here	cribed here. Rust
groundwater primarily discharges to the wetland for longer periods during the year than periods when the wetland recharges the deposits associated with groundwater seeps may be most noticeable as orange disco	
groundwater. in ice formations along streams during early winter. [AM, CS, FA, FR, INV, NR, OE, P	IR, OE, PH, PRv,
SFS, WC, WS]	
Most of the AA has a slare of SEV, as is your close to the base of a return laboration than the second state of the AA has a slare of SEV.	
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.	
Neither of above is true, although some groundwater may discharge to or flow through the AA. Or groundwater influx is unknown.	
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	
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 inlet and outlet, divided by the flow-distance between them and converted to percent.	percent. If
This is not the same as the shoreline slope. It is the elevational difference between the same as the shoreline slope. It is the elevational difference between the same as the shoreline slope. It is the elevational difference between the same as the shoreline slope. It is the elevational difference between the same as the shoreline slope. It is the elevational difference between the same as the shoreline slope. It is the elevational difference between the same as the shoreline slope. It is the elevational difference between the same as the shoreline slope. It is the elevational difference between the same as the shoreline slope. It is the elevational difference between the same as the shoreline slope. It is the elevational difference between the same as the shoreline slope. It is the elevational difference between the same as the shoreline slope. It is the elevational difference between the same as the shoreline slope. It is the elevational difference between the same as the shoreline slope. It is the elevational difference between the same as the shoreline slope. It is the elevational difference between the same as the shoreline slope. It is the elevational difference between the same as the shoreline slope. It is the elevational difference between the same as the shoreline slope. It is the elevational difference between the same as the shoreline slope. It is the elevational difference between the same as the shoreline slope. It is the elevational difference between the same as the shoreline slope. It is the elevational difference between the same as the shoreline slope. It is the elevational difference between the same as the shoreline slope. It is the elevational difference between the same as the shoreline slope. It is the elevational difference between the same as the shoreline slope. It is the elevational difference between the same as the shoreline slope. It is the elevation as the same as the shoreline slope. It is the elevation as the same as the shoreline slope. It is the elevation as the same as the	percent. If while which was a second to
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3 T ype	e 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		[AM, FA, INV, NRv, PH, POL, SBM, STR, WBN]	1
Buff		(mark ONE):		hin, th, inv, the, the object of the object	
		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.	0		
54 Buff		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		[NRv, PRv, Sens, SRv]	
		area has a percent slope of:		-	
		<1% (flat almost no noticeable slope) or all the area within 30 m of the AA edge is other wetlands.	0		
		2-5%.	0		
		5-30%. >30%.	0		
E OI:				Do not include unturned trace as notantial den sites. IDOL CDMI	
55 Cliffs	·	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]	
6 New		Human actions within or adjacent to the AA have persistently expanded a naturally occurring wetland or created a wetland where		Determine this using historical aerial photography, old maps, soil maps, or permit files as	
		there previously was none (e.g., by excavation, impoundment):		available [CS, NR, OE, PH, Sens]	
		No.	1		
		Yes, and created or expanded 20 - 100 years ago.	0	1	
		Yes, and created or expanded 3-20 years ago.	0	1	
		Yes, and created or expanded within last 3 years.	0	1	
		Yes, but time of origin or expansion unknown.	0	1	
		Unknown if new or expanded within 20 years or not.	0		
57 Burr	,	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,	
		Burned within past 5 years.		PH, STR]	
		Burned 6-10 years ago.	0	1	
		Burned 11-30 years ago.	0		
.0 \		Burned >30 years ago, or no evidence of a burn and no data.	1	TOUL OTD WIDE 1	
58 Visil		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]	
		Solid lings, or public maintained trails that intersect, adjoin, or are within 100 m of the AA (select one) is:	1	1	
		25-50%.	0	1	
		>50%.	0	1	
59 Non		Assuming access permission was granted, select ALL statements that are true of the AA as it currently exists:		[PU, STR]	
		For an average person, walking is physically possible <u>in</u> (not just near) >5% of the AA during most of the growing season, e.g.,	1	j ´ ´	
	ential	free of deep water and dense shrub thickets.			
		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	0		
		arriving via contiguous waters. Within or near the AA, there is an interpretive center, trails with interpretive signs or brochures, and/or regular guided interpretive	0	1	
		tours	0		
30 Unv	visited Core Area	The percentage of the AA almost never visited by humans during an average growing season probably comprises: [Note: Only		[AM, FAv, FRv, PH, PU, SBM, STR, WBF, WBN]	
		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.1 <5% and no inhabited building is within 100 m of the AA.	0	1	
		<5% and inhabited building is within 100 m of the AA.	0	1	
		5-50% and no inhabited building is within 100 m of the AA.	0	1	
		5-50% and inhabited building is within 100 m of the AA.	0	1	
		50-95%, with or without inhabited building nearby.	0	1	
		>95% of the AA with or without inhabited building nearby.	1	1	
31 Fred	quently Visited	The part of the AA visited by humans almost daily for several weeks during an average growing season probably comprises:		[AM, PH, PU, SBM, STR, WBF, WBN]	
Area	-	[See note above.]		, , , , , , , , , , , , , , , , , , , ,	
		<5%. If F60 was answered ">95%" (mostly never visited), SKIP to F64 .	1		
		5-50%.	0]	
		50-95%.	0]	

Ī		>95% of the AA.	0	7	
F62	BMP - Soils	Boardwalks, paved trails, fences or other infrastructure and/or well-enforced regulations appear to effectively prevent visitors from walking on soil within nearly all of the AA when the soil is unfrozen. Enter "1" if true.	0	[PH, PU]	
F63	BMP - Wildlife Protection	Fences, observation blinds, platforms, paved trails, exclusion periods, and/or well-enforced prohibitions on motorised boats, off-leash pets, and off road vehicles appear to effectively exclude or divert visitors and their pets from the AA at critical times in order to minimize disturbance of wildlife (except during hunting seasons). Enter "1" if true.	0	[AM, PU, WBF, WBN]	
F64	Consumptive Uses	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select ALL that apply.		[FAv, FRv, WBFv]	
	(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	1		
	Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0		
		Waterfowl hunting.	0		
		Fishing.	0		
		Trapping of furbearers.	0		
		None of the above.	0		
F65	Domestic Wells	The closest wells or water bodies that currently provide drinking water are:		[NRv]	
		Within 0-100 m. of the AA.	0	7	
		100-500 m. away.	1		
		>500 m. away, or no information.	0	7	
F66	Calcareous Fen	The AA is, or is part of, a calcareous fen. See the Plants_Calcar worksheet in the accompanying SuppInfo file for list of plant indicators (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]	

tigator: DM, BL	Site Identifier: Wind Energy Converter WL - A		Date: Sept 5, 2019						
ressor (S) Data Form for Non-Tio	dal Wetlands. WESP-AC for New	w Brunswick. Version 2.							
Aberrant Timing of Water Inputs In the last column, place a check mark next to any item that is lii	kely to have caused the timing of water inputs (but not necessar	rilv their volume) to shift by hours. days, or weeks, becoming ei	ther more muted (smaller or less frequent peaks spread ove						
longer times, more temporal homogeneity of flow or water levels	s) or more flashy (larger or more frequent spikes but over shorte		and more makes (common or recent requesting peaking options of the						
Stormwater from impervious surfaces that drains directly to the Water subsidies from wastewater effluent, septic system leaka									
Regular removal of surface or groundwater for irrigation or other									
	ing water body, or other control structure at water entry points th								
A dam, dike, levee, weir, berm, or fill within or downgradient from the wetland that interferes with surface or subsurface flow in/out of the AA (e.g., road fill, wellpads, pipelines). Excavation within the wetland, e.g., dugout, artificial pond, dead-end ditch.									
Artificial drains or ditches in or near the wetland.	desid dicir.								
Accelerated downcutting or channelization of an adjacent or int	ternal channel (incised below the historical water table level).								
Logging within the wetland. Subsidence or compaction of the wetland's substrate as a resu	ult of machinery livestock fire drainage or off road vehicles								
Straightening, ditching, dredging, and/or lining of tributary chan									
If any items were checked above, then for each row of the table	below, assign points. However, if you believe the checked items		any part of the AA, then leave the "0's" for the scores in the						
following rows. To estimate effects, contrast the current condition			Mild (4 or size)						
	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 experient Shift of weeks.		Chiff of hours or minutes						
Input timing now vs. previously: Flashiness or muting:	Snift of weeks. Became very flashy or controlled.	Shift of days. Intermediate.	Shift of hours or minutes. Became mildly flashy or controlled.						
radimeda or munig.	became very masny or controlled.	mornedate.	Sum:						
			Stressor subscore						
Accelerated Inputs of Contaminants and/									
In the last column, place a check mark next to any item occur	,	rated the inputs of contaminants or salts to the AA. [AM, FA, Pl	H, POL, STR]						
	ems), landfills, industrial facilities. Estorage areas, on/ gas extraction, other sources (download mai	ny locations from National Foliutant Release inventory and viev	w Kiviz overlay iir Google Eartii. https://www.ec.gc.ca/iiirp-						
nnri/default asn2lann=En&n=B85∆18/I6-1 Road salt.									
Spraying of pesticides, as applied to lawns, croplands, roadside									
If any items were checked above, then for each row of the table			els of contaminants and/or salts, then leave the "0's" for the						
scores in the following rows. To estimate effects, contrast the cu		curred or were no longer present. Medium (2 points)	Mild (1 point)						
Lloyal toxicity of month toxic and toxic	Severe (3 points)	Medium (2 points) Cropland, managed landfill, pipeline or transmission rights-of-	, . ,						
Usual toxicity of most toxic contaminants:	Industrial effluent, mining waste, unmanaged landfill.	way.	Low density residential.						
Frequency & duration of input:	Frequent and year-round. 0 - 15 m.	Frequent but mostly seasonal. 15-100 m. or in groundwater.	Infrequent & during high runoff events mainly. In more distant part of contributing area.						
AA proximity to main sources (actual or potential):	0 - 13 III.	13-100 III. Of III groundwater.	Sum						
			Stressor subscore:						
Accelerated Inputs of Nutrients									
In the last column, place a check mark next to any item occur	•	rated the inputs of nutrients to the wetland. [NRv, PRv, STR]							
Stormwater or wastewater effluent (including failing septic syst Fertilizers applied to lawns, ag lands, or other areas in the CA.									
Fertilizers applied to lawns, ag lands, or other areas in the CA. Livestock, dogs.									
Artificial drainage of upslope lands.									
If any items were checked above, then for each row of the table below, assign points. However, if you believe the checked items did not cumulatively expose the AA to significantly more nutrients, then leave the "0's" for the scores in the following rows.									
To estimate effects, contrast the current condition with the condi-	stion if the checked items never occurred or were no longer pres	Medium (2 points)	Mild (1 point)						
		Wicdiani (2 points)							
Type of leading:	High density of unmaintained septic, some types of	Moderate density septic, cropland, secondary wastewater	Liverteek note leved analty residential						
Type of loading:	High density of unmaintained septic, some types of industrial sources.	treatment plant.	Livestock, pets, low density residential.						
Frequency & duration of input:	High density of unmaintained septic, some types of industrial sources. Frequent and year-round.	treatment plant. Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.						
,, ,	High density of unmaintained septic, some types of industrial sources.	treatment plant.							
Frequency & duration of input:	High density of unmaintained septic, some types of industrial sources. Frequent and year-round.	treatment plant. Frequent but mostly seasonal.	Infrequent & during high runoff events mainly. In more distant part of contributing area.						
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Sum: Stressor subscore: within past 100 years or since wetland was created or within past 100 years or since wetland was created or Stressor subscore: within past 100 years or since wetland was created or All (1 point) Stressor subscore: stressor subscore: or within past 100 years or since wetland was created or It within past 100 years or since wetland was created or stressor subscore: or within past 100 years or since wetland was created or It will (1 point) Stressor subscore: or within past 100 years or since wetland edge (if any). >1 yr ago.						

Assessment Area (AA) Results:

Wetland ID: WL-A Naveco Turbine Site

Date: 5 Sept, '19 Observer: DM, BL

Latitude & Longitude (decimal degrees):

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)	5.17	Higher	5.59	Moderate	5.70	5.63
Stream Flow Support (SFS)	2.60	Lower	10.00	Higher	1.39	8.23
Water Cooling (WC)	2.29	Moderate	0.96	Lower	1.53	0.58
Sediment Retention & Stabilisation (SR)	3.38	Moderate	0.76	Lower	5.47	0.46
Phosphorus Retention (PR)	3.12	Moderate	0.55	Lower	5.11	0.83
Nitrate Removal & Retention (NR)	2.27	Lower	5.13	Moderate	5.23	5.67
Carbon Sequestration (CS)	5.68	Moderate			7.01	
Organic Nutrient Export (OE)	5.07	Moderate			5.03	
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)	1.42	Lower	4.10	Moderate	4.37	3.46
Amphibian & Turtle Habitat (AM)	6.31	Higher	6.54	Higher	6.64	6.06
Waterbird Feeding Habitat (WBF)	5.33	Moderate	6.67	Moderate	4.24	6.67
Waterbird Nesting Habitat (WBN)	3.03	Moderate	6.67	Moderate	2.59	6.67
Songbird, Raptor, & Mammal Habitat (SBM)	8.77	Higher	6.67	Moderate	7.27	6.67
Pollinator Habitat (POL)	8.50	Higher	6.67	Moderate	6.84	6.67
Native Plant Habitat (PH)	3.75	Lower	7.98	Higher	4.60	6.93
Public Use & Recognition (PU)			2.55	Moderate		2.14
Wetland Sensitivity (Sens)			4.47	Moderate		3.54
Wetland Ecological Condition (EC)			3.25	Moderate		6.11
Wetland Stressors (STR) (higher score means more stress)			1.95	Lower		2.98
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	2.60	Moderate	5.59	Moderate	5.70	5.63
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	3.15	Moderate	3.64	Lower	6.36	3.99
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	3.96	Moderate	7.51	Higher	4.05	6.16
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	4.62	Moderate	5.32	Moderate	4.66	5.27
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	7.89	Higher	7.54	Higher	6.76	6.84
WETLAND CONDITION (EC)			3.25	Moderate		6.11
WETLAND RISK (average of Sensitivity & Stressors)			3.21	Moderate		3.26

				New Brunswick	Referen	ce Score	s		
Min	Max	Range	F_JenksLo	F_JenksHigh	Min	Max	Range	B_JenksLo	B_JenksHigh
1.73	9.42	7.68	2.48	5.12	0.08	10.00	9.92	2.58	5.67
0.00	5.33	5.33	2.92	6.56	0.00	5.83	5.83	2.08	6.16
0.00	6.67	6.67	1.80	5.30	0.00	6.02	6.02	1.45	4.79
3.16	10.00	6.84	1.76	5.26	0.00	6.07	6.07	3.75	7.95
2.90	10.00	7.10	2.66	4.17	0.33	9.38	9.04	1.71	4.55
3.83	10.00	6.17	2.27	4.36	1.11	10.00	8.89	2.50	7.19
4.56	8.88	4.31	3.13	5.70					
2.33	7.64	5.30	3.12	5.26					
0.00	6.13	6.13	1.80	6.71	0.00	7.39	7.39	0.00	4.44
0.00	5.95	5.95	1.40	6.29	0.00	7.09	7.09	0.00	4.48
3.87	7.39	3.52	2.58	5.58	1.24	6.64	5.39	0.85	5.74
3.30	8.58	5.28	3.30	6.25	2.09	8.16	6.06	2.27	6.30
0.00	7.96	7.96	0.00	6.84	0.00	10.00	10.00	0.83	6.67
0.00	8.54	8.54	1.95	5.42	0.00	10.00	10.00	0.00	6.67
0.00	8.29	8.29	2.50	7.24	0.00	10.00	10.00	3.33	6.67
0.00	8.05	8.05	0.00	7.81	0.00	10.00	10.00	0.00	6.67
3.08	7.12	4.03	3.96	5.98	0.00	8.68	8.68	0.00	6.33
					0.33	7.44	7.11	2.40	5.51
					2.20	5.20	2.99	2.88	5.30
					4.24	10.00	5.76	3.25	6.39
					2.26	5.93	3.67	2.15	4.97
			2.48	5.12				2.58	5.67
			3.07	5.39				4.15	7.64
			3.82	6.04				1.34	4.99
			2.41	6.22				3.15	6.29
	1.73 0.00 0.00 3.16 2.90 3.83 4.56 2.33 0.00 0.00 3.87 3.30 0.00 0.00 0.00	1.73 9.42 0.00 5.33 0.00 6.67 3.16 10.00 2.90 10.00 3.83 10.00 4.56 8.88 2.33 7.64 0.00 6.13 0.00 5.95 3.87 7.39 3.30 8.58 0.00 7.96 0.00 8.54 0.00 8.29 0.00 8.05	1.73 9.42 7.68 0.00 5.33 5.33 0.00 6.67 6.67 3.16 10.00 6.84 2.90 10.00 7.10 3.83 10.00 6.17 4.56 8.88 4.31 2.33 7.64 5.30 0.00 6.13 6.13 0.00 5.95 5.95 3.87 7.39 3.52 3.30 8.58 5.28 0.00 7.96 7.96 0.00 8.54 8.54 0.00 8.29 8.29 0.00 8.05 8.05	1.73 9.42 7.68 2.48 0.00 5.33 5.33 2.92 0.00 6.67 6.67 1.80 3.16 10.00 6.84 1.76 2.90 10.00 7.10 2.66 3.83 10.00 6.17 2.27 4.56 8.88 4.31 3.13 2.33 7.64 5.30 3.12 0.00 6.13 6.13 1.80 0.00 5.95 5.95 1.40 3.87 7.39 3.52 2.58 3.30 8.58 5.28 3.30 0.00 7.96 7.96 0.00 0.00 8.54 8.54 1.95 0.00 8.05 8.05 0.00 3.08 7.12 4.03 3.96	Min Max Range F_JenksLo F_JenksHigh 1.73 9.42 7.68 2.48 5.12 0.00 5.33 5.33 2.92 6.56 0.00 6.67 6.67 1.80 5.30 3.16 10.00 6.84 1.76 5.26 2.90 10.00 7.10 2.66 4.17 3.83 10.00 6.17 2.27 4.36 4.56 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1.80 5.30 0.00 6.02 3.16 10.00 6.84 1.76 5.26 0.00 6.07 2.90 10.00 7.10 2.66 4.17 0.33 9.38 3.83 10.00 6.17 2.27 4.36 1.11 10.00 4.56 8.88 4.31 3.13 5.70 5.26 5.26 0.00 6.13 6.13 1.80 6.71 0.00 7.39 0.00 5.95 5.95 1.40 6.29 0.00 7.09 3.87 7.39 3.52 2.58 5.58 1.24 6.64 3.30 8.54 8.54 1.95 5.42	1.73 9.42 7.68 2.48 5.12 0.08 10.00 9.92 0.00 5.33 5.33 2.92 6.56 0.00 5.83 5.83 0.00 6.67 6.67 1.80 5.30 0.00 6.02 6.02 3.16 10.00 6.84 1.76 5.26 0.00 6.07 6.07 2.90 10.00 7.10 2.66 4.17 0.33 9.38 9.04 3.83 10.00 6.17 2.27 4.36 1.11 10.00 8.89 4.56 8.88 4.31 3.13 5.70 2.33 7.64 5.30 3.12 5.26 0.00 6.13 6.13 1.80 6.71 0.00 7.39 7.39 0.00 5.95 5.95 1.40 6.29 0.00 7.09 7.09 3.87 7.39 3.52 2.58 5.58 1.24 6.64 5.39 3.30 8.58 5.28 3.30 6.25 2.09 8.16 6.06	Min Max Range F_JenksLo F_JenksHigh Min Max Range B_JenksLo 1.73 9.42 7.68 2.48 5.12 0.08 10.00 9.92 2.58 0.00 5.33 5.33 2.92 6.56 0.00 5.83 5.83 2.08 0.00 6.67 1.80 5.30 0.00 6.02 6.02 1.45 3.16 10.00 6.84 1.76 5.26 0.00 6.07 6.07 3.75 2.90 10.00 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4.68

7.60

0.00

6.39 4.33

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 the 98 NB calibration wetlands that were assessed previously.

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	Wind Energy Converter WL- B + C
Investigator Name:	Derrick Mitchell
Date of Field Assessment:	Sept 5, 2019
Nearest Town:	Grande Anse, NB
Latitude (decimal degrees):	47.8104
Longitude (decimal degrees):	-65.0959
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	1,062 ha
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:	No
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):	

Date: Sept 5, 2019	Site Identifier: WL-B+C, Turbine Site	Investigator: DM, BL

Form OF (Office). Non-tidal Wetland Data Form. WESP-AC version 2 for New Brunswick 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

GeoNB: http://www.snb.ca/geonb1/ and http://www.snb.ca/geonb1/e/apps/apps-E.asp

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

#	Indicators	Condition Choices	Data	Definitions/Explanations	Cell Name	Comments
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		
		New Brunswick	1	automatic exclusion of indicators for which no spatial data exists in a particular		
		Nova Scotia	0 province.	NS		
		Prince Edward Island	0		PEI	
		Newfoundland-Labrador	0		NL	
OF2		The area of surface wate r 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		
		<0.01 hectare (about 10 m x 10 m).	0	vegetation. If surface water extends beyond 1 km, include only the part within 1 km.		
		0.01 - 0.1 hectare.	1	Do not include tidal areas. Measure the area from aerial imagery using Google Earth		
		0.1 - 1 hectare.	0	Pro (click on Ruler icon in toolbar, then Polygon in pop-up menu). With the GeoNB		
		1 to 10 hectares.	0	viewer, enable the Wetlands layer, then measure with the Draw & Measure tool after		
		10 to 100 hectares.	0	specifying Aerial as the Basemap. However, do not rely entirely on wetland		
		>100 hectares.	0	boundaries shown in online wetlands layers. [PH, SBM, WBN]		
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	J	See definition of adjacent in OF2. If the AA's wetland vegetation extends beyond 1		
	Wetland Within 1	the AA and (2) within 1 km is:		km, include only the part within 1 km. "Ponded" means not flowing in rivers or		
	km.	<0.01 hectare (about 10 m x 10 m).	0	streams. [Sens, WBF]		
		0.01 - 0.1 hectare.	0			
		0.1 - 1 hectare.	0			
		1 to 10 hectares.	0			
		10 to 100 hectares.	1			
		>100 hectares.	0			
DF4	Size of Largest	The largest vegetated patch or corridor that includes the AA's vegetation plus all adjacent upland vegetation that is		See definition of adjacent in OF2. Use Google Earth Pro's polygon ruler (as described		
	, .	not lawn, row crops, heavily grazed lands, conifer plantation is:		above). Exclude conifer plantations only if it is obvious that trees were planted in		
	Tract or Corridor	<0.01 hectare (about 10 m x 10 m).	0	rows. [AM, PH, SBM, Sens]		
		0.01 - 0.1 hectare.	0			
		0.1 - 1 hectare.	0			
		1 to 10 hectares.	0			
		10 to 100 hectares.	0			
		100 to 1000 hectares.	0			
		>1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	1			
DF5	Distance to Large	The minimum distance from the edge of the AA to the edge of the closest vegetated land (but excluding row crops,		To measure distance, use Google Earth Pro (Ruler > Line tool). Or use Draw &		
	Vegetated Tract	lawn, conifer plantation) larger than 375 hectares (about 2 km on a side), is:		Measure tool at GeoNB. The 375-ha criterion is from the Fundy Model Forest Project.		

ı	1	TO an and ask assessed from the 275 has constant and the second of the s	4	l	I	ĺ
		<50 m, and not separated from the 375-ha vegetated area by any width of paved roads, stretches of open water,	1	[AM, PH, POL, SBM, Sens]		
		row crops, bare ground, lawn, or impervious surface. Or the AA itself contains >375 ha of vegetation. [This is often				
		the answer in relatively undeveloped landscapes.]	0			
		<50 m, but completely separated from the 375-ha vegetated area by those features, and AA does not contain >375	0			
		ha of vegetation.		-		
		50-500 m, and not separated.	U			
		50-500 m, but separated by those features.	0			
		0.5 - 5 km, and not separated.	0			
		0.5 - 5 km, but separated by those features.	0	1		
		None of the above (the closest patches or corridors which are that large are >5 km away).	0	1		
OF6	Harbasasıs		2	For this greation only consider mass to be harborous vegetation. Determine the		
OFO	Herbaceous	The AA's vegetation cover is >10% herbaceous* but uplands within 5 km have <10% herbaceous cover. If so, enter	2	For this question only, consider moss to be herbaceous vegetation. Determine the		
1	Uniqueness	"3" and continue to OF7. If not, consider:		score by viewing aerial imagery in Google Earth after successively drawing or		!
		The AA's vegetation cover is >10% herbaceous* but uplands within 1 km have <10% herbaceous cover. If so enter "2"		estimating the boundaries of the buffers of 5 km, 1 km, and 100 m radius focused on		
		and continue to OF7. If not, consider:		the center of the AA. Circles of specified radius can be drawn in Google Earth Pro by		
		The AA's vegetation cover is >10% herbaceous* but uplands within 100 m of the wetland edge have <10%		clicking on the Ruler icon, then Circle in the pop-up menu. [AMv, PHv, POLv, SBMv,		
		herbaceous cover. If so, enter "1".		WBFv, WBNv]		
		[* NOTE: Exclude lawns, row crops, heavily grazed lands, forest, shrublands. Include moss as well as grasslike plants				
		in this use of "herbaceous vegetation"]				
057	Manada Uniter	-	^	Conclusion Department and the control of the contro		
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	U	See above. Do not consider conifer plantations to be forest if it is obvious that trees		
		continue to OF8. If not, consider:		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, consider:				
		The AA's vegetation is >10% woody* but uplands within 100 m of the wetland edge have <10% woody cover. If so,				
		enter "1"				
		[* NOTE: woody cover = trees & shrubs taller than 1 m.]				
OF8	Local Vegetated	Draw a 5-km radius circle measured from the center of the AA. Ignoring all permanent water in the circle, the		In Google Earth, draw the 5 km buffer and then estimate land cover percentages, or		
OFO	=					
	Cover Percentage	percent of the remaining area that is wooded or unmanaged herbaceous vegetation (NOT lawn, row crops, bare or		do GIS analysis of an appropriate land cover layer. [AM, PH, POL, SBM, Sens]		
		heavily grazed land, clearcuts, or conifer plantations) is:				
		<5% of the land.	0			
		5 to 20% of the land.	0			
		20 to 60% of the land.	2			
		60 to 90% of the land.	0			
		>90% of the land. SKIP to OF10.	0			
OF9	· ·	Within the 5-km radius circle, and ignoring all permanent water, the land area that is bare or non-perennial cover is		[AM, SBM]		
	Alteration	mostly:				
		Impervious surface, e.g., paved road, parking lot, building, exposed rock.	1			
		Bare pervious surface, e.g., lawn, recent (<5 yrs ago) clearcut, dirt or gravel road, cropland, landslide, conifer	1			
		plantation.				
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-		
	Nearest Population	<100 m.	0	inhabited structures per square kilometer. In Google Earth, click on the Ruler icon,		
	Center	100 - 500 m.	1	then Path, and draw and measure the route. Or use the GeoNB's Draw & Measure		
		0.5- 1 km.	0	tool> Freehand Line to draw and measure the route to Settlements (click on Place		
			Ü	Names in menu) or other areas not close to mapped settlements but which meet the		
		1 - 5 km.	U	criteria.[FAv, FRv, NRv, PH, PU, SBM, WBFv]		
		>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 and measuring with the		
	Maintained Road	<10 m.	0	Ruler>Line tool. Or use the GeoNB's Draw Line tool. [AM, FAv, FRv, NRv, PH, PU,		
		10 - 25 m.	0	SBM, STR, WBN]		
		25 - 50 m.	n	1		
			0	1		
		50 - 100 m.	U			
		100 - 500 m.	• 0			

I	I	>500 m.	1	1	I	ļ
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	In NB, enable the Wetlands layer in GeoNB (despite its omissions) to show surrounding wetlands and roads, while estimating the location of the 5 km circle (or draw the 5 km circle in Google Earth Pro using the Circle tool and compare). Evaluate using Google Earth, being cautious to search for roads hidden under forest canopy.		
OF13	Distance to Ponded Water	The distance from the AA center to the closest (but separate) ponded water body visible in GoogleEarth imagery is:		In Google Earth, zoom in closely to examine the surrounding landscape for ponds, lakes, and wetlands that appear to be permanently flooded. Enable the GeoNB		
		<50 m, and not separated by any width of paved roads, stretches of open water, row crops, lawn, bare ground, or impervious surface.	0	viewer's Wetlands layer as well. [AM, PH, SBM, Sens, WBF, WBN]		
		<50 m, but completely separated by those features.	0			
		50-500 m, and not separated.	0			
		50-500 m, but separated by those features.	0			
		0.5 - 1 km, and not separated.	0	1		
		0.5 - 1 km, but separated by those features.	0			
		None of the above (the closest patches or corridors that large are >1 km away).	0			
OF14		The distance from the AA center to the closest (but separate) non-tidal body of water that is ponded during most of		Determine this by viewing aerial imagery in Google Earth. [Sens, WBF, WBN]		
	Ponded Water	the year and is larger than 8 hectares during most of a normal year is:	0	 		
		<100 m.	0	-		
		100 m - 1 km.	0			
		1 - 2 km.	1			
		2-5 km.	0			
		5-10 km.	0			
0545		>10 km.	0			
OF15	Tidal Proximity	The distance from the AA edge to the closest tidal water body (regardless of its salinity) is:		In Google Earth, measure the distance to the ocean (including Bay of Fundy) or tidal river, whichever is closer. If you need to see how far upriver a river is tidal, see the KMZ file provided with this calculator for NB (NB Headtide). Points shown in those files are only an approximation, so local information if available may be preferable.		
		<100 m.	0			
		100 m - 1 km.	0			
		1 - 5 km.	1	[FA, WBF]		
		5-10 km.	0	[[7, W5]]		
		10-40 km.	0			
		>40 km.	0			
OF16	Upland Edge Contact			[NR, SBM, Sens]		
		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			
		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			
		25-50% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0			
		50-75% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	U			
		More than 75% of the AA's perimeter abuts upland. Any remainder adjoins other wetlands or water that is mostly	1]		
OF17	Flood Damage from	wider than the AA. This will be true for most assessments done with WESP-AC. Within 5 km downstream or downslope of the AA (select first true choice):		In the GeoNB map viewer: click on "More" in upper right, then "Flood Information".		
J. 17	Non-tidal Waters	Maps show Flood Zone or Flood Risk areas and there appears to be infrastructure vulnerable to river flooding not	0	Expand the menu under it by clicking on the arrow to its left and the slider to its		
		caused by tidal storm surges.		right. Uncheck the first (Limits of Data) box. Where available, LiDAR imagery can		
		Maps show Flood Zone or Flood Risk areas, but infrastructure is absent or is not vulnerable to floods from a non-tidal	0	provide finer elevational resolution useful for flood modeling. [WSv]		
		river. In some cases levees, upriver dams, or other measures may partly limit damage or risk from smaller events.				
		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure vulnerable to river flooding unrelated to tidal storm surges.	0			
		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there is no	1]		
		infrastructure vulnerable to river flooding unrelated to tidal storm surges.				

∩E10	Relative Elevation in	In Google Earth, enable the Terrain layer (lower left menu) and open the NB Watersheds KMZ file that accompanies		[FA, NR, Sens, SFSv, WCv, WSv]	ShedPos	
OF 16				[FA, NR, Sens, SFSV, WCV, WSV]	Shearos	
	Watershed	this calculator. Then determine the AA's approximate elevation (bottom right, NOT the "eye alt"). Then move cursor	1.25			
		around to determine the watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-min)				
OF19	Water Quality	In Google Earth, open the KMZ file NB Watershed Protected Area which accompanies this calculator. The AA is	0	If an ACCDC report is available for this AA, it also may contain such information.		
	•	within such an area. Enter 1= yes, 0= no.		[NRv]		
	or Area	, ,				
OF20	Degraded Water	Sampling indicates a problem with concentrations of metals, hydrocarbons, nutrients, or other substances		May use existing data, or sample those waters as part of this wetland assessment.		
	Upstream	(excluding bacteria, acidic water, high temperatures) being present at levels harmful to aquatic life or humans, and:		"Harmful" should be evaluated with regard to current federal or provincial water		
	•			quality standards. [AM, FA, FR, NRv, PRv, SRv, STR, WBF, WBN]		
		The condition is present within the AA.	0			
		The condition is present in waters within 1 km that flow into the AA, but has not been documented in the AA itself.	0			
		Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in	0			
		either the AA or inflowing waters.				
		Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the	1			
0.504		situation for nearly all wetlands in this region.				
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,		
	Downstream	The condition is present within 1 km downslope and connected to the AA by a channel.	0	PRv, SRv]	1	
		The condition is present within 5 km downslope and connected to the AA by a channel, or within 1 km but not	0			
		connected to the AA by a channel.				
		Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in	0			
		either the AA or inflowing waters.	4			
		Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the	1			
0500	MAZALIA A I A A A OZ A E I KA	situation for nearly all wetlands in this region.		Townson his many many has decorated and an extensive Market and Address of Councils		
UF22		From a topographic map and field observations, estimate the approximate boundaries of the catchment (CA) of the		Topographic maps may be viewed online at the National Atlas of Canada		
	Contributing Area	entire wetland of which the AA may be only a part. Then adjust those boundaries if necessary based on your field		(Toporama): http://atlas.gc.ca/toporama/en/index.html [NR, PR, Sens, SR,		
	(Catchment)	observations of the surrounding terrain, and/or by using procedures described in the Manual. Divide the area of the		WS]		
		wetland (not just the AA) by the approximate area of its catchment excluding the area of the wetland itself. When				
		doing the calculation, if ponded water is adjacent to the wetland, include that in the wetland's area. The result is:				
		<0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	0	1		
		0.01 to 0.1.	0			
		0.1 to 1.	1			
		>1 (wetland is larger than its catchment (e.g., wetland with flat surrounding terrain and no inlet, or is entirely	0			
		isolated by dikes, or is a raised bog).				
OF23	Unvegetated Surface	The proportion of the AA's contributing area (measured to no more than 1000 m upslope) that is comprised of		[FA, INV, NRv, PRv, SRv, STR, WCv, WSv]		
	in the Contributing	buildings, roads, parking lots, other pavement, exposed bedrock, landslides, and other mostly-bare surface is about:				
	Area					
		<10%.	1			
		10 to 25%.	0			
		>25%.	0			
OF24	Transport From	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as		[NRv, PRv, SRv, WSv]		
	Upslope	runoff (surface water), as indicated by the following:			1	
		(a) input channel is present,				
		(b) input channels have been straightened,				
		(c) upslope wetlands have been ditched extensively,			1	
		(d) land cover is mostly non-forest,			1	
		(e) CA slopes are steep, and/or				
		(f) most CA soils are shallow (bedrock near surface) and/or have high runoff coefficients.				
		Mostly true.	0	1		
		Somewhat true.	٥	1		
1		Joinewhat true.	U	J	1	l l

		Mostly untrue.	1]		I
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]		
		Northward (N, NE). north-facing contributing area.	1			
		Southward (S, SW). south-facing contributing area.	0			
		Other (E, SE, W, NW), or no detectable uphill slope or input channel (flat).	0			
OF26	Internal Flow	The horizontal flow distance from the wetland's inlet to outlet is:		Identify inlets and outlets, if any, from topographic maps (use elevations to		†
		<10 m.	0	determine which are inlets and which are outlets) and augment by field inspection.		
	Length)	10 - 50 m.	0	[NR, OE, PR, SR, WS]		
		50 - 100 m.	0			
		100 - 1000 m.	0			
		1- 2 km.	0			
		>2 km, or wetland lacks an inlet and outlet.	1			
OF27	Growing Degree	In Google Earth, open the KMZ file that accompanies this calculator, called NB-PEI_GrowingDegreeDays. Place your	4500	This layer was provided by Dr. Dan McKenney of the Canadian Forest Service [AM,	GrowD	
	Days	cursor over the AA and left-click. From the pop-up, enter the GRIDCODE in the next column.	1500	CS, FR, INV, NR, OE, PH, PR, Sens, SR, WBF, WCv, WS]		
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. In NB, the list of stocked waters is at:		
		Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. In NB, consult	0	http://www2.gnb.ca/content/gnb/en/departments/erd/natural_resources/content/f		
		Figure A-2 in Appendix A of the Manual. Contact local fishery biologists, review the ACCDC report, and visit these websites: http://www.salmonatlas.com/atlanticsalmon/canada-east/index.1.html		ish/content/StockedWaters.html		
		http://atlanticsalmonfederation.org/rivers/introduction.html		[AM, FA, FR, INV, WBF, WBN]		
		Has not been documented to support Atlantic salmon rearing and/or spawning, but is connected to nearby waters	0			
		likely to contain Atlantic salmon or other anadromous species or eels and is probably accessed by those during some				
		conditions.	0	-		
		Is probably is not accessed by any anadromous fish species but is known or likely to have other fish at least seasonally.	U			
		Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	1			
	Species of	Within the past 10 years, in the AA (or in its adjoining waters or wetland), qualified observers have documented		Request information from ACCDC and/or conduct your own survey at an appropriate		
	Conservation	[mark all applicable]: Presence of one or more of the plant species listed in the Plants_Rare worksheet of the accompanying SuppInfo file,	0	season using an approved protocol. For birds, also check eBird.org. [AMv, EC, PHv,		
	Concern	or the AA is within a mapped Atlantic Coastal Plain Flora Buffer	U	POLv, SBMv, Sens, WBFv, WBNv]		
		Presence of one or more of the amphibian or reptile species (AM) of conservation concern as listed in the	0			
		Wildlife Rare worksheet of the accompanying SuppInfo file.				
		Presence of one or more of the waterbird species (WBF, WBN) of conservation concern as listed in the Wildlife_Rare	0			
		worksheet of the accompanying SuppInfo file. Presence of one or more of the nesting songbird or raptor species (SBM) of conservation concern as listed in the	1			
		Wildlife_Rare worksheet of the accompanying Suppling of Taptor species (35M) of conservation concern as instead in the Wildlife_Rare worksheet of the accompanying Suppling of the distribution of the first species (35M) of conservation concern as instead in the Wildlife Suppling of the first species (35M) of conservation concern as instead in the				
		Thame_nare worksheet of the accompanying suppling the first heating season (thay saly for most species).				
		None of the above, or no data.	0			
	·	In Google Earth, open the KMZ file that accompanies this calculator, called IBAs_Canada. The AA is all or part of an	0	The source of this layer, which should be checked periodically for updates, is:		
	(IBA)	officially designated IBA. Enter 1= yes, 0= no.		http://www.ibacanada.com/mapviewer.jsp?lang=EN [SBMv, WBFv, WBNv]		
OF31	Black Duck Nesting	In Google Earth, open the KMZ file that accompanies this calculator, called BlackDuck. Adjust its alignment and	n	This was provided by Dr. David Leske. [WBNv]		
-	Area	opacity. Determine the predicted density (pairs per 25 sq. km) of nesting American Black Duck in the AA's vicinity:	•] ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '		
		<10 (enter 0), 10-20 (enter 1), 20-30 (enter 2), >30 (enter 3). If outside of region shown in map, change to blank .				
UE33	Wintering Deer or	If AA is on private land with no information, change to blank (not 0). If on public/crown land, in Google Earth open		[SBM]		
OI 32	Moose	the KMZ file that accompanies this report called NB_DeerWinteringAreas.Otherwise: Enter: yes= 1, no= 0.		[SDIVI]		
	Concentration Areas	and this that accompanies and report cancer to been writtening a cast other wise. Enter, yes = 1, 110 = 0.				
	23					

2 - 2 5				
OF33	Other Conservation	With GeoNB, click on Candidate PNA Map Viewer to identify Provincially Significant Wetland, Environmentally	0	[PU]
	Designation	Significant Area, Protected Natural Area but also include if 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. Enter: yes= 1, no= 0. If uncertain, consult NCC and agencies for more recent		
		information		
OF34	Conservation	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve,	0	[PU]
	Investment	create, restore, or enhance the wetland (excluding mitigation wetlands). Ask the property owner. Enter: yes= 1, no=		
		0. If no information, change to blank (not 0).		
OF35	Mitigation	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere. Ask the property owner. Enter:		[PU]
	Investment	yes= 1, no= 0. If no information, change to blank.		
OF36	Sustained Scientific	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and		[PU]
	Use	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 to blank		
OF37	Calcareous Region	The AA is in an area that is at least partly underlain by soil, sediment, or bedrock that is highly calcareous (enter 3 in	0	If GIS is available, you may use the Bedrock Geology shapefile obtainable at
		next column), moderately calcareous (enter 2), or slightly calcareous (enter 1), none= 0. Limestone is typically a		http://www.snb.ca/geonb1/e/DC/catalogue-E.asp [AM, FA, FR, INV, PH]
		major component (karst geology) and water is not acidic (pH is usually >8). See Figure A-6 in Appendix A of the		
		Manual. If no map coverage, change to blank.		
OF38	Ownership	Select the ONE ownership that covers the most of the AA. In Google Earth, open KMZ file called NB Crown lands.Use		"Private lands" may include those owned or leased by non-governmental
		more recent information if available.		organizations, e.g., charitable conservation land trusts, DUC, TNC. [PU, STR]
		New timber harvest, roads, mineral extraction, and intensive summer recreation (e.g., off-road vehicles) are	0	
		permanently prohibited. Includes many publicly-owned Protected Lands, and private lands under long-term (30+		
		vear) legal agreements to maintain nearly-unaltered conditions.		
		Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are	0	
		allowed.		
		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable	0	
		or not) is in place.		
		Ownership is private and owner does not allow access, or access permission unknown, and not a conservation	1	
		easement.		

: Sept 5, 2019	Site Identifier: Naveco WL- B+C Turbine Site	Investiga	tor: DM, BL		
ards its core, in the conduct the assessing allowed and so it erring with the land stion pertains, see by, SFS= Stream Flootat, FA= Anadromo	Non-tidal Wetland Data Form. WESP-AC version 2 for New Brunswick wetlands a part of the AA that is proposed for alteration. If no alteration is proposed, walk in a portion that appears to be ment only after reading the accompanying Manual and the Explanations column of the data form. In the Data of indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write downer or other knowledgable persons, and/or reviewing aerial imagery. For most wetlands, completing this forms the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the Support, WC= Water Cooling, SR= Sediment Retention & Stabilisation, PR= Phosphorus Retention, NR= Nitrations Fish Habitat, FR= Resident Fish Habitat, AM= Amphibian & Reptile Habitat, WBF= Feeding Waterbird Habitat, Native Plant Habitat, PU= Public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= Seconds of the Support of the ABITATION of the ABIT	e most re column, c ite in shac field data the accon te Remov at, WBN=	presentative of the wetland overall. Walk only where it is safe and legal to do change the 0 (false) to a 1 (true) for the best choice, or for multiple choices ded parts of this data form. Answering some questions accurately may require form will require 1-2 hours on a site. For a list of functions to which each appanying Manual. Codes for functions and values are: WS= Water Storage & val, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate Nesting Waterbird Habitat, SBM= Songbird, Raptor, & Mammal Habitat, POL=		
Indicators	Condition Choices	Data	Definitions/Explanations	Cell Name	Comments
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	Con Hamile	Comments
	 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. 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 rariflor a). Wetland surface and surrounding landscape are seldom sloping and wetland often is domed (convex). Inlet and outlet channels are usually absent. If known, pH of peat is <4.0. 	0	leaves. They include rhododendron, azalea, swamp laurel, leatherleaf, Labrador tea, and others. Most require acidic soil. Although not in the family Ericaceae, sweetgale (<i>Myrica gale</i>) should be counted also. [AM, CS, FA, FR, INV, NR, OE, PH, Sens, SFS, WBF, WBN]		
	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		Fen_	
	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:				
	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			
	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		Marsh	
AA. The AA should an cifically, the AA should and the AA should an an analysis and the AA should and the AA should an analysis and the AA should an	ons, the AA should include all persistent waters in ponds smaller than 8 hectares (~283 m on a side) that are adjacent to lso include part of the water area of adjacent ponded water larger than 8 ha and adjacent rivers wider than 20 m. Id include the open water part adjacent to wetland vegetation and equal in width to the average width of that vegetated that form, "adjacent" is used synonymously with abutting, adjoining, bordering, contiguous and means no upland impletely separates the described features along their directly shared edge. Features joined only by a channel are not be adjacent a large portion of their edges must match. The features do not have to be hydrologically connected in order to be adjacent a large portion of their edges must match.				
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. A1. A2. B1. B2.	0 1 0	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]		
Woody Height & Form Diversity	Following EACH row below, indicate with a number code the percentage of the living vegetation in the AA which is occupied by that feature (6 if >95%, 5 if 75-95%, 4 if 50-75%, 3 if 25-50%, 2 if 5-25%, 1 if <5%, 0 if none). If the vegetated part of the AA is largely herbaceous (non-woody) vegetation, these percentages should not sum to 100%. coniferous trees (may include tamarack) taller than 3 m.		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 trees/shrubs is <25% moss, then question F1 might be "B1". [CS, INV, NR,		

i i			Inu nou onu o
	deciduous trees taller than 3 m.	4	PH, POL, SBM, Sens]
	coniferous or ericaceous shrubs or trees 1-3 m tall not directly below the canopy of trees.	3	
	deciduous shrubs or trees 1-3 m tall not directly below the canopy of trees.	3	
	coniferous or ericaceous shrubs <1 m tall not directly below the canopy of taller vegetation.	2	
	deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	2	
Note: If none of top 4 row	s in F3 was marked 2 or greater, SKIP to F9 (N fixers).		
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]
Abundant Shrub	those species together comprise > 50% of such cover.	1	
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		Estimate the diameters at chest height. If small-diameter trees are overtopped (shaded) by
Classes	upland edge (perimeter). The edge should include only the trees whose canopies extend into the AA.		larger ones, visualise a "subcanopy" at the average height of the smaller-dbh trees, to serve
	coniferous, 1-9 cm diameter and >1 m tall.	1	as a basis for the minimum 5% canopy requirement in this question. The trees and shrubs
	broad-leaved deciduous 1-9 cm diameter and >1 m tall.	1	need not be wetland species. [AM, CS, POL, SBM, Sens, WBN]
	coniferous, 10-19 cm diameter.	1	
	broad-leaved deciduous 10-19 cm diameter.	1	
	coniferous, 20-40 cm diameter.	1	
	broad-leaved deciduous 20-40 cm diameter.	1	
	coniferous, >40 cm diameter.	0	1
:	broad-leaved deciduous >40 cm diameter.	0	
6 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.		
	A1. The two height classes are mostly scattered and intermixed throughout the AA.	0	
	A2. Not A1. The two height classes are mostly in separate zones or bands, or in proportionately large clumps.	1	
	B. Either the vegetation shorter than 1 m comprises >70% of the vegetated part of the AA, or the vegetation taller than that does.	_	
	One 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.	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 absent.	0	
7 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
Standing Trees)	None, or fewer than 8/ hectare which exceed this diameter.	0	that are at least 2 m tall. [POL, SBM, WBN]
ctanding 11000)	Several (>8/hectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km.	0	
	Several (>8/hectare) but above not true.	11	
-8 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]
- Downloa Wood	Few or none that meet these criteria.	0	
	Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria.	11	
9 N Fixers	The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa,		Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
IN I INOIS	other legumes) is:		Do not monado it inting digue of nonono. [17, 11t, 11tv, 11tv, OE, 11t, ODIVI, OOI16]
	<1% or none.	0	1
	1-25% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	1
	25-50% of the vegetated cover, in the AA or along its water edge (whichever has more).	1	
	50-75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	1
	>75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	1
F10 Sphagnum Moss	The cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured		Exclude moss growing on trees and rocks. [CS, PH]
Extent	by taller sedges and other plants rooted in it, is:		
	<5% of the vegetated part of the AA.	0	
	5-25% of the vegetated part of the AA.	0	
	25-50% of the vegetated part of the AA.	0	
	50-95% of the vegetated part of the AA.	1	
	>95% of the vegetated part of the AA.	0	

11 0	6 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		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that	· T
		ground layer, the predominant condition in those areas at that time is:		is present under a tree or shrub canopy should be counted. Boulders count as bare ground.	`
ľ		Little or no (<5%) bare ground is visible between erect stems or under canopy anywhere in the vegetated AA. Ground is	0	Wetlands with mineral soils and that are heavily shaded or are dominated by annual plant	
		extensively blanketed by dense thatch, moss, lichens, graminoids with great stem densities, or plants with ground-hugging		species tend to have more extensive areas that are bare during the early growing season.	
		foliage.		[AM, EC, INV, NR, OE, POL, PR, SBM, Sens]	
		Slightly bare ground (5-20% bare between plants) is visible in places, but those areas comprise less than 5% of the unflooded	1	•	
		parts of the AA.			
		Much bare ground (20-50% bare between plants) is visible in places, and those areas comprise more than 5% of the unflooded	0		
		parts of the AA.		4	
		Other conditions.	0		
		Not applicable. Surface water (either open or obscured by emergent plants) covers all of the AA all the time.	0		
12 (Ground Irregularity	Imagine the AA without any living vegetation. Excluding the portion of the AA that is always under water, the number of		The depressions may be of human or natural origin. [AM, EC, INV, NR, PH, POL, PR, SBM,	
		hummocks, small pits, raised mounds, animal burrows, ruts, gullies, natural levees, microdepressions, and other areas of peat or		SR, WS]	
		mineral soil that are raised or 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).	1		
		Intermediate.	0		
		Several (extensive micro-topography).	0	+	
3 l			U	IAM NID CDMI	-
ا ا	Jpland Inclusions	Within the AA, inclusions of upland are:		[AM, NR, SBM]	
		Few or none.	1		
		Intermediate (1 - 10% of vegetated part of the AA).	0		
		Many (e.g., wetland-upland "mosaic", >10% of the vegetated AA).	0		
14	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		[CS, NR, OE, PH, PR, Sens, SFS, WS]	
		to check in at least 3 widely spaced locations, and use the soil texture key (in Appendix A of the Manual).]			
		Loamy: soils that may contain a little fine grit and do not make a "ribbon" longer than 2 cm when moistened, rolled, squeezed,	0		
		and extended between thumb and forefinger.	0	4	
		Fines : includes silt, clay, silt, soils that make a ribbon longer than 2 cm when moistened, rolled, squeezed, and extended between thumb and forefinger.	U		
		Deep Peat, to 40 cm depth or greater.	1		
		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	0	1	
		extended between thumb and forefinger.	U		
15 5		During any 2 consecutive weeks of the growing season, the extent of mudflats, bare unshaded saturated areas not covered by		This addresses needs of many but not all migratory sandpipers, plovers, and related species.	
		thatch, and unshaded waters shallower than 6 cm is: [Include also any area that is adjacent to the AA.]		[WBF]	
ľ		None, or <100 sq. m.	1	[]	
		100-1000 sq. m.	0		
		1000 – 10,000 sq. m.	0	-	
		>10,000 sq. m.	0		
16 L		In aerial ("ducks eye") view, the maximum annual cover of herbaceous vegetation (all non-woody plants except moss) is:		[AM, WBF, WBN]	_
		 <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). 	^	[רואן, איטו , איטוא]	Not look
'	regetated vveitarid	<5% of the vegetated part of the AA or <0.01 nectare (whichever is less). Iwark "1" here and Skip to F20 (invasive Plant Cover).	0		NoHerb(
		5-25% of the vegetated part of the AA.	0	1	
		25-50% of the vegetated part of the AA.	1		
		50-95% of the vegetated part of the AA.	0		
		>95% of the vegetated part of the AA.	0	4	
17 -		·	U	Fortho are flavoring plants. Do not include success and an authority of the succession of the	-
'	orb 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]	
		<5% of the herbaceous part of the AA.	0	nioisetalis, oi otileis tilat lauk silowy lloweis. [POL]	
		5-25% of the herbaceous part of the AA.	1		
		25-50% of the herbaceous part of the AA.	0		
		50-95% of the herbaceous part of the AA.	0		
		>95% of the herbaceous part of the AA.	0		AllForb(
				1001	
18 5	Sedge Cover	Sedges (Carex spp.) and cottongrass (Eriophorum spp.) occupy:		[CS]	
18 5	•	Sedges (<i>Carex</i> spp.) and cottongrass (<i>Eriophorum</i> spp.) occupy: <5% of the vegetated area, or none.	0		

		50-95% of the vegetated area.	0		1
		>95% of the vegetated area.	0		_
	Dominance of Most	Determine which two herbaceous species comprise the greatest portion of the herbaceous cover (excluding mosses and floating-		For this question, include ferns as well as graminoids and forbs. [EC, INV, PH, POL, Sens]	
	Abundant	leaved aquatic plants). Then choose one of the following:			
	Herbaceous 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		
0		How extensive is the cover of invasive plant species in the AA? For species, see Plants_invasive worksheet in the accompanying		[EC, PH, POL, Sens]	
		Supplnfo file.			
		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 woody).	0		
		invasive species comprise 5-20% of the herb cover (or woody cover, if the invasives are woody).	0		
		invasive species comprise 20-50% of the herb cover (or woody cover, if the invasives are woody).	0		
		invasive species comprise >50% of the herb cover (or woody cover, if the invasives are woody).	0		
1	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		If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an	1
	Upland Edge	invasive plant species is:		exotic species, assume the unidentified plant to also be exotic. If vegetation is so senesced	
	opiana Lago	none of the upland edge (invasives apparently absent), or AA has no upland edge.	1	that exotic species cannot be identified, answer "none". [PH, STR]	
		some (but <5%) of the upland edge.	0		
		5-50% of the upland edge.	0		
		most (>50%) of the upland edge.	0		
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	0	[WBF, WBN, WCv]	-
_	i illige vvellallu	width of the vegetated zone within the wetland. Enter "1" if true, "0" if false.	U		
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	0	[FR, PR, PU, WBF, WBN]	1
		during most of a normal year.		p - 4 4 4 4	
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		1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m,	1
	Surface Water	snowmelt or rainstorms), but which is still a wetland, is:		1000 m by 10 m, or similar. [AM, FA, FR, INV, NR, PH, PR, SBM, Sens, SRv, WBF, WBN, WC	
		<1% . In other words, all or nearly all of the AA is covered by water permanently or at least seasonally.	0]	
		1-25% of the AA, or <1% but >0.01 ha never contains surface water.	1		
		25-50% of the AA never contains surface water.	0		
		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	0		AllSat2
		99-100%. AND there is no persistent ponded water body larger than 1 ha within the AA. Enter "1" and SKIP to F42 (Channel	0		AllSat1
25	% of AA with	Connection). Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during		If you are unable to determine the condition at the driest time of year, ask the land owner or	-
.0		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		neighbors about it if possible. Indicators of persistence may include fish, some dragonflies,	
	Water	AA that still contains surface water is:		beaver, and muskrat. [AM, CS, FA, FR, INV, NR, POL, PR, SBM, WBF, WBN]	
	water	None. The AA dries up completely (no water in channels either) or never has surface water during most years. SKIP to F27.	1		NoPers
		1-20% of the AA.	0		1
		20-50% of the AA.	0		
		50-95% of the AA.	0		1
		>95% of the AA. True for many fringe wetlands.	0		AllWet
6	0/ of Cumpro artifica	, ,	U	IEA WCI	MINACI
:6	% 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 within the AA at that time is:		[FA, WC]	1
	vvater that is Shaded	<5% of the water is shaded, or no surface water is present then.	0		
		5-25% of the water is shaded.	0		
		25-50% of the water is shaded.	0		
		50-75% of the water is shaded.	0		
		>75% of the water is shaded.	0		
7	% 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	
	I			when not fully inundated. Also, such areas often have a larger proportion of upland and annual	L
	Flooded Only	None, or <0.01 hectare and <1% of the AA. SKIP to F29.	0	when not 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	NoSea

		20-50% of the AA.	0	Tmultiplying by ∠ the bankful neight and visualising where that would intercept the land along the river. [CS, FA, INV, NR, OE, PH, SR, WBF, WBN, WS]	
		50-95% of the AA.	1		
		>95% of the AA.	0		
28	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,	
	J. J. J.	<10 cm change (stable or nearly so).	1	INV, NR, OE, PH, PR, SR, WBN, WS]	
		10 cm - 50 cm change.	0		
		0.5 - 1 m change.	0		
		1-2 m change.	0		
		>2 m change.	0		
s the	AA plus adjacent po	onded water smaller than 0.01 hectare (about 10m x 10m, or 1m x 100 m)? If so, enter "1" in column D and			TooSmall
SKIP	TO F42 (Connection)				
		During most of the time when surface water is present during the growing season, its depth, averaged over the entire inundated		If a boat is unavailable, estimate this by considering wetland size and local topography. Or if	7
	Class	part of the AA, is:		timing and safety allow, depths may be measured by drilling through winter ice. This question is	3
		<10 cm deep (but >0).	1	asking about the spatial median depth that occurs during most of that time, even if inundation	
		10 - 50 cm deep.	0	is only seasonal or temporary. If inundation in most but not all of the wetland is brief, the	
		0.5 - 1 m deep.	0	answer will be based on the depth of the most persistently inundated part of the wetland.	
		1 - 2 m deep.	0	Include surface water in channels and ditches as well as ponded areas. [CS, FA, FR, INV,	
		>2 m deep. True for many fringe wetlands.	0	OE, PH, PR, Sens, SFS, SR, WBF, WBN, WC]	
-30	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,	1
00	Evenness of	One depth class that comprises >90% of the AA's inundated area (use the classes in the question above).	1	INV, WBF, WBN]	
	Proportions	. , , , , , , , , , , , , , , , , , , ,	1	1117, 11517, 11517	
	Proportions	One depth class that comprises 50-90% of the AA's inundated area.	0	4	
-0.4	0/ () 1/ /	Neither of above. There are 3 or more depth classes and none occupy >50%.	0	N	4
	% 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		Nearly all wetlands with surface water have some ponded water. [AM, CS, INV, NR, OE, PR,	
	Ponded (not	sediment is not held in suspension) AND (2) is likely to be deeper than 0.5 m in some places, is:	0	Sens, SR, WBF, WBN, WC, WS]	Na Danada d
	Flowing)	<5% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34.	0	4	NoPonded
		5-30% of the water.	0	4	
		30-70% of the water.	0		
		70-95% of the water.	1		
		>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.	OpenW
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]	
	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		NoOpenPor
		1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	0	1	NoOpenPor
		5-30% of the ponded water.	0	1	
		30-70% of the ponded water.	0	1	
		70-99% of the ponded water.	0	1	
		100% of the ponded water.	0	1	AllOpenPon
-34	Width of Vocators	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		"Vegetated area" does not include underwater or fleeting leaved plants, i.e., agustic had	, and perm on
-34	Width of Vegetated	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,	
	Zone within Wetland	separates adjoining uplands from open water within the AA is: <1 m.	Λ	CS, NR, OE, PH, PR, SBM, Sens, SR, WBN]	
		1 - 9 m.	0	OO, TITS, OE, ITT, ITS, ODIVI, OCIO, OIS, WORK]	
		10 - 29 m.	_	-	
			0	4	
		30 - 49 m.	0	4	
		50 - 100 m.	0	4	
		> 100 m, or open water is absent at that time.	0		_
-35	Flat Charolina Extent	During most of the part of the growing season when water is present, the percentage of the AA's water edge length that is nearly		If several isolated pools are present in early summer, estimate the percent of their collective	

		<1% of the water edge.	0		
		1-25% of the water edge.	0		
		25-50% of the water edge.	0		
		50-75% of the water edge.	0		
		>75% of the water edge.	0		
-36	Robust Emergents	The percentage of the emergent vegetation cover in the AA that is cattail (Typha spp.), common reed (Phragmites), or tall		Emergent vegetation is herbaceous plants whose stems are partly above and partly below	1
		(>1m) bulrush is:		the water surface during most of the time water is present. [WBN]	
		<1% of the emergent vegetation, or emergent vegetation is absent. SKIP to F38.	0		NoRobustEn
		1-25% of the emergent vegetation.	0		
		25-75% of the emergent vegetation.	0		
		>75%, of the emergent vegetation.	0		
37	· ·	During most of the part of the growing season when water is present, the spatial pattern of emergent vegetation within the water is mostly:		[AM, FA, FR, INV, NR, OE, PH, PR, SBM, SR, WBF, WBN]	7
	Water	Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water.	0		
	vvator	Intermediate.	0		
		Clumped. More than 70% of such vegetation is in bands along the wetland perimeter or is clumped at one or a few sides of the surface water area.	0		
38	Persistent Deepwater	If the deepest patch of surface water (flowing or ponded) in or directly adjacent to the AA is mostly deeper than 0.5 m for >2 weeks during the growing season, enter "1" and continue. If not, enter "0" and SKIP to F42 .(Connection).	0		DeepPersis
-39		During most of the growing season and in waters deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians		For this question, consider only the wood that is at or above the water surface. Estimates of	-
JJ	Non-vegetated Aquatic Cover	that is provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is:		underwater wood based only on observations from terrestrial viewpoints are unreliable so	
	Aquatic Cover	Little or none.	0	should not be attempted. [AM, FA, FR, INV]	
		Intermediate.	0	enous not be attempted. [run, 174, 174]	
		Extensive.	0		
40	Isolated Island	The AA contains (or is part of) an island or beaver lodge within a lake, pond, or river, and is isolated from the shore by water	0	[WBN]	
40		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	O	[NDN]	
		sufficiently large and dense to support a waterbird nest.			
41	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 >50% of the underwater substrate. If true, enter "1" in next column. If untrue or uncertain, enter "0".	0	[EC, PR, WBF]	
42	Channel Connection	The most persistent surface water connection (outlet channel or pipe, ditch, or overbank water exchange) between the AA and a		Consider the connection regardless of whether the surface water is frozen. The "downslope	
		downslope stream network is: [Note: If the AA represents only part of a wetland, answer this according to whichever is the least		stream network" could consist of ditches, rivers, ponds, or lakes which eventually connect to	
		permanent surface connection: the one between the AA and the rest of the wetland, or the surface connection between the		the ocean. If this cannot be determined while visiting the AA, consult topographic maps	
		wetland and the downslope stream network.]		perhaps by viewing these online with Toporama	
		Persistent (surface water flows out for >9 months/year).	0	(http://atlas.nrcan.gc.ca/toporama/en/index.html) [CS, FA, FR, NR, OE, PR, Sens, SFS, SR,	
		Seasonal (surface water flows out for 14 days to 9 months/year, not necessarily consecutive).	1	WCv, WS]	
		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	0		OutNone1
		F47 (pH Measurement).			0
		No surface water flows out of the wetland except possibly during extreme events (<once 10="" a<="" flows="" into="" only="" or,="" per="" td="" water="" years).=""><td>0</td><td></td><td>Outnone</td></once>	0		Outnone
43		wetland, ditch, or lake that lacks an outlet. SKIP to F47 (pH Measurement). 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	-
T U		Mostly passes through a pipe, culvert, narrowly breached dike, berm, beaver dam, or other partial obstruction (other than natural	0	snowmelt. [CS, NR, OE, PR, Sens, SR, STR, WS]	
		topography) that does not appear to drain the wetland artificially during most of the growing season.	U		
		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	1		
		edge, which drain the wetland artificially, or water is pumped out of the AA.			
44		At least once annually, surface water from a tributary channel that is >100 m long moves into the AA. Or, surface water from a		If inlet tributaries cannot be searched for due to inaccessibility of part of the AA, follow	Inflows
	·	larger permanent water body adjacent to the AA spills into the AA. If it enters only via a pipe, that pipe must be fed by a mapped	0	suggestions in F42 above. [NRv, PH, PRv, SRv]	
		stream or lake further upslope. If no, SKIP to F47 (pH Measurement).		Luca .	
45	I .	Based on lack of shade, water source characteristics, or actual temperature measurements, the inflow is likely to be warmer than	0	[WCv]	
	Temperature	surface water in the AA during part of most years. Enter 1= yes, 0= no.			
46		During its travel through the AA at the time of peak annual flow, water arriving in channels: [select only the ONE encountered by most of the incoming water].		[FA, FR, INV, NR, OE, PR, SR, WS]	

I		Does not bump into many plant stems as it travels through the AA. Nearly all the water continues to travel in unvegetated (often	0]	
		incised) channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond	U		
		or lake.			
		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		
		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		
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	
•	primododiomone	Was measured, and is: [enter the reading in the column to the right.]		that have passed through (not along) most of the AA. Unless surface water is completely	
		Was not measured but surface water is present and is darkly tea-coloured. Or if no surface water, then mosses and plants that	0	absent, do not dig holes or make depressions in peat in order to provide water for this	
		indicate peatland (e.g., Labrador tea) are prevalent. Enter "1".	Ü	measurement. Avoid measuring near roads or in puddles formed only by recent rain. [AM, FA,	
		Neither of above. Enter "1".	1	FR, NR, WBF, PH, PR, Sens, WBF, WBN]	
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]	
	Conductivity	TDS is: [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.]		1	
	-	Conductivity is [Enter the reading in µS/cm in the column to the right.]		1	
		Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1".	0	1	
		Neither of above	1		
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]	
	•	Evident from direct observation or presence of gnawed limbs, dams, tracks, dens, lodges, or extensive stands of water-killed trees (snags).	0		
		Likely based on known occurrence in the region and proximity to suitable habitat, which may include: (a) a persistent freshwater	1		
		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		
50	Groundwater	Select first applicable choice:		Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH,	
	Strength of Evidence	Springs are known to be present within the AA, or if groundwater levels have been monitored, that has demonstrated that groundwater primarily discharges to the wetland for longer periods during the year than periods when the wetland recharges the groundwater.	0	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 along streams during early winter. [AM, CS, FA, FR, INV, NR, OE, PH, PRv, SFS, WC, WS]	
		Most of the AA has a slope of >5%, or is very close to the base of a natural slope longer than 100 and much steeper than the slope of the AA, AND the pH of surface water, if known, is >5.5.	0		
		Neither of above is true, although some groundwater may discharge to or flow through the AA. Or groundwater influx is unknown.	1		
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	
		<2% or the AA has no surface water outlet (not even seasonally).	1	inlet and outlet, divided by the flow-distance between them and converted to percent. If	
		2-5%.	0	available, use a clinometer to measure this. Free clinometer apps can be downloaded to	
		6-10%.	0	smartphones. If the wetland is 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	
		>10%.	0	and multiplying by 100. ICS NR OF PR SR WRF WRN WS1	TooSteep
		stions: If the AA lacks an upland edge, evaluate based on the AA's entire perimeter, and moving outward into whatever situations, these questions are best answered by measuring from aerial images.			
52	Vegetated Buffer as	Within a zone extending 30 m laterally from the AA's edge with upland and/or other wetlands, the percentage that contains		[AM, FA, FR, INV, NRv, PH, POL, PRv, SBM, Sens, SRv, STR, WBN]	
		perennial vegetation cover (except lawns, row crops, heavily grazed land, conifer plantations) is:		1	
	% of Perimeter		_		
		<5%.	0		
		5 to 30%.	0		
		5 to 30%. 30 to 60%.			
		5 to 30%.			BuffAllNat

3 T yp	oe 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		[AM, FA, INV, NRv, PH, POL, SBM, STR, WBN]	1
Buff		(mark ONE):			
		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.	0		
4 Buff		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		[NRv, PRv, Sens, SRv]	
		area has a percent slope of: <1% (flat almost no noticeable slope) or all the area within 30 m of the AA edge is other wetlands.	0	-	
		2-5%.	0	-	
		5-30%.	0	-	
		>30%.	0	-	
E 01:44				Do not include unturned trace as notantial dan sites. [DOL CDM]	
5 Cliff	·	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]	
6 Nev		Human actions within or adjacent to the AA have persistently expanded a naturally occurring wetland or created a wetland where		Determine this using historical aerial photography, old maps, soil maps, or permit files as	
		there previously was none (e.g., by excavation, impoundment):		available [CS, NR, OE, PH, Sens]	
		No.	0]	
		Yes, and created or expanded 20 - 100 years ago.	0		
		Yes, and created or expanded 3-20 years ago.	0	<u> </u>	
		Yes, and created or expanded within last 3 years.	0	<u> </u>	
		Yes, but time of origin or expansion unknown.	0	<u> </u>	
		Unknown if new or expanded within 20 years or not.	0		
7 Buri	,	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,	
		Burned within past 5 years.	0	PH, STR]	
		Burned 6-10 years ago.	0	1	
		Burned 11-30 years ago.	0		
		Burned >30 years ago, or no evidence of a burn and no data.	1		
8 Visi		The maximum percentage of the wetland that is visible from the best vantage point on public roads, public parking lots, public		[PU, STR, WBFv]	
		buildings, or public maintained trails that intersect, adjoin, or are within 100 m of the AA (select one) is: <25%.	1		
		25-50%.	0		
		>50%.	0	-	
9 Non		Assuming access permission was granted, select ALL statements that are true of the AA as it currently exists:	U	[PU, STR]	
		For an average person, walking is physically possible <u>in</u> (not just near) >5% of the AA during most of the growing season, e.g.,	1	[FO, STK]	
	tential	free of deep water and dense shrub thickets. 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	0		
		arriving via contiguous waters.	L		
		Within or near the AA, there is an interpretive center, trails with interpretive signs or brochures, and/or regular guided interpretive tours.	0		
0 Unv		The percentage of the AA almost never visited by humans during an average growing season probably comprises: [Note: Only		[AM, FAv, FRv, PH, PU, SBM, STR, WBF, WBN]	
		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.]			
		<5% and no inhabited building is within 100 m of the AA.	0	1	
		<5% and inhabited building is within 100 m of the AA.	0	1	
		5-50% and no inhabited building is within 100 m of the AA.	0	1	
		5-50% and inhabited building is within 100 m of the AA.	0	1	
		50-95%, with or without inhabited building nearby.	0	1	
		>95% of the AA with or without inhabited building nearby.	1	1	
	quently Visited	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]	
Area		SKIP to F64.	1		
		5-50%.	0	1	
		50-95%.	0	4	

1	1	>95% of the AA.	0]	
F62	BMP - Soils	Boardwalks, paved trails, fences or other infrastructure and/or well-enforced regulations appear to effectively prevent visitors from	0	[PH, PU]	
F63	BMP - Wildlife Protection	walking on soil within nearly all of the AA when the soil is unfrozen. Enter "1" if true. 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]	
F64	Consumptive Uses	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select ALL that apply.		[FAv, FRv, WBFv]	
	(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	1		
	Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0		
		Waterfowl hunting.	0		
		Fishing.	0		
		Trapping of furbearers.	0		
		None of the above.	0		
F65	Domestic Wells	The closest wells or water bodies that currently provide drinking water are:		[NRv]	
		Within 0-100 m. of the AA.	0	1	
		100-500 m. away.	0	1	
		>500 m. away, or no information.	1	1	
F66	Calcareous Fen	The AA is, or is part of, a calcareous fen. See the Plants_Calcar worksheet in the accompanying SuppInfo file for list of plant indicators (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]	

	ator: Derrick Mitchell	Site Identifier: WL-B+C, Turbine Site		Date: Sept 5, 2019					
1.0	ssor (S) Data Form for Non-Tida	Il Wetlands. WESP-AC for Nev	w Brunswick. Version 2.		Dat				
	Aberrant Timing of Water Inputs n the last column, place a check mark next to any item that is like.	y to have caused the timing of water inputs (but not necessar	rily their volume) to shift by hours, days, or weeks, becoming eit.	her more muted (smaller or less frequent peaks spread over	-				
	onger times, more temporal homogeneity of flow or water levels) of Stormwater from impervious surfaces that drains directly to the w		er times). [FA, FR, INV, PH, STR]						
	Stormwater from impervious surfaces that drains directly to the water subsidies from wastewater effluent, septic system leakage				1				
	Regular removal of surface or groundwater for irrigation or other								
	Flow regulation in tributaries or water level regulation in adjoining	*	•						
	A dam, dike, levee, weir, berm, or fill within or downgradient from Excavation within the wetland, e.g., dugout, artificial pond, dead-		w in/out of the AA (e.g., road fill, wellpads, pipelines).		1				
	Artificial drains or ditches in or near the wetland.	and ditori.			1				
	Accelerated downcutting or channelization of an adjacent or inter	nal channel (incised below the historical water table level).							
	Logging within the wetland. Subsidence or compaction of the wetland's substrate as a result	f manhinan livesteel. For designers or off good vahioles			1				
	Straightening, ditching, dredging, and/or lining of tributary channels								
If a	f any items were checked above, then for each row of the table be	low, assign points. However, if you believe the checked items		any part of the AA, then leave the "0's" for the scores in the					
fol	ollowing rows. To estimate effects, contrast the current condition								
L		Severe (3 points)	Medium (2 points)	Mild (1 point)					
Sı	Spatial extent of timing shift within the wetland:	>95% of wetland.	5-95% of wetland.	<5% of wetland.	1				
W	When most of the timing shift began:	<3 yrs ago.	3-9 yrs ago.	10-100 yrs ago.	1				
	Score the following 2 rows only if the altered inputs began within p								
	nput timing now vs. previously:	Shift of weeks.	Shift of days.	Shift of hours or minutes.					
Fla	Flashiness or muting:	Became very flashy or controlled.	Intermediate.	Became mildly flashy or controlled. Sum=	2				
⊢				Stressor subscore=	_				
A	Accelerated Inputs of Contaminants and/o	r Salts		01.0001.0110					
In	n the last column, place a check mark next to any item occurring	in either the wetland or its CA that is likely to have accele	rated the inputs of contaminants or salts to the AA. [AM, FA, PH	H, POL, STR]					
ξ	Stormwater or wastewater effluent (including failing septic system	s), landfills, industrial facilities.							
nn	ivietais & crieniicai wastes ironi mining, snootiing ranges, snow st pridafault asp2lana=En&n=R85&1846-1	nage areas, on gas extraction, other sources (download mar	ny locations from National Politicant Release inventory and view	r Kwiz overlay iii Googie Eartii. https://www.ec.gc.ca/iiiip-					
	Road salt. Spraying of pesticides, as applied to lawns, croplands, roadsides	or other areas in the CA			1				
	f any items were checked above, then for each row of the table be		s did not cumulatively expose the AA to significantly higher lave	ls of contaminants and/or salts, then leave the "O's" for the					
	cores in the following rows. To estimate effects, contrast the curro			io or contaminante anaror saits, tricii reave trie 0.5 for the					
ľ		Severe (3 points)	Medium (2 points)	Mild (1 point)					
U	Jsual toxicity of most toxic contaminants:	Industrial effluent, mining waste, unmanaged landfill.	Cropland, managed landfill, pipeline or transmission rights-of	Low density residential.					
	Frequency & duration of input:	Frequent and year-round.	way. 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.					
, ,	reproduintly to main occined (acted of potential).			Sum=	= 0				
				Stressor subscore	0.0				
	Accelerated Inputs of Nutrients								
	n the last column, place a check mark next to any item occurrin		rated the inputs of nutrients to the wetland. [NRv, PRv, STR]						
	Stormwater or wastewater effluent (including failing septic system Fertilizers applied to lawns, ag lands, or other areas in the CA.	s), landfills.							
_	Livestock, dogs.								
	Artificial drainage of upslope lands.								
	If any items were checked above, then for each row of the table below, assign points. However, if you believe the checked items did not cumulatively expose the AA to significantly more nutrients, then leave the "0's" for the scores in the following rows.								
To	To estimate effects, contrast the current condition with the condition			A4' A) LEA					
H		Severe (3 points) High density of unmaintained septic, some types of	Medium (2 points) Moderate density septic, cropland, secondary wastewater	Mild (1 point)					
Ту	Type of loading:	industrial sources.	treatment plant.	Livestock, pets, low density residential.					
	requency & duration of input:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.					
A/	AA proximity to main sources (actual or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.					
H				Sum= Stressor subscore=	0				
	Excessive Sediment Loading from Contrib				0.0				
IF		uting Area		20.0000	0.0				
			or windhorne sediment reaching the wetland from its CA_IFA_F		0.0				
In	n the last column, place a check mark next to any item present in	the CA that is likely to have elevated the load of waterborne of	or windborne sediment reaching the wetland from its CA. [FA, F.		0.0				
In E		the CA that is likely to have elevated the load of waterborne of	or windborne sediment reaching the wetland from its CA. [FA, F.		0.0				
In E	n the last column, place a check mark next to any item present in Erosion from plowed fields, fill, timber harvest, dirt roads, vegetat	the CA that is likely to have elevated the load of waterborne of	or windborne sediment reaching the wetland from its CA. [FA, F.		0.0				
In E	n the last column, place a check mark next to any item present in Erosion from plowed fields, fill, timber harvest, dirt roads, vegetat 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.	the CA that is likely to have elevated the load of waterborne of	or windborne sediment reaching the wetland from its CA. [FA, F.		0.0				
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In E E E S S A C O If a	n the last column, place a check mark next to any item present in Erosion from plowed fields, fill, timber harvest, dirt roads, vegetat Erosion from construction, in-channel machinery in the CA. Erosion from off-road vehicles in the CA. Erosion from livestock or foot traffic in the CA. Stormwater or wastewater effluent. Sediment from road sanding, gravel mining, other mining, oil/ gas Accelerated channel downcutting or headcutting of tributaries due Other human-related disturbances within the CA.	the CA that is likely to have elevated the load of waterborne of ion clearing, fires. extraction. e to altered land use. elow, assign points (3, 2, or 1 as shown in header) in the last crows. To estimate effects, contrast the current condition with	column. However, if you believe the checked items did not cum the condition if the checked items never occurred or were no lo	R, INV, PH, SRv, STR] ulatively add significantly more sediment or suspended inger present.	0.00				
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In E E E S S S S S S S S S S S S S S S S	In the last column, place a check mark next to any item present in Erosion from plowed fields, fill, timber harvest, dirt roads, vegetat Erosion from construction, in-channel machinery in the CA. Erosion from off-road vehicles in the CA. Erosion from livestock or foot traffic in the CA. Stormwater or wastewater effluent. Sediment from road sanding, gravel mining, other mining, oil/ gas Accelerated channel downcutting or headcutting of tributaries due Other human-related disturbances within the CA. If any items were checked above, then for each row of the table be solids to the AA, then leave the "0's" for the scores in the following Erosion in CA:	the CA that is likely to have elevated the load of waterborne of ion clearing, fires. extraction. e to altered land use. elow, assign points (3, 2, or 1 as shown in header) in the last of rows. To estimate effects, contrast the current condition with Severe (3 points) Extensive evidence, high intensity.*	column. However, if you believe the checked items did not cume the condition if the checked items never occurred or were no low Medium (2 points) Potentially (based on high-intensity* land use) or scattered evidence.	R, INV, PH, SRv, STR] ulatively add significantly more sediment or suspended inger present. Mild (1 point) Potentially (based on low-intensity* land use) with little or no direct evidence.					
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In I	Erosion from plowed fields, fill, timber harvest, dirt roads, vegetat Erosion from plowed fields, fill, timber harvest, dirt roads, vegetat 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. Erosion from livestock or foot traffic in the CA. Stormwater or wastewater effluent. Sediment from road sanding, gravel mining, other mining, oil/ gas Accelerated channel downcutting or headcutting of tributaries due Other human-related disturbances within the CA. Fany items were checked above, then for each row of the table be foliated to the AA, then leave the "O's" for the scores in the following erosion in CA: Recentness of significant soil disturbance in the CA: Ouration of sediment inputs to the wetland: AA proximity to actual or potential sources: high-intensity= extensive off-road vehicle use, plowing, grading, listurbance of soil or sediment. Soil or Sediment Alteration Within the Ass in the last column, place a check mark next to any item present in estored (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mound the last column, place a check mark next to any item present in estored (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mound the last column, place a check mark next to any item present in estored (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mound the last column, place a check mark next to any item present in estored (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mound the last column, place a check mark next to any item present in estored (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mound the last column, place a check mark next to any item present in estored (whichever is less). [CS, INV,	the CA that is likely to have elevated the load of waterborne of ion clearing, fires. Extraction. It is a likely a large elevated the load of waterborne of ion clearing, fires. Extraction. It is a large elevated land use. Flow, assign points (3, 2, or 1 as shown in header) in the last of rows. To estimate effects, contrast the current condition with Severe (3 points) Extensive evidence, high intensity.* Current & ongoing. Frequent and year-round. 0 - 15 m. Excavation, erosion with or without veg removal; low-intensity. Example example elevated in the wetland that is likely to have compacted, eroded, or other intensity. In the wetland that is likely to have compacted, eroded, or other intensity. In the wetland that is likely to have compacted, eroded, or other intensity. Example elevated in the wetland that is likely to have compacted, eroded, or other intensity. Example elevated in the last of the wetland that is likely to have compacted, eroded, or other intensity. Example elevated in the last of the last of the wetland that is likely to have compacted, eroded, or other intensity. Example elevated in the last of the last of the wetland that is likely to have compacted, eroded, or other intensity. Example elevated in the last of	column. However, if you believe the checked items did not cume the condition if the checked items never occurred or were no low Medium (2 points) Potentially (based on high-intensity* land use) or scattered evidence. 1-12 months ago. Frequent but mostly seasonal. 15-100 m. ty= veg removal only with little or no apparent erosion or experience altered the wetland's soil. Consider only items occurring we soil imported from another wetland. soil imported from another wetland. Medium (2 points) 5-95% of wetland or 5-95% of its upland edge (if any). 1-12 months ago.	wlatively add significantly more sediment or suspended singer present. Mild (1 point) Potentially (based on low-intensity* land use) with little or not direct evidence. >1 yr ago. Infrequent & during high runoff events mainly. In more distant part of contributing area. Summathin past 100 years or since wetland was created or within past 100 years or since wetland was created or Mild (1 point) <5% of wetland and <5% of its upland edge (if any). >1 yr ago.	1 1 1 1 1 2 1 1				

Assessment Area (AA) Results:

Wetland ID: WL-B+C, Turbine Site

Date:

Observer: DM

Latitude & Longitude (decimal degrees):

Scores will appear below after data are entered in worksheets OF, F, and

S. See Manual for definitions and descriptions of how scores were

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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)	2.98	Moderate	3.07	Moderate	4.03	3.13
Stream Flow Support (SFS)	3.65	Moderate	10.00	Higher	1.94	7.03
Water Cooling (WC)	1.35	Lower	0.00	Lower	0.90	0.00
Sediment Retention & Stabilisation (SR)	1.45	Lower	0.31	Lower	4.15	0.19
Phosphorus Retention (PR)	2.70	Moderate	0.00	Lower	4.82	0.33
Nitrate Removal & Retention (NR)	0.85	Lower	4.38	Moderate	4.36	5.00
Carbon Sequestration (CS)	4.41	Moderate			6.46	
Organic Nutrient Export (OE)	4.00	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)	2.33	Lower	4.00	Moderate	4.69	3.40
Amphibian & Turtle Habitat (AM)	5.19	Moderate	6.28	Moderate	6.04	5.90
Waterbird Feeding Habitat (WBF)	5.84	Moderate	6.67	Moderate	4.64	6.67
Waterbird Nesting Habitat (WBN)	3.88	Moderate	6.67	Moderate	3.31	6.67
Songbird, Raptor, & Mammal Habitat (SBM)	7.71	Higher	10.00	Higher	6.39	10.00
Pollinator Habitat (POL)	10.00	Higher	6.67	Moderate	8.29	6.67
Native Plant Habitat (PH)	6.00	Higher	8.20	Higher	5.51	7.12
Public Use & Recognition (PU)			2.08	Lower		1.81
Wetland Sensitivity (Sens)			6.16	Higher		4.05
Wetland Ecological Condition (EC)			6.14	Moderate		7.78
Wetland Stressors (STR) (higher score means more stress)			5.97	Higher		4.46
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	3.65	Moderate	3.07	Moderate	4.03	3.13
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	2.18	Lower	2.97	Lower	5.71	3.42
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	3.41	Lower	7.33	Higher	3.85	5.25
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	4.41	Moderate	5.29	Moderate	4.42	5.26
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	8.95	Higher	9.14	Higher	7.51	8.96
WETLAND CONDITION (EC)			6.14	Moderate		7.78
WETLAND RISK (average of Sensitivity & Stressors)			6.07	Higher		4.25

New Brunswick Reference Scores

					New Bruitswick	кејеген	ice score	5		
ě										
	Min	Max	Range	F JenksLo	F_JenksHigh	Min	Max	Range	B JenksLo	B JenksHigh
	1.73	9.42	7.68	2.48	5.12	0.08	10.00	9.92	2.58	5.67
	0.00	5.33	5.33	2.92	6.56	0.00	5.83	5.83	2.08	6.16
	0.00	6.67	6.67	1.80	5.30	0.00	6.02	6.02	1.45	4.79
	3.16	10.00	6.84	1.76	5.26	0.00	6.07	6.07	3.75	7.95
	2.90	10.00	7.10	2.66	4.17	0.33	9.38	9.04	1.71	4.55
	3.83	10.00	6.17	2.27	4.36	1.11	10.00	8.89	2.50	7.19
	4.56	8.88	4.31	3.13	5.70					
	2.33	7.64	5.30	3.12	5.26					
	0.00	6.13	6.13	1.80	6.71	0.00	7.39	7.39	0.00	4.44
	0.00	5.95	5.95	1.40	6.29	0.00	7.09	7.09	0.00	4.48
	3.87	7.39	3.52	2.58	5.58	1.24	6.64	5.39	0.85	5.74
	3.30	8.58	5.28	3.30	6.25	2.09	8.16	6.06	2.27	6.30
	0.00	7.96	7.96	0.00	6.84	0.00	10.00	10.00	0.83	6.67
	0.00	8.54	8.54	1.95	5.42	0.00	10.00	10.00	0.00	6.67
	0.00	8.29	8.29	2.50	7.24	0.00	10.00	10.00	3.33	6.67
	0.00	8.05	8.05	0.00	7.81	0.00	10.00	10.00	0.00	6.67
	3.08	7.12	4.03	3.96	5.98	0.00	8.68	8.68	0.00	6.33
						0.33	7.44	7.11	2.40	5.51
						2.20	5.20	2.99	2.88	5.30
						4.24	10.00	5.76	3.25	6.39
						2.26	5.93	3.67	2.15	4.97
				2.48	5.12				2.58	5.67
				3.07	5.39				4.15	7.64
				3.82	6.04				1.34	4.99
				2.41	6.22				3.15	6.29
				4.68	7.60				0.00	5.33
									3.25	6.39
									2.71	4.33

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 the 98 NB calibration wetlands that were assessed previously.

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	Wind Energy Converter WL- D
Investigator Name:	Derrick Mitchell
Date of Field Assessment:	Sept 5, 2019
Nearest Town:	Grande Anse, NB
Latitude (decimal degrees):	45.8211
Longitude (decimal degrees):	-65.0966
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	1,062 ha
AA as percent of entire wetland (approx.). Attach sketch map if AA is smaller than the entire contiguous wetland.	5
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:	No
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):	

Date: Sept 5, 2019	Site Identifier: Wind Energy Converter WL- D	Investigator: DM, BL
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Form OF (Office). Non-tidal Wetland Data Form. WESP-AC version 2 for New Brunswick 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

GeoNB: http://www.snb.ca/geonb1/ and http://www.snb.ca/geonb1/e/apps/apps-E.asp

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

#	Indicators	Condition Choices	Data	Definitions/Explanations	Cell Name	Comments
OF1		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		
		New Brunswick	1	automatic exclusion of indicators for which no spatial data exists in a particular	NB	
		Nova Scotia	0	province.	NS	
		Prince Edward Island	0		PEI	
		Newfoundland-Labrador	0	1	NL	
OF2	Ponded Area Within	The area of surface wate r ponded during most of the growing season that is both (1) in or adjacent to the AA and (2)		"Adjacent" means not separated from the AA by a wide expanse (>50 m) of upland		
	1 km.	within 1 km is:		(including roads >50 m wide). Include ponded areas likely to be hidden by wetland		
		<0.01 hectare (about 10 m x 10 m).	0	vegetation. If surface water extends beyond 1 km, include only the part within 1 km.		
		0.01 - 0.1 hectare.	1	Do not include tidal areas. Measure the area from aerial imagery using Google Earth		
		0.1 - 1 hectare.	0	Pro (click on Ruler icon in toolbar, then Polygon in pop-up menu). With the GeoNB		
		1 to 10 hectares.	0	viewer, enable the Wetlands layer, then measure with the Draw & Measure tool after		
		10 to 100 hectares.	0	specifying Aerial as the Basemap. However, do not rely entirely on wetland		
		>100 hectares.	0	boundaries shown in online wetlands layers. [PH, SBM, WBN]		
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		See definition of adjacent in OF2. If the AA's wetland vegetation extends beyond 1		
	Wetland Within 1 km.	the AA and (2) within 1 km is:		km, include only the part within 1 km. "Ponded" means not flowing in rivers or streams. [Sens, WBF]		
		<0.01 hectare (about 10 m x 10 m).	0			
		0.01 - 0.1 hectare.	0			
		0.1 - 1 hectare.	0			
		1 to 10 hectares.	0			
		10 to 100 hectares.	0			
		>100 hectares.	1			
OF4	Size of Largest	The largest vegetated patch or corridor that includes the AA's vegetation plus all adjacent upland vegetation that 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		
	Nearby Vegetated	not lawn, row crops, heavily grazed lands, conifer plantation is:				
		<0.01 hectare (about 10 m x 10 m).	0	rows. [AM, PH, SBM, Sens]		
		0.01 - 0.1 hectare.	0			
		0.1 - 1 hectare.	0			
		1 to 10 hectares.	0			
		10 to 100 hectares.	0			
		100 to 1000 hectares.	0			
		>1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	1			
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,		To measure distance, use Google Earth Pro (Ruler > Line tool). Or use Draw &		
	Vegetated Tract	lawn, conifer plantation) larger than 375 hectares (about 2 km on a side), is:		Measure tool at GeoNB. The 375-ha criterion is from the Fundy Model Forest Project.	I I	

	1		_	1.	1	
		<50 m, and not separated from the 375-ha vegetated area by any width of paved roads, stretches of open water,	Ü	[AM, PH, POL, SBM, Sens]		
		row crops, bare ground, lawn, or impervious surface. Or the AA itself contains >375 ha of vegetation. [This is often				
		the answer in relatively undeveloped landscapes.]	4			
		<50 m, but completely separated from the 375-ha vegetated area by those features, and AA does not contain >375				
		ha of vegetation. 50-500 m, and not separated.	0			
		·	0	4		
		50-500 m, but separated by those features.	0	1		
		0.5 - 5 km, and not separated.	0			
		0.5 - 5 km, but separated by those features.	0			
		None of the above (the closest patches or corridors which are that large are >5 km away).	0	1		
	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:	0	For this question only, consider moss to be herbaceous vegetation. Determine the score by viewing aerial imagery in Google Earth after successively drawing or		
	Offiqueffess	The AA's vegetation cover is >10% herbaceous* but uplands within 1 km have <10% herbaceous cover. If so enter "2"		estimating the boundaries of the buffers of 5 km, 1 km, and 100 m radius focused on		
		and continue to OF7. If not, consider:		the center of the AA. Circles of specified radius can be drawn in Google Earth Pro by		
		·		•		
		The AA's vegetation cover is >10% herbaceous* but uplands within 100 m of the wetland edge have <10%		clicking on the Ruler icon, then Circle in the pop-up menu. [AMv, PHv, POLv, SBMv,		
		herbaceous cover. If so, enter "1".		WBFv, WBNv]		
		[* NOTE: Exclude lawns, row crops, heavily grazed lands, forest, shrublands. Include moss as well as grasslike plants				
		in this use of "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	0	See above. Do not consider conifer plantations to be forest if it is obvious that trees		
		continue to OF8. If not, consider:		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, consider:				
		The AA's vegetation is >10% woody* but uplands within 100 m of the wetland edge have <10% woody cover. If so,				
		enter "1"				
		[* NOTE: woody cover = trees & shrubs taller than 1 m.]				
000	1 \/ + - +	Duran of him and its size and account of function and a section of the AA I for a size of the size of the size of the		la Carala Fantha duan tha Filmah. Harran and than antimate land accompany and accomp		
	Local Vegetated	Draw a 5-km radius circle measured from the center of the AA. Ignoring all permanent water in the circle, the		In Google Earth, draw the 5 km buffer and then estimate land cover percentages, or		
	Cover Percentage	percent of the remaining area that is wooded or unmanaged herbaceous vegetation (NOT lawn, row crops, bare or		do GIS analysis of an appropriate land cover layer. [AM, PH, POL, SBM, Sens]		
		heavily grazed land, clearcuts, or conifer plantations) is:	0	1		
		<5% of the land.	0	-		
		5 to 20% of the land.	0	1		
		20 to 60% of the land.	0			
		60 to 90% of the land.	1			
		>90% of the land. SKIP to OF10.	0			
	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]		
		Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0]		
		Bare pervious surface, e.g., lawn, recent (<5 yrs ago) clearcut, dirt or gravel road, cropland, landslide, conifer	1	1		
		plantation.				
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-		
	· .	<100 m.	0	inhabited structures per square kilometer. In Google Earth, click on the Ruler icon,		
	Center	100 - 500 m.	1	then Path, and draw and measure the route. Or use the GeoNB's Draw & Measure		
			^	tool> Freehand Line to draw and measure the route to Settlements (click on Place		
		0.5- 1 km.	Ü	Names in menu) or other areas not close to mapped settlements but which meet the		
		1 - 5 km.	0	criteria.[FAv, FRv, NRv, PH, PU, SBM, WBFv]		
		>5 km.	0	oncension, may may may be as		
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 and measuring with the		
	Maintained Road	<10 m.	0	Ruler>Line tool. Or use the GeoNB's Draw Line tool. [AM, FAv, FRv, NRv, PH, PU,		
		10 - 25 m.	0	SBM, STR, WBN]		
		25 - 50 m.	<u> </u>	1		
			0	1		
		50 - 100 m.	U	4		
		100 - 500 m.	0			ĺ

		>500 m.	1]	
	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.	1	In NB, enable the Wetlands layer in GeoNB (despite its omissions) to show surrounding wetlands and roads, while estimating the location of the 5 km circle (or draw the 5 km circle in Google Earth Pro using the Circle tool and compare). Evaluate using Google Earth, being cautious to search for roads hidden under forest canopy.	
OF13	Distance to Ponded Water	The distance from the AA center to the closest (but separate) ponded water body visible in GoogleEarth imagery is:		In Google Earth, zoom in closely to examine the surrounding landscape for ponds, lakes, and wetlands that appear to be permanently flooded. Enable the GeoNB	
		<50 m, and not separated by any width of paved roads, stretches of open water, row crops, lawn, bare ground, or impervious surface.	1	viewer's Wetlands layer as well. [AM, PH, SBM, Sens, WBF, WBN]	
		<50 m, but completely separated by those features.	0		
		50-500 m, and not separated.	0		
		50-500 m, but separated by those features.	0		
		0.5 - 1 km, and not separated.	0		
		0.5 - 1 km, but separated by those features.	0		
		None of the above (the closest patches or corridors that large are >1 km away).	0		
OF14	Distance to Large	The distance from the AA center to the closest (but separate) non-tidal body of water that is ponded during most of		Determine this by viewing aerial imagery in Google Earth. [Sens, WBF, WBN]	
	Ponded Water	the year and is larger than 8 hectares during most of a normal year is:			
		<100 m.	0		
		100 m - 1 km.	0		
		1 -2 km.	1		
		2-5 km.	0		
		5-10 km.	0		
		>10 km.	0		
OF15	Tidal Proximity	The distance from the AA edge to the closest tidal water body (regardless of its salinity) is:		In Google Earth, measure the distance to the ocean (including Bay of Fundy) or tidal	
		<100 m.	0	river, whichever is closer. If you need to see how far upriver a river is tidal, see the	
		100 m - 1 km.	0	KMZ file provided with this calculator for NB (NB Headtide). Points shown in those	
		1 - 5 km.	1	files are only an approximation, so local information if available may be preferable.	
		5-10 km.	0	[FA, WBF]	
		10-40 km.	0		
		>40 km.	0		
OF16	Upland Edge Contact	Select one:		[NR, SBM, Sens]	
	,	The AA has no upland edge (or upland is <1% of perimeter). The AA is entirely surrounded by (& contiguous with)	0	, , , , , , , , ,	
		other wetlands or water.	Ů		
		1-25% of the AA's perimeter abuts upland (including filled areas). The rest adjoins other wetlands or water that is	0		
		mostly wider than the AA.			
		25-50% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the	0		
		50-75% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the	0		
		AA.			
		More than 75% of the AA's perimeter abuts upland. Any remainder adjoins other wetlands or water that is mostly	1		
∩E17	Flood Damaga from	wider than the AA. This will be true for most assessments done with WESP-AC.		In the GooNB man viewer: click on "Mare" in unner right then "Fleed Information"	
UF 1 <i>1</i>	Flood Damage from Non-tida l Waters	Within 5 km downstream or downslope of the AA (select first true choice):	^	In the GeoNB map viewer: click on "More" in upper right, then "Flood Information". Expand the menu under it by clicking on the arrow to its left and the slider to its	
	ivoii-tiudi vvaters	Maps show Flood Zone or Flood Risk areas and there appears to be infrastructure vulnerable to river flooding not	U	right. Uncheck the first (Limits of Data) box. Where available, LiDAR imagery can	
		caused by tidal storm surges. Maps show Flood Zone or Flood Risk areas, but infrastructure is absent or is not vulnerable to floods from a non-tidal	0	provide finer elevational resolution useful for flood modeling. [WSv]	
		river. In some cases levees, upriver dams, or other measures may partly limit damage or risk from smaller events.		provide line. elevational resolution ascrat for mode modeling. [vv5v]	
		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to	0		
		be infrastructure vulnerable to river flooding unrelated to tidal storm surges. Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there is no	1		
		infrastructure vulnerable to river flooding unrelated to tidal storm surges.			

0=::				Itan un a la acción de la companya d	la	•
UF18		In Google Earth, enable the Terrain layer (lower left menu) and open the NB_Watersheds KMZ file that accompanies		[FA, NR, Sens, SFSv, WCv, WSv]	ShedPos	
	Watershed	this calculator. Then determine the AA's approximate elevation (bottom right, NOT the "eye alt"). Then move cursor	0.50		1	
		around to determine the watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-				
0540		min)				
OF 19	Water Quality	In Google Earth, open the KMZ file NB_Watershed Protected Area which accompanies this calculator. The AA is	0	If an ACCDC report is available for this AA, it also may contain such information.		
		within such an area. Enter 1= yes, 0= no.		[NRv]		
0500	or Area	Constitution to the constitution of the consti		Manager of the state of the second of the se		
OF20	Degraded Water	Sampling indicates a problem with concentrations of metals, hydrocarbons , nutrients , or other substances		May use existing data, or sample those waters as part of this wetland assessment.		
	Upstream	(excluding bacteria, acidic water, high temperatures) being present at levels harmful to aquatic life or humans, and:		"Harmful" should be evaluated with regard to current federal or provincial water		
		The condition is present within the AA.	0	quality standards. [AM, FA, FR, NRv, PRv, SRv, STR, WBF, WBN]		
			0	-		
		The condition is present in waters within 1 km that flow into the AA, but has not been documented in the AA itself.	U			
		Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in	0			
		either the AA or inflowing waters.	U			
		Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the	1			
		situation for nearly all wetlands in this region.	· ·			
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,		
1	_	The condition is present within 1 km downslope and connected to the AA by a channel.	0	PRv, SRv]		
		The condition is present within 5 km downslope and connected to the AA by a channel, or within 1 km but not	0			
		connected to the AA by a channel.	U			
		Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in	0	1		
		either the AA or inflowing waters.	Ů			
		Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the	1			
		situation for nearly 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		Topographic maps may be viewed online at the National Atlas of Canada		
	Contributing Area	entire wetland of which the AA may be only a part. Then adjust those boundaries if necessary based on your field		(Toporama): http://atlas.gc.ca/toporama/en/index.html [NR, PR, Sens, SR,		
	(Catchment)	observations of the surrounding terrain, and/or by using procedures described in the Manual. Divide the area of the		WS]		
		wetland (not just the AA) by the approximate area of its catchment excluding the area of the wetland itself. When				
		doing the calculation, if ponded water is adjacent to the wetland, include that in the wetland's area. The result is:				
		<0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	0			
		0.01 += 0.1	1			
		0.01 to 0.1.	1			
		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	0			
0500		isolated by dikes, or is a raised bog).			-	
OF23		The proportion of the AA's contributing area (measured to no more than 1000 m upslope) that is comprised of		[FA, INV, NRv, PRv, SRv, STR, WCv, WSv]		
	_	buildings, roads, parking lots, other pavement, exposed bedrock, landslides, and other mostly-bare surface is about:				
	Area	<10%.	1			
		10 to 25%.	0			
			0	1		
0507		>25%.	U	fue ee ee weel		
OF24	Transport From	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as		[NRv, PRv, SRv, WSv]		
	Upslope	runoff (surface water), as indicated by the following:				
		(a) input channel is present,			1	
		(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				
I		(f) most CA soils are shallow (bedrock near surface) and/or have high runoff coefficients.				
		Mostly true.	0	1		
I		Somewhat true.	0	1		
1		no contraction of the contractio		J	1	

, ,		Mostly untrue.	1]		I
JF25	Aspect	The overland flow direction of most surface water (in streams, rivers, or runoff) that enters the AA is:		[AM, NR, SFS, WC, WS]		
-		Northward (N, NE). north-facing contributing area.	1			
-		Southward (S, SW). south-facing contributing area.	0			
•		Other (E, SE, W, NW), or no detectable uphill slope or input channel (flat).	0			
JF26	Internal Flow	The horizontal flow distance from the wetland's inlet to outlet is:		Identify inlets and outlets, if any, from topographic maps (use elevations to		
-	Distance (Path	<10 m.	0	determine which are inlets and which are outlets) and augment by field inspection.		
-	Length)	10 - 50 m.	0	[NR, OE, PR, SR, WS]		
-		50 - 100 m.	0			
-		100 - 1000 m.	0			
•		1- 2 km.	0			
•		>2 km, or wetland lacks an inlet and outlet.	1			
JF27	Growing Degree	In Google Earth, open the KMZ file that accompanies this calculator, called NB-PEI_GrowingDegreeDays. Place your	1500	This layer was provided by Dr. Dan McKenney of the Canadian Forest Service [AM,	GrowD	
		cursor over the AA and left-click. From the pop-up, enter the GRIDCODE in the next column.	1300	CS, FR, INV, NR, OE, PH, PR, Sens, SR, WBF, WCv, WS]		
JF28	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		
-		Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. In NB, consult	Λ	waters have been stocked. In NB, the list of stocked waters is at:		
-		Figure A-2 in Appendix A of the Manual. Contact local fishery biologists, review the ACCDC report, and visit these	U	http://www2.gnb.ca/content/gnb/en/departments/erd/natural_resources/content/fish/content/StockedWaters.html		
-		websites: http://www.salmonatlas.com/atlanticsalmon/canada-east/index.1.html		[AM, FA, FR, INV, WBF, WBN]		
-		httn·//atlanticsalmonfederation_org/rivers/introduction_html		[,,,,]		
•		Has not been documented to support Atlantic salmon rearing and/or spawning, but is connected to nearby waters	0			
-		likely to contain Atlantic salmon or other anadromous species or eels and is probably accessed by those during some				
•		conditions. Is probably is not accessed by any anadromous fish species but is known or likely to have other fish at least	0			
-		seasonally.	-			
		Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	1			
	· -	Within the past 10 years, in the AA (or in its adjoining waters or wetland), qualified observers have documented		Request information from ACCDC and/or conduct your own survey at an appropriate		
	Conservation	[mark all applicable]: Presence of one or more of the plant species listed in the Plants_Rare worksheet of the accompanying SuppInfo file,	<u> </u>	season using an approved protocol. For birds, also check eBird.org. [AMv, EC, PHv,		
-	Concern	or the AA is within a mapped Atlantic Coastal Plain Flora Buffer	U	POLv, SBMv, Sens, WBFv, WBNv]		
-		Presence of one or more of the amphibian or reptile species (AM) of conservation concern as listed in the	0			
•		Wildlife Rare worksheet of the accompanying SuppInfo file.				
-		Presence of one or more of the waterbird species (WBF, WBN) of conservation concern as listed in the Wildlife_Rare	0			
-		worksheet of the accompanying SuppInfo file. Presence of one or more of the nesting songbird or raptor species (SBM) of conservation concern as listed in the	0			
•		Wildlife Rare worksheet of the accompanying Suppling of Taptor species (Salvi) of conservation concern as listed in the Wildlife Rare worksheet of the accompanying Suppling file, during their nesting season (May-July for most species).	U			
•		whalite_nare worksheet of the accompanying supplino life, daring their nesting season (way sary for most species).				
		None of the above, or no data.	1			
	•	In Google Earth, open the KMZ file that accompanies this calculator, called IBAs_Canada. The AA is all or part of an	0	The source of this layer, which should be checked periodically for updates, is:		
•	(IBA)	officially designated IBA. Enter 1= yes, 0= no.		http://www.ibacanada.com/mapviewer.jsp?lang=EN [SBMv, WBFv, WBNv]		
OF31	Black Duck Nesting	In Google Earth, open the KMZ file that accompanies this calculator, called BlackDuck. Adjust its alignment and	0	This was provided by Dr. David Leske. [WBNv]		
	_	opacity. Determine the predicted density (pairs per 25 sq. km) of nesting American Black Duck in the AA's vicinity:				
		<10 (enter 0), 10-20 (enter 1), 20-30 (enter 2), >30 (enter 3). If outside of region shown in map, change to blank .				
OF32	Wintering Deer or	If AA is on private land with no information, change to blank (not 0). If on public/crown land, in Google Earth open		[SBM]		
	Moose	the KMZ file that accompanies this report called NB_DeerWinteringAreas.Otherwise: Enter: yes= 1, no= 0.				
,	Concentration Areas					
1	Concentration Areas					

2 - 2 5				
OF33	Other Conservation	With GeoNB, click on Candidate PNA Map Viewer to identify Provincially Significant Wetland, Environmentally	0	[PU]
	Designation	Significant Area, Protected Natural Area but also include if 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. Enter: yes= 1, no= 0. If uncertain, consult NCC and agencies for more recent		
		information		
OF34	Conservation	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve,	0	[PU]
	Investment	create, restore, or enhance the wetland (excluding mitigation wetlands). Ask the property owner. Enter: yes= 1, no=		
		0. If no information, change to blank (not 0).		
OF35	Mitigation	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere. Ask the property owner. Enter:		[PU]
	Investment	yes= 1, no= 0. If no information, change to blank.		
OF36	Sustained Scientific	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and		[PU]
	Use	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 to blank		
OF37	Calcareous Region	The AA is in an area that is at least partly underlain by soil, sediment, or bedrock that is highly calcareous (enter 3 in	0	If GIS is available, you may use the Bedrock Geology shapefile obtainable at
		next column), moderately calcareous (enter 2), or slightly calcareous (enter 1), none= 0. Limestone is typically a		http://www.snb.ca/geonb1/e/DC/catalogue-E.asp [AM, FA, FR, INV, PH]
		major component (karst geology) and water is not acidic (pH is usually >8). See Figure A-6 in Appendix A of the		
		Manual. If no map coverage, change to blank.		
OF38	Ownership	Select the ONE ownership that covers the most of the AA. In Google Earth, open KMZ file called NB Crown lands.Use		"Private lands" may include those owned or leased by non-governmental
		more recent information if available.		organizations, e.g., charitable conservation land trusts, DUC, TNC. [PU, STR]
		New timber harvest, roads, mineral extraction, and intensive summer recreation (e.g., off-road vehicles) are	0	
		permanently prohibited. Includes many publicly-owned Protected Lands, and private lands under long-term (30+		
		vear) legal agreements to maintain nearly-unaltered conditions.		
		Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are	0	
		allowed.		
		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable	0	
		or not) is in place.		
		Ownership is private and owner does not allow access, or access permission unknown, and not a conservation	1	
		easement.		

e: Sept 5, 2019	Site Identifier: Wind Energy Converter WL- D	Investigato	or: DM, BL		
ords its core, in the conduct the assessing allowed and so it erring with the land tion pertains, see say, SFS= Stream Flootat, FA= Anadromo	Non-tidal Wetland Data Form. WESP-AC version 2 for New Brunswick wetland a part of the AA that is proposed for alteration. If no alteration is proposed, walk in a portion that appears to be ment only after reading the accompanying Manual and the Explanations column of the data form. In the Data of indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write downer or other knowledgable persons, and/or reviewing aerial imagery. For most wetlands, completing this for the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the Support, WC= Water Cooling, SR= Sediment Retention & Stabilisation, PR= Phosphorus Retention, NR= Nitrations Fish Habitat, FR= Resident Fish Habitat, AM= Amphibian & Reptile Habitat, WBF= Feeding Waterbird Habitate Native Plant Habitat, PU= Public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= Sensitive Plant Habitat, PU= Public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= Sensiti	e most rep column, ch te in shade field data fo the accomp te Remova at, WBN= N	presentative of the wetland overall. Walk only where it is safe and legal to do nange the 0 (false) to a 1 (true) for the best choice, or for multiple choices ed parts of this data form. Answering some questions accurately may require form will require 1-2 hours on a site. For a list of functions to which each panying Manual. Codes for functions and values are: WS= Water Storage & al, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate		
Indicators	Condition Choices	Data	Definitions/Explanations	Cell Name	Comments
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	con realise	Comments
	 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 adioining column. Otherwise go to B below. 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 rariflor 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. 	le O	eaves. 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]		
	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		Fen_	
	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:				
	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			
	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		Marsh	
AA. The AA should a ecifically, the AA shoul e. Throughout this dat anmade or natural) con essarily considered to e considered adjacent	ons, the AA should include all persistent waters in ponds smaller than 8 hectares (~283 m on a side) that are adjacent to also include part of the water area of adjacent ponded water larger than 8 ha and adjacent rivers wider than 20 m. Id include the open water part adjacent to wetland vegetation and equal in width to the average width of that vegetated that form, "adjacent" is used synonymously with abutting, adjoining, bordering, contiguous and means no upland impletely separates the described features along their directly shared edge. Features joined only by a channel are not be adjacent a large portion of their edges must match. The features do not have to be hydrologically connected in order t.				
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. A1. A2. B1. B2.		I 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]		
Woody Height & Form Diversity	Following EACH row below, indicate with a number code the percentage of the living vegetation in the AA which is occupied by that feature (6 if >95%, 5 if 75-95%, 4 if 50-75%, 3 if 25-50%, 2 if 5-25%, 1 if <5%, 0 if none). If the vegetated part of the AA is largely herbaceous (non-woody) vegetation, these percentages should not sum to 100%. coniferous trees (may include tamarack) taller than 3 m.	h	Deciduous shrubs in this region usually include buttonbush, Labrador tea, bayberry (Morella), nuckleberry, 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,		

	de side and trace tollow them 2 as		DIL DOL CDM Const
	deciduous trees taller than 3 m.	5	PH, POL, SBM, Sens]
	coniferous or ericaceous shrubs or trees 1-3 m tall not directly below the canopy of trees.	3	
	deciduous shrubs or trees 1-3 m tall not directly below the canopy of trees. coniferous or ericaceous shrubs <1 m tall not directly below the canopy of taller vegetation.	2	
	deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	0	
N () () ()		U	
	in F3 was marked 2 or greater, SKIP to F9 (N fixers).		
	Determine which two woody plant species comprise the greatest portion of the low (<3 m) woody cover . Then choose one:		[PH, POL, SBM, Sens]
Abundant Shrub	those species together comprise > 50% of such cover.	1	
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		Estimate the diameters at chest height. If small-diameter trees are overtopped (shaded) by
Classes	upland edge (perimeter). The edge should include only the trees whose canopies extend into the AA. coniferous, 1-9 cm diameter and >1 m tall.		larger ones, visualise a "subcanopy" at the average height of the smaller-dbh trees, to serve as a basis for the minimum 5% canopy requirement in this question. The trees and shrubs
	broad-leaved deciduous 1-9 cm diameter and >1 m tall.		need not be wetland species. [AM, CS, POL, SBM, Sens, WBN]
	coniferous, 10-19 cm diameter.	1	1000 100 100 100 100 100 1 1 1 1 1 1 1
	broad-leaved deciduous 10-19 cm diameter.	1	
	coniferous, 20-40 cm diameter.	1	
	broad-leaved deciduous 20-40 cm diameter.	1	
	coniferous, >40 cm diameter.	0	
	broad-leaved deciduous >40 cm diameter.	0	
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.		[[[]] [] [] [] [] [] [] [] [
moroporoion	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.		
	A1. The two height classes are mostly scattered and intermixed throughout the AA.	1	
	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 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.	0	
	B1. The less prevalent neight 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	0	
	completely absent.	U	
' 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
Standing Trees)	None, or fewer than 8/ hectare which exceed this diameter.	1	that are at least 2 m tall. [POL, SBM, WBN]
	Several (>8/hectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km.	0	
	Several (>8/hectare) but above not true.	0	
8 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]
	Few or none that meet these criteria.	1	
	Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria.	0	
N Fixers	The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa,		Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
	other legumes) is:		· · · · · · · · · · · · ·
	<1% or none.	0	
	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	
	>75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
10 Sphagnum Moss	The cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured		Exclude moss growing on trees and rocks. [CS, PH]
Extent	by taller sedges and other plants rooted in it, is:	0	
	<5% of the vegetated part of the AA. 5-25% of the vegetated part of the AA.	0	
	· · ·	0	
	25-50% of the vegetated part of the AA. 50-95% of the vegetated part of the AA.	0	
	•		
I	>95% of the vegetated part of the AA.	0	

11 0	6 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		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that	-
		ground layer, the predominant condition in those areas at that time is:		is present under a tree or shrub canopy should be counted. Boulders count as bare ground.	`
		Little or no (<5%) bare ground is visible between erect stems or under canopy anywhere in the vegetated AA. Ground is	0	Wetlands with mineral soils and that are heavily shaded or are dominated by annual plant	
		extensively blanketed by dense thatch, moss, lichens, graminoids with great stem densities, or plants with ground-hugging		species tend to have more extensive areas that are bare during the early growing season.	
		foliage.		[AM, EC, INV, NR, OE, POL, PR, SBM, Sens]	
		Slightly bare ground (5-20% bare between plants) is visible in places, but those areas comprise less than 5% of the unflooded	1		
		parts of the AA.			
		Much bare ground (20-50% bare between plants) is visible in places, and those areas comprise more than 5% of the unflooded	0		
		parts of the AA. Other conditions.		-	
			0	4	
		Not applicable. Surface water (either open or obscured by emergent plants) covers all of the AA all the time.	0		4
12 (Ground Irregularity	Imagine the AA without any living vegetation. Excluding the portion of the AA that is always under water, the number of		The depressions may be of human or natural origin. [AM, EC, INV, NR, PH, POL, PR, SBM,	
		hummocks, small pits, raised mounds, animal burrows, ruts, gullies, natural levees, microdepressions, and other areas of peat or		SR, WS]	
		mineral soil that are raised or 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	1	
		Intermediate.	1		
		Several (extensive micro-topography).	0		
13 (Within the AA, inclusions of upland are:	U	[AM, NR, SBM]	-
ا ا	Jpland Inclusions		4	[AIVI, IVIN, ODIVI]	
		Few or none.	1		
		Intermediate (1 - 10% of vegetated part of the AA).	0	4	
		Many (e.g., wetland-upland "mosaic", >10% of the vegetated AA).	0		_
14	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		[CS, NR, OE, PH, PR, Sens, SFS, WS]	
		to check in at least 3 widely spaced locations, and use the soil texture key (in Appendix A of the Manual).]			
		Loamy: soils that may contain a little fine grit and do not make a "ribbon" longer than 2 cm when moistened, rolled, squeezed,	0		
		and extended between thumb and forefinger. Fines: includes silt, clay, silt, soils that make a ribbon longer than 2 cm when moistened, rolled, squeezed, and extended	0	1	
		between thumb and forefinger.	U		
		Deep Peat, to 40 cm depth or greater.	0	1	
		Shallow Peat or organic <40 cm deep.	1		
		Coarse: includes sand, loamy sand, gravel, cobble, soils that do not make a ribbon when moistened, rolled, squeezed, and	0		
		extended between thumb and forefinger.	Ü		
15		During any 2 consecutive weeks of the growing season, the extent of mudflats, bare unshaded saturated areas not covered by		This addresses needs of many but not all migratory sandpipers, plovers, and related species.	
		thatch, and unshaded waters shallower than 6 cm is: [Include also any area that is adjacent to the AA.]		[WBF]	
		None, or <100 sq. m.	1		
		100-1000 sq. m.	0		
		1000 – 10,000 sq. m.	0		
		>10,000 sq. m.	0		
16 H	lerbaceous % of	In aerial ("ducks eye") view, the maximum annual cover of herbaceous vegetation (all non-woody plants except moss) is:		[AM, WBF, WBN]	
		<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		NoHerbC
	•				
		5-25% of the vegetated part of the AA.	1		
		25-50% of the vegetated part of the AA.	0		
		50-95% of the vegetated part of the AA.	0		
		>95% of the vegetated part of the AA.	0		
17 F	orb 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,	
		<5% of the herbaceous part of the AA.	0	horsetails, or others that lack showy flowers. [POL]	
		5-25% of the herbaceous part of the AA.	0]	
		25-50% of the herbaceous part of the AA.	0]	
		50-95% of the herbaceous part of the AA.	1		
J		>95% of the herbaceous part of the AA.	0		AllForbC
		•			
18 .9		Sedges (Carex_spp.) and cottongrass (Eriophorum_spp.) occupy:		ICS1	
18 5	Sedge Cover	Sedges (<i>Carex</i> spp.) and cottongrass (<i>Eriophorum</i> spp.) occupy: <5% of the vegetated area, or none.	1	[CS]	

		50-95% of the vegetated area.	0		
		>95% of the vegetated area.	0		
9	Dominance of Most	Determine which two herbaceous species comprise the greatest portion of the herbaceous cover (excluding mosses and floating-		For this question, include ferns as well as graminoids and forbs. [EC, INV, PH, POL, Sens]	1
	Abundant	leaved aquatic plants). Then choose one of the following:			
	Herbaceous 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		
)	Invasive Plant Cover	How extensive is the cover of invasive plant species in the AA? For species, see Plants_invasive worksheet in the accompanying		[EC, PH, POL, Sens]	1
		SuppInfo file.			
		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 woody).	0		
		invasive species comprise 5-20% of the herb cover (or woody cover, if the invasives are woody).	0		
		invasive species comprise 20-50% of the herb cover (or woody cover, if the invasives are woody).	0		
		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		If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an	1
	Upland Edge	invasive plant species is:		exotic species, assume the unidentified plant to also be exotic. If vegetation is so senesced	
	opiana Lago	none of the upland edge (invasives apparently absent), or AA has no upland edge.	1	that exotic species cannot be identified, answer "none". [PH, STR]	
		some (but <5%) of the upland edge.	0		
		5-50% of the upland edge.	0		
		most (>50%) of the upland edge.	0		
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	0	[WBF, WBN, WCv]	1
_	i ingo vvolidila	width of the vegetated zone within the wetland. Enter "1" if true, "0" if false.	J	[,,]	
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	0	[FR, PR, PU, WBF, WBN]	1
		during most of a normal year.			
	% of AA Without	The percentage of the AA that <u>never contains surface</u> water during an average year (that is, except perhaps for a few hours after		1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m,	1
	Surface Water	snowmelt or rainstorms), but which is still a wetland, is:		1000 m by 10 m, or similar. [AM, FA, FR, INV, NR, PH, PR, SBM, Sens, SRv, WBF, WBN, WC	
		<1% . In other words, all or nearly all of the AA is covered by water permanently or at least seasonally.	0		
		1-25% of the AA, or <1% but >0.01 ha never contains surface water.	1		
		25-50% of the AA never contains surface water.	0		
		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	0		AllSat2
		99-100%. AND there is no persistent ponded water body larger than 1 ha within the AA. Enter "1" and SKIP to F42 (Channel	0		AllSat1
5	% of AA with	Connection). Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during		If you are unable to determine the condition at the driest time of year, ask the land owner or	-
		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		neighbors about it if possible. Indicators of persistence may include fish, some dragonflies,	
	Persistent Surface	AA that still contains surface water is:		beaver, and muskrat. [AM, CS, FA, FR, INV, NR, POL, PR, SBM, WBF, WBN]	
	Water	None. The AA dries up completely (no water in channels either) or never has surface water during most years. SKIP to F27.	0		NoPer
		1-20% of the AA.	1		
		20-50% of the AA.	0		
		50-95% of the AA.	0		
		>95% of the AA. True for many fringe wetlands.	0		AllWet
6	% 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		[FA, WC]	1
		features that are within the AA at that time is:			
	and and to office ou	<5% of the water is shaded, or no surface water is present then.	0		
		5-25% of the water is shaded.	0		
		25-50% of the water is shaded.	0		
		50-75% of the water is shaded.	0		
		>75% of the water is shaded.	1		
7	% 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 fully inundated. Also, such areas often have a larger proportion of upland and annual	N
	Flooded Only	None, or <0.01 hectare and <1% of the AA. SKIP to F29.	0	(vs. perennial) plant species. In riverine systems, the extent of this zone can be estimated by	NoSea
	Seasonally	1-20% of the AA, or <1% but >0.01 ha.	0	(vs. perennial) plant species. In riverine systems, the extent of this zone can be estimated by	1

		20-50% of the AA.	0	Tmultiplying by ∠ the banktul neight and visualising where that would intercept the land along the river. [CS, FA, INV, NR, OE, PH, SR, WBF, WBN, WS]	
		50-95% of the AA.	0		
		>95% of the AA.	1		
	Innual 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,	
	· ·	<10 cm change (stable or nearly so).	1	INV, NR, OE, PH, PR, SR, WBN, WS]	
		10 cm - 50 cm change.	0		
		0.5 - 1 m change.	0		
		1-2 m change.	0		
		>2 m change.	0		
the A	A plus adjacent po	nded water smaller than 0.01 hectare (about 10m x 10m, or 1m x 100 m)? If so, enter "1" in column D and			TooSmall
KIP TC	F42 (Connection)				
29 P		During most of the time when surface water is present during the growing season, its depth, averaged over the entire inundated		If a boat is unavailable, estimate this by considering wetland size and local topography. Or if	
C	Class	part of the AA, is:		timing and safety allow, depths may be measured by drilling through winter ice. This question is	;
		<10 cm deep (but >0).	1	asking about the spatial median depth that occurs during most of that time, even if inundation	
		10 - 50 cm deep.	0	is only seasonal or temporary. If inundation in most but not all of the wetland is brief, the	
		0.5 - 1 m deep.	0	answer will be based on the depth of the most persistently inundated part of the wetland.	
		1 - 2 m deep.	0	Include surface water in channels and ditches as well as ponded areas. [CS, FA, FR, INV,	1
		>2 m deep. True for many fringe wetlands.	0	OE, PH, PR, Sens, SFS, SR, WBF, WBN, WC]	
0 D	epth 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,	1
	Evenness of	One depth class that comprises >90% of the AA's inundated area (use the classes in the question above).	1	INV, WBF, WBN]	
	Proportions	One depth class that comprises 50-90% of the AA's inundated area.	0	· · · ·	
ľ	Toportiono	Neither of above. There are 3 or more depth classes and none occupy >50%.	0	+	
1 %	6 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	Ů	Nearly all wetlands with surface water have some ponded water. [AM, CS, INV, NR, OE, PR,	-
		sediment is not held in suspension) AND (2) is likely to be deeper than 0.5 m in some places, is:		Sens, SR, WBF, WBN, WC, WS]	
		<5% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34.	0	Selis, Six, Woli , Woliv, Wo, Woj	NoPonde
ľ	lowing)	5-30% of the water.	0	-	Nor onde
			0	-	
		30-70% of the water.	0	4	
		70-95% of the water.	0		
		>95% of the water.	1		.
	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.	OpenW
	6 of Ponded Water nat 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]	1
u	асто Ороп	None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	0		NoOpenF
		1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	0		NoOpenF
		5-30% of the ponded water.	0	1	
			0		
		30-70% of the ponded water.	0		
		30-70% of the ponded water. 70-99% of the ponded water.	0		
		70-99% of the ponded water.			AllOpenP
4 \\	Vidth of Vegetated	70-99% of the ponded water. 100% of the ponded water.	0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed	AllOpenP
	Vidth of Vegetated	70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area <u>in the AA</u> that	0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. IAM.	AllOpenP
	Vidth of Vegetated Cone within Wetland	70-99% of the ponded water. 100% of the ponded water.	0	Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	AllOpenP
	•	70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area <u>in the AA</u> that separates adjoining uplands from open water within the AA is: <1 m.	0		AllOpenP
	•	70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area <u>in the AA</u> that separates adjoining uplands from open water within the AA is: <1 m. 1 - 9 m.	0 0 0	Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	AllOpenF
	•	70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area <u>in the AA</u> that separates adjoining uplands from open water within the AA is: <1 m. 1 - 9 m. 10 - 29 m.	0 0 0 0 0	Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	AllOpenF
	one within Wetland	70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area <u>in the AA</u> that separates adjoining uplands from open water within the AA is: <1 m. 1 - 9 m. 10 - 29 m. 30 - 49 m.	0 0 0 0 0	Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	AllOpenF
	one within Wetland	70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in the AA that separates adjoining uplands from open water within the AA is: <1 m. 1 - 9 m. 10 - 29 m. 30 - 49 m. 50 - 100 m.	0 0 0 0 0 0	Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	AllOpenP
Z	one within Wetland	70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area <u>in the AA</u> that separates adjoining uplands from open water within the AA is: <1 m. 1 - 9 m. 10 - 29 m. 30 - 49 m.	0 0 0 0 0 0	Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	AllOpenP

		<1% of the water edge.	0		
		1-25% of the water edge.	0		
		25-50% of the water edge.	0		
		50-75% of the water edge.	0		
		>75% of the water edge.	0		
36	Robust Emergents	The percentage of the emergent vegetation cover in the AA that is cattail (Typha spp.), common reed (Phragmites), or tall		Emergent vegetation is herbaceous plants whose stems are partly above and partly below	
	i tobalot =o.goto	(>1m) bulrush is:		the water surface during most of the time water is present. [WBN]	
		<1% of the emergent vegetation, or emergent vegetation is absent. SKIP to F38.	0		NoRobustEm
		1-25% of the emergent vegetation.	0		
		25-75% of the emergent vegetation.	0		
		>75%, of the emergent vegetation.	0	1	
37	Interspersion of	During most of the part of the growing season when water is present, the spatial pattern of emergent vegetation within the water	- C	[AM, FA, FR, INV, NR, OE, PH, PR, SBM, SR, WBF, WBN]	-
	· '	is mostly:		[AIVI, FA, FK, IIVV, NK, OL, FH, FK, SDIVI, SK, WDI , WDIV]	
	Emergents & Open	Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water.	0		
	Water	Intermediate.	0		
		Clumped. More than 70% of such vegetation is in bands along the wetland perimeter or is clumped at one or a few sides of the	0	1	
		surface water area.	U		
8	Persistent Deenwater	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	0		DeepPersis
		weeks during the growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection).			200pi 01010
	7 11 0 04				
	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		For this question, consider only the wood that is at or above the water surface. Estimates of	
	Aquatic Cover	that is provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: Little or none.	0	underwater wood based only on observations from terrestrial viewpoints are unreliable so	
				should not be attempted. [AM, FA, FR, INV]	
		Intermediate.	0		
		Extensive.	0		
10	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	0	[WBN]	
		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			
11	Flooting Algon 0	sufficiently large and dense to support a waterbird nest. At some time of the year, mats of algae and/or duckweed are likely to cover >50% of the AA's otherwise-unshaded water surface,	0	[EC, PR, WBF]	4
	5 5	or blanket >50% of the underwater substrate. If true, enter "1" in next column. If untrue or uncertain, enter "0".	U	[EO, PR, WBF]	
	2 4 5 1 1 1 2 5 4				
12	Channel Connection	The most persistent surface water connection (outlet channel or pipe, ditch, or overbank water exchange) between the AA and a		Consider the connection regardless of whether the surface water is frozen. The "downslope	
	& Outflow Duration	downslope stream network is: [Note: If the AA represents only part of a wetland, answer this according to whichever is the least		stream network" could consist of ditches, rivers, ponds, or lakes which eventually connect to	
		permanent surface connection: the one between the AA and the rest of the wetland, or the surface connection between the		the ocean. If this cannot be determined while visiting the AA, consult topographic maps	
		wetland and the downslope stream network.1 Persistent (surface water flows out for >9 months/year).	0	perhaps by viewing these online with Toporama	
		· · ·	0	(http://atlas.nrcan.gc.ca/toporama/en/index.html) [CS, FA, FR, NR, OE, PR, Sens, SFS, SR,	
		Seasonal (surface water flows out for 14 days to 9 months/year, not necessarily consecutive).	0	WCv, WS]	
		Temporary (surface water flows out for <14 days, not necessarily consecutive).	1		0 111 4
		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		OutNone1
		No surface water flows out of the wetland except possibly during extreme events (<once 10="" a<="" flows="" into="" only="" or,="" per="" td="" water="" years).=""><td>0</td><td>1</td><td>Outnone</td></once>	0	1	Outnone
		wetland, ditch, or lake that lacks an outlet. SKIP to F47 (pH Measurement).			Gallone
13	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	
		Mostly passes through a pipe, culvert, narrowly breached dike, berm, beaver dam, or other partial obstruction (other than natural	0	snowmelt. [CS, NR, OE, PR, Sens, SR, STR, WS]	
		topography) 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		
		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	0	1	
		edge, which drain the wetland artificially, or water is pumped out of the AA.			
14	Tributary Channel	At least once annually, surface water from a tributary channel that is >100 m long moves into the AA. Or, surface water from a		If inlet tributaries cannot be searched for due to inaccessibility of part of the AA, follow	Inflows
		larger permanent water body adjacent to the AA spills into the AA. If it enters only via a pipe, that pipe must be fed by a mapped	0	suggestions in F42 above. [NRv, PH, PRv, SRv]	
		stream or lake further upslope. If no, SKIP to F47 (pH Measurement).			
15	Input Water	Based on lack of shade, water source characteristics, or actual temperature measurements, the inflow is likely to be warmer than	0	[WCv]	
	Temperature	surface water in the AA during part of most years. Enter 1= yes, 0= no.			
16	Throughflow	During its travel through the AA at the time of peak annual flow, water arriving in channels: [select only the ONE encountered by		[FA, FR, INV, NR, OE, PR, SR, WS]	
-	549511	- 5		, , , , , , , , , , , , , , , , , , , ,	

Conductivity TDS is: [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.] Conductivity is [Enter the reading in µS/cm in the column to the right.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". Neither of above 1 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.	incised) channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond or lake. Bumps into herbaceous vegetation but mostly remains in fairly straight channels. Bumps into herbaceous vegetation and mostly spreads throughout, or is in widely meandering, multi-branched, or braided ochannels.
or lake. Bumps into herbaceous vegetation but mostly remains in fairly straight channels. Bumps into herbaceous vegetation and mostly spreads throughout, or is in widely meandering, multi-branched, or braided channels. Bumps into tree trunks and/or shrub stems but mostly, remains in fairly straight channels. Bumps into tree trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or braided). The pTH in most of the AA's surface water is present and is darkly lear-doured. Or if no surface water, then mosses and plants that noticed respective the reading in the column to the right. If was not measured, and is: [enter the reading in the column to the right.] The TSH is most of the AA's surface water is present and is darkly lear-doured. Or if no surface water, then mosses and plants that noticed respectively in the column to the right. If measured to conductivity off the AA's surface water is; (select the reading in pam or mgf. in the column to the right. If measured to conductivity off the AA's surface water is; (select the reading in pam or mgf. in the column to the right. If measured to conductivity off the AA's surface water is; (select the reading in pam or mgf. in the column to the right. If measured to conductivity. If the remaining in paskin in the column to the right. If measured. The TSB (select the reading in pam or mgf. in the column to the right. If measured.) Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". Was not measured, but plants that indicate saline conditions cove	or lake. Bumps into herbaceous vegetation but mostly remains in fairly straight channels. Bumps into herbaceous vegetation and mostly spreads throughout, or is in widely meandering, multi-branched, or braided channels.
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Neither of above is true, although some groundwater may discharge to or flow through the AA. Or groundwater influx is unknown.	slope of the AA, AND the pH of surface water, if known, is >5.5.
	Neither of above is true, although some groundwater may discharge to or flow through the AA. Or groundwater influx is unknown.
<2% or the AA has no surface water outlet (not even seasonally). 1 inlet and outlet, divided by the flow-distance between them and converted to percent. If	
2-5%. available, use a clinometer to measure this. Free clinometer apps can be downloaded to	$\mathbf{L}^{-1}\mathbf{J}/\mathbf{U}$.
6-10%. smartphones. If the wetland is large (longer than ~1 km), this may be estimated using Goog	
	Earth to determine the minimum and maximum elevation within the AA, then dividing by 10%.

3 T ype	e 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		[AM, FA, INV, NRv, PH, POL, SBM, STR, WBN]	1
Buff		(mark ONE):		hin, th, inv, the, the object of the object	
		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.	0		
54 Buff		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		[NRv, PRv, Sens, SRv]	
		area has a percent slope of:		-	
		<1% (flat almost no noticeable slope) or all the area within 30 m of the AA edge is other wetlands.	0		
		2-5%.	0		
		5-30%. >30%.	0		
E OI:				Do not include unturned trace as notantial den sites. IDOL CDMI	
55 Cliffs	·	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]	
6 New		Human actions within or adjacent to the AA have persistently expanded a naturally occurring wetland or created a wetland where		Determine this using historical aerial photography, old maps, soil maps, or permit files as	
		there previously was none (e.g., by excavation, impoundment):		available [CS, NR, OE, PH, Sens]	
		No.	1		
		Yes, and created or expanded 20 - 100 years ago.	0	1	
		Yes, and created or expanded 3-20 years ago.	0	1	
		Yes, and created or expanded within last 3 years.	0	1	
		Yes, but time of origin or expansion unknown.	0	1	
		Unknown if new or expanded within 20 years or not.	0		
57 Burr	,	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,	
		Burned within past 5 years.		PH, STR]	
		Burned 6-10 years ago.	0	1	
		Burned 11-30 years ago.	0		
.0 \		Burned >30 years ago, or no evidence of a burn and no data.	1	TOUL OTD WIDE 1	
58 Visil		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]	
		Solid lings, or public maintained trails that intersect, adjoin, or are within 100 m of the AA (select one) is:	1	1	
		25-50%.	0	1	
		>50%.	0	1	
59 Non		Assuming access permission was granted, select ALL statements that are true of the AA as it currently exists:		[PU, STR]	
		For an average person, walking is physically possible <u>in</u> (not just near) >5% of the AA during most of the growing season, e.g.,	1	j ´ ´	
	ential	free of deep water and dense shrub thickets.			
		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	0		
		arriving via contiguous waters. Within or near the AA, there is an interpretive center, trails with interpretive signs or brochures, and/or regular guided interpretive	0	1	
		tours	0		
30 Unv	visited Core Area	The percentage of the AA almost never visited by humans during an average growing season probably comprises: [Note: Only		[AM, FAv, FRv, PH, PU, SBM, STR, WBF, WBN]	
		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.1 <5% and no inhabited building is within 100 m of the AA.	0	1	
		<5% and inhabited building is within 100 m of the AA.	0	1	
		5-50% and no inhabited building is within 100 m of the AA.	0	1	
		5-50% and inhabited building is within 100 m of the AA.	0	1	
		50-95%, with or without inhabited building nearby.	0	1	
		>95% of the AA with or without inhabited building nearby.	1	1	
31 Fred	quently Visited	The part of the AA visited by humans almost daily for several weeks during an average growing season probably comprises:		[AM, PH, PU, SBM, STR, WBF, WBN]	
Area	-	[See note above.]		, , , , , , , , , , , , , , , , , , , ,	
		<5%. If F60 was answered ">95%" (mostly never visited), SKIP to F64 .	1		
		5-50%.	0]	
		50-95%.	0]	

1	I	>95% of the AA.	0]		
F62	BMP - Soils	Boardwalks, paved trails, fences or other infrastructure and/or well-enforced regulations appear to effectively prevent visitors from walking on soil within nearly all of the AA when the soil is unfrozen. Enter "1" if true.	0	[PH, PU]		
F63	BMP - Wildlife Protection	Fences, observation blinds, platforms, paved trails, exclusion periods, and/or well-enforced prohibitions on motorised boats, off-leash pets, and off road vehicles appear to effectively exclude or divert visitors and their pets from the AA at critical times in order to minimize disturbance of wildlife (except during hunting seasons). Enter "1" if true.	0	[AM, PU, WBF, WBN]		
F64	Consumptive Uses	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select ALL that apply.		[FAv, FRv, WBFv]		
	(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	0			
	Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0			
		Waterfowl hunting.	0			
		Fishing.	0			
		Trapping of furbearers.	0			
		None of the above.	1		1	
F65	Domestic Wells	The closest wells or water bodies that currently provide drinking water are:		[NRv]		
		Within 0-100 m. of the AA.	0			
		100-500 m. away.	0			
		>500 m. away, or no information.	1			
F66	Calcareous Fen	The AA is, or is part of, a calcareous fen. See the Plants_Calcar worksheet in the accompanying SuppInfo file for list of plant indicators (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]		

	or: DM, BL	Site Identifier: Wind Energy Converter WL- D	j	Date: Sept 5, 2019							
	sor (S) Data Form for Non-Tida	al Wetlands. WESP-AC for Nev	w Brunswick. Version 2.		Dat						
	perrant Timing of Water Inputs the last column, place a check mark next to any item that is like	y to have caused the timing of water inputs (but not necessar	ily their volume) to shift by hours, days, or weeks, becoming eit.	her more muted (smaller or less frequent peaks spread over	r						
longe	ger times, more temporal homogeneity of flow or water levels)	or more flashy (larger or more frequent spikes but over shorte									
	ormwater from impervious surfaces that drains directly to the w ater subsidies from wastewater effluent, septic system leakage										
	egular removal of surface or groundwater for irrigation or other										
	ow regulation in tributaries or water level regulation in adjoining	· · · · · · · · · · · · · · · · · · ·	· · ·								
	dam, dike, levee, weir, berm, or fill within or downgradient fro cavation within the wetland, e.g., dugout, artificial pond, dead-		w in/out of the AA (e.g., road fill, wellpads, pipelines).		1						
	tificial drains or ditches in or near the wetland.	Sid dion.			1						
	ccelerated downcutting or channelization of an adjacent or inter	nal channel (incised below the historical water table level).									
	egging within the wetland. Ibsidence or compaction of the wetland's substrate as a result	of machinery livestock fire drainage or off road vehicles			1						
	raightening, ditching, dredging, and/or lining of tributary channel										
	ny items were checked above, then for each row of the table be owing rows. To estimate effects, contrast the current condition		s had no measurable effect on the timing of water conditions in	any part of the AA, then leave the "0's" for the scores in the							
TOHOL	owing rows. To estimate effects, contrast the current condition	Severe (3 points)	Medium (2 points)	Mild (1 point)							
\vdash		Severe (3 points)	iviedium (z points)	ivilia (1 politi)							
Spat	atial extent of timing shift within the wetland:	>95% of wetland.	5-95% of wetland.	<5% of wetland.	2						
	en most of the timing shift began:	<3 yrs ago.	3-9 yrs ago.	10-100 yrs ago.	2						
	ore the following 2 rows only if the altered inputs began within put timing now vs. previously:	Shift of weeks.	Shift of days.	Shift of hours or minutes.	2						
	shiness or muting:	Became very flashy or controlled.	Intermediate.	Became mildly flashy or controlled.	1						
	ū	, ,		Sum=	7						
Ac				Stressor subscore	0.5						
	ccelerated Inputs of Contaminants and/o			L DOLLOTE:							
		•	rated the inputs of contaminants or salts to the AA. [AM, FA, PF	1, POL, STRJ							
IVIE	ormwater or wastewater effluent (including failing septic systen etals & chemical wastes from mining, shooting ranges, show s t	is), landfilis, industrial facilities. orage areas, oii/ gas extraction, other sources (download mai	ny locations from National Polititant Release inventory and view	r Kiviz overlay iii Google Eartii. https://www.ec.gc.ca/iiiip-							
	i/default asn2lann=En&n=R85A18/16-1 oad salt.										
	oraying of pesticides, as applied to lawns, croplands, roadsides										
			s did not cumulatively expose the AA to significantly higher leve	ls of contaminants and/or salts, then leave the "0's" for the							
score	res in the following rows. To estimate effects, contrast the curr	ent condition with the condition if the checked items never occ Severe (3 points)	wured or were no longer present. Medium (2 points)	Mild (1 point)							
	ual toyiaity of most toyiatit	Industrial effluent, mining waste, unmanaged landfill.	Medium (2 points) Cropland, managed landfill, pipeline or transmission rights-of	, , ,							
	ual toxicity of most toxic contaminants:	, , , ,	way.	Low density residential.							
	equency & duration of input:	Frequent and year-round. 0 - 15 m.	Frequent but mostly seasonal. 15-100 m. or in groundwater.	Infrequent & during high runoff events mainly. In more distant part of contributing area.							
AA þ	proximity to main sources (actual or potential):	0 - 13 III.	13-100 III. Of III groundwater.	Sum-	= 0						
				Stressor subscore	_						
	ccelerated Inputs of Nutrients										
	he last column, place a check mark next to any item occurrin		rated the inputs of nutrients to the wetland. [NRv, PRv, STR]								
	ormwater or wastewater effluent (including failing septic systen ertilizers applied to lawns, ag lands, or other areas in the CA.	ns), landfills.									
	/estock, dogs.										
Arti	Artificial drainage of upslope lands.										
	If any items were checked above, then for each row of the table below, assign points. However, if you believe the checked items did not cumulatively expose the AA to significantly more nutrients, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or were no longer present.										
10 e.	estimate effects, contrast the current condition with the condition	n it the checked items never occurred or were no longer pres Severe (3 points)	ent. Medium (2 points)	Mild (1 point)							
Type	pe of loading:	High density of unmaintained septic, some types of	Moderate density septic, cropland, secondary wastewater	Livestock, pets, low density residential.							
	equency & duration of input:	industrial sources. Frequent and year-round.	treatment plant. Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.							
	proximity to main sources (actual or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.							
	, , , , , , , , , , , , , , , , , , , ,		-	Sum=	0						
				Stressor subscore	0.0						
	cessive Sediment Loading from Contrib				0.0						
In the	he last column, place a check mark next to any item present in	the CA that is likely to have elevated the load of waterborne of	or windborne sediment reaching the wetland from its CA. [FA, F.		0.0						
In the	he last column, place a check mark next to any item present in osion from plowed fields, fill, timber harvest, dirt roads, vegetat	the CA that is likely to have elevated the load of waterborne of	or windborne sediment reaching the wetland from its CA. [FA, F.		0.0						
In the Ero	he last column, place a check mark next to any item present in	the CA that is likely to have elevated the load of waterborne of	or windborne sediment reaching the wetland from its CA. [FA, F.		0.0						
In the Ero Ero Ero	the last column, place a check mark next to any item present in osion from plowed fields, fill, timber harvest, dirt roads, vegetat osion from construction, in-channel machinery in the CA.	the CA that is likely to have elevated the load of waterborne of	or windborne sediment reaching the wetland from its CA. [FA, F.		0.0						
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Assessment Area (AA) Results:

Wetland ID: WL-D Naveco turbine site

Date: 5 Sept, '19 Observer: DM, BL

Latitude & Longitude (decimal degrees):

Scores will appear below after data are entered in worksheets OF, F, and

S. See Manual for definitions and descriptions of how scores were

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Wetland Functions or Other Attributes:	Function Score (Normalised)	Function Rating	Benefits Score (Normalised)	Benefits Rating	Function Score (raw)	Benefits Scor (raw)
Water Storage & Delay (WS)	4.61	Moderate	1.18	Lower	5.28	1.25
Stream Flow Support (SFS)	2.29	Lower	5.67	Moderate	1.22	3.30
Water Cooling (WC)	3.00	Moderate	0.27	Lower	2.00	0.16
Sediment Retention & Stabilisation (SR)	2.64	Moderate	0.61	Lower	4.97	0.37
Phosphorus Retention (PR)	2.33	Lower	0.37	Lower	4.56	0.67
Nitrate Removal & Retention (NR)	2.61	Moderate	1.56	Lower	5.44	2.50
Carbon Sequestration (CS)	5.05	Moderate			6.74	
Organic Nutrient Export (OE)	5.14	Moderate			5.06	
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)	2.68	Moderate	4.80	Moderate	4.82	3.83
Amphibian & Turtle Habitat (AM)	7.89	Higher	3.36	Moderate	7.47	4.13
Waterbird Feeding Habitat (WBF)	5.56	Moderate	2.50	Moderate	4.42	2.50
Waterbird Nesting Habitat (WBN)	3.68	Moderate	0.00	Lower	3.14	0.00
Songbird, Raptor, & Mammal Habitat (SBM)	9.61	Higher	0.00	Lower	7.96	0.00
Pollinator Habitat (POL)	9.32	Higher	0.00	Lower	7.51	0.00
Native Plant Habitat (PH)	5.94	Moderate	5.94	Moderate	5.48	5.16
Public Use & Recognition (PU)			2.08	Lower		1.81
Wetland Sensitivity (Sens)			2.66	Lower		3.00
Wetland Ecological Condition (EC)			7.59	Higher		8.61
Wetland Stressors (STR) (higher score means more stress)			0.00	Lower		2.24
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	2.29	Lower	1.18	Lower	5.28	1.25
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	2.58	Lower	1.20	Lower	6.08	1.84
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	4.21	Moderate	4.62	Moderate	4.17	3.13
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	5.65	Moderate	2.26	Lower	5.24	2.73
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	8.95	Higher	3.96	Moderate	7.47	3.44
WETLAND CONDITION (EC)			7.59	Higher		8.61
WETLAND RISK (average of Sensitivity & Stressors)			1.33	Lower		2.62

.48	5.12
.07	5.39
.82	6.04
.41	6.22
.68	7.60

				New Brunswick	Referen	ice Score	S		
Min	Max	Range	F_JenksLo	F_JenksHigh	Min	Max	Range	B_JenksLo	B_JenksHigh
1.73	9.42	7.68	2.48	5.12	0.08	10.00	9.92	2.58	5.67
0.00	5.33	5.33	2.92	6.56	0.00	5.83	5.83	2.08	6.16
0.00	6.67	6.67	1.80	5.30	0.00	6.02	6.02	1.45	4.79
3.16	10.00	6.84	1.76	5.26	0.00	6.07	6.07	3.75	7.95
2.90	10.00	7.10	2.66	4.17	0.33	9.38	9.04	1.71	4.55
3.83	10.00	6.17	2.27	4.36	1.11	10.00	8.89	2.50	7.19
4.56	8.88	4.31	3.13	5.70					
2.33	7.64	5.30	3.12	5.26					
0.00	6.13	6.13	1.80	6.71	0.00	7.39	7.39	0.00	4.44
0.00	5.95	5.95	1.40	6.29	0.00	7.09	7.09	0.00	4.48
3.87	7.39	3.52	2.58	5.58	1.24	6.64	5.39	0.85	5.74
3.30	8.58	5.28	3.30	6.25	2.09	8.16	6.06	2.27	6.30
0.00	7.96	7.96	0.00	6.84	0.00	10.00	10.00	0.83	6.67
0.00	8.54	8.54	1.95	5.42	0.00	10.00	10.00	0.00	6.67
0.00	8.29	8.29	2.50	7.24	0.00	10.00	10.00	3.33	6.67
0.00	8.05	8.05	0.00	7.81	0.00	10.00	10.00	0.00	6.67
3.08	7.12	4.03	3.96	5.98	0.00	8.68	8.68	0.00	6.33
					0.33	7.44	7.11	2.40	5.51
					2.20	5.20	2.99	2.88	5.30
					4.24	10.00	5.76	3.25	6.39
					2.26	5.93	3.67	2.15	4.97
			2.48	5.12				2.58	5.67
			3.07	5.39				4.15	7.64
			3.82	6.04				1.34	4.99
			2.41	6.22				3.15	6.29
			4.68	7.60				0.00	5.33
								3.25	6.39

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 the 98 NB calibration wetlands that were assessed previously.

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	Wind Energy Converter WL- E
Investigator Name:	Derrick Mitchell
Date of Field Assessment:	Sept 5, 2019
Nearest Town:	Grande Anse, NB
Latitude (decimal degrees):	47.8251
Longitude (decimal degrees):	-65.0944
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	1,062 ha
AA as percent of entire wetland (approx.). Attach sketch map if AA is smaller than the entire contiguous wetland.	5
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:	No
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):	

Date: Sept 5, 2019	Site Identifier: Wind Energy Converter WL-E	Investigator: DM, BL

Form OF (Office). Non-tidal Wetland Data Form. WESP-AC version 2 for New Brunswick 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

GeoNB: http://www.snb.ca/geonb1/ and http://www.snb.ca/geonb1/e/apps/apps-E.asp

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

#	Indicators	Condition Choices	Data	Definitions/Explanations	Cell Name	Comments
1	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 spatial data exists in a particular		
		New Brunswick	1		NB	
		Nova Scotia	0 province.	NS		
		Prince Edward Island	0	0 PEI	PEI	
		Newfoundland-Labrador	0		NL	
2		The area of surface wate r ponded during most of the growing season that is both (1) in or adjacent to the AA and (2)		"Adjacent" means not separated from the AA by a wide expanse (>50 m) of upland		
		within 1 km is:	0	(including roads >50 m wide). Include ponded areas likely to be hidden by wetland		
		<0.01 hectare (about 10 m x 10 m).	0	vegetation. If surface water extends beyond 1 km, include only the part within 1 km.		
		0.01 - 0.1 hectare.	0			
		0.1 - 1 hectare.	0			
		1 to 10 hectares.	0			
		10 to 100 hectares.	0			
		>100 hectares.	0			
F3		The area of wetlands and surface water ponded during most of the growing season that is both (1) in or adjacent to		See definition of adjacent in OF2. If the AA's wetland vegetation extends beyond 1		
		the AA and (2) within 1 km is: <0.01 hectare (about 10 m x 10 m).	0	km, include only the part within 1 km. "Ponded" means not flowing in rivers or streams. [Sens, WBF]		
		0.01 - 0.1 hectare (about 10 m x 10 m).	0	streams. [sens, wbr]		
		0.1 - 1 hectare.	0	1		
		1 to 10 hectares.	0			
		10 to 100 hectares.	1			
		>100 hectares.	0			
- 4	Size of Largest	The largest vegetated patch or corridor that includes the AA's vegetation plus all adjacent upland vegetation that is	0	See definition of adjacent in OF2. Use Google Earth Pro's polygon ruler (as described	 	
4	_	not lawn, row crops, heavily grazed lands, conifer plantation is:		above). Exclude conifer plantations only if it is obvious that trees were planted in		
	, -	<0.01 hectare (about 10 m x 10 m).	0	rows. [AM, PH, SBM, Sens]		
		0.01 - 0.1 hectare.	0			
		0.1 - 1 hectare.	0	1		
		1 to 10 hectares.	0			
		10 to 100 hectares.	0	1		
		100 to 1000 hectares.	0	-		
		>1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	1	1		
F5		The minimum distance from the edge of the AA to the edge of the closest vegetated land (but excluding row crops,		To measure distance, use Google Earth Pro (Ruler > Line tool). Or use Draw &		
	Vegetated Tract	lawn, conifer plantation) larger than 375 hectares (about 2 km on a side), is:		Measure tool at GeoNB. The 375-ha criterion is from the Fundy Model Forest Project.		

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		<50 m, and not separated from the 375-ha vegetated area by any width of paved roads, stretches of open water,	- 1	[AM, PH, POL, SBM, Sens]		
		row crops, bare ground, lawn, or impervious surface. Or the AA itself contains >375 ha of vegetation. [This is often				
		the answer in relatively undeveloped landscapes.]	0			
		<50 m, but completely separated from the 375-ha vegetated area by those features, and AA does not contain >375	0			
		ha of vegetation.				
		50-500 m, and not separated.	U			
		50-500 m, but separated by those features.	0			
		0.5 - 5 km, and not separated.	0			
		0.5 - 5 km, but separated by those features.	0			
		None of the above (the closest patches or corridors which are that large are >5 km away).	0			
OF6			0	For this greation only consider mass to be harborous vegetation. Determine the		
OFO		The AA's vegetation cover is >10% herbaceous* but uplands within 5 km have <10% herbaceous cover. If so, enter	U	For this question only, consider moss to be herbaceous vegetation. Determine the		
	•	"3" and continue to OF7. If not, consider:		score by viewing aerial imagery in Google Earth after successively drawing or		
		The AA's vegetation cover is >10% herbaceous* but uplands within 1 km have <10% herbaceous cover. If so enter "2"		estimating the boundaries of the buffers of 5 km, 1 km, and 100 m radius focused on		
		and continue to OF7. If not, consider:		the center of the AA. Circles of specified radius can be drawn in Google Earth Pro by		
		The AA's vegetation cover is >10% herbaceous* but uplands within 100 m of the wetland edge have <10%		clicking on the Ruler icon, then Circle in the pop-up menu. [AMv, PHv, POLv, SBMv,		
		herbaceous cover. If so, enter "1".		WBFv, WBNv]		
		[* NOTE: Exclude lawns, row crops, heavily grazed lands, forest, shrublands. Include moss as well as grasslike plants				
		in this use of "herbaceous vegetation"]				
OE7	M/a a de l'Uniter	-	_	Con about Do not consider conference to the fact of 1999 and 1999		
OF7		The AA's vegetation cover is >10% woody* but uplands within 5 km have <10% woody cover. If so, enter "3" and		See above. Do not consider conifer plantations to be forest if it is obvious that trees		
		continue to OF8. If not, consider:		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, consider:				
		The AA's vegetation is >10% woody* but uplands within 100 m of the wetland edge have <10% woody cover. If so,				
		enter "1"				
		[* NOTE: woody cover = trees & shrubs taller than 1 m.]				
OF8	Local Vegetated	Draw a 5-km radius circle measured from the center of the AA. Ignoring all permanent water in the circle, the		In Google Earth, draw the 5 km buffer and then estimate land cover percentages, or		
	=					
	Cover Percentage	percent of the remaining area that is wooded or unmanaged herbaceous vegetation (NOT lawn, row crops, bare or		do GIS analysis of an appropriate land cover layer. [AM, PH, POL, SBM, Sens]		
		heavily grazed land, clearcuts, or conifer plantations) is:	0			
		<5% of the land.	0			
		5 to 20% of the land.	0			
		20 to 60% of the land.	1			
		60 to 90% of the land.	0			
		>90% of the land. SKIP to OF10.	0			
	* *	Within the 5-km radius circle, and ignoring all permanent water, the land area that is bare or non-perennial cover is		[AM, SBM]		
	Alteration	mostly:				
		Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0			
		Bare pervious surface, e.g., lawn, recent (<5 yrs ago) clearcut, dirt or gravel road, cropland, landslide, conifer	1			
		plantation.				
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-		
	Nearest Population	<100 m.	1	inhabited structures per square kilometer. In Google Earth, click on the Ruler icon,		
		100 - 500 m.	n	then Path, and draw and measure the route. Or use the GeoNB's Draw & Measure		
			^	tool> Freehand Line to draw and measure the route to Settlements (click on Place		
		0.5- 1 km.	U	Names in menu) or other areas not close to mapped settlements but which meet the		
		1 - 5 km.	0	criteria.[FAv, FRv, NRv, PH, PU, SBM, WBFv]		
		>5 km.	0	Sites is [1747, 1447, 1447, 147, 107, 3014], WOLV		
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 and measuring with the		
		<10 m.	0	Ruler>Line tool. Or use the GeoNB's Draw Line tool. [AM, FAv, FRv, NRv, PH, PU,		
		10 - 25 m.	n	SBM, STR, WBN]		
			^			
		25 - 50 m.	U			
		50 - 100 m. 100 - 500 m.	0			

		>500 m.	0]		
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	In NB, enable the Wetlands layer in GeoNB (despite its omissions) to show surrounding wetlands and roads, while estimating the location of the 5 km circle (or draw the 5 km circle in Google Earth Pro using the Circle tool and compare). Evaluate using Google Earth, being cautious to search for roads hidden under forest canopy.		
OF13	DF13 Distance to Ponded Water	The distance from the AA center to the closest (but separate) ponded water body visible in GoogleEarth imagery is:		In Google Earth, zoom in closely to examine the surrounding landscape for ponds, lakes, and wetlands that appear to be permanently flooded. Enable the GeoNB		
	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	viewer's Wetlands layer as well. [AM, PH, SBM, Sens, WBF, WBN]		
		<50 m, but completely separated by those features.	0			
		50-500 m, and not separated.	0			
		50-500 m, but separated by those features.	1			
		0.5 - 1 km, and not separated.	0			
		0.5 - 1 km, but separated by those features.	0			
		None of the above (the closest patches or corridors that large are >1 km away).	0			
OF14	Distance to Large	The distance from the AA center to the closest (but separate) non-tidal body of water that is ponded during most of		Determine this by viewing aerial imagery in Google Earth. [Sens, WBF, WBN]		
	Ponded Water	the year and is larger than 8 hectares during most of a normal year is:				
		<100 m.	0			
		100 m - 1 km.	0			
		1 -2 km.	0			
		2-5 km.	0			
		5-10 km.	0			
		>10 km.	1			
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		
		<100 m.	0	river, whichever is closer. If you need to see how far upriver a river is tidal, see the		
		100 m - 1 km.	1	KMZ file provided with this calculator for NB (NB Headtide). Points shown in those files are only an approximation, so local information if available may be preferable. [FA, WBF]		
		1 - 5 km.	0			
		5-10 km.	0			
		10-40 km.	0			
		>40 km.	0	1		
OF16	Upland Edge Contact			[NR, SBM, Sens]		
	-	The AA has no upland edge (or upland is <1% of perimeter). The AA is entirely surrounded by (& contiguous with)	0	[, -5]		
		other wetlands or water.	Ů			
		1-25% of the AA's perimeter abuts upland (including filled areas). The rest adjoins other wetlands or water that is	0			
		mostly wider than the AA.				
		25-50% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0			
		50-75% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0			
		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			
OF17	Flood Damage from	Within 5 km downstream or downslope of the AA (select first true choice):		In the GeoNB map viewer: click on "More" in upper right, then "Flood Information".		
	Non-tidal Waters	Maps show Flood Zone or Flood Risk areas and there appears to be infrastructure vulnerable to river flooding not	Λ	Expand the menu under it by clicking on the arrow to its left and the slider to its		
	Ten didd. Waters	caused by tidal storm surges.	Ü	right. Uncheck the first (Limits of Data) box. Where available, LiDAR imagery can		
		Maps show Flood Zone or Flood Risk areas, but infrastructure is absent or is not vulnerable to floods from a non-tidal	0	provide finer elevational resolution useful for flood modeling. [WSv]		
		river. In some cases levees, upriver dams, or other measures may partly limit damage or risk from smaller events.				
		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure vulnerable to river flooding unrelated to tidal storm surges.	0]		
		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there is no	1			
		infrastructure vulnerable to river flooding unrelated to tidal storm surges.				

0=::				Itan un a la acción de la companya d	- ·-	•
UF18		In Google Earth, enable the Terrain layer (lower left menu) and open the NB_Watersheds KMZ file that accompanies		[FA, NR, Sens, SFSv, WCv, WSv]	ShedPos	
	Watershed	this calculator. Then determine the AA's approximate elevation (bottom right, NOT the "eye alt"). Then move cursor	0.90		1	
		around to determine the watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-				
0540		min)	_			
OF 19	Water Quality	In Google Earth, open the KMZ file NB_Watershed Protected Area which accompanies this calculator. The AA is	0	If an ACCDC report is available for this AA, it also may contain such information.		
		within such an area. Enter 1= yes, 0= no.		[NRv]		
0500	or Area	Constitution of the second of		Manager of the state of the sta		
OF20	Degraded Water	Sampling indicates a problem with concentrations of metals, hydrocarbons , nutrients , or other substances		May use existing data, or sample those waters as part of this wetland assessment.		
	Upstream	(excluding bacteria, acidic water, high temperatures) being present at levels harmful to aquatic life or humans, and:		"Harmful" should be evaluated with regard to current federal or provincial water		
		The condition is present within the AA.	0	quality standards. [AM, FA, FR, NRv, PRv, SRv, STR, WBF, WBN]		
			0	-		
		The condition is present in waters within 1 km that flow into the AA, but has not been documented in the AA itself.	U			
		Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in	0			
		either the AA or inflowing waters.	U			
		Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the	1			
		situation for nearly all wetlands in this region.	, i			
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,		
	_	The condition is present within 1 km downslope and connected to the AA by a channel.	0	PRv, SRv]		
		The condition is present within 5 km downslope and connected to the AA by a channel, or within 1 km but not	0			
		connected to the AA by a channel.	Ŭ			
		Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in	0	1		
		either the AA or inflowing waters.	Ů			
		Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the	1			
		situation for nearly 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		Topographic maps may be viewed online at the National Atlas of Canada		
	Contributing Area	entire wetland of which the AA may be only a part. Then adjust those boundaries if necessary based on your field		(Toporama): http://atlas.gc.ca/toporama/en/index.html [NR, PR, Sens, SR,		
	(Catchment)	observations of the surrounding terrain, and/or by using procedures described in the Manual. Divide the area of the		WS]		
		wetland (not just the AA) by the approximate area of its catchment excluding the area of the wetland itself. When				
		doing the calculation, if ponded water is adjacent to the wetland, include that in the wetland's area. The result is:				
		<0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	0			
		0.01 += 0.1	1			
		0.01 to 0.1.	1			
		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	0			
0500		isolated by dikes, or is a raised bog).			+	
OF23		The proportion of the AA's contributing area (measured to no more than 1000 m upslope) that is comprised of		[FA, INV, NRv, PRv, SRv, STR, WCv, WSv]		
	_	buildings, roads, parking lots, other pavement, exposed bedrock, landslides, and other mostly-bare surface is about:				
	Area	<10%.	1			
		10 to 25%.	0			
			0	1		
0501	<u> </u>	>25%.	U	fun en en vue l		
OF24	Transport From	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as		[NRv, PRv, SRv, WSv]		
	Upslope	runoff (surface water), as indicated by the following:				
		(a) input channel is present,			1	
		(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.				
		Mostly true.	0	1		
		Somewhat true.	0	1		
1		11 11 11 11 11 11 11 11 11 11 11 11 11		J	ı	1

, ,		Mostly untrue.	1]		I
JF25	Aspect	The overland flow direction of most surface water (in streams, rivers, or runoff) that enters the AA is:		[AM, NR, SFS, WC, WS]		
-		Northward (N, NE). north-facing contributing area.	1			
-		Southward (S, SW). south-facing contributing area.	0			
•		Other (E, SE, W, NW), or no detectable uphill slope or input channel (flat).	0			
JF26	Internal Flow	The horizontal flow distance from the wetland's inlet to outlet is:		Identify inlets and outlets, if any, from topographic maps (use elevations to		
-	Distance (Path	<10 m.	0	determine which are inlets and which are outlets) and augment by field inspection.		
-	Length)	10 - 50 m.	0	[NR, OE, PR, SR, WS]		
-		50 - 100 m.	0			
-		100 - 1000 m.	0			
•		1- 2 km.	0			
•		>2 km, or wetland lacks an inlet and outlet.	1			
JF27	Growing Degree	In Google Earth, open the KMZ file that accompanies this calculator, called NB-PEI_GrowingDegreeDays. Place your	1500	This layer was provided by Dr. Dan McKenney of the Canadian Forest Service [AM,	GrowD	
		cursor over the AA and left-click. From the pop-up, enter the GRIDCODE in the next column.	1300	CS, FR, INV, NR, OE, PH, PR, Sens, SR, WBF, WCv, WS]		
JF28	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		
-		Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. In NB, consult	Λ	waters have been stocked. In NB, the list of stocked waters is at:		
-		Figure A-2 in Appendix A of the Manual. Contact local fishery biologists, review the ACCDC report, and visit these	U	http://www2.gnb.ca/content/gnb/en/departments/erd/natural_resources/content/fish/content/StockedWaters.html		
-		websites: http://www.salmonatlas.com/atlanticsalmon/canada-east/index.1.html		[AM, FA, FR, INV, WBF, WBN]		
-		httn·//atlanticsalmonfederation_org/rivers/introduction_html		[,,,,]		
•		Has not been documented to support Atlantic salmon rearing and/or spawning, but is connected to nearby waters	0			
-		likely to contain Atlantic salmon or other anadromous species or eels and is probably accessed by those during some				
•		conditions. Is probably is not accessed by any anadromous fish species but is known or likely to have other fish at least	0			
-		seasonally.	-			
		Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	1			
	· -	Within the past 10 years, in the AA (or in its adjoining waters or wetland), qualified observers have documented		Request information from ACCDC and/or conduct your own survey at an appropriate		
	Conservation	[mark all applicable]: Presence of one or more of the plant species listed in the Plants_Rare worksheet of the accompanying SuppInfo file,	<u> </u>	season using an approved protocol. For birds, also check eBird.org. [AMv, EC, PHv,		
-	Concern	or the AA is within a mapped Atlantic Coastal Plain Flora Buffer	U	POLv, SBMv, Sens, WBFv, WBNv]		
-		Presence of one or more of the amphibian or reptile species (AM) of conservation concern as listed in the	0			
•		Wildlife Rare worksheet of the accompanying SuppInfo file.				
-		Presence of one or more of the waterbird species (WBF, WBN) of conservation concern as listed in the Wildlife_Rare	0	_		
-		worksheet of the accompanying SuppInfo file. Presence of one or more of the nesting songbird or raptor species (SBM) of conservation concern as listed in the	0			
•		Wildlife Rare worksheet of the accompanying Suppling of Taptor species (Salvi) of conservation concern as listed in the Wildlife Rare worksheet of the accompanying Suppling file, during their nesting season (May-July for most species).	U			
•		whalite_nare worksheet of the accompanying supplino life, daring their nesting season (way sary for most species).				
		None of the above, or no data.	1			
	•	In Google Earth, open the KMZ file that accompanies this calculator, called IBAs_Canada. The AA is all or part of an	0	The source of this layer, which should be checked periodically for updates, is:		
•	(IBA)	officially designated IBA. Enter 1= yes, 0= no.		http://www.ibacanada.com/mapviewer.jsp?lang=EN [SBMv, WBFv, WBNv]		
OF31	Black Duck Nesting	In Google Earth, open the KMZ file that accompanies this calculator, called BlackDuck. Adjust its alignment and	0	This was provided by Dr. David Leske. [WBNv]		
	_	opacity. Determine the predicted density (pairs per 25 sq. km) of nesting American Black Duck in the AA's vicinity:				
		<10 (enter 0), 10-20 (enter 1), 20-30 (enter 2), >30 (enter 3). If outside of region shown in map, change to blank .				
OF32	Wintering Deer or	If AA is on private land with no information, change to blank (not 0). If on public/crown land, in Google Earth open		[SBM]		
	Moose	the KMZ file that accompanies this report called NB_DeerWinteringAreas.Otherwise: Enter: yes= 1, no= 0.				
,	Concentration Areas					
1	Concentration Areas					

2 - 2 5				
OF33	Other Conservation	With GeoNB, click on Candidate PNA Map Viewer to identify Provincially Significant Wetland, Environmentally	0	[PU]
	Designation	Significant Area, Protected Natural Area but also include if 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. Enter: yes= 1, no= 0. If uncertain, consult NCC and agencies for more recent		
		information		
OF34	Conservation	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve,	0	[PU]
	Investment	create, restore, or enhance the wetland (excluding mitigation wetlands). Ask the property owner. Enter: yes= 1, no=		
		0. If no information, change to blank (not 0).		
OF35	Mitigation	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere. Ask the property owner. Enter:		[PU]
	Investment	yes= 1, no= 0. If no information, change to blank.		
OF36	Sustained Scientific	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and		[PU]
	Use	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 to blank		
OF37	Calcareous Region	The AA is in an area that is at least partly underlain by soil, sediment, or bedrock that is highly calcareous (enter 3 in	0	If GIS is available, you may use the Bedrock Geology shapefile obtainable at
		next column), moderately calcareous (enter 2), or slightly calcareous (enter 1), none= 0. Limestone is typically a		http://www.snb.ca/geonb1/e/DC/catalogue-E.asp [AM, FA, FR, INV, PH]
		major component (karst geology) and water is not acidic (pH is usually >8). See Figure A-6 in Appendix A of the		
		Manual. If no map coverage, change to blank.		
OF38	Ownership	Select the ONE ownership that covers the most of the AA. In Google Earth, open KMZ file called NB Crown lands.Use		"Private lands" may include those owned or leased by non-governmental
		more recent information if available.		organizations, e.g., charitable conservation land trusts, DUC, TNC. [PU, STR]
		New timber harvest, roads, mineral extraction, and intensive summer recreation (e.g., off-road vehicles) are	0	
		permanently prohibited. Includes many publicly-owned Protected Lands, and private lands under long-term (30+		
		vear) legal agreements to maintain nearly-unaltered conditions.		
		Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are	0	
		allowed.		
		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable	0	
		or not) is in place.		
		Ownership is private and owner does not allow access, or access permission unknown, and not a conservation	1	
		easement.		

e: Sept 5, 2019	Site Identifier: Wind Energy Converter WL-E	Data DM	, BL		
ards its core, in the conduct the assess re allowed and so erring with the landition pertains, see y, SFS= Stream Flotat, FA= Anadrometric conduction of the stream flotat, FA= Anadrometric conductions.	Non-tidal Wetland Data Form. WESP-AC version 2 for New Brunswick wetland a part of the AA that is proposed for alteration. If no alteration is proposed, walk in a portion that appears to be ment only after reading the accompanying Manual and the Explanations column of the data form. In the Data of indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write downer or other knowledgable persons, and/or reviewing aerial imagery. For most wetlands, completing this for the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the West West West West West West West Wes	e most recolumn, ite in sha field data the accolute Remoat, WBN=	epresentative of the wetland overall. Walk only where it is safe and legal to do change the 0 (false) to a 1 (true) for the best choice, or for multiple choices ded parts of this data form. Answering some questions accurately may require a form will require 1-2 hours on a site. For a list of functions to which each mpanying Manual. Codes for functions and values are: WS= Water Storage & val, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate Nesting Waterbird Habitat, SBM= Songbird, Raptor, & Mammal Habitat, POL=		
Indicators	Condition Choices	Data	Definitions/Explanations	Cell Name	Comments
Wetland Type	Follow the key below and mark the ONE row that best describes MOST of the vegetated part of the AA:	200	Ericaceous shrubs are ones in the heather family (Ericaceae). Most have leathery evergreen		
	 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 adioining column. Otherwise go to B below. 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 rariflor a). Wetland surface and surrounding landscape are seldom sloping and wetland often is domed (convex). Inlet and outlet channels are usually absent. If known, pH of peat is <4.0. 	0	leaves. They include rhododendron, azalea, swamp laurel, leatherleaf, Labrador tea, and others. Most require acidic soil. Although not in the family Ericaceae, sweetgale (<i>Myrica gale</i>) should be counted also. [AM, CS, FA, FR, INV, NR, OE, PH, Sens, SFS, WBF, WBN]		
	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		Fen_	
	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:				
	B1. Trees and shrubs taller than 1 m comprise more than 25% of the vegetated cover. Surface water is mostly absent or	1			
	inundates the vegetation only seasonally (e.g., vernal pools or floodplain). B2. Not B1. Tree & tall shrubs comprise less than than 25% of the vegetated cover. Vegetation is mostly herbaceous, e.g.,			Marsh	
	cattail, bulrush, burreed, pond lily, horsetail. Surface water may be extensive and fluctuates seasonally, being either persistent or drying up partly or entirely.	0		Iviaioii	
minder : For all auesti	ons, the AA should include all persistent waters in ponds smaller than 8 hectares (~283 m on a side) that are adjacent to				
	lso include part of the water area of adjacent ponded water larger than 8 ha and adjacent rivers wider than 20 m.				
	Id include the open water part adjacent to wetland vegetation and equal in width to the average width of that vegetated				
~	ta form, "adjacent" is used synonymously with abutting, adjoining, bordering, contiguous and means no upland				
	mpletely separates the described features along their directly shared edge. Features joined only by a channel are not be adjacent a large portion of their edges must match. The features do not have to be hydrologically connected in order				
essamy considered to be considered adjacen					
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,		1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m,		
Adjoining or	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		1000 m by 10 m, or similar. [AM, INV, SBM, WBF]		
Subordinate	from aerial imagery. Do not mark again the type marked in F1.	^	1		
	A1. A2.	0	1		
	B1.	n	1		
	B2.	0	1		
Woody Height &	Following EACH row below, indicate with a number code the percentage of the living vegetation in the AA which is occupied by		Deciduous shrubs in this region usually include buttonbush, Labrador tea, bayberry (<i>Morella</i>),	1	
Form Diversity	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		huckleberry, cranberry, cloudberry, sweetgale, alder, willow, birch, ash, dogwood, and a few		
	largely herbaceous (non-woody) vegetation, these percentages should not sum to 100%. coniferous trees (may include tamarack) taller than 3 m.	3	others. If you assigned a code of 3 or higher to any of the first four choices and the ground		
	NAMED DESCRIPTION DE LA PROPERTIE DE LA PORTIE	3	cover beneath the trees/shrubs is <25% moss, then question F1 might be "B1". [CS, INV, NR,		

I	deciduous trees taller than 3 m.	5	PH, POL, SBM, Sens]
	coniferous or ericaceous shrubs or trees 1-3 m tall not directly below the canopy of trees.	3	,
	deciduous shrubs or trees 1-3 m tall not directly below the canopy of trees.	3	
	coniferous or ericaceous shrubs <1 m tall not directly below the canopy of taller vegetation.	2	
	deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	2	
ote · If none of ton 4 rows	in F3 was marked 2 or greater, SKIP to F9 (N fixers).		
	Determine which two woody plant species comprise the greatest portion of the low (<3 m) woody cover . Then choose one:		[PH, POL, SBM, Sens]
Abundant Shrub	those species together comprise > 50% of such cover.	1	[i 11, i OE, OBM, OBIO]
Species	• •	1	
	those species together do not comprise > 50% of such cover.	0	F.C. of the Proof of the Child Manual Proof of the Child M.
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		Estimate the diameters at chest height. If small-diameter trees are overtopped (shaded) by
Classes	upland edge (perimeter). The edge should include only the trees whose canopies extend into the AA. coniferous, 1-9 cm diameter and >1 m tall.	1	larger ones, visualise a "subcanopy" at the average height of the smaller-dbh trees, to serve as a basis for the minimum 5% canopy requirement in this question. The trees and shrubs
	broad-leaved deciduous 1-9 cm diameter and >1 m tall.	1	need not be wetland species. [AM, CS, POL, SBM, Sens, WBN]
	coniferous, 10-19 cm diameter.	1	Ticed not be welland species. [Aw, OO, 1 OE, Obiw, Octis, WDN]
	broad-leaved deciduous 10-19 cm diameter.	1	
		1	
	coniferous, 20-40 cm diameter.	1	
	broad-leaved deciduous 20-40 cm diameter.	1	
	coniferous, >40 cm diameter.	0	
	broad-leaved deciduous >40 cm diameter.	0	
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.		
	A1. The two height classes are mostly scattered and intermixed throughout the AA.	1	
	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 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.	0	
	B2. Not B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is	0	
	completely absent.	Ü	
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 one
Standing Trees)	None, or fewer than 8/ hectare which exceed this diameter.	1	that are at least 2 m tall. [POL, SBM, WBN]
	Several (>8/hectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km.	0	
	Several (>8/hectare) but above not true.	0	1
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]
	Few or none that meet these criteria.	1	
	Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria.	0	1
N Fixers	The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa,		Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
IN I INGIO	other legumes) is:		DO HOL HIGHARD IN HARING ANGAGE OF HARIOTIO. [1 74, 1 14, 1144, 1414, OL, 1 11, OLIVI, OCHO]
	<1% or none.	0	1
	1-25% of the vegetated cover, in the AA or along its water edge (whichever has more).	1	1
	25-50% 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	1
	>75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	1
Sphagnum Moss	The cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured		Exclude moss growing on trees and rocks. [CS, PH]
Extent	by taller sedges and other plants rooted in it, is:		Exolute moss growing on trees and rooks. [00, 111]
LAIGIIL	<5% of the vegetated part of the AA.	0	1
	5-25% of the vegetated part of the AA.	0	1
	25-50% of the vegetated part of the AA.	1	
	50-95% of the vegetated part of the AA.	0	1
	>95% of the vegetated part of the AA.	0	1
I	200 /0 of the vegetated part of the 701.	U	J

11 0	6 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		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that	-
		ground layer, the predominant condition in those areas at that time is:		is present under a tree or shrub canopy should be counted. Boulders count as bare ground.	`
		Little or no (<5%) bare ground is visible between erect stems or under canopy anywhere in the vegetated AA. Ground is	0	Wetlands with mineral soils and that are heavily shaded or are dominated by annual plant	
		extensively blanketed by dense thatch, moss, lichens, graminoids with great stem densities, or plants with ground-hugging		species tend to have more extensive areas that are bare during the early growing season.	
		foliage.		[AM, EC, INV, NR, OE, POL, PR, SBM, Sens]	
		Slightly bare ground (5-20% bare between plants) is visible in places, but those areas comprise less than 5% of the unflooded	1		
		parts of the AA.			
		Much bare ground (20-50% bare between plants) is visible in places, and those areas comprise more than 5% of the unflooded	0		
		parts of the AA. Other conditions.		-	
			0	4	
		Not applicable. Surface water (either open or obscured by emergent plants) covers all of the AA all the time.	0		4
12 (Ground Irregularity	Imagine the AA without any living vegetation. Excluding the portion of the AA that is always under water, the number of		The depressions may be of human or natural origin. [AM, EC, INV, NR, PH, POL, PR, SBM,	
		hummocks, small pits, raised mounds, animal burrows, ruts, gullies, natural levees, microdepressions, and other areas of peat or		SR, WS]	
		mineral soil that are raised or 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	1	
		Intermediate.	1		
		Several (extensive micro-topography).	0		
13 (Within the AA, inclusions of upland are:	U	[AM, NR, SBM]	-
ا ا	Jpland Inclusions		4	[AIVI, IVIN, ODIVI]	
		Few or none.	1		
		Intermediate (1 - 10% of vegetated part of the AA).	0	4	
		Many (e.g., wetland-upland "mosaic", >10% of the vegetated AA).	0		_
14	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		[CS, NR, OE, PH, PR, Sens, SFS, WS]	
		to check in at least 3 widely spaced locations, and use the soil texture key (in Appendix A of the Manual).]			
		Loamy: soils that may contain a little fine grit and do not make a "ribbon" longer than 2 cm when moistened, rolled, squeezed,	0		
		and extended between thumb and forefinger. Fines: includes silt, clay, silt, soils that make a ribbon longer than 2 cm when moistened, rolled, squeezed, and extended	0	1	
		between thumb and forefinger.	U		
		Deep Peat, to 40 cm depth or greater.	0	1	
		Shallow Peat or organic <40 cm deep.	1		
		Coarse: includes sand, loamy sand, gravel, cobble, soils that do not make a ribbon when moistened, rolled, squeezed, and	0		
		extended between thumb and forefinger.	Ü		
15		During any 2 consecutive weeks of the growing season, the extent of mudflats, bare unshaded saturated areas not covered by		This addresses needs of many but not all migratory sandpipers, plovers, and related species.	
		thatch, and unshaded waters shallower than 6 cm is: [Include also any area that is adjacent to the AA.]		[WBF]	
		None, or <100 sq. m.	1		
		100-1000 sq. m.	0		
		1000 – 10,000 sq. m.	0		
		>10,000 sq. m.	0		
16 H	lerbaceous % of	In aerial ("ducks eye") view, the maximum annual cover of herbaceous vegetation (all non-woody plants except moss) is:		[AM, WBF, WBN]	
		<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		NoHerbC
	•				
		5-25% of the vegetated part of the AA.	1		
		25-50% of the vegetated part of the AA.	0		
		50-95% of the vegetated part of the AA.	0		
		>95% of the vegetated part of the AA.	0		
17 F	orb 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,	
		<5% of the herbaceous part of the AA.	0	horsetails, or others that lack showy flowers. [POL]	
		5-25% of the herbaceous part of the AA.	0]	
		25-50% of the herbaceous part of the AA.	0]	
		50-95% of the herbaceous part of the AA.	1		
J		>95% of the herbaceous part of the AA.	0		AllForbC
		•			
18 .9		Sedges (Carex_spp.) and cottongrass (Eriophorum_spp.) occupy:		ICS1	
18 5	Sedge Cover	Sedges (<i>Carex</i> spp.) and cottongrass (<i>Eriophorum</i> spp.) occupy: <5% of the vegetated area, or none.	1	[CS]	

		50-95% of the vegetated area.	0		
		>95% of the vegetated area.	0		
9	Dominance of Most	Determine which two herbaceous species comprise the greatest portion of the herbaceous cover (excluding mosses and floating-		For this question, include ferns as well as graminoids and forbs. [EC, INV, PH, POL, Sens]	1
	Abundant	leaved aquatic plants). Then choose one of the following:			
	Herbaceous 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		
)	Invasive Plant Cover	How extensive is the cover of invasive plant species in the AA? For species, see Plants_invasive worksheet in the accompanying		[EC, PH, POL, Sens]	1
		SuppInfo file.			
		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 woody).	0		
		invasive species comprise 5-20% of the herb cover (or woody cover, if the invasives are woody).	0		
		invasive species comprise 20-50% of the herb cover (or woody cover, if the invasives are woody).	0		
		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		If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an	1
	Upland Edge	invasive plant species is:		exotic species, assume the unidentified plant to also be exotic. If vegetation is so senesced	
	opiana Lago	none of the upland edge (invasives apparently absent), or AA has no upland edge.	1	that exotic species cannot be identified, answer "none". [PH, STR]	
		some (but <5%) of the upland edge.	0		
		5-50% of the upland edge.	0		
		most (>50%) of the upland edge.	0		
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	0	[WBF, WBN, WCv]	1
_	i ingo vvolidila	width of the vegetated zone within the wetland. Enter "1" if true, "0" if false.	J	[,,]	
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	0	[FR, PR, PU, WBF, WBN]	1
		during most of a normal year.			
	% of AA Without	The percentage of the AA that <u>never contains surface</u> water during an average year (that is, except perhaps for a few hours after		1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m,	1
	Surface Water	snowmelt or rainstorms), but which is still a wetland, is:		1000 m by 10 m, or similar. [AM, FA, FR, INV, NR, PH, PR, SBM, Sens, SRv, WBF, WBN, WC	
		<1% . In other words, all or nearly all of the AA is covered by water permanently or at least seasonally.	0		
		1-25% of the AA, or <1% but >0.01 ha never contains surface water.	1		
		25-50% of the AA never contains surface water.	0		
		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	0		AllSat2
		99-100%. AND there is no persistent ponded water body larger than 1 ha within the AA. Enter "1" and SKIP to F42 (Channel	0		AllSat1
5	% of AA with	Connection). Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during		If you are unable to determine the condition at the driest time of year, ask the land owner or	-
		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		neighbors about it if possible. Indicators of persistence may include fish, some dragonflies,	
	Persistent Surface	AA that still contains surface water is:		beaver, and muskrat. [AM, CS, FA, FR, INV, NR, POL, PR, SBM, WBF, WBN]	
	Water	None. The AA dries up completely (no water in channels either) or never has surface water during most years. SKIP to F27.	0		NoPer
		1-20% of the AA.	1		
		20-50% of the AA.	0		
		50-95% of the AA.	0		
		>95% of the AA. True for many fringe wetlands.	0		AllWet
6	% 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		[FA, WC]	1
		features that are within the AA at that time is:			
	and and to office ou	<5% of the water is shaded, or no surface water is present then.	0		
		5-25% of the water is shaded.	0		
		25-50% of the water is shaded.	0		
		50-75% of the water is shaded.	0		
		>75% of the water is shaded.	1		
7	% 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 fully inundated. Also, such areas often have a larger proportion of upland and annual	N
	Flooded Only	None, or <0.01 hectare and <1% of the AA. SKIP to F29.	0	(vs. perennial) plant species. In riverine systems, the extent of this zone can be estimated by	NoSea
	Seasonally	1-20% of the AA, or <1% but >0.01 ha.	0	(vs. perennial) plant species. In riverine systems, the extent of this zone can be estimated by	1

		20-50% of the AA.	0	Tmultiplying by ∠ the bankful neight and visualising where that would intercept the land along the river. [CS, FA, INV, NR, OE, PH, SR, WBF, WBN, WS]		
		50-95% of the AA.	0			
		>95% of the AA.	1			
	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,		
		<10 cm change (stable or nearly so).	0	INV, NR, OE, PH, PR, SR, WBN, WS]		
		10 cm - 50 cm change.	1			
		0.5 - 1 m change.	0			
		1-2 m change.	0]		
		>2 m change.	0			
the	AA plus adjacent po	onded water smaller than 0.01 hectare (about 10m x 10m, or 1m x 100 m)? If so, enter "1" in column D and			TooSmall	
KIP 1	TO F42 (Connection)					
29	Predominant Depth	During most of the time when surface water is present during the growing season, its depth, averaged over the entire inundated		If a boat is unavailable, estimate this by considering wetland size and local topography. Or if	1	
	Class	part of the AA, is:		timing and safety allow, depths may be measured by drilling through winter ice. This question is		
		<10 cm deep (but >0).	1	asking about the spatial median depth that occurs during most of that time, even if inundation		
		10 - 50 cm deep.	0	is only seasonal or temporary. If inundation in most but not all of the wetland is brief, the		
		0.5 - 1 m deep.	0	answer will be based on the depth of the most persistently inundated part of the wetland.		
		1 - 2 m deep.	0	Include surface water in channels and ditches as well as ponded areas. [CS, FA, FR, INV,		
		>2 m deep. True for many fringe wetlands.	0	OE, PH, PR, Sens, SFS, SR, WBF, WBN, WC]		
30	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,	1	
	Evenness of	One depth class that comprises >90% of the AA's inundated area (use the classes in the question above).	1	INV, WBF, WBN]		
	Proportions	One depth class that comprises 50-90% of the AA's inundated area.	0			
		Neither of above. There are 3 or more depth classes and none occupy >50%.	0	1		
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	Ů	Nearly all wetlands with surface water have some ponded water. [AM, CS, INV, NR, OE, PR,	1	
		sediment is not held in suspension) AND (2) is likely to be deeper than 0.5 m in some places, is:		Sens, SR, WBF, WBN, WC, WS]		
	Ponded (not	<5% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34.	0		NoPonded	
	Flowing)	5-30% of the water.	0	1	Noi onaca	
		30-70% of the water.	0	1		
		70-95% of the water.	0	-		
		>95% of the water.	1			
20				One of the Second decreased by a contribute of the Second during t	0	
	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.	Openvv	
	% 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]	1	
	пасто Ороп	None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	0		NoOpenPo	
		1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	0	7	NoOpenPo	
		5-30% of the ponded water.	0	1		
		30-70% of the ponded water.	0	1		
		70-99% of the ponded water.	0			
		100% of the ponded water.	0	1	AllOpenPo	
34	Width of Vegetated	At the time during the growing season when the AA's water level is lowest, the average width of vegetated area <u>in the AA</u> that		"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed.	1	
	Zone within Wetland	separates adjoining uplands from open water within the AA is:		Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,		
	ZONG WILIIII VVCLIANU	<1 m.	0	CS, NR, OE, PH, PR, SBM, Sens, SR, WBN]		
		1 - 9 m.	0	1		
		10 - 29 m.	0	1		
		30 - 49 m.	0	1		
		50 - 49 m. 50 - 100 m.	_	-		
			0	4		
	EL 101 = :	> 100 m, or open water is absent at that time.			4	
35	Flat Shoreline Extent	During most of the part of the growing season when water is present, the percentage of the AA's water edge length that is nearly flat (a slope less than about 5% measured within 5 m landward of the water) is:		If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentle slope. [SR, WBN]		

		<1% of the water edge.	0		
		1-25% of the water edge.	0		
		25-50% of the water edge.	0		
		50-75% of the water edge.	0		
		>75% of the water edge.	0		
36	Robust Emergents	The percentage of the emergent vegetation cover in the AA that is cattail (Typha spp.), common reed (Phragmites), or tall		Emergent vegetation is herbaceous plants whose stems are partly above and partly below	
	i tobalot =o.go.iio	(>1m) bulrush is:		the water surface during most of the time water is present. [WBN]	
		<1% of the emergent vegetation, or emergent vegetation is absent. SKIP to F38.			NoRobustEm
		1-25% of the emergent vegetation.	0		
		25-75% of the emergent vegetation.	0		
		>75%, of the emergent vegetation.	0	1	
37	Interspersion of	During most of the part of the growing season when water is present, the spatial pattern of emergent vegetation within the water	- C	[AM, FA, FR, INV, NR, OE, PH, PR, SBM, SR, WBF, WBN]	-
	· '	is mostly:		[AIVI, FA, FK, IIVV, NK, OL, FH, FK, SDIVI, SK, WDI , WDIV]	
	Emergents & Open	Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water.	0		
	Water	Intermediate.	0		
		Clumped. More than 70% of such vegetation is in bands along the wetland perimeter or is clumped at one or a few sides of the	0	1	
		surface water area.	U		
8	Persistent Deenwater	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	0		DeepPersis
		weeks during the growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection).			200pi 01010
	7 11 0 04				
	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		For this question, consider only the wood that is at or above the water surface. Estimates of	
	Aquatic Cover	that is provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: Little or none.		underwater wood based only on observations from terrestrial viewpoints are unreliable so	
				should not be attempted. [AM, FA, FR, INV]	
		Intermediate.	0		
		Extensive.	0		
10	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	0	[WBN]	
		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			
11	Flooting Algon 0	sufficiently large and dense to support a waterbird nest. At some time of the year, mats of algae and/or duckweed are likely to cover >50% of the AA's otherwise-unshaded water surface,	0	[EC, PR, WBF]	4
	5 5	or blanket >50% of the underwater substrate. If true, enter "1" in next column. If untrue or uncertain, enter "0".	U	[EO, PR, WBF]	
	2 4 5 1 1 1 2 5 4				
12	Channel Connection	The most persistent surface water connection (outlet channel or pipe, ditch, or overbank water exchange) between the AA and a		Consider the connection regardless of whether the surface water is frozen. The "downslope	
	& Outflow Duration	downslope stream network is: [Note: If the AA represents only part of a wetland, answer this according to whichever is the least		stream network" could consist of ditches, rivers, ponds, or lakes which eventually connect to	
		permanent surface connection: the one between the AA and the rest of the wetland, or the surface connection between the		the ocean. If this cannot be determined while visiting the AA, consult topographic maps	
		wetland and the downslope stream network.1 Persistent (surface water flows out for >9 months/year).	0	perhaps by viewing these online with Toporama	
		· · ·	0	(http://atlas.nrcan.gc.ca/toporama/en/index.html) [CS, FA, FR, NR, OE, PR, Sens, SFS, SR,	
		Seasonal (surface water flows out for 14 days to 9 months/year, not necessarily consecutive).	0	WCv, WS]	
		Temporary (surface water flows out for <14 days, not necessarily consecutive).	1		0 111 4
		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		OutNone1
		No surface water flows out of the wetland except possibly during extreme events (<once 10="" a<="" flows="" into="" only="" or,="" per="" td="" water="" years).=""><td>0</td><td>1</td><td>Outnone</td></once>	0	1	Outnone
		wetland, ditch, or lake that lacks an outlet. SKIP to F47 (pH Measurement).			Gallone
13	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	
		Mostly passes through a pipe, culvert, narrowly breached dike, berm, beaver dam, or other partial obstruction (other than natural	0	snowmelt. [CS, NR, OE, PR, Sens, SR, STR, WS]	
		topography) 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		
		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	0	1	
		edge, which drain the wetland artificially, or water is pumped out of the AA.			
14	Tributary Channel	At least once annually, surface water from a tributary channel that is >100 m long moves into the AA. Or, surface water from a		If inlet tributaries cannot be searched for due to inaccessibility of part of the AA, follow	Inflows
		larger permanent water body adjacent to the AA spills into the AA. If it enters only via a pipe, that pipe must be fed by a mapped	0	suggestions in F42 above. [NRv, PH, PRv, SRv]	
		stream or lake further upslope. If no, SKIP to F47 (pH Measurement).			
15	Input Water	Based on lack of shade, water source characteristics, or actual temperature measurements, the inflow is likely to be warmer than	0	[WCv]	
	Temperature	surface water in the AA during part of most years. Enter 1= yes, 0= no.			
16	Throughflow	During its travel through the AA at the time of peak annual flow, water arriving in channels: [select only the ONE encountered by		[FA, FR, INV, NR, OE, PR, SR, WS]	
-	549511	- 5		, , , , , , , , , , , , , , , , , , , ,	

ı	I	Does not bump into many plant stems as it travels through the AA. Nearly all the water continues to travel in unvegetated (often	Ω]	
		incised) channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond	U		
		or lake.			
		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	0		
		channels.			
		Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels.	0		
		Bumps into tree trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or	0		
		braided).			
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	
		Was measured, and is: [enter the reading in the column to the right.]		that have passed through (not along) most of the AA. Unless surface water is completely	
		Was not measured but surface water is present and is darkly tea-coloured. Or if no surface water, then mosses and plants that	0	absent, do not dig holes or make depressions in peat in order to provide water for this	
		indicate peatland (e.g., Labrador tea) are prevalent. Enter "1".		measurement. Avoid measuring near roads or in puddles formed only by recent rain. [AM, FA, FR, NR, WBF, PH, PR, Sens, WBF, WBN]	
		Neither of above. Enter "1".	1		
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]	
	Conductivity	TDS is: [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.]			
		Conductivity is [Enter the reading in µS/cm in the column to the right.]			
		Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1".	0		
		Neither of above	1		
F49	Beaver Probability	Use of the AA by beaver during the past 5 years is (select most applicable ONE):		[FA, FR, PH, SBM, Sens, WBF, WBN]	
	•	Evident from direct observation or presence of gnawed limbs, dams, tracks, dens, lodges, or extensive stands of water-killed	0		
		trees (snags).			
		Likely based on known occurrence in the region and proximity to suitable habitat, which may include: (a) a persistent freshwater	0		
		wetland, pond, or lake, or a perennial low or mid-gradient (<10%) channel, and (b) a corridor or multiple stands of hardwood trees			
		and shrubs in vegetated areas near surface water.	- 0		
		Unlikely because site characteristics above are deficient, and/or this is a settled area or other area where beaver are routinely removed.	U		
F50	Groundwater	Select first applicable choice:		Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH,	
		Springs are known to be present within the AA, or if groundwater levels have been monitored, that has demonstrated that	0	or other evidence. Consult topographic maps to detect breaks in slope described here. Rust	
	· ·	groundwater primarily discharges to the wetland for longer periods during the year than periods when the wetland recharges the	O	deposits associated with groundwater seeps may be most noticeable as orange discoloration	
		groundwater.		in ice formations along streams during early winter. [AM, CS, FA, FR, INV, NR, OE, PH, PRv,	
				SFS, WC, WS]	
		Most of the AA has a class of SEO/ as is your close to the haze of a natived class larger than 100 and much at an author than			
		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.	U		
		Neither of above is true, although some groundwater may discharge to or flow through the AA. Or groundwater influx is unknown.	1		
		The state of the s			
-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	
		<2% or the AA has no surface water outlet (not even seasonally).	1	inlet and outlet, divided by the flow-distance between them and converted to percent. If	
		2-5%.	0	available, use a clinometer to measure this. Free clinometer apps can be downloaded to	
		6-10%.	0	smartphones. If the wetland is large (longer than ~1 km), this may be estimated using Google	
		>10%.	0	Earth to determine the minimum and maximum elevation within the AA, then dividing by length	TooSteep
				and multiniving by 100 TCS NR OF PR SR WRF WRN WSI	· · · · · · · · · · · · · · · · · · ·
<u>Note</u>	for the next three que	stions: If the AA lacks an upland edge, evaluate based on the AA's entire perimeter, and moving outward into whatever			
areas	are adjacent. In many	situations, these questions are best answered by measuring from aerial images.			
	T				
F52	Vegetated Buffer as	Within a zone extending 30 m laterally from the AA's edge with upland and/or other wetlands, the percentage that contains		[AM, FA, FR, INV, NRv, PH, POL, PRv, SBM, Sens, SRv, STR, WBN]	
		perennial vegetation cover (except lawns, row crops, heavily grazed land, conifer plantations) is:			
	% of Perimeter		_		
	% of Perimeter	<5%.	0		
	% of Perimeter	<5%. 5 to 30%.	0		
		<5%. 5 to 30%. 30 to 60%.			
		<5%. 5 to 30%.	0		BuffAllNat

3 T ype	e 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		[AM, FA, INV, NRv, PH, POL, SBM, STR, WBN]	1
	Buffer	(mark ONE):		hin, th, inv, the, the object of the object	
		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.	0		
54 Buff		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		[NRv, PRv, Sens, SRv]	
		area has a percent slope of:		-	
		<1% (flat almost no noticeable slope) or all the area within 30 m of the AA edge is other wetlands.	0		
		2-5%.	0		
		5-30%. >30%.	0		
E CI:E				Do not include unturned trace as notantial den sites. IDOL CDMI	
55 Cliffs	·	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]	
6 New		Human actions within or adjacent to the AA have persistently expanded a naturally occurring wetland or created a wetland where		Determine this using historical aerial photography, old maps, soil maps, or permit files as	
		there previously was none (e.g., by excavation, impoundment):		available [CS, NR, OE, PH, Sens]	
		No.	1		
		Yes, and created or expanded 20 - 100 years ago.	0	1	
		Yes, and created or expanded 3-20 years ago.	0	1	
		Yes, and created or expanded within last 3 years.	0	1	
		Yes, but time of origin or expansion unknown.	0	1	
		Unknown if new or expanded within 20 years or not.	0		
57 Burr	,	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,	
		Burned within past 5 years.		PH, STR]	
		Burned 6-10 years ago.	0	1	
		Burned 11-30 years ago.	0		
.0 \		Burned >30 years ago, or no evidence of a burn and no data.	1	TOUL OTD WIDE 1	
58 Visil		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]	
		Solid lings, or public maintained trails that intersect, adjoin, or are within 100 m of the AA (select one) is:	1	1	
		25-50%.	0	1	
		>50%.	0	1	
59 Non		Assuming access permission was granted, select ALL statements that are true of the AA as it currently exists:		[PU, STR]	
		For an average person, walking is physically possible <u>in</u> (not just near) >5% of the AA during most of the growing season, e.g.,	1	j ´ ´	
	ential	free of deep water and dense shrub thickets.			
		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	0		
		arriving via contiguous waters. Within or near the AA, there is an interpretive center, trails with interpretive signs or brochures, and/or regular guided interpretive	0	1	
		tours	0		
30 Unv	visited Core Area	The percentage of the AA almost never visited by humans during an average growing season probably comprises: [Note: Only		[AM, FAv, FRv, PH, PU, SBM, STR, WBF, WBN]	
		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.1 <5% and no inhabited building is within 100 m of the AA.	0	1	
		<5% and inhabited building is within 100 m of the AA.	0	1	
		5-50% and no inhabited building is within 100 m of the AA.	0	1	
		5-50% and inhabited building is within 100 m of the AA.	0	1	
		50-95%, with or without inhabited building nearby.	0	1	
		>95% of the AA with or without inhabited building nearby.	1	1	
31 Fred	quently Visited	The part of the AA visited by humans almost daily for several weeks during an average growing season probably comprises:		[AM, PH, PU, SBM, STR, WBF, WBN]	
Area	-	[See note above.]		, , , , , , , , , , , , , , , , , , , ,	
		<5%. If F60 was answered ">95%" (mostly never visited), SKIP to F64 .	1		
		5-50%.	0]	
		50-95%.	0]	

1	I	>95% of the AA.	0]		
F62	BMP - Soils	Boardwalks, paved trails, fences or other infrastructure and/or well-enforced regulations appear to effectively prevent visitors from walking on soil within nearly all of the AA when the soil is unfrozen. Enter "1" if true.	0	[PH, PU]		
F63	BMP - Wildlife Protection	Fences, observation blinds, platforms, paved trails, exclusion periods, and/or well-enforced prohibitions on motorised boats, off-leash pets, and off road vehicles appear to effectively exclude or divert visitors and their pets from the AA at critical times in order to minimize disturbance of wildlife (except during hunting seasons). Enter "1" if true.	0	[AM, PU, WBF, WBN]		
F64	Consumptive Uses	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select ALL that apply.		[FAv, FRv, WBFv]		
	(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	0			
	Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0			
		Waterfowl hunting.	0			
		Fishing.	0			
		Trapping of furbearers.	0			
		None of the above.	1			
F65	Domestic Wells	The closest wells or water bodies that currently provide drinking water are:		[NRv]		
		Within 0-100 m. of the AA.	0	1		
		100-500 m. away.	0	1		
		>500 m. away, or no information.	1			
F66	Calcareous Fen	The AA is, or is part of, a calcareous fen. See the Plants_Calcar worksheet in the accompanying SuppInfo file for list of plant indicators (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]		

Accelerated injusts of Contaminants and/or Salts Somman or animosor efficient (and or plant plant per page acceptance) and the page acceptance of the page accep	. 		w Brunswick. Version 2.		D					
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Some Systems Schemat Carbon Schemat	If any items were checked above, then for each row of the	he table below, assign points. However, if you believe the checked item		in any part of the AA, then leave the "0's" for the scores in the						
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Assessment Area (AA) Results:

Wetland ID: Wind Energy Converter WL-E

Date:

Observer: DM, BL

Latitude & Longitude (decimal degrees):

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)	5.35	Higher	2.18	Lower	5.85	2.25
Stream Flow Support (SFS)	2.29	Lower	9.15	Higher	1.22	5.33
Water Cooling (WC)	3.00	Moderate	0.44	Lower	2.00	0.26
Sediment Retention & Stabilisation (SR)	3.30	Moderate	1.28	Lower	5.41	0.78
Phosphorus Retention (PR)	2.03	Lower	3.32	Moderate	4.34	3.33
Nitrate Removal & Retention (NR)	3.32	Moderate	3.25	Moderate	5.88	4.00
Carbon Sequestration (CS)	4.82	Moderate			6.64	
Organic Nutrient Export (OE)	5.27	Higher			5.13	
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)	3.20	Moderate	4.47	Moderate	5.00	3.66
Amphibian & Turtle Habitat (AM)	6.51	Higher	4.53	Moderate	6.74	4.84
Waterbird Feeding Habitat (WBF)	5.60	Moderate	3.33	Moderate	4.46	3.33
Waterbird Nesting Habitat (WBN)	3.71	Moderate	2.50	Moderate	3.17	2.50
Songbird, Raptor, & Mammal Habitat (SBM)	9.13	Higher	2.50	Lower	7.57	2.50
Pollinator Habitat (POL)	8.57	Higher	0.00	Lower	6.90	0.00
Native Plant Habitat (PH)	5.89	Moderate	5.56	Moderate	5.46	4.82
Public Use & Recognition (PU)			2.55	Moderate		2.14
Wetland Sensitivity (Sens)			4.47	Moderate		3.54
Wetland Ecological Condition (EC)			7.59	Higher		8.61
Wetland Stressors (STR) (higher score means more stress)			1.75	Lower		2.90
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	2.29	Lower	2.18	Lower	5.85	2.25
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	3.10	Moderate	2.97	Lower	6.10	3.35
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	4.35	Moderate	6.92	Higher	4.23	4.21
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	4.84	Moderate	3.30	Moderate	4.81	3.49
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	8.49	Higher	4.12	Moderate	7.10	3.63
WETLAND CONDITION (EC)			7.59	Higher		8.61
WETLAND RISK (average of Sensitivity & Stressors)			3.11	Moderate		3.22

THE W BI WISWICK REJETETICE SCOTES	

Min	Max	Range	F_JenksLo	F_JenksHigh	Min	Max	Range	B_JenksLo	B_JenksHigh
1.73	9.42	7.68	2.48	5.12	0.08	10.00	9.92	2.58	5.67
0.00	5.33	5.33	2.92	6.56	0.00	5.83	5.83	2.08	6.16
0.00	6.67	6.67	1.80	5.30	0.00	6.02	6.02	1.45	4.79
3.16	10.00	6.84	1.76	5.26	0.00	6.07	6.07	3.75	7.95
2.90	10.00	7.10	2.66	4.17	0.33	9.38	9.04	1.71	4.55
3.83	10.00	6.17	2.27	4.36	1.11	10.00	8.89	2.50	7.19
4.56	8.88	4.31	3.13	5.70					
2.33	7.64	5.30	3.12	5.26					
0.00	6.13	6.13	1.80	6.71	0.00	7.39	7.39	0.00	4.44
0.00	5.95	5.95	1.40	6.29	0.00	7.09	7.09	0.00	4.48
3.87	7.39	3.52	2.58	5.58	1.24	6.64	5.39	0.85	5.74
3.30	8.58	5.28	3.30	6.25	2.09	8.16	6.06	2.27	6.30
0.00	7.96	7.96	0.00	6.84	0.00	10.00	10.00	0.83	6.67
0.00	8.54	8.54	1.95	5.42	0.00	10.00	10.00	0.00	6.67
0.00	8.29	8.29	2.50	7.24	0.00	10.00	10.00	3.33	6.67
0.00	8.05	8.05	0.00	7.81	0.00	10.00	10.00	0.00	6.67
3.08	7.12	4.03	3.96	5.98	0.00	8.68	8.68	0.00	6.33
					0.33	7.44	7.11	2.40	5.51
					2.20	5.20	2.99	2.88	5.30
					4.24	10.00	5.76	3.25	6.39
					2.26	5.93	3.67	2.15	4.97
			2.48	5.12				2.58	5.67
			3.07	5.39				4.15	7.64
			3.82	6.04				1.34	4.99
			2.41	6.22				3.15	6.29
			4.68	7.60				0.00	5.33
								3.25	6.39
								2.71	4.33

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 the 98 NB calibration wetlands that were assessed previously.

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	Tapline WL-1
Investigator Name:	Derrick Mitchell
Date of Field Assessment:	July 23, 2019
Nearest Town:	Grande Anse, NB
Latitude (decimal degrees):	47.779306°
Longitude (decimal degrees):	-65.127083°
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	18 ha (linear corridor)
AA as percent of entire wetland (approx.). Attach sketch map if AA is smaller than the entire contiguous wetland.	<5
What percent (approx.) of the wetland were you able to visit?	<5
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):	

Date: July 23, 2019	Site Identifier: Tapline WL-1	Investigator: DM		

Form OF (Office). Non-tidal Wetland Data Form. WESP-AC version 2 for New Brunswick 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

GeoNB: http://www.snb.ca/geonb1/ and http://www.snb.ca/geonb1/e/apps/apps-E.asp

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

#	Indicators	Condition Choices	Data	Definitions/Explanations	Cell Name	Comments
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		
			4	wetland is normalised. In the function and benefits models, it also triggers the	ND	
		New Brunswick	1	automatic exclusion of indicators for which no spatial data exists in a particular	NB	
		Nova Scotia	0	province.	NS DE	
		Prince Edward Island	0		PEI	
0.50		Newfoundland-Labrador	0		NL	
OF2		The area of surface wate r ponded during most of the growing season that is both (1) in or adjacent to the AA and (2)		"Adjacent" means not separated from the AA by a wide expanse (>50 m) of upland		
	1 km.	within 1 km is:	0	(including roads >50 m wide). Include ponded areas likely to be hidden by wetland		
		<0.01 hectare (about 10 m x 10 m).	1	vegetation. If surface water extends beyond 1 km, include only the part within 1 km. Do not include tidal areas. Measure the area from aerial imagery using Google Earth		
		0.01 - 0.1 hectare.	0	Pro (click on Ruler icon in toolbar, then Polygon in pop-up menu). With the GeoNB		
		0.1 - 1 hectare.	0	viewer, enable the Wetlands layer, then measure with the Draw & Measure tool after		
		1 to 10 hectares.	0	specifying Aerial as the Basemap. However, do not rely entirely on wetland		
		10 to 100 hectares.	0	boundaries shown in online wetlands layers. [PH, SBM, WBN]		
050	5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	>100 hectares.	U			
OF3		The area of wetlands and surface water ponded during most of the growing season that is both (1) in or adjacent to		See definition of adjacent in OF2. If the AA's wetland vegetation extends beyond 1		
		the AA and (2) within 1 km is: <0.01 hectare (about 10 m x 10 m).	0	km, include only the part within 1 km. "Ponded" means not flowing in rivers or streams. [Sens, WBF]		
	KIII.	0.01 - 0.1 hectare.	0	streams. [Sens, WDF]		
		0.1 - 1 hectare.	0			
		1 to 10 hectares.	1			
		10 to 100 hectares.	0			
		>100 hectares.	0			
OF4		The largest vegetated patch or corridor that includes the AA's vegetation plus all adjacent upland vegetation that is		See definition of adjacent in OF2. Use Google Earth Pro's polygon ruler (as described		
014	•	not lawn, row crops, heavily grazed lands, conifer plantation is:		above). Exclude conifer plantations only if it is obvious that trees were planted in		
	, 0	<0.01 hectare (about 10 m x 10 m).	0	rows. [AM, PH, SBM, Sens]		
		0.01 - 0.1 hectare.	0			
		0.1 - 1 hectare.				
		1 to 10 hectares.	0			
		10 to 100 hectares.		1		
		100 to 1000 hectares.	1			
		>1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	0			
OF5		The minimum distance from the edge of the AA to the edge of the closest vegetated land (but excluding row crops,		To measure distance, use Google Earth Pro (Ruler > Line tool). Or use Draw &		
	_	lawn, conifer plantation) larger than 375 hectares (about 2 km on a side), is:		Measure tool at GeoNB. The 375-ha criterion is from the Fundy Model Forest Project.		

Ī		<50 m, and not separated from the 375-ha vegetated area by any width of paved roads, stretches of open water,	1	Itana nu nou cona c	1
		row crops, bare ground, lawn, or impervious surface. Or the AA itself contains >375 ha of vegetation. [This is often	1	[AM, PH, POL, SBM, Sens]	
		the answer in relatively undeveloped landscapes.]			
		<50 m, but completely separated from the 375-ha vegetated area by those features, and AA does not contain >375	0		
		ha of vegetation.	Ĭ		
		50-500 m, and not separated.	0		
		50-500 m, but separated by those features.	0		
		0.5 - 5 km, and not separated.	0		
		0.5 - 5 km, but separated by those features.	0		
		None of the above (the closest patches or corridors which are that large are >5 km away).	0		
050		, , , , , , , , , , , , , , , , , , , ,	0		
OF6	Herbaceous 	The AA's vegetation cover is >10% herbaceous* but uplands within 5 km have <10% herbaceous cover. If so, enter	0	For this question only, consider moss to be herbaceous vegetation. Determine the	
	Uniqueness	"3" and continue to OF7. If not, consider:		score by viewing aerial imagery in Google Earth after successively drawing or	
		The AA's vegetation cover is >10% herbaceous* but uplands within 1 km have <10% herbaceous cover. If so enter "2"		estimating the boundaries of the buffers of 5 km, 1 km, and 100 m radius focused on	
		and continue to OF7. If not, consider:		the center of the AA. Circles of specified radius can be drawn in Google Earth Pro by	
		The AA's vegetation cover is >10% herbaceous* but uplands within 100 m of the wetland edge have <10%		clicking on the Ruler icon, then Circle in the pop-up menu. [AMv, PHv, POLv, SBMv,	
		herbaceous cover. If so, enter "1".		WBFv, WBNv]	
		[* NOTE: Exclude lawns, row crops, heavily grazed lands, forest, shrublands. Include moss as well as grasslike plants			
		in this use of "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	0	See above. Do not consider conifer plantations to be forest if it is obvious that trees	
	, ,	continue to OF8. If not, consider:		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, consider:			
		The AA's vegetation is >10% woody* but uplands within 100 m of the wetland edge have <10% woody cover. If so,			
		enter "1"			
		[* NOTE: woody cover = trees & shrubs taller than 1 m.]			
OF8	Local Vegetated	Draw a 5-km radius circle measured from the center of the AA. Ignoring all permanent water in the circle, the		In Google Earth, draw the 5 km buffer and then estimate land cover percentages, or	
	Cover Percentage	percent of the remaining area that is wooded or unmanaged herbaceous vegetation (NOT lawn, row crops, bare or		do GIS analysis of an appropriate land cover layer. [AM, PH, POL, SBM, Sens]	
		heavily grazed land, clearcuts, or conifer plantations) is: <5% of the land.	0		
			0		
		5 to 20% of the land.	0		
		20 to 60% of the land.	1		
		60 to 90% of the land.	0		
		>90% of the land. SKIP to OF10.	0		
OF9	′ '	Within the 5-km radius circle, and ignoring all permanent water, the land area that is bare or non-perennial cover is		[AM, SBM]	
	Alteration	mostly:			
		Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0		
		Bare pervious surface, e.g., lawn, recent (<5 yrs ago) clearcut, dirt or gravel road, cropland, landslide, conifer	1		
0540	Distance by D. C.	plantation.		ND and the control of	
OF10		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-	
		<100 m.	0	inhabited structures per square kilometer. In Google Earth, click on the Ruler icon,	
	Center	100 - 500 m.	0	then Path, and draw and measure the route. Or use the GeoNB's Draw & Measure	
		0.5- 1 km.	0	tool> Freehand Line to draw and measure the route to Settlements (click on Place	
		1 - 5 km.	1	Names in menu) or other areas not close to mapped settlements but which meet the	
		>5 km.	0	criteria.[FAv, FRv, NRv, PH, PU, SBM, WBFv]	
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 and measuring with the	1
		<10 m.	0	Ruler>Line tool. Or use the GeoNB's Draw Line tool. [AM, FAv, FRv, NRv, PH, PU,	
		10 - 25 m.	0	SBM, STR, WBN]	
			0		
		25 - 50 m.	U		
		50 - 100 m.	0		
		100 - 500 m.			

		>500 m.	0]	
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	In NB, enable the Wetlands layer in GeoNB (despite its omissions) to show surrounding wetlands and roads, while estimating the location of the 5 km circle (or draw the 5 km circle in Google Earth Pro using the Circle tool and compare). Evaluate using Google Earth, being cautious to search for roads hidden under forest canopy.	
OF13	Distance to Ponded Water	The distance from the AA center to the closest (but separate) ponded water body visible in GoogleEarth imagery is:		In Google Earth, zoom in closely to examine the surrounding landscape for ponds, lakes, and wetlands that appear to be permanently flooded. Enable the GeoNB	
	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	viewer's Wetlands layer as well. [AM, PH, SBM, Sens, WBF, WBN]	
		<50 m, but completely separated by those features.	0		
		50-500 m, and not separated.	0		
		50-500 m, but separated by those features.	0		
		0.5 - 1 km, and not separated.	0		
		0.5 - 1 km, but separated by those features.	0		
		None of the above (the closest patches or corridors that large are >1 km away).	1		
OF14	Distance to Large	The distance from the AA center to the closest (but separate) non-tidal body of water that is ponded during most of		Determine this by viewing aerial imagery in Google Earth. [Sens, WBF, WBN]	
	Ponded Water	the year and is larger than 8 hectares during most of a normal year is:		Į l	
		<100 m.	0		
		100 m - 1 km.	0		
		1 -2 km.	0		
		2-5 km.	0		
		5-10 km.	0		
		>10 km.	1		
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	
		<100 m.	0	river, whichever is closer. If you need to see how far upriver a river is tidal, see the	
		100 m - 1 km.	0	KMZ file provided with this calculator for NB (NB Headtide). Points shown in those	
		1 - 5 km.	1	files are only an approximation, so local information if available may be preferable.	
		5-10 km.	0	[FA, WBF]	
		10-40 km.	0	1	
		>40 km.	0	1	
OF16	Upland Edge Contact			[NR, SBM, Sens]	
	=	The AA has no upland edge (or upland is <1% of perimeter). The AA is entirely surrounded by (& contiguous with)	0	[,,]	
		other wetlands or water.	Ů		
		1-25% of the AA's perimeter abuts upland (including filled areas). The rest adjoins other wetlands or water that is	0	1	
		mostly wider than the AA.			
		25-50% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0		
		50-75% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0		
		More than 75% of the AA's perimeter abuts upland. Any remainder adjoins other wetlands or water that is mostly	1	1	
		wider than the AA. This will be true for most assessments done with WESP-AC.			
	_	Within 5 km downstream or downslope of the AA (select first true choice):		In the GeoNB map viewer: click on "More" in upper right, then "Flood Information".	
	Non-tidal Waters	Maps show Flood Zone or Flood Risk areas and there appears to be infrastructure vulnerable to river flooding not caused by tidal storm surges.	0	Expand the menu under it by clicking on the arrow to its left and the slider to its right. Uncheck the first (Limits of Data) box. Where available, LiDAR imagery can	
		Maps show Flood Zone or Flood Risk areas, but infrastructure is absent or is not vulnerable to floods from a non-tidal	0	provide finer elevational resolution useful for flood modeling. [WSv]	
		river. In some cases levees, upriver dams, or other measures may partly limit damage or risk from smaller events.			
		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure vulnerable to river flooding unrelated to tidal storm surges.	0]	
		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there is no	1	j	
		infrastructure vulnerable to river flooding unrelated to tidal storm surges.			

OE10 □	elative Elevation in	In Google Earth, enable the Terrain layer (lower left menu) and open the NB Watersheds KMZ file that accompanies		[FA, NR, Sens, SFSv, WCv, WSv]	ShedPos	
				[FA, NR, Sells, SFSV, WCV, WSV]	Shearos	
l v		this calculator. Then determine the AA's approximate elevation (bottom right, NOT the "eye alt"). Then move cursor	3.75			
		around to determine the watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-min)				
OF19 v	Vater Quality	In Google Earth, open the KMZ file NB Watershed Protected Area which accompanies this calculator. The AA is	0	If an ACCDC report is available for this AA, it also may contain such information.	1	
	•	within such an area. Enter 1= yes, 0= no.		[NRv]		
	r Area					
		Sampling indicates a problem with concentrations of metals, hydrocarbons, nutrients, or other substances		May use existing data, or sample those waters as part of this wetland assessment.		
U	pstream	(excluding bacteria, acidic water, high temperatures) being present at levels harmful to aquatic life or humans, and:		"Harmful" should be evaluated with regard to current federal or provincial water		
				quality standards. [AM, FA, FR, NRv, PRv, SRv, STR, WBF, WBN]		
		The condition is present within the AA.	0			
		The condition is present in waters within 1 km that flow into the AA, but has not been documented in the AA itself.	0			
		Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in	0			
		either the AA or inflowing waters.				
		Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the	1			
		situation for nearly all wetlands in this region.				
	_	The problem described above is downslope from the AA, and:		May use existing data, or monitor waters as part of this wetland assessment. [NRv,		
D	ownstream	The condition is present within 1 km downslope and connected to the AA by a channel.	0	PRv, SRv]		
		The condition is present within 5 km downslope and connected to the AA by a channel, or within 1 km but not	0			
		connected to the AA by a channel.				
		Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in	0			
		either the AA or inflowing waters.				
		Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the	1			
		situation for nearly all wetlands in this region.				
		From a topographic map and field observations, estimate the approximate boundaries of the catchment (CA) of the		Topographic maps may be viewed online at the National Atlas of Canada		
		entire wetland of which the AA may be only a part. Then adjust those boundaries if necessary based on your field		(Toporama): http://atlas.gc.ca/toporama/en/index.html [NR, PR, Sens, SR,		
(C	Catchment)	observations of the surrounding terrain, and/or by using procedures described in the Manual. Divide the area of the		WS]		
		wetland (not just the AA) by the approximate area of its catchment excluding the area of the wetland itself. When				
		doing the calculation, if ponded water is adjacent to the wetland, include that in the wetland's area. The result is:				
		<0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	Λ			
		vo.o1, or eatenment size unknown due to stormwater pipes that concet water from an indeterminate area.	O			
		0.01 to 0.1.	1			
		0.1 to 1.	0			
	İ	>1 (wetland is larger than its catchment (e.g., wetland with flat surrounding terrain and no inlet, or is entirely	0	1		
		isolated by dikes, or is a raised bog).				
OF23 U		The proportion of the AA's contributing area (measured to no more than 1000 m upslope) that is comprised of		[FA, INV, NRv, PRv, SRv, STR, WCv, WSv]		
ir	the Contributing	buildings, roads, parking lots, other pavement, exposed bedrock, landslides, and other mostly-bare surface is about:				
А	rea					
		<10%.	1			
		10 to 25%.	0			
		>25%.	0			
OF24 T		A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as		[NRv, PRv, SRv, WSv]	1	
	pslope	runoff (surface water), as indicated by the following:				
	1 1	(a) input channel is present,				
		(b) input channels have been straightened,				
		(c) upslope wetlands have been ditched extensively,			1	
		(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.				
		Mostly true.	0			
	_	Somewhat true.		-		

I	I	Mostly untrue.	1]		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]		
		Northward (N, NE). north-facing contributing area.	0	[,,,]		
		Southward (S, SW). south-facing contributing area.	0			
		Other (E, SE, W, NW), or no detectable uphill slope or input channel (flat).	1			
OF26	Internal Flow	The horizontal flow distance from the wetland's inlet to outlet is:		Identify inlets and outlets, if any, from topographic maps (use elevations to		
0.20	Distance (Path	<10 m.	0	determine which are inlets and which are outlets) and augment by field inspection.		
	Length)	10 - 50 m.	0	[NR, OE, PR, SR, WS]		
		50 - 100 m.	0			
		100 - 1000 m.	0			
		1- 2 km.	0			
		>2 km, or wetland lacks an inlet and outlet.	1			
OF27	Growing Degree	In Google Earth, open the KMZ file that accompanies this calculator, called NB-PEI_GrowingDegreeDays. Place your		This layer was provided by Dr. Dan McKenney of the Canadian Forest Service [AM,	GrowD	
· -	Days	cursor over the AA and left-click. From the pop-up, enter the GRIDCODE in the next column.	1500	CS, FR, INV, NR, OE, PH, PR, Sens, SR, WBF, WCv, WS]	0.02	
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. In NB, the list of stocked waters is at:		
		Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. In NB, consult	0	http://www2.gnb.ca/content/gnb/en/departments/erd/natural_resources/content/f		
		Figure A-2 in Appendix A of the Manual. Contact local fishery biologists, review the ACCDC report, and visit these		ish/content/StockedWaters.html		
		websites: http://www.salmonatlas.com/atlanticsalmon/canada-east/index.1.html		[AM, FA, FR, INV, WBF, WBN]		
		Has not been documented to support Atlantic salmon rearing and/or spawning, but is connected to nearby waters	0			
		likely to contain Atlantic salmon or other anadromous species or eels and is probably accessed by those during some				
		conditions.				
		Is probably is not accessed by any anadromous fish species but is known or likely to have other fish at least	0			
		seasonally. Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	1			
		is known of finely to be fishess (e.g.), too small, any, ana, or not accessible even temporarily, and not stocked,	·			
OF29	Species of	Within the past 10 years, in the AA (or in its adjoining waters or wetland), qualified observers have documented		Request information from ACCDC and/or conduct your own survey at an appropriate		
	Conservation	[mark all applicable]:	_	season using an approved protocol. For birds, also check eBird.org. [AMv, EC, PHv,		
	Concern	Presence of one or more of the plant species listed in the Plants_Rare worksheet of the accompanying Supplnfo file,	0	POLv, SBMv, Sens, WBFv, WBNv]		
		or the AA is within a mapped Atlantic Coastal Plain Flora Buffer Presence of one or more of the amphibian or reptile species (AM) of conservation concern as listed in the	0			
		Wildlife Rare worksheet of the accompanying Supplnfo file.	ŭ			
		Presence of one or more of the waterbird species (WBF, WBN) of conservation concern as listed in the Wildlife_Rare	0			
		worksheet of the accompanying Suppinfo file.				
		Presence of one or more of the nesting songbird or raptor species (SBM) of conservation concern as listed in the	1			
		Wildlife_Rare worksheet of the accompanying SuppInfo file, during their nesting season (May-July for most species).				
		None of the above, or no data.	0			
OF30	Important Bird Area	In Google Earth, open the KMZ file that accompanies this calculator, called IBAs_Canada. The AA is all or part of an	0	The source of this layer, which should be checked periodically for updates, is:		
	(IBA)	officially designated IBA. Enter 1= yes, 0= no.		http://www.ibacanada.com/mapviewer.jsp?lang=EN [SBMv, WBFv, WBNv]		
055:						
OF31	Black Duck Nesting	In Google Earth, open the KMZ file that accompanies this calculator, called BlackDuck. Adjust its alignment and	0	This was provided by Dr. David Leske. [WBNv]		
	Area	opacity. Determine the predicted density (pairs per 25 sq. km) of nesting American Black Duck in the AA's vicinity:				
		<10 (enter 0), 10-20 (enter 1), 20-30 (enter 2), >30 (enter 3). If outside of region shown in map, change to blank .				
OF32	Wintering Deer or	If AA is on private land with no information, change to blank (not 0). If on public/crown land, in Google Earth open		[SBM]		
	Moose	the KMZ file that accompanies this report called NB_DeerWinteringAreas.Otherwise: Enter: yes= 1, no= 0.				
	Concentration Areas					

2 - 2 5				
OF33	Other Conservation	With GeoNB, click on Candidate PNA Map Viewer to identify Provincially Significant Wetland, Environmentally	0	[PU]
	Designation	Significant Area, Protected Natural Area but also include if 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. Enter: yes= 1, no= 0. If uncertain, consult NCC and agencies for more recent		
		information		
OF34	Conservation	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve,	0	[PU]
	Investment	create, restore, or enhance the wetland (excluding mitigation wetlands). Ask the property owner. Enter: yes= 1, no=		
		0. If no information, change to blank (not 0).		
OF35	Mitigation	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere. Ask the property owner. Enter:		[PU]
	Investment	yes= 1, no= 0. If no information, change to blank.		
OF36	Sustained Scientific	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and		[PU]
	Use	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 to blank		
OF37	Calcareous Region	The AA is in an area that is at least partly underlain by soil, sediment, or bedrock that is highly calcareous (enter 3 in	0	If GIS is available, you may use the Bedrock Geology shapefile obtainable at
		next column), moderately calcareous (enter 2), or slightly calcareous (enter 1), none= 0. Limestone is typically a		http://www.snb.ca/geonb1/e/DC/catalogue-E.asp [AM, FA, FR, INV, PH]
		major component (karst geology) and water is not acidic (pH is usually >8). See Figure A-6 in Appendix A of the		
		Manual. If no map coverage, change to blank.		
OF38	Ownership	Select the ONE ownership that covers the most of the AA. In Google Earth, open KMZ file called NB Crown lands.Use		"Private lands" may include those owned or leased by non-governmental
		more recent information if available.		organizations, e.g., charitable conservation land trusts, DUC, TNC. [PU, STR]
		New timber harvest, roads, mineral extraction, and intensive summer recreation (e.g., off-road vehicles) are	0	
		permanently prohibited. Includes many publicly-owned Protected Lands, and private lands under long-term (30+		
		vear) legal agreements to maintain nearly-unaltered conditions.		
		Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are	0	
		allowed.		
		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable	0	
		or not) is in place.		
		Ownership is private and owner does not allow access, or access permission unknown, and not a conservation	1	
		easement.		

e: July 23, 2019	Site Identifier: Tapline WL-1	Investiga	tor: DM		
ords its core, in the conduct the assess re allowed and so erring with the lantion pertains, see y, SFS= Stream Flotat, FA= Anadrometric results.	Non-tidal Wetland Data Form. WESP-AC version 2 for New Brunswick wetland a part of the AA that is proposed for alteration. If no alteration is proposed, walk in a portion that appears to be ment only after reading the accompanying Manual and the Explanations column of the data form. In the Data of indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write downer or other knowledgable persons, and/or reviewing aerial imagery. For most wetlands, completing this factor than the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the Support, WC= Water Cooling, SR= Sediment Retention & Stabilisation, PR= Phosphorus Retention, NR= Nitrations Fish Habitat, FR= Resident Fish Habitat, AM= Amphibian & Reptile Habitat, WBF= Feeding Waterbird Habitat Native Plant Habitat, PU= Public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= 100 per public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= 100 per public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= 100 per public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= 100 per public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= 100 per public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= 100 per public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= 100 per public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= 100 per public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= 100 per public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= 100 per public Use & Recognition, EC= Ecological Condition, Sen= 100 per public Use & Recognition Per public Use & Recognition, EC= Ecological Condition, Sen=	e most re column, c ite in shac field data the accon ate Remov at, WBN=	epresentative of the wetland overall. Walk only where it is safe and legal to do change the 0 (false) to a 1 (true) for the best choice, or for multiple choices ded parts of this data form. Answering some questions accurately may require form will require 1-2 hours on a site. For a list of functions to which each appanying Manual. Codes for functions and values are: WS= Water Storage & val, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate Nesting Waterbird Habitat, SBM= Songbird, Raptor, & Mammal Habitat, POL=		
Indicators	Condition Choices	Data	Definitions/Explanations	Cell Name	Comments
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		
, , , , , , , , , , , , , , , , , , ,	 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. 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 rariflor a). Wetland surface and surrounding landscape are seldom sloping and wetland often is domed (convex). Inlet and outlet channels are usually absent. If known, pH of peat is <4.0. 	0	leaves. They include rhododendron, azalea, swamp laurel, leatherleaf, Labrador tea, and others. Most require acidic soil. Although not in the family Ericaceae, sweetgale (<i>Myrica gale</i>) should be counted also. [AM, CS, FA, FR, INV, NR, OE, PH, Sens, SFS, WBF, WBN]		
	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		Fen_	
	 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: 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). 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	0		Marsh	
AA. The AA should a cifically, the AA shoul e. Throughout this da nmade or natural) cor essarily considered to e considered adjacen					
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. A1. A2. B1. B2.	0 1 0	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]		
Woody Height & Form Diversity	Following EACH row below, indicate with a number code the percentage of the living vegetation in the AA which is occupied by that feature (6 if >95%, 5 if 75-95%, 4 if 50-75%, 3 if 25-50%, 2 if 5-25%, 1 if <5%, 0 if none). If the vegetated part of the AA is largely herbaceous (non-woody) vegetation, these percentages should not sum to 100%.		Deciduous shrubs in this region usually include buttonbush, Labrador tea, bayberry (<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		

ı			Inu nou onu o
	deciduous trees taller than 3 m.	3	PH, POL, SBM, Sens]
	coniferous or ericaceous shrubs or trees 1-3 m tall not directly below the canopy of trees.	3	
	deciduous shrubs or trees 1-3 m tall not directly below the canopy of trees.	3	
	coniferous or ericaceous shrubs <1 m tall not directly below the canopy of taller vegetation.	2	
	deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	2	
<u>lote</u> : If none of top 4 rows	s in F3 was marked 2 or greater, SKIP to F9 (N fixers).		
4 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]
Abundant Shrub	those species together comprise > 50% of such cover.	0	
Species	those species together do not comprise > 50% of such cover.	1	
5 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		Estimate the diameters at chest height. If small-diameter trees are overtopped (shaded) by
Classes	upland edge (perimeter). The edge should include only the trees whose canopies extend into the AA.		larger ones, visualise a "subcanopy" at the average height of the smaller-dbh trees, to serve
	coniferous, 1-9 cm diameter and >1 m tall.		as a basis for the minimum 5% canopy requirement in this question. The trees and shrubs
	broad-leaved deciduous 1-9 cm diameter and >1 m tall.	1	need not be wetland species. [AM, CS, POL, SBM, Sens, WBN]
	coniferous, 10-19 cm diameter.	1	
	broad-leaved deciduous 10-19 cm diameter.	1	
	coniferous, 20-40 cm diameter.	1	
	broad-leaved deciduous 20-40 cm diameter.	0	-
	coniferous, >40 cm diameter.	0	-
11.1.1.0	broad-leaved deciduous >40 cm diameter.	0	MANUAL PROPERTY OF THE PROPERT
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 <u>each</u> 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 scattered and intermixed throughout the AA.	1	
	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.		1
	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.	0	
	B2. Not B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is	0	
Large Snags (Dead	completely 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 one
Standing Trees)	None, or fewer than 8/ hectare which exceed this diameter.	1	that are at least 2 m tall. [POL, SBM, WBN]
otalianing 11000)	Several (>8/hectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km.	0	
	Several (>8/hectare) but above not true.	0	1
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]
20111100 11000	Few or none that meet these criteria.	1	
	Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria.	0	1
N Fixers	The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa,		Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
IN I INGIO	other legumes) is:		So not molado it fixing digue of nonone. [171, 111, 1111, 1111, 1111, OLIV, OL, 111, OLIV, OCIO]
	<1% or none.	0	1
	1-25% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	1
	25-50% of the vegetated cover, in the AA or along its water edge (whichever has more).	1	
	50-75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	1
	>75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	1
0 Sphagnum Moss	The cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured		Exclude moss growing on trees and rocks. [CS, PH]
Extent	by taller sedges and other plants rooted in it, is:		
	<5% of the vegetated part of the AA.	0	
	5-25% of the vegetated part of the AA.	0	
	25-50% of the vegetated part of the AA.	1	
	50-95% of the vegetated part of the AA.	0	
	>95% of the vegetated part of the AA.	0	

11	% 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		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that	
		ground layer, the predominant condition in those areas at that time is:		is present under a tree or shrub canopy should be counted. Boulders count as bare ground.	'
		Little or no (<5%) bare ground is visible between erect stems or under canopy anywhere in the vegetated AA. Ground is	0	Wetlands with mineral soils and that are heavily shaded or are dominated by annual plant	
		extensively blanketed by dense thatch, moss, lichens, graminoids with great stem densities, or plants with ground-hugging		species tend to have more extensive areas that are bare during the early growing season.	
		foliage.		[AM, EC, INV, NR, OE, POL, PR, SBM, Sens]	
		Slightly bare ground (5-20% bare between plants) is visible in places, but those areas comprise less than 5% of the unflooded	1	•	
		parts of the AA.			
		Much bare ground (20-50% bare between plants) is visible in places, and those areas comprise more than 5% of the unflooded	0		
		parts of the AA.		4	
		Other conditions.	0		
		Not applicable. Surface water (either open or obscured by emergent plants) covers all of the AA all the time.	0		
12 (Ground Irregularity	Imagine the AA without any living vegetation. Excluding the portion of the AA that is always under water, the number of		The depressions may be of human or natural origin. [AM, EC, INV, NR, PH, POL, PR, SBM,	
		hummocks, small pits, raised mounds, animal burrows, ruts, gullies, natural levees, microdepressions, and other areas of peat or		SR, WS]	
		mineral soil that are raised or 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).	1		
		Intermediate.	0		
		Several (extensive micro-topography).	0	-	
2 1			0	TAMA NID. CDMI	4
13 (Jpland Inclusions	Within the AA, inclusions of upland are:		[AM, NR, SBM]	
		Few or none.	1		
		Intermediate (1 - 10% of vegetated part of the AA).	0	1	
		Many (e.g., wetland-upland "mosaic", >10% of the vegetated AA).	0		
14	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		[CS, NR, OE, PH, PR, Sens, SFS, WS]	
		to check in at least 3 widely spaced locations, and use the soil texture key (in Appendix A of the Manual).]			
		Loamy: soils that may contain a little fine grit and do not make a "ribbon" longer than 2 cm when moistened, rolled, squeezed,	0		
		and extended between thumb and forefinger.	-		
		Fines: includes silt, clay, silt, soils that make a ribbon longer than 2 cm when moistened, rolled, squeezed, and extended	1		
		between thumb and forefinger. Deep Peat, to 40 cm depth or greater.	0		
		Shallow Peat or organic <40 cm deep.	0	-	
		<u> </u>	0	-	
		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		
15		During any 2 consecutive weeks of the growing season, the extent of mudflats, bare unshaded saturated areas not covered by		This addresses needs of many but not all migratory sandpipers, plovers, and related species.	-
		thatch, and unshaded waters shallower than 6 cm is: [Include also any area that is adjacent to the AA.]		[WBF]	
ľ		None, or <100 sq. m.	1	[115.]	
		100-1000 sq. m.	0		
		1000 – 10,000 sq. m.	0	1	
		>10,000 sq. m.	0	-	
16 1			0	[AM, WBF, WBN]	-
		In aerial ("ducks eye") view, the maximum annual cover of herbaceous vegetation (all non-woody plants except moss) is:		[AIVI, VVDF, VVDIN]	.
ľ	egetated 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).	1		NoHerb(
		5-25% of the vegetated part of the AA.	0		
		25-50% of the vegetated part of the AA.	0	-	
		50-95% of the vegetated part of the AA.	0	-	
		>95% of the vegetated part of the AA.	0	-	
7 .		·	U	Farks are flavoring plants. Do not had be accounted to the first of the control of of the	4
'	orb 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,	
		<5% of the herbaceous part of the AA.	0	horsetails, or others that lack showy flowers. [POL]	
		5-25% of the herbaceous part of the AA.	0	1	
		25-50% of the herbaceous part of the AA.	0		
		·			1
		50-95% of the herbaceous part of the AA.	0		
		·	0		AllForbC
18 5		50-95% of the herbaceous part of the AA. >95% of the herbaceous part of the AA.			AllForbC
18 \$	Sedge Cover	50-95% of the herbaceous part of the AA.		[CS]	AllForbC

		50-95% of the vegetated area.	0		
		>95% of the vegetated area.	0		
9	Dominance of Most	Determine which two herbaceous species comprise the greatest portion of the herbaceous cover (excluding mosses and floating-		For this question, include ferns as well as graminoids and forbs. [EC, INV, PH, POL, Sens]	
	Abundant	leaved aquatic plants). Then choose one of the following:			
	Herbaceous 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.	0		
0		How extensive is the cover of invasive plant species in the AA? For species, see Plants_invasive worksheet in the accompanying		[EC, PH, POL, Sens]	
		Supplnfo file.			
		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 woody).	0		
		invasive species comprise 5-20% of the herb cover (or woody cover, if the invasives are woody).	0		
		invasive species comprise 20-50% of the herb cover (or woody cover, if the invasives are woody).	0		
		invasive species comprise >50% of the herb cover (or woody cover, if the invasives are woody).	0		
1		Along the wetland-upland boundary, the percent of the upland edge (within 3 m upslope from the wetland) that is occupied by		If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an	1
		invasive plant species is:		exotic species, assume the unidentified plant to also be exotic. If vegetation is so senesced	
		none of the upland edge (invasives apparently absent), or AA has no upland edge.	1	that exotic species cannot be identified, answer "none". [PH, STR]	
		some (but <5%) of the upland edge.	0		
		5-50% of the upland edge.	0		
		most (>50%) of the upland edge.	0		
2		During most of the year, open water within or adjacent to the vegetated part of the wetland is much wider than the maximum	0	[WBF, WBN, WCv]	1
_		width of the 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 a normal year.	0	[FR, PR, PU, WBF, WBN]	
24		The percentage of the AA that never contains surface water during an average year (that is, except perhaps for a few hours after		1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m,	
		snowmelt or rainstorms), but which is still a wetland, is:		1000 m by 10 m, or similar. [AM, FA, FR, INV, NR, PH, PR, SBM, Sens, SRv, WBF, WBN, WC	
		<1% . In other words, all or nearly all of the AA is covered by water permanently or at least seasonally.	0	<u>[</u>]	
		1-25% of the AA, or <1% but >0.01 ha never contains surface water.	0		
		25-50% of the AA never contains surface water.	0		
		50-75% of the AA never contains surface water.	1		
		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		AllSat2
		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		AllSat1
25	% of AA with	Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during		If you are unable to determine the condition at the driest time of year, ask the land owner or	
		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		neighbors about it if possible. Indicators of persistence may include fish, some dragonflies,	
	Water	AA that still contains surface water is:		beaver, and muskrat. [AM, CS, FA, FR, INV, NR, POL, PR, SBM, WBF, WBN]	
		None. The AA dries up completely (no water in channels either) or never has surface water during most years. SKIP to F27.	0		NoPer
		1-20% of the AA.	1		
		20-50% of the AA.	0		
		50-95% of the AA.	0		
		>95% of the AA. True for many fringe wetlands.	0		AllWet
26		At mid-day during the warmest time of year, the area of surface water within the AA that is shaded by vegetation and other		[FA, WC]	1
		features that are within the AA at that time is:			
		<5% of the water is shaded, or no surface water is present then.	0		
		5-25% of the water is shaded.	0		
		25-50% of the water is shaded.	0	1	
		50-75% of the water is shaded.	0		
		>75% of the water is shaded.	1		
27		The percentage of the AA's area that is between the annual high water and the annual low water (surface water) is:	1	Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident	1
				when not fully inundated. Also, such areas often have a larger proportion of upland and annual	
	•	None, or <0.01 hectare and <1% of the AA. SKIP to F29.	0	(vs. perennial) plant species. In riverine systems, the extent of this zone can be estimated by	NoSea
	Seasonally	1-20% of the AA, or <1% but >0.01 ha.	0	(vs. perennial) plant species. In riverine systems, the extent of this zone can be estimated by	I

		20-50% of the AA.	1	multiplying by ∠ the banktul neight and visualising where that would intercept the land along the river. [CS, FA, INV, NR, OE, PH, SR, WBF, WBN, WS]	
		50-95% of the AA.	0	alle liver. [OO, 1 A, live, Nix, OE, 1 11, Oix, Wall , Wall, Wo]	
		>95% of the AA.	0		
	ual Water tuation 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,	
	· ·	<10 cm change (stable or nearly so).	1	INV, NR, OE, PH, PR, SR, WBN, WS]	
		10 cm - 50 cm change.	0		
		0.5 - 1 m change.	0		
		1-2 m change.	0		
		>2 m change.	0	1	
the AA p	olus adjacent po	nded water smaller than 0.01 hectare (about 10m x 10m, or 1m x 100 m)? If so, enter "1" in column D and			TooSmall
CIP TO F4	42 (Connection).				
9 Predo	dominant Depth	During most of the time when surface water is present during the growing season, its depth, averaged over the entire inundated		If a boat is unavailable, estimate this by considering wetland size and local topography. Or if	
Class		part of the AA, is:		timing and safety allow, depths may be measured by drilling through winter ice. This question is	3
		<10 cm deep (but >0).	1	asking about the spatial median depth that occurs during most of that time, even if inundation	
		10 - 50 cm deep.	0	is only seasonal or temporary. If inundation in most but not all of the wetland is brief, the	
		0.5 - 1 m deep.	0	answer will be based on the depth of the most persistently inundated part of the wetland.	
		1 - 2 m deep.	0	Include surface water in channels and ditches as well as ponded areas. [CS, FA, FR, INV,	
		>2 m deep. True for many fringe wetlands.	0	OE, PH, PR, Sens, SFS, SR, WBF, WBN, WC]	
0 Dept		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,	1
		One depth class that comprises >90% of the AA's inundated area (use the classes in the question above).	1	INV, WBF, WBN]	
		One depth class that comprises 50-90% of the AA's inundated area.	0	,,	
Пор		Neither of above. There are 3 or more depth classes and none occupy >50%.	0	1	
4 0/ - 0		,	U	Nearly all water do with a reference to be a corresponded water IAM CC INIV AID OF DD	4
		During most times when surface water is present, the percentage that is (1) ponded (stagnant, or flows so slowly that fine		Nearly all wetlands with surface water have some ponded water. [AM, CS, INV, NR, OE, PR,	
		sediment is not held in suspension) AND (2) is likely to be deeper than 0.5 m in some places, is: <5% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34.	- 1	Sens, SR, WBF, WBN, WC, WS]	NoPonde
Flowi	''''9 <i> </i>	· · · · · · · · · · · · · · · · · · · ·	0		NoPonde
		5-30% of the water.	0		
		30-70% of the water.	0		
		70-95% of the water.	0		
		>95% of the water.	0		
	mum 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	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.	OpenW
		Algae & Duckweed).			
	f Ponded Water	In ducks-eye aerial view, the percentage of the ponded water that is open (lacking emergent vegetation during most of the		[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	-
	f Ponded Water		0	[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	NoOpenP
	f 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, and unhidden by a forest or shrub canopy) is:	0	[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	
	f 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, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).		[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	
	f 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, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water.	0	[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	
	f Ponded Water 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: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water.	0 0	[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	
	f Ponded Water 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: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water.	0 0 0	[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	NoOpenP
that i	f Ponded Water 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: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water.	0 0		NoOpenP NoOpenP AllOpenPo
that is	f Ponded Water is Open th of Vegetated	In ducks-eye aerial view, the percentage of the ponded water that is open (lacking emergent vegetation during most of the growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area <u>in the AA</u> that	0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed.	NoOpenP
that is	f Ponded Water 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: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area <u>in the AA</u> that separates adjoining uplands from open water within the AA is:	0 0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	NoOpenP
that is	f Ponded Water is Open th of Vegetated	In ducks-eye aerial view, the percentage of the ponded water that is open (lacking emergent vegetation during most of the growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in the AA that separates adjoining uplands from open water within the AA is: <1 m.	0 0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed.	NoOpenP
that is	f Ponded Water is Open th of Vegetated	In ducks-eye aerial view, the percentage of the ponded water that is open (lacking emergent vegetation during most of the growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area <u>in the AA</u> that separates adjoining uplands from open water within the AA is: <1 m. 1-9 m.	0 0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	NoOpenP
that is	f Ponded Water is Open th of Vegetated e within Wetland	In ducks-eye aerial view, the percentage of the ponded water that is open (lacking emergent vegetation during most of the growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in the AA that separates adjoining uplands from open water within the AA is: <1 m. 1-9 m. 10-29 m.	0 0 0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	NoOpenF
that is	f Ponded Water is Open th of Vegetated e within Wetland	In ducks-eye aerial view, the percentage of the ponded water that is open (lacking emergent vegetation during most of the growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in the AA that separates adjoining uplands from open water within the AA is: <1 m. 1 - 9 m. 10 - 29 m. 30 - 49 m.	0 0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	NoOpenP
that is	f Ponded Water is Open th of Vegetated e within Wetland	In ducks-eye aerial view, the percentage of the ponded water that is open (lacking emergent vegetation during most of the growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area <u>in the AA</u> that separates adjoining uplands from open water within the AA is: <1 m. 1 - 9 m. 10 - 29 m. 30 - 49 m. 50 - 100 m.	0 0 0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	NoOpenP
that is Width	f Ponded Water is Open th of Vegetated e within Wetland	In ducks-eye aerial view, the percentage of the ponded water that is open (lacking emergent vegetation during most of the growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in the AA that separates adjoining uplands from open water within the AA is: <1 m. 1 - 9 m. 10 - 29 m. 30 - 49 m.	0 0 0 0 0 0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	NoOpenP

	Ī	<1% of the water edge.	0		I
		1-25% of the water edge.			
		· · · · · · · · · · · · · · · · · · ·	0		
		25-50% of the water edge.	0		
	l l	50-75% of the water edge.	0		
		>75% of the water edge.	0		
6 Rob	J	The percentage of the emergent vegetation cover in the AA that is cattail (<i>Typha</i> spp.), common reed (<i>Phragmites</i>), or tall		Emergent vegetation is herbaceous plants whose stems are partly above and partly below	
		(>1m) bulrush is:		the water surface during most of the time water is present. [WBN]	
		<1% of the emergent vegetation, or emergent vegetation is absent. SKIP to F38.	0		NoRobustEm
		1-25% of the emergent vegetation.	0		
		25-75% of the emergent vegetation.	0		
		>75%, of the emergent vegetation.	0		
	•	During most of the part of the growing season when water is present, the spatial pattern of emergent vegetation within the water is mostly:		[AM, FA, FR, INV, NR, OE, PH, PR, SBM, SR, WBF, WBN]	1
Wat	organia ar a pan	Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water.	0		
vvai	lei	Intermediate.	0		
			0		
		Clumped. More than 70% of such vegetation is in bands along the wetland perimeter or is clumped at one or a few sides of the surface water area.	U		
8 Per		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	0		DeepPersis
Area	'	weeks during the growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection).			Бесрі сізіз
9 Non	•	During most of the growing season and in waters deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians		For this question, consider only the wood that is at or above the water surface. Estimates of	
Aqu	uatic Cover	that is provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is:		underwater wood based only on observations from terrestrial viewpoints are unreliable so	
		Little or none.	0	should not be attempted. [AM, FA, FR, INV]	
		Intermediate.	0		
		Extensive.	0		
0 Isola	ated 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	0	[WBN]	
		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 0	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,	0	[EC, PR, WBF]	
Duc	ckweed	or blanket >50% of the underwater substrate. If true, enter "1" in next column. If untrue or uncertain, enter "0".			
2 Cha	annel Connection	The most persistent surface water connection (outlet channel or pipe, ditch, or overbank water exchange) between the AA and a		Consider the connection regardless of whether the surface water is frozen. The "downslope	
& O		downslope stream network is: [Note: If the AA represents only part of a wetland, answer this according to whichever is the least		stream network" could consist of ditches, rivers, ponds, or lakes which eventually connect to	
		permanent surface connection: the one between the AA and the rest of the wetland, or the surface connection between the		the ocean. If this cannot be determined while visiting the AA, consult topographic maps	
		wetland and the downslope stream network.1		perhaps by viewing these online with Toporama	
	l l	Persistent (surface water flows out for >9 months/year).	1	(http://atlas.nrcan.gc.ca/toporama/en/index.html) [CS, FA, FR, NR, OE, PR, Sens, SFS, SR,	
		Seasonal (surface water flows out for 14 days to 9 months/year, not necessarily consecutive).	0	WCv, WS]	
		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	0		OutNone1
		F47 (pH Measurement).	0		
		F47 (pH Measurement). No surface water flows out of the wetland except possibly during extreme events (<once 10="" a<="" flows="" into="" only="" or,="" per="" td="" water="" years).=""><td>_</td><td></td><td>OutNone1 Outnone</td></once>	_		OutNone1 Outnone
		F47 (pH Measurement). 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>"Major was ff a costa" would include his said his housts as well by the state of th</td><td></td></once>	0	"Major was ff a costa" would include his said his housts as well by the state of th	
3 Outf	flow Confinement	F47 (pH Measurement). No surface water flows out of the wetland except possibly during extreme events (<once (ph="" 10="" a="" aa="" an="" connected="" ditch,="" during="" events,="" exits="" f47="" flows="" in="" into="" lacks="" lake="" major="" measurement).="" nearby,="" only="" or="" or,="" outlet.="" per="" places="" runoff="" skip="" surface="" td="" that="" the="" to="" water="" water:<="" waters="" wetland,="" where="" years).=""><td>0</td><td>"Major runoff events" would include biennial high water caused by storms and/or rapid</td><td></td></once>	0	"Major runoff events" would include biennial high water caused by storms and/or rapid	
3 Outf	flow Confinement	F47 (pH Measurement). No surface water flows out of the wetland except possibly during extreme events (<once (other="" (ph="" 10="" a="" aa="" an="" beaver="" berm,="" breached="" connected="" culvert,="" dam,="" dike,="" ditch,="" during="" events,="" exits="" f47="" flows="" in="" into="" lacks="" lake="" major="" measurement).="" mostly="" narrowly="" natural<="" nearby,="" obstruction="" only="" or="" or,="" other="" outlet.="" partial="" passes="" per="" pipe,="" places="" runoff="" skip="" surface="" td="" than="" that="" the="" through="" to="" water="" water:="" waters="" wetland,="" where="" years).=""><td>0</td><td>"Major runoff events" would include biennial high water caused by storms and/or rapid snowmelt. [CS, NR, OE, PR, Sens, SR, STR, WS]</td><td></td></once>	0	"Major runoff events" would include biennial high water caused by storms and/or rapid snowmelt. [CS, NR, OE, PR, Sens, SR, STR, WS]	
3 Outl	flow Confinement	F47 (pH Measurement). No surface water flows out of the wetland except possibly during extreme events (<once (other="" (ph="" 10="" a="" aa="" an="" appear="" artificially="" beaver="" berm,="" breached="" connected="" culvert,="" dam,="" dike,="" ditch,="" does="" drain="" during="" events,="" exits="" f47="" flows="" growing="" in="" into="" lacks="" lake="" major="" measurement).="" most="" mostly="" narrowly="" natural="" nearby,="" not="" obstruction="" of="" only="" or="" or,="" other="" outlet.="" partial="" passes="" per="" pipe,="" places="" runoff="" season.<="" skip="" surface="" td="" than="" that="" the="" through="" to="" topography)="" water="" water:="" waters="" wetland="" wetland,="" where="" years).=""><td>0 0</td><td>•</td><td></td></once>	0 0	•	
3 Outf	flow Confinement	F47 (pH Measurement). No surface water flows out of the wetland except possibly during extreme events (<once (channels="" (other="" (ph="" 10="" a="" aa="" an="" appear="" artificial="" artificially="" beaver="" berm,="" breached="" connected="" culvert,="" dam,="" diffuse="" dike,="" ditch,="" does="" drain="" during="" events,="" exits="" f47="" features.<="" flows="" growing="" in="" into="" lacks="" lake="" leaves="" mainly="" major="" measurement).="" most="" mostly="" narrowly="" natural="" nearby,="" not="" obstruction="" of="" only="" or="" or,="" other="" outflow),="" outlet.="" partial="" passes="" per="" pipe,="" places="" runoff="" season.="" skip="" surface="" td="" temporary="" than="" that="" the="" through="" to="" topography)="" water="" water:="" waters="" wetland="" wetland,="" where="" years).=""><td>0 0 0</td><td>•</td><td></td></once>	0 0 0	•	
3 Outi	flow Confinement	F47 (pH Measurement). No surface water flows out of the wetland except possibly during extreme events (<once (channels="" (other="" (ph="" 10="" a="" aa="" aa's<="" an="" appear="" artificial="" artificially="" beaver="" berm,="" breached="" connected="" culvert,="" dam,="" diffuse="" dike,="" ditch,="" ditches="" does="" drain="" due="" during="" events,="" exits="" exported="" f47="" features.="" flows="" growing="" in="" into="" is="" its="" lacks="" lake="" leaves="" m="" mainly="" major="" measurement).="" more="" most="" mostly="" narrowly="" natural="" nearby,="" not="" obstruction="" of="" only="" or="" or,="" other="" outflow),="" outlet,="" outlet.="" partial="" passes="" per="" pipe,="" pipes="" places="" quickly="" runoff="" season.="" skip="" surface="" td="" temporary="" than="" that="" the="" through="" to="" topography)="" usual="" water="" water:="" waters="" wetland="" wetland,="" where="" within="" years).=""><td>0 0</td><td>•</td><td></td></once>	0 0	•	
	flow Confinement	F47 (pH Measurement). No surface water flows out of the wetland except possibly during extreme events (<once (channels="" (other="" (ph="" 10="" a="" aa="" aa's="" aa.<="" an="" appear="" artificial="" artificially="" artificially,="" beaver="" berm,="" breached="" connected="" culvert,="" dam,="" diffuse="" dike,="" ditch,="" ditches="" does="" drain="" due="" during="" edge,="" events,="" exits="" exported="" f47="" features.="" flows="" growing="" in="" into="" is="" its="" lacks="" lake="" leaves="" m="" mainly="" major="" measurement).="" more="" most="" mostly="" narrowly="" natural="" nearby,="" not="" obstruction="" of="" only="" or="" or,="" other="" out="" outflow),="" outlet,="" outlet.="" partial="" passes="" per="" pipe,="" pipes="" places="" pumped="" quickly="" runoff="" season.="" skip="" surface="" td="" temporary="" than="" that="" the="" through="" to="" topography)="" usual="" water="" water:="" waters="" wetland="" wetland,="" where="" which="" within="" years).=""><td>0 0 0</td><td>snowmelt. [CS, NR, OE, PR, Sens, SR, STR, WS]</td><td>Outnone</td></once>	0 0 0	snowmelt. [CS, NR, OE, PR, Sens, SR, STR, WS]	Outnone
	flow Confinement	F47 (pH Measurement). No surface water flows out of the wetland except possibly during extreme events (<once (channels="" (other="" (ph="" 10="" a="" aa="" aa's="" aa.="" an="" annually,="" appear="" artificial="" artificially="" artificially,="" at="" beaver="" berm,="" breached="" channel="" connected="" culvert,="" dam,="" diffuse="" dike,="" ditch,="" ditches="" does="" drain="" due="" during="" edge,="" events,="" exits="" exported="" f47="" features.="" flows="" from="" growing="" in="" into="" is="" its="" lacks="" lake="" least="" leaves="" m="" mainly="" major="" measurement).="" more="" most="" mostly="" narrowly="" natural="" nearby,="" not="" obstruction="" of="" once="" only="" or="" or,="" other="" out="" outflow),="" outlet,="" outlet.="" partial="" passes="" per="" pipe,="" pipes="" places="" pumped="" quickly="" runoff="" season.="" skip="" surface="" temporary="" than="" that="" the="" through="" to="" topography)="" tributary="" usual="" water="" water:="" waters="" wetland="" wetland,="" where="" which="" within="" years).="">100 m long moves into the AA. Or, surface water from a</once>	0 0 0 1 0	snowmelt. [CS, NR, OE, PR, Sens, SR, STR, WS] If inlet tributaries cannot be searched for due to inaccessibility of part of the AA, follow	
	flow Confinement	F47 (pH Measurement). No surface water flows out of the wetland except possibly during extreme events (<once (channels="" (other="" (ph="" 10="" a="" aa="" aa's="" aa.="" an="" annually,="" appear="" artificial="" artificially="" artificially,="" at="" beaver="" berm,="" breached="" channel="" connected="" culvert,="" dam,="" diffuse="" dike,="" ditch,="" ditches="" does="" drain="" due="" during="" edge,="" events,="" exits="" exported="" f47="" features.="" flows="" from="" growing="" in="" into="" is="" its="" lacks="" lake="" least="" leaves="" m="" mainly="" major="" measurement).="" more="" most="" mostly="" narrowly="" natural="" nearby,="" not="" obstruction="" of="" once="" only="" or="" or,="" other="" out="" outflow),="" outlet,="" outlet.="" partial="" passes="" per="" pipe,="" pipes="" places="" pumped="" quickly="" runoff="" season.="" skip="" surface="" temporary="" than="" that="" the="" through="" to="" topography)="" tributary="" usual="" water="" water:="" waters="" wetland="" wetland,="" where="" which="" within="" years).="">100 m long moves into the AA. Or, surface water from a larger permanent water body adjacent to the AA spills into the AA. If it enters only via a pipe, that pipe must be fed by a mapped</once>	0 0 0 1 0	snowmelt. [CS, NR, OE, PR, Sens, SR, STR, WS]	Outnone
4 Tribi	flow Confinement	F47 (pH Measurement). No surface water flows out of the wetland except possibly during extreme events (<once (channels="" (other="" (ph="" 10="" a="" aa="" aa's="" aa.="" an="" annually,="" appear="" artificial="" artificially="" artificially,="" at="" beaver="" berm,="" breached="" channel="" connected="" culvert,="" dam,="" diffuse="" dike,="" ditch,="" ditches="" does="" drain="" due="" during="" edge,="" events,="" exits="" exported="" f47="" features.="" flows="" from="" growing="" in="" into="" is="" its="" lacks="" lake="" least="" leaves="" m="" mainly="" major="" measurement).="" more="" most="" mostly="" narrowly="" natural="" nearby,="" not="" obstruction="" of="" once="" only="" or="" or,="" other="" out="" outflow),="" outlet,="" outlet.="" partial="" passes="" per="" pipe,="" pipes="" places="" pumped="" quickly="" runoff="" season.="" skip="" surface="" temporary="" than="" that="" the="" through="" to="" topography)="" tributary="" usual="" water="" water:="" waters="" wetland="" wetland,="" where="" which="" within="" years).="">100 m long moves into the AA. Or, surface water from a larger permanent water body adjacent to the AA spills into the AA. If it enters only via a pipe, that pipe must be fed by a mapped stream or lake further upslope. If no, SKIP to F47 (pH Measurement).</once>	0 0 0 1 0	snowmelt. [CS, NR, OE, PR, Sens, SR, STR, WS] If inlet tributaries cannot be searched for due to inaccessibility of part of the AA, follow suggestions in F42 above. [NRv, PH, PRv, SRv]	Outnone
4 Trib	outary Channel	F47 (pH Measurement). No surface water flows out of the wetland except possibly during extreme events (<once (channels="" (other="" (ph="" 10="" a="" aa="" aa's="" aa.="" an="" annually,="" appear="" artificial="" artificially="" artificially,="" at="" beaver="" berm,="" breached="" channel="" connected="" culvert,="" dam,="" diffuse="" dike,="" ditch,="" ditches="" does="" drain="" due="" during="" edge,="" events,="" exits="" exported="" f47="" features.="" flows="" from="" growing="" in="" into="" is="" its="" lacks="" lake="" least="" leaves="" m="" mainly="" major="" measurement).="" more="" most="" mostly="" narrowly="" natural="" nearby,="" not="" obstruction="" of="" once="" only="" or="" or,="" other="" out="" outflow),="" outlet,="" outlet.="" partial="" passes="" per="" pipe,="" pipes="" places="" pumped="" quickly="" runoff="" season.="" skip="" surface="" temporary="" than="" that="" the="" through="" to="" topography)="" tributary="" usual="" water="" water:="" waters="" wetland="" wetland,="" where="" which="" within="" years).="">100 m long moves into the AA. Or, surface water from a larger permanent water body adjacent to the AA spills into the AA. If it enters only via a pipe, that pipe must be fed by a mapped stream or lake further upslope. If no. SKIP to F47 (pH Measurement). Based on lack of shade, water source characteristics, or actual temperature measurements, the inflow is likely to be warmer than</once>	0 0 0 1 0	snowmelt. [CS, NR, OE, PR, Sens, SR, STR, WS] If inlet tributaries cannot be searched for due to inaccessibility of part of the AA, follow	Outnone
4 Tribo	flow Confinement outary Channel ut Water nperature	F47 (pH Measurement). No surface water flows out of the wetland except possibly during extreme events (<once (channels="" (other="" (ph="" 10="" a="" aa="" aa's="" aa.="" an="" annually,="" appear="" artificial="" artificially="" artificially,="" at="" beaver="" berm,="" breached="" channel="" connected="" culvert,="" dam,="" diffuse="" dike,="" ditch,="" ditches="" does="" drain="" due="" during="" edge,="" events,="" exits="" exported="" f47="" features.="" flows="" from="" growing="" in="" into="" is="" its="" lacks="" lake="" least="" leaves="" m="" mainly="" major="" measurement).="" more="" most="" mostly="" narrowly="" natural="" nearby,="" not="" obstruction="" of="" once="" only="" or="" or,="" other="" out="" outflow),="" outlet,="" outlet.="" partial="" passes="" per="" pipe,="" pipes="" places="" pumped="" quickly="" runoff="" season.="" skip="" surface="" temporary="" than="" that="" the="" through="" to="" topography)="" tributary="" usual="" water="" water:="" waters="" wetland="" wetland,="" where="" which="" within="" years).="">100 m long moves into the AA. Or, surface water from a larger permanent water body adjacent to the AA spills into the AA. If it enters only via a pipe, that pipe must be fed by a mapped stream or lake further upslope. If no, SKIP to F47 (pH Measurement).</once>	0 0 0 1 0	snowmelt. [CS, NR, OE, PR, Sens, SR, STR, WS] If inlet tributaries cannot be searched for due to inaccessibility of part of the AA, follow suggestions in F42 above. [NRv, PH, PRv, SRv]	Outnone

		December to the many plant storms on it travels through the AA Nearly all the units continue to travel in university of the	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) channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond	1		
		or lake.			
		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	0		
		channels. Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels.	0		
		Bumps into tree trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or	0		
-17	all Management	braided).		Desfruchte management his in large and a firm and a surface contact within the AA and a street and	
- 47	pH Measurement	The pH in most of the AA's surface water:		Preferably, measure this in larger areas of ponded surface water within the AA, or in streams that have passed through (not along) most of the AA. Unless surface water is completely	
		Was measured, and is: [enter the reading in the column to the right.]	0	absent, do not dig holes or make depressions in peat in order to provide water for this	
		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".	U	measurement. Avoid measuring near roads or in puddles formed only by recent rain. [AM, FA,	
		Neither of above. Enter "1".	1	FR, NR, WBF, PH, PR, Sens, WBF, WBN]	
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]	
	Conductivity	TDS is: [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.]		galaction in measurement galactice. [F14, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144, 1144,	
	23.144041111	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		
		Neither of above	1		
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]	
.5	•	Evident from direct observation or presence of gnawed limbs, dams, tracks, dens, lodges, or extensive stands of water-killed	1	[···,···,···, oom, oom, ros., ros.]	
		trees (snags).			
		Likely based on known occurrence in the region and proximity to suitable habitat, which may include: (a) a persistent freshwater	0		
		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	0		
		removed.	U		
50	Groundwater	Select first applicable choice:		Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH,	
	Strength of Evidence	Springs are known to be present within the AA, or if groundwater levels have been monitored, that has demonstrated that	0	or other evidence. Consult topographic maps to detect breaks in slope described here. Rust	
		groundwater primarily discharges to the wetland for longer periods during the year than periods when the wetland recharges the		deposits associated with groundwater seeps may be most noticeable as orange discoloration	
		groundwater.		in ice formations along streams during early winter. [AM, CS, FA, FR, INV, NR, OE, PH, PRv,	
				SFS, WC, WS]	
		Most of the AA has a slope of >5%, or is very close to the base of a natural slope longer than 100 and much steeper than the	0		
		slope of the AA, AND the pH of surface water, if known, is >5.5.			
		Neither of above is true, although some groundwater may discharge to or flow through the AA. Or groundwater influx is unknown.	1		
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	
		<2% or the AA has no surface water outlet (not even seasonally).	1	inlet and outlet, divided by the flow-distance between them and converted to percent. If	
		2-5%.	0	available, use a clinometer to measure this. Free clinometer apps can be downloaded to	
		6-10%.	0	smartphones. If the wetland is large (longer than ~1 km), this may be estimated using Google	
		>10%.	0	Earth to determine the minimum and maximum elevation within the AA, then dividing by length	To
		> 10%.	0	and multiplying by 100 ICS NR OF PR SR WRF WRN WSI	T
		estions: If the AA lacks an upland edge, evaluate based on the AA's entire perimeter, and moving outward into whatever			
areas	are adjacent. In many	situations, these questions are best answered by measuring from aerial images.			
		Within a zone extending 30 m laterally from the AA's edge with upland and/or other wetlands, the percentage that contains		[AM, FA, FR, INV, NRv, PH, POL, PRv, SBM, Sens, SRv, STR, WBN]	
F52	Vegetated Buffer as	Within a 2016 extending 30 in laterally from the AA's edge with ubland and/or other wellands, the bercentage that contains		*	
F52	•	perennial vegetation cover (except lawns, row crops, heavily grazed land, conifer plantations) is:			
F52	•		0		
F52	•	perennial vegetation cover (except lawns, row crops, heavily grazed land, conifer plantations) is:	0		
F52	•	perennial vegetation cover (except lawns, row crops, heavily grazed land, conifer plantations) is: <5%.			
F52	% of Perimeter	perennial vegetation cover (except lawns, row crops, heavily grazed land, conifer plantations) is: <5%. 5 to 30%.			

	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]	
ľ	Dullei	Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0	1	
		Bare or nearly bare pervious surface or managed vegetation, e.g., lawn, row crops, unpaved road, dike, landslide.	1		
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		[NRv, PRv, Sens, SRv]	
	Duilo: 0.5p5	area has a percent slope of:		[,,,,	
		<1% (flat almost no noticeable slope) or all the area within 30 m of the AA edge is other wetlands.	0	1	
		2-5%.	1	1	
		5-30%.	0	1	
		>30%.	0	1	
	·	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 (ves) or 0 (no).	0	Do not include upturned trees as potential den sites. [POL, SBM]	
	New or Expanded	Human actions within or adjacent to the AA have persistently expanded a naturally occurring wetland or created a wetland where		Determine this using historical aerial photography, old maps, soil maps, or permit files as	
,	Wetland	there previously was none (e.g., by excavation, impoundment):		available [CS, NR, OE, PH, Sens]	
		No.	1		
		Yes, and created or expanded 20 - 100 years ago.	0		
		Yes, and created or expanded 3-20 years ago.	0		
		Yes, and created or expanded within last 3 years.	0		
		Yes, but time of origin or expansion unknown.	0		
		Unknown if new or expanded within 20 years or not.	0		
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,	
		Burned within past 5 years.	0	PH, STR]	
		Burned 6-10 years ago.	0		
		Burned 11-30 years ago.	0		
		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		[PU, STR, WBFv]	
		buildings, or public maintained trails that intersect, adjoin, or are within 100 m of the AA (select one) is:			
		<25%.	1		
		25-50%.	0		
		>50%.	0		
	•	Assuming access permission was granted, select ALL statements that are true of the AA as it currently exists:		[PU, STR]	
	Uses - Actual or Potential	For an average person, walking is physically possible <u>in</u> (not just near) >5% of the AA during most of the growing season, e.g., free of deep water and dense shrub thickets.	1		
		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	0	1	
		tours.			
60 l	Unvisited Core Area	The percentage of the AA almost never visited by humans during an average growing season probably comprises: [Note: Only		[AM, FAv, FRv, PH, PU, SBM, STR, WBF, WBN]	
		include the part actually walked or driven (not simply viewed from) with a vehicle or boat. Do not include visitors on trails outside			
1		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.1 <5% and no inhabited building is within 100 m of the AA.	0	 	
		< 5% and inhabited building is within 100 m of the AA.	0	1	
		5-50% and no inhabited building is within 100 m of the AA.	0	1	
		5-50% and inhabited building is within 100 m of the AA.	0	1	
		50-95%, with or without inhabited building nearby.	0	1	
		>95% of the AA with or without inhabited building nearby.	1		
61 F	Frequently Visited	The part of the AA visited by humans almost daily for several weeks during an average growing season probably comprises:	_	[AM, PH, PU, SBM, STR, WBF, WBN]	
		[See note above.]		[ANN, 111, 10, ODIN, OTA, WEDI, WEDIN]	
ľ	Area	<5%. If F60 was answered ">95%" (mostly never visited), SKIP to F64.	1	1	
		5-50%.	0		

1	I	>95% of the AA.	0]		
F62	BMP - Soils	Boardwalks, paved trails, fences or other infrastructure and/or well-enforced regulations appear to effectively prevent visitors from	0	[PH, PU]		
F63	BMP - Wildlife Protection	walking on soil within nearly all of the AA when the soil is unfrozen. Enter "1" if true. 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]		
F64	Consumptive Uses	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select ALL that apply.		[FAv, FRv, WBFv]		
	(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	1			
	Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0			
		Waterfowl hunting.	0			
		Fishing.	0			
		Trapping of furbearers.	0			
		None of the above.	0			
F65	Domestic Wells	The closest wells or water bodies that currently provide drinking water are:		[NRv]		
		Within 0-100 m. of the AA.	0	1		
		100-500 m. away.	0	1		
		>500 m. away, or no information.	1	1		
F66	Calcareous Fen	The AA is, or is part of, a calcareous fen. See the Plants_Calcar worksheet in the accompanying SuppInfo file for list of plant indicators (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]		

ressor (S) Data Form for Non-Tid	Site Identifier: Tapline WL 1		Date: July 23, 2019	
	al Wetlands. WESP-AC for Ne	w Brunswick. Version 2.		D
Aberrant Timing of Water Inputs In the last column, place a check mark next to any item that is like	sly to have caused the timing of water inputs (but not necessar	rily their volume) to shift by hours days or weeks becoming eit	har mara mutad (smallar or lass fraguant paaks spraad ova	r
longer times, more temporal homogeneity of flow or water levels)	or more flashy (larger or more frequent spikes but over shorte		ner more mateu (smaller of 1633 frequent peaks spread ove	, <u> </u>
Stormwater from impervious surfaces that drains directly to the v				
Water subsidies from wastewater effluent, septic system leakage Regular removal of surface or groundwater for irrigation or other	<u> </u>			
Flow regulation in tributaries or water level regulation in adjoining		nat regulates inflow to the wetland.		
A dam, dike, levee, weir, berm, or fill within or downgradient from		w in/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.	end ditch.			
Accelerated downcutting or channelization of an adjacent or inter	rnal channel (incised below the historical water table level).			
Logging within the wetland.				
Subsidence or compaction of the wetland's substrate as a result Straightening, ditching, dredging, and/or lining of tributary chann-				
If any items were checked above, then for each row of the table b		s had no measurable effect on the timing of water conditions in	any part of the AA, then leave the "0's" for the scores in the	
following rows. To estimate effects, contrast the current condition	with the condition if the checked items never occurred or were	e 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 p	past 10 years, and only for the part of the wetland that experie		, ,	
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.	
		Ī	Stressor subscore	_
Accelerated Inputs of Contaminants and/o	or Salts		Oliessoi subscore	
In the last column, place a check mark next to any item occurring	ng in either the wetland or its CA that is likely to have accele	rated the inputs of contaminants or salts to the AA. [AM, FA, PF	I, POL, STR]	
Stormwater or wastewater effluent (including failing septic system	ms), landfills, industrial facilities.			
metals & chemical wastes from mining, shouling ranges, show so particle fault asp2lance Ep&n=R85A18/16-1	torage areas, on/ gas extraction, other sources (download mai	ny locations from National Polititant Netease inventory and view	Triviz overlay in Google Earth. https://www.ec.gc.ca/hhp-	
Road salt. Spraying of pesticides, as applied to lawns, croplands, roadsides	s or other areas in the CA			
Spraying or pesticides, as applied to lawns, cropiands, roadsides If any items were checked above, then for each row of the table b.		s did not cumulatively expose the AA to significantly higher love	Is of contaminants and/or salts, then leave the "O'e" for the	
scores in the following rows. To estimate effects, contrast the curr				
	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	Low density residential.	
Frequency & duration of input:	Frequent and year-round.	way. Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.	
AA proximity to main sources (actual or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.	
(· · · · · · · · · · · · · · · · · · ·	Sum	=
			Stressor subscore	= C
Accelerated Inputs of Nutrients				
In the last column, place a check mark next to any item occurring. Stormwater or wastewater effluent (including failing septic system)		rated the inputs of nutrients to the wetland. [NRv, PRv, STR]		
Fertilizers applied to lawns, ag lands, or other areas in the CA.	ns), ianums.			
Livestock, dogs.				
Artificial drainage of upslope lands.				
If any items were checked above, then for each row of the table be To estimate effects, contrast the current condition with the condition			ents, then leave the "0's" for the scores in the following rows	i.
To estimate effects, contrast the current condition with the condition	Severe (3 points)	Medium (2 points)	Mild (1 point)	
Type of loading:	High density of unmaintained septic, some types of	Moderate density septic, cropland, secondary wastewater	Livestock, pets, low density residential.	
,, ,	industrial sources.	treatment plant. Frequent but mostly seasonal.	•	
Fraguency 9 duration of inputs		rrequent but mostly seasonal.		
Frequency & duration of input: AA proximity to main sources (actual or potential):	Frequent and year-round. 0 - 15 m.	15-100 m. or in groundwater.	Infrequent & during high runoff events mainly. In more distant part of contributing area.	
Frequency & duration of input: AA proximity to main sources (actual or potential):	Prequent and year-round. 0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area. Sum	=
	1	15-100 m. or in groundwater.	In more distant part of contributing area.	
	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.	
AA proximity to main sources (actual or potential):	0 - 15 m.		In more distant part of contributing area. Sum Stressor subscore	
AA proximity to main sources (actual or potential): Excessive Sediment Loading from Contrib	0 - 15 m. buting Area the CA that is likely to have elevated the load of waterborne of		In more distant part of contributing area. Sum Stressor subscore	
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Excessive Sediment Loading from Contrik In the last column, place a check mark next to any item present in Erosion from plowed fields, fill, timber harvest, dirt roads, vegeta 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/ ga Accelerated channel downcutting or headcutting of tributaries du Other human-related disturbances within the CA. If any items were checked above, then for each row of the table b solids to the AA, then leave the "0's" for the scores in the following Erosion in CA: Recentness of significant soil disturbance in the CA: Duration of sediment inputs to the wetland: AA proximity to actual or potential sources: * high-intensity= extensive off-road vehicle use, plowing, grading, disturbance of soil or sediment. Soil or Sediment Alteration Within the Ass In the last column, place a check mark next to any item present in restored (whichever is less). [CS. INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mou Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native Fill or riprap, excluding small amounts of upland soils containing Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause ero If any items were checked above, then for each row of the table b estimate effects, contrast the current condition with the condition i	buting Area In the CA that is likely to have elevated the load of waterborne of tion clearing, fires. Sextraction. In the last of cows. To estimate effects, contrast the current condition with severe (3 points) Extensive evidence, high intensity.* Current & ongoing. Frequent and year-round. 0 - 15 m. excavation, erosion with or without veg removal; low-intensity. Seessment Area The wetland that is likely to have compacted, eroded, or other intain bikes, especially during wetter periods. Seplants). Organic amendments (compost, etc.) or small amounts of topic shore erosion or stir bottom sediments. Selow, assign points. However, if you believe the checked item if the checked items never occurred or were no longer present selow, assign points. However, if you believe the checked item if the checked items never occurred or were no longer present selow, assign points. However, if you believe the checked item if the checked items never occurred or were no longer present selow, assign points. However, if you believe the checked item if the checked items never occurred or were no longer present selow, assign points. However, if you believe the checked items never occurred or were no longer present selow. Severe (3 points) >95% of wetland or >95% of its upland edge (if any). Current & ongoing.	column. However, if you believe the checked items did not cume the condition if the checked items never occurred or were no low Medium (2 points) Potentially (based on high-intensity* land use) or scattered evidence. 1-12 months ago. Frequent but mostly seasonal. 15-100 m. ty= veg removal only with little or no apparent erosion or evidence altered the wetland's soil. Consider only items occurring we soil imported from another wetland. soil imported from another wetland. Medium (2 points) 5-95% of wetland or 5-95% of its upland edge (if any). 1-12 months ago.	In more distant part of contributing area. Sum Stressor subscore R, INV, PH, SRv, STR] Allatively add significantly more sediment or suspended inger present. Mild (1 point) Potentially (based on low-intensity* land use) with little or n direct evidence. >1 yr ago. Infrequent & during high runoff events mainly. In more distant part of contributing area. Sum Stressor subscore ithin past 100 years or since wetland was created or ithin past 100 years or since wetland was created or Mild (1 point) <5% of wetland and <5% of its upland edge (if any). >1 yr ago.	

Assessment Area (AA) Results:

Wetland ID: Tapline WL 1

Date:

Observer: DM

Latitude & Longitude (decimal degrees):

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)	0.97	Lower	9.37	Higher	2.48	9.38
Stream Flow Support (SFS)	4.58	Moderate	10.00	Higher	2.44	19.76
Water Cooling (WC)	7.80	Higher	8.97	Higher	5.20	5.40
Sediment Retention & Stabilisation (SR)	1.87	Moderate	6.80	Moderate	4.44	4.13
Phosphorus Retention (PR)	2.79	Moderate	6.54	Higher	4.88	6.25
Nitrate Removal & Retention (NR)	2.89	Moderate	10.00	Higher	5.62	10.00
Carbon Sequestration (CS)	4.72	Moderate			6.60	
Organic Nutrient Export (OE)	5.82	Higher			5.42	
Anadromous Fish Habitat (FA)	0.00	Lower	0.00	Lower	0.00	0.00
Resident Fish Habitat (FR)	0.00	Lower	0.00	Lower	0.00	0.00
Aquatic Invertebrate Habitat (INV)	6.21	Higher	3.84	Moderate	6.06	3.32
Amphibian & Turtle Habitat (AM)	4.34	Moderate	8.33	Higher	5.59	7.15
Waterbird Feeding Habitat (WBF)	4.46	Moderate	10.00	Higher	3.55	10.00
Waterbird Nesting Habitat (WBN)	3.36	Moderate	0.00	Lower	2.87	0.00
Songbird, Raptor, & Mammal Habitat (SBM)	9.52	Higher	10.00	Higher	7.89	10.00
Pollinator Habitat (POL)	8.56	Higher	0.00	Lower	6.89	0.00
Native Plant Habitat (PH)	7.78	Higher	5.68	Moderate	6.22	4.93
Public Use & Recognition (PU)			1.90	Lower		1.68
Wetland Sensitivity (Sens)			9.48	Higher		5.04
Wetland Ecological Condition (EC)			4.22	Moderate		6.67
Wetland Stressors (STR) (higher score means more stress)			3.81	Moderate		3.66
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	4.58	Moderate	9.37	Higher	2.48	9.38
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	2.71	Lower	8.89	Higher	5.99	8.40
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	6.95	Higher	8.80	Higher	5.42	14.63
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	3.45	Moderate	6.83	Higher	4.00	6.71
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	9.07	Higher	7.61	Higher	7.45	7.49
WETLAND CONDITION (EC)			4.22	Moderate		6.67
WETLAND RISK (average of Sensitivity & Stressors)			6.65	Higher		4.35

New Brunswick Reference Scores	

9										
	Min	Max	Range	F_JenksLo	F_JenksHigh	Min	Max	Range	B_JenksLo	B_JenksHigh
	1.73	9.42	7.68	2.48	5.12	0.08	10.00	9.92	2.58	5.67
	0.00	5.33	5.33	2.92	6.56	0.00	5.83	5.83	2.08	6.16
	0.00	6.67	6.67	1.80	5.30	0.00	6.02	6.02	1.45	4.79
	3.16	10.00	6.84	1.76	5.26	0.00	6.07	6.07	3.75	7.95
	2.90	10.00	7.10	2.66	4.17	0.33	9.38	9.04	1.71	4.55
	3.83	10.00	6.17	2.27	4.36	1.11	10.00	8.89	2.50	7.19
	4.56	8.88	4.31	3.13	5.70					
	2.33	7.64	5.30	3.12	5.26					
	0.00	6.13	6.13	1.80	6.71	0.00	7.39	7.39	0.00	4.44
	0.00	5.95	5.95	1.40	6.29	0.00	7.09	7.09	0.00	4.48
	3.87	7.39	3.52	2.58	5.58	1.24	6.64	5.39	0.85	5.74
	3.30	8.58	5.28	3.30	6.25	2.09	8.16	6.06	2.27	6.30
	0.00	7.96	7.96	0.00	6.84	0.00	10.00	10.00	0.83	6.67
	0.00	8.54	8.54	1.95	5.42	0.00	10.00	10.00	0.00	6.67
	0.00	8.29	8.29	2.50	7.24	0.00	10.00	10.00	3.33	6.67
	0.00	8.05	8.05	0.00	7.81	0.00	10.00	10.00	0.00	6.67
	3.08	7.12	4.03	3.96	5.98	0.00	8.68	8.68	0.00	6.33
						0.33	7.44	7.11	2.40	5.51
						2.20	5.20	2.99	2.88	5.30
						4.24	10.00	5.76	3.25	6.39
						2.26	5.93	3.67	2.15	4.97
				2.48	5.12				2.58	5.67
				3.07	5.39				4.15	7.64
				3.82	6.04				1.34	4.99
				2.41	6.22				3.15	6.29
				4.68	7.60				0.00	5.33
									3.25	6.39
									2.71	4.33

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 the 98 NB calibration wetlands that were assessed previously.

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	Tapline WL-2
Investigator Name:	Derrick Mitchell
Date of Field Assessment:	July 24, 2019
Nearest Town:	Grande Anse, NB
Latitude (decimal degrees):	47.786160°
Longitude (decimal degrees):	-65.130557°
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	18 ha (linear corridor)
AA as percent of entire wetland (approx.). Attach sketch map if AA is smaller than the entire contiguous wetland.	<5
What percent (approx.) of the wetland were you able to visit?	<5
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):	

Date: July 24, 2019	Site Identifier: Tapline WL-2	Investigator: DM			

Form OF (Office). Non-tidal Wetland Data Form. WESP-AC version 2 for New Brunswick 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

GeoNB: http://www.snb.ca/geonb1/ and http://www.snb.ca/geonb1/e/apps/apps-E.asp

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

#	Indicators	Condition Choices	Data	Definitions/Explanations	Cell Name	Comments
)F1	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		
		New Brunswick	1	automatic exclusion of indicators for which no spatial data exists in a particular	NB	
		Nova Scotia	0	province.	NS	
		Prince Edward Island	0		PEI	
		Newfoundland-Labrador	0		NL	
)F2		The area of surface wate r 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		
		<0.01 hectare (about 10 m x 10 m).	0	vegetation. If surface water extends beyond 1 km, include only the part within 1 km.		
		0.01 - 0.1 hectare.	0	Do not include tidal areas. Measure the area from aerial imagery using Google Earth		
		0.1 - 1 hectare.	1	Pro (click on Ruler icon in toolbar, then Polygon in pop-up menu). With the GeoNB		
		1 to 10 hectares.	0	viewer, enable the Wetlands layer, then measure with the Draw & Measure tool after specifying Aerial as the Basemap. However, do not rely entirely on wetland		
		10 to 100 hectares.	0			
		>100 hectares.	0	boundaries shown in online wetlands layers. [PH, SBM, WBN]		
	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		See definition of adjacent in OF2. If the AA's wetland vegetation extends beyond 1		
		the AA and (2) within 1 km is:	0	km, include only the part within 1 km. "Ponded" means not flowing in rivers or		
		<0.01 hectare (about 10 m x 10 m).	0	streams. [Sens, WBF]		
		0.01 - 0.1 hectare.	0			
		0.1 - 1 hectare.	0			
		1 to 10 hectares.	1			
		10 to 100 hectares.	0	- 1		
		>100 hectares.	0			
	•	The largest vegetated patch or corridor that includes the AA's vegetation plus all adjacent upland vegetation that is		See definition of adjacent in OF2. Use Google Earth Pro's polygon ruler (as described		
	, •	not lawn, row crops, heavily grazed lands, conifer plantation is: <0.01 hectare (about 10 m x 10 m).	0	above). Exclude conifer plantations only if it is obvious that trees were planted in		
	Tract or Corridor	0.01 - 0.1 hectare (about 10 m x 10 m).	0	rows. [AM, PH, SBM, Sens]		
		0.01 - 0.1 nectare. 0.1 - 1 hectare.	0			
		1 to 10 hectares.	0			
		10 to 100 hectares.	0	-		
		100 to 1000 hectares.	0	-		
		>100 to 1000 nectares. >1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	1			
)F5	Distance to Large	The minimum distance from the edge of the AA to the edge of the closest vegetated land (but excluding row crops,		To measure distance, use Google Earth Pro (Ruler > Line tool). Or use Draw &		
CJ	-	lawn, conifer plantation) larger than 375 hectares (about 2 km on a side), is:		Measure tool at GeoNB. The 375-ha criterion is from the Fundy Model Forest Project.		

	į	4FO as and not consisted from the 27F have extended as a horizontal to 5	0	l	ĺ	I
		<50 m, and not separated from the 375-ha vegetated area by any width of paved roads, stretches of open water,	U	[AM, PH, POL, SBM, Sens]		
		row crops, bare ground, lawn, or impervious surface. Or the AA itself contains >375 ha of vegetation. [This is often				
		the answer in relatively undeveloped landscapes.]	1			
		<50 m, but completely separated from the 375-ha vegetated area by those features, and AA does not contain >375				
		ha of vegetation. 50-500 m, and not separated.	0			
		·	0			
		50-500 m, but separated by those features.	0			
		0.5 - 5 km, and not separated.	0			
		0.5 - 5 km, but separated by those features.	0			
		None of the above (the closest patches or corridors which are that large are >5 km away).	0			
OF6	Herbaceous	The AA's vegetation cover is >10% herbaceous* but uplands within 5 km have <10% herbaceous cover. If so, enter	0	For this question only, consider moss to be herbaceous vegetation. Determine the		
		"3" and continue to OF7. If not, consider:		score by viewing aerial imagery in Google Earth after successively drawing or		
	-	The AA's vegetation cover is >10% herbaceous* but uplands within 1 km have <10% herbaceous cover. If so enter "2"		estimating the boundaries of the buffers of 5 km, 1 km, and 100 m radius focused on		
		and continue to OF7. If not, consider:		the center of the AA. Circles of specified radius can be drawn in Google Earth Pro by		
		The AA's vegetation cover is >10% herbaceous* but uplands within 100 m of the wetland edge have <10%		clicking on the Ruler icon, then Circle in the pop-up menu. [AMv, PHv, POLv, SBMv,		
		herbaceous cover. If so, enter "1".		WBFv, WBNv]		
		[* NOTE: Exclude lawns, row crops, heavily grazed lands, forest, shrublands. Include moss as well as grasslike plants				
		in this use of "herbaceous vegetation"]				
		-				
OF7		The AA's vegetation cover is >10% woody* but uplands within 5 km have <10% woody cover. If so, enter "3" and	0	See above. Do not consider conifer plantations to be forest if it is obvious that trees		
		continue to OF8. If not, consider:		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, consider:				
		The AA's vegetation is >10% woody* but uplands within 100 m of the wetland edge have <10% woody cover. If so,				
		enter "1"				
		[* NOTE: woody cover = trees & shrubs taller than 1 m.]				
OF8	Local Vegetated	Draw a 5-km radius circle measured from the center of the AA. Ignoring all permanent water in the circle, the		In Google Earth, draw the 5 km buffer and then estimate land cover percentages, or		
	Cover Percentage	percent of the remaining area that is wooded or unmanaged herbaceous vegetation (NOT lawn, row crops, bare or		do GIS analysis of an appropriate land cover layer. [AM, PH, POL, SBM, Sens]		
	•	heavily grazed land, clearcuts, or conifer plantations) is:		do dis unuivais of un appropriate land cover layer. [/livi, 111, 102, 351vi, 361is]		
		<5% of the land.	0			
		5 to 20% of the land.	0			
		20 to 60% of the land.	1			
		60 to 90% of the land.	0			
			0			
050		>90% of the land. SKIP to OF10.	U	[AAA CDA4]		
	′'	Within the 5-km radius circle, and ignoring all permanent water, the land area that is bare or non-perennial cover is		[AM, SBM]		
	Alteration	mostly:	0			
		Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0			
		Bare pervious surface, e.g., lawn, recent (<5 yrs ago) clearcut, dirt or gravel road, cropland, landslide, conifer	1			
0540	Distance by D. C.	plantation.		Danidation contant magazina a satural constitution contains to the second state of		
	·	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-		
		<100 m.	0	inhabited structures per square kilometer. In Google Earth, click on the Ruler icon,		
	Center	100 - 500 m.	0	then Path, and draw and measure the route. Or use the GeoNB's Draw & Measure		
		0.5- 1 km.	0	tool> Freehand Line to draw and measure the route to Settlements (click on Place		
		1 - 5 km.	1	Names in menu) or other areas not close to mapped settlements but which meet the		
		>5 km.	0	criteria.[FAv, FRv, NRv, PH, PU, SBM, WBFv]		
OF11		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 and measuring with the		
		<10 m.	0	Ruler>Line tool. Or use the GeoNB's Draw Line tool. [AM, FAv, FRv, NRv, PH, PU,		
			0	SBM, STR, WBN]		
		10 - 25 m.	Ü	,, <u>-</u>		
		25 - 50 m.	0			
		50 - 100 m.	0			

	I	>500 m.	1	1	I	I
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	In NB, enable the Wetlands layer in GeoNB (despite its omissions) to show surrounding wetlands and roads, while estimating the location of the 5 km circle (or draw the 5 km circle in Google Earth Pro using the Circle tool and compare). Evaluate using Google Earth, being cautious to search for roads hidden under forest canopy.		
OF13	Distance to Ponded Water	The distance from the AA center to the closest (but separate) ponded water body visible in GoogleEarth imagery is:		In Google Earth, zoom in closely to examine the surrounding landscape for ponds, lakes, and wetlands that appear to be permanently flooded. Enable the GeoNB		
		<50 m, and not separated by any width of paved roads, stretches of open water, row crops, lawn, bare ground, or impervious surface.	0	viewer's Wetlands layer as well. [AM, PH, SBM, Sens, WBF, WBN]		
		<50 m, but completely separated by those features.	0			
		50-500 m, and not separated.	0			
		50-500 m, but separated by those features.	0			
		0.5 - 1 km, and not separated.	0			
		0.5 - 1 km, but separated by those features.	1			
		None of the above (the closest patches or corridors that large are >1 km away).	0			
OF14	Distance to Large	The distance from the AA center to the closest (but separate) non-tidal body of water that is ponded during most of		Determine this by viewing aerial imagery in Google Earth. [Sens, WBF, WBN]		
	Ponded Water	the year and is larger than 8 hectares during most of a normal year is:	_	Į		
		<100 m.	0	-		
		100 m - 1 km.	0			
		1 -2 km.	0			
		2-5 km.	0	4		
		5-10 km.	0			
		>10 km.	1			
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		
		<100 m.	0	river, whichever is closer. If you need to see how far upriver a river is tidal, see the		
		100 m - 1 km.	0	KMZ file provided with this calculator for NB (NB Headtide). Points shown in those		
		1 - 5 km.	1	files are only an approximation, so local information if available may be preferable.		
		5-10 km.	0	[FA, WBF]		
		10-40 km.	0			
		>40 km.	0			
OF16	Upland Edge Contact	Select one:		[NR, SBM, Sens]		
		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			
		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			
		25-50% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0			
		50-75% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	Ü			
		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			
OF17	Flood Damage from	Within 5 km downstream or downslope of the AA (select first true choice):		In the GeoNB map viewer: click on "More" in upper right, then "Flood Information".		
	Non-tidal Waters	Maps show Flood Zone or Flood Risk areas and there appears to be infrastructure vulnerable to river flooding not caused by tidal storm surges.	0	Expand the menu under it by clicking on the arrow to its left and the slider to its right. Uncheck the first (Limits of Data) box. Where available, LiDAR imagery can		
		Maps show Flood Zone or Flood Risk areas, but infrastructure is absent or is not vulnerable to floods from a non-tidal	0	provide finer elevational resolution useful for flood modeling. [WSv]		
		river. In some cases levees, upriver dams, or other measures may partly limit damage or risk from smaller events.				
		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure vulnerable to river flooding unrelated to tidal storm surges.	0			
		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there is no infrastructure vulnerable to river flooding unrelated to tidal storm surges.	1			
		minustrate value able to five moduling difference to dual storm surges.				

OF18 Relative Elevation in Un Google Earth, enable the Terrain layer (lower left menu) and open the NB_Watersheds KMZ file that accompanies Watershed this calculator. Then determine the AA's approximate elevation (bottom right, NOT the "eye alt"). Then move cursor 0.00	ShedPos
watershed this calculator. Then determine the AA's approximate elevation (bottom right, NOT the "eye alt"). Then move cursor	
The first of the control of the cont	
around to determine the watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-	
OF19 Water Quality In Google Earth, open the KMZ file NB_Watershed Protected Area which accompanies this calculator. The AA is 0 If an ACCDC report is available for this AA, it also may contain such information.	
Sensitive Watershed within such an area. Enter 1= yes, 0= no. [NRv]	
or Area	
OF20 Degraded Water Sampling indicates a problem with concentrations of metals, hydrocarbons , nutrients , or other substances May use existing data, or sample those waters as part of this wetland assessment	
Upstream (excluding bacteria, acidic water, high temperatures) being present at levels harmful to aquatic life or humans, and: "Harmful" should be evaluated with regard to current federal or provincial water	
quality standards. [AM, FA, FR, NRv, PRv, SRv, STR, WBF, WBN]	
The condition is present within the AA.	
The condition is present in waters within 1 km that flow into the AA, but has not been documented in the AA itself.	
Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in	
either the AA or inflowing waters.	
Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the	
situation for nearly all wetlands in this region. 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. [NR]	
	ν,
Downstream The condition is present within 1 km downslope and connected to the AA by a channel. 0 PRv, SRv]	
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.	
Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in	
either the AA or inflowing waters.	
Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the	
situation for nearly all 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 Topographic maps may be viewed online at the National Atlas of Canada	
Contributing Area entire wetland of which the AA may be only a part. Then adjust those boundaries if necessary based on your field (Toporama): http://atlas.gc.ca/toporama/en/index.html [NR, PR, Sens, SR,	
(Catchment) observations of the surrounding terrain, and/or by using procedures described in the Manual. Divide the area of the WS]	
wetland (not just the AA) by the approximate area of its catchment excluding the area of the wetland itself. When	
doing the calculation, if ponded water is adjacent to the wetland, include that in the wetland's area. The result is:	
<0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	
<0.01, or catchinent size unknown due to stormwater pipes that collect water from an indeterminate area.	
0.01 to 0.1.	
0.1 to 1.	
>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 bog).	
OF23 Unvegetated Surface The proportion of the AA's contributing area (measured to no more than 1000 m upslope) that is comprised of [FA, INV, NRv, PRv, SRv, STR, WCv, WSv]	
in the Contributing buildings, roads, parking lots, other pavement, exposed bedrock, landslides, and other mostly-bare surface is about:	
Area	
10 to 25%.	
>25%.	
OF24 Transport From A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as [NRv, PRv, SRv, WSv]	
Upslope runoff (surface water), as 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.	
Mostly true.	
Somewhat true.	

Ţ		Mostly untrue.	0]		
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]		
1		Northward (N, NE). north-facing contributing area.	1			
1		Southward (S, SW). south-facing contributing area.	0			
1		Other (E, SE, W, NW), or no detectable uphill slope or input channel (flat).	0			
JF26	Internal Flow	The horizontal flow distance from the wetland's inlet to outlet is:		Identify inlets and outlets, if any, from topographic maps (use elevations to		
1	Distance (Path	<10 m.	0	determine which are inlets and which are outlets) and augment by field inspection.		
1	Length)	10 - 50 m.	0	[NR, OE, PR, SR, WS]		
1		50 - 100 m.	1			
1		100 - 1000 m.	0			
1		1- 2 km.	0			
•		>2 km, or wetland lacks an inlet and outlet.	0			
JF27	Growing Degree	In Google Earth, open the KMZ file that accompanies this calculator, called NB-PEI_GrowingDegreeDays. Place your	1500	This layer was provided by Dr. Dan McKenney of the Canadian Forest Service [AM,	GrowD	
		cursor over the AA and left-click. From the pop-up, enter the GRIDCODE in the next column.	1300	CS, FR, INV, NR, OE, PH, PR, Sens, SR, WBF, WCv, WS]		
JF28	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		
1		la lugarina ka arina anakara anak/an anarina ku Aklantia adinanan anatkan anadua manara anada an ada lug ND anarik	0	waters have been stocked. In NB, the list of stocked waters is at:		
1		Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. In NB, consult Figure A-2 in Appendix A of the Manual. Contact local fishery biologists, review the ACCDC report, and visit these	U	http://www2.gnb.ca/content/gnb/en/departments/erd/natural_resources/content/fish/content/StockedWaters.html		
1		websites: http://www.salmonatlas.com/atlanticsalmon/canada-east/index.1.html		[AM, FA, FR, INV, WBF, WBN]		
1		http://atlanticsalmonfederation.org/rivers/introduction.html		[AIVI, FA, FN, IIVV, WOF, WOIV]		
1		Has not been documented to support Atlantic salmon rearing and/or spawning, but is connected to nearby waters	1			
•		likely to contain Atlantic salmon or other anadromous species or eels and is probably accessed by those during some				
1		conditions. Is probably is not accessed by any anadromous fish species but is known or likely to have other fish at least	0			
1		seasonally.	U			
		Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	0			
	•	Within the past 10 years, in the AA (or in its adjoining waters or wetland), qualified observers have documented		Request information from ACCDC and/or conduct your own survey at an appropriate		
	Conservation	[mark all applicable]:	0	season using an approved protocol. For birds, also check eBird.org. [AMv, EC, PHv,		
•	Concern	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	U	POLv, SBMv, Sens, WBFv, WBNv]		
1		Presence of one or more of the amphibian or reptile species (AM) of conservation concern as listed in the	0			
1		Wildlife Rare worksheet of the accompanying SuppInfo file.				
•		Presence of one or more of the waterbird species (WBF, WBN) of conservation concern as listed in the Wildlife_Rare	0			
1		worksheet of the accompanying Supplinfo file.	0	-		
1		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 SuppInfo file, during their nesting season (May-July for most species).	U			
1		whitine_Nate worksheet of the accompanying suppline file, during their flesting season (way-suly for filest species).				
		None of the above, or no data.	1			
OF30	Important Bird Area	In Google Earth, open the KMZ file that accompanies this calculator, called IBAs_Canada. The AA is all or part of an	0	The source of this layer, which should be checked periodically for updates, is:		
	(IBA)	officially designated IBA. Enter 1= yes, 0= no.		http://www.ibacanada.com/mapviewer.jsp?lang=EN [SBMv, WBFv, WBNv]		
OF31	Black Duck Nesting	In Google Earth, open the KMZ file that accompanies this calculator, called BlackDuck. Adjust its alignment and	Ω	This was provided by Dr. David Leske. [WBNv]		
	•	opacity. Determine the predicted density (pairs per 25 sq. km) of nesting American Black Duck in the AA's vicinity:	3			
		<10 (enter 0), 10-20 (enter 1), 20-30 (enter 2), >30 (enter 3). If outside of region shown in map, change to blank .				
OF32	Wintering Deer or	If AA is on private land with no information, change to blank (not 0). If on public/crown land, in Google Earth open		[SBM]		
	Moose	the KMZ file that accompanies this report called NB_DeerWinteringAreas.Otherwise: Enter: yes= 1, no= 0.				
,	Concentration Areas					
ľ	Concentration Areas					

2 - 2 5				
OF33	Other Conservation	With GeoNB, click on Candidate PNA Map Viewer to identify Provincially Significant Wetland, Environmentally	0	[PU]
	Designation	Significant Area, Protected Natural Area but also include if 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. Enter: yes= 1, no= 0. If uncertain, consult NCC and agencies for more recent		
		information		
OF34	Conservation	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve,	0	[PU]
	Investment	create, restore, or enhance the wetland (excluding mitigation wetlands). Ask the property owner. Enter: yes= 1, no=		
		0. If no information, change to blank (not 0).		
OF35	Mitigation	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere. Ask the property owner. Enter:		[PU]
	Investment	yes= 1, no= 0. If no information, change to blank.		
OF36	Sustained Scientific	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and		[PU]
	Use	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 to blank		
OF37	Calcareous Region	The AA is in an area that is at least partly underlain by soil, sediment, or bedrock that is highly calcareous (enter 3 in	0	If GIS is available, you may use the Bedrock Geology shapefile obtainable at
		next column), moderately calcareous (enter 2), or slightly calcareous (enter 1), none= 0. Limestone is typically a		http://www.snb.ca/geonb1/e/DC/catalogue-E.asp [AM, FA, FR, INV, PH]
		major component (karst geology) and water is not acidic (pH is usually >8). See Figure A-6 in Appendix A of the		
		Manual. If no map coverage, change to blank.		
OF38	Ownership	Select the ONE ownership that covers the most of the AA. In Google Earth, open KMZ file called NB Crown lands.Use		"Private lands" may include those owned or leased by non-governmental
		more recent information if available.		organizations, e.g., charitable conservation land trusts, DUC, TNC. [PU, STR]
		New timber harvest, roads, mineral extraction, and intensive summer recreation (e.g., off-road vehicles) are	0	
		permanently prohibited. Includes many publicly-owned Protected Lands, and private lands under long-term (30+		
		vear) legal agreements to maintain nearly-unaltered conditions.		
		Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are	0	
		allowed.		
		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable	0	
		or not) is in place.		
		Ownership is private and owner does not allow access, or access permission unknown, and not a conservation	1	
		easement.		

te: July 24, 2019	Site Identifier: Tapline WL-2	Investiga	ator: DM, BL		
ards its core, in the conduct the assest allowed and so erring with the lation pertains, see y, SFS= Stream Flatt, FA= Anadron	Non-tidal Wetland Data Form. WESP-AC version 2 for New Brunswick wetland the part of the AA that is proposed for alteration. If no alteration is proposed, walk in a portion that appears to be seen the original of the accompanying Manual and the Explanations column of the data form. In the Data of indicated, Answer these questions primarily based on your onsite observations and interpretations. Do not wrondowner or other knowledgable persons, and/or reviewing aerial imagery. For most wetlands, completing this see the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of low Support, WC= Water Cooling, SR= Sediment Retention & Stabilisation, PR= Phosphorus Retention, NR= Nitrations Fish Habitat, FR= Resident Fish Habitat, AM= Amphibian & Reptile Habitat, WBF= Feeding Waterbird Habitat Plant Habitat, PU= Public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR=	column, on the column, of the in shade the decorrance the column at the column at the column at, when the column at, when the column at, when the column at	epresentative of the wetland overall. Walk only where it is safe and legal to do change the 0 (false) to a 1 (true) for the best choice, or for multiple choices ded parts of this data form. Answering some questions accurately may require form will require 1-2 hours on a site. For a list of functions to which each appanying Manual. Codes for functions and values are: WS= Water Storage & val, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate Nesting Waterbird Habitat, SBM= Songbird, Raptor, & Mammal Habitat, POL=		
Indicators	Condition Choices	Data	Definitions/Explanations	Cell Name	Comments
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	22	
	 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. 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 rariflor a). Wetland surface and surrounding landscape are seldom sloping and wetland often is domed (convex). Inlet and outlet channels are usually absent. If known, pH of peat is <4.0. 	0	leaves. They include rhododendron, azalea, swamp laurel, leatherleaf, Labrador tea, and others. Most require acidic soil. Although not in the family Ericaceae, sweetgale (<i>Myrica gale</i>) should be counted also. [AM, CS, FA, FR, INV, NR, OE, PH, Sens, SFS, WBF, WBN]		
	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		Fen_	
	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:				
	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			
	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		Marsh	
	tions, the AA should include all persistent waters in ponds smaller than 8 hectares (~283 m on a side) that are adjacent to				
	also include part of the water area of adjacent ponded water larger than 8 ha and adjacent rivers wider than 20 m. uld include the open water part adjacent to wetland vegetation and equal in width to the average width of that vegetated				
	ata form, " adjacent " is used synonymously with abutting, adjoining, bordering, contiguous and means no upland				
	ompletely separates the described features along their directly shared edge. Features joined only by a channel are not				
cessarily considered t be considered adjace	to be adjacent a large portion of their edges must match. The features do not have to be hydrologically connected in order ent.				
NA/alland T	If the AA is appelled the at the great all of both are that are great to the AAV of the control of AA if the AA is t		A heaten is 40,000 or an archael O. F. comp. Heat III have the confidence of 400 or to 400		
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		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]		
Subordinate	from aerial imagery. Do not mark again the type marked in F1.				
	A1.	0			
	A2. B1.	0			
	B2.	0			
Woody Height &		Ť	Deciduous shrubs in this region usually include buttonbush, Labrador tea, bayberry (<i>Morella</i>),	1	
Form Diversity	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		huckleberry, cranberry, cloudberry, sweetgale, alder, willow, birch, ash, dogwood, and a few		
	largely herbaceous (non-woody) vegetation, these percentages should not sum to 100%. coniferous trees (may include tamarack) taller than 3 m.	2	others. If you assigned a code of 3 or higher to any of the first four choices and the ground		
	comorcas troos (may motate tamaratiny tallor trial o m.	2	cover beneath the trees/shrubs is <25% moss, then question F1 might be "B1". [CS, INV, NR,]	

			L
	deciduous trees taller than 3 m.	4	PH, POL, SBM, Sens]
	coniferous or ericaceous shrubs or trees 1-3 m tall not directly below the canopy of trees.	3	
	deciduous shrubs or trees 1-3 m tall not directly below the canopy of trees.	3	
	coniferous or ericaceous shrubs <1 m tall not directly below the canopy of taller vegetation.	2	
	deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	2	
·	s in F3 was marked 2 or greater, SKIP to F9 (N fixers).		
F4 Dominance of Most			[PH, POL, SBM, Sens]
Abundant Shrub	those species together comprise > 50% of such cover.	0	
Species	those species together do not comprise > 50% of such cover.	1	
F5 Woody Diameter	Mark ALL the types that comprise >5% of the woody canopy cover in the AA or >5% of the wooded areas (if any) along its		Estimate the diameters at chest height. If small-diameter trees are overtopped (shaded) by
Classes	upland edge (perimeter). The edge should include only the trees whose canopies extend into the AA.		larger ones, visualise a "subcanopy" at the average height of the smaller-dbh trees, to serve
	coniferous, 1-9 cm diameter and >1 m tall.		as a basis for the minimum 5% canopy requirement in this question. The trees and shrubs
	broad-leaved deciduous 1-9 cm diameter and >1 m tall.		need not be wetland species. [AM, CS, POL, SBM, Sens, WBN]
	coniferous, 10-19 cm diameter.	0	
	broad-leaved deciduous 10-19 cm diameter.	1	
	coniferous, 20-40 cm diameter.	0	
	broad-leaved deciduous 20-40 cm diameter.	0	
	coniferous, >40 cm diameter.	0	
	broad-leaved deciduous >40 cm diameter.	0	
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. A1. The two height classes are mostly scattered and intermixed throughout the AA.	1	
	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 clumps.	0	
		U	
	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 class might even be totally absent. Choose between B1 and B2 and mark the choice with a 1 in the adjoining column:		
	one size class might even be totally absent. Onoose between by 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.	0	
	B2. Not B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is	0	
	completely absent.		
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
Standing Trees)	None, or fewer than 8/ hectare which exceed this diameter.	0	that are at least 2 m tall. [POL, SBM, WBN]
	Several (>8/hectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km.	1	
	Several (>8/hectare) but above not true.	0	
-8 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]
	Few or none that meet these criteria.	0	
	Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria.	1	
-9 N Fixers	The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa,		Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
	other legumes) is:		
	<1% or none.	0	
	1-25% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
	25-50% of the vegetated cover, in the AA or along its water edge (whichever has more).	1	
	50-75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
	>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		Exclude moss growing on trees and rocks. [CS, PH]
Extent	by taller sedges and other plants rooted in it, is:		
	<5% of the vegetated part of the AA.	1	
	5-25% of the vegetated part of the AA.	0	1
	25-50% of the vegetated part of the AA.	0	
	50-95% of the vegetated part of the AA.	0	
	>95% of the vegetated part of the AA.	0	

11 0	% 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		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that	· T
	Thatch	ground layer, the predominant condition in those areas at that time is:		is present under a tree or shrub canopy should be counted. Boulders count as bare ground.	·
l'	maton	Little or no (<5%) bare ground is visible between erect stems or under canopy anywhere in the vegetated AA. Ground is	0	Wetlands with mineral soils and that are heavily shaded or are dominated by annual plant	
		extensively blanketed by dense thatch, moss, lichens, graminoids with great stem densities, or plants with ground-hugging		species tend to have more extensive areas that are bare during the early growing season.	
		foliage.		[AM, EC, INV, NR, OE, POL, PR, SBM, Sens]	
		Slightly bare ground (5-20% bare between plants) is visible in places, but those areas comprise less than 5% of the unflooded	1	•	
		parts of the AA.			
		Much bare ground (20-50% bare between plants) is visible in places, and those areas comprise more than 5% of the unflooded	0		
		parts of the AA.	-	4	
		Other conditions.	0		
		Not applicable. Surface water (either open or obscured by emergent plants) covers all of the AA all the time.	0		
12 (Ground Irregularity	Imagine the AA without any living vegetation. Excluding the portion of the AA that is always under water, the number of		The depressions may be of human or natural origin. [AM, EC, INV, NR, PH, POL, PR, SBM,	
		hummocks, small pits, raised mounds, animal burrows, ruts, gullies, natural levees, microdepressions, and other areas of peat or		SR, WS]	
		mineral soil that are raised or 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).	1		
		Intermediate.	0		
		Several (extensive micro-topography).	0	+	
2 1	International and and		U	TAMA NID. CDMI	4
3 (Jpland Inclusions	Within the AA, inclusions of upland are:		[AM, NR, SBM]	
		Few or none.	1		
		Intermediate (1 - 10% of vegetated part of the AA).	0		
		Many (e.g., wetland-upland "mosaic", >10% of the vegetated AA).	0		
14	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		[CS, NR, OE, PH, PR, Sens, SFS, WS]	
		to check in at least 3 widely spaced locations, and use the soil texture key (in Appendix A of the Manual).]			
		Loamy: soils that may contain a little fine grit and do not make a "ribbon" longer than 2 cm when moistened, rolled, squeezed,	0		
		and extended between thumb and forefinger.		4	
		Fines: includes silt, clay, silt, soils that make a ribbon longer than 2 cm when moistened, rolled, squeezed, and extended	0		
		between thumb and forefinger. Deep Peat, to 40 cm depth or greater.	0	+	
		Shallow Peat or organic <40 cm deep.	0	4	
		ů i			
		Coarse : includes sand, loamy sand, gravel, cobble, soils that do not make a ribbon when moistened, rolled, squeezed, and extended between thumb and forefinger.	1		
15 5	Shorebird Feeding	During any 2 consecutive weeks of the growing season, the extent of mudflats, bare unshaded saturated areas not covered by		This addresses needs of many but not all migratory sandpipers, plovers, and related species.	-
		thatch, and unshaded waters shallower than 6 cm is: [Include also any area that is adjacent to the AA.]		[WBF]	
ľ	าสมเสเร	None, or <100 sq. m.	1	[1157]	
		100-1000 sq. m.	0		
		1000 – 10,000 sq. m.	0	1	
		>10,000 sq. m.	0	+	
10 1	1 - d 0/ - f		U	IAM WDE WDNI	-
	Herbaceous % of	In aerial ("ducks eye") view, the maximum annual cover of herbaceous vegetation (all non-woody plants except moss) is:	_	[AM, WBF, WBN]	
'	egetated 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		NoHerb(
		5-25% of the vegetated part of the AA.	1		
		25-50% of the vegetated part of the AA.	0		
		v i		4	
		50-95% of the vegetated part of the AA.	0	4	
_		>95% of the vegetated part of the AA.	0		4
/	orb 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,	
		<5% of the herbaceous part of the AA.	0	horsetails, or others that lack showy flowers. [POL]	
		5-25% of the herbaceous part of the AA.	1		
		25-50% of the herbaceous part of the AA.	0		
		50-95% of the herbaceous part of the AA.	0		
		>95% of the herbaceous part of the AA.	0	7	AllForb(
		293 % of the herbaceous part of the AA.	_		
18 5	Sedge Cover	·		[CS]	7
18 \$	Sedge Cover	Sedges (<i>Carex</i> spp.) and cottongrass (<i>Eriophorum</i> spp.) occupy: <5% of the vegetated area, or none.	1	[CS]	1

		50-95% of the vegetated area.	0		
		>95% of the vegetated area.	0		
)	Dominance of Most	Determine which two herbaceous species comprise the greatest portion of the herbaceous cover (excluding mosses and floating-		For this question, include ferns as well as graminoids and forbs. [EC, INV, PH, POL, Sens]	
	Abundant	leaved aquatic plants). Then choose one of the following:			
	Herbaceous 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		
0		How extensive is the cover of invasive plant species in the AA? For species, see Plants_invasive worksheet in the accompanying		[EC, PH, POL, Sens]	
		SuppInfo file.			
		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 woody).	0		
		invasive species comprise 5-20% of the herb cover (or woody cover, if the invasives are woody).	0		
		invasive species comprise 20-50% of the herb cover (or woody cover, if the invasives are woody).	0		
		invasive species comprise >50% of the herb cover (or woody cover, if the invasives are woody).	0		
1		Along the wetland-upland boundary, the percent of the upland edge (within 3 m upslope from the wetland) that is occupied by		If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an	
		invasive plant species is:		exotic species, assume the unidentified plant to also be exotic. If vegetation is so senesced	
		none of the upland edge (invasives apparently absent), or AA has no upland edge.	1	that exotic species cannot be identified, answer "none". [PH, STR]	
		some (but <5%) of the upland edge.	0		
		5-50% of the upland edge.	0	1	
		most (>50%) of the upland edge.	0	1	
2		During most of the year, open water within or adjacent to the vegetated part of the wetland is much wider than the maximum	0	[WBF, WBN, WCv]	1
-		width of the 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 a normal year.	0	[FR, PR, PU, WBF, WBN]	
		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	1
		<1% . In other words, all or nearly all of the AA is covered by water permanently or at least seasonally.	0	1000 III DY 10 III, OI SIIIIIIAI. [AIVI, FA, FK, IINV, INK, FH, FK, SDIVI, SEIIS, SKV, WOF, WOIN, WO	
		1-25% of the AA, or <1% but >0.01 ha never contains surface water.	1	J.	
		25-50% of the AA, or 17% but 20.0 Fina never contains surface water.	_		
			0		
		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		AllSat2
		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		AllSat1
25	% of AA with	Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during		If you are unable to determine the condition at the driest time of year, ask the land owner or	
	Persistent Surface	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		neighbors about it if possible. Indicators of persistence may include fish, some dragonflies,	
		AA that still contains surface water is:		beaver, and muskrat. [AM, CS, FA, FR, INV, NR, POL, PR, SBM, WBF, WBN]	
		None. The AA dries up completely (no water in channels either) or never has surface water during most years. SKIP to F27.	0		NoPer
		1-20% of the AA.	1		
		20-50% of the AA.	0		
		50-95% of the AA.	0]	
		>95% of the AA. True for many fringe wetlands.	0]	AllWet
26		At mid-day during the warmest time of year, the area of surface water within the AA that is shaded by vegetation and other		[FA, WC]	1
		features that are within the AA at that time is:			
		<5% of the water is shaded, or no surface water is present then.	0]	
		5-25% of the water is shaded.	0	1	
		25-50% of the water is shaded.	0	1	
		50-75% of the water is shaded.	1		
		>75% of the water is shaded.	0	1	
27			U	Flood marks (algal mate, advantitious roots, debris lines, ice seems etc.) are often avident	ł
		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	
	•	None, or <0.01 hectare and <1% of the AA. SKIP to F29. 1-20% of the AA, or <1% but >0.01 ha.	0	(vs. perennial) plant species. In riverine systems, the extent of this zone can be estimated by	NoSea
	Seasonally 1		0	TOS DECEMBRAD DIAM SUBCIES IN DIVENDE SYSTEMS. THE EXTENT OF IMS ZONE CAN BE ESTIMATED BY	

		20-50% of the AA.	0	Tmultiplying by ∠ the banktul neight and visualising where that would intercept the land along the river. [CS, FA, INV, NR, OE, PH, SR, WBF, WBN, WS]	
		50-95% of the AA.	1		
		>95% of the AA.	0		
28	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,	
	J. J. J.	<10 cm change (stable or nearly so).	0	INV, NR, OE, PH, PR, SR, WBN, WS]	
		10 cm - 50 cm change.	1		
		0.5 - 1 m change.	0		
		1-2 m change.	0]	
		>2 m change.	0	1	
	AA plus adjacent po TO F42 (Connection)	onded water smaller than 0.01 hectare (about 10m x 10m, or 1m x 100 m)? If so, enter "1" in column D and			TooSmall
		During most of the time when surface water is present during the growing season, its depth, averaged over the entire inundated		If a boat is unavailable, estimate this by considering wetland size and local topography. Or if	1
	Class	part of the AA, is:		timing and safety allow, depths may be measured by drilling through winter ice. This question is	
		<10 cm deep (but >0).	0	asking about the spatial median depth that occurs during most of that time, even if inundation	
		10 - 50 cm deep.	1	is only seasonal or temporary. If inundation in most but not all of the wetland is brief, the	
		0.5 - 1 m deep.	0	answer will be based on the depth of the most persistently inundated part of the wetland.	
		1 - 2 m deep.	0	Include surface water in channels and ditches as well as ponded areas. [CS, FA, FR, INV,	
		>2 m deep. True for many fringe wetlands.	0	OE, PH, PR, Sens, SFS, SR, WBF, WBN, WC]	
30	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,	1
50	Evenness of	One depth class that comprises >90% of the AA's inundated area (use the classes in the question above).	1	INV, WBF, WBN]	
		. , , , , , , , , , , , , , , , , , , ,	1	iiv, voi, voi	
	Proportions	One depth class that comprises 50-90% of the AA's inundated area.	0	4	
.01	0/ ()A/ (T) ()	Neither of above. There are 3 or more depth classes and none occupy >50%.	0	No. 1 all all all all all all all all all a	
	% 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		Nearly all wetlands with surface water have some ponded water. [AM, CS, INV, NR, OE, PR,	
	Ponded (not	sediment is not held in suspension) AND (2) is likely to be deeper than 0.5 m in some places, is:	1	Sens, SR, WBF, WBN, WC, WS]	NaDandad
	Flowing)	<5% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34.	0		NoPonded
		5-30% of the water.	0	4	
		30-70% of the water.	0		
		70-95% of the water.	0		
		>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.	OpenW
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]	1
	пасто ороп	None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	0		NoOpenPor
		1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	0		NoOpenPon
		5-30% of the ponded water.	0		
		30-70% of the ponded water.	0	1	
		70-99% of the ponded water.	0	1	
		100% of the ponded water.	0		AllOpenPone
-34	Width of Vegetated	At the time during the growing season when the AA's water level is lowest, the average width of vegetated area <u>in the AA</u> that		"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed.	1
		separates adjoining uplands from open water within the AA is:		Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	
	Zono within wouldn't	<1 m.	0	CS, NR, OE, PH, PR, SBM, Sens, SR, WBN]	
		1 - 9 m.	0		
		10 - 29 m.	0	1	
		30 - 49 m.	1		
		50 - 49 m. 50 - 100 m.	0		
			0	-	
-0-	EL 101	> 100 m, or open water is absent at that time.		Mary control to the control of the c	-
F35	Flat Shoreline Extent	During most of the part of the growing season when water is present, the percentage of the AA's water edge length that is nearly flat (a 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]	

		<1% of the water edge.	1		I
		1-25% of the water edge.	n		
		25-50% of the water edge.			
		50-75% of the water edge.			
		>75% of the water edge.	_		
36 R			on when water is present, the spatial pattern of emergent vegetation within the water of in bands along the wetland perimeter or is clumped at one or a few sides of the original provided in or directly adjacent to the AA is mostly deeper than 0.5 m for >2 or original continue. If not, enter "0" and SKIP to F42.(Connection). The deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians accumulations of dead wood and undercut banks is: The deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians or original pattern of emergent vegetation within the water of the water surface. Estimates of underwater wood based only on observations from terrestrial viewpoints are unreliable so should not be attempted. [AM, FA, FR, INV] The deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians or original pattern of emergent vegetation within the water of emergent vegetation of emergent vegetation vegetation of emergent vegetation veg	┥	
30 K	•	(>1ml bulrush is:			
		<1% of the emergent vegetation, or emergent vegetation is absent. SKIP to F38.	1	the water surface during most of the time water is present. [vvbiv]	NoRobustEm
		1-25% of the emergent vegetation.	0		T TO TO DUOTE III
		25-75% of the emergent vegetation.	-		
		• •			
		>75%, of the emergent vegetation.			4
		During most of the part of the growing season when water is present, the spatial pattern of emergent vegetation within the water is mostly:		[AM, FA, FR, INV, NR, OE, PH, PR, SBM, SR, WBF, WBN]	
	/ater	Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water.	0		
1.		Intermediate.	0		
		Clumped. More than 70% of such vegetation is in bands along the wetland perimeter or is clumped at one or a few sides of the	0		
		surface water area.	-		
88 P	ersistent 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	0		DeepPersis
		weeks during the growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection).			
39 N	on-vegetated	During most of the growing season and in waters deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians		For this question, consider only the wood that is at or above the water surface. Estimates of	-1
		that is provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is:			
		Little or none.	0		
		Intermediate.	0	, , , <u>, , , , , , , , , , , , , , , , </u>	
		Extensive.	0		
l0 Is	solated 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	0	[WRN]	┪
10 13		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	Ü	[HBN]	
		sufficiently large and dense to support a waterbird nest.			
41 FI		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,	0	[EC, PR, WBF]	
D	uckweed	or blanket >50% of the underwater substrate. If true, enter "1" in next column. If untrue or uncertain, enter "0".			
12 C	hannel Connection	The most persistent surface water connection (outlet channel or pipe, ditch, or overbank water exchange) between the AA and a		Consider the connection regardless of whether the surface water is frozen. The "downslope	-
		downslope stream network is: [Note: If the AA represents only part of a wetland, answer this according to whichever is the least		stream network" could consist of ditches, rivers, ponds, or lakes which eventually connect to	
۵		permanent surface connection: the one between the AA and the rest of the wetland, or the surface connection between the		the ocean. If this cannot be determined while visiting the AA, consult topographic maps	
		wetland and the downslope stream network.]		perhaps by viewing these online with Toporama	
		Persistent (surface water flows out for >9 months/year).	1	(http://atlas.nrcan.gc.ca/toporama/en/index.html) [CS, FA, FR, NR, OE, PR, Sens, SFS, SR,	
		Seasonal (surface water flows out for 14 days to 9 months/year, not necessarily consecutive).	0	WCv, WS]	
		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	0		OutNone1
		F47 (pH Measurement).			
		No surface water flows out of the wetland except possibly during extreme events (<once 10="" a<="" flows="" into="" only="" or,="" per="" td="" water="" years).=""><td>0</td><td></td><td>Outnone</td></once>	0		Outnone
43 O		wetland, ditch, or lake that lacks an outlet. SKIP to F47 (pH Measurement). 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	-
ľ		Mostly passes through a pipe, culvert, narrowly breached dike, berm, beaver dam, or other partial obstruction (other than natural	0	snowmelt. [CS, NR, OE, PR, Sens, SR, STR, WS]	
		topography) that does not appear to drain the wetland artificially during most of the growing season.	J	• • • • • • • • • • •	
		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	0		
		edge, which drain the wetland artificially, or water is pumped out of the AA.			_
44 Tı		At least once annually, surface water from a tributary channel that is >100 m long moves into the AA. Or, surface water from a		If inlet tributaries cannot be searched for due to inaccessibility of part of the AA, follow	Inflows
		larger permanent water body adjacent to the AA spills into the AA. If it enters only via a pipe, that pipe must be fed by a mapped	1	suggestions in F42 above. [NRv, PH, PRv, SRv]	
45 .		stream or lake further upslope. If no, SKIP to F47 (pH Measurement).		BNO 1	4
	•	Based on lack of shade, water source characteristics, or actual temperature measurements, the inflow is likely to be warmer than	0	[WCv]	
	emperature	surface water in the AA during part of most years. Enter 1= yes, 0= no.			
46 TI	hroughflow	During its travel through the AA at the time of peak annual flow, water arriving in channels: [select only the ONE encountered by		[FA, FR, INV, NR, OE, PR, SR, WS]	7
TO 11					•

		Does not hump into many plant stome as it travels through the AA. Nearly all the water continues to travel in your selected /-ft	4	1
		Does not bump into many plant stems as it travels through the AA. Nearly all the water continues to travel in unvegetated (often	1	
		incised) channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond or lake.		
		Bumps into herbaceous vegetation but mostly remains in fairly straight channels.	0	1
		Bumps into herbaceous vegetation and mostly spreads throughout, or is in widely meandering, multi-branched, or braided channels.	0	
		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	
-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
	p	Was measured, and is: [enter the reading in the column to the right.]		that have passed through (not along) most of the AA. Unless surface water is completely
		Was not measured but surface water is present and is darkly tea-coloured. Or if no surface water, then mosses and plants that	0	absent, do not dig holes or make depressions in peat in order to provide water for this
		indicate peatland (e.g., Labrador tea) are prevalent. Enter "1".	_	measurement. Avoid measuring near roads or in puddles formed only by recent rain. [AM, FA,
		Neither of above. Enter "1".	1	FR, NR, WBF, PH, PR, Sens, WBF, WBN]
-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]
	Conductivity	TDS is: [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.]		1
		Conductivity is [Enter the reading in µS/cm in the column to the right.]		1
		Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1".	0	1
		Neither of above	1	1
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]
		Evident from direct observation or presence of gnawed limbs, dams, tracks, dens, lodges, or extensive stands of water-killed	1	
		trees (snags).		
		Likely based on known occurrence in the region and proximity to suitable habitat, which may include: (a) a persistent freshwater	0	
		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	0	1
		removed.	U	
-50	Groundwater	Select first applicable choice:		Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH,
		Springs are known to be present within the AA, or if groundwater levels have been monitored, that has demonstrated that	0	or other evidence. Consult topographic maps to detect breaks in slope described here. Rust
	5 5 1 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	groundwater primarily discharges to the wetland for longer periods during the year than periods when the wetland recharges the	-	deposits associated with groundwater seeps may be most noticeable as orange discoloration
		groundwater.		in ice formations along streams during early winter. [AM, CS, FA, FR, INV, NR, OE, PH, PRv,
				SFS, WC, WS]
		Most of the AA has a slope of >5%, or is very close to the base of a natural slope longer than 100 and much steeper than the	0	1
		slope of the AA, AND the pH of surface water, if known, is >5.5.		
		Neither of above is true, although some groundwater may discharge to or flow through the AA. Or groundwater influx is unknown.	1	
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
J 1	internal Gradient	<2% or the AA has no surface water outlet (not even seasonally).	1	inlet and outlet, divided by the flow-distance between them and converted to percent. If
		2-5%.	0	available, use a clinometer to measure this. Free clinometer apps can be downloaded to
		2-5%. 6-10%.	0	smartphones. If the wetland is large (longer than ~1 km), this may be estimated using Google
		o-10%. >10%.	0	Earth to determine the minimum and maximum elevation within the AA, then dividing by length
		<u>- 10 /0.</u>	U	and multinlying by 100 ICS NR OF PR SR WRF WRN WSI
lote	or the next three que	estions: If the AA lacks an upland edge, evaluate based on the AA's entire perimeter, and moving outward into whatever		
		situations, these questions are best answered by measuring from aerial images.		
	· · · · · ·			
-52	•	Within a zone extending 30 m laterally from the AA's edge with upland and/or other wetlands, the percentage that contains		[AM, FA, FR, INV, NRv, PH, POL, PRv, SBM, Sens, SRv, STR, WBN]
	% of Perimeter	perennial vegetation cover (except lawns, row crops, heavily grazed land, conifer plantations) is:		1
		<5%.	0	1
		5 to 30%.	0	
		30 to 60%.	0	
			0	

	Type of Cover in Buffer	Within 30 m upslope of where the wetland transitions to upland, the upland land cover that is NOT perennial vegetation is mostly (mark ONE):		[AM, FA, INV, NRv, PH, POL, SBM, STR, WBN]
		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.	0	
4	Buffer Slope	The steepest and/or most disturbed part of the upland area that is within 30 m of the wetland and occupies >10% of that upland area has a percent slope of:		[NRv, PRv, Sens, SRv]
		<1% (flat almost no noticeable slope) or all the area within 30 m of the AA edge is other wetlands.	0	1
		2-5%.	0	1
		5-30%.	0	1
		>30%.	0	1
5	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).	1	Do not include upturned trees as potential den sites. [POL, SBM]
	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]
		No.	0	1
		Yes, and created or expanded 20 - 100 years ago.	0	1
		Yes, and created or expanded 3-20 years ago.	0	1
		Yes, and created or expanded within last 3 years.	0	1
		Yes, but time of origin or expansion unknown.	0	1
		Unknown if new or expanded within 20 years or not.	1	
7	Burn History	More than 1% of the AA's previously vegetated area:		Look for charred soil or stumps (in multiple widely-spaced locations) or ask landowner. [0
	Builtinotory	Burned within past 5 years.	0	PH, STR]
		Burned 6-10 years ago.	0	1 ' '
		Burned 11-30 years ago.	0	+
		Burned >30 years ago, or no evidence of a burn and no data.	1	
8	Vioibility	The maximum percentage of the wetland that is visible from the best vantage point on public roads, public parking lots, public	1	[PU, STR, WBFv]
0	Visibility	buildings, or public maintained trails that intersect, adjoin, or are within 100 m of the AA (select one) is:		[PU, STK, WDFV]
		<25%.	1	
		25-50%.	0	
		>50%.	0	1
59	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 <u>in</u> (not just near) >5% of the AA during most of the growing season, e.g.,	1	[10,0114]
	Potential	free of deep water and dense shrub thickets.		
		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	
60	Unvisited Core Area	The percentage of the AA almost never visited by humans during an average growing season probably comprises: [Note: Only include the 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]
		<5% and no inhabited building is within 100 m of the AA.	0	
		<5% and inhabited building is within 100 m of the AA.	0	
		5-50% and no inhabited building is within 100 m of the AA.	0	
		5-50% and inhabited building is within 100 m of the AA.	0	
		50-95%, with or without inhabited building nearby.	0	
		>95% of the AA with or without inhabited building nearby.	1	
	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]
	nica .	<5%. If F60 was answered ">95%" (mostly never visited), SKIP to F64.	1	
		5-50%.	0	
		50-95%.	0	4

Ī		>95% of the AA.	0	1	1
F62	BMP - Soils	Boardwalks, paved trails, fences or other infrastructure and/or well-enforced regulations appear to effectively prevent visitors from walking on soil within nearly all of the AA when the soil is unfrozen. Enter "1" if true.	0	[PH, PU]	
F63	BMP - Wildlife Protection	Fences, observation blinds, platforms, paved trails, exclusion periods, and/or well-enforced prohibitions on motorised boats, off-leash pets, and off road vehicles appear to effectively exclude or divert visitors and their pets from the AA at critical times in order to minimize disturbance of wildlife (except during hunting seasons). Enter "1" if true.	0	[AM, PU, WBF, WBN]	
F64	Consumptive Uses	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select ALL that apply.		[FAv, FRv, WBFv]	
	(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	0		
	Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0		
		Waterfowl hunting.	0		
		Fishing.	1		
		Trapping of furbearers.	0		
		None of the above.	0		
F65	Domestic Wells	The closest wells or water bodies that currently provide drinking water are:		[NRv]	
		Within 0-100 m. of the AA.	0	7	
		100-500 m. away.	0	7	
		>500 m. away, or no information.	1		
F66	Calcareous Fen	The AA is, or is part of, a calcareous fen. See the Plants_Calcar worksheet in the accompanying SuppInfo file for list of plant indicators (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]	

accor (C) Data Farms for Non Ti	Site Identifier: Tapline WL-2		Date: July 24, 2019						
essur (3) Data Form for Non-HG	lal Wetlands. WESP-AC for Ne	w Brunswick. Version 2.	<u> </u>	Da					
Aberrant Timing of Water Inputs									
In the last column, place a check mark next to any item that is lik longer times, more temporal homogeneity of flow or water levels			her more muted (smaller or less frequent peaks spread ove	r					
Stormwater from impervious surfaces that drains directly to the	wetland.								
Water subsidies from wastewater effluent, septic system leakage Regular removal of surface or groundwater for irrigation or other				-					
Flow regulation in tributaries or water level regulation in adjoini	•	nat regulates inflow to the wetland.							
A dam, dike, levee, weir, berm, or fill within or downgradient		w in/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.	a-ena aitcn.								
Accelerated downcutting or channelization of an adjacent or int	ernal channel (incised below the historical water table level).								
Logging within the wetland.	It of marking a live to the first decision of fine decision.								
Subsidence or compaction of the wetland's substrate as a resu Straightening, ditching, dredging, and/or lining of tributary chan				+					
If any items were checked above, then for each row of the table	below, assign points. However, if you believe the checked item		any part of the AA, then leave the "0's" for the scores in the						
following rows. To estimate effects, contrast the current condition									
	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			Olife of house and in the						
Input timing now vs. previously: Flashiness or muting:	Shift of weeks. Became very flashy or controlled.	Shift of days. Intermediate.	Shift of hours or minutes. Became mildly flashy or controlled.	+					
radiiios of maing.	Became very masny or controlled.	mornedate.	Sum	= (
			Stressor subscore	= 0.					
Accelerated Inputs of Contaminants and/		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	L DOLL OTDI						
In the last column, place a check mark next to any item occur Stormwater or wastewater effluent (including failing septic system)	,	rated the inputs of contaminants or salts to the AA. [AM, FA, PF	1, POL, STRJ						
interior was a chemical wastes from mining, shooting ranges, show northly and saylana=Fn&n=R85A18/6.1	storage areas, oir gas extraction, other sources (download ma	ny locations from National Polititant Nelease inventory and view	rtivi∠ ovenay in Google ⊑artii. https://www.ec.gc.ca/inip-						
Road salt.									
Spraying of pesticides, as applied to lawns, croplands, roadside		a did not oursulatively every the AA	le of conteminents and/or all the least 100 mg.						
If any items were checked above, then for each row of the table scores in the following rows. To estimate effects, contrast the cu			us or contaminants and/or salts, then leave the "0's" for the						
5	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-	Low density residential.						
Frequency & duration of input:	Frequent and year-round.	way. 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	=					
L. C.			Stressor subscore	0					
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 accele	rated the inputs of nutrients to the wetland INRv PRv STRI							
Stormwater or wastewater effluent (including failing septic system)	-	rated the inputs of nutrients to the wettand. [INTV, 1 TTV, 51TT]							
Fertilizers applied to lawns, ag lands, or other areas in the CA.	,								
Livestock, dogs.									
Artificial drainage of upslope lands. If any items were checked above, then for each row of the table.	below assign points. However, if you believe the checked item	s did not cumulatively expose the AA to significantly more nutrie	ents, then leave the "0's" for the scores in the following rows						
If any items were checked above, then for each row of the table below, assign points. However, if you believe the checked items did not cumulatively expose the AA to significantly more nutrients, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or were no longer present.									
	Severe (3 points)	Medium (2 points)	Mild (1 point)						
Type of loading:	Severe (3 points) High density of unmaintained septic, some types of industrial sources.	Moderate density septic, cropland, secondary wastewater treatment plant.	Mild (1 point) Livestock, pets, low density residential.						
Frequency & duration of input:	High density of unmaintained septic, some types of industrial sources. Frequent and year-round.	Moderate density septic, cropland, secondary wastewater treatment plant. Frequent but mostly seasonal.	Livestock, pets, low density residential. Infrequent & during high runoff events mainly.						
,,	High density of unmaintained septic, some types of industrial sources.	Moderate density septic, cropland, secondary wastewater treatment plant.	Livestock, pets, low density residential. Infrequent & during high runoff events mainly. In more distant part of contributing area.						
Frequency & duration of input:	High density of unmaintained septic, some types of industrial sources. Frequent and year-round.	Moderate density septic, cropland, secondary wastewater treatment plant. Frequent but mostly seasonal.	Livestock, pets, low density residential. Infrequent & during high runoff events mainly.	_					
Frequency & duration of input:	High density of unmaintained septic, some types of industrial sources. Frequent and year-round. 0 - 15 m.	Moderate density septic, cropland, secondary wastewater treatment plant. Frequent but mostly seasonal.	Livestock, pets, low density residential. Infrequent & during high runoff events mainly. In more distant part of contributing area. Sum:	_					
Frequency & duration of input: AA proximity to main sources (actual or potential):	High density of unmaintained septic, some types of industrial sources. Frequent and year-round. 0 - 15 m.	Moderate density septic, cropland, secondary wastewater treatment plant. Frequent but mostly seasonal. 15-100 m. or in groundwater.	Livestock, pets, low density residential. Infrequent & during high runoff events mainly. In more distant part of contributing area. Sum: Stressor subscore:	_					
Frequency & duration of input: AA proximity to main sources (actual or potential): Excessive Sediment Loading from Contr. In the last column, place a check mark next to any item present Erosion from plowed fields, fill, timber harvest, dirt roads, veget	High density of unmaintained septic, some types of industrial sources. Frequent and year-round. 0 - 15 m. ibuting Area in the CA that is likely to have elevated the load of waterborne	Moderate density septic, cropland, secondary wastewater treatment plant. Frequent but mostly seasonal. 15-100 m. or in groundwater.	Livestock, pets, low density residential. Infrequent & during high runoff events mainly. In more distant part of contributing area. Sum: Stressor subscore:	_					
Frequency & duration of input: AA proximity to main sources (actual or potential): Excessive Sediment Loading from Control In the last column, place a check mark next to any item present Erosion from plowed fields, fill, timber harvest, dirt roads, veget Erosion from construction, in-channel machinery in the CA.	High density of unmaintained septic, some types of industrial sources. Frequent and year-round. 0 - 15 m. ibuting Area in the CA that is likely to have elevated the load of waterborne	Moderate density septic, cropland, secondary wastewater treatment plant. Frequent but mostly seasonal. 15-100 m. or in groundwater.	Livestock, pets, low density residential. Infrequent & during high runoff events mainly. In more distant part of contributing area. Sum: Stressor subscore:	_					
Frequency & duration of input: AA proximity to main sources (actual or potential): Excessive Sediment Loading from Contr. In the last column, place a check mark next to any item present Erosion from plowed fields, fill, timber harvest, dirt roads, veget	High density of unmaintained septic, some types of industrial sources. Frequent and year-round. 0 - 15 m. ibuting Area in the CA that is likely to have elevated the load of waterborne	Moderate density septic, cropland, secondary wastewater treatment plant. Frequent but mostly seasonal. 15-100 m. or in groundwater.	Livestock, pets, low density residential. Infrequent & during high runoff events mainly. In more distant part of contributing area. Sum: Stressor subscore:	+					
Frequency & duration of input: AA proximity to main sources (actual or potential): Excessive Sediment Loading from Control In the last column, place a check mark next to any item present Erosion from plowed fields, fill, timber harvest, dirt roads, veget Erosion from construction, in-channel machinery in the CA. Erosion from livestock or foot traffic in the CA. Stormwater or wastewater effluent.	High density of unmaintained septic, some types of industrial sources. Frequent and year-round. 0 - 15 m. ibuting Area in the CA that is likely to have elevated the load of waterborne tation clearing, fires.	Moderate density septic, cropland, secondary wastewater treatment plant. Frequent but mostly seasonal. 15-100 m. or in groundwater.	Livestock, pets, low density residential. Infrequent & during high runoff events mainly. In more distant part of contributing area. Sum: Stressor subscore:	-					
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Frequency & duration of input: AA proximity to main sources (actual or potential): Excessive Sediment Loading from Control In the last column, place a check mark next to any item present Erosion from plowed fields, fill, timber harvest, dirt roads, veget Erosion from construction, in-channel machinery in the CA. Erosion from livestock or foot traffic in the CA. Stormwater or wastewater effluent.	High density of unmaintained septic, some types of industrial sources. Frequent and year-round. 0 - 15 m. ibuting Area in the CA that is likely to have elevated the load of waterborne attain clearing, fires.	Moderate density septic, cropland, secondary wastewater treatment plant. Frequent but mostly seasonal. 15-100 m. or in groundwater.	Livestock, pets, low density residential. Infrequent & during high runoff events mainly. In more distant part of contributing area. Sum: Stressor subscore:	+					
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Soil or Sediment Alteration Within the As In the last column, place a check mark next to any item present restored (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or moderated the place of the grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native Fill or riprap, excluding small amounts of upland soils containing Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause er If any items were checked above, then for each row of the table estimate effects, contrast the current condition with the condition Spatial extent of altered soil: Recentness of significant soil alteration in wetland:	High density of unmaintained septic, some types of industrial sources. Frequent and year-round. 0 - 15 m. ibuting Area in the CA that is likely to have elevated the load of waterborne dation clearing, fires. as extraction. Idue to altered land use. below, assign points (3, 2, or 1 as shown in header) in the last and rows. To estimate effects, contrast the current condition with Severe (3 points) Extensive evidence, high intensity.* Current & ongoing. Frequent and year-round. 0 - 15 m. g, excavation, erosion with or without veg removal; low-intensity in the wetland that is likely to have compacted, eroded, or other in the wetland that is likely to have compacted, eroded, or other in the wetland that is likely to have compacted, eroded, or other in the wetland that is likely to have compacted, eroded, or other in the wetland that is likely to have compacted, eroded, or other in the wetland that is likely to have compacted, eroded, or other in the wetland that is likely to have compacted, eroded, or other in the wetland that is likely to have compacted, eroded, or other in the wetland that is likely to have compacted, eroded, or other in the wetland that is likely to have compacted, eroded, or other in the wetland that is likely to have compacted, eroded, or other in the wetland that is likely to have compacted, eroded, or other in the wetland that is likely to have compacted, eroded, or other in the wetland that is likely to have compacted, eroded, or other in the wetland that is likely to have compacted, eroded, or other in the wetland that is likely to have compacted, eroded, or other in the wetland that is likely to have compacted in the checked items never occurred or were no longer present in the checked items never occurred or were no longer present in the checked items never occurred or were no longer present in the checked items never occurred or were no longer present in the checked items never occurred or were no longer present in the checked items never occurred or were no longer present in th	Moderate density septic, cropland, secondary wastewater treatment plant. Frequent but mostly seasonal. 15-100 m. or in groundwater. or windborne sediment reaching the wetland from its CA. [FA, Fa to windborne sediment reaching the wetland from its CA. [FA, Fa to windborne sediment reaching the wetland from its CA. [FA, Fa to windborne sediment reaching the wetland from its CA. [FA, Fa to windborne sediment reaching the wetland from its CA. [FA, Fa to windborne sediment reaching the wetland from its CA. [FA, Fa to windborne sediment reaching the wetland sediment	Livestock, pets, low density residential. Infrequent & during high runoff events mainly. In more distant part of contributing area. Sum: Stressor subscore: R, INV, PH, SRv, STR] Wild (1 point) Potentially (based on low-intensity* land use) with little or no direct evidence. >1 yr ago. Infrequent & during high runoff events mainly. In more distant part of contributing area. Sum: Stressor subscore: ithin past 100 years or since wetland was created or Mild (1 point) Stressor subscore: ithin past 100 years or since wetland was created or All (1 point) Stressor subscore: ithin past 100 years or since wetland was created or All (1 point) Stressor subscore: ithin past 100 years or since wetland was created or All (1 point) Stressor subscore: ithin past 100 years or since wetland edge (if any). >1 yr ago.						

Assessment Area (AA) Results:

Wetland ID: Tapline WL-2

Date:

Observer: DM

Latitude & Longitude (decimal degrees):

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)	2.07	Lower	1.18	Lower	3.33	1.25
Stream Flow Support (SFS)	6.56	Higher	3.99	Moderate	3.50	2.33
Water Cooling (WC)	6.35	Higher	6.55	Higher	4.23	3.94
Sediment Retention & Stabilisation (SR)	3.25	Moderate	6.62	Moderate	5.38	4.02
Phosphorus Retention (PR)	0.82	Lower	6.08	Higher	3.48	5.83
Nitrate Removal & Retention (NR)	1.43	Lower	10.00	Higher	4.71	10.00
Carbon Sequestration (CS)	4.25	Moderate			6.40	
Organic Nutrient Export (OE)	3.09	Lower			3.98	
Anadromous Fish Habitat (FA)	9.11	Higher	4.75	Higher	5.58	3.51
Resident Fish Habitat (FR)	4.54	Moderate	4.81	Higher	2.70	3.41
Aquatic Invertebrate Habitat (INV)	5.16	Moderate	7.37	Higher	5.69	5.22
Amphibian & Turtle Habitat (AM)	4.96	Moderate	6.52	Higher	5.92	6.05
Waterbird Feeding Habitat (WBF)	6.36	Moderate	5.00	Moderate	5.06	5.00
Waterbird Nesting Habitat (WBN)	4.64	Moderate	5.00	Moderate	3.97	5.00
Songbird, Raptor, & Mammal Habitat (SBM)	9.75	Higher	5.00	Moderate	8.08	5.00
Pollinator Habitat (POL)	8.84	Higher	0.00	Lower	7.12	0.00
Native Plant Habitat (PH)	7.92	Higher	5.84	Moderate	6.28	5.07
Public Use & Recognition (PU)			1.81	Lower		1.62
Wetland Sensitivity (Sens)			5.65	Higher		3.89
Wetland Ecological Condition (EC)			3.25	Moderate		6.11
Wetland Stressors (STR) (higher score means more stress)			0.13	Lower		2.31
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	6.56	Higher	1.18	Lower	3.33	1.25
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	2.54	Lower	8.78	Higher	5.69	8.31
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	5.93	Moderate	6.67	Higher	5.02	4.52
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	7.52	Higher	5.87	Moderate	5.28	5.32
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	9.29	Higher	4.73	Moderate	7.62	4.21
WETLAND CONDITION (EC)			3.25	Moderate		6.11
WETLAND RISK (average of Sensitivity & Stressors)			2.89	Moderate		3.10

New	Brunswick	Reference	Scores

					IVEW DIGITSWICK	nejeren	cc Score	,		
re										
	Min	Max	Range	F JenksLo	F_JenksHigh	Min	Max	Range	B JenksLo	B_JenksHigh
	1.73	9.42	7.68	2.48	5.12	0.08	10.00	9.92	2.58	5.67
	0.00	5.33	5.33	2.92	6.56	0.00	5.83	5.83	2.08	6.16
	0.00	6.67	6.67	1.80	5.30	0.00	6.02	6.02	1.45	4.79
	3.16	10.00	6.84	1.76	5.26	0.00	6.07	6.07	3.75	7.95
	2.90	10.00	7.10	2.66	4.17	0.33	9.38	9.04	1.71	4.55
	3.83	10.00	6.17	2.27	4.36	1.11	10.00	8.89	2.50	7.19
	4.56	8.88	4.31	3.13	5.70					
	2.33	7.64	5.30	3.12	5.26					
	0.00	6.13	6.13	1.80	6.71	0.00	7.39	7.39	0.00	4.44
	0.00	5.95	5.95	1.40	6.29	0.00	7.09	7.09	0.00	4.48
	3.87	7.39	3.52	2.58	5.58	1.24	6.64	5.39	0.85	5.74
	3.30	8.58	5.28	3.30	6.25	2.09	8.16	6.06	2.27	6.30
	0.00	7.96	7.96	0.00	6.84	0.00	10.00	10.00	0.83	6.67
	0.00	8.54	8.54	1.95	5.42	0.00	10.00	10.00	0.00	6.67
	0.00	8.29	8.29	2.50	7.24	0.00	10.00	10.00	3.33	6.67
	0.00	8.05	8.05	0.00	7.81	0.00	10.00	10.00	0.00	6.67
	3.08	7.12	4.03	3.96	5.98	0.00	8.68	8.68	0.00	6.33
						0.33	7.44	7.11	2.40	5.51
						2.20	5.20	2.99	2.88	5.30
						4.24	10.00	5.76	3.25	6.39
						2.26	5.93	3.67	2.15	4.97
				2.48	5.12				2.58	5.67
				3.07	5.39				4.15	7.64
				3.82	6.04				1.34	4.99
				2.41	6.22				3.15	6.29
				4.68	7.60				0.00	5.33
				1.00	7.00					
									3.25	6.39
									2.71	4.33

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 the 98 NB calibration wetlands that were assessed previously.

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	Tapline WL 3
Investigator Name:	Derrick Mitchell
Date of Field Assessment:	July 25, 2019
Nearest Town:	Grand Anse, NB
Latitude (decimal degrees):	47.791805°
Longitude (decimal degrees):	-65.133758°
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	18 ha (linear corridor)
AA as percent of entire wetland (approx.). Attach sketch map if AA is smaller than the entire contiguous wetland.	95
What percent (approx.) of the wetland were you able to visit?	95
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):	

Date: July 25, 2019	Site Identifier: Tapline WL 3	Investigator: Derrick Mitchell
ı		

Form OF (Office). Non-tidal Wetland Data Form. WESP-AC version 2 for New Brunswick 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

GeoNB: http://www.snb.ca/geonb1/ and http://www.snb.ca/geonb1/e/apps/apps-E.asp

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

#	Indicators	Condition Choices	Data	Definitions/Explanations	Cell Name	Comments
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		
		New Brunswick	1	automatic exclusion of indicators for which no spatial data exists in a particular	NB	
		Nova Scotia	0	province.	NS	
		Prince Edward Island	0	PEI		
		Newfoundland-Labrador	0		NL	
OF2		The area of surface wate r 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		
		<0.01 hectare (about 10 m x 10 m).	0	vegetation. If surface water extends beyond 1 km, include only the part within 1 km.		
		0.01 - 0.1 hectare.	1	Do not include tidal areas. Measure the area from aerial imagery using Google Earth		
		0.1 - 1 hectare.	0	Pro (click on Ruler icon in toolbar, then Polygon in pop-up menu). With the GeoNB		
		1 to 10 hectares.	0	viewer, enable the Wetlands layer, then measure with the Draw & Measure tool after	·	
		10 to 100 hectares.	0	specifying Aerial as the Basemap. However, do not rely entirely on wetland		
		>100 hectares.	0	boundaries shown in online wetlands layers. [PH, SBM, WBN]		
		The area of wetlands and surface water ponded during most of the growing season that is both (1) in or adjacent to		See definition of adjacent in OF2. If the AA's wetland vegetation extends beyond 1		
		the AA and (2) within 1 km is: <0.01 hectare (about 10 m x 10 m).	0	km, include only the part within 1 km. "Ponded" means not flowing in rivers or		
		0.01 - 0.1 hectare.	0	streams. [Sens, WBF]		
		0.01 - 0.1 nectare. 0.1 - 1 hectare.	1			
		1 to 10 hectares.	0			
		10 to 100 hectares.	0			
			0			
DF4	Size of Largest	>100 hectares. The largest vegetated patch or corridor that includes the AA's vegetation plus all adjacent upland vegetation that is	-	See definition of adjacent in OF2. Use Google Earth Pro's polygon ruler (as described		
	_	not lawn, row crops, heavily grazed lands, conifer plantation is:		above). Exclude conifer plantations only if it is obvious that trees were planted in		
	, -	<0.01 hectare (about 10 m x 10 m).	0	rows. [AM, PH, SBM, Sens]		
	Trace of Corridor	0.01 - 0.1 hectare.	0	10003. [(100) 110) 00000]		
		0.1 - 1 hectare.	0			
	1	1 to 10 hectares.	0			
		10 to 100 hectares.	0			
		100 to 1000 hectares.	0			
		>1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	1			
DF5	Distance to Large	The minimum distance from the edge of the AA to the edge of the closest vegetated land (but excluding row crops,		To measure distance, use Google Earth Pro (Ruler > Line tool). Or use Draw &		
	_	lawn, conifer plantation) larger than 375 hectares (about 2 km on a side), is:		Measure tool at GeoNB. The 375-ha criterion is from the Fundy Model Forest Project.		

		4FO as and not consisted from the 27F have extend one by any other of more discount and starting of	^	1	
		<50 m, and not separated from the 375-ha vegetated area by any width of paved roads, stretches of open water,	U	[AM, PH, POL, SBM, Sens]	
		row crops, bare ground, lawn, or impervious surface. Or the AA itself contains >375 ha of vegetation. [This is often			
		the answer in relatively undeveloped landscapes.1 <50 m, but completely separated from the 375-ha vegetated area by those features, and AA does not contain >375	1		
		ha of vegetation. 50-500 m, and not separated.	0		
		· · · · · · · · · · · · · · · · · · ·	0		
		50-500 m, but separated by those features.	0		
		0.5 - 5 km, and not separated.	0		
		0.5 - 5 km, but separated by those features.	0		
		None of the above (the closest patches or corridors which are that large are >5 km away).	0		
OF6	Herbaceous	The AA's vegetation cover is >10% herbaceous* but uplands within 5 km have <10% herbaceous cover. If so, enter	0	For this question only, consider moss to be herbaceous vegetation. Determine the	
		"3" and continue to OF7. If not, consider:		score by viewing aerial imagery in Google Earth after successively drawing or	
	•	The AA's vegetation cover is >10% herbaceous* but uplands within 1 km have <10% herbaceous cover. If so enter "2"		estimating the boundaries of the buffers of 5 km, 1 km, and 100 m radius focused on	
		and continue to OF7. If not, consider:		the center of the AA. Circles of specified radius can be drawn in Google Earth Pro by	
		The AA's vegetation cover is >10% herbaceous* but uplands within 100 m of the wetland edge have <10%		clicking on the Ruler icon, then Circle in the pop-up menu. [AMv, PHv, POLv, SBMv,	
		herbaceous cover. If so, enter "1".		WBFv, WBNv]	
		[* NOTE: Exclude lawns, row crops, heavily grazed lands, forest, shrublands. Include moss as well as grasslike plants		,	
		in this use of "herbaceous vegetation"]			
OF7		The AA's vegetation cover is >10% woody* but uplands within 5 km have <10% woody cover. If so, enter "3" and	0	See above. Do not consider conifer plantations to be forest if it is obvious that trees	
		continue to OF8. If not, consider:		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, consider:			
		The AA's vegetation is >10% woody* but uplands within 100 m of the wetland edge have <10% woody cover. If so,			
		enter "1"			
		[* NOTE: woody cover = trees & shrubs taller than 1 m.]			
OF8	Local Vegetated	Draw a 5-km radius circle measured from the center of the AA. Ignoring all permanent water in the circle, the		In Google Earth, draw the 5 km buffer and then estimate land cover percentages, or	
	Cover Percentage	percent of the remaining area that is wooded or unmanaged herbaceous vegetation (NOT lawn, row crops, bare or		do GIS analysis of an appropriate land cover layer. [AM, PH, POL, SBM, Sens]	
		heavily grazed land, clearcuts, or conifer plantations) is:		do dis unulysis of un appropriate land cover layer. [/livi, 111, 102, 3510, 36113]	
		<5% of the land.	0		
		5 to 20% of the land.	0		
		20 to 60% of the land.	1		
		60 to 90% of the land.	- 0		
			0		
050		>90% of the land. SKIP to OF10.	U	[AAA COAA]	
	′ '	Within the 5-km radius circle, and ignoring all permanent water, the land area that is bare or non-perennial cover is		[AM, SBM]	
	Alteration	mostly:	0	1	
		Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0		
		Bare pervious surface, e.g., lawn, recent (<5 yrs ago) clearcut, dirt or gravel road, cropland, landslide, conifer	7		
0540	Distance In D. 11	plantation.		Description conton magnetic actual areas with magnetic	
	-	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-	
		<100 m.	0	inhabited structures per square kilometer. In Google Earth, click on the Ruler icon,	
	Center	100 - 500 m.	1	then Path, and draw and measure the route. Or use the GeoNB's Draw & Measure	
		0.5- 1 km.	0	tool> Freehand Line to draw and measure the route to Settlements (click on Place	
		1 - 5 km.	0	Names in menu) or other areas not close to mapped settlements but which meet the	
		>5 km.	0	criteria.[FAv, FRv, NRv, PH, PU, SBM, WBFv]	
OF11		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 and measuring with the	
		<10 m.	0	Ruler>Line tool. Or use the GeoNB's Draw Line tool. [AM, FAv, FRv, NRv, PH, PU,	
			0	SBM, STR, WBN]	
		10 - 25 m.	Ū	5, 5, 1	
		25 - 50 m.	0	1	
		50 - 100 m.	0		

		>500 m.	0]	1	
	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	In NB, enable the Wetlands layer in GeoNB (despite its omissions) to show surrounding wetlands and roads, while estimating the location of the 5 km circle (or draw the 5 km circle in Google Earth Pro using the Circle tool and compare). Evaluate using Google Earth, being cautious to search for roads hidden under forest canopy.		
OF13	Distance to Ponded Water	The distance from the AA center to the closest (but separate) ponded water body visible in GoogleEarth imagery is:		In Google Earth, zoom in closely to examine the surrounding landscape for ponds, lakes, and wetlands that appear to be permanently flooded. Enable the GeoNB		
		<50 m, and not separated by any width of paved roads, stretches of open water, row crops, lawn, bare ground, or impervious surface.		viewer's Wetlands layer as well. [AM, PH, SBM, Sens, WBF, WBN]		
		<50 m, but completely separated by those features.	0			
		50-500 m, and not separated.	0			
		50-500 m, but separated by those features.	0			
		0.5 - 1 km, and not separated.	0			
		0.5 - 1 km, but separated by those features.	1			
		None of the above (the closest patches or corridors that large are >1 km away).	0			
OF14	Distance to Large	The distance from the AA center to the closest (but separate) non-tidal body of water that is ponded during most of		Determine this by viewing aerial imagery in Google Earth. [Sens, WBF, WBN]		
	Ponded Water	the year and is larger than 8 hectares during most of a normal year is:	^	ļ		
		<100 m.	0			
		100 m - 1 km.	0			
		1 -2 km.	0			
		2-5 km.	0			
		5-10 km.	0]		
		>10 km.	1			
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		
		<100 m.	0	river, whichever is closer. If you need to see how far upriver a river is tidal, see the		
		100 m - 1 km.	0	KMZ file provided with this calculator for NB (NB Headtide). Points shown in those		
		1 - 5 km.	1	files are only an approximation, so local information if available may be preferable.		
		5-10 km.	0	[FA, WBF]		
		10-40 km.	0	1		
		>40 km.	0	1		
OF16	Upland Edge Contact	Select one:		[NR, SBM, Sens]		
		The AA has no upland edge (or upland is <1% of perimeter). The AA is entirely surrounded by (& contiguous with)	0	1		
		other wetlands or water. 1-25% of the AA's perimeter abuts upland (including filled areas). The rest adjoins other wetlands or water that is	0	1		
		mostly wider than the AA.	U			
		25-50% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0			
		50-75% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0			
		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			
OF17	Flood Damage from	Within 5 km downstream or downslope of the AA (select first true choice):		In the GeoNB map viewer: click on "More" in upper right, then "Flood Information".	 	
l	Non-tidal Waters	Maps show Flood Zone or Flood Risk areas and there appears to be infrastructure vulnerable to river flooding not	0	Expand the menu under it by clicking on the arrow to its left and the slider to its		
		caused by tidal storm surges.	ľ	right. Uncheck the first (Limits of Data) box. Where available, LiDAR imagery can		
I		Maps show Flood Zone or Flood Risk areas, but infrastructure is absent or is not vulnerable to floods from a non-tidal	0	provide finer elevational resolution useful for flood modeling. [WSv]		
		river. In some cases levees, upriver dams, or other measures may partly limit damage or risk from smaller events.				
		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure vulnerable to river flooding unrelated to tidal storm surges.	0	1		
		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there is no	1	1		
		infrastructure vulnerable to river flooding unrelated to tidal storm surges.				

0=::				[r., a a a a a]	- ·-	1
UF18		In Google Earth, enable the Terrain layer (lower left menu) and open the NB_Watersheds KMZ file that accompanies		[FA, NR, Sens, SFSv, WCv, WSv]	ShedPos	
	Watershed	this calculator. Then determine the AA's approximate elevation (bottom right, NOT the "eye alt"). Then move cursor	5.50		1	
		around to determine the watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-				
0540		min)				
OF19	Water Quality	In Google Earth, open the KMZ file NB_Watershed Protected Area which accompanies this calculator. The AA is	0	If an ACCDC report is available for this AA, it also may contain such information.		
		within such an area. Enter 1= yes, 0= no.		[NRv]		
0500	or Area					
OF20	Degraded Water	Sampling indicates a problem with concentrations of metals, hydrocarbons , nutrients , or other substances		May use existing data, or sample those waters as part of this wetland assessment.		
	Upstream	(excluding bacteria, acidic water, high temperatures) being present at levels harmful to aquatic life or humans, and:		"Harmful" should be evaluated with regard to current federal or provincial water		
		The condition is present within the AA	0	quality standards. [AM, FA, FR, NRv, PRv, SRv, STR, WBF, WBN]		
		The condition is present within the AA.	0			
		The condition is present in waters within 1 km that flow into the AA, but has not been documented in the AA itself.	0			
				-		
		Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in	U			
		either the AA or inflowing waters. Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the	4			
		situation for nearly all wetlands in this region.	l l			
∩E21	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,		
01.77	=		^	PRv, SRv]		
	Downstream	The condition is present within 1 km downslope and connected to the AA by a channel.	Ü	r IV, SIVI		
		The condition is present within 5 km downslope and connected to the AA by a channel, or within 1 km but not	0			
		connected to the AA by a channel.	_	1		
		Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in	0			
		either the AA or inflowing waters.	4			
		Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the	ı			
OE22	Wetland as a % of Its	situation for nearly all wetlands in this region.		Tanagraphia mana may ha viayyad anlina at the National Atlas of Canada	+	
OFZZ		From a topographic map and field observations, estimate the approximate boundaries of the catchment (CA) of the		Topographic maps may be viewed online at the National Atlas of Canada (Topographic http://etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go.go/topographic/londou/html//etlas.go/topographic/londou/html//etlas.go/topographic/londou/html//etlas.go/topographic/londou/html//etlas.go/topographic/londou/html//etlas.go/topographic/londou/html//etlas.go/topographic/londou/html//etlas.go/topographic/londou/html//etlas.go/topographic/londou/html//etlas.go/topographic/londou/html//etlas.go/topographic/londou/html//etlas.go/topographic/londou/html//etlas.go/topographic/londou/html//etlas.go/topographic/londou/html//etlas.go/topographic/londou/html//etlas.go/topographic/londou/html//etlas.go/topographic/londou/html//etlas.go/topographic/londou/html//etlas.go/topographic/londou/html//etlas.go/to		
	Contributing Area	entire wetland of which the AA may be only a part. Then adjust those boundaries if necessary based on your field		(Toporama): http://atlas.gc.ca/toporama/en/index.html [NR, PR, Sens, SR,		
	(Catchment)	observations of the surrounding terrain, and/or by using procedures described in the Manual. Divide the area of the		WS]		
		wetland (not just the AA) by the approximate area of its catchment excluding the area of the wetland itself. When				
		doing the calculation, if ponded water is adjacent to the wetland, include that in the wetland's area. The result is:				
		<0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	0	1		
		,				
		0.01 to 0.1.	1			
		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	0	1		
		isolated by dikes, or is a raised bog).	Ŭ			
OF23	Unvegetated Surface	The proportion of the AA's contributing area (measured to no more than 1000 m upslope) that is comprised of		[FA, INV, NRv, PRv, SRv, STR, WCv, WSv]	Ī	
		buildings, roads, parking lots, other pavement, exposed bedrock, landslides, and other mostly-bare surface is about :				
	Area	5, ,, <u> </u>				
		<10%.	0]		
		10 to 25%.	1			
		>25%.	0	1		
OE34	Transport From	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as	Ť	[NRv, PRv, SRv, WSv]		
01 24	Upslope	runoff (surface water), as indicated by the following:		[141.4, 11.4, 51.4, 44.54]		
	Ομοιομέ	(a) input channel is present,			1	
		(b) input channel is present, (b) input channels have been straightened,			1	
		(c) upslope wetlands have been ditched extensively,				
		(d) land cover is mostly non-forest,				
					1	
		(e) CA slopes are steep, and/or (f) most CA soils are shallow (bodrack poar surface) and (or have high runoff coefficients				
1		(f) most CA soils are shallow (bedrock near surface) and/or have high runoff coefficients.				
1		Mostly true.	0			
		Somewhat true.	0			
				1		

ľ		Mostly untrue.	1]		Ī
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]		
- 1		Northward (N, NE). north-facing contributing area.	0	1		
- 1		Southward (S, SW). south-facing contributing area.	0	1		
•		Other (E, SE, W, NW), or no detectable uphill slope or input channel (flat).	1			
OF26	Internal Flow	The horizontal flow distance from the wetland's inlet to outlet is:		Identify inlets and outlets, if any, from topographic maps (use elevations to		
- 1	Distance (Path	<10 m.	0	determine which are inlets and which are outlets) and augment by field inspection.		
- 1	Length)	10 - 50 m.	0	[NR, OE, PR, SR, WS]		
•		50 - 100 m.	0	1		
- 1		100 - 1000 m.	0	1		
- 1		1- 2 km.	0	1		
		>2 km, or wetland lacks an inlet and outlet.	1			
OF27	Growing Degree	In Google Earth, open the KMZ file that accompanies this calculator, called NB-PEI_GrowingDegreeDays. Place your	1500	This layer was provided by Dr. Dan McKenney of the Canadian Forest Service [AM,	GrowD	
		cursor over the AA and left-click. From the pop-up, enter the GRIDCODE in the next column.	1500	CS, FR, INV, NR, OE, PH, PR, Sens, SR, WBF, WCv, WS]		
JF28	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		
		la line com la compani de mise and fan ancomina los Albertis estera estata estata estata estata estata estata e	^	waters have been stocked. In NB, the list of stocked waters is at:		
- 1		Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. In NB, consult Figure A-2 in Appendix A of the Manual. Contact local fishery biologists, review the ACCDC report, and visit these	U	http://www2.gnb.ca/content/gnb/en/departments/erd/natural_resources/content/f		
- 1		websites: http://www.salmonatlas.com/atlanticsalmon/canada-east/index.1.html		ish/content/StockedWaters.html [AM, FA, FR, INV, WBF, WBN]		
•		httn://atlanticsalmonfederation.org/rivers/introduction.html		[AIVI, FA, FK, IIVV, WDF, WDIV]		
- 1		Has not been documented to support Atlantic salmon rearing and/or spawning, but is connected to nearby waters	0			
•		likely to contain Atlantic salmon or other anadromous species or eels and is probably accessed by those during some				
•		conditions.	0	-		
- 1		Is probably is not accessed by any anadromous fish species but is known or likely to have other fish at least seasonally.	U			
		Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	1			
	•	Within the past 10 years, in the AA (or in its adjoining waters or wetland), qualified observers have documented		Request information from ACCDC and/or conduct your own survey at an appropriate		
	Conservation	[mark all applicable]: Presence of one or more of the plant species listed in the Plants_Rare worksheet of the accompanying SuppInfo file,	0	season using an approved protocol. For birds, also check eBird.org. [AMv, EC, PHv,		
•	Concern	or the AA is within a mapped Atlantic Coastal Plain Flora Buffer	U	POLv, SBMv, Sens, WBFv, WBNv]		
- 1		Presence of one or more of the amphibian or reptile species (AM) of conservation concern as listed in the	0			
- 1		Wildlife Rare worksheet of the accompanying Supplnfo file.				
- 1		Presence of one or more of the waterbird species (WBF, WBN) of conservation concern as listed in the Wildlife_Rare	0			
•		worksheet of the accompanying Supplinfo file.	0			
•		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 SuppInfo file, during their nesting season (May-July for most species).	0			
		which the accompanying suppline file, during their flesting season (May-July for most species).				
		None of the above, or no data.	1			
OF30	Important Bird Area	In Google Earth, open the KMZ file that accompanies this calculator, called IBAs_Canada. The AA is all or part of an	0	The source of this layer, which should be checked periodically for updates, is:		
- 1	(IBA)	officially designated IBA. Enter 1= yes, 0= no.		http://www.ibacanada.com/mapviewer.jsp?lang=EN [SBMv, WBFv, WBNv]		
OE24	Diook Deeds No attent	In Coords Forth ones the VM7 file that approximation this calculators called Dist Dark Advertity allows to		This was provided by Dr. David Leeks, DA/DAV-2		+
	_	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:	U	This was provided by Dr. David Leske. [WBNv]		
	Area	<10 (enter 0), 10-20 (enter 1), 20-30 (enter 2), >30 (enter 3). If outside of region shown in map, change to blank .				
		Tab (effect of, 10 20 feffet 1), 20-30 feffet 2), 730 feffet 3). It outside of region shown in map, change to blank.				
OF32	Wintering Deer or	If AA is on private land with no information, change to blank (not 0). If on public/crown land, in Google Earth open		[SBM]		
•	Moose	the KMZ file that accompanies this report called NB_DeerWinteringAreas.Otherwise: Enter: yes= 1, no= 0.				
•	Concentration Areas					
						Ī

OF33	Other Conservation	With GeoNB, click on Candidate PNA Map Viewer to identify Provincially Significant Wetland, Environmentally	0	[PU]
	Designation	Significant Area, Protected Natural Area but also include if 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. Enter: yes= 1, no= 0. If uncertain, consult NCC and agencies for more recent		
		information		
OF34	Conservation	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve,	0	[PU]
	Investment	create, restore, or enhance the wetland (excluding mitigation wetlands). Ask the property owner. Enter: yes= 1, no=		
		0. If no information, change to blank (not 0).		
OF35	Mitigation	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere. Ask the property owner. Enter:		[PU]
	Investment	yes= 1, no= 0. If no information, change to blank.		
OF36	Sustained Scientific	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and		[PU]
	Use	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 to blank		
OF37	Calcareous Region	The AA is in an area that is at least partly underlain by soil, sediment, or bedrock that is highly calcareous (enter 3 in	0	If GIS is available, you may use the Bedrock Geology shapefile obtainable at
		next column), moderately calcareous (enter 2), or slightly calcareous (enter 1), none= 0. Limestone is typically a		http://www.snb.ca/geonb1/e/DC/catalogue-E.asp [AM, FA, FR, INV, PH]
		major component (karst geology) and water is not acidic (pH is usually >8). See Figure A-6 in Appendix A of the		
		Manual. If no map coverage, change to blank.		
		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
OF38	Ownership	Select the ONE ownership that covers the most of the AA. In Google Earth, open KMZ file called NB Crown lands.Use		"Private lands" may include those owned or leased by non-governmental
		more recent information if available.		organizations, e.g., charitable conservation land trusts, DUC, TNC. [PU, STR]
		New timber harvest, roads, mineral extraction, and intensive summer recreation (e.g., off-road vehicles) are	0	
		permanently prohibited. Includes many publicly-owned Protected Lands, and private lands under long-term (30+		
		vear) legal agreements to maintain nearly-unaltered conditions.		
		Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are	0	
		allowed.		
		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable	0	
		or not) is in place.		
		Ownership is private and owner does not allow access, or access permission unknown, and not a conservation	0	
		easement.		

Welland Type Calce the key below and mark the CNE row that beer describes MCST of the segetated part of the AC. A Ross and/or little movement parts 80° of the ground Children contracting the second contracting is controlled to the control parts 90° of the parts of the control parts 90° of the parts of	ate: July 25, 2019	Site Identifier: Tapline WL 3	Investiga	ntor: Derrick Mitchell		
Vector Type Scribor No layer and mark the DVBC row hall beed conclinate NOTE of the requisition of the No. An East and the Interno service more than 25% of the grant, Office for internated by intercent and back (9 g., but and the service of the process) of the comment of the No. An East and the Interno service of the Service o	ards its core, in the Conduct the assess re allowed and so Ferring with the lanstion pertains, see by, SFS= Stream Flotiat, FA= Anadromo	e part of the AA that is proposed for alteration. If no alteration is proposed, walk in a portion that appears to be ment only after reading the accompanying Manual and the Explanations column of the data form. In the Data conditions indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write adowner or other knowledgable persons, and/or reviewing aerial imagery. For most wetlands, completing this fit the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the Support, WC= Water Cooling, SR= Sediment Retention & Stabilisation, PR= Phosphorus Retention, NR= Nitrations Fish Habitat, FR= Resident Fish Habitat, AM= Amphibian & Reptile Habitat, WBF= Feeding Waterbird Habitat	e most re column, c te in shac ield data he accon te Remov it, WBN=	change the 0 (false) to a 1 (true) for the best choice, or for multiple choices ded parts of this data form. Answering some questions accurately may require form will require 1-2 hours on a site. For a list of functions to which each npanying Manual. Codes for functions and values are: WS= Water Storage & val, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate Nesting Waterbird Habitat, SBM= Songbird, Raptor, & Mammal Habitat, POL=		
February between AT types February between AT and AD loss and bit form our more than byte disorders with a fine or an antibodic process and the special part of the p	Indicators	Condition Choices	Data	Definitions/Explanations	Cell Name	Comments
A. A flow analysis from rown ment than 27% of the operand. Other demanded by emissions which see a flow particles and decident places are also as characteristics. Substance in America, Substance in America, and a second place between A1 and A2 and mark the chicke with a 1 in the individuol column of Phenotes on 16 below. A1. Sulficion which is southly abstant or 10 process, 11 places and the second places are also as characteristics, improvery, whose places which is concern from your and seed of the control of the second places are also as characteristics, improved places and the second places are also as characteristics, improved places are also as characteristics, improved places are also as characteristics, improved places are also as the second places are assistant and an are assistant and an are and an are and an are and an are assistant and assistant and an are assistant and assistant				• •	cen ivallie	Comments
cover is usually octomiske, and/or tree and fall shrubs cover is extensive. Sometimes at toe of slope or edge of water body. An ext. chance is usually orsens. Without mount and updated point may be splationer (< 2 m.) B. Moss and/or lichen cover less than 25% of the ground. Soil is mineral or decomposed organic (much), Choose between 61 and 62 and mark the holies with a in their additional column. B1. Trees and shrubs taller than 1 momprise more than 25% of the vegetated over. Surface water is mostly absent or nundrates the vegetation or seasonally (e.g., upware) most post of the superlated over. Surface water is mostly absent or nundrates the vegetation is mostly in the surface water may be extensive and flutushest seasonally, being expension of criticis up partly or centre. B1. Trees and shrubs taller than 1 momprise more than 25% of the vegetation is mostly herbaceous, e.g., catall, bulust, burreed, pondly inhoselal. Surface water may be extensive and much seasonally, being expension of criticis up partly or centre. Vegetation is mostly herbaceous, e.g., catally bulust, burreed, pondly inhoselal. Surface water may be devised and seasonally being repressing to a criticism or criticism. In the surface water may be extensive and much seasonally being repressing to a criticism or criticism. In the surface water may be criticism or devised to the investment of the water area of adjacent water is myods smaller than 8 beclares (~287 m on a skel) that are adjacent to a considerable also much investment of the water area of adjacent water area of adjacent to water area of adjacent water single portion of their adjacent water area of adjacent water area of adjacent to water area. Wetand Types – Adjoining or Surfacens are adjacent or a large portion of their adjacent water area of adjacent water area of adjacent to water beautiful and the surfacens area of adjacent or a large portion of their adjacent water beautiful and the surfacens area of adjacent water beautiful and the surfacens area of adjacent or a large po	Trouding Typo	 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. 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 rariflor a). Wetland surface and surrounding landscape are 		leaves. They include rhododendron, azalea, swamp laurel, leatherleaf, Labrador tea, and others. Most require acidic soil. Although not in the family Ericaceae, sweetgale (<i>Myrica gale</i>)		
and B2 and mark the choice with a 1 in their adjoining column. B1. Tree a and shoults taller than 1 in comprise has more than 25% of the vegetated cover. Surface water is mostly absent or inundates the vegetation only seasonally (e.g., vernal pools or floodpalm). B2. Not B1. Tree & fall puts comprise less than than 25% of the vegetated cover. Vegetation is mostly herbaceous, e.g., cattal, butinsts, burreed, pond lify, horsefall. Surface water may be extensive and fluctuates seasonally, being either persistent or droin up pagit or entirely. minder: For all questions, the AA should include the valer area of adjacent ponded water larger than 8 ha and adjacent in views with that are adjacent to vegetated as include pert of the water area of adjacent ponded water larger than 8 ha and adjacent with with that or the average width of that are adjacent to vegetated as include pert of the valer area of adjacent ponded water larger than 8 ha and adjacent with with the average width of the average width of the average width of the vegetated and less include pert of the valer area of adjacent to vegetated vegetation and equal in width to the average width of the average width of the vegetated of the vegetated of the vegetated and equal in width to the average width of the vegetated and equal in width of the average width of the vegetated and equal in width of the average width of the vegetated and equal in width of the average width of the vegetated and expert and repeat the vegetated adjacent. Wetland Types - Adjoining or Subordinate ith a number code to the AA and occupy more than 1 ha, as visible from the AA or as interpreted from a serial imagery. Do not mark again the types which are within or adjocent to the AA and occupy more than 1 ha, as visible from the AA or as interpreted from a serial imagery. Do not mark again the types which are within or		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		Fen_	
B2. Not B1. Tree & fall shrubs comprise less than than 25% of the vegetated cover. Vegetation is mostly herbaceous, e.g., cattail, butured, pord tilly, horsetail. Surface water may be extensive and fluctuates seasonally, being either persistent of divining up partly or entirely. Indicate: 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 adjacent to some part of the water area of adjacent ponded water larger than 8 ha and adjacent twers wider than 20 m. scrifically, the AA should include the open water part adjacent to wetland vegetation and equal in width to the average width of that vegetated e. Throughout this data form, "adjacent" is used synonymously with abutting, adjoining, bordering, contiguous and means no upland managed or natural) completely separates the described features slong their directly shared edge. Features sloned only by a channel are not ressarily considered to be adjacent a large portion of their edges must match. The features do not have to be hydrologically connected in order we considered adjacent. Wetland Types Adjoining or Subordinate ubordinate Subordinate Wetland Types Adjoining or Subordinate Su		and B2 and mark the choice with a 1 in their adjoining column: B1. Trees and shrubs taller than 1 m comprise more than 25% of the vegetated cover. Surface water is mostly absent or	1			
minder: 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 AA. The AA should also include part of the water area of adjacent ponded water larger than 8 ha and adjacent rives wider than 20 m. edicifically, the AA should include the open water part adjacent to water area of adjacent ponded water larger than 8 ha and adjacent rives wider than 20 m. edicifically, the AA should include the open water part adjacent to water area of adjacent in water to water area of adjacent rives wider than 20 m. edicifically, the AA should include the open water part adjacent to water area of adjacent in water area of adjacent in water area of adjacent rives wider than 20 m. edicifically the AA should include the open water part adjacent to water area of adjacent in water area and and a few that are adjacent in water area of a		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	0		Marsh	
Adjoining or Subordinate Adjoining or Subordinate 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. A1. A2. B1. B2. Woody Height & 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	e AA. The AA should a pecifically, the AA shoul ne. Throughout this dat panmade or natural) cor cessarily considered to	ions, the AA should include all persistent waters in ponds smaller than 8 hectares (~283 m on a side) that are adjacent to also include part of the water area of adjacent ponded water larger than 8 ha and adjacent rivers wider than 20 m. Id include the open water part adjacent to wetland vegetation and equal in width to the average width of that vegetated ta form, "adjacent" is used synonymously with abutting, adjoining, bordering, contiguous and means no upland impletely separates the described features along their directly shared edge. Features joined only by a channel are not be adjacent a large portion of their edges must match. The features do not have to be hydrologically connected in order it.				
Form Diversity 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 huckleberry, cranberry, cloudberry, sweetgale, alder, willow, birch, ash, dogwood, and a few	Adjoining or	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. A1. A2. B1.	0 0 0			
largely herbaceous (non-woody) vegetation, these percentages should not sum to 100%. others. If you assigned a code of 3 or higher to any of the first four choices and the ground coniferous trees (may include tamarack) taller than 3 m. 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,		that feature (6 if >95%, 5 if 75-95%, 4 if 50-75%, 3 if 25-50%, 2 if 5-25%, 1 if <5%, 0 if none). If the vegetated part of the AA is largely herbaceous (non-woody) vegetation, these percentages should not sum to 100%.		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		

Ī			lou par apura i
	deciduous trees taller than 3 m.	3	PH, POL, SBM, Sens]
	coniferous or ericaceous shrubs or trees 1-3 m tall not directly below the canopy of trees.	0	
	deciduous shrubs or trees 1-3 m tall not directly below the canopy of trees.	3	
	coniferous or ericaceous shrubs <1 m tall not directly below the canopy of taller vegetation.	0	
	deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	1	
	in F3 was marked 2 or greater, SKIP to F9 (N fixers).		
	Determine which two woody plant species comprise the greatest portion of the low (<3 m) woody cover . Then choose one:		[PH, POL, SBM, Sens]
Abundant Shrub	those species together comprise > 50% of such cover.	1	
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		Estimate the diameters at chest height. If small-diameter trees are overtopped (shaded) by
Classes	upland edge (perimeter). The edge should include only the trees whose canopies extend into the AA.		larger ones, visualise a "subcanopy" at the average height of the smaller-dbh trees, to serve
	coniferous, 1-9 cm diameter and >1 m tall.		as a basis for the minimum 5% canopy requirement in this question. The trees and shrubs
	broad-leaved deciduous 1-9 cm diameter and >1 m tall.	1	need not be wetland species. [AM, CS, POL, SBM, Sens, WBN]
	coniferous, 10-19 cm diameter.	1	
	broad-leaved deciduous 10-19 cm diameter.	1	
	coniferous, 20-40 cm diameter.	1	
	broad-leaved deciduous 20-40 cm diameter.	1	
	coniferous, >40 cm diameter.	0	
11 1 1 2	broad-leaved deciduous >40 cm diameter.	0	MANUAL DISTRICT OF THE STATE OF
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.		
	A1. The two height classes are mostly scattered and intermixed throughout the AA.	0	
	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 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.	1	
	B2. Not B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is	0	
Large Snags (Dead	completely 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 one
Standing Trees)	None, or fewer than 8/ hectare which exceed this diameter.	0	that are at least 2 m tall. [POL, SBM, WBN]
otaliang 11000)	Several (>8/hectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km.	1	
	Several (>8/hectare) but above not true.	0	
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]
20111100 11000	Few or none that meet these criteria.	0	
	Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria.	1	
N Fixers	The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa,		Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
IN I IVOIS	other legumes) is:		Do not motide it-living algae of horiens. [LA, LIV, HVV, HVV, OL, FTI, ODIVI, Ochs]
	<1% or none.	0	
	1-25% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
	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).	1	
	>75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
0 Sphagnum Moss	The cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured		Exclude moss growing on trees and rocks. [CS, PH]
Extent	by taller sedges and other plants rooted in it, is:		
	<5% of the vegetated part of the AA.	1	
	5-25% of the vegetated part of the AA.	0	
	25-50% of the vegetated part of the AA.	0	
	50-95% of the vegetated part of the AA.	0	
	>95% of the vegetated part of the AA.	0	1

11 %	6 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		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that	
		ground layer, the predominant condition in those areas at that time is:		is present under a tree or shrub canopy should be counted. Boulders count as bare ground.	
		Little or no (<5%) bare ground is visible between erect stems or under canopy anywhere in the vegetated AA. Ground is	0	Wetlands with mineral soils and that are heavily shaded or are dominated by annual plant	
		extensively blanketed by dense thatch, moss, lichens, graminoids with great stem densities, or plants with ground-hugging		species tend to have more extensive areas that are bare during the early growing season.	
		foliage.		[AM, EC, INV, NR, OE, POL, PR, SBM, Sens]	
		Slightly bare ground (5-20% bare between plants) is visible in places, but those areas comprise less than 5% of the unflooded	1	.	
		parts of the AA.			
		Much bare ground (20-50% bare between plants) is visible in places, and those areas comprise more than 5% of the unflooded	0		
		parts of the AA.	-	1	
		Other conditions.	0		
		Not applicable. Surface water (either open or obscured by emergent plants) covers all of the AA all the time.	0		
12 G	Ground Irregularity	Imagine the AA without any living vegetation. Excluding the portion of the AA that is always under water, the number of		The depressions may be of human or natural origin. [AM, EC, INV, NR, PH, POL, PR, SBM,	
		hummocks, small pits, raised mounds, animal burrows, ruts, gullies, natural levees, microdepressions, and other areas of peat or		SR, WS]	
		mineral soil that are raised or 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).	1		
		Intermediate.	0		
		Several (extensive micro-topography).	0	1	
2 1			U	I FAMIND COMI	-
3 U	Ipland Inclusions	Within the AA, inclusions of upland are:		[AM, NR, SBM]	
		Few or none.	1		
		Intermediate (1 - 10% of vegetated part of the AA).	0		
		Many (e.g., wetland-upland "mosaic", >10% of the vegetated AA).	0		
14 S	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		[CS, NR, OE, PH, PR, Sens, SFS, WS]	
		to check in at least 3 widely spaced locations, and use the soil texture key (in Appendix A of the Manual).]			
		Loamy: soils that may contain a little fine grit and do not make a "ribbon" longer than 2 cm when moistened, rolled, squeezed,	1		
		and extended between thumb and forefinger.	0		
		Fines : includes silt, clay, silt, soils that make a ribbon longer than 2 cm when moistened, rolled, squeezed, and extended between thumb and forefinger.	0		
		Deep Peat, to 40 cm depth or greater.	0	1	
		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	0	1	
		extended between thumb and forefinger.	U		
15 S		During any 2 consecutive weeks of the growing season, the extent of mudflats, bare unshaded saturated areas not covered by		This addresses needs of many but not all migratory sandpipers, plovers, and related species.	-
		thatch, and unshaded waters shallower than 6 cm is: [Include also any area that is adjacent to the AA.]		[WBF]	
ľ		None, or <100 sq. m.	1		
		100-1000 sq. m.	0		
		1000 – 10,000 sq. m.	0	1	
		>10,000 sq. m.	0	1	
16 L		In aerial ("ducks eye") view, the maximum annual cover of herbaceous vegetation (all non-woody plants except moss) is:		[AM, WBF, WBN]	-
		<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	ואון, אטוי, אטוין, אטוין, אטוין	NoHerb(
٧	egetated vvettarid	10 % of the vegetated part of the AA of 10.01 flectare (whichever is less). Walk 1 flere and 1 Skip to F20 (illivasive Plant Cover).	0		мопегос
		5-25% of the vegetated part of the AA.	1		
		25-50% of the vegetated part of the AA.	0		
		50-95% of the vegetated part of the AA.	0	1	
		>95% of the vegetated part of the AA.	0	1	
7 -		·	U	Early are flowering plants. Do not include greeces and are settled attended to the	4
′ 	OID 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]	
		<5% of the herbaceous part of the AA.	0	norsetane, or others that lack snowy nowers. If OLJ	
		5-25% of the herbaceous part of the AA.	1		
		25-50% of the herbaceous part of the AA.	0		
		50-95% of the herbaceous part of the AA.	0		
		>95% of the herbaceous part of the AA.	0		AllForb(
	edge Cover	Sedges (Carex spp.) and cottongrass (Eriophorum spp.) occupy:		[CS]	
18 S				1	I
18 S		<5% of the vegetated area, or none.	0		

		50-95% of the vegetated area.	0		
		>95% of the vegetated area.	0		
9	Dominance of Most	Determine which two herbaceous species comprise the greatest portion of the herbaceous cover (excluding mosses and floating-		For this question, include ferns as well as graminoids and forbs. [EC, INV, PH, POL, Sens]	1
		leaved aquatic plants). Then choose one of the following:			
	Herbaceous Species	those species together comprise > 50% of the areal cover of herbaceous plants at any time during the year.	1		
	, i	those species together do not comprise > 50% of the areal cover of herbaceous plants at any time during the year.	0		
0	Invasive Plant Cover	How extensive is the cover of invasive plant species in the AA? For species, see Plants_invasive worksheet in the accompanying		[EC, PH, POL, Sens]	
		Supplnfo file.			
		invasive species appear to be absent in the AA, or are present only in trace amount (a few individuals).	0		
		invasive species are present in more than trace amounts, but comprise <5% of herbaceous cover (or woody cover, if the	1		
		invasives are woody).			
		invasive species comprise 5-20% of the herb cover (or woody cover, if the invasives are woody).	0		
		invasive species comprise 20-50% of the herb cover (or woody cover, if the invasives are woody).	0		
		invasive species comprise >50% of the herb cover (or woody cover, if the invasives are woody).	0		
21	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		If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an	1
		invasive plant species is:		exotic species, assume the unidentified plant to also be exotic. If vegetation is so senesced	
		none of the upland edge (invasives apparently absent), or AA has no upland edge.	1	that exotic species cannot be identified, answer "none". [PH, STR]	
		some (but <5%) of the upland edge.	0		
		5-50% of the upland edge.	0		1
		most (>50%) of the upland edge.	0		1
22		During most of the year, open water within or adjacent to the vegetated part of the wetland is much wider than the maximum	0	[WBF, WBN, WCv]	1
		width of the vegetated zone within the wetland. Enter "1" if true, "0" if false.	J		1
23		The vegetated part of the AA is within or adjacent to a body of non-tidal standing open water whose size exceeds 8 hectares	0	[FR, PR, PU, WBF, WBN]	1
		during most of a normal year.		[· · · · · · · · · · · · · · · · · · ·	
2.4		· ·		A	-
		The percentage of the AA that never contains surface water during an average year (that is, except perhaps for a few hours after		1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m,	
		snowmelt or rainstorms), but which is still a wetland, is: <1% . In other words, all or nearly all of the AA is covered by water permanently or at least seasonally.	0	1000 m by 10 m, or similar. [AM, FA, FR, INV, NR, PH, PR, SBM, Sens, SRv, WBF, WBN, WC	
		1-25% of the AA, or <1% but >0.01 ha never contains surface water.]] 	
		·	1		
		25-50% of the AA never contains surface water.	0		
		50-75% of the AA never contains surface water.	0		
		75-99% of the AA never contains surface water, OR >99% and there is at least one persistently ponded water body larger than 1	0		AllSat
		ha in the AA.	0		A 110 - 14
		99-100%. AND there is no persistently ponded water body larger than 1 ha within the AA. Enter "1" and SKIP to F42 (Channel	0		AllSat
25		Connection). Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during		If you are unable to determine the condition at the driest time of year, ask the land owner or	-
		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		neighbors about it if possible. Indicators of persistence may include fish, some dragonflies,	
		AA that still contains surface water is:		beaver, and muskrat. [AM, CS, FA, FR, INV, NR, POL, PR, SBM, WBF, WBN]	
		None. The AA dries up completely (no water in channels either) or never has surface water during most years. SKIP to F27.	1		NoPer
		1-20% of the AA.	0		1
		20-50% of the AA.	0		1
		50-95% of the AA.	0		
		>95% of the AA. True for many fringe wetlands.	0		AllWe
26		At mid-day during the warmest time of year, the area of surface water within the AA that is shaded by vegetation and other	<u> </u>	[FA, WC]	-
		features that are within the AA at that time is:		[i ʌ, woj	1
	vvater triat is Stiaded	< 5% of the water is shaded, or no surface water is present then.	0		1
		5-25% of the water is shaded.	0		
		25-50% of the water is shaded.			
			0		1
		50-75% of the water is shaded.	0		
		>75% of the water is shaded.	1		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	
	1			when not fully inundated. Also, such areas often have a larger proportion of upland and annual	L. O.
	Flooded Only	None, or <0.01 hectare and <1% of the AA. SKIP to F29.	0	(vs. perennial) plant species. In riverine systems, the extent of this zone can be estimated by	NoSea

		20-50% of the AA.	1	multiplying by ∠ the banktul height and visualising where that would intercept the land along the river. [CS, FA, INV, NR, OE, PH, SR, WBF, WBN, WS]	
		50-95% of the AA.	0		
		>95% of the AA.	0		
	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,	
		<10 cm change (stable or nearly so).	0	INV, NR, OE, PH, PR, SR, WBN, WS]	
		10 cm - 50 cm change.	1		
	!	0.5 - 1 m change.	0	7	
	!	1-2 m change.	0	1	
		>2 m change.	0	1	
the A	AA plus adjacent po	onded water smaller than 0.01 hectare (about 10m x 10m, or 1m x 100 m)? If so, enter "1" in column D and	0		TooSmall
CIP TO	O F42 (Connection).				
29 F	Predominant Depth	During most of the time when surface water is present during the growing season, its depth, averaged over the entire inundated		If a boat is unavailable, estimate this by considering wetland size and local topography. Or if	
	Class	part of the AA, is:		timing and safety allow, depths may be measured by drilling through winter ice. This question is	3
		<10 cm deep (but >0).	1	asking about the spatial median depth that occurs during most of that time, even if inundation	
		10 - 50 cm deep.	0	is only seasonal or temporary. If inundation in most but not all of the wetland is brief, the	
		0.5 - 1 m deep.	0	answer will be based on the depth of the most persistently inundated part of the wetland.	
		1 - 2 m deep.	0	Include surface water in channels and ditches as well as ponded areas. [CS, FA, FR, INV,	
		>2 m deep. True for many fringe wetlands.	0	OE, PH, PR, Sens, SFS, SR, WBF, WBN, WC]	
0 [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,	1
	•	One depth class that comprises >90% of the AA's inundated area (use the classes in the question above).	1	INV, WBF, WBN]	
	Proportions	One depth class that comprises 50-90% of the AA's inundated area.	0	,,	
ľ	•	Neither of above. There are 3 or more depth classes and none occupy >50%.	0	1	
1 9			-	Meanly all wetlands with surface water have some panded water IAM CC IAIV AID OF DD	4
		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]	
	······································	<5% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34.	0	Seris, Sr., Wdf, Wdin, WC, Woj	NoPonde
ľ	101111197	5-30% of the water.	1		Noronae
			1	-	
		30-70% of the water.	0		
	!	70-95% of the water.	0	4	
		>95% of the water.	0		
	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.	OpenW
	% of Ponded Water hat 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]	1
ľ	асто Ороп	None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	1		NoOpenF
		1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	0		NoOpenF
		5-30% of the ponded water.	0	7	
		30-70% of the ponded water.	0	1	
		70-99% of the ponded water.	0		
		100% of the ponded water.	0	1	AllOpenP
	Nidth 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		"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed.	1
4 ۱	Zone within Wetland	separates adjoining uplands from open water within the AA is:		Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	
	- On Within Wolland	<1 m.	0	CS, NR, OE, PH, PR, SBM, Sens, SR, WBN]	
	i	t		1 · · · · · · · · · · · · · · · · · · ·	
		1 - 9 m.	0	-	
			0		
		10 - 29 m.	0	4	
		10 - 29 m. 30 - 49 m.	0	- -	
		10 - 29 m. 30 - 49 m. 50 - 100 m.	0 0		
Ž		10 - 29 m. 30 - 49 m. 50 - 100 m. > 100 m, or open water is absent at that time.	0 0 0	If several isolated pools are present in early summer, estimate the percent of their collective	

		<1% of the water edge.	0		
		1-25% of the water edge.	0		
		25-50% of the water edge.	0		
		50-75% of the water edge.	0		
		>75% of the water edge.	0		
-36	Robust Emergents	The percentage of the emergent vegetation cover in the AA that is cattail (Typha spp.), common reed (Phragmites), or tall		Emergent vegetation is herbaceous plants whose stems are partly above and partly below	1
		(>1m) bulrush is:		the water surface during most of the time water is present. [WBN]	
		<1% of the emergent vegetation, or emergent vegetation is absent. SKIP to F38.	0		NoRobustEn
		1-25% of the emergent vegetation.	0		
		25-75% of the emergent vegetation.	0		
		>75%, of the emergent vegetation.	0		
37	· ·	During most of the part of the growing season when water is present, the spatial pattern of emergent vegetation within the water is mostly:		[AM, FA, FR, INV, NR, OE, PH, PR, SBM, SR, WBF, WBN]	7
	Water	Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water.	0		
	vvator	Intermediate.	0		
		Clumped. More than 70% of such vegetation is in bands along the wetland perimeter or is clumped at one or a few sides of the surface water area.	0		
38	Persistent Deepwater	If the deepest patch of surface water (flowing or ponded) in or directly adjacent to the AA is mostly deeper than 0.5 m for >2 weeks during the growing season, enter "1" and continue. If not, enter "0" and SKIP to F42 .(Connection).	0		DeepPersis
-39		During most of the growing season and in waters deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians		For this question, consider only the wood that is at or above the water surface. Estimates of	-
JJ	Non-vegetated Aquatic Cover	that is provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is:		underwater wood based only on observations from terrestrial viewpoints are unreliable so	
	Aquatic Cover	Little or none.	0	should not be attempted. [AM, FA, FR, INV]	
		Intermediate.	0	enous not be attempted. [run, 174, 174]	
		Extensive.	0		
40	Isolated Island	The AA contains (or is part of) an island or beaver lodge within a lake, pond, or river, and is isolated from the shore by water	0	[WBN]	
40		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	O	[NDN]	
		sufficiently large and dense to support a waterbird nest.			
41	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 >50% of the underwater substrate. If true, enter "1" in next column. If untrue or uncertain, enter "0".	0	[EC, PR, WBF]	
42	Channel Connection	The most persistent surface water connection (outlet channel or pipe, ditch, or overbank water exchange) between the AA and a		Consider the connection regardless of whether the surface water is frozen. The "downslope	
		downslope stream network is: [Note: If the AA represents only part of a wetland, answer this according to whichever is the least		stream network" could consist of ditches, rivers, ponds, or lakes which eventually connect to	
		permanent surface connection: the one between the AA and the rest of the wetland, or the surface connection between the		the ocean. If this cannot be determined while visiting the AA, consult topographic maps	
		wetland and the downslope stream network.]		perhaps by viewing these online with Toporama	
		Persistent (surface water flows out for >9 months/year).	0	(http://atlas.nrcan.gc.ca/toporama/en/index.html) [CS, FA, FR, NR, OE, PR, Sens, SFS, SR,	
		Seasonal (surface water flows out for 14 days to 9 months/year, not necessarily consecutive).	1	WCv, WS]	
		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	0		OutNone1
		F47 (pH Measurement).			0
		No surface water flows out of the wetland except possibly during extreme events (<once 10="" a<="" flows="" into="" only="" or,="" per="" td="" water="" years).=""><td>0</td><td></td><td>Outnone</td></once>	0		Outnone
43		wetland, ditch, or lake that lacks an outlet. SKIP to F47 (pH Measurement). 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	-
T U		Mostly passes through a pipe, culvert, narrowly breached dike, berm, beaver dam, or other partial obstruction (other than natural	0	snowmelt. [CS, NR, OE, PR, Sens, SR, STR, WS]	
		topography) that does not appear to drain the wetland artificially during most of the growing season.	U	2	
		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	1		
		edge, which drain the wetland artificially, or water is pumped out of the AA.			
44		At least once annually, surface water from a tributary channel that is >100 m long moves into the AA. Or, surface water from a		If inlet tributaries cannot be searched for due to inaccessibility of part of the AA, follow	Inflows
	·	larger permanent water body adjacent to the AA spills into the AA. If it enters only via a pipe, that pipe must be fed by a mapped	0	suggestions in F42 above. [NRv, PH, PRv, SRv]	
		stream or lake further upslope. If no, SKIP to F47 (pH Measurement).		Luca .	
45	I .	Based on lack of shade, water source characteristics, or actual temperature measurements, the inflow is likely to be warmer than	0	[WCv]	
	Temperature	surface water in the AA during part of most years. Enter 1= yes, 0= no.			
46		During its travel through the AA at the time of peak annual flow, water arriving in channels: [select only the ONE encountered by most of the incoming water].		[FA, FR, INV, NR, OE, PR, SR, WS]	

_	-			•	
		Does not bump into many plant stems as it travels through the AA. Nearly all the water continues to travel in unvegetated (often	0		
		incised) channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond			
		or lake. Bumps into herbaceous vegetation but mostly remains in fairly straight channels.	0		
		· · · · · · · · · · · · · · · · · · ·	1		
		Bumps into herbaceous vegetation and mostly spreads throughout, or is in widely meandering, multi-branched, or braided channels.	1		
		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		
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	
	ľ	Was measured, and is: [enter the reading in the column to the right.]		that have passed through (not along) most of the AA. Unless surface water is completely	
		Was not measured but surface water is present and is darkly tea-coloured. Or if no surface water, then mosses and plants that	0	absent, do not dig holes or make depressions in peat in order to provide water for this	
		indicate peatland (e.g., Labrador tea) are prevalent. Enter "1".		measurement. Avoid measuring near roads or in puddles formed only by recent rain. [AM, FA,	
		Neither of above. Enter "1".	1	FR, NR, WBF, PH, PR, Sens, WBF, WBN]	
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]	
	Conductivity	TDS is: [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.]			
	-	Conductivity is [Enter the reading in µS/cm in the column to the right.]			
		Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1".	0		
		Neither of above	1		
19	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]	
		Evident from direct observation or presence of gnawed limbs, dams, tracks, dens, lodges, or extensive stands of water-killed	0	· · · · · · · · · · · · · · · · · · ·	
		trees (snags).			
		Likely based on known occurrence in the region and proximity to suitable habitat, which may include: (a) a persistent freshwater	0		
		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.	1		
50	Groundwater	Select first applicable choice:		Adhere to these criteria strictly do not use personal judgment based on fen conditions, pH,	
	Strength of Evidence	Springs are known to be present within the AA, or if groundwater levels have been monitored, that has demonstrated that	0	or other evidence. Consult topographic maps to detect breaks in slope described here. Rust	
		groundwater primarily discharges to the wetland for longer periods during the year than periods when the wetland recharges the		deposits associated with groundwater seeps may be most noticeable as orange discoloration	
		groundwater.		in ice formations along streams during early winter. [AM, CS, FA, FR, INV, NR, OE, PH, PRv,	
				SFS, WC, WS]	
		Most of the AA has a slope of >5%, or is very close to the base of a natural slope longer than 100 and much steeper than the	0		
		slope of the AA, AND the pH of surface water, if known, is >5.5.			
		Neither of above is true, although some groundwater may discharge to or flow through the AA. Or groundwater influx is unknown.	1		
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	
		<2% or the AA has no surface water outlet (not even seasonally).	0	inlet and outlet, divided by the flow-distance between them and converted to percent. If	
		2-5%.	1	available, use a clinometer to measure this. Free clinometer apps can be downloaded to	
		6-10%.	0	smartphones. If the wetland is large (longer than ~1 km), this may be estimated using Google	
		>10%.	0	Earth to determine the minimum and maximum elevation within the AA, then dividing by length	Тоо
		× 10 /0.	O .	and multinlying by 100_ICS_NR_OF_PR_SR_WRF_WRN_WSI	1000
<u>lote</u>	or the next three que	estions: If the AA lacks an upland edge, evaluate based on the AA's entire perimeter, and moving outward into whatever			
reas	are adjacent. In many	situations, these questions are best answered by measuring from aerial images.			
52	Vagatated Duffer as	Within a zone extending 30 m laterally from the AA's edge with upland and/or other wetlands, the percentage that contains		[AM, FA, FR, INV, NRv, PH, POL, PRv, SBM, Sens, SRv, STR, WBN]	
-52	Vegetated Buffer as % of Perimeter	perennial vegetation cover (except lawns, row crops, heavily grazed land, conifer plantations) is:			
	70 OI FEIIIIEIEI	<5%.	0		
		5 to 30%.	0		
		30 to 60%.	0		
		60 to 90%.	1		
		>90%, or all the area within 30 m of the AA edge is other wetlands. SKIP to F55 .	0		BuffAl
		200 /0, or all the area within 50 m of the 774 eage is other wetlands. Shir to FJJ.	U		DuilAill

	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]	
ľ	Dullei	Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0	1	
		Bare or nearly bare pervious surface or managed vegetation, e.g., lawn, row crops, unpaved road, dike, landslide.	1		
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		[NRv, PRv, Sens, SRv]	
	Duilo: 0.5p5	area has a percent slope of:		[,,,,	
		<1% (flat almost no noticeable slope) or all the area within 30 m of the AA edge is other wetlands.	0	1	
		2-5%.	1	1	
		5-30%.	0	1	
		>30%.	0	1	
	·	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 (ves) or 0 (no).	0	Do not include upturned trees as potential den sites. [POL, SBM]	
	New or Expanded	Human actions within or adjacent to the AA have persistently expanded a naturally occurring wetland or created a wetland where		Determine this using historical aerial photography, old maps, soil maps, or permit files as	
,	Wetland	there previously was none (e.g., by excavation, impoundment):		available [CS, NR, OE, PH, Sens]	
		No.	1		
		Yes, and created or expanded 20 - 100 years ago.	0		
		Yes, and created or expanded 3-20 years ago.	0		
		Yes, and created or expanded within last 3 years.	0		
		Yes, but time of origin or expansion unknown.	0		
		Unknown if new or expanded within 20 years or not.	0		
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,	
		Burned within past 5 years.	0	PH, STR]	
		Burned 6-10 years ago.	0		
		Burned 11-30 years ago.	0		
		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		[PU, STR, WBFv]	
		buildings, or public maintained trails that intersect, adjoin, or are within 100 m of the AA (select one) is:			
		<25%.	1		
		25-50%.	0		
		>50%.	0		
	•	Assuming access permission was granted, select ALL statements that are true of the AA as it currently exists:		[PU, STR]	
	Uses - Actual or Potential	For an average person, walking is physically possible <u>in</u> (not just near) >5% of the AA during most of the growing season, e.g., free of deep water and dense shrub thickets.	1		
		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	0	1	
		tours.			
60 l	Unvisited Core Area	The percentage of the AA almost never visited by humans during an average growing season probably comprises: [Note: Only		[AM, FAv, FRv, PH, PU, SBM, STR, WBF, WBN]	
		include the part actually walked or driven (not simply viewed from) with a vehicle or boat. Do not include visitors on trails outside			
1		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.1 <5% and no inhabited building is within 100 m of the AA.	0	 	
		<5% and inhabited building is within 100 m of the AA.	0	1	
		5-50% and no inhabited building is within 100 m of the AA.	0	1	
		5-50% and inhabited building is within 100 m of the AA.	0	1	
		50-95%, with or without inhabited building nearby.	0	1	
		>95% of the AA with or without inhabited building nearby.	1		
61 F	Frequently Visited	The part of the AA visited by humans almost daily for several weeks during an average growing season probably comprises:	_	[AM, PH, PU, SBM, STR, WBF, WBN]	
		[See note above.]		[ANN, 111, 10, ODIN, OTA, WEDI, WEDIN]	
ľ	Area	<5%. If F60 was answered ">95%" (mostly never visited), SKIP to F64.	1	1	
		5-50%.	0		

		>95% of the AA.	0	7	1
F62	BMP - Soils	Boardwalks, paved trails, fences or other infrastructure and/or well-enforced regulations appear to effectively prevent visitors from walking on soil within nearly all of the AA when the soil is unfrozen. Enter "1" if true.	0	[PH, PU]	
F63	BMP - Wildlife Protection	Fences, observation blinds, platforms, paved trails, exclusion periods, and/or well-enforced prohibitions on motorised boats, off-leash pets, and off road vehicles appear to effectively exclude or divert visitors and their pets from the AA at critical times in order to minimize disturbance of wildlife (except during hunting seasons). Enter "1" if true.	0	[AM, PU, WBF, WBN]	
F64	Consumptive Uses	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select ALL that apply.		[FAv, FRv, WBFv]	
	(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	0		
	Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0		
		Waterfowl hunting.	0		
		Fishing.	0		
		Trapping of furbearers.	0		
		None of the above.	1		
F65	Domestic Wells	The closest wells or water bodies that currently provide drinking water are:		[NRv]	
		Within 0-100 m. of the AA.	0	7	
		100-500 m. away.	1		
		>500 m. away, or no information.	0	7	
F66	Calcareous Fen	The AA is, or is part of, a calcareous fen. See the Plants_Calcar worksheet in the accompanying SuppInfo file for list of plant indicators (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]	

stigator: Derrick Mitchell		Site Identifier: Tapline WL 3		Date: July 25, 2019	
` ,		l Wetlands. WESP-AC for Ne	w Brunswick. Version 2.		Dat
Aberrant Timing of Water		to have caused the timing of water inputs (but not necessar	rily their volume) to shift by hours, days, or weeks, becoming ei	ither more muted (smaller or less frequent peaks spread over	r
longer times, more temporal homogeneit	ity of flow or water levels) or	r more flashy (larger or more frequent spikes but over shorte	r times). [FA, FR, INV, PH, STR]	and more mater (smaller of rece neglectic spread ever	<u></u>
Stormwater from impervious surfaces the Water subsidies from wastewater effluences.	•				
Regular removal of surface or groundw					
		water body, or other control structure at water entry points the	•		
A dam, dike, levee, weir, berm, or fill Excavation within the wetland, e.g., duc	•	n the wetland that interferes with surface or subsurface flo nd ditch	w in/out of the AA (e.g., road fill, wellpads, pipelines).		
Artificial drains or ditches in or near the	e wetland.				
	ation of an adjacent or intern	nal channel (incised below the historical water table level).			1
Logging within the wetland. Subsidence or compaction of the wetland.	and's substrate as a result of	f machinery, livestock, fire, drainage, or off road vehicles.			
Straightening, ditching, dredging, and/o	or lining of tributary channel	S.			
		low, assign points. However, if you believe the checked item with the condition if the checked items never occurred or were	s had no measurable effect on the timing of water conditions in a no longer present	any part of the AA, then leave the "0's" for the scores in the	
ronouning ronor to occurrate enector conta		Severe (3 points)	Medium (2 points)	Mild (1 point)	
		· · · /	, i	, , ,	
Spatial extent of timing shift within the		>95% of wetland.	5-95% of wetland.	<5% of wetland.	2
When most of the timing shift began:		<3 yrs ago. ast 10 years, and only for the part of the wetland that experie	3-9 yrs ago.	10-100 yrs ago.	1
Input timing now vs. previously:	lered Iriputs began within pa	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=	= 3
Assoluted lumits of Cou	-4	Calta		Stressor subscore=	= 0.2
Accelerated Inputs of Con			rated the inputs of contaminants or salts to the AA. [AM, FA, PI	H. POL. STRI	
Stormwater or wastewater effluent (incl	cluding failing septic systems	s), landfills, industrial facilities.	·	.,	
nnri/default asn2lang=En&n=R85A18/6		rage areas, our gas extraction, other sources (download mai	ny iocations inominational Polititant Nelease inventory and viet	w Kiviz overlay iii Google Eartii. https://www.ec.gc.ca/iiiip-	
Road salt. Spraying of pesticides, as applied to law	wns. cronlands roadsides	or other areas in the CA			+
			s did not cumulatively expose the AA to significantly higher leve	els of contaminants and/or salts, then leave the "0's" for the	
		nt condition with the condition if the checked items never occ			
		Severe (3 points)	Medium (2 points)	Mild (1 point)	
Usual toxicity of most toxic contamina	nants:	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	I or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.	(
				Sum=	
Accelerated Inputs of Nutr	rients			Stressor subscore=	= 0.0
		in either the wetland or its CA that is likely to have accele	rated the inputs of nutrients to the wetland. [NRv, PRv, STR]		
If any items were checked above, then to		low, assign points. However, if you believe the checked item	s did not cumulatively expose the AA to significantly more nutri	ents, then leave the "()'s" for the scores in the following rows:	
	t condition with the condition	n if the checked items never occurred or were no longer pres Severe (3 points)			
	t condition with the condition	Severe (3 points) High density of unmaintained septic, some types of	Medium (2 points) Moderate density septic, cropland, secondary wastewater	Mild (1 point) Livestock, pets, low density residential.	
To estimate effects, contrast the current	t condition with the condition	Severe (3 points) High density of unmaintained septic, some types of industrial sources.	sent. Medium (2 points)	Mild (1 point)	0
To estimate effects, contrast the current Type of loading:		Severe (3 points) High density of unmaintained septic, some types of	Medium (2 points) Moderate density septic, cropland, secondary wastewater treatment plant.	Mild (1 point) Livestock, pets, low density residential.	0
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Assessment Area (AA) Results:

Wetland ID: WL 3

Date: August 2, 2019

Observer: Derrick Mitchell

Latitude & Longitude (decimal degrees):

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.

Water Storage & Delay (WS) 2.93 Moderate 10.00 Higher 3.99 15.63	Wetland Functions or Other Attributes:	Function Score (Normalised)	Function Rating	Benefits Score (Normalised)	Benefits Rating	Function Score (raw)	Benefits Score (raw)
Water Cooling (WC) 5.85 Higher 5.66 Higher 3.90 3.41	Water Storage & Delay (WS)	2.93	Moderate	10.00	Higher	3.99	15.63
Sediment Retention & Stabilisation (SR) 2.26 Moderate 1.56 Lower 4.71 0.94	Stream Flow Support (SFS)	2.71	Lower	10.00	Higher	1.44	28.32
Phosphorus Retention (PR)	Water Cooling (WC)	5.85	Higher	5.66	Higher	3.90	3.41
Nitrate Removal & Retention (NR)	Sediment Retention & Stabilisation (SR)	2.26	Moderate	1.56	Lower	4.71	0.94
Carbon Sequestration (CS) 2.79 Lower 5.77 Organic Nutrient Export (OE) 8.75 Higher 6.98 Anadromous Fish Habitat (FA) 0.00 Lower 0.00 Lower 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 <	Phosphorus Retention (PR)	1.62	Lower	1.24	Lower	4.05	1.46
Organic Nutrient Export (OE) 8.75 Higher 6.98 Anadromous Fish Habitat (FA) 0.00 Lower 0.00 Lower Resident Fish Habitat (FR) 0.00 Lower 0.00 Lower Aquatic Invertebrate Habitat (INV) 3.01 Moderate 3.99 Moderate 5.77 5.23 Waterbird Feeding Habitat (WBF) 5.83 Moderate 5.00 Moderate 5.77 5.23 Waterbird Nesting Habitat (WBN) 4.58 Moderate 5.00 Moderate 3.91 5.00 Songbird, Raptor, & Mammal Habitat (SBM) 7.30 Higher 5.00 Moderate 6.05 5.00 Pollinator Habitat (POL) 8.88 Higher 5.00 Moderate 6.05 5.00 Native Plant Habitat (PH) 4.27 Moderate 5.07 Moderate 4.81 4.40 Public Use & Recognition (PU) 2.00 Lower 1.75 5.81 Wetland Sensitivity (Sens) 10.00 Higher 5.81 Wetland Stressors (STR) (higher score means more str	Nitrate Removal & Retention (NR)	4.35	Moderate	7.19	Moderate	6.51	7.50
Anadromous Fish Habitat (FA) Resident Fish Habitat (FR) 0.00 Resident Fish Habitat (FR) 0.00 Lower 0.00 Lower 0.00 Lower 0.00 Aquatic Invertebrate Habitat (INV) 3.01 Moderate 3.99 Moderate 4.93 3.39 Amphibian & Turtle Habitat (AM) 4.67 Moderate 5.17 Moderate 5.77 5.23 Moderate 4.64 5.00 Waterbird Feeding Habitat (WBN) 4.58 Moderate 5.00 Moderate 5.00 Moderate 5.00 Moderate 5.00 Moderate 5.00 Moderate 6.05 5.00 Pollinator Habitat (POL) Native Plant Habitat (PH) 4.27 Moderate 5.07 Moderate 5.07 Moderate 6.05 5.00 Public Use & Recognition (PU) Wetland Sensitivity (Sens) Wetland Sensitivity (Sens) Wetland Stressors (STR) (higher score means more stress) Summary Ratings for Grouped Functions: HYDROLOGIC Group (WS) WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS) AQUATIC SUPPORT Group (max+avg/2 of SS, INV, OE, WC) AQUATIC HABITAT Group (max+avg/2 of SBM, PH, POL) WETLAND CONDITION (EC) Lower 4.86 4.81 4.00 Moderate 5.07 Moderate 5.07 Moderate 5.07 Moderate 5.07 Moderate 5.08 5.89 5.80 AQUATIC NABITAT Group (max+avg/2 of SBM, PH, POL) 7.85 Higher 4.86 4.81 4.93 3.39 Moderate 5.17 Moderate 5.00 Moderate	Carbon Sequestration (CS)	2.79	Lower			5.77	
Resident Fish Habitat (FR)	Organic Nutrient Export (OE)	8.75	Higher			6.98	
Aquatic Invertebrate Habitat (INV) 3.01 Moderate 3.99 Moderate 4.93 3.39 Amphibian & Turtle Habitat (AM) 4.67 Moderate 5.17 Moderate 5.77 5.23 Waterbird Feeding Habitat (WBF) 5.83 Moderate 5.00 Moderate 4.64 5.00 Waterbird Nesting Habitat (WBN) 4.58 Moderate 5.00 Moderate 3.91 5.00 Songbird, Raptor, & Mammal Habitat (SBM) 7.30 Higher 5.00 Moderate 6.05 5.00 Pollinator Habitat (POL) 8.88 Higher 0.00 Lower 7.15 0.00 Native Plant Habitat (PH) 4.27 Moderate 5.07 Moderate 4.81 4.40 Public Use & Recognition (PU) 2.00 Lower 1.75 8.81 Wetland Sensitivity (Sens) 10.00 Higher 5.81 Wetland Ecological Condition (EC) 1.08 Lower 4.86 Wetland Stressors (STR) (higher score means more stress) 7.01 Higher 3.99 15.63 <td>Anadromous Fish Habitat (FA)</td> <td>0.00</td> <td>Lower</td> <td>0.00</td> <td>Lower</td> <td>0.00</td> <td>0.00</td>	Anadromous Fish Habitat (FA)	0.00	Lower	0.00	Lower	0.00	0.00
Amphibian & Turtle Habitat (AM) 4.67 Moderate 5.17 Moderate 5.77 5.23 Waterbird Feeding Habitat (WBF) 5.83 Moderate 5.00 Moderate 4.64 5.00 Waterbird Nesting Habitat (WBN) 4.58 Moderate 5.00 Moderate 3.91 5.00 Songbird, Raptor, & Mammal Habitat (SBM) 7.30 Higher 5.00 Moderate 6.05 5.00 Pollinator Habitat (POL) 8.88 Higher 0.00 Lower 7.15 0.00 Native Plant Habitat (PH) 4.27 Moderate 5.07 Moderate 4.81 4.40 Public Use & Recognition (PU) 2.00 Lower 1.75 1.00 Higher 5.81 Wetland Sensitivity (Sens) 10.00 Higher 5.81 1.08 Lower 4.86 Wetland Stressors (STR) (higher score means more stress) 7.01 Higher 4.83 4.83 Summary Ratings for Grouped Functions: HYDROLOGIC Group (WS) 2.93 Moderate 10.00 Higher 3.99	Resident Fish Habitat (FR)	0.00	Lower	0.00	Lower	0.00	0.00
Waterbird Feeding Habitat (WBF) 5.83 Moderate 5.00 Moderate 4.64 5.00 Waterbird Nesting Habitat (WBN) 4.58 Moderate 5.00 Moderate 3.91 5.00 Songbird, Raptor, & Mammal Habitat (SBM) 7.30 Higher 5.00 Moderate 6.05 5.00 Pollinator Habitat (POL) 8.88 Higher 0.00 Lower 7.15 0.00 Native Plant Habitat (PH) 4.27 Moderate 5.07 Moderate 4.81 4.40 Public Use & Recognition (PU) 2.00 Lower 1.75 1.75 1.00 Higher 5.81 Wetland Sensitivity (Sens) 10.00 Higher 5.81 1.08 Lower 4.86 Wetland Ecological Condition (EC) 1.08 Lower 4.86 4.86 Wetland Stressors (STR) (higher score means more stress) 7.01 Higher 4.83 Summary Ratings for Grouped Functions: 4.83 4.83 4.86 HYDROLOGIC Group (WS) 2.93 Moderate 10.00 H	Aquatic Invertebrate Habitat (INV)	3.01	Moderate	3.99	Moderate	4.93	3.39
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Songbird, Raptor, & Mammal Habitat (SBM) 7.30 Higher 5.00 Moderate 6.05 5.00	• , ,	5.83	Moderate	5.00	Moderate		
Pollinator Habitat (POL)	Waterbird Nesting Habitat (WBN)	4.58	Moderate	5.00	Moderate	3.91	5.00
Native Plant Habitat (PH) 4.27 Moderate 5.07 Moderate 4.81 4.40 Public Use & Recognition (PU) 2.00 Lower 1.75 Wetland Sensitivity (Sens) 10.00 Higher 5.81 Wetland Ecological Condition (EC) 1.08 Lower 4.86 Wetland Stressors (STR) (higher score means more stress) 7.01 Higher 4.83 Summary Ratings for Grouped Functions: 10.00 Higher 3.99 15.63 WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS) 3.55 Moderate 5.26 Moderate 5.89 5.40 AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC) 6.92 Higher 8.28 Higher 5.65 20.02 AQUATIC HABITAT Group (max+avg/2 of SBM, PH, POL) 7.85 Higher 4.21 Moderate 6.58 4.07 WETLAND CONDITION (EC) 1.08 Lower 4.86		7.30	Higher	5.00	Moderate		
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Wetland Ecological Condition (EC)1.08Lower4.86Wetland Stressors (STR) (higher score means more stress)7.01Higher4.83Summary Ratings for Grouped Functions:HYDROLOGIC Group (WS)2.93Moderate10.00Higher3.9915.63WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)3.55Moderate5.26Moderate5.895.40AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)6.92Higher8.28Higher5.6520.02AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)4.42Moderate4.10Moderate4.314.14TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)7.85Higher4.21Moderate6.584.07WETLAND CONDITION (EC)1.08Lower4.86				2.00	Lower		1.75
Wetland Stressors (STR) (higher score means more stress) 7.01 Higher 4.83 Summary Ratings for Grouped Functions: 10.00 Higher 4.83 HYDROLOGIC Group (WS) 2.93 Moderate 10.00 Higher 3.99 15.63 WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS) 3.55 Moderate 5.26 Moderate 5.89 5.40 AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC) 6.92 Higher 8.28 Higher 5.65 20.02 AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN) 4.42 Moderate 4.10 Moderate 4.31 4.14 TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL) 7.85 Higher 4.21 Moderate 6.58 4.07 WETLAND CONDITION (EC) 1.08 Lower 4.86				10.00	Higher		
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WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS) 3.55 Moderate 5.26 Moderate 5.89 5.40 AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC) 6.92 Higher 8.28 Higher 5.65 20.02 AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN) 4.42 Moderate 4.10 Moderate 4.31 4.14 TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL) 7.85 Higher 4.21 Moderate 6.58 4.07 WETLAND CONDITION (EC) 1.08 Lower 4.86	Summary Ratings for Grouped Functions:						
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AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN) AQUATIC HABITAT Group (max+avg/2 of SBM, PH, POL) TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL) WETLAND CONDITION (EC) 1.08 Lower 4.31 4.14 4.37 4.86	WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	3.55	Moderate	5.26	Moderate	5.89	5.40
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL) 7.85 Higher 4.21 Moderate 6.58 4.07 WETLAND CONDITION (EC) 1.08 Lower 4.86	AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	6.92	Higher	8.28	Higher	5.65	20.02
WETLAND CONDITION (EC) 1.08 Lower 4.86	AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	4.42	Moderate	4.10	Moderate	4.31	4.14
VETERRE CONSTITUTE (EC)	TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	7.85	Higher	4.21	Moderate	6.58	
WETLAND RISK (average of Sensitivity & Stressors) 8.50 Higher 5.32	WETLAND CONDITION (EC)			1.08	Lower		4.86
NOTE: A copyr of 0 does not mean the function or honesit is absent from the waters	WETLAND RISK (average of Sensitivity & Stressors)				ŭ		

6.71 4.44 6.29 0.00 7.09 7.09 4.48 5.58 1.24 6.64 5.39 5.74 6.25 6.30 2.09 8.16 6.06 6.84 0.00 10.00 10.00 0.00 10.00 10.00 6.67 7.24 0.00 10.00 10.00 0.00 10.00 10.00 6.67 5.98 0.00 8.68 8.68 6.33 0.33 7.44 7.11 2.20 5.20 2.99 4.24 10.00 5.76 6.39 4.97 2.58 2.48 5.39 7.64 1.34 6.04 4.99

B JenksHigh

6.16

4.79

4.55

7.19

6.29

6.394.33

New Brunswick Reference Scores

0.08 10.00 9.92

0.00 5.83 5.83

0.00 6.02 6.02

0.00 6.07 6.07

0.33 9.38 9.04

1.11 10.00 8.89

Min Max Range F_JenksLo F_JenksHigh Min Max Range B_JenksLo

6.56

4.17

4.36

1.73 9.42 7.68

0.00 5.33 5.33

3.16 10.00 6.84

2.90 10.00 7.10

3.83 10.00 6.17

 4.56
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0.00 5.95 5.95

3.30 8.58 5.28

0.00 7.96 7.96

0.00 8.54 8.54

0.00 8.29 8.29

0.00 8.05 8.05

3.08 7.12 4.03

2.41

6.22

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 the 98 NB calibration wetlands that were assessed previously.

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	Tapline WL 4
Investigator Name:	Derrick Mitchell
Date of Field Assessment:	July 25, 2019
Nearest Town:	Grand Anse, NB
Latitude (decimal degrees):	47.799874°
Longitude (decimal degrees):	-65.115124°
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	18 ha (linear corridor)
AA as percent of entire wetland (approx.). Attach sketch map if AA is smaller than the entire contiguous wetland.	75
What percent (approx.) of the wetland were you able to visit?	75
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):	

Date: July 25, 2019	Site Identifier: Tapline WL 4	Investigator: Derrick Mitchell

Form OF (Office). Non-tidal Wetland Data Form. WESP-AC version 2 for New Brunswick 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

GeoNB: http://www.snb.ca/geonb1/ and http://www.snb.ca/geonb1/e/apps/apps-E.asp

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

#	Indicators	Condition Choices	Data	Definitions/Explanations	Cell Name	Comments
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		
		New Brunswick	1	automatic exclusion of indicators for which no spatial data exists in a particular	NB	
		Nova Scotia	0 province. NS 0 PE	NS		
		Prince Edward Island		PEI		
		Newfoundland-Labrador	0		NL	
OF2		The area of surface wate r 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		
		<0.01 hectare (about 10 m x 10 m).	0	vegetation. If surface water extends beyond 1 km, include only the part within 1 km.		
		0.01 - 0.1 hectare.	1	Do not include tidal areas. Measure the area from aerial imagery using Google Earth		
		0.1 - 1 hectare.	0	Pro (click on Ruler icon in toolbar, then Polygon in pop-up menu). With the GeoNB		
		1 to 10 hectares.	0	viewer, enable the Wetlands layer, then measure with the Draw & Measure tool after		
		10 to 100 hectares.	0	specifying Aerial as the Basemap. However, do not rely entirely on wetland		
		>100 hectares.	0	boundaries shown in online wetlands layers. [PH, SBM, WBN]		
DF3	Ponded Water &	The area of wetlands and surface water ponded during most of the growing season that is both (1) in or adjacent to		See definition of adjacent in OF2. If the AA's wetland vegetation extends beyond 1		
,	Wetland Within 1	the AA and (2) within 1 km is:		km, include only the part within 1 km. "Ponded" means not flowing in rivers or		
	km.	<0.01 hectare (about 10 m x 10 m).	0	streams. [Sens, WBF]		
		0.01 - 0.1 hectare.	0			
		0.1 - 1 hectare.	0			
		1 to 10 hectares.	1			
		10 to 100 hectares.	0			
		>100 hectares.	0			
DF4	Size of Largest	The largest vegetated patch or corridor that includes the AA's vegetation plus all adjacent upland vegetation that is		See definition of adjacent in OF2. Use Google Earth Pro's polygon ruler (as described		
	, •	not lawn, row crops, heavily grazed lands, conifer plantation is:		above). Exclude conifer plantations only if it is obvious that trees were planted in		
•	Tract or Corridor	<0.01 hectare (about 10 m x 10 m).	0	rows. [AM, PH, SBM, Sens]		
		0.01 - 0.1 hectare.	0			
		0.1 - 1 hectare.	0			
		1 to 10 hectares.	0			
		10 to 100 hectares.	0			
		100 to 1000 hectares.	0			
		>1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	1			
OF5	_	The minimum distance from the edge of the AA to the edge of the closest vegetated land (but excluding row crops,		To measure distance, use Google Earth Pro (Ruler > Line tool). Or use Draw &		
,	Vegetated Tract	lawn, conifer plantation) larger than 375 hectares (about 2 km on a side), is:		Measure tool at GeoNB. The 375-ha criterion is from the Fundy Model Forest Project.		

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		<50 m, and not separated from the 375-ha vegetated area by any width of paved roads, stretches of open water,	1	[AM, PH, POL, SBM, Sens]		
		row crops, bare ground, lawn, or impervious surface. Or the AA itself contains >375 ha of vegetation. [This is often				
		the answer in relatively undeveloped landscapes.1 <50 m, but completely separated from the 375-ha vegetated area by those features, and AA does not contain >375	0			
			U			
		ha of vegetation. 50-500 m, and not separated.	0			
		·	0			
		50-500 m, but separated by those features.	0			
		0.5 - 5 km, and not separated.	0			
		0.5 - 5 km, but separated by those features.	0			
		None of the above (the closest patches or corridors which are that large are >5 km away).	0			
OF6	Herbaceous	The AA's vegetation cover is >10% herbaceous* but uplands within 5 km have <10% herbaceous cover. If so, enter	0	For this question only, consider moss to be herbaceous vegetation. Determine the		
	Uniqueness	"3" and continue to OF7. If not, consider:		score by viewing aerial imagery in Google Earth after successively drawing or		
	•	The AA's vegetation cover is >10% herbaceous* but uplands within 1 km have <10% herbaceous cover. If so enter "2"		estimating the boundaries of the buffers of 5 km, 1 km, and 100 m radius focused on		
		and continue to OF7. If not, consider:		the center of the AA. Circles of specified radius can be drawn in Google Earth Pro by		
		The AA's vegetation cover is >10% herbaceous* but uplands within 100 m of the wetland edge have <10%		clicking on the Ruler icon, then Circle in the pop-up menu. [AMv, PHv, POLv, SBMv,		
		herbaceous cover. If so, enter "1".		WBFv, WBNv]		
		[* NOTE: Exclude lawns, row crops, heavily grazed lands, forest, shrublands. Include moss as well as grasslike plants		Work, Working		
		in this use of "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		See above. Do not consider conifer plantations to be forest if it is obvious that trees		
		continue to OF8. If not, consider:		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, consider:				
		The AA's vegetation is >10% woody* but uplands within 100 m of the wetland edge have <10% woody cover. If so,				
		enter "1"				
		[* NOTE: woody cover = trees & shrubs taller than 1 m.]				
OF8	Local Vegetated	Draw a 5-km radius circle measured from the center of the AA. Ignoring all permanent water in the circle, the		In Google Earth, draw the 5 km buffer and then estimate land cover percentages, or		
	=					
	Cover Percentage	percent of the remaining area that is wooded or unmanaged herbaceous vegetation (NOT lawn, row crops, bare or		do GIS analysis of an appropriate land cover layer. [AM, PH, POL, SBM, Sens]		
		heavily grazed land, clearcuts, or conifer plantations) is: <5% of the land.	0			
		5 to 20% of the land.	0			
			0			
		20 to 60% of the land.	1			
		60 to 90% of the land.	0			
		>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		[AM, SBM]		
	Alteration	mostly:				
		Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0			
		Bare pervious surface, e.g., lawn, recent (<5 yrs ago) clearcut, dirt or gravel road, cropland, landslide, conifer	1			
		plantation.				
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-		
	Nearest Population	<100 m.	0	inhabited structures per square kilometer. In Google Earth, click on the Ruler icon,		
	Center	100 - 500 m.	1	then Path, and draw and measure the route. Or use the GeoNB's Draw & Measure		
		0.5- 1 km.	0	tool> Freehand Line to draw and measure the route to Settlements (click on Place		
			0	Names in menu) or other areas not close to mapped settlements but which meet the		
		1 - 5 km.	0	criteria.[FAv, FRv, NRv, PH, PU, SBM, WBFv]		
		>5 km.	0			
		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 and measuring with the		
	Maintained Road	<10 m.	0	Ruler>Line tool. Or use the GeoNB's Draw Line tool. [AM, FAv, FRv, NRv, PH, PU,		
		10 - 25 m.	0	SBM, STR, WBN]		
		25 - 50 m.	0			
		50 - 100 m.	1			
			^			
		100 - 500 m.	U			

		>500 m.	0]	
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	In NB, enable the Wetlands layer in GeoNB (despite its omissions) to show surrounding wetlands and roads, while estimating the location of the 5 km circle (or draw the 5 km circle in Google Earth Pro using the Circle tool and compare). Evaluate using Google Earth, being cautious to search for roads hidden under forest canopy.	
OF13	Distance to Ponded Water	The distance from the AA center to the closest (but separate) ponded water body visible in GoogleEarth imagery is:		In Google Earth, zoom in closely to examine the surrounding landscape for ponds, lakes, and wetlands that appear to be permanently flooded. Enable the GeoNB	
	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	viewer's Wetlands layer as well. [AM, PH, SBM, Sens, WBF, WBN]	
		<50 m, but completely separated by those features.	0		
		50-500 m, and not separated.	0		
		50-500 m, but separated by those features.	0		
		0.5 - 1 km, and not separated.	0		
		0.5 - 1 km, but separated by those features.	0		
		None of the above (the closest patches or corridors that large are >1 km away).	1		
OF14	Distance to Large	The distance from the AA center to the closest (but separate) non-tidal body of water that is ponded during most of		Determine this by viewing aerial imagery in Google Earth. [Sens, WBF, WBN]	
	Ponded Water	the year and is larger than 8 hectares during most of a normal year is:		Į l	
		<100 m.	0		
		100 m - 1 km.	0		
		1 -2 km.	0		
		2-5 km.	0		
		5-10 km.	0		
		>10 km.	1		
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	
		<100 m.	0	river, whichever is closer. If you need to see how far upriver a river is tidal, see the	
		100 m - 1 km.	0	KMZ file provided with this calculator for NB (NB Headtide). Points shown in those	
		1 - 5 km.	1	files are only an approximation, so local information if available may be preferable.	
		5-10 km.	0	[FA, WBF]	
		10-40 km.	0	1	
		>40 km.	0	1	
OF16	Upland Edge Contact			[NR, SBM, Sens]	
	=	The AA has no upland edge (or upland is <1% of perimeter). The AA is entirely surrounded by (& contiguous with)	0	[,,]	
		other wetlands or water.	Ů		
		1-25% of the AA's perimeter abuts upland (including filled areas). The rest adjoins other wetlands or water that is	0	1	
		mostly wider than the AA.			
		25-50% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0		
		50-75% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0		
		More than 75% of the AA's perimeter abuts upland. Any remainder adjoins other wetlands or water that is mostly	1	1	
		wider than the AA. This will be true for most assessments done with WESP-AC.			
	_	Within 5 km downstream or downslope of the AA (select first true choice):		In the GeoNB map viewer: click on "More" in upper right, then "Flood Information".	
	Non-tidal Waters	Maps show Flood Zone or Flood Risk areas and there appears to be infrastructure vulnerable to river flooding not caused by tidal storm surges.	0	Expand the menu under it by clicking on the arrow to its left and the slider to its right. Uncheck the first (Limits of Data) box. Where available, LiDAR imagery can	
		Maps show Flood Zone or Flood Risk areas, but infrastructure is absent or is not vulnerable to floods from a non-tidal	0	provide finer elevational resolution useful for flood modeling. [WSv]	
		river. In some cases levees, upriver dams, or other measures may partly limit damage or risk from smaller events.			
		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure vulnerable to river flooding unrelated to tidal storm surges.	0]	
		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there is no	1	j	
		infrastructure vulnerable to river flooding unrelated to tidal storm surges.			

∩E10 I	Relative Elevation in	In Google Earth, enable the Terrain layer (lower left menu) and open the NB Watersheds KMZ file that accompanies		[FA, NR, Sens, SFSv, WCv, WSv]	ShedPos	
				[FA, NR, Sells, SFSV, WCV, WSV]	Shearos	
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		this calculator. Then determine the AA's approximate elevation (bottom right, NOT the "eye alt"). Then move cursor	1.42			
		around to determine the watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-min)				
OF19 V	Water Quality	In Google Earth, open the KMZ file NB Watershed Protected Area which accompanies this calculator. The AA is	0	If an ACCDC report is available for this AA, it also may contain such information.		
	•	within such an area. Enter 1= yes, 0= no.		[NRv]		
	or Area	, .,, .				
		Sampling indicates a problem with concentrations of metals, hydrocarbons , nutrients , or other substances		May use existing data, or sample those waters as part of this wetland assessment.		
	Upstream	(excluding bacteria, acidic water, high temperatures) being present at levels harmful to aquatic life or humans, and:		"Harmful" should be evaluated with regard to current federal or provincial water		
				quality standards. [AM, FA, FR, NRv, PRv, SRv, STR, WBF, WBN]		
		The condition is present within the AA.	0			
		The condition is present in waters within 1 km that flow into the AA, but has not been documented in the AA itself.	0	1		
		Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in	0			
		either the AA or inflowing waters.				
		Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the	1			
		situation for nearly all wetlands in this region.				
	_	The problem described above is downslope from the AA, and:		May use existing data, or monitor waters as part of this wetland assessment. [NRv,		
	Downstream	The condition is present within 1 km downslope and connected to the AA by a channel.	0	PRv, SRv]		
		The condition is present within 5 km downslope and connected to the AA by a channel, or within 1 km but not	0			
		connected to the AA by a channel.				
		Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in	0			
		either the AA or inflowing waters.				
		Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the	1			
		situation for nearly all wetlands in this region.				
		From a topographic map and field observations, estimate the approximate boundaries of the catchment (CA) of the		Topographic maps may be viewed online at the National Atlas of Canada		
		entire wetland of which the AA may be only a part. Then adjust those boundaries if necessary based on your field		(Toporama): http://atlas.gc.ca/toporama/en/index.html [NR, PR, Sens, SR,		
((Catchment)	observations of the surrounding terrain, and/or by using procedures described in the Manual. Divide the area of the		WS]		
		wetland (not just the AA) by the approximate area of its catchment excluding the area of the wetland itself. When				
		doing the calculation, if ponded water is adjacent to the wetland, include that in the wetland's area. The result is:				
		<0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	0			
		, , , , , , , , , , , , , , , , , , ,				
		0.01 to 0.1.	1	1		
		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	0	1		
		isolated by dikes, or is a raised bog).				
OF23		The proportion of the AA's contributing area (measured to no more than 1000 m upslope) that is comprised of		[FA, INV, NRv, PRv, SRv, STR, WCv, WSv]		
j i	in the Contributing	buildings, roads, parking lots, other pavement, exposed bedrock, landslides, and other mostly-bare surface is about:				
/	Area					
		<10%.	0			
		10 to 25%.	1			
		>25%.	0]		
OF24	Transport From	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as		[NRv, PRv, SRv, WSv]		
	Upslope	runoff (surface water), as 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.				
			^	1		
		Mostly true.	0	-		
1 1		Somewhat true.	U	J	1	

	Mostly untrue.				
spect	The overland flow direction of most surface water (in streams, rivers, or runoff) that enters the AA is:		[AM, NR, SFS, WC, WS]		
	Northward (N, NE). north-facing contributing area.	0	1		
	Southward (S, SW). south-facing contributing area.	1			
	Other (E, SE, W, NW), or no detectable uphill slope or input channel (flat).	0			
nternal Flow	The horizontal flow distance from the wetland's inlet to outlet is:		Identify inlets and outlets, if any, from topographic maps (use elevations to		
istance (Path		determine which are inlets and which are outlets) and augment by field inspection.			
ength)	10 - 50 m.	0	[NR, OE, PR, SR, WS]		
	50 - 100 m.	0	1		
	100 - 1000 m.	0	1		
	1- 2 km.	0	1		
	>2 km, or wetland lacks an inlet and outlet.	1			
Growing Degree	In Google Earth, open the KMZ file that accompanies this calculator, called NB-PEI_GrowingDegreeDays. Place your	1500	This layer was provided by Dr. Dan McKenney of the Canadian Forest Service [AM,	GrowD	
	cursor over the AA and left-click. From the pop-up, enter the GRIDCODE in the next column.	1300	CS, FR, INV, NR, OE, PH, PR, Sens, SR, WBF, WCv, WS]		
ish Access or Use	According to agency biologists and/or your own observations, the AA. [Mark just the first choice that is true.]:				
	Is known to support rearing and/or snowning by Atlantic calmon or other anadromous anadics or calc. In N.D. and the	0			
		U			
	http://atlanticsalmonfederation.org/rivers/introduction.html				
	Has not been documented to support Atlantic salmon rearing and/or spawning, but is connected to nearby waters	0			
	001101010101	0	-		
		U			
	Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	1			
pecies of	Within the past 10 years, in the AA (or in its adjoining waters or wetland), qualified observers have documented		Request information from ACCDC and/or conduct your own survey at an appropriate		
Conservation		•			
Concern		0	POLv, SBMv, Sens, WBFv, WBNv]		
		0	1		
	Wildlife Rare worksheet of the accompanying Supplnfo file.				
	Presence of one or more of the waterbird species (WBF, WBN) of conservation concern as listed in the Wildlife_Rare	0			
	worksheet of the accompanying Supplinfo file.	•			
		0			
	wildlife_kare worksheet of the accompanying Supplinto file, during their nesting season (May-July for most species).				
	None of the above, or no data.	1			
mportant Bird Area	In Google Earth, open the KMZ file that accompanies this calculator, called IBAs_Canada. The AA is all or part of an	0	The source of this layer, which should be checked periodically for updates, is:		
IBA)	officially designated IBA. Enter 1= yes, 0= no.		http://www.ibacanada.com/mapviewer.jsp?lang=EN [SBMv, WBFv, WBNv]		
llack Duck Nesting	In Google Farth, onen the KM7 file that accompanies this calculator, called BlackDuck. Adjust its alignment and	0	This was provided by Dr. David Leske [WRNv]		
•		U	This was provided by Dr. David Leske. [VVDIVV]		
	<10 (enter 0), 10-20 (enter 1), 20-30 (enter 2), >30 (enter 3). If outside of region shown in map, change to blank .				
Vintering Deer or	If AA is on private land with no information, change to blank (not 0). If on public/crown land, in Google Earth open		[SBM]		
/loose	the KMZ file that accompanies this report called NB_DeerWinteringAreas.Otherwise: Enter: yes= 1, no= 0.				
Concentration Areas	<u> </u>				
po co co	pecies of conservation concern apportant Bird Area BA) ack Duck Nesting rea intering Deer or coose	>2 km, or wetland lacks an inlet and outlet. In Google Earth, open the KMZ file that accompanies this calculator, called NB-PEL_GrowingDegreeDays. Place your cursor over the AA and left-click. From the pop-up, enter the GRIDCODE in the next column. According to agency biologists and/or your own observations, the AA. [Mark just the first choice that is true.]: Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. In NB, consult Figure A-2 in Appendix A of the Manual. Contact local fishery biologists, review the ACCDC report, and visit these websites: http://www.salmonatlas.com/atlanticsalmon/canada-east/index.1.html httn://atlanticsalmodeleration.ore/inversclintroduction. html 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. Is probably is not accessed by any anadromous fish species but is known or likely to have other fish at least seasonally. Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked). Within the past 10 years, in the AA (or in its adjoining waters or wetland), qualified observers have documented finark all applicable 1: Presence of one or more of the plant species listed in the Plants_Rare worksheet of the accompanying Supplinfo file, or the AA is within a mapped Atlantic Coastal Plain Flora Buffer Presence of one or more of the waterbird species (WBF, WBN) of conservation concern as listed in the Wildlife_Rare worksheet of the accompanying Supplinfo file. Presence of one or more of the waterbird species (WBF, WBN) of conservation concern as listed in the Wildlife_Rare worksheet of the accompanying Supplinfo file, during their nesting season (May-July for most species). None of the above, or no data. In Google Earth, open the KMZ file that accompanies this calculator, called BlackDuck. Adjust its	>2 km, or wetland lacks an inlet and outlet. In Google Earth, open the KMZ file that accompanies this calculator, called NB-PEL GrowingDegreeDays. Place your cursor over the AA and left-click. From the pop-up, enter the GRIDCODE in the next column. According to agency biologists and/or your own observations, the AA. [Mark just the first choice that is true.]: Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. In NB, consult Figure A-2 in Appendix A of the Manual. Contact local fishery biologists, review the ACCDC report, and visit these websites: http://www.salmonatlas.com/atlanticsalmon/canada-east/index.1.html http://latanticsalmonfedration.org/twes/introduction.html 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. Is probably is not accessed by any anadromous fish species but is known or likely to have other fish at least seasonally. Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked). Within the past 10 years, in the AA (or in its adjoining waters or wetland), qualified observers have documented finark all applicable]: Presence of one or more of the plant species listed in the Plants_Rare worksheet of the accompanying Supplindo file. 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 Supplindo file. Presence of one or more of the waterbird species (WBF, WBN) of conservation concern as listed in the Wildlife_Rare worksheet of the accompanying Supplindo file, during their nesting season (May-July for most species). None of the above, or no data. In Google Earth, open the KMZ file that accompanies this calculator, called BlackDuck. Adjust its alignment and officially designated lBA. Enter 1= yes, 0 = no.	2 km, or wetland lacks an inlet and outlet. In Google Earth, open the KMZ file that accompanies this calculator, called NB-PEI, Growing Degree Days. Place your to good the KMZ file that accompanies this calculator, called Black Duck. In Google Earth, open the KMZ file that accompanies this calculator, called Black Duck. Adjust Its alignment and are officially designated that care may not be worked on the Control of the accompanying Supplino file. Presence of one or more of the authoristic Supplino file.	2 km, or wetland lacks an inlet and outlet. Owning Degree In Google Earth, open the KAYE (life that accompanies this calculator, called Mis #1, Growing/DegreeDays, Place your autor over the AA and Infect (life, from the google), enter the GRUDCOM; in the next column. According to agency biologists and/or your own observations, the AA, Mork just the fast choice that is true; is the Name of the calculator, called Mis #1, Growing/DegreeDays, Place your autor over the AA and Infect (life, from the google), enter the GRUDCOM; in the next column. According to agency biologists and/or your own observations, the AA, Mork just the fast choice that is true; is the several to a property of the Manual. Contact Incat florely biologists, review the ACCD croport, and visit these workshes http://www.sainmonats.com/atanticsalmon or other anadromous species or cells. In NB, Consult in the accompany waters likely to contain Atlantic calmon or other anadromous species or cells and is probably accessed by those during some continuous. Is probably is not accessed by any anadromous fish species but is known or likely to have other fish at least species of within the past 10 years, in the AA (or in its agioning waters or wetland), qualified observers have documented instruction. The AA is within a magned Atlantic Castad Plain Fiora Suffer Presence of one or more of the entire and accessed by any anadromous species in the AA is within a magned Atlantic Castad Plain Fiora Suffer Presence of one or more of the earth of the accompanying Supplino file, during their nesting season (May-July for most species). None of the above, or no data. In Google Earth, open the KAZ (it that accompanies this scalculator, called Isbas, Canada. The AA is all or part of an officially designated IBA. Enter 1= yes, 0 in o. In Google Earth, open the KAZ (it that accompanies this scalculator, called Isbas, Canada. The AA is all or part of an officially designated IBA. Enter 1= yes, 0 in o. In Google Earth, open the KAZ (it that accompanies this scalculato

2 - 2 5				
OF33	Other Conservation	With GeoNB, click on Candidate PNA Map Viewer to identify Provincially Significant Wetland, Environmentally	0	[PU]
	Designation	Significant Area, Protected Natural Area but also include if 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. Enter: yes= 1, no= 0. If uncertain, consult NCC and agencies for more recent		
		information		
OF34	Conservation	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve,	0	[PU]
	Investment	create, restore, or enhance the wetland (excluding mitigation wetlands). Ask the property owner. Enter: yes= 1, no=		
		0. If no information, change to blank (not 0).		
OF35	Mitigation	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere. Ask the property owner. Enter:		[PU]
	Investment	yes= 1, no= 0. If no information, change to blank.		
OF36	Sustained Scientific	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and		[PU]
	Use	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 to blank		
OF37	Calcareous Region	The AA is in an area that is at least partly underlain by soil, sediment, or bedrock that is highly calcareous (enter 3 in	0	If GIS is available, you may use the Bedrock Geology shapefile obtainable at
		next column), moderately calcareous (enter 2), or slightly calcareous (enter 1), none= 0. Limestone is typically a		http://www.snb.ca/geonb1/e/DC/catalogue-E.asp [AM, FA, FR, INV, PH]
		major component (karst geology) and water is not acidic (pH is usually >8). See Figure A-6 in Appendix A of the		
		Manual. If no map coverage, change to blank.		
OF38	Ownership	Select the ONE ownership that covers the most of the AA. In Google Earth, open KMZ file called NB Crown lands.Use		"Private lands" may include those owned or leased by non-governmental
		more recent information if available.		organizations, e.g., charitable conservation land trusts, DUC, TNC. [PU, STR]
		New timber harvest, roads, mineral extraction, and intensive summer recreation (e.g., off-road vehicles) are	0	
		permanently prohibited. Includes many publicly-owned Protected Lands, and private lands under long-term (30+		
		vear) legal agreements to maintain nearly-unaltered conditions.		
		Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are	0	
		allowed.		
		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable	0	
		or not) is in place.		
		Ownership is private and owner does not allow access, or access permission unknown, and not a conservation	1	
		easement.		

te: J	uly 25, 2019	Site Identifier: Tapline WL 4	Investiga	ator: Derrick Mitchell		
care fere fere esti ay,	ds its core, in the product the assessment allowed and so in the land with the land on pertains, see the SFS= Stream Flowart, FA= Anadromou	Ion-tidal Wetland Data Form. WESP-AC version 2 for New Brunswick wetland part of the AA that is proposed for alteration. If no alteration is proposed, walk in a portion that appears to be nent only after reading the accompanying Manual and the Explanations column of the data form. In the Data condicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write downer or other knowledgable persons, and/or reviewing aerial imagery. For most wetlands, completing this fine accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the Support, WC= Water Cooling, SR= Sediment Retention & Stabilisation, PR= Phosphorus Retention, NR= Nitratius Fish Habitat, FR= Resident Fish Habitat, AM= Amphibian & Reptile Habitat, WBF= Feeding Waterbird Habitat Native Plant Habitat, PU= Public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= Stabilisation, PR= W	e most roolumn, ee in sha eeld data ne accor ee Remo t, WBN=	representative of the wetland overall. Walk only where it is safe and legal to do change the 0 (false) to a 1 (true) for the best choice, or for multiple choices aded parts of this data form. Answering some questions accurately may require a form will require 1-2 hours on a site. For a list of functions to which each mpanying Manual. Codes for functions and values are: WS= Water Storage & oval, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate = Nesting Waterbird Habitat, SBM= Songbird, Raptor, & Mammal Habitat, POL=		
	Indicators	Condition Choices	Data	Definitions/Explanations	Cell Name	Comments
4	Wetland Type	Follow the key below and mark the ONE row that best describes MOST of the vegetated part of the AA:	Julu	Ericaceous shrubs are ones in the heather family (Ericaceae). Most have leathery evergreen	CC.I Hallic	Comments
	21.7	 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. 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 rariflor a). Wetland surface and surrounding landscape are seldom sloping and wetland often is domed (convex). Inlet and outlet channels are usually absent. If known, pH of peat is <4.0. 	0	leaves. They include rhododendron, azalea, swamp laurel, leatherleaf, Labrador tea, and others. Most require acidic soil. Although not in the family Ericaceae, sweetgale (<i>Myrica gale</i>) should be counted also. [AM, CS, FA, FR, INV, NR, OE, PH, Sens, SFS, WBF, WBN]		
		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		Fen_	
		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:				
		B1. Trees and shrubs taller than 1 m comprise more than 25% of the vegetated cover. Surface water is mostly absent or	1			
		inundates the vegetation only seasonally (e.g., vernal pools or floodplain). 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		Marsh	
AA ecifi e. ī nm ess	. The AA should als ically, the AA should Throughout this data nade or natural) com	ns, the AA should include all persistent waters in ponds smaller than 8 hectares (~283 m on a side) that are adjacent to so include part of the water area of adjacent ponded water larger than 8 ha and adjacent rivers wider than 20 m. I include the open water part adjacent to wetland vegetation and equal in width to the average width of that vegetated in form, "adjacent" is used synonymously with abutting, adjoining, bordering, contiguous and means no upland inpletely separates the described features along their directly shared edge. Features joined only by a channel are not be adjacent a large portion of their edges must match. The features do not have to be hydrologically connected in order				
	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. A1.	0	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]		
		A2. B1.	1 0			
		B2.	0			
	Woody Height & Form Diversity	Following EACH row below, indicate with a number code the percentage of the living vegetation in the AA which is occupied by that feature (6 if >95%, 5 if 75-95%, 4 if 50-75%, 3 if 25-50%, 2 if 5-25%, 1 if <5%, 0 if none). If the vegetated part of the AA is largely herbaceous (non-woody) vegetation, these percentages should not sum to 100%. coniferous trees (may include tamarack) taller than 3 m.		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		

Ī			lou par apura i
	deciduous trees taller than 3 m.	3	PH, POL, SBM, Sens]
	coniferous or ericaceous shrubs or trees 1-3 m tall not directly below the canopy of trees.	1	
	deciduous shrubs or trees 1-3 m tall not directly below the canopy of trees.	2	
	coniferous or ericaceous shrubs <1 m tall not directly below the canopy of taller vegetation.	1	
	deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	1	
<u>lote</u> : If none of top 4 rows	s in F3 was marked 2 or greater, SKIP to F9 (N fixers).		
4 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]
Abundant Shrub	those species together comprise > 50% of such cover.	0	
Species	those species together do not comprise > 50% of such cover.	1	
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		Estimate the diameters at chest height. If small-diameter trees are overtopped (shaded) by
Classes	upland edge (perimeter). The edge should include only the trees whose canopies extend into the AA.		larger ones, visualise a "subcanopy" at the average height of the smaller-dbh trees, to serve
	coniferous, 1-9 cm diameter and >1 m tall.		as a basis for the minimum 5% canopy requirement in this question. The trees and shrubs
	broad-leaved deciduous 1-9 cm diameter and >1 m tall.	1	need not be wetland species. [AM, CS, POL, SBM, Sens, WBN]
	coniferous, 10-19 cm diameter.	1	
	broad-leaved deciduous 10-19 cm diameter.	1	
	coniferous, 20-40 cm diameter.	1	
	broad-leaved deciduous 20-40 cm diameter.	1	
	coniferous, >40 cm diameter.	0	
:	broad-leaved deciduous >40 cm diameter.	0	
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 <u>each</u> 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 scattered and intermixed throughout the AA.	0	
	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 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.	1	
	B2. Not B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is	0	
Large Snags (Dead	completely 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 one
Standing Trees)	None, or fewer than 8/ hectare which exceed this diameter.	0	that are at least 2 m tall. [POL, SBM, WBN]
otanding 11003)	Several (>8/hectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km.	1	
	Several (>8/hectare) but above not true.	0	
B Downed Wood	The number of downed wood pieces longer than 2 m and with diameter >10 cm, and not persistently submerged, is:	J	Exclude temporary "burn piles." [AM, INV, POL, SBM]
Downed Wood	Few or none that meet these criteria.	0	Exclude temporary barm piles. [Paris, 1144, 1 OE, ODIVI]
	Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria.	1	
N Fixers	The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa,	1	Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
IN LIXELS	other legumes) is:		DO NOL INGUAGE IN-IIXIII G AIGAG OI IIGIIGIIS. [FA, FK, INV, INKV, OE, FR, SDIVI, SCIIS]
	<1% or none.	0	
	1-25% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
	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).	1	
	>75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
O Sphagnum Moss	The cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured		Exclude moss growing on trees and rocks. [CS, PH]
Extent	by taller sedges and other plants rooted in it, is:		J. J
	<5% of the vegetated part of the AA.	0	
	5-25% of the vegetated part of the AA.	0	
	25-50% of the vegetated part of the AA.	0	
	50-95% of the vegetated part of the AA.	1	
	>95% of the vegetated part of the AA.	0	1

11 9	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		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that	П
		ground layer, the predominant condition in those areas at that time is:		is present under a tree or shrub canopy should be counted. Boulders count as bare ground.	`
l'		Little or no (<5%) bare ground is visible between erect stems or under canopy anywhere in the vegetated AA. Ground is	0	Wetlands with mineral soils and that are heavily shaded or are dominated by annual plant	
		extensively blanketed by dense thatch, moss, lichens, graminoids with great stem densities, or plants with ground-hugging		species tend to have more extensive areas that are bare during the early growing season.	
		foliage.		[AM, EC, INV, NR, OE, POL, PR, SBM, Sens]	
		Slightly bare ground (5-20% bare between plants) is visible in places, but those areas comprise less than 5% of the unflooded	1	•	
		parts of the AA.			
		Much bare ground (20-50% bare between plants) is visible in places, and those areas comprise more than 5% of the unflooded	0		
		parts of the AA.	-	4	
		Other conditions.	0		
		Not applicable. Surface water (either open or obscured by emergent plants) covers all of the AA all the time.	0		
12 (Fround Irregularity	Imagine the AA without any living vegetation. Excluding the portion of the AA that is always under water, the number of		The depressions may be of human or natural origin. [AM, EC, INV, NR, PH, POL, PR, SBM,	
		hummocks, small pits, raised mounds, animal burrows, ruts, gullies, natural levees, microdepressions, and other areas of peat or		SR, WS]	
		mineral soil that are raised or 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).	1		
		Intermediate.	0		
		Several (extensive micro-topography).	0	-	
2 .			U	IMA NID CDMI	
3	Ipland Inclusions	Within the AA, inclusions of upland are:		[AM, NR, SBM]	
		Few or none.	1		
		Intermediate (1 - 10% of vegetated part of the AA).	0	1	
		Many (e.g., wetland-upland "mosaic", >10% of the vegetated AA).	0		
14 5	oil 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		[CS, NR, OE, PH, PR, Sens, SFS, WS]	
		to check in at least 3 widely spaced locations, and use the soil texture key (in Appendix A of the Manual).]			
		Loamy: soils that may contain a little fine grit and do not make a "ribbon" longer than 2 cm when moistened, rolled, squeezed,	1		
		and extended between thumb and forefinger.	0		
		Fines: includes silt, clay, silt, soils that make a ribbon longer than 2 cm when moistened, rolled, squeezed, and extended	0		
		between thumb and forefinger. Deep Peat, to 40 cm depth or greater.	0	1	
		Shallow Peat or organic <40 cm deep.	0	-	
		<u> </u>	0	-	
		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		
15 5		During any 2 consecutive weeks of the growing season, the extent of mudflats, bare unshaded saturated areas not covered by		This addresses needs of many but not all migratory sandpipers, plovers, and related species.	\dashv
		thatch, and unshaded waters shallower than 6 cm is: [Include also any area that is adjacent to the AA.]		[WBF]	
ľ		None, or <100 sq. m.	1	[115.]	
		100-1000 sq. m.	0		
		1000 – 10,000 sq. m.	0	1	
		>10,000 sq. m.	0	1	
16 1			U	FAM MIDE MIDNI	-
		In aerial ("ducks eye") view, the maximum annual cover of herbaceous vegetation (all non-woody plants except moss) is:		[AM, WBF, WBN]	NI _N III. 22
'	egetated 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).	1		NoHerb(
		5-25% of the vegetated part of the AA.	0		
		25-50% of the vegetated part of the AA.	0	1	
		50-95% of the vegetated part of the AA.	0	1	
		>95% of the vegetated part of the AA.	0	1	
17 -		·	U	Forbo are flavoring plants. Do not include success and so a settled attended to the	_
' -	orb 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]	
		<5% of the herbaceous part of the AA.	0	inorsetans, or others that lack showy howers. [FOL]	
		5-25% of the herbaceous part of the AA.	0	4	
Ī		25-50% of the herbaceous part of the AA.	0		
		50-95% of the herbaceous part of the AA.	0		
		>95% of the herbaceous part of the AA.	0		AllForb(
		293 % of the herbaceous part of the AA.	•		
18 5	edge Cover	Sedges (Carex spp.) and cottongrass (Eriophorum spp.) occupy:		[CS]	
18 5	edge Cover	·	0	[CS]	

		50-95% of the vegetated area.	0		
		>95% of the vegetated area.	0		
9		Determine which two herbaceous species comprise the greatest portion of the herbaceous cover (excluding mosses and floating-		For this question, include ferns as well as graminoids and forbs. [EC, INV, PH, POL, Sens]	
	Abundant	leaved aquatic plants). Then choose one of the following:			
	Herbaceous 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.	0		
0.0	Invasive Plant Cover	How extensive is the cover of invasive plant species in the AA? For species, see Plants_invasive worksheet in the accompanying		[EC, PH, POL, Sens]	
		Supplnfo file.			
		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 woody).	0		
		invasive species comprise 5-20% of the herb cover (or woody cover, if the invasives are woody).	0		
		invasive species comprise 20-50% of the herb cover (or woody cover, if the invasives are woody).	0		
		invasive species comprise >50% of the herb cover (or woody cover, if the invasives are woody).	0		
1	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		If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an	1
	Upland Edge	invasive plant species is:		exotic species, assume the unidentified plant to also be exotic. If vegetation is so senesced	
		none of the upland edge (invasives apparently absent), or AA has no upland edge.	1	that exotic species cannot be identified, answer "none". [PH, STR]	
		some (but <5%) of the upland edge.	0]	
		5-50% of the upland edge.	0	1	
		most (>50%) of the upland edge.	0	1	
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	0	[WBF, WBN, WCv]	1
		width of the vegetated zone within the wetland. Enter "1" if true, "0" if false.		<u> </u>	
: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]	
24	% 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		1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m,	
	Surface Water	snowmelt or rainstorms), but which is still a wetland, is:		1000 m by 10 m, or similar. [AM, FA, FR, INV, NR, PH, PR, SBM, Sens, SRv, WBF, WBN, WC	
		<1% . In other words, all or nearly all of the AA is covered by water permanently or at least seasonally.	0].	
		1-25% of the AA, or <1% but >0.01 ha never contains surface water.	0		
		25-50% of the AA never contains surface water.	0		
		50-75% of the AA never contains surface water.	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	0		AllSat2
		ha in the 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	0		AllSat1
-	0/ 6 4 4 1/1	Connection).			-
25	% of AA with	Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during		If you are unable to determine the condition at the driest time of year, ask the land owner or	
		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		neighbors about it if possible. Indicators of persistence may include fish, some dragonflies,	
	Water	AA that still contains surface water is: None. The AA dries up completely (no water in channels either) or never has surface water during most years. SKIP to F27.	1	beaver, and muskrat. [AM, CS, FA, FR, INV, NR, POL, PR, SBM, WBF, WBN]	NoPers
		1-20% of the AA.	0		
		20-50% of the AA.	0	1	
		50-95% of the AA.	0	1	
		>95% of the AA. True for many fringe wetlands.		1	۸۱۱۱۸۱۵۲
00		, 5	0		AllWet
:6		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]	
		<5% of the water is shaded, or no surface water is present then.	0		
		5-25% of the water is shaded.	0		
		25-50% of the water is shaded.	0		
				1	I
		50-75% of the water is shaded.	0		
		50-75% of the water is shaded. >75% of the water is shaded.	0		
	% of AA that is	>75% of the water is shaded.		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident	1
27	% of AA that is Flooded Only		0	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	NoSea

1		20-50% of the AA.	1	multiplying by ∠ the banktul neight and visualising where that would intercept the land along the river. [CS, FA, INV, NR, OE, PH, SR, WBF, WBN, WS]	
		50-95% of the AA.	0	alle liver. [OO, 1 A, live, Nix, OE, 1 11, Oix, Wall , Wall, Wo]	
		>95% of the AA.	0		
	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,	
	,	<10 cm change (stable or nearly so).	1	INV, NR, OE, PH, PR, SR, WBN, WS]	
	<u> </u>	10 cm - 50 cm change.	0		
	<u> </u>	0.5 - 1 m change.	0		
	ļ	1-2 m change.	0		
	<u> </u>	>2 m change.	0	1	
the	AA plus adjacent pc	inded water smaller than 0.01 hectare (about 10m x 10m, or 1m x 100 m)? If so, enter "1" in column D and	0		TooSmall
KIP T	O F42 (Connection)				
29	Predominant Depth	During most of the time when surface water is present during the growing season, its depth, averaged over the entire inundated		If a boat is unavailable, estimate this by considering wetland size and local topography. Or if	1
	Class	part of the AA, is:		timing and safety allow, depths may be measured by drilling through winter ice. This question is	3
		<10 cm deep (but >0).	1	asking about the spatial median depth that occurs during most of that time, even if inundation	
		10 - 50 cm deep.	0	is only seasonal or temporary. If inundation in most but not all of the wetland is brief, the	
		0.5 - 1 m deep.	0	answer will be based on the depth of the most persistently inundated part of the wetland.	
		1 - 2 m deep.	0	Include surface water in channels and ditches as well as ponded areas. [CS, FA, FR, INV,	1
		>2 m deep. True for many fringe wetlands.	0	OE, PH, PR, Sens, SFS, SR, WBF, WBN, WC]	
30		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,	1
		One depth class that comprises >90% of the AA's inundated area (use the classes in the question above).	1	INV, WBF, WBN]	
	Proportions	One depth class that comprises 50-90% of the AA's inundated area.	0	,,	
ľ		Neither of above. There are 3 or more depth classes and none occupy >50%.	0	1	
4		,	U	Nearly all water do with a reference to be a corresponded water IAM CC INIV AID OF DD	4
		During most times when surface water is present, the percentage that is (1) ponded (stagnant, or flows so slowly that fine		Nearly all wetlands with surface water have some ponded water. [AM, CS, INV, NR, OE, PR,	
		sediment is not held in suspension) AND (2) is likely to be deeper than 0.5 m in some places, is: <5% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34.	0	Sens, SR, WBF, WBN, WC, WS]	NoPonde
ľ	1 10111119/	· · · · · · · · · · · · · · · · · · · ·	1		NoPonde
		5-30% of the water.	1		
	ļ	30-70% of the water.	0		
		70-95% of the water.	0		
		>95% of the water.	0		
	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.	OpenW
	0/ of Dondod Water				
	% of Ponded Water	In ducks-eye aerial view, the percentage of the ponded water that is open (lacking emergent vegetation during most of the growing season, and unhidden by a forest or shrub canopy) is:		[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	-
		In ducks-eye aerial view, the percentage of the ponded water that is open (lacking emergent vegetation during most of the growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	1	[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	NoOpenP
		growing season, and unhidden by a forest or shrub canopy) is:	1 0	[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	·
		growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	1 0 0	[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	
		growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).		[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	
		growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water.	0	[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	
	that is Open	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water.	0	[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	NoOpenP
ļ	that is Open	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water.	0 0 0		NoOpenP NoOpenP AllOpenPe
34	that is Open Width of Vegetated	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in the AA that	0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed.	NoOpenP
34	that is Open	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water.	0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	NoOpenP
34	that is Open Width of Vegetated	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area <u>in the AA</u> that separates adjoining uplands from open water within the AA is: <1 m.	0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed.	NoOpenP
34	that is Open Width of Vegetated	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in the AA that separates adjoining uplands from open water within the AA is: <1 m. 1 - 9 m.	0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	NoOpenP
34	that is Open Width of Vegetated	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in the AA that separates adjoining uplands from open water within the AA is: <1 m. 1 - 9 m. 10 - 29 m.	0 0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	NoOpenP
34	that is Open Width of Vegetated Zone within Wetland	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in the AA that separates adjoining uplands from open water within the AA is: <1 m. 1 - 9 m. 10 - 29 m. 30 - 49 m.	0 0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	NoOpenF
34	that is Open Width of Vegetated Zone within Wetland	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in the AA that separates adjoining uplands from open water within the AA is: <1 m. 1 - 9 m. 10 - 29 m. 30 - 49 m. 50 - 100 m.	0 0 0 0 0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	NoOpenP
34	that is Open Width of Vegetated Zone within Wetland	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in the AA that separates adjoining uplands from open water within the AA is: <1 m. 1 - 9 m. 10 - 29 m. 30 - 49 m.	0 0 0 0 0 0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	NoOpenF

I		<1% of the water edge.	0		Ī
		1-25% of the water edge.	0		
		25-50% of the water edge.	0		
		50-75% of the water edge.	0		
		>75% of the water edge.	0		
2C D			U		-
36 Ro	•	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	
		<1% of the emergent vegetation, or emergent vegetation is absent. SKIP to F38.	0	the water surface during most of the time water is present. [WBN]	NoRobustEm
		1-25% of the emergent vegetation.	0		NONODUSILIII
			_		
		25-75% of the emergent vegetation.	0		
		>75%, of the emergent vegetation.	0		4
	nergents & Open	During most of the part of the growing season when water is present, the spatial pattern of emergent vegetation within the water is mostly:		[AM, FA, FR, INV, NR, OE, PH, PR, SBM, SR, WBF, WBN]	
	ater	Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water.	0		
		Intermediate.	0		
		Clumped. More than 70% of such vegetation is in bands along the wetland perimeter or is clumped at one or a few sides of the surface water area.	0		
38 Pe		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	0		DeepPersis
Are	rea	weeks during the growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection).			
	· ·	During most of the growing season and in waters deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians		For this question, consider only the wood that is at or above the water surface. Estimates of	
Aq	quatic Cover	that is provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is:	0	underwater wood based only on observations from terrestrial viewpoints are unreliable so	
		Little or none.		should not be attempted. [AM, FA, FR, INV]	
		Intermediate.	0		
		Extensive.	0		4
0 Isc		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	0	[WBN]	
		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			
1 Flo		sufficiently large and dense to support a waterbird nest. At some time of the year, mats of algae and/or duckweed are likely to cover >50% of the AA's otherwise-unshaded water surface,	0	[EC, PR, WBF]	-
		or blanket >50% of the underwater substrate. If true, enter "1" in next column. If untrue or uncertain, enter "0".	Ü	[EG, 111, WBI]	
2 Ch	nannel Connection	The most persistent surface water connection (outlet channel or pipe, ditch, or overbank water exchange) between the AA and a		Consider the connection regardless of whether the surface water is frozen. The "downslope	
& (downslope stream network is: [Note: If the AA represents only part of a wetland, answer this according to whichever is the least		stream network" could consist of ditches, rivers, ponds, or lakes which eventually connect to	
		permanent surface connection: the one between the AA and the rest of the wetland, or the surface connection between the		the ocean. If this cannot be determined while visiting the AA, consult topographic maps	
		wetland and the downslope stream network.]	_	perhaps by viewing these online with Toporama	
		Persistent (surface water flows out for >9 months/year).	0	(http://atlas.nrcan.gc.ca/toporama/en/index.html) [CS, FA, FR, NR, OE, PR, Sens, SFS, SR,	
		Seasonal (surface water flows out for 14 days to 9 months/year, not necessarily consecutive).		WCv, WS]	
		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	0		OutNone1
		F47 (pH Measurement). No surface water flows out of the watend except possibly during extreme events (copes per 10 years). Or water flows only into a	1		Outnone
		No surface water flows out of the wetland except possibly during extreme events (<once 10="" <b="" a="" an="" ditch,="" flows="" into="" lacks="" lake="" only="" or="" or,="" outlet.="" per="" that="" water="" wetland,="" years).="">SKIP to F47 (pH Measurement).</once>	1		Outnone
43 Οι		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	┪
		Mostly passes through a pipe, culvert, narrowly breached dike, berm, beaver dam, or other partial obstruction (other than natural	0	snowmelt. [CS, NR, OE, PR, Sens, SR, STR, WS]	
		topography) 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		
		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	0		
		edge, which drain the wetland artificially, or water is pumped out of the AA.	_		
44 Tri		At least once annually, surface water from a tributary channel that is >100 m long moves into the AA. Or, surface water from a		If inlet tributaries cannot be searched for due to inaccessibility of part of the AA, follow	Inflows
	•	larger permanent water body adjacent to the AA spills into the AA. If it enters only via a pipe, that pipe must be fed by a mapped	0	suggestions in F42 above. [NRv, PH, PRv, SRv]	
		stream or lake further upslope. If no, SKIP to F47 (pH Measurement).			4
-	•	Based on lack of shade, water source characteristics, or actual temperature measurements, the inflow is likely to be warmer than	0	[WCv]	
Те	emperature	surface water in the AA during part of most years. Enter 1= yes, 0= no.			
46 Th	roughflow	During its travel through the AA at the time of peak annual flow, water arriving in channels: [select only the ONE encountered by		[FA, FR, INV, NR, OE, PR, SR, WS]	7
	·	most of the incoming water].			

Nother of above. Enert "1" The TDS (total dissolved solids) or conductivity of the AA's surface water is: (select the first frue row with information): Total Conductivity Total Citizent for reading in ppm or mg/L in the column to the right. If measured, or answer next row. I Neither of above Seaver Probability Beaver Probability Use of the AAD be beaver during the past 5 years is (select most applicable ONE): Evident from direct observation or presence of graved limbs, dams, tracks, dens, lodges, or extensive stands of water-killed toes and shrubs in vecelated areas near surface water. Unlikely based on known occurrence in the region and proximity to suitable hebital, which may include: (a) a persistent freshwater wetland, pond, or lake, or a perennal low or mid-gradient ("10%) channel, and (b) a corridor or multiple stands of hardwood trees and shrubs in vecelated areas near surface water. Unlikely beased shrown to be present within the AA, or if groundwater perinds during the year than periods when the wetland recharges the groundwater primary discharges to the wetland for longer periods during the year than periods when the wetland recharges the groundwater primary discharges to the wetland for longer periods during the year than periods when the wetland recharges the groundwater primary discharges to the wetland for longer periods during the year than periods when the wetland recharges the groundwater primary discharges to the wetland for longer periods during the year than periods when the wetland recharges the groundwater primary discharges to the wetland for longer periods during the year than periods when the wetland recharges the groundwater primary discharges to the wetland for longer periods during the year than periods when the wetland recharges the groundwater primary discharges to the wetland for longer periods during the year than periods when the wetland recharges the groundwater primary discharge water. In termal Gradient In termal Gradient In the gradient along most of the fibro p	ncised) channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond or lake. Bumps into herbaceous vegetation but mostly remains in fairly straight channels. Bumps into treat burks and/or shrub stems but mostly remains in fairly straight channels. Bumps into treat trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or braided). The pH in most of the AA's surface water: Was measured and its: [enter the reading in the column to the right.] Was not measured but strained and its: [enter the reading in the column to the right.] The DIS (cital dissalved solds) or conductivity off the AA's surface water is (select the first true row with information): Conductivity The TDS (cital dissalved solds) 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] Beaver Probability Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". 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 vertical, or included and seasones and shrubs in weedland areas near surface water. Coroundwater Strength of Evidence Seriogs are known to be present within the AA, or if groundwater reveals have been monitored, that has demonstrated that or or other evidence. Consult tipographic maps to detect breaks in slope described here. Rust groundwater primarily discharges to the wetland for longer periods during the year than periods when the wetland recharges the groundwater primarily discharges to the wetland for longer periods during the year than periods when the wetland recharges the groundwater primarily discharges to the wetland for longer periods during the year than periods when the wetland rechar	noise() channels that he've minimal contact with wedner's vegetation out mostly remains in fairly straight channels. Burgos into herbaceous vegetation but mostly remains in fairly straight channels. Burgos into tree trunks and/or shrub stems but mostly remains in fairly straight channels. 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Brayer in his herbaseous vegetation but mostly remains in farity straight charmelis. O	oclake. Bumps into herbaceous vegetation but mostly remains in fairly straight channels. Bumps into herbaceous vegetation and mostly spreads throughout, or is in widely meandering, multi-branched, or braided of indiancies. Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels. Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels. Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels. Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels. The pH in most of the AAS surface water: Was measured, and is: [enter the reading in the column to the right.] Was not measured, and is: [enter the reading in the column to the right.] Was not measured, and is: [enter the reading in the column to the right.] Neither of above. Enter "1". To S and/or The TDS (total dissolved solds) or conductivity off the AAS surface water is: (select the first true row with information): Dis is: [Enter the reading in ppm or mg/L in the column to the right, if measured, or answer next row.] Conductivity: [Enter the reading in ppsm or mg/L in the column to the right, if measured, or answer next row.] Conductivity: [Enter the reading in ppsm or mg/L in the column to the right, if measured, or answer next row.] Conductivity: [Enter the reading in ppsm or mg/L in the column to the right, if measured, or answer next row.] Conductivity: [Enter the reading in ppsm or mg/L in the column to the right, if measured, or answer next row.] Conductivity: [Enter the reading in ppsm or mg/L in the column to the right, if measured, or answer next row.] Conductivity: [Enter the reading in ppsm or mg/L in the column to the right, if measured, or answer next row.] Conductivity: [Enter the reading in ppsm or mg/L in the column to the right, if measured, or answer next row.] Conductivity: [Enter the reading in ppsm or mg/L in the column to the right, if measured in the region and proximity to suitable habitat, wh	or labe. Burgs into herbaceous vegetation but mostly remains in fairly streight channels. Burgs into herbaceous vegetation and mostly spreads throughout, or is in widely mendering, multi-branched, or braided distances. Burgs into tree trunks and/or shrub stems but mostly remains in fairly streight channels. Burgs into tree trunks and/or shrub stems but mostly remains in fairly streight channels. Burgs into tree trunks and/or shrub stems but mostly remains in fairly streight channels. Burgs into the trunks and/or shrub stems but mostly remains in fairly streight channels. Burgs into the trunks and/or shrub stems but mostly remains in fairly streight channels. Burgs into the trunks and/or shrub stems but mostly remains in fairly streight channels. Burgs into the ARS surface water: Was measured, and is: [calary the reading in the column to the right.] Was not measured but surface water is present and is a diskryl beacciourud. Or if no surface water, then mosses and plants that indicate pestinant or a clarify i				0	
Burngs into hetribaceous vegetation but mostly remains in fairly straight charmels. Burngs into treatecous vegetation and mostly spease and mostly present broughout, or is in widely menandering, multi-branched, or braided before the property of the prop	Bumps into herbaceous vegetation and mostly premains in fairly straight channels. Bumps into herbaceous vegetation and mostly spreads throughout, or is in widely meandering, multi-branched, or braided channels. Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels. Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels. Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels. Bumps into tree trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or braided). 7 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 peated (e.g., Labrador tea) are prevalent. Enter "1". 1 pH TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information): To Sis: [Enter the reading in ppm or mgt]. In the column to the right.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". 9 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, bdges, or extensive stands of water-killed residency, ond, or lake, or a perennial low or mid-gradent ("10%) channel, and (b) a corridor or multiple stands of hardwood trees and shrubs in vegetated has been a surface water. Unlikely beased on known occurrence in the region and proximity to suitable habitat, which may include: (a) a persistent freshwater wettend, pond, or lake, or a perennial low or mid-gradent ("10%) channel, and (b) a corridor or multiple stands of hardwood trees and shrubs in vegetated has ease near surface water. Unlikely beased on known occurrence in the region and proximity to su	Burgs into herbaceous vegetation but nosity remains in fairly straight channels. Burgs into the trunks and/or shrub stems but nosity remains in fairly straight channels. Burgs into tree trunks and/or shrub stems but nosity remains in fairly straight channels. Define the politic most of the AA by surface water. The pH in most of the AA by surface water is present and is definity ise-coloured. Or if no surface water, then mosses and plants that indicate state conductivity. The pH in most of the AA has a stope of 25%, or is very close to the base of a natural slope longer than 100 and much steeper than the saboe of the AA has a slope of 25%, or is very close to the sabe of a natural slope longer than 100 and much steeper than the specific uniforms our in or form or groundwater in flow to provide the sabe of a natural slope longer than 100 and much steeper than the specific uniforms or in or form or groundwater in flow that a slope of 25%, or is very close to the sabe of a natural slope longer than 100 and much steeper than the specific uniforms or in or street. Burgs into the trunks and/or structure in the reading in purple or marked provide water is present and is definity ise-coloured. Or if no surface water, then mosses and plants that indicate sale monetal part and indicate sale monetal part (1VIX) sharped and in the vertical part and indicate sale monetal part (1VIX)					
Burgas into herbaceous vegolation and mostly spreads throughout, or is in widely meandering, multi-branched, or braided sharmes. Burgas into tree trunks and/or shrub stems but mostly furnames in any straight channels. Burgas into tree trunks and/or shrub stems and follows a farly indirect path from entrance to exit (meandering, multi-branched, or	Bumps into herbaceous vegetation and mostly spreads throughout, or is in widely meandering, multi-branched, or braided channels. Bumps into tree trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or braided). 7 PH Measurement The PH in most of the AA's surface water and is fairly straight channels. Was measured, and is: [enter the reading in the column to the right.] Was not measured, and is: [enter the reading in the column to the right.] We not measured, and is: [enter the reading in the column to the right.] The TDS (total dissolved solids) or conductivity off the AA's surface water is: [select the first true row with information]: To Sa and/or Conductivity To Sis: [Enter the reading in ppm or mg/L in the column to the right.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". 9 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 vater-killed vertices (snasa). Likely based on known occurrence in the region and proximity to suitable habitat, which may include: (a) a persistent freshwater welfand, pond, or lake, or a persimal low or mid-gradient (15%) channel, and (b) a corridor or multiple stands of hardwood trees and shrubs in vascelated areas, near surface water is settled area or other area where beaver are noutnely lemoved. O Groundwater Strength of Evidence Select first applicable choice: O Groundwater Strength of Evidence Sender for the AB unless surface water in the AA, or in groundwater levels have been monitored, that has demonstrated that groundwater seeps may be most noticeable as orange discoloration in community and part where IAM, PA, CS, FA, FR, NY, NY, CS, EP, IP, RY, NY, CS, EP, IP, RY	Sumps into herbaceous vegetation and mostly spreads throughout, or is in widely meandering, multi-branched, or branched. Burns into tree trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or braided). The PH in most of the AN's surface water: Was measured and is: forth the radion in the origin. I measured that surface water is conditionable and incidence perfected as an expression in the column to the right. I measured that incidence perfected as an expression in the column to the right. I measure new forw. The radion is a fairly indirect perfect of above. Enter 1". B TDS and/or Conductivity The TDS (bold alsoshed as olisio) or conductivity off the AA's surface water is: (select the first true row with information): Conductivity Dis it: [Enter the reading in page or mgl. in the column to the right.] Was not measured. but plents that indicate saline conditions cover much of the vegetated AA. Enter 1". Dis it: [Enter the reading in page or mgl. in the column to the right.] Was not measured. but plents that indicate saline conditions cover much of the vegetated AA. Enter 1". Dis it: [Enter the reading in page or mgl. in the column to the right.] Was not measured. but plents that indicate saline conditions cover much of the vegetated AA. Enter 1". Dis it: [Enter the reading in page or mgl. in the column to the right.] Was not measured. but plents that indicate saline conditions cover much of the vegetated AA. Enter 1". Dis it: [Enter the reading in page or mgl. in the column to the right.] Was not measured. but plents that indicate saline conditions cover much of the vegetated AA. Enter 1". Dis it: [Enter the reading in page or mgl. in the column to the right.] Was not measured, but plents that indicate saline conditions cover much of the vegetated AA. Enter 1". Dis it: [Enter the reading in page or mgl. in the column to the right.] Was not measured, but plents that indicate saline conditions cover much of the vegetated AA. Enter 1".				0	1
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Slope of the AA, AND the pH of surface water, if known, is >5.5. Neither of above is true, although some groundwater may discharge to or flow through the AA. Or groundwater influx is unknown. 1		slope of the AA, AND the pH of surface water, if known, is >5.5. Neither of above is true, although some groundwater may discharge to or flow through the AA. Or groundwater influx is unknown.			5. Canada (1971)		SFS, WC, WS]
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Neither of above is true, although some groundwater may discharge to or flow through the AA. Or groundwater influx is unknown. Internal Gradient The gradient along most of the flow path within the AA is: This is not the same as the shoreline slope. It is the elevational difference between the AA's inlet and outlet, divided by the flow-distance between them and converted to percent. If available, use a 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		Neither of above is true, although some groundwater may discharge to or flow through the AA. Or groundwater influx is unknown.				0	
Internal Gradient The gradient along most of the flow path within the AA is: This is not the same as the shoreline slope. It is the elevational difference between the AA's inlet and outlet, divided by the flow-distance between them and converted to percent. If available, use a 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	Neither of above is true, although some groundwater may discharge to or flow through the AA. Or groundwater influx is unknown.				Slope of the AA. AND the pπ of surface water, if Khown, is >0.0. Neither of above is true, although some groundwater may discharge to or flow through the ΔΔ. Or groundwater influx is unknown.	1	
<2% or the AA has no surface water outlet (not even seasonally). 2-5%. available, use a 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	The later of above is true, antibugh some groundwater may also harge to or now through the 77%. Or groundwater innux is unknown.	1 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			interials. Si aboro is ado, alabough some groundwater may disonarge to or now allough the AA. Or groundwater limbx is anknown.	-	
<2% or the AA has no surface water outlet (not even seasonally). 2-5%. available, use a 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	1 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		51 Interna	nal 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
2-5%. available, use a 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		<2% or the AA has no surface water outlet (not even seasonally). Inlet and outlet, divided by the flow-distance between them and converted to percent. If				0	· ·
6-10% smartphones. If the wetland is large (longer than ~1 km), this may be estimated using Google	available use a disemptor to measure this Free disemptor one can be desirable to				, , , , , , , , , , , , , , , , , , , ,	1	available, use a clinometer to measure this. Free clinometer apps can be downloaded to
	2-5%	2-5% available, use a clinometer to measure this. Free clinometer apps can be downloaded to				0	smartphones. If the wetland is 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	smartphones. If the wetland is large (longer than ~1 km), this may be estimated using Google	smartphones. If the wetland is 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
Earth to determine the minimum and maximum elevation within the AA, then dividing by length					6-10%.	0	Earth to determine the minimum and maximum elevation within the AA, then dividing by length
		available, use a clinemator to measure this. Erea clinemator ages can be downloaded to				1	
Hearth to determine the minimum and maximum elevation within the ΔΔ then dividing by length	2-5/0.	2-070.				0	
	6-10%. smartphones. If the wetland is large (longer than ~1 km), this may be estimated using Google	smartphones. If the wetland is large (longer than ~1 km), this may be estimated using Google Farth to determine the minimum and maximum elevation within the AA, then dividing by length			>10%.	0	

3 T ype	e 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		[AM, FA, INV, NRv, PH, POL, SBM, STR, WBN]	1
Buff		(mark ONE):		hin, th, inv, the, the object of the object	
		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.	0		
54 Buff		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		[NRv, PRv, Sens, SRv]	
		area has a percent slope of:		-	
		<1% (flat almost no noticeable slope) or all the area within 30 m of the AA edge is other wetlands.	0		
		2-5%.	0		
		5-30%. >30%.	0		
E OI:				Do not include unturned trace as notantial den sites. IDOL CDMI	
55 Cliffs	·	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]	
6 New		Human actions within or adjacent to the AA have persistently expanded a naturally occurring wetland or created a wetland where		Determine this using historical aerial photography, old maps, soil maps, or permit files as	
		there previously was none (e.g., by excavation, impoundment):		available [CS, NR, OE, PH, Sens]	
		No.	1		
		Yes, and created or expanded 20 - 100 years ago.	0	1	
		Yes, and created or expanded 3-20 years ago.	0	1	
		Yes, and created or expanded within last 3 years.	0	1	
		Yes, but time of origin or expansion unknown.	0	1	
		Unknown if new or expanded within 20 years or not.	0		
57 Burr	,	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,	
		Burned within past 5 years.		PH, STR]	
		Burned 6-10 years ago.	0	1	
		Burned 11-30 years ago.	0		
.0 \		Burned >30 years ago, or no evidence of a burn and no data.	1	TOUL OTD WIDE 1	
58 Visil		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]	
		Solid lings, or public maintained trails that intersect, adjoin, or are within 100 m of the AA (select one) is:	1	1	
		25-50%.	0	1	
		>50%.	0	1	
59 Non		Assuming access permission was granted, select ALL statements that are true of the AA as it currently exists:		[PU, STR]	
		For an average person, walking is physically possible <u>in</u> (not just near) >5% of the AA during most of the growing season, e.g.,	1	j ´ ´	
	ential	free of deep water and dense shrub thickets.			
		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	0		
		arriving via contiguous waters. Within or near the AA, there is an interpretive center, trails with interpretive signs or brochures, and/or regular guided interpretive	0	1	
		tours	0		
30 Unv	visited Core Area	The percentage of the AA almost never visited by humans during an average growing season probably comprises: [Note: Only		[AM, FAv, FRv, PH, PU, SBM, STR, WBF, WBN]	
		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.1 <5% and no inhabited building is within 100 m of the AA.	0	1	
		<5% and inhabited building is within 100 m of the AA.	0	1	
		5-50% and no inhabited building is within 100 m of the AA.	0	1	
		5-50% and inhabited building is within 100 m of the AA.	0	1	
		50-95%, with or without inhabited building nearby.	0	1	
		>95% of the AA with or without inhabited building nearby.	1	1	
31 Fred	quently Visited	The part of the AA visited by humans almost daily for several weeks during an average growing season probably comprises:		[AM, PH, PU, SBM, STR, WBF, WBN]	
Area	-	[See note above.]		, , , , , , , , , , , , , , , , , , , ,	
		<5%. If F60 was answered ">95%" (mostly never visited), SKIP to F64 .	1		
		5-50%.	0]	
		50-95%.	0]	

		>95% of the AA.	0	7	1
F62	BMP - Soils	Boardwalks, paved trails, fences or other infrastructure and/or well-enforced regulations appear to effectively prevent visitors from walking on soil within nearly all of the AA when the soil is unfrozen. Enter "1" if true.	0	[PH, PU]	
F63	BMP - Wildlife Protection	Fences, observation blinds, platforms, paved trails, exclusion periods, and/or well-enforced prohibitions on motorised boats, off-leash pets, and off road vehicles appear to effectively exclude or divert visitors and their pets from the AA at critical times in order to minimize disturbance of wildlife (except during hunting seasons). Enter "1" if true.	0	[AM, PU, WBF, WBN]	
F64	Consumptive Uses	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select ALL that apply.		[FAv, FRv, WBFv]	
	(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	0		
	Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0		
		Waterfowl hunting.	0		
		Fishing.	0		
		Trapping of furbearers.	0		
		None of the above.	1		
F65	Domestic Wells	The closest wells or water bodies that currently provide drinking water are:		[NRv]	
		Within 0-100 m. of the AA.	0	7	
		100-500 m. away.	1		
		>500 m. away, or no information.	0	7	
F66	Calcareous Fen	The AA is, or is part of, a calcareous fen. See the Plants_Calcar worksheet in the accompanying SuppInfo file for list of plant indicators (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]	

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 necess longer times, more temporal homogeneity of flow or water levels) or more flashy (larger or more frequent spikes but over sho 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 A dam, dike, levee, weir, berm, or fill within or downgradient from the wetland that interferes with surface or subsurface Excavation within the wetland, e.g., dugout, artificial pond, dead-end ditch. Artificial drains or ditches in or near the wetland.	sarily their volume) to shift by hours, days, or weeks, becoming eith		
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 necesslonger times, more temporal homogeneity of flow or water levels) or more flashy (larger or more frequent spikes but over sho 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 A dam, dike, levee, weir, berm, or fill within or downgradient from the wetland that interferes with surface or subsurface Excavation within the wetland, e.g., dugout, artificial pond, dead-end ditch. Artificial drains or ditches in or near the wetland.			Da
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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 A dam, dike, levee, weir, berm, or fill within or downgradient from the wetland that interferes with surface or subsurface Excavation within the wetland, e.g., dugout, artificial pond, dead-end ditch. Artificial drains or ditches in or near the wetland.	rter times). [FA, FR, INV, PH, STR]		
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Excavation within the wetland, e.g., dugout, artificial pond, dead-end ditch. Artificial drains or ditches in or near the wetland.	•		
Artificial drains or ditches in or near the wetland.	flow in/out of the AA (e.g., road fill, wellpads, pipelines).		
Applicated decreasing and the property of the			
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 below, assign points. However, if you believe the checked its		any part of the AA, then leave the "0's" for the scores in the	
following rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or w			
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 expe			
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.	
		Stressor subscore	
Accelerated Inputs of Contaminants and/or Salts			
In the last column, place a check mark next to any item occurring in either the wetland or its CA that is likely to have acce	elerated the inputs of contaminants or salts to the AA. [AM, FA, PH	I, POL, STR]	
Stormwater or wastewater effluent (including failing septic systems), landfills, industrial facilities.			
interals a chemical wastes from milling, shouting ranges, show storage areas, oil gas extraction, other sources (download in ppri/default asp2land=En&b=R85A1846.1	nany locations from National Politicant Release inventory and view	Kinz overlay in Google Earth. https://www.ec.gc.ca/imp-	
Road salt. Spraying of pesticides, as applied to lawns, croplands, roadsides, or other areas in the CA.			
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 ite	ems did not cumulativaly expose the AA to significantly higher laws	ls of contaminants and/or salts than looks the "Ola" for the	
if any items were criecked above, then for each row of the table below, assign points. However, if you believe the criecked ite scores in the following rows. To estimate effects, contrast the current condition with the condition if the checked items never (io oi contaminanto anaroi sano, men reave me US TOI (ne	
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	Low density residential.	
Frequency & duration of input: Frequent and year-round.	way. 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.	
A proximity to main sources (actual or potential).	10 100 111 9.001.01.00.	Sum:	
		Stressor subscore	_
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 acce	elerated 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 below, assign points. However, if you believe the checked its		ents, 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 process.			
Severe (3 points) High density of unmaintained septic, some types of	Medium (2 points) Moderate density septic, cropland, secondary wastewater	Mild (1 point)	
Type of loading: industrial sources.	treatment plant.	Livestock, pets, low density residential.	
Frequency & duration of input: Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.	
AA proximity to main sources (actual or potential): 0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.	
		Sum: Stressor subscore:	_
Excessive Sediment Loading from Contributing Area		Stressor subscore	0
In the last column, place a check mark next to any item present in the CA that is likely to have elevated the load of waterborn	e or windhorne sediment reaching the wetland from its CA_IFA_FI	R INV PH SRv STRI	
Erosion from plowed fields, fill, timber harvest, dirt roads, vegetation clearing, fires.	o of windbonne dediment redefining the wedgind from its one. [171, 171	λ, πν, ττ, σιν, στη	
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. 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 la		ngor procent	
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 lassolids to the AA, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition we	vith the condition if the checked items never occurred or were no lo		
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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 lassolids to the AA, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition we severe (3 points) Erosion in CA: Extensive evidence, high intensity.*	with the condition if the checked items never occurred or were no lor Medium (2 points) Potentially (based on high-intensity* land use) or scattered evidence.	Mild (1 point) Potentially (based on low-intensity* land use) with little or no direct evidence.	
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 lassolids to the AA, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition we severe (3 points) Erosion in CA: Extensive evidence, high intensity.* Recentness of significant soil disturbance in the CA: Current & ongoing.	with the condition if the checked items never occurred or were no lor Medium (2 points) Potentially (based on high-intensity* land use) or scattered evidence. 1-12 months ago.	Mild (1 point) Potentially (based on low-intensity* land use) with little or no direct evidence. >1 yr ago.	
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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 solids to the AA, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition we serve (3 points) Extensive evidence, high intensity.* Extensive evidence, high intensity.* Recentness of significant soil disturbance in the CA: Current & ongoing. Duration of sediment inputs to the wetland: AA proximity to actual or potential sources: **high-intensity= extensive off-road vehicle use, plowing, grading, excavation, erosion with or without veg removal; low-interdisturbance of soil or sediment. Soil or Sediment Alteration Within the Assessment Area In the last column, place a check mark next to any item present in the wetland that is likely to have compacted, eroded, or otherstored (whichever is less), [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mountain bikes, especially during wetter periods. Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native plants). Fill or riprap, excluding small amounts of upland soils containing organic amendments (compost, etc.) or small amounts of the Excavation. Ditch cleaning or dredging in or adjacent to the wetland and sufficient to cause shore erosion or stir bottom sediments. Artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments. If any items were checked above, then for each row of the table below, assign points. However, if you believe the checked items were occurred or were no longer press series of significant soil alteration in wetland: Current & ongoing.	with the condition if the checked items never occurred or were no lost Medium (2 points) Potentially (based on high-intensity* land use) or scattered evidence. 1-12 months ago. Frequent but mostly seasonal. 15-100 m. Insity= veg removal only with little or no apparent erosion or extensive altered the wetland's soil. Consider only items occurring with the imported from another wetland. Insity= veg removal only with little or no apparent erosion or extensive altered the wetland's soil. Consider only items occurring with the imported from another wetland. Insity= veg removal only with little or no apparent erosion or extensive altered the wetland's soil. Consider only items occurring with the important of the	Mild (1 point) Potentially (based on low-intensity* land use) with little or no direct evidence. >1 yr ago. Infrequent & during high runoff events mainly. In more distant part of contributing area. Sum: Stressor subscore: ithin past 100 years or since wetland was created or then leave the "0's" for the scores in the following rows. To Mild (1 point) <5% of wetland and <5% of its upland edge (if any). >1 yr ago.	= 0

Assessment Area (AA) Results:

Wetland ID: WL-4 Naveco Transmission Line

Date: Sept 5, 2019

Observer: Derrick Mitchell

Latitude & Longitude (decimal degrees):

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)	6.80	Higher	5.39	Moderate	6.96	5.43
Stream Flow Support (SFS)	0.00	Lower	0.00	Lower	0.00	0.00
Water Cooling (WC)	7.05	Higher	0.00	Lower	4.70	0.00
Sediment Retention & Stabilisation (SR)	10.00	Higher	1.07	Lower	10.00	0.65
Phosphorus Retention (PR)	10.00	Higher	0.92	Lower	10.00	1.17
Nitrate Removal & Retention (NR)	10.00	Higher	7.19	Moderate	10.00	7.50
Carbon Sequestration (CS)	6.46	Higher			7.35	
Organic Nutrient Export (OE)	6.64	Higher			5.86	
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)	3.00	Moderate	3.59	Moderate	4.93	3.18
Amphibian & Turtle Habitat (AM)	4.00	Moderate	7.63	Higher	5.42	6.72
Waterbird Feeding Habitat (WBF)	4.90	Moderate	10.00	Higher	3.90	10.00
Waterbird Nesting Habitat (WBN)	4.09	Moderate	0.00	Lower	3.49	0.00
Songbird, Raptor, & Mammal Habitat (SBM)	7.54	Higher	10.00	Higher	6.25	10.00
Pollinator Habitat (POL)	9.88	Higher	0.00	Lower	7.95	0.00
Native Plant Habitat (PH)	6.87	Higher	5.46	Moderate	5.86	4.74
Public Use & Recognition (PU)			2.25	Lower		1.93
Wetland Sensitivity (Sens)			10.00	Higher		5.87
Wetland Ecological Condition (EC)			4.22	Moderate		6.67
Wetland Stressors (STR) (higher score means more stress)			1.69	Lower		2.88
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	6.80	Higher	5.39	Moderate	6.96	5.43
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	9.56	Higher	5.12	Moderate	9.67	5.30
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	5.61	Moderate	2.39	Moderate	4.86	2.12
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	3.75	Moderate	6.76	Higher	3.99	6.67
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	8.99	Higher	7.58	Higher	7.32	7.46
WETLAND CONDITION (EC)			4.22	Moderate		6.67
WETLAND RISK (average of Sensitivity & Stressors)			5.85	Higher		4.38

New Brunswick Reference Scores

9										
	Min	Max	Range	F_JenksLo	F_JenksHigh	Min	Max	Range	B_JenksLo	B_JenksHigh
	1.73	9.42	7.68	2.48	5.12	0.08	10.00	9.92	2.58	5.67
	0.00	5.33	5.33	2.92	6.56	0.00	5.83	5.83	2.08	6.16
	0.00	6.67	6.67	1.80	5.30	0.00	6.02	6.02	1.45	4.79
	3.16	10.00	6.84	1.76	5.26	0.00	6.07	6.07	3.75	7.95
	2.90	10.00	7.10	2.66	4.17	0.33	9.38	9.04	1.71	4.55
	3.83	10.00	6.17	2.27	4.36	1.11	10.00	8.89	2.50	7.19
	4.56	8.88	4.31	3.13	5.70					
	2.33	7.64	5.30	3.12	5.26					
	0.00	6.13	6.13	1.80	6.71	0.00	7.39	7.39	0.00	4.44
	0.00	5.95	5.95	1.40	6.29	0.00	7.09	7.09	0.00	4.48
	3.87	7.39	3.52	2.58	5.58	1.24	6.64	5.39	0.85	5.74
	3.30	8.58	5.28	3.30	6.25	2.09	8.16	6.06	2.27	6.30
	0.00	7.96	7.96	0.00	6.84	0.00	10.00	10.00	0.83	6.67
	0.00	8.54	8.54	1.95	5.42	0.00	10.00	10.00	0.00	6.67
	0.00	8.29	8.29	2.50	7.24	0.00	10.00	10.00	3.33	6.67
	0.00	8.05	8.05	0.00	7.81	0.00	10.00	10.00	0.00	6.67
	3.08	7.12	4.03	3.96	5.98	0.00	8.68	8.68	0.00	6.33
						0.33	7.44	7.11	2.40	5.51
						2.20	5.20	2.99	2.88	5.30
						4.24	10.00	5.76	3.25	6.39
						2.26	5.93	3.67	2.15	4.97
				2.48	5.12				2.58	5.67
				3.07	5.39				4.15	7.64
				3.82	6.04				1.34	4.99
				2.41	6.22				3.15	6.29
				4.68	7.60				0.00	5.33
									3.25	6.39
									2.71	4.33

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 the 98 NB calibration wetlands that were assessed previously.

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	Tapline WL 5
Investigator Name:	Derrick Mitchell
Date of Field Assessment:	July 25, 2019
Nearest Town:	Grand Anse, NB
Latitude (decimal degrees):	47.798647°
Longitude (decimal degrees):	-65.106304°
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	18 ha (linear corridor)
AA as percent of entire wetland (approx.). Attach sketch map if AA is smaller than the entire contiguous wetland.	70
What percent (approx.) of the wetland were you able to visit?	70
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):	

Date: July 25, 2019	Site Identifier: Tapline WL 5	Investigator: Derrick Mitchell

Form OF (Office). Non-tidal Wetland Data Form. WESP-AC version 2 for New Brunswick 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

GeoNB: http://www.snb.ca/geonb1/ and http://www.snb.ca/geonb1/e/apps/apps-E.asp

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

#	Indicators	Condition Choices	Data	Definitions/Explanations	Cell Name	Comments
1	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		
		New Brunswick		automatic exclusion of indicators for which no spatial data exists in a particular	NB	
		Nova Scotia	0	province. NS		
		Prince Edward Island	0		PEI	
		Newfoundland-Labrador	0		NL	
2		The area of surface wate r 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		
		<0.01 hectare (about 10 m x 10 m).	0	vegetation. If surface water extends beyond 1 km, include only the part within 1 km.		
		0.01 - 0.1 hectare.	0	Do not include tidal areas. Measure the area from aerial imagery using Google Earth		
		0.1 - 1 hectare.	0	Pro (click on Ruler icon in toolbar, then Polygon in pop-up menu). With the GeoNB		
		1 to 10 hectares.	1	viewer, enable the Wetlands layer, then measure with the Draw & Measure tool after		
		10 to 100 hectares.	0	specifying Aerial as the Basemap. However, do not rely entirely on wetland		
		>100 hectares.	0	boundaries shown in online wetlands layers. [PH, SBM, WBN]		
-3		The area of wetlands and surface water ponded during most of the growing season that is both (1) in or adjacent to	·	See definition of adjacent in OF2. If the AA's wetland vegetation extends beyond 1		
		the AA and (2) within 1 km is: <0.01 hectare (about 10 m x 10 m).	0	km, include only the part within 1 km. "Ponded" means not flowing in rivers or		
		0.01 - 0.1 hectare (about 10 m x 10 m).	0	streams. [Sens, WBF]		
		0.01 - 0.1 hectare.	0			
			0			
		1 to 10 hectares.	1			
		10 to 100 hectares.	0			
- 4	C'a a filancat	v100 hectares.		See definition of adjacent in OF2. Use Google Earth Pro's polygon ruler (as described		
4	•	The largest vegetated patch or corridor that includes the AA's vegetation plus all adjacent upland vegetation that is not lawn, row crops, heavily grazed lands, conifer plantation is:		above). Exclude conifer plantations only if it is obvious that trees were planted in		
	Tract or Corridor	<0.01 hectare (about 10 m x 10 m).	0	rows. [AM, PH, SBM, Sens]		
		0.01 - 0.1 hectare.	0			
		0.1 - 1 hectare.	0	1		
		1 to 10 hectares.				
		10 to 100 hectares.	0			
		100 to 1000 hectares.	0			
		>1000 to 1000 Nectares. >1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	1	į l		
F5		The minimum distance from the edge of the AA to the edge of the closest vegetated land (but excluding row crops,		To measure distance, use Google Earth Pro (Ruler > Line tool). Or use Draw &		
	Vegetated Tract	lawn, conifer plantation) larger than 375 hectares (about 2 km on a side), is:		Measure tool at GeoNB. The 375-ha criterion is from the Fundy Model Forest Project.		

4	•					•	
J		<50 m, and not separated from the 375-ha vegetated area by any width of paved roads, stretches of open water,	1	[AM, PH, POL, SBM, Sens]	1	1	1
J		row crops, bare ground, lawn, or impervious surface. Or the AA itself contains >375 ha of vegetation. [This is often		<u> </u>	1	1	1
J	,	the answer in relatively undeveloped landscapes.]		4	1	1	1
J		<50 m, but completely separated from the 375-ha vegetated area by those features, and AA does not contain >375	0	1	1	1	1
J		ha of vegetation.	0	4	1	1	1
J		50-500 m, and not separated.	<u> </u>	<u></u>	1	1	1
J	I I-	50-500 m, but separated by those features.	0 '	_l	1	1	1
J	I L	0.5 - 5 km, and not separated.	0 '	1	1	1	1
J	,	0.5 - 5 km, but separated by those features.	0	1	1	1	1
J	4	None of the above (the closest patches or corridors which are that large are >5 km away).	0	1	1	1	1
)F6		The AA's vegetation cover is >10% herbaceous* but uplands within 5 km have <10% herbaceous cover. If so, enter	1	For this question only, consider moss to be herbaceous vegetation. Determine the			1
		"3" and continue to OF7. If not, consider:		score by viewing aerial imagery in Google Earth after successively drawing or	1	1	1
J	· ·	The AA's vegetation cover is >10% herbaceous* but uplands within 1 km have <10% herbaceous cover. If so enter "2"		estimating the boundaries of the buffers of 5 km, 1 km, and 100 m radius focused on	1	1	1
J		and continue to OF7. If not, consider:		the center of the AA. Circles of specified radius can be drawn in Google Earth Pro by		1	1
J		The AA's vegetation cover is >10% herbaceous* but uplands within 100 m of the wetland edge have <10%		clicking on the Ruler icon, then Circle in the pop-up menu. [AMv, PHv, POLv, SBMv,	1	1	1
J		herbaceous cover. If so, enter "1".		WBFv, WBNv]	1	1	1
J	4	[* NOTE: Exclude lawns, row crops, heavily grazed lands, forest, shrublands. Include moss as well as grasslike plants		J. Well V, Well V,	1	1	1
J	,	in this use of "herbaceous vegetation"]		<u> </u>	1	1	1
البيية					 '	4	4
OF7		The AA's vegetation cover is >10% woody* but uplands within 5 km have <10% woody cover. If so, enter "3" and		See above. Do not consider conifer plantations to be forest if it is obvious that trees	1	1	1
J		continue to OF8. If not, consider:	1	were planted in rows. [AMv, PHv, POLv, SBMv]	1	1	1
J		The AA's vegetation is >10% woody* but uplands within 1 km have <10% woody cover. If so enter "2" and continue	1	,	1	1	1
J		to OF8. If not, consider:	1 '	1	1	1	1
J		The AA's vegetation is >10% woody* but uplands within 100 m of the wetland edge have <10% woody cover. If so,	1 '	1	1	1	1
J	4	enter "1"	1 '	1	1	1	1
, J	,	[* NOTE: woody cover = trees & shrubs taller than 1 m.]	1 '	1	1	1	1
OF8	Local Vegetated	Draw a 5-km radius circle measured from the center of the AA. Ignoring all permanent water in the circle, the		In Google Earth, draw the 5 km buffer and then estimate land cover percentages, or			1
	_	percent of the remaining area that is wooded or unmanaged herbaceous vegetation (NOT lawn, row crops, bare or		do GIS analysis of an appropriate land cover layer. [AM, PH, POL, SBM, Sens]	1	1	1
, J	_	heavily grazed land, clearcuts, or conifer plantations) is:			1	1	1
, J		<5% of the land.	0	1	1	1	1
, J	4	5 to 20% of the land.	0	1	1	1	1
, ,	-	20 to 60% of the land.	0	1	1	1	1
, J	I	60 to 90% of the land.	1	📶	1	1	1
, J		>90% of the land. SKIP to OF10.	0	4	1	1	1
OF9		Within the 5-km radius circle, and ignoring all permanent water, the land area that is bare or non-perennial cover is	<u> </u>	[AM, SBM]		1	1
				[AM, SBM]	1	1	1
, y		mostly: Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0	4	1	1	1
, J		Bare pervious surface, e.g., lawn, recent (<5 yrs ago) clearcut, dirt or gravel road, cropland, landslide, conifer	1	<u></u>	1	1	1
, ,				⊿	1	1	1
OF10		plantation. 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-			1
	1	<100 m.	0	inhabited structures per square kilometer. In Google Earth, click on the Ruler icon,	1	1	1
			1 0	then Path, and draw and measure the route. Or use the GeoNB's Draw & Measure	1	1	1
, J		100 - 500 m.	1 0	tool> Freehand Line to draw and measure the route to Settlements (click on Place	1	1	1
, J		0.5- 1 km.		Names in menu) or other areas not close to mapped settlements but which meet the	1	1	1
, J	-	1 - 5 km.	1 7	riteria.[FAv, FRv, NRv, PH, PU, SBM, WBFv]	1 '	1	1
البيا		>5 km.	1 0		4'	4	4
		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 and measuring with the	1	1	1
, <i>J</i> '	I -	<10 m.	-	Ruler>Line tool. Or use the GeoNB's Draw Line tool. [AM, FAv, FRv, NRv, PH, PU,	1	1	1
, ,	4	10 - 25 m.	0	SBM, STR, WBN]	1	1	1
, ,	,	25 - 50 m.	1	⊿	1	1	1
, J	4	50 - 100 m.	0	1	1	1	1
, ,	I	100 - 500 m.	0	1	1	1 7	1
. =	-	100 - 300 m.			4	1	4

		>500 m.	0]	
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	In NB, enable the Wetlands layer in GeoNB (despite its omissions) to show surrounding wetlands and roads, while estimating the location of the 5 km circle (or draw the 5 km circle in Google Earth Pro using the Circle tool and compare). Evaluate using Google Earth, being cautious to search for roads hidden under forest canopy.	
OF13	Distance to Ponded Water	The distance from the AA center to the closest (but separate) ponded water body visible in GoogleEarth imagery is:		In Google Earth, zoom in closely to examine the surrounding landscape for ponds, lakes, and wetlands that appear to be permanently flooded. Enable the GeoNB	
	· · · · · · · · · · · · · · · · · · ·	<50 m, and not separated by any width of paved roads, stretches of open water, row crops, lawn, bare ground, or impervious surface.	0	viewer's Wetlands layer as well. [AM, PH, SBM, Sens, WBF, WBN]	
		<50 m, but completely separated by those features.	0		
		50-500 m, and not separated.	0		
		50-500 m, but separated by those features.	0		
		0.5 - 1 km, and not separated.	1		
		0.5 - 1 km, but separated by those features.	0		
		None of the above (the closest patches or corridors that large are >1 km away).	0		
OF14	Distance to Large	The distance from the AA center to the closest (but separate) non-tidal body of water that is ponded during most of		Determine this by viewing aerial imagery in Google Earth. [Sens, WBF, WBN]	
	Ponded Water	the year and is larger than 8 hectares during most of a normal year is:			
		<100 m.	0		
		100 m - 1 km.	0		
		1 -2 km.	0		
		2-5 km.	0		
		5-10 km.	0		
		>10 km.	1		
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	
		<100 m.	0	river, whichever is closer. If you need to see how far upriver a river is tidal, see the	
		100 m - 1 km.	1	KMZ file provided with this calculator for NB (NB Headtide). Points shown in those	
		1 - 5 km.	0	files are only an approximation, so local information if available may be preferable.	
		5-10 km.	0	[FA, WBF]	
		10-40 km.	0	1	
		>40 km.	0	1	
OF16	Upland Edge Contact			[NR, SBM, Sens]	
01 10	-	The AA has no upland edge (or upland is <1% of perimeter). The AA is entirely surrounded by (& contiguous with)	0	[1.11, 55.11, 56.15]	
		other wetlands or water.	U		
		1-25% of the AA's perimeter abuts upland (including filled areas). The rest adjoins other wetlands or water that is	0	1	
		mostly wider than the AA.			
		25-50% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0		
		50-75% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0		
		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		
OF17	Flood Damage from	Within 5 km downstream or downslope of the AA (select first true choice):		In the GeoNB map viewer: click on "More" in upper right, then "Flood Information".	
	Non-tidal Waters	Maps show Flood Zone or Flood Risk areas and there appears to be infrastructure vulnerable to river flooding not	n	Expand the menu under it by clicking on the arrow to its left and the slider to its	
		caused by tidal storm surges.		right. Uncheck the first (Limits of Data) box. Where available, LiDAR imagery can	
		Maps show Flood Zone or Flood Risk areas, but infrastructure is absent or is not vulnerable to floods from a non-tidal	0	provide finer elevational resolution useful for flood modeling. [WSv]	
		river. In some cases levees, upriver dams, or other measures may partly limit damage or risk from smaller events.			
		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure vulnerable to river flooding unrelated to tidal storm surges.	0]	
		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there is no	1	j l	
		infrastructure vulnerable to river flooding unrelated to tidal storm surges.			

OE10	Relative Elevation in	In Google Earth, enable the Terrain layer (lower left menu) and open the NB Watersheds KMZ file that accompanies		[FA, NR, Sens, SFSv, WCv, WSv]	ShedPos	
				[FA, NR, Sens, SFSV, WCV, WSV]	Shearos	
	Watershed	this calculator. Then determine the AA's approximate elevation (bottom right, NOT the "eye alt"). Then move cursor	2.50			
		around to determine the watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-min)				
OF19	Water Quality	In Google Earth, open the KMZ file NB Watershed Protected Area which accompanies this calculator. The AA is	0	If an ACCDC report is available for this AA, it also may contain such information.		
	•	within such an area. Enter 1= yes, 0= no.		[NRv]		
	or Area					
	Degraded Water	Sampling indicates a problem with concentrations of metals, hydrocarbons, nutrients, or other substances		May use existing data, or sample those waters as part of this wetland assessment.		
	Upstream	(excluding bacteria, acidic water, high temperatures) being present at levels harmful to aquatic life or humans, and:		"Harmful" should be evaluated with regard to current federal or provincial water		
	-	(quality standards. [AM, FA, FR, NRv, PRv, SRv, STR, WBF, WBN]		
		The condition is present within the AA.	0			
		The condition is present in waters within 1 km that flow into the AA, but has not been documented in the AA itself.	0	1		
		, , , , , , , , , , , , , , , , , , , ,				
		Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in	0			
		either the AA or inflowing waters.				
		Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the	1			
		situation for nearly all wetlands in this region.				
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,		
	Downstream	The condition is present within 1 km downslope and connected to the AA by a channel.	0	PRv, SRv]		
		The condition is present within 5 km downslope and connected to the AA by a channel, or within 1 km but not	0	1		
		connected to the AA by a channel.			1	
		Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in	0			
		either the AA or inflowing waters.				
		Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the	1			
		situation for nearly 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		Topographic maps may be viewed online at the National Atlas of Canada		
	Contributing Area	entire wetland of which the AA may be only a part. Then adjust those boundaries if necessary based on your field		(Toporama): http://atlas.gc.ca/toporama/en/index.html [NR, PR, Sens, SR,		
	(Catchment)	observations of the surrounding terrain, and/or by using procedures described in the Manual. Divide the area of the		WS]		
		wetland (not just the AA) by the approximate area of its catchment excluding the area of the wetland itself. When				
		doing the calculation, if ponded water is adjacent to the wetland, include that in the wetland's area. The result is:				
		<0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	0			
		0.01 to 0.1.	1			
		0.1 to 1.	0			
			0	1		
		>1 (wetland is larger than its catchment (e.g., wetland with flat surrounding terrain and no inlet, or is entirely	U			
UE33	Unvegetated Curface	isolated by dikes, or is a raised bog). The proportion of the AA's contributing area (measured to no more than 1000 m upslope) that is comprised of		[FA, INV, NRv, PRv, SRv, STR, WCv, WSv]	+	
	_	buildings, roads, parking lots, other pavement, exposed bedrock, landslides, and other mostly-bare surface is about :		[I M, INV, INV, FRV, SRV, SIR, VVCV, VVSV]		
	_	buildings, roads, parking lots, other pavernent, exposed bedrock, landslides, and other mostly-bare surface is about :				
	Area	<10%.	1	1		
		10 to 25%.	0	1		
		>25%.	0	1		
0504	T F		U	IND. DD. CD. MC.1	+	
	Transport From	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as		[NRv, PRv, SRv, WSv]		
	Upslope	runoff (surface water), as indicated by the following:				
		(a) input channel is present,				
		(b) input channels have been straightened,				
		(c) upslope wetlands have been ditched extensively,			1	
		(d) land cover is mostly non-forest,			1	
		(e) CA slopes are steep, and/or				
		(f) most CA soils are shallow (bedrock near surface) and/or have high runoff coefficients.				
		Mostly true.	1			
		Somewhat true.	0	1	1	
, .				<u>J</u>	1	

		Mostly untrue.	0]		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]		
		Northward (N, NE). north-facing contributing area.	0	1		
		Southward (S, SW). south-facing contributing area.	1			
		Other (E, SE, W, NW), or no detectable uphill slope or input channel (flat).	0			
OF26	Internal Flow	The horizontal flow distance from the wetland's inlet to outlet is:		Identify inlets and outlets, if any, from topographic maps (use elevations to		
	Distance (Path	<10 m.	0	determine which are inlets and which are outlets) and augment by field inspection.		
	Length)	10 - 50 m.	0	[NR, OE, PR, SR, WS]		
		50 - 100 m.	0	1		
		100 - 1000 m.	1			
		1- 2 km.	0			
		>2 km, or wetland lacks an inlet and outlet.	0	1		
OF27	Growing Degree	In Google Earth, open the KMZ file that accompanies this calculator, called NB-PEI_GrowingDegreeDays. Place your	1500	This layer was provided by Dr. Dan McKenney of the Canadian Forest Service [AM,	GrowD	
		cursor over the AA and left-click. From the pop-up, enter the GRIDCODE in the next column.	1300	CS, FR, INV, NR, OE, PH, PR, Sens, SR, WBF, WCv, WS]		
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		
		Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. In NB, consult	0	waters have been stocked. In NB, the list of stocked waters is at:		
		Figure A-2 in Appendix A of the Manual. Contact local fishery biologists, review the ACCDC report, and visit these	U	http://www2.gnb.ca/content/gnb/en/departments/erd/natural_resources/content/fish/content/StockedWaters.html		
		websites: http://www.salmonatlas.com/atlanticsalmon/canada-east/index.1.html		[AM, FA, FR, INV, WBF, WBN]		
		http://atlanticsalmonfederation.org/rivers/introduction.html				
		Has not been documented to support Atlantic salmon rearing and/or spawning, but is connected to nearby waters	0			
		likely to contain Atlantic salmon or other anadromous species or eels and is probably accessed by those during some				
		conditions. Is probably is not accessed by any anadromous fish species but is known or likely to have other fish at least	0	1		
		seasonally.				
		Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	1			
	· ·	Within the past 10 years, in the AA (or in its adjoining waters or wetland), qualified observers have documented		Request information from ACCDC and/or conduct your own survey at an appropriate		
	Conservation	[mark all applicable]: Presence of one or more of the plant species listed in the Plants_Rare worksheet of the accompanying SuppInfo file,	0	season using an approved protocol. For birds, also check eBird.org. [AMv, EC, PHv,		
	Concern	or the AA is within a mapped Atlantic Coastal Plain Flora Buffer	U	POLv, SBMv, Sens, WBFv, WBNv]		
		Presence of one or more of the amphibian or reptile species (AM) of conservation concern as listed in the	0	1		
		Wildlife Rare worksheet of the accompanying Supplnfo file.				
		Presence of one or more of the waterbird species (WBF, WBN) of conservation concern as listed in the Wildlife_Rare	0			
		worksheet of the accompanying SuppInfo file. Presence of one or more of the nesting songbird or raptor species (SBM) of conservation concern as listed in the	0	-		
		Wildlife Rare worksheet of the accompanying Suppling of Taptor species (Salvi) of conservation concern as listed in the Wildlife Rare worksheet of the accompanying Suppling file, during their nesting season (May-July for most species).	U			
		what it is a companying suppline the, during their nesting season (way-sary for most species).				
		None of the above, or no data.	1			
	·	In Google Earth, open the KMZ file that accompanies this calculator, called IBAs_Canada. The AA is all or part of an	0	The source of this layer, which should be checked periodically for updates, is:		
	(IBA)	officially designated IBA. Enter 1= yes, 0= no.		http://www.ibacanada.com/mapviewer.jsp?lang=EN [SBMv, WBFv, WBNv]		
OF31	Black Duck Nesting	In Google Earth, open the KMZ file that accompanies this calculator, called BlackDuck. Adjust its alignment and	0	This was provided by Dr. David Leske. [WBNv]		
	•	opacity. Determine the predicted density (pairs per 25 sq. km) of nesting American Black Duck in the AA's vicinity:	-			
		<10 (enter 0), 10-20 (enter 1), 20-30 (enter 2), >30 (enter 3). If outside of region shown in map, change to blank .				
OF32	Wintering Deer or	If AA is on private land with no information, change to blank (not 0). If on public/crown land, in Google Earth open		[SBM]		
	Moose	the KMZ file that accompanies this report called NB_DeerWinteringAreas.Otherwise: Enter: yes= 1, no= 0.				
	Concentration Areas					

2 - 2 5				
OF33	Other Conservation	With GeoNB, click on Candidate PNA Map Viewer to identify Provincially Significant Wetland, Environmentally	0	[PU]
	Designation	Significant Area, Protected Natural Area but also include if 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. Enter: yes= 1, no= 0. If uncertain, consult NCC and agencies for more recent		
		information		
OF34	Conservation	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve,	0	[PU]
	Investment	create, restore, or enhance the wetland (excluding mitigation wetlands). Ask the property owner. Enter: yes= 1, no=		
		0. If no information, change to blank (not 0).		
OF35	Mitigation	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere. Ask the property owner. Enter:		[PU]
	Investment	yes= 1, no= 0. If no information, change to blank.		
OF36	Sustained Scientific	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and		[PU]
	Use	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 to blank		
OF37	Calcareous Region	The AA is in an area that is at least partly underlain by soil, sediment, or bedrock that is highly calcareous (enter 3 in	0	If GIS is available, you may use the Bedrock Geology shapefile obtainable at
		next column), moderately calcareous (enter 2), or slightly calcareous (enter 1), none= 0. Limestone is typically a		http://www.snb.ca/geonb1/e/DC/catalogue-E.asp [AM, FA, FR, INV, PH]
		major component (karst geology) and water is not acidic (pH is usually >8). See Figure A-6 in Appendix A of the		
		Manual. If no map coverage, change to blank.		
OF38	Ownership	Select the ONE ownership that covers the most of the AA. In Google Earth, open KMZ file called NB Crown lands.Use		"Private lands" may include those owned or leased by non-governmental
		more recent information if available.		organizations, e.g., charitable conservation land trusts, DUC, TNC. [PU, STR]
		New timber harvest, roads, mineral extraction, and intensive summer recreation (e.g., off-road vehicles) are	0	
		permanently prohibited. Includes many publicly-owned Protected Lands, and private lands under long-term (30+		
		vear) legal agreements to maintain nearly-unaltered conditions.		
		Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are	0	
		allowed.		
		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable	0	
		or not) is in place.		
		Ownership is private and owner does not allow access, or access permission unknown, and not a conservation	1	
		easement.		

te: July 25, 2019	Site Identifier: Tapline WL 5	Investiga	tor: Derrick Mitchell		
vards its core, in the Conduct the assession and so in ferring with the land stream stream Flood and Flood at the conduct of t	Non-tidal Wetland Data Form. WESP-AC version 2 for New Brunswick wetland a part of the AA that is proposed for alteration. If no alteration is proposed, walk in a portion that appears to be ment only after reading the accompanying Manual and the Explanations column of the data form. In the Data of indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write downer or other knowledgable persons, and/or reviewing aerial imagery. For most wetlands, completing this fit the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the Wespport, WC= Water Cooling, SR= Sediment Retention & Stabilisation, PR= Phosphorus Retention, NR= Nitrations Fish Habitat, FR= Resident Fish Habitat, AM= Amphibian & Reptile Habitat, WBF= Feeding Waterbird Habitat, Native Plant Habitat, PU= Public Use & Recognition, EC= Ecological Condition, Sen= Wetland Sensitivity, STR= Sentiment Retention, NE= Ecological Condition, Sen= Wetland Sensitivity, STR= Sentiment Retention, NE= Ecological Condition, Sen= Wetland Sensitivity, STR= Sentiment Retention, NE= Ecological Condition, Sen= Wetland Sensitivity, STR= Sentiment Retention, NE= Ecological Condition, Sen= Wetland Sensitivity, STR= Sentiment Retention, NE= Ecological Condition, Sen= Wetland Sensitivity, STR= Sentiment Retention, NE= Sentiment Retention, Sen= Wetland Sensitivity, STR=	e most recolumn, content in shace in sh	presentative of the wetland overall. Walk only where it is safe and legal to do hange the 0 (false) to a 1 (true) for the best choice, or for multiple choices ded parts of this data form. Answering some questions accurately may require form will require 1-2 hours on a site. For a list of functions to which each appanying Manual. Codes for functions and values are: WS= Water Storage & val, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate Nesting Waterbird Habitat, SBM= Songbird, Raptor, & Mammal Habitat, POL=		
f Indicators	Condition Choices	Data	Definitions/Explanations	Cell Name	Comments
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	CCII IVAIIIE	Comments
Trouding Typo	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. A1. Surface water is usually absent or, if present, pH is typically <4.5 and conductivity is usually <100 µS/cm (<64 ppm TDS). Trees are absent or nearly so. Sedge cover usually sparse or absent but cottongrass and/or lichen cover may be extensive, as well as cloudberry, lingonberry, sheep laurel, and a sedge (<i>Carex rariflor</i> a). Wetland surface and surrounding landscape are seldom sloping and wetland often is domed (convex). Inlet and outlet channels are usually absent. If known, pH of peat is <4.0.		leaves. They include rhododendron, azalea, swamp laurel, leatherleaf, Labrador tea, and others. Most require acidic soil. Although not in the family Ericaceae, sweetgale (<i>Myrica gale</i>) should be counted also. [AM, CS, FA, FR, INV, NR, OE, PH, Sens, SFS, WBF, WBN]		
	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		Fen_	
	 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: B1. Trees and shrubs taller than 1 m comprise more than 25% of the vegetated cover. Surface water is mostly absent or 	1			
	inundates the vegetation only seasonally (e.g., vernal pools or floodplain). 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		Marsh	
e AA. The AA should a ecifically, the AA should ne. Throughout this dat anmade or natural) con	ons, the AA should include all persistent waters in ponds smaller than 8 hectares (~283 m on a side) that are adjacent to lso include part of the water area of adjacent ponded water larger than 8 ha and adjacent rivers wider than 20 m. Id include the open water part adjacent to wetland vegetation and equal in width to the average width of that vegetated that form, "adjacent " is used synonymously with abutting, adjoining, bordering, contiguous and means no upland impletely separates the described features along their directly shared edge. Features joined only by a channel are not be adjacent a large portion of their edges must match. The features do not have to be hydrologically connected in order to be adjacent a large portion of their edges must match.				
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. A1. A2. B1. B2.	0 0 0	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]		
Woody Height & Form Diversity	Following EACH row below, indicate with a number code the percentage of the living vegetation in the AA which is occupied by that feature (6 if >95%, 5 if 75-95%, 4 if 50-75%, 3 if 25-50%, 2 if 5-25%, 1 if <5%, 0 if none). If the vegetated part of the AA is largely herbaceous (non-woody) vegetation, these percentages should not sum to 100%. coniferous trees (may include tamarack) taller than 3 m.		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		

ı			Tou not only o
	deciduous trees taller than 3 m.	2	PH, POL, SBM, Sens]
	coniferous or ericaceous shrubs or trees 1-3 m tall not directly below the canopy of trees.	2	
	deciduous shrubs or trees 1-3 m tall not directly below the canopy of trees.	2	
	coniferous or ericaceous shrubs <1 m tall not directly below the canopy of taller vegetation.	2	
	deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	0	
	in F3 was marked 2 or greater, SKIP to F9 (N fixers).		
	Determine which two woody plant species comprise the greatest portion of the low (<3 m) woody cover . Then choose one:		[PH, POL, SBM, Sens]
Abundant Shrub	those species together comprise > 50% of such cover.	0	
Species	those species together do not comprise > 50% of such cover.	1	
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		Estimate the diameters at chest height. If small-diameter trees are overtopped (shaded) by
Classes	upland edge (perimeter). The edge should include only the trees whose canopies extend into the AA.		larger ones, visualise a "subcanopy" at the average height of the smaller-dbh trees, to serve
	coniferous, 1-9 cm diameter and >1 m tall.		as a basis for the minimum 5% canopy requirement in this question. The trees and shrubs need not be wetland species. [AM, CS, POL, SBM, Sens, WBN]
	broad-leaved deciduous 1-9 cm diameter and >1 m tall.	1	need not be welland species. [Awi, CS, POL, Sbivi, Seris, Wbiv]
	coniferous, 10-19 cm diameter.	1	
	broad-leaved deciduous 10-19 cm diameter.	1	-
	coniferous, 20-40 cm diameter.	1	
	broad-leaved deciduous 20-40 cm diameter.	7	4
	coniferous, >40 cm diameter.	0	-
11.5.1.0	broad-leaved deciduous >40 cm diameter.	0	TAM INIV ND DIL CDM Corel
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.		
	A1. The two height classes are mostly scattered and intermixed throughout the AA.	0	
	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.		1
	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.	1	
	B2. Not B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is	0	
Large Snags (Dead	completely 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 one
Standing Trees)	None, or fewer than 8/ hectare which exceed this diameter.	0	that are at least 2 m tall. [POL, SBM, WBN]
Granding 11000)	Several (>8/hectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km.	1	
	Several (>8/hectare) but above not true.	0	1
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]
2000 11000	Few or none that meet these criteria.	0	- · · · · · · · · · · · · · · · · · · ·
	Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria.	1	1
N Fixers	The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa,		Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
1111/010	other legumes) is:		2
	<1% or none.	0	1
	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	1
	50-75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	1
	>75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0]
Sphagnum Moss	The cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured		Exclude moss growing on trees and rocks. [CS, PH]
Extent	by taller sedges and other plants rooted in it, is:		1
	<5% of the vegetated part of the AA.	0	
	5-25% of the vegetated part of the AA.	0	
	25-50% of the vegetated part of the AA.	0	
	50-95% of the vegetated part of the AA.	1	
	>95% of the vegetated part of the AA.	0	

11 (% 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		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that	7
	Thatch	ground layer, the predominant condition in those areas at that time is:		is present under a tree or shrub canopy should be counted. Boulders count as bare ground.	
		Little or no (<5%) bare ground is visible between erect stems or under canopy anywhere in the vegetated AA. Ground is	1	Wetlands with mineral soils and that are heavily shaded or are dominated by annual plant	
		extensively blanketed by dense thatch, moss, lichens, graminoids with great stem densities, or plants with ground-hugging foliage.		species tend to have more extensive areas that are bare during the early growing season. [AM, EC, INV, NR, OE, POL, PR, SBM, Sens]	
		Slightly bare ground (5-20% bare between plants) is visible in places, but those areas comprise less than 5% of the unflooded parts of the AA.	0	[iii, 25, iii, iii, 62, i 62, i ii, 65ii, 65iio]	
		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 AA.	0		
		Other conditions.	0	1	
		Not applicable. Surface water (either open or obscured by emergent plants) covers all of the AA all the time.	0	1	
12	Ground Irregularity	Imagine the AA without any living vegetation. Excluding the portion of the AA that is always under water, the number of		The depressions may be of human or natural origin. [AM, EC, INV, NR, PH, POL, PR, SBM,	1
		hummocks, small pits, raised mounds, animal burrows, ruts, gullies, natural levees, microdepressions, and other areas of peat or mineral soil that are raised or depressed >10 cm compared to most of the area within a few meters surrounding them is:		SR, WS]	
		Few or none (minimal microtopography; <1% of the land has such features, or entire AA is always water-covered).	1		
		Intermediate.	0		
		Several (extensive micro-topography).	0		_
13	Jpland Inclusions	Within the AA, inclusions of upland are:		[AM, NR, SBM]	
		Few or none.	1		
		Intermediate (1 - 10% of vegetated part of the AA).	0		
		Many (e.g., wetland-upland "mosaic", >10% of the vegetated AA).	0	1	
14	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		[CS, NR, OE, PH, PR, Sens, SFS, WS]	
		to check in at least 3 widely spaced locations, and use the soil texture key (in Appendix A of the Manual).]			
		Loamy: soils that may contain a little fine grit and do not make a "ribbon" longer than 2 cm when moistened, rolled, squeezed, and extended between thumb and forefinger.	0		
		Fines: includes silt, clay, silt, soils that make a ribbon longer than 2 cm when moistened, rolled, squeezed, and extended	0		
		between thumb and forefinger.			
		Deep Peat, to 40 cm depth or greater.	1		
		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	0		
15	Shorebird Feeding	extended between thumb and forefinger. During any 2 consecutive weeks of the growing season, the extent of mudflats, bare unshaded saturated areas not covered by		This addresses needs of many but not all migratory sandpipers, plovers, and related species.	-
	Habitats	thatch, and unshaded waters shallower than 6 cm is: [Include also any area that is adjacent to the AA.]		[WBF]	
ľ	iabilais	None, or <100 sq. m.	1	(NO.)	
		100-1000 sq. m.	0		
		1000 – 10,000 sq. m.	0	1	
		>10,000 sq. m.	0		
16	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	[,,	NoHerbCov
		5-25% of the vegetated part of the AA.	1		
		25-50% of the vegetated part of the AA.	0		
		50-95% of the vegetated part of the AA.	0	1	
		>95% of the vegetated part of the AA.	0	1	
17	orb 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,	
		<5% of the herbaceous part of the AA.	1	horsetails, or others that lack showy flowers. [POL]	
		10 /0 of the herbaceous part of the AA.			
		5-25% of the herbaceous part of the AA.	0		
		·	0	-	
		5-25% of the herbaceous part of the AA. 25-50% of the herbaceous part of the AA.			
		5-25% of the herbaceous part of the AA. 25-50% of the herbaceous part of the AA. 50-95% of the herbaceous part of the AA.	0	<u>-</u> -	AllForbCov
	Sedge Cover	5-25% of the herbaceous part of the AA. 25-50% of the herbaceous part of the AA. 50-95% of the herbaceous part of the AA. >95% of the herbaceous part of the AA.	0	[CS]	AllForbCov
	Sedge Cover	5-25% of the herbaceous part of the AA. 25-50% of the herbaceous part of the AA. 50-95% of the herbaceous part of the AA.	0	[CS]	AllForbCov

		50-95% of the vegetated area.	1		
		>95% of the vegetated area.	0		
)	Dominance of Most	Determine which two herbaceous species comprise the greatest portion of the herbaceous cover (excluding mosses and floating-		For this question, include ferns as well as graminoids and forbs. [EC, INV, PH, POL, Sens]	
		leaved aquatic plants). Then choose one of the following:			
	i loi baccoac opocioc	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		
0		How extensive is the cover of invasive plant species in the AA? For species, see Plants_invasive worksheet in the accompanying		[EC, PH, POL, Sens]	
		Supplnfo file.			
		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 woody).	0		
		invasive species comprise 5-20% of the herb cover (or woody cover, if the invasives are woody).	0		
		invasive species comprise 20-50% of the herb cover (or woody cover, if the invasives are woody).	0		
		invasive species comprise >50% of the herb cover (or woody cover, if the invasives are woody).	0		
1		Along the wetland-upland boundary, the percent of the upland edge (within 3 m upslope from the wetland) that is occupied by		If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an	
	Ü	invasive plant species is:		exotic species, assume the unidentified plant to also be exotic. If vegetation is so senesced	
		none of the upland edge (invasives apparently absent), or AA has no upland edge.	1	that exotic species cannot be identified, answer "none". [PH, STR]	
		some (but <5%) of the upland edge.	0		
		5-50% of the upland edge.	0		
		most (>50%) of the upland edge.	0		
22		During most of the year, open water within or adjacent to the vegetated part of the wetland is much wider than the maximum	0	[WBF, WBN, WCv]	1
		width of the 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 a normal year.	0	[FR, PR, PU, WBF, WBN]	
		The percentage of the AA that <u>never contains surface</u> water during an average year (that is, except perhaps for a few hours after 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	
		<1% . In other words, all or nearly all of the AA is covered by water permanently or at least seasonally.	0	1000 III DY 10 III, 01 SIIIIIIdi. [AIVI, FA, FK, IIVV, IVK, FFI, FK, SDIVI, SEIIS, SKV, WOF, WOIN, WO	
		1-25% of the AA, or <1% but >0.01 ha never contains surface water.	0		
		25-50% of the AA, or 1 % but >0.0 Fina never contains surface water.			
			0		
		50-75% of the AA never contains surface water.	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	0		AllSat2
		ha in the 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	0		AllSat*
		Connection).	U		Alloat
25		Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during		If you are unable to determine the condition at the driest time of year, ask the land owner or	1
		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		neighbors about it if possible. Indicators of persistence may include fish, some dragonflies,	
	Water	AA that still contains surface water is:		beaver, and muskrat. [AM, CS, FA, FR, INV, NR, POL, PR, SBM, WBF, WBN]	
		None. The AA dries up completely (no water in channels either) or never has surface water during most years. SKIP to F27.	1		NoPer
		1-20% of the AA.	0		
		20-50% of the AA.	0		
		50-95% of the AA.	0		
		>95% of the AA. True for many fringe wetlands.	0		AllWet
26		At mid-day during the warmest time of year, the area of surface water within the AA that is shaded by vegetation and other		[FA, WC]	1 ^
		features that are within the AA at that time is:		r · · · · - 1	
	Trator triat is oriaueu	<5% of the water is shaded, or no surface water is present then.	0		
		5-25% of the water is shaded.	0		
		25-50% of the water is shaded.	0		
		50-75% of the water is shaded.	0		
		>75% of the water is shaded.	0		
77			U	Floring to Alexander of Selfer and the Company of t	-
		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	
	_	None, or <0.01 hectare and <1% of the AA. SKIP to F29.	0	when not fully inundated. Also, such areas often have a larger proportion of upland and annual	NoSea
	Seasonally	1-20% of the AA, or <1% but >0.01 ha.	0	(vs. perennial) plant species. In riverine systems, the extent of this zone can be estimated by	

1		20-50% of the AA.	1	multiplying by ∠ the banktul neight and visualising where that would intercept the land along the river. [CS, FA, INV, NR, OE, PH, SR, WBF, WBN, WS]	
		50-95% of the AA.	0	alle liver. [OO, 1 A, live, Nix, OE, 1 11, Oix, Wall , Wall, Wo]	
		>95% of the AA.	0		
	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,	
		<10 cm change (stable or nearly so).	1	INV, NR, OE, PH, PR, SR, WBN, WS]	
	<u> </u>	10 cm - 50 cm change.	0		
	<u> </u>	0.5 - 1 m change.	0		
	ļ	1-2 m change.	0		
	<u> </u>	>2 m change.	0	1	
the	AA plus adjacent pc	inded water smaller than 0.01 hectare (about 10m x 10m, or 1m x 100 m)? If so, enter "1" in column D and	0		TooSmall
KIP T	O F42 (Connection)				
29	Predominant Depth	During most of the time when surface water is present during the growing season, its depth, averaged over the entire inundated		If a boat is unavailable, estimate this by considering wetland size and local topography. Or if	1
	Class	part of the AA, is:		timing and safety allow, depths may be measured by drilling through winter ice. This question is	3
		<10 cm deep (but >0).	1	asking about the spatial median depth that occurs during most of that time, even if inundation	
		10 - 50 cm deep.	0	is only seasonal or temporary. If inundation in most but not all of the wetland is brief, the	
		0.5 - 1 m deep.	0	answer will be based on the depth of the most persistently inundated part of the wetland.	
		1 - 2 m deep.	0	Include surface water in channels and ditches as well as ponded areas. [CS, FA, FR, INV,	1
		>2 m deep. True for many fringe wetlands.	0	OE, PH, PR, Sens, SFS, SR, WBF, WBN, WC]	
30		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,	1
		One depth class that comprises >90% of the AA's inundated area (use the classes in the question above).	1	INV, WBF, WBN]	
	Proportions	One depth class that comprises 50-90% of the AA's inundated area.	0	,,	
ľ		Neither of above. There are 3 or more depth classes and none occupy >50%.	0	1	
4		,	U	Nearly all water do with a reference to be a corresponded water IAM CC INIV AID OF DD	4
		During most times when surface water is present, the percentage that is (1) ponded (stagnant, or flows so slowly that fine		Nearly all wetlands with surface water have some ponded water. [AM, CS, INV, NR, OE, PR,	
		sediment is not held in suspension) AND (2) is likely to be deeper than 0.5 m in some places, is: <5% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34.	0	Sens, SR, WBF, WBN, WC, WS]	NoPonde
ľ	1 10111119/	· · · · · · · · · · · · · · · · · · · ·	1		NoPonde
		5-30% of the water.	1		
	ļ	30-70% of the water.	0		
		70-95% of the water.	0		
		>95% of the water.	0		
	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.	OpenW
	0/ of Dondod Water				
	% of Ponded Water	In ducks-eye aerial view, the percentage of the ponded water that is open (lacking emergent vegetation during most of the growing season, and unhidden by a forest or shrub canopy) is:		[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	-
		In ducks-eye aerial view, the percentage of the ponded water that is open (lacking emergent vegetation during most of the growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	1	[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	NoOpenP
		growing season, and unhidden by a forest or shrub canopy) is:	1 0	[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	·
		growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	1 0 0	[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	
		growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).		[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	
		growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water.	0	[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	
	that is Open	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water.	0	[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	NoOpenP
ļ	that is Open	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water.	0 0 0		NoOpenP NoOpenP AllOpenPe
34	that is Open Width of Vegetated	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in the AA that	0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed.	NoOpenP
34	that is Open	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water.	0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	NoOpenP
34	that is Open Width of Vegetated	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area <u>in the AA</u> that separates adjoining uplands from open water within the AA is: <1 m.	0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed.	NoOpenP
34	that is Open Width of Vegetated	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in the AA that separates adjoining uplands from open water within the AA is: <1 m. 1 - 9 m.	0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	NoOpenP
34	that is Open Width of Vegetated	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in the AA that separates adjoining uplands from open water within the AA is: <1 m. 1 - 9 m. 10 - 29 m.	0 0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	NoOpenP
34	that is Open Width of Vegetated Zone within Wetland	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in the AA that separates adjoining uplands from open water within the AA is: <1 m. 1 - 9 m. 10 - 29 m. 30 - 49 m.	0 0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	NoOpenF
34	that is Open Width of Vegetated Zone within Wetland	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in the AA that separates adjoining uplands from open water within the AA is: <1 m. 1 - 9 m. 10 - 29 m. 30 - 49 m. 50 - 100 m.	0 0 0 0 0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	NoOpenP
34	that is Open Width of Vegetated Zone within Wetland	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in the AA that separates adjoining uplands from open water within the AA is: <1 m. 1 - 9 m. 10 - 29 m. 30 - 49 m.	0 0 0 0 0 0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	NoOpenF

I	Ī	<1% of the water edge.	0	1	1
		1-25% of the water edge.	0		
		25-50% of the water edge.	0		
		50-75% of the water edge.	0		
		>75% of the water edge.	0		
)6 D-				Functional transfer in the shape of the state of the stat	_
36 Ro	•	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]	
		<1% of the emergent vegetation, or emergent vegetation is absent. SKIP to F38.	0	the water surface during most of the time water is present. [vvbiv]	NoRobustEm
		1-25% of the emergent vegetation.	0		NONOBUSIEM
		25-75% of the emergent vegetation.			
		· · · ·	0		
		>75%, of the emergent vegetation.	0		_
	•	During most of the part of the growing season when water is present, the spatial pattern of emergent vegetation within the water is mostly:		[AM, FA, FR, INV, NR, OE, PH, PR, SBM, SR, WBF, WBN]	
	ater	Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water.	0		
		Intermediate.	0		
		Clumped. More than 70% of such vegetation is in bands along the wetland perimeter or is clumped at one or a few sides of the	0		
		surface water area.			
8 Pe		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	0		DeepPersis
Are	ea	weeks during the growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection).			
9 No	on-vegetated	During most of the growing season and in waters deeper than 0.5 m, the cover for fish, aquatic invertebrates, and/or amphibians		For this question, consider only the wood that is at or above the water surface. Estimates of	
		that is provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is:		underwater wood based only on observations from terrestrial viewpoints are unreliable so	
, ,,		Little or none.	0	should not be attempted. [AM, FA, FR, INV]	
		Intermediate.	0		
		Extensive.	0		
10 Iso	olated 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	0	[WBN]	
		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.			
11 Flo	0 0	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,	0	[EC, PR, WBF]	
Du	ıckweed	or blanket >50% of the underwater substrate. If true, enter "1" in next column. If untrue or uncertain, enter "0".			
12 Ch	nannel Connection	The most persistent surface water connection (outlet channel or pipe, ditch, or overbank water exchange) between the AA and a		Consider the connection regardless of whether the surface water is frozen. The "downslope	
& (downslope stream network is: [Note: If the AA represents only part of a wetland, answer this according to whichever is the least		stream network" could consist of ditches, rivers, ponds, or lakes which eventually connect to	
		permanent surface connection: the one between the AA and the rest of the wetland, or the surface connection between the		the ocean. If this cannot be determined while visiting the AA, consult topographic maps	
		wetland and the downslope stream network.		perhaps by viewing these online with Toporama	
		Persistent (surface water flows out for >9 months/year).	0	(http://atlas.nrcan.gc.ca/toporama/en/index.html) [CS, FA, FR, NR, OE, PR, Sens, SFS, SR,	
		Seasonal (surface water flows out for 14 days to 9 months/year, not necessarily consecutive).		WCv, WS]	
		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 Measurement).	0		OutNone1
		No surface water flows out of the wetland except possibly during extreme events (<once 10="" a<="" flows="" into="" only="" or,="" per="" td="" water="" years).=""><td>1</td><td></td><td>Outnone</td></once>	1		Outnone
		wetland, ditch, or lake that lacks an outlet. SKIP to F47 (pH Measurement).			
13 Ou		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, 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	0	19110WITTEIL. [US, 1NN, UE, FN, 36115, 3N, 31N, WS]	
		topography) 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.	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	1		
		edge, which drain the wetland artificially, or water is pumped out of the AA.	1		
14 Tri		At least once annually, surface water from a tributary channel that is >100 m long moves into the AA. Or, surface water from a		If inlet tributaries cannot be searched for due to inaccessibility of part of the AA, follow	Inflows
["		larger permanent water body adjacent to the AA spills into the AA. If it enters only via a pipe, that pipe must be fed by a mapped	0	suggestions in F42 above. [NRv, PH, PRv, SRv]	
		stream or lake further upslope. If no, SKIP to F47 (pH Measurement).			
15 Inp	put Water	Based on lack of shade, water source characteristics, or actual temperature measurements, the inflow is likely to be warmer than	0	[WCv]	
Д	emperature	surface water in the AA during part of most years. Enter 1= yes, 0= no.			
10					4
	roughflow	During its travel through the AA at the time of peak annual flow, water arriving in channels: [select only the ONE encountered by		[FA, FR, INV, NR, OE, PR, SR, WS]	

Nother of above. Enert "1" The TDS (total dissolved solids) or conductivity of the AA's surface water is: (select the first frue row with information): Total Conductivity Total Citizent for reading in ppm or mg/L in the column to the right. If measured, or answer next row. I Neither of above Seaver Probability Beaver Probability Use of the AAD be beaver during the past 5 years is (select most applicable ONE): Evident from direct observation or presence of graved limbs, dams, tracks, dens, lodges, or extensive stands of water-killed toes and shrubs in vecelated areas near surface water. Unlikely based on known occurrence in the region and proximity to suitable hebital, which may include: (a) a persistent freshwater wetland, pond, or lake, or a perennal low or mid-gradient ("10%) channel, and (b) a corridor or multiple stands of hardwood trees and shrubs in vecelated areas near surface water. 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In termal Gradient In termal Gradient In the gradient along most of the fibro p	ncised) channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond or lake. Bumps into herbaceous vegetation but mostly remains in fairly straight channels. Bumps into treat burks and/or shrub stems but mostly remains in fairly straight channels. Bumps into treat trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or braided). 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3 T ype	e 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		[AM, FA, INV, NRv, PH, POL, SBM, STR, WBN]	1
Buff		(mark ONE):		hin, th, inv, the, the object of the object	
		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.	0		
54 Buff		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		[NRv, PRv, Sens, SRv]	
		area has a percent slope of:		-	
		<1% (flat almost no noticeable slope) or all the area within 30 m of the AA edge is other wetlands.	0		
		2-5%.	0		
		5-30%. >30%.	0		
E OI:				Do not include unturned trace as notantial den sites. IDOL CDMI	
55 Cliffs	·	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]	
6 New		Human actions within or adjacent to the AA have persistently expanded a naturally occurring wetland or created a wetland where		Determine this using historical aerial photography, old maps, soil maps, or permit files as	
		there previously was none (e.g., by excavation, impoundment):		available [CS, NR, OE, PH, Sens]	
		No.	1		
		Yes, and created or expanded 20 - 100 years ago.	0	1	
		Yes, and created or expanded 3-20 years ago.	0	1	
		Yes, and created or expanded within last 3 years.	0	1	
		Yes, but time of origin or expansion unknown.	0	1	
		Unknown if new or expanded within 20 years or not.	0		
57 Burr	,	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,	
		Burned within past 5 years.	_	PH, STR]	
		Burned 6-10 years ago.	0	1	
		Burned 11-30 years ago.	0		
.0 \		Burned >30 years ago, or no evidence of a burn and no data.	1	TOUL OTD WIDE 1	
58 Visil		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]	
		Solid lings, or public maintained trails that intersect, adjoin, or are within 100 m of the AA (select one) is:	1	1	
		25-50%.	0	1	
		>50%.	0	1	
59 Non		Assuming access permission was granted, select ALL statements that are true of the AA as it currently exists:		[PU, STR]	
		For an average person, walking is physically possible <u>in</u> (not just near) >5% of the AA during most of the growing season, e.g.,	1	j ´ ´	
	ential	free of deep water and dense shrub thickets.			
		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	0		
		arriving via contiguous waters. Within or near the AA, there is an interpretive center, trails with interpretive signs or brochures, and/or regular guided interpretive	0	1	
		tours	0		
30 Unv	visited Core Area	The percentage of the AA almost never visited by humans during an average growing season probably comprises: [Note: Only		[AM, FAv, FRv, PH, PU, SBM, STR, WBF, WBN]	
		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.1 <5% and no inhabited building is within 100 m of the AA.	0	1	
		<5% and inhabited building is within 100 m of the AA.	0	1	
		5-50% and no inhabited building is within 100 m of the AA.	0	1	
		5-50% and inhabited building is within 100 m of the AA.	0	1	
		50-95%, with or without inhabited building nearby.	0	1	
		>95% of the AA with or without inhabited building nearby.	1	1	
31 Fred	quently Visited	The part of the AA visited by humans almost daily for several weeks during an average growing season probably comprises:		[AM, PH, PU, SBM, STR, WBF, WBN]	
Area	-	[See note above.]		, , , , , , , , , , , , , , , , , , , ,	
		<5%. If F60 was answered ">95%" (mostly never visited), SKIP to F64 .	1		
		5-50%.	0]	
		50-95%.	0]	

		>95% of the AA.	0	7	1
F62	BMP - Soils	Boardwalks, paved trails, fences or other infrastructure and/or well-enforced regulations appear to effectively prevent visitors from walking on soil within nearly all of the AA when the soil is unfrozen. Enter "1" if true.	0	[PH, PU]	
F63	BMP - Wildlife Protection	Fences, observation blinds, platforms, paved trails, exclusion periods, and/or well-enforced prohibitions on motorised boats, off-leash pets, and off road vehicles appear to effectively exclude or divert visitors and their pets from the AA at critical times in order to minimize disturbance of wildlife (except during hunting seasons). Enter "1" if true.	0	[AM, PU, WBF, WBN]	
F64	Consumptive Uses	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select ALL that apply.		[FAv, FRv, WBFv]	
	(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	0		
	Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0		
		Waterfowl hunting.	0		
		Fishing.	0		
		Trapping of furbearers.	0		
		None of the above.	1		
F65	Domestic Wells	The closest wells or water bodies that currently provide drinking water are:		[NRv]	
		Within 0-100 m. of the AA.	0	7	
		100-500 m. away.	1		
		>500 m. away, or no information.	0	7	
F66	Calcareous Fen	The AA is, or is part of, a calcareous fen. See the Plants_Calcar worksheet in the accompanying SuppInfo file for list of plant indicators (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]	

ressor (S) Data Form for Non-Tid	Site Identifier: Tapline WL 5		Date: July 25, 2019						
I A L	al Wetlands. WESP-AC for New	w Brunswick. Version 2.		Dat					
Aberrant Timing of Water Inputs In the last column, place a check mark next to any item that is like	ely to have caused the timing of water inputs (but not necessar	rily their volume) to shift by hours, days, or weeks, becoming eit	her more muted (smaller or less frequent peaks spread over	-					
longer times, more temporal homogeneity of flow or water levels)	or more flashy (larger or more frequent spikes but over shorte								
Stormwater from impervious surfaces that drains directly to the Water subsidies from wastewater effluent, septic system leakage									
Regular removal of surface or groundwater for irrigation or other									
Flow regulation in tributaries or water level regulation in adjoinin	• • •	•							
A dam, dike, levee, weir, berm, or fill within or downgradient fi Excavation within the wetland, e.g., dugout, artificial pond, dead		ow in/out of the AA (e.g., road fill, wellpads, pipelines).							
Artificial drains or ditches in or near the wetland.	-end ditori.			1					
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 result	t of machinery livestock fire drainage or off road vehicles			1					
Straightening, ditching, dredging, and/or lining of tributary chann									
If any items were checked above, then for each row of the table to			any part of the AA, then leave the "0's" for the scores in the						
following rows. To estimate effects, contrast the current condition			MA'LL (A)						
	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.	2					
When most of the timing shift began:	<3 yrs ago.	3-9 yrs ago.	10-100 yrs ago.	2					
Score the following 2 rows only if the altered inputs began within	past 10 years, and only for the part of the wetland that experie. Shift of weeks.	_	Shift of hours or minutes.	2					
Input timing now vs. previously: Flashiness or muting:	Became very flashy or controlled.	Shift of days. Intermediate.	Became mildly flashy or controlled.	1					
riddimiodd o'r maurig.	Joseph Co., Ilean, C. Controller.	out.ou	Sum:	8					
			Stressor subscore	0.6					
Accelerated Inputs of Contaminants and/o									
In the last column, place a check mark next to any item occurri	,	erated the inputs of contaminants or salts to the AA. [AM, FA, PF	ł, POL, STRJ						
Stormwater or wastewater effluent (including failing septic systemetals & chemical wastes from mining, shooting ranges, shows	ms), landfills, industrial facilities.	IIIV IUCALIUNS IIOIII IVALIUNAI PUIIULAIIL NEIEASE IIIVEIILUIV ANU VIEW	KIVIZ OVERAY III GOOGIE EARTII. HTTPS://WWW.ec.gc.ca/iiiip-						
nnri/default asn?lann=En&n=R85&18/6-1 Road salt.		· · · · · · · · · · · · · · · · · · ·							
Spraying of pesticides, as applied to lawns, croplands, roadside	s, or other areas in the CA.								
If any items were checked above, then for each row of the table by			ls of contaminants and/or salts, then leave the "0's" for the						
scores in the following rows. To estimate effects, contrast the cur		- '							
	Severe (3 points)	Medium (2 points) Cropland, managed landfill, pipeline or transmission rights-of-	Mild (1 point)						
Usual toxicity of most toxic contaminants:	Industrial effluent, mining waste, unmanaged landfill.	way.	Low density residential.	0					
Frequency & duration of input:	Frequent and year-round.	Frequent but mostly seasonal.	Infrequent & during high runoff events mainly.	0					
AA proximity to main sources (actual or potential):	0 - 15 m.	15-100 m. or in groundwater.	In more distant part of contributing area.	0					
			Sum- Stressor subscore-						
Accelerated Inputs of Nutrients			Stressor subscore-	- 0.1					
In the last column, place a check mark next to any item occurri	ng in either the wetland or its CA that is likely to have accele	erated the inputs of nutrients to the wetland. [NRv, PRv, STR]							
Stormwater or wastewater effluent (including failing septic syste									
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 b	pelow, assign points. However, if you believe the checked item	s did not cumulatively expose the AA to significantly more nutrie	ents, then leave the "0's" for the scores in the following rows						
To estimate effects, contrast the current condition with the condit	ion if the checked items never occurred or were no longer pres	sent.							
	Severe (3 points) High density of unmaintained septic, some types of	Medium (2 points) Moderate density septic, cropland, secondary wastewater	Mild (1 point)						
Type of loading:	industrial sources.	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. Sum	0					
			Suili-						
			Stressor subscore						
Excessive Sediment Loading from Contri	buting Area		Stressor subscore	_					
Excessive Sediment Loading from Contril In the last column, place a check mark next to any item present in		or windborne sediment reaching the wetland from its CA. [FA, F		_					
	n the CA that is likely to have elevated the load of waterborne of	or windborne sediment reaching the wetland from its CA. [FA, F		_					
In the last column, place a check mark next to any item present in Erosion from plowed fields, fill, timber harvest, dirt roads, vegeta Erosion from construction, in-channel machinery in the CA.	n the CA that is likely to have elevated the load of waterborne of	or windborne sediment reaching the wetland from its CA. [FA, F		_					
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Erosion from plowed fields, fill, timber harvest, dirt roads, vegeta 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. Erosion from livestock or foot traffic in the CA. Stormwater or wastewater effluent. Sediment from road sanding, gravel mining, other mining, oil/ ga Accelerated channel downcutting or headcutting of tributaries do Other human-related disturbances within the CA. If any items were checked above, then for each row of the table to solids to the AA, then leave the "0's" for the scores in the following the solids to the AA, then leave the "0's" for the scores in the following the solids to the AA, then leave the "0's" for the scores in the following the solids to the AA, then leave the "0's" for the scores in the following the solids to the AA, then leave the "0's" for the scores in the following the solids to the AA, then leave the "0's" for the scores in the following the solids to the AA, then leave the "0's" for the scores in the following the solids to the AA, then leave the "0's" for the scores in the following disturbance of soil or sediment. Soil or Sediment Alteration Within the As: In the last column, place a check mark next to any item present in restored (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or more the last column, place a check mark next to any item present in restored (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or more the last column, place a check mark next to any item present in restored (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or more the last column, place a check mark next to any item present in restored (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery off-road vehicles, livestock, or more the last column, place a check mark next to any item present in th	as extraction. The CA that is likely to have elevated the load of waterborne of ation clearing, fires. The contraction of the contract in the last of the contract in the last of the contract in the current condition with the current co	column. However, if you believe the checked items did not cume the condition if the checked items never occurred or were no low Medium (2 points) Potentially (based on high-intensity* land use) or scattered evidence. 1-12 months ago. Frequent but mostly seasonal. 15-100 m. ty= veg removal only with little or no apparent erosion or experience altered the wetland's soil. Consider only items occurring we soil imported from another wetland. Soil imported from another wetland. Medium (2 points) 5-95% of wetland or 5-95% of its upland edge (if any). 1-12 months ago.	Illatively add significantly more sediment or suspended inger present. Mild (1 point) Potentially (based on low-intensity* land use) with little or not direct evidence. >1 yr ago. Infrequent & during high runoff events mainly. In more distant part of contributing area. Sum: Stressor subscores wetland was created or ithin past 100 years or since wetland was created or Mild (1 point) <5% of wetland and <5% of its upland edge (if any). >1 yr ago.	0.C					

Assessment Area (AA) Results:

Wetland ID: WL-5 Naveco Transmisison Line

Date: Sept 5, 2019

Observer: Derrick Mitchell

Latitude & Longitude (decimal degrees):

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)	6.71	Higher	8.74	Higher	6.89	8.75
Stream Flow Support (SFS)	0.00	Lower	0.00	Lower	0.00	0.00
Water Cooling (WC)	7.05	Higher	0.00	Lower	4.70	0.00
Sediment Retention & Stabilisation (SR)	10.00	Higher	1.53	Lower	10.00	0.93
Phosphorus Retention (PR)	10.00	Higher	1.47	Lower	10.00	1.67
Nitrate Removal & Retention (NR)	10.00	Higher	5.00	Moderate	10.00	5.56
Carbon Sequestration (CS)	5.09	Moderate			6.76	
Organic Nutrient Export (OE)	5.99	Higher			5.51	
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)	2.09	Lower	4.22	Moderate	4.61	3.52
Amphibian & Turtle Habitat (AM)	4.37	Moderate	5.56	Moderate	5.61	5.47
Waterbird Feeding Habitat (WBF)	6.16	Moderate	5.00	Moderate	4.90	5.00
Waterbird Nesting Habitat (WBN)	4.81	Moderate	5.00	Moderate	4.11	5.00
Songbird, Raptor, & Mammal Habitat (SBM)	7.84	Higher	5.00	Moderate	6.50	5.00
Pollinator Habitat (POL)	9.73	Higher	3.33	Moderate	7.83	3.33
Native Plant Habitat (PH)	8.17	Higher	6.79	Higher	6.38	5.89
Public Use & Recognition (PU)			2.31	Lower		1.98
Wetland Sensitivity (Sens)			7.29	Higher		4.39
Wetland Ecological Condition (EC)			4.22	Moderate		6.67
Wetland Stressors (STR) (higher score means more stress)			7.48	Higher		5.01
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	6.71	Higher	8.74	Higher	6.89	8.75
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	9.39	Higher	3.83	Lower	9.59	4.14
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	5.42	Moderate	2.81	Moderate	4.61	2.35
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	4.61	Moderate	4.34	Moderate	4.27	4.28
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	9.15	Higher	5.91	Higher	7.37	5.31
WETLAND CONDITION (EC)			4.22	Moderate		6.67
WETLAND RISK (average of Sensitivity & Stressors)			7.39	Higher		4.70

					New Brunswick	Referen	ice Score	S			
re											
٥											
	Min	Max	Range	F_JenksLo	F_JenksHigh	Min	Max	Range	B_JenksLo	B_JenksHigh	
	1.73	9.42	7.68	2.48	5.12	0.08	10.00	9.92	2.58	5.67	
	0.00	5.33	5.33	2.92	6.56	0.00	5.83	5.83	2.08	6.16	
	0.00	6.67	6.67	1.80	5.30	0.00	6.02	6.02	1.45	4.79	
	3.16	10.00	6.84	1.76	5.26	0.00	6.07	6.07	3.75	7.95	
	2.90	10.00	7.10	2.66	4.17	0.33	9.38	9.04	1.71	4.55	
	3.83	10.00	6.17	2.27	4.36	1.11	10.00	8.89	2.50	7.19	
	4.56	8.88	4.31	3.13	5.70						
	2.33	7.64	5.30	3.12	5.26						
	0.00	6.13	6.13	1.80	6.71	0.00	7.39	7.39	0.00	4.44	
	0.00	5.95	5.95	1.40	6.29	0.00	7.09	7.09	0.00	4.48	
	3.87	7.39	3.52	2.58	5.58	1.24	6.64	5.39	0.85	5.74	
	3.30	8.58	5.28	3.30	6.25	2.09	8.16	6.06	2.27	6.30	
	0.00	7.96	7.96	0.00	6.84	0.00	10.00	10.00	0.83	6.67	
	0.00	8.54	8.54	1.95	5.42	0.00	10.00	10.00	0.00	6.67	
	0.00	8.29	8.29	2.50	7.24	0.00	10.00	10.00	3.33	6.67	
	0.00	8.05	8.05	0.00	7.81	0.00	10.00	10.00	0.00	6.67	
	3.08	7.12	4.03	3.96	5.98	0.00	8.68	8.68	0.00	6.33	
						0.33	7.44	7.11	2.40	5.51	
						2.20	5.20	2.99	2.88	5.30	
						4.24	10.00	5.76	3.25	6.39	
						2.26	5.93	3.67	2.15	4.97	
				2.48	5.12				2.58	5.67	
				3.07	5.39				4.15	7.64	
				3.82	6.04				1.34	4.99	
				2.41	6.22				3.15	6.29	
				4.68	7.60				0.00	5.33	
									3.25	6.39	

4.33

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 the 98 NB calibration wetlands that were assessed previously.

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	Tapline WL-6
Investigator Name:	Derrick Mitchell
Date of Field Assessment:	July 24, 2019
Nearest Town:	Grand Anse, NB
Latitude (decimal degrees):	47.770160°
Longitude (decimal degrees):	-65.135788°
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	18 ha (linear corridor)
AA as percent of entire wetland (approx.). Attach sketch map if AA is smaller than the entire contiguous wetland.	10
What percent (approx.) of the wetland were you able to visit?	10
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):	

Date: July 24 ,2019	Site Identifier: Tapline WL-6	Investigator: DM

Form OF (Office). Non-tidal Wetland Data Form. WESP-AC version 2 for New Brunswick 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

GeoNB: http://www.snb.ca/geonb1/ and http://www.snb.ca/geonb1/e/apps/apps-E.asp

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

#	Indicators	Condition Choices	Data	Definitions/Explanations	Cell Name	Comments
1	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		
		New Brunswick	1	automatic exclusion of indicators for which no spatial data exists in a particular	NB	
		Nova Scotia	0	province.	NS	
		Prince Edward Island	0	PEI		
		Newfoundland-Labrador	0		NL	
2		The area of surface wate r ponded during most of the growing season that is both (1) in or adjacent to the AA and (2)		"Adjacent" means not separated from the AA by a wide expanse (>50 m) of upland		
		within 1 km is:	0	(including roads >50 m wide). Include ponded areas likely to be hidden by wetland		
		<0.01 hectare (about 10 m x 10 m).	0	vegetation. If surface water extends beyond 1 km, include only the part within 1 km.		
		0.01 - 0.1 hectare.	0	Do not include tidal areas. Measure the area from aerial imagery using Google Earth Pro (click on Ruler icon in toolbar, then Polygon in pop-up menu). With the GeoNB		
		0.1 - 1 hectare.	0			
		1 to 10 hectares.	0			
		10 to 100 hectares.	0			
		>100 hectares.	0			
		The area of wetlands and surface water ponded during most of the growing season that is both (1) in or adjacent to		See definition of adjacent in OF2. If the AA's wetland vegetation extends beyond 1		
		the AA and (2) within 1 km is: <0.01 hectare (about 10 m x 10 m).	0	km, include only the part within 1 km. "Ponded" means not flowing in rivers or streams. [Sens, WBF]		
		0.01 - 0.1 hectare (about 10 m x 10 m).	0	streams. [Sens, wor]		
		0.1 - 1 hectare.	0			
		1 to 10 hectares.	0			
		10 to 100 hectares.	0			
			1	<u>-</u>		
F4	Size of Largest	>100 hectares. The largest vegetated patch or corridor that includes the AA's vegetation plus all adjacent upland vegetation that is	'	See definition of adjacent in OF2. Use Google Earth Pro's polygon ruler (as described		
T 4	•	not lawn, row crops, heavily grazed lands, conifer plantation is:		above). Exclude conifer plantations only if it is obvious that trees were planted in		
	, -	<0.01 hectare (about 10 m x 10 m).	0	rows. [AM, PH, SBM, Sens]		
		0.01 - 0.1 hectare.	0	(5 W.S. [/ WH), 1 TI, 55 WI, 5 CHS]		
		0.1 - 1 hectare.	0	1		
		1 to 10 hectares.	0	1		
		10 to 100 hectares.	0			
		100 to 1000 hectares.	0	1		
		>1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	1			
F5		The minimum distance from the edge of the AA to the edge of the closest vegetated land (but excluding row crops,		To measure distance, use Google Earth Pro (Ruler > Line tool). Or use Draw &		
	Vegetated Tract	lawn, conifer plantation) larger than 375 hectares (about 2 km on a side), is:		Measure tool at GeoNB. The 375-ha criterion is from the Fundy Model Forest Project.		

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		<50 m, and not separated from the 375-ha vegetated area by any width of paved roads, stretches of open water,	U	[AM, PH, POL, SBM, Sens]		
		row crops, bare ground, lawn, or impervious surface. Or the AA itself contains >375 ha of vegetation. [This is often				
		the answer in relatively undeveloped landscapes.]	1			
		<50 m, but completely separated from the 375-ha vegetated area by those features, and AA does not contain >375				
		ha of vegetation. 50-500 m, and not separated.	0			
		·	0			
		50-500 m, but separated by those features.	0			
		0.5 - 5 km, and not separated.	0			
		0.5 - 5 km, but separated by those features.	0			
		None of the above (the closest patches or corridors which are that large are >5 km away).	0			
OF6	Herbaceous	The AA's vegetation cover is >10% herbaceous* but uplands within 5 km have <10% herbaceous cover. If so, enter	0	For this question only, consider moss to be herbaceous vegetation. Determine the		
		"3" and continue to OF7. If not, consider:		score by viewing aerial imagery in Google Earth after successively drawing or		
	-	The AA's vegetation cover is >10% herbaceous* but uplands within 1 km have <10% herbaceous cover. If so enter "2"		estimating the boundaries of the buffers of 5 km, 1 km, and 100 m radius focused on		
		and continue to OF7. If not, consider:		the center of the AA. Circles of specified radius can be drawn in Google Earth Pro by		
		The AA's vegetation cover is >10% herbaceous* but uplands within 100 m of the wetland edge have <10%		clicking on the Ruler icon, then Circle in the pop-up menu. [AMv, PHv, POLv, SBMv,		
		herbaceous cover. If so, enter "1".		WBFv, WBNv]		
		[* NOTE: Exclude lawns, row crops, heavily grazed lands, forest, shrublands. Include moss as well as grasslike plants		Workly		
		in this use of "herbaceous vegetation"]				
		-				
OF7		The AA's vegetation cover is >10% woody* but uplands within 5 km have <10% woody cover. If so, enter "3" and	0	See above. Do not consider conifer plantations to be forest if it is obvious that trees		
		continue to OF8. If not, consider:		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, consider:				
		The AA's vegetation is >10% woody* but uplands within 100 m of the wetland edge have <10% woody cover. If so,				
		enter "1"				
		[* NOTE: woody cover = trees & shrubs taller than 1 m.]				
OF8	Local Vegetated	Draw a 5-km radius circle measured from the center of the AA. Ignoring all permanent water in the circle, the		In Google Earth, draw the 5 km buffer and then estimate land cover percentages, or		
	Cover Percentage	percent of the remaining area that is wooded or unmanaged herbaceous vegetation (NOT lawn, row crops, bare or		do GIS analysis of an appropriate land cover layer. [AM, PH, POL, SBM, Sens]		
	•	heavily grazed land, clearcuts, or conifer plantations) is:		do dis unulysis of an appropriate land cover layer. [, iivi, 1 11, 1 02, 35, ivi, 36113]		
		<5% of the land.	0			
		5 to 20% of the land.	0			
		20 to 60% of the land.	1			
		60 to 90% of the land.	0			
			0			
050		>90% of the land. SKIP to OF10.	U	Table Coast		
	′'	Within the 5-km radius circle, and ignoring all permanent water, the land area that is bare or non-perennial cover is		[AM, SBM]		
	Alteration	mostly:	0	l l		
		Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0			
		Bare pervious surface, e.g., lawn, recent (<5 yrs ago) clearcut, dirt or gravel road, cropland, landslide, conifer	1			
0540	Distance by D. C.	plantation.		Demodekien contact magnetic description with magnetic description		
	·	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-		
		<100 m.	0	inhabited structures per square kilometer. In Google Earth, click on the Ruler icon,		
	Center	100 - 500 m.	0	then Path, and draw and measure the route. Or use the GeoNB's Draw & Measure		
		0.5- 1 km.	0	tool> Freehand Line to draw and measure the route to Settlements (click on Place		
		1 - 5 km.	1	Names in menu) or other areas not close to mapped settlements but which meet the		
		>5 km.	0	criteria.[FAv, FRv, NRv, PH, PU, SBM, WBFv]		
OF11		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 and measuring with the		
		<10 m.	0	Ruler>Line tool. Or use the GeoNB's Draw Line tool. [AM, FAv, FRv, NRv, PH, PU,		
			4	SBM, STR, WBN]		
		10 - 25 m.		5, 5, 1,		
		25 - 50 m.	0			
		50 - 100 m.	0			

		>500 m.	0]	1	
	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	In NB, enable the Wetlands layer in GeoNB (despite its omissions) to show surrounding wetlands and roads, while estimating the location of the 5 km circle (or draw the 5 km circle in Google Earth Pro using the Circle tool and compare). Evaluate using Google Earth, being cautious to search for roads hidden under forest canopy.		
OF13	Distance to Ponded Water	The distance from the AA center to the closest (but separate) ponded water body visible in GoogleEarth imagery is:		In Google Earth, zoom in closely to examine the surrounding landscape for ponds, lakes, and wetlands that appear to be permanently flooded. Enable the GeoNB		
		<50 m, and not separated by any width of paved roads, stretches of open water, row crops, lawn, bare ground, or impervious surface.		viewer's Wetlands layer as well. [AM, PH, SBM, Sens, WBF, WBN]		
		<50 m, but completely separated by those features.	0			
		50-500 m, and not separated.	0			
		50-500 m, but separated by those features.	0			
		0.5 - 1 km, and not separated.	0			
		0.5 - 1 km, but separated by those features.	1			
		None of the above (the closest patches or corridors that large are >1 km away).	0			
OF14	Distance to Large	The distance from the AA center to the closest (but separate) non-tidal body of water that is ponded during most of		Determine this by viewing aerial imagery in Google Earth. [Sens, WBF, WBN]		
	Ponded Water	the year and is larger than 8 hectares during most of a normal year is:	^	ļ		
		<100 m.	0			
		100 m - 1 km.	0			
		1 -2 km.	0			
		2-5 km.	0			
		5-10 km.	0]		
		>10 km.	1			
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 calculator for NB (NB Headtide). Points shown in those files are only an approximation, so local information if available may be preferable.		
		<100 m.	0			
		100 m - 1 km.	0			
		1 - 5 km.	1			
		5-10 km.	0	[FA, WBF]		
		10-40 km.	0	1		
		>40 km.	0	1		
OF16	Upland Edge Contact	Select one:		[NR, SBM, Sens]		
		The AA has no upland edge (or upland is <1% of perimeter). The AA is entirely surrounded by (& contiguous with)	0	1		
		other wetlands or water. 1-25% of the AA's perimeter abuts upland (including filled areas). The rest adjoins other wetlands or water that is	0	1		
		mostly wider than the AA.	U			
		25-50% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0			
		50-75% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0			
		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			
OF17	Flood Damage from	Within 5 km downstream or downslope of the AA (select first true choice):		In the GeoNB map viewer: click on "More" in upper right, then "Flood Information".	 	
l	Non-tidal Waters	Maps show Flood Zone or Flood Risk areas and there appears to be infrastructure vulnerable to river flooding not	0	Expand the menu under it by clicking on the arrow to its left and the slider to its		
		caused by tidal storm surges.	ľ	right. Uncheck the first (Limits of Data) box. Where available, LiDAR imagery can		
I		Maps show Flood Zone or Flood Risk areas, but infrastructure is absent or is not vulnerable to floods from a non-tidal	0	provide finer elevational resolution useful for flood modeling. [WSv]		
		river. In some cases levees, upriver dams, or other measures may partly limit damage or risk from smaller events.				
		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure vulnerable to river flooding unrelated to tidal storm surges.	0	1		
		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there is no	1	1		
		infrastructure vulnerable to river flooding unrelated to tidal storm surges.				

∩E10	Relative Elevation in	In Google Earth, enable the Terrain layer (lower left menu) and open the NB Watersheds KMZ file that accompanies		[FA, NR, Sens, SFSv, WCv, WSv]	ShedPos	
OF 16				[FA, NR, Seris, SFSV, WCV, WSV]	Shearos	
	Watershed	this calculator. Then determine the AA's approximate elevation (bottom right, NOT the "eye alt"). Then move cursor	1.00			
		around to determine the watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-min)				
OF19	Water Quality	In Google Earth, open the KMZ file NB_Watershed Protected Area which accompanies this calculator. The AA is	0	If an ACCDC report is available for this AA, it also may contain such information.		
	•	within such an area. Enter 1= yes, 0= no.		[NRv]		
	or Area					
OF20	Degraded Water	Sampling indicates a problem with concentrations of metals, hydrocarbons , nutrients , or other substances		May use existing data, or sample those waters as part of this wetland assessment.		
	Upstream	(excluding bacteria, acidic water, high temperatures) being present at levels harmful to aquatic life or humans, and:		"Harmful" should be evaluated with regard to current federal or provincial water		
				quality standards. [AM, FA, FR, NRv, PRv, SRv, STR, WBF, WBN]		
		The condition is present within the AA.	0			
		The condition is present in waters within 1 km that flow into the AA, but has not been documented in the AA itself.	0			
		Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in	0			
		either the AA or inflowing waters.				
		Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the	1			
0504	De sue de d'Meteu	situation for nearly all wetlands in this region.		NA		
UFZ I	F21 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,		
		The condition is present within 1 km downslope and connected to the AA by a channel.	0	PRv, SRv]		
		The condition is present within 5 km downslope and connected to the AA by a channel, or within 1 km but not	0			
		connected to the AA by a channel.		4		
		Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in	0			
		either the AA or inflowing waters. Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the	1			
			1			
OF22	Watland as a % of Its	situation for nearly all wetlands in this region. From a topographic map and field observations, estimate the approximate boundaries of the catchment (CA) of the		Topographic maps may be viewed online at the National Atlas of Canada		
01 22	Contributing Area	entire wetland of which the AA may be only a part. Then adjust those boundaries if necessary based on your field		(Toporama): http://atlas.gc.ca/toporama/en/index.html [NR, PR, Sens, SR,		
	(Catchment)	observations of the surrounding terrain, and/or by using procedures described in the Manual. Divide the area of the		WS]		
	(Catelinient)	wetland (not just the AA) by the approximate area of its catchment excluding the area of the wetland itself. When		W J		
		doing the calculation, if ponded water is adjacent to the wetland, include that in the wetland's area. The result is:				
		doing the calculation, it pointed water is adjacent to the wetland, include that in the wetland's area. The result is:				
		<0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	0			
		0.04 +- 0.4	4			
		0.01 to 0.1.	1			
		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	0			
0500		isolated by dikes, or is a raised bog).		IFA INIVANDA DDA CDA CTD MCA MC 1		
UF23	_	The proportion of the AA's contributing area (measured to no more than 1000 m upslope) that is comprised of		[FA, INV, NRv, PRv, SRv, STR, WCv, WSv]		
	_	buildings, roads, parking lots, other pavement, exposed bedrock, landslides, and other mostly-bare surface is about :				
	Area	<10%.	1			
		10 to 25%.	0			
		>25%.	0	1		
OE04	Transport France		U	[NDv DDv CDv MCv]		
UF24	Transport From	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as		[NRv, PRv, SRv, WSv]		
	Upslope	runoff (surface water), as 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.				
		Mostly true.	0			
		Somewhat true.	0			
	•			•	•	•

I	I	Mostly untrue.	1]		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]		
		Northward (N, NE). north-facing contributing area.	0	[,,,]		
		Southward (S, SW). south-facing contributing area.	0			
		Other (E, SE, W, NW), or no detectable uphill slope or input channel (flat).	1			
OF26	Internal Flow	The horizontal flow distance from the wetland's inlet to outlet is:		Identify inlets and outlets, if any, from topographic maps (use elevations to		
0.20	Distance (Path	<10 m.	0	determine which are inlets and which are outlets) and augment by field inspection.		
	Length)	10 - 50 m.	0	[NR, OE, PR, SR, WS]		
		50 - 100 m.	0			
		100 - 1000 m.	0			
		1- 2 km.	0			
		>2 km, or wetland lacks an inlet and outlet.	1			
OF27	Growing Degree	In Google Earth, open the KMZ file that accompanies this calculator, called NB-PEI_GrowingDegreeDays. Place your		This layer was provided by Dr. Dan McKenney of the Canadian Forest Service [AM,	GrowD	
· -	Days	cursor over the AA and left-click. From the pop-up, enter the GRIDCODE in the next column.	1500	CS, FR, INV, NR, OE, PH, PR, Sens, SR, WBF, WCv, WS]	0.02	
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. In NB, the list of stocked waters is at:		
		Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. In NB, consult	0	http://www2.gnb.ca/content/gnb/en/departments/erd/natural_resources/content/f		
		Figure A-2 in Appendix A of the Manual. Contact local fishery biologists, review the ACCDC report, and visit these		ish/content/StockedWaters.html		
		websites: http://www.salmonatlas.com/atlanticsalmon/canada-east/index.1.html		[AM, FA, FR, INV, WBF, WBN]		
		Has not been documented to support Atlantic salmon rearing and/or spawning, but is connected to nearby waters	0			
		likely to contain Atlantic salmon or other anadromous species or eels and is probably accessed by those during some				
		conditions.				
		Is probably is not accessed by any anadromous fish species but is known or likely to have other fish at least	0			
		seasonally. Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	1	1		
		is known of finely to be fishess (e.g.), too small, any, ana, or not accessible even temporarily, and not stocked,	·			
OF29	Species of	Within the past 10 years, in the AA (or in its adjoining waters or wetland), qualified observers have documented		Request information from ACCDC and/or conduct your own survey at an appropriate		
	Conservation	[mark all applicable]:	_	season using an approved protocol. For birds, also check eBird.org. [AMv, EC, PHv,		
	Concern	Presence of one or more of the plant species listed in the Plants_Rare worksheet of the accompanying Supplnfo file,	0	POLv, SBMv, Sens, WBFv, WBNv]		
		or the AA is within a mapped Atlantic Coastal Plain Flora Buffer Presence of one or more of the amphibian or reptile species (AM) of conservation concern as listed in the	0			
		Wildlife Rare worksheet of the accompanying Supplnfo file.	ŭ			
		Presence of one or more of the waterbird species (WBF, WBN) of conservation concern as listed in the Wildlife_Rare	0			
		worksheet of the accompanying Suppinfo file.				
		Presence of one or more of the nesting songbird or raptor species (SBM) of conservation concern as listed in the	1			
		Wildlife_Rare worksheet of the accompanying SuppInfo file, during their nesting season (May-July for most species).				
		None of the above, or no data.	0			
OF30	Important Bird Area	In Google Earth, open the KMZ file that accompanies this calculator, called IBAs_Canada. The AA is all or part of an	0	The source of this layer, which should be checked periodically for updates, is:		
	(IBA)	officially designated IBA. Enter 1= yes, 0= no.		http://www.ibacanada.com/mapviewer.jsp?lang=EN [SBMv, WBFv, WBNv]		
055:						
OF31	Black Duck Nesting	In Google Earth, open the KMZ file that accompanies this calculator, called BlackDuck. Adjust its alignment and	0	This was provided by Dr. David Leske. [WBNv]		
	Area	opacity. Determine the predicted density (pairs per 25 sq. km) of nesting American Black Duck in the AA's vicinity:				
		<10 (enter 0), 10-20 (enter 1), 20-30 (enter 2), >30 (enter 3). If outside of region shown in map, change to blank .				
OF32	Wintering Deer or	If AA is on private land with no information, change to blank (not 0). If on public/crown land, in Google Earth open		[SBM]		
	Moose	the KMZ file that accompanies this report called NB_DeerWinteringAreas.Otherwise: Enter: yes= 1, no= 0.				
	Concentration Areas					

2 - 2 5				
OF33	Other Conservation	With GeoNB, click on Candidate PNA Map Viewer to identify Provincially Significant Wetland, Environmentally	0	[PU]
	Designation	Significant Area, Protected Natural Area but also include if 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. Enter: yes= 1, no= 0. If uncertain, consult NCC and agencies for more recent		
		information		
OF34	Conservation	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve,	0	[PU]
	Investment	create, restore, or enhance the wetland (excluding mitigation wetlands). Ask the property owner. Enter: yes= 1, no=		
		0. If no information, change to blank (not 0).		
OF35	Mitigation	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere. Ask the property owner. Enter:		[PU]
	Investment	yes= 1, no= 0. If no information, change to blank.		
OF36	Sustained Scientific	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and		[PU]
	Use	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 to blank		
OF37	Calcareous Region	The AA is in an area that is at least partly underlain by soil, sediment, or bedrock that is highly calcareous (enter 3 in	0	If GIS is available, you may use the Bedrock Geology shapefile obtainable at
		next column), moderately calcareous (enter 2), or slightly calcareous (enter 1), none= 0. Limestone is typically a		http://www.snb.ca/geonb1/e/DC/catalogue-E.asp [AM, FA, FR, INV, PH]
		major component (karst geology) and water is not acidic (pH is usually >8). See Figure A-6 in Appendix A of the		
		Manual. If no map coverage, change to blank.		
OF38	Ownership	Select the ONE ownership that covers the most of the AA. In Google Earth, open KMZ file called NB Crown lands.Use		"Private lands" may include those owned or leased by non-governmental
		more recent information if available.		organizations, e.g., charitable conservation land trusts, DUC, TNC. [PU, STR]
		New timber harvest, roads, mineral extraction, and intensive summer recreation (e.g., off-road vehicles) are	0	
		permanently prohibited. Includes many publicly-owned Protected Lands, and private lands under long-term (30+		
		vear) legal agreements to maintain nearly-unaltered conditions.		
		Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are	0	
		allowed.		
		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable	0	
		or not) is in place.		
		Ownership is private and owner does not allow access, or access permission unknown, and not a conservation	1	
		easement.		

te: July 24, 2019	Site Identifier: Tapline WL- 6	Investiga	ator: DM		
ards its core, in the Conduct the assested and some allowed and some aring with the lastion pertains, see by, SFS= Stream Floot att, FA= Anadrom	Non-tidal Wetland Data Form. WESP-AC version 2 for New Brunswick wetland a part of the AA that is proposed for alteration. If no alteration is proposed, walk in a portion that appears to be sment only after reading the accompanying Manual and the Explanations column of the data form. In the Data indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not windowner or other knowledgable persons, and/or reviewing aerial imagery. For most wetlands, completing this is the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the accompanying Interpretations form. For deta	column, on the column, of the in shaffield data the accorute Remorat, WBN=	epresentative of the wetland overall. Walk only where it is safe and legal to do change the 0 (false) to a 1 (true) for the best choice, or for multiple choices ded parts of this data form. Answering some questions accurately may require a form will require 1-2 hours on a site. For a list of functions to which each mpanying Manual. Codes for functions and values are: WS= Water Storage & val, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate Nesting Waterbird Habitat, SBM= Songbird, Raptor, & Mammal Habitat, POL=		
Indicators	Condition Choices	Data	Definitions/Explanations	Cell Name	Comments
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		
	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. 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 rariflor a). Wetland surface and surrounding landscape are seldom sloping and wetland often is domed (convex). Inlet and outlet channels are usually absent. If known, pH of peat is <4.0.	0	leaves. They include rhododendron, azalea, swamp laurel, leatherleaf, Labrador tea, and others. Most require acidic soil. Although not in the family Ericaceae, sweetgale (<i>Myrica gale</i>) should be counted also. [AM, CS, FA, FR, INV, NR, OE, PH, Sens, SFS, WBF, WBN]		
	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		Fen_	
	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:				
	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			
	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		Marsh	
	tions, the AA should include all persistent waters in ponds smaller than 8 hectares (~283 m on a side) that are adjacent to also include part of the water area of adjacent ponded water larger than 8 ha and adjacent rivers wider than 20 m.				
	also include the open water part adjacent to wetland vegetation and equal in width to the average width of that vegetated				
ne. Throughout this da	ata form, "adjacent" is used synonymously with abutting, adjoining, bordering, contiguous and means no upland				
,	Impletely separates the described features along their directly shared edge. Features joined only by a channel are not to be adjacent a large portion of their edges must match. The features do not have to be hydrologically connected in order nt.				
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,		1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m,		
Adjoining or Subordinate	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.		1000 m by 10 m, or similar. [AM, INV, SBM, WBF]		
Suborumate	A1.	0]		
	A2.	0	1		
	B1. B2.	0	4		
Woody Height &	Following EACH row below, indicate with a number code the percentage of the living vegetation in the AA which is occupied by	U	Deciduous shrubs in this region usually include buttonbush, Labrador tea, bayberry (<i>Morella</i>),		
Form Diversity	that feature (6 if >95%, 5 if 75-95%, 4 if 50-75%, 3 if 25-50%, 2 if 5-25%, 1 if <5%, 0 if none). If the vegetated part of the AA is largely herbaceous (non-woody) vegetation, these percentages should not sum to 100%.		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		
1	coniferous trees (may include tamarack) taller than 3 m.	2	cover beneath the trees/shrubs is <25% moss, then question F1 might be "B1". [CS, INV, NR,		

•			I
	deciduous trees taller than 3 m.	3	PH, POL, SBM, Sens]
	coniferous or ericaceous shrubs or trees 1-3 m tall not directly below the canopy of trees.	3	
	deciduous shrubs or trees 1-3 m tall not directly below the canopy of trees.	3	
	coniferous or ericaceous shrubs <1 m tall not directly below the canopy of taller vegetation.	2	
	deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	2	
<u>lote</u> : If none of top 4 rows	s in F3 was marked 2 or greater, SKIP to F9 (N fixers).		
4 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]
Abundant Shrub	those species together comprise > 50% of such cover.	1	
Species	those species together do not comprise > 50% of such cover.	0	
5 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		Estimate the diameters at chest height. If small-diameter trees are overtopped (shaded) by
Classes	upland edge (perimeter). The edge should include only the trees whose canopies extend into the AA.		larger ones, visualise a "subcanopy" at the average height of the smaller-dbh trees, to serve
	coniferous, 1-9 cm diameter and >1 m tall.		as a basis for the minimum 5% canopy requirement in this question. The trees and shrubs
	broad-leaved deciduous 1-9 cm diameter and >1 m tall.	1	need not be wetland species. [AM, CS, POL, SBM, Sens, WBN]
	coniferous, 10-19 cm diameter.	1	
	broad-leaved deciduous 10-19 cm diameter.	1	
	coniferous, 20-40 cm diameter.	0	1
	broad-leaved deciduous 20-40 cm diameter.	0	
	coniferous, >40 cm diameter.	0	
	broad-leaved deciduous >40 cm diameter.	0	
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 <u>each</u> 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 scattered and intermixed throughout the AA.	1	
	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 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.	0	
	B2. Not B1. The less prevalent height class is mostly located apart from the prevalent one, in separate zones or clumps, or is	0	
Large Snags (Dead	completely 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 one
Standing Trees)	None, or fewer than 8/ hectare which exceed this diameter.	1	that are at least 2 m tall. [POL, SBM, WBN]
otalianing 11000)	Several (>8/hectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km.	0	, , , , ,
	Several (>8/hectare) but above not true.	0	1
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]
. Dominou violou	Few or none that meet these criteria.	0	
	Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria.	1	
N Fixers	The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa,		Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
IN I IVOIR	other legumes) is:		Do not morado it fixing digue of fielielis. [1 A, 1 It, 1144, 1414, OL, 1 II, ODIVI, OGIS]
	<1% or none.	1	
	1-25% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
	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	1
	>75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
0 Sphagnum Moss	The cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured		Exclude moss growing on trees and rocks. [CS, PH]
Extent	by taller sedges and other plants rooted in it, is:		
	<5% of the vegetated part of the AA.	0	
	5-25% of the vegetated part of the AA.	0	
	25-50% of the vegetated part of the AA.	0	
	50-95% of the vegetated part of the AA.	1	
Ī	>95% of the vegetated part of the AA.	0	

11	% 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		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that	ī
	Thatch	ground layer, the predominant condition in those areas at that time is:		is present under a tree or shrub canopy should be counted. Boulders count as bare ground.	`
		Little or no (<5%) bare ground is visible between erect stems or under canopy anywhere in the vegetated AA. Ground is	1	Wetlands with mineral soils and that are heavily shaded or are dominated by annual plant	
		extensively blanketed by dense thatch, moss, lichens, graminoids with great stem densities, or plants with ground-hugging foliage.		species tend to have more extensive areas that are bare during the early growing season. [AM, EC, INV, NR, OE, POL, PR, SBM, Sens]	
		Slightly bare ground (5-20% bare between plants) is visible in places, but those areas comprise less than 5% of the unflooded parts of the AA.	0	[run, 20, nvv, rux, 62, rvx, 65m, 66m]	
		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 AA.	0		
		Other conditions.	0		
		Not applicable. Surface water (either open or obscured by emergent plants) covers all of the AA all the time.	0	1	
12 (Ground Irregularity	Imagine the AA without any living vegetation. Excluding the portion of the AA that is always under water, the number of		The depressions may be of human or natural origin. [AM, EC, INV, NR, PH, POL, PR, SBM,	
		hummocks, small pits, raised mounds, animal burrows, ruts, gullies, natural levees, microdepressions, and other areas of peat or mineral soil that are raised or depressed >10 cm compared to most of the area within a few meters surrounding them is:		SR, WS]	
		Few or none (minimal microtopography; <1% of the land has such features, or entire AA is always water-covered).	0		
		Intermediate.	1		
		Several (extensive micro-topography).	0		
13 l	Jpland Inclusions	Within the AA, inclusions of upland are:		[AM, NR, SBM]	
		Few or none.	1		
		Intermediate (1 - 10% of vegetated part of the AA).	0		
		Many (e.g., wetland-upland "mosaic", >10% of the vegetated AA).	0	1	
14	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		[CS, NR, OE, PH, PR, Sens, SFS, WS]	7
		to check in at least 3 widely spaced locations, and use the soil texture key (in Appendix A of the Manual).]			
		Loamy: soils that may contain a little fine grit and do not make a "ribbon" longer than 2 cm when moistened, rolled, squeezed, and extended between thumb and forefinger.	0		
		Fines: includes silt, clay, silt, soils that make a ribbon longer than 2 cm when moistened, rolled, squeezed, and extended	0	1	
		between thumb and forefinger.			
		Deep Peat, to 40 cm depth or greater.	1		
		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 between thumb and forefinger.	0		
15	Shorebird Feeding	During any 2 consecutive weeks of the growing season, the extent of mudflats, bare unshaded saturated areas not covered by		This addresses needs of many but not all migratory sandpipers, plovers, and related species.	
	- Habitats	thatch, and unshaded waters shallower than 6 cm is: [Include also any area that is adjacent to the AA.]		[WBF]	
		None, or <100 sq. m.	1		
		100-1000 sq. m.	0		
		1000 – 10,000 sq. m.	0		
		>10,000 sq. m.	0		
16 I	Herbaceous % of	In aerial ("ducks eye") view, the maximum annual cover of herbaceous vegetation (all non-woody plants except moss) is:		[AM, WBF, WBN]	
١	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).	1		NoHerbCov
		5-25% of the vegetated part of the AA.	0	7	
		25-50% of the vegetated part of the AA.	0	1	
		50-95% of the vegetated part of the AA.	0	1	
		>95% of the vegetated part of the AA.	0	1	
17 I	orb 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,	
''	010 00101	<5% of the herbaceous part of the AA.	0	horsetails, or others that lack showy flowers. [POL]	
' <i>'</i>	0.0 0000	10% of the herbaceous part of the AA.	U		1
	0.5 00.0	5-25% of the herbaceous part of the AA.	0		
	SID COVO	5-25% of the herbaceous part of the AA.	_		
	CID COVO	5-25% of the herbaceous part of the AA. 25-50% of the herbaceous part of the AA.	0		
	CID COVO	5-25% of the herbaceous part of the AA. 25-50% of the herbaceous part of the AA. 50-95% of the herbaceous part of the AA.	0 0		AllForbCov
		5-25% of the herbaceous part of the AA. 25-50% of the herbaceous part of the AA. 50-95% of the herbaceous part of the AA. >95% of the herbaceous part of the AA.	0		AllForbCov
	Sedge Cover	5-25% of the herbaceous part of the AA. 25-50% of the herbaceous part of the AA. 50-95% of the herbaceous part of the AA.	0 0	[CS]	AllForbCov

		50-95% of the vegetated area.	0		
		>95% of the vegetated area.	0		
9	Dominance of Most	Determine which two herbaceous species comprise the greatest portion of the herbaceous cover (excluding mosses and floating-		For this question, include ferns as well as graminoids and forbs. [EC, INV, PH, POL, Sens]	
	Abundant	leaved aquatic plants). Then choose one of the following:			
	Herbaceous 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.	0		
		How extensive is the cover of invasive plant species in the AA? For species, see Plants_invasive worksheet in the accompanying		[EC, PH, POL, Sens]	
		SuppInfo file.			
		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 woody).	0		
		invasive species comprise 5-20% of the herb cover (or woody cover, if the invasives are woody).	0		
		invasive species comprise 20-50% of the herb cover (or woody cover, if the invasives are woody).	0		
		invasive species comprise >50% of the herb cover (or woody cover, if the invasives are woody).	0		
1		Along the wetland-upland boundary, the percent of the upland edge (within 3 m upslope from the wetland) that is occupied by		If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an	1
	·	invasive plant species is:		exotic species, assume the unidentified plant to also be exotic. If vegetation is so senesced	
		none of the upland edge (invasives apparently absent), or AA has no upland edge.	1	that exotic species cannot be identified, answer "none". [PH, STR]	
		some (but <5%) of the upland edge.	0		
		5-50% of the upland edge.	0		
		most (>50%) of the upland edge.	0		
2		During most of the year, open water within or adjacent to the vegetated part of the wetland is much wider than the maximum	0	[WBF, WBN, WCv]	1
_		width of the 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 a normal year.	0	[FR, PR, PU, WBF, WBN]	
		The percentage of the AA that <u>never_contains_surface</u> water during an average year (that is, except perhaps for a few hours after 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	
•		<1% . In other words, all or nearly all of the AA is covered by water permanently or at least seasonally.	0	TOUGHI DY TO HI, OF SHHIIIAH. [AIVI, FA, FK, HNV, NK, PH, FK, SDIVI, SEHS, SKV, WOF, WON, WO	
		1-25% of the AA, or <1% but >0.01 ha never contains surface water.	0]	
		25-50% of the AA, or 17% but >0.0 Fina never contains surface water.			
			0		
		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		AllSat2
		99-100%. AND there is no persistent ponded water body larger than 1 ha within the AA. Enter "1" and SKIP to F42 (Channel	1		AllSat1
:5	% of AA with	Connection). Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during		If you are unable to determine the condition at the driest time of year, ask the land owner or	1
		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		neighbors about it if possible. Indicators of persistence may include fish, some dragonflies,	
		AA that still contains surface water is:		beaver, and muskrat. [AM, CS, FA, FR, INV, NR, POL, PR, SBM, WBF, WBN]	
		None. The AA dries up completely (no water in channels either) or never has surface water during most years. SKIP to F27.	0		NoPer
		1-20% of the AA.	0		
		20-50% of the AA.	0		
		50-95% of the AA.	0		
		>95% of the AA. True for many fringe wetlands.	0		AllWet
26		At mid-day during the warmest time of year, the area of surface water within the AA that is shaded by vegetation and other	J	[FA, WC]	, ,
	Water that Is Shaded	features that are within the AA at that time is:			
		<5% of the water is shaded, or no surface water is present then.	0		1
		5-25% of the water is shaded.	0		
		25-50% of the water is shaded.	0		
		50-75% of the water is shaded.	0		
		>75% of the water is shaded.	0		
		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	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.		I 1000 marks (algarmats, adventitious 100ts, debns lines, ice scour, etc.) are often evident	
		None, or <0.01 hectare and <1% of the AA. SKIP to F29.	0	when not fully inundated. Also, such areas often have a larger proportion of upland and annual	NoSea

	20-50% of the AA.	0	multiplying by z the panktul neight and visualising where that would intercept the land along the river ICS FA INV NR OF PH SR WRF WRN WSI	
	50-95% of the AA.	0		
	>95% of the AA.	0		
	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,	,
9	<10 cm change (stable or nearly so).	0	INV, NR, OE, PH, PR, SR, WBN, WS]	
	10 cm - 50 cm change.	0		
	0.5 - 1 m change.	0		
	1-2 m change.	0	1	
	>2 m change.	0		
A plus adjacent po	onded water smaller than 0.01 hectare (about 10m x 10m, or 1m x 100 m)? If so, enter "1" in column D and			TooSmall
F42 (Connection)				
			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	3
	<10 cm deep (but >0).	0	asking about the spatial median depth that occurs during most of that time, even if inundation	
	10 - 50 cm deep.	0	is only seasonal or temporary. If inundation in most but not all of the wetland is brief, the	
	0.5 - 1 m deep.	0	answer will be based on the depth of the most persistently inundated part of the wetland.	
	'	0	Include surface water in channels and ditches as well as ponded areas. [CS, FA, FR, INV,	
	•	0	OE, PH, PR, Sens, SFS, SR, WBF, WBN, WC]	
		U	Estimate these prepartiess by considering the gradient and microtenegraphy of the site IED	-
	. , , , , , , , , , , , , , , , , , , ,		IIIV, VVDF, VVDINJ	
•	·			
		0		
			· · · · · · · · · · · · · · · · · · ·	
			Sens, SR, WBF, WBN, WC, WS]	
ioming/	· · · · · · · · · · · · · · · · · · · ·	0		NoPonded
		0		
	30-70% of the water.	0		
	70-95% of the water.	0		
	>95% of the water.	0		
linimum 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.	OpenW
	In ducks-eye aerial view, the percentage of the ponded water that is open (lacking emergent vegetation during most of the		[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	
іація Орен	None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	0		NoOpenPo
	1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	0	1	NoOpenPo
	·	0	1	
	•	0	1	
	·		1	
	· · · · · · · · · · · · · · · · · · ·		1	AllOpenPo
		, J	"Vagetated area" does not include underwater or fleeting legaced plants, i.e., assertic had	AllOpering
9				
one within Wetland		0		
			OO, NIA, OE, FII, FIX, ODIN, OGIIS, OK, WODIN]	
		_	4	
	10 - 29 m.	0	4	
	30 - 49 m.	0		
	50 - 100 m.	0		
	50 - 100 m. > 100 m, or open water is absent at that time.	0		
	Depth Classes - Evenness of Proportions of Water That Is Ponded (not Flowing)	50-95% of the AA. 395% of the	Annual Water Fluctuation Range Annual Water Fluctuation Range The annual fluctuation is surface water level within most of the parts of the AA that contain surface water at least temporarily is: The annual fluctuation is surface water level within most of the parts of the AA that contain surface water at least temporarily is: The annual fluctuation is surface water save level within most of the parts of the AA that contain surface water at least temporarily is: The annual fluctuation is surface water at least temporarily is: The annual fluctuation is surface water at least temporarily is: The annual fluctuation is surface water at least temporarily is: The annual fluctuation is surface water at least temporarily is: The annual fluctuation is surface water at least temporarily is: The annual fluctuation is surface water at least temporarily is: The annual fluctuation is surface water at least temporarily is: The annual fluctuation is surface water at least temporarily is: The annual fluctuation is surface water at least temporarily is: The annual fluctuation is surface water at least temporarily is: The annual fluctuation is surface water at least temporarily is: The annual fluctuation is surface water at least temporarily is: The annual fluctuation is surface water at least temporarily is: The annual fluctuation is surface water at least temporarily is: The annual fluctuation is surface water at least temporarily is: The annual fluctuation is surface water at least temporarily is: The annual fluctuation is surface water at least temporarily is: The annual fluctuation is surface water at least temporarily is: The annual fluctuation is surface water at least temporarily is: The annual fluctuation is surface water at least temporarily is: The annual fluctuation is surface water at least temporarily is: The annual fluctuation is surface water at least temporarily is: The annual fluctuation is surface water at least temporarily is: The annual fluctuation is surface water at least temporar	Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison of the Comparison

		<1% of the water edge.	0		
		1-25% of the water edge.	0		
		25-50% of the water edge.	0		
		50-75% of the water edge.	0		
		>75% of the water edge.	0		
36	Robust Emergents	The percentage of the emergent vegetation cover in the AA that is cattail (Typha spp.), common reed (Phragmites), or tall		Emergent vegetation is herbaceous plants whose stems are partly above and partly below	
	i tobalot =o.go.iio	(>1m) bulrush is:		the water surface during most of the time water is present. [WBN]	
		<1% of the emergent vegetation, or emergent vegetation is absent. SKIP to F38.	0		NoRobustEm
		1-25% of the emergent vegetation.	0		
		25-75% of the emergent vegetation.	0		
		>75%, of the emergent vegetation.	0	1	
37	Interspersion of	During most of the part of the growing season when water is present, the spatial pattern of emergent vegetation within the water	- C	[AM, FA, FR, INV, NR, OE, PH, PR, SBM, SR, WBF, WBN]	-
	· '	is mostly:		[AIVI, FA, FK, IIVV, NK, OL, FH, FK, SDIVI, SK, WDI , WDIV]	
	Emergents & Open	Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water.	0		
	Water	Intermediate.	0		
		Clumped. More than 70% of such vegetation is in bands along the wetland perimeter or is clumped at one or a few sides of the	0	1	
		surface water area.	U		
8	Persistent Deenwater	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	0		DeepPersis
		weeks during the growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection).			200pi 01010
	7 11 0 04				
	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		For this question, consider only the wood that is at or above the water surface. Estimates of	
	Aquatic Cover	that is provided NOT by living vegetation, but by accumulations of dead wood and undercut banks is: Little or none.	0	underwater wood based only on observations from terrestrial viewpoints are unreliable so	
				should not be attempted. [AM, FA, FR, INV]	
		Intermediate.	0		
		Extensive.	0		
10	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	0	[WBN]	
		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			
11	Flooting Algon 0	sufficiently large and dense to support a waterbird nest. At some time of the year, mats of algae and/or duckweed are likely to cover >50% of the AA's otherwise-unshaded water surface,	0	[EC, PR, WBF]	4
	5 5	or blanket >50% of the underwater substrate. If true, enter "1" in next column. If untrue or uncertain, enter "0".	U	[EO, PR, WBF]	
	2 4 5 1 1 1 2 5 4				
12	Channel Connection	The most persistent surface water connection (outlet channel or pipe, ditch, or overbank water exchange) between the AA and a		Consider the connection regardless of whether the surface water is frozen. The "downslope	
	& Outflow Duration	downslope stream network is: [Note: If the AA represents only part of a wetland, answer this according to whichever is the least		stream network" could consist of ditches, rivers, ponds, or lakes which eventually connect to	
		permanent surface connection: the one between the AA and the rest of the wetland, or the surface connection between the		the ocean. If this cannot be determined while visiting the AA, consult topographic maps	
		wetland and the downslope stream network.1 Persistent (surface water flows out for >9 months/year).	0	perhaps by viewing these online with Toporama	
		· · ·	0	(http://atlas.nrcan.gc.ca/toporama/en/index.html) [CS, FA, FR, NR, OE, PR, Sens, SFS, SR,	
		Seasonal (surface water flows out for 14 days to 9 months/year, not necessarily consecutive).	0	WCv, WS]	
		Temporary (surface water flows out for <14 days, not necessarily consecutive).	1		0.01.4
		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		OutNone1
		No surface water flows out of the wetland except possibly during extreme events (<once 10="" a<="" flows="" into="" only="" or,="" per="" td="" water="" years).=""><td>0</td><td>1</td><td>Outnone</td></once>	0	1	Outnone
		wetland, ditch, or lake that lacks an outlet. SKIP to F47 (pH Measurement).			Gallone
13	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	
		Mostly passes through a pipe, culvert, narrowly breached dike, berm, beaver dam, or other partial obstruction (other than natural	0	snowmelt. [CS, NR, OE, PR, Sens, SR, STR, WS]	
		topography) 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		
		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	0	1	
		edge, which drain the wetland artificially, or water is pumped out of the AA.			
14	Tributary Channel	At least once annually, surface water from a tributary channel that is >100 m long moves into the AA. Or, surface water from a		If inlet tributaries cannot be searched for due to inaccessibility of part of the AA, follow	Inflows
		larger permanent water body adjacent to the AA spills into the AA. If it enters only via a pipe, that pipe must be fed by a mapped	0	suggestions in F42 above. [NRv, PH, PRv, SRv]	
		stream or lake further upslope. If no, SKIP to F47 (pH Measurement).			
15	Input Water	Based on lack of shade, water source characteristics, or actual temperature measurements, the inflow is likely to be warmer than	0	[WCv]	
	Temperature	surface water in the AA during part of most years. Enter 1= yes, 0= no.			
16	Throughflow	During its travel through the AA at the time of peak annual flow, water arriving in channels: [select only the ONE encountered by		[FA, FR, INV, NR, OE, PR, SR, WS]	
-	549511	- 5		, , , , , , , , , , , , , , , , , , , ,	

Does not bump into many plant stems as a travels through the AA. Nearly all the water continues to travel in unvegetated (often inclased) channels. Bumps into herbaceous vegetation and mostly systeads throughout, or is in widely meandaring, multi-branched, or braided channels. Bumps into herbaceous vegetation and mostly systeads throughout, or is in widely meandaring, multi-branched, or braided channels. Bumps into tree trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or braided). The pit in tone trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or braided). The pit in tone trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or braided). The pit in time trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or braided). The pit in most of the AA's surface water. Was not measured but surface water is present and is darkly tea-coloured. Or if no surface water, then mosses and plants that indicate spetial rise. Lise 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 spetial rise. Lise and the pit in the column to the right.] Was not measured to show. Enter '1'. The TDS fitted if several social social conductivity of the AA's surface water is (select the first true row with information): Conductivity TDS at: [Enter the reading in ppm or rmgl. in the column to the right.] Was not measured must be a present and indicate sating in pps or mgl. in the column to the right.] Was not measured must be a present and proximity in the reading in pps or mgl. in the column to the right.] Was not measured must be reading in pps or mgl. in the column to the right.] Was not measured must be right and the reading in pps or mgl. in the column to the right.]	incised) channels that have minimal contact with wetland vegetation, or through a zone of open water such as an instream pond or lake. Bumps into herbaceous vegetation but mostly remains in fairly straight channels. Bumps into herbaceous vegetation and mostly spreads throughout, or is in widely meandering, multi-branched, or braided channels.
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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 beases site characteristics above are deficient, and/or this is a settled area or other area where beaver are routinely removed. Select first applicable choice: Strength of Evidence Springs are known to be present within the AA, or if groundwater levels have been monitored, that has demonstrated that groundwater primarily discharges to the wetland for longer periods during the year than periods when the wetland recharges the groundwater. Select first applicable with groundwater seeps may be most noticeable as orange discoloration in ice formations along streams during early winter. [AM, CS, FA, FR, INV, NR, OE, PH, PF, PR, SBM, Sens, WBF, WBN] [FA, FR, PH, SBM, Sens, WBF, WBN] [FA, FR	
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Evident from direct observation or presence of gnawed limbs, dams, tracks, dens, lodges, or extensive stands of water-killed 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: Strength of Evidence Springs are known to be present within the AA, or if groundwater levels have been monitored, that has demonstrated that groundwater primarily discharges to the wetland for longer periods during the year than periods when the wetland recharges the groundwater seeps may be most noticeable as orange discolorating in ice formations along streams during early winter. [AM, CS, FA, FR, INV, NR, OE, PH, PF, PF, PF, PF, PF, PF, PF, PF, PF, PF	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]
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	SFS, WC, WS]
Most of the AA has a slope of >5%, or is very close to the base of a natural slope longer than 100 and much steeper than the	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.	slope of the AA, AND the pH of surface water, if known, is >5.5.
Neither of above is true, although some groundwater may discharge to or flow through the AA. Or groundwater influx is unknown.	Neither of above is true, although some groundwater may discharge to or flow through the AA. Or groundwater influx is unknown.
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	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 A
<2% or the AA has no surface water outlet (not even seasonally). or the AA has no surface water outlet (not even seasonally).	
available, use a clinometer to measure this. Free clinometer apps can be downloaded to	
6-10% smartphones. If the wetland is large (longer than ~1 km), this may be estimated using Goo	Earth to determine the minimum and maximum elevation within the AA, then dividing by I
	emertahansa If the wetland is large (larger than 11 km) this may be estimated using Co
6-10% smartphones. If the wetland is large (longer than ~1 km), this may be estimated using Goo	>10%. Earth to determine the minimum and maximum elevation within the AA, then dividing by I

3 T ype	e 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		[AM, FA, INV, NRv, PH, POL, SBM, STR, WBN]	1
Buff		(mark ONE):		hin, th, inv, the, the object of the object	
		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.	0		
54 Buff		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		[NRv, PRv, Sens, SRv]	
		area has a percent slope of:		-	
		<1% (flat almost no noticeable slope) or all the area within 30 m of the AA edge is other wetlands.	0		
		2-5%.	0		
		5-30%. >30%.	0		
E CI:E				Do not include unturned trace as notantial den sites. IDOL CDMI	
55 Cliffs	·	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]	
6 New		Human actions within or adjacent to the AA have persistently expanded a naturally occurring wetland or created a wetland where		Determine this using historical aerial photography, old maps, soil maps, or permit files as	
		there previously was none (e.g., by excavation, impoundment):		available [CS, NR, OE, PH, Sens]	
		No.	1		
		Yes, and created or expanded 20 - 100 years ago.	0	1	
		Yes, and created or expanded 3-20 years ago.	0	1	
		Yes, and created or expanded within last 3 years.	0	1	
		Yes, but time of origin or expansion unknown.	0	1	
		Unknown if new or expanded within 20 years or not.	0		
57 Burr	,	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,	
		Burned within past 5 years.	_	PH, STR]	
		Burned 6-10 years ago.	0	1	
		Burned 11-30 years ago.	0		
.0 \		Burned >30 years ago, or no evidence of a burn and no data.	1	TOUL OTD WIDE 1	
58 Visil		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]	
		Solid lings, or public maintained trails that intersect, adjoin, or are within 100 m of the AA (select one) is:	1	1	
		25-50%.	0	1	
		>50%.	0	1	
59 Non		Assuming access permission was granted, select ALL statements that are true of the AA as it currently exists:		[PU, STR]	
		For an average person, walking is physically possible <u>in</u> (not just near) >5% of the AA during most of the growing season, e.g.,	1	j ´ ´	
	ential	free of deep water and dense shrub thickets.			
		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	0		
		arriving via contiguous waters. Within or near the AA, there is an interpretive center, trails with interpretive signs or brochures, and/or regular guided interpretive	0	1	
		tours	0		
30 Unv	visited Core Area	The percentage of the AA almost never visited by humans during an average growing season probably comprises: [Note: Only		[AM, FAv, FRv, PH, PU, SBM, STR, WBF, WBN]	
		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.1 <5% and no inhabited building is within 100 m of the AA.	0	1	
		<5% and inhabited building is within 100 m of the AA.	0	1	
		5-50% and no inhabited building is within 100 m of the AA.	0	1	
		5-50% and inhabited building is within 100 m of the AA.	0	1	
		50-95%, with or without inhabited building nearby.	0	1	
		>95% of the AA with or without inhabited building nearby.	1	1	
31 Fred	quently Visited	The part of the AA visited by humans almost daily for several weeks during an average growing season probably comprises:		[AM, PH, PU, SBM, STR, WBF, WBN]	
Area	-	[See note above.]		, , , , , , , , , , , , , , , , , , , ,	
		<5%. If F60 was answered ">95%" (mostly never visited), SKIP to F64 .	1		
		5-50%.	0]	
		50-95%.	0]	

1	I	>95% of the AA.	0]	
F62	BMP - Soils	Boardwalks, paved trails, fences or other infrastructure and/or well-enforced regulations appear to effectively prevent visitors from walking on soil within nearly all of the AA when the soil is unfrozen. Enter "1" if true.	0	[PH, PU]	
F63	BMP - Wildlife Protection	Fences, observation blinds, platforms, paved trails, exclusion periods, and/or well-enforced prohibitions on motorised boats, off-leash pets, and off road vehicles appear to effectively exclude or divert visitors and their pets from the AA at critical times in order to minimize disturbance of wildlife (except during hunting seasons). Enter "1" if true.	0	[AM, PU, WBF, WBN]	
F64	Consumptive Uses	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select ALL that apply.		[FAv, FRv, WBFv]	
	(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	0		
	Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0		
		Waterfowl hunting.	0		
		Fishing.	0		
		Trapping of furbearers.	0		
		None of the above.	1		
F65	Domestic Wells	The closest wells or water bodies that currently provide drinking water are:		[NRv]	
		Within 0-100 m. of the AA.	0	1	
		100-500 m. away.	0]	
		>500 m. away, or no information.	1		
F66	Calcareous Fen	The AA is, or is part of, a calcareous fen. See the Plants_Calcar worksheet in the accompanying SuppInfo file for list of plant indicators (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]	

Aberrant Timing of Water Inputs In the last column, place a check mark next to any item to	Site Identifier: Tapline WL 6		Date: July 24, 2019	
In the last column, place a check mark next to any item t	-Tidal Wetlands. WESP-AC for Ne	w Brunswick. Version 2.		D:
	hat is likely to have caused the timing of water inputs (but not necessa	arily their volume) to shift by hours, days, or weeks, becoming eit	ther more muted (smaller or less frequent peaks spread over	er
	er levels) or more flashy (larger or more frequent spikes but over shorte		(
Stormwater from impervious surfaces that drains direct Water subsidies from wastewater effluent, septic syster	•			+-
Regular removal of surface or groundwater for irrigation	n or other consumptive use.			
	adjoining water body, or other control structure at water entry points the radient from the wetland that interferes with surface or subsurface flo			+
Excavation within the wetland, e.g., dugout, artificial po		ow invote of the AA (e.g., road iiii, weilpads, pipelines).		+
Artificial drains or ditches in or near the wetland.				
Accelerated downcutting or channelization of an adjace Logging within the wetland.	ent or internal channel (incised below the historical water table level).			+-
·	s a result of machinery, livestock, fire, drainage, or off road vehicles.			
Straightening, ditching, dredging, and/or lining of tributa	rry channels. The table below, assign points. However, if you believe the checked item	ns 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	e
	condition with the condition if the checked items never occurred or were		an, part of the first and the to the too too make	
	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.	
	on within past 10 years, and only for the part of the wetland that experie		Ohith of house as gringles	
Input timing now vs. previously: Flashiness or muting:	Shift of weeks. Became very flashy or controlled.	Shift of days. Intermediate.	Shift of hours or minutes. Became mildly flashy or controlled.	+
i ladimidad di mating.	became very macrif or controlled.	internediate.	Sum	n=
			Stressor subscore	e= 0
Accelerated Inputs of Contaminants	and/or Salts - occurring in either the wetland or its CA that is likely to have accele	exerted the inpute of conteminents or cells to the AA IAM EA DL	L DOL STDI	+
	· · · · · · · · · · · · · · · · · · ·	stated the inputs of contaminants of saits to the AA. [Aivi, FA, FF	1, 1 OL, 3 IN	
Stormwater or wastewater effluent (including failing sep- metals & chemical wastes from mining, shooting range:	nic systems), ianumis, muusman laciintes. s, snow storage areas, oiir gas extraction, other sources (uowinoau ma	any locations from National Foliutant Nelease inventory and view	NNIZ ovenay iii Google Eartii. https://www.ec.gc.ca/iiip-	+
Road salt.				
Spraying of pesticides, as applied to lawns, croplands,			de de calendar de la	
	ne table below, assign points. However, if you believe the checked item at the current condition with the condition if the checked items never oc		ers or contaminants and/or salts, then leave the "U's" for 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			Stressor subscore	e= (
•	- occurring in either the wetland or its CA that is likely to have accele	erated the inputs of nutrients to the wetland. [NRv, PRv, STR]		
Stormwater or wastewater effluent (including failing sep	, ,			
Fertilizers applied to lawns, ag lands, or other areas in Livestock, dogs.	he CA.			_
Artificial drainage of upslope lands.				+
If any items were checked above, then for each row of the	ne table below, assign points. However, if you believe the checked item		ents, then leave the "0's" for the scores in the following row	S.
To estimate effects, contrast the current condition with the	ne condition if the checked items never occurred or were no longer pres Severe (3 points)	esent. Medium (2 points)	Mild (1 point)	+
Type of loading:	High density of unmaintained septic, some types of	Moderate density septic, cropland, secondary wastewater	Livestock, pets, low density residential.	_
Frequency & duration of input:	industrial sources. Frequent and year-round.	treatment plant. 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=
Evensive Sediment Leading from (antuihutina Avaa		Stressor subscore	e= (
Excessive Sediment Loading from C	present in the CA that is likely to have elevated the load of waterborne	a or windhama codiment reaching the watland from its CA_IEA_E	ED INIV DLI CD., CTDI	+
Erosion from plowed fields, fill, timber harvest, dirt road	•	or windborne sediment reacting the wetland from its CA. [FA, F.	r, IIVV, FN, SKV, STRJ	
Erosion from construction, in-channel machinery in the				
Erosion from off-road vehicles in the CA.				
Erosion from off-road vehicles in the CA. Erosion from livestock or foot traffic in the CA.				
Erosion from off-road vehicles in the CA. Erosion from livestock or foot traffic in the CA. Stormwater or wastewater effluent.	g, oil/ gas extraction.			
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 Accelerated channel downcutting or headcutting of tributers.				
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Assessment Area (AA) Results:

Wetland ID: Tapline WL 6

Date:

Observer: DM

Latitude & Longitude (decimal degrees):

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)	4.96	Moderate	2.44	Lower	5.55	2.50
Stream Flow Support (SFS)	2.60	Lower	10.00	Higher	1.39	6.03
Water Cooling (WC)	0.00	Lower	0.00	Lower	0.00	0.00
Sediment Retention & Stabilisation (SR)	3.50	Moderate	1.10	Lower	5.56	0.67
Phosphorus Retention (PR)	2.65	Lower	0.37	Lower	4.78	0.67
Nitrate Removal & Retention (NR)	2.67	Moderate	2.50	Lower	5.48	3.33
Carbon Sequestration (CS)	6.44	Higher			7.34	
Organic Nutrient Export (OE)	6.77	Higher			5.93	
Anadromous Fish Habitat (FA)	0.00	Lower	0.00	Lower	0.00	0.00
Resident Fish Habitat (FR)	0.00	Lower	0.00	Lower	0.00	0.00
Aquatic Invertebrate Habitat (INV)	6.63	Higher	0.66	Lower	6.21	1.60
Amphibian & Turtle Habitat (AM)	2.11	Lower	2.15	Lower	4.41	3.40
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)	6.27	Moderate	10.00	Higher	5.20	10.00
Pollinator Habitat (POL)	7.33	Moderate	0.00	Lower	5.90	0.00
Native Plant Habitat (PH)	5.31	Moderate	4.26	Moderate	5.23	3.70
Public Use & Recognition (PU)			2.15	Lower		1.86
Wetland Sensitivity (Sens)			8.27	Higher		4.68
Wetland Ecological Condition (EC)			7.83	Higher		8.75
Wetland Stressors (STR) (higher score means more stress)			1.84	Lower		2.93
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	2.60	Moderate	2.44	Lower	5.55	2.50
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	3.22	Moderate	1.91	Lower	6.57	2.44
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	5.39	Moderate	6.78	Higher	4.79	4.29
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	1.26	Lower	1.29	Lower	2.65	2.04
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	6.82	Moderate	7.38	Higher	5.67	7.28
WETLAND CONDITION (EC)			7.83	Higher		8.75
WETLAND RISK (average of Sensitivity & Stressors)			5.05	Higher		3.81

New Brunswick Reference Scores

Min Max Range F_JenksLo F_JenksHigh Min Max Range B_JenksLo B JenksHigh 0.00 5.33 5.33 6.56 0.00 5.83 5.83 6.16 0.00 6.02 6.02 4.79 3.16 10.00 6.84 0.00 6.07 6.07 2.90 10.00 7.10 4.17 0.33 9.38 9.04 4.55 3.83 10.00 6.17 4.36 1.11 10.00 8.89 7.19 4.56 8.88 4.31 2.33 7.64 5.30 0.00 6.13 6.13 6.71 0.00 7.39 7.39 4.44 0.00 5.95 5.95 6.29 0.00 7.09 7.09 4.48 5.58 1.24 6.64 5.39 5.74 3.30 8.58 5.28 6.25 6.30 2.09 8.16 6.06 7.96 7.96 6.84 0.00 10.00 10.00 0.00 8.54 8.54 5.42 0.00 10.00 10.00 6.67 0.00 8.29 8.29 7.24 0.00 10.00 10.00 0.00 8.05 8.05 0.00 10.00 10.00 6.67 3.08 7.12 4.03 5.98 0.00 8.68 8.68 6.33 0.33 7.44 7.11 2.20 5.20 2.99 4.24 10.00 5.76 6.39 4.97 2.58 4.15 6.04 4.99 6.22 6.29 4 68 0.00 6.39 4.33

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 the 98 NB calibration wetlands that were assessed previously.

Cover Page: Basic Description of Assessment	WESP-AC version 2
Site Name:	Tapline WL-7
Investigator Name:	Derrick Mitchell
Date of Field Assessment:	July 24, 2019
Nearest Town:	Grand Anse, NB
Latitude (decimal degrees):	47.763225°
Longitude (decimal degrees):	-65.139596°
Is a map based on a formal on-site wetland delineation available?	Yes
Approximate size of the Assessment Area (AA, in hectares):	18 ha (linear corridor)
AA as percent of entire wetland (approx.). Attach sketch map if AA is smaller than the entire contiguous wetland.	<5
What percent (approx.) of the wetland were you able to visit?	<5
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):	

Date: July 24, 2019	Site Identifier: Tapline WL-7	Investigator: DM

Form OF (Office). Non-tidal Wetland Data Form. WESP-AC version 2 for New Brunswick 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

GeoNB: http://www.snb.ca/geonb1/ and http://www.snb.ca/geonb1/e/apps/apps-E.asp

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

#	Indicators	Condition Choices	Data	Definitions/Explanations	Cell Name	Comments
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		
		New Brunswick	1	automatic exclusion of indicators for which no spatial data exists in a particular	NB	
		Nova Scotia	0		NS	
		Prince Edward Island	0		PEI	
		Newfoundland-Labrador	0		NL	
2		The area of surface water ponded during most of the growing season that is both (1) in or adjacent to the AA and (2)		"Adjacent" means not separated from the AA by a wide expanse (>50 m) of upland		
		within 1 km is:	0	(including roads >50 m wide). Include ponded areas likely to be hidden by wetland		
		<0.01 hectare (about 10 m x 10 m).	0	vegetation. If surface water extends beyond 1 km, include only the part within 1 km.		
	I	0.01 - 0.1 hectare.	0	Do not include tidal areas. Measure the area from aerial imagery using Google Earth		
		0.1 - 1 hectare.	0	Pro (click on Ruler icon in toolbar, then Polygon in pop-up menu). With the GeoNB viewer, enable the Wetlands layer, then measure with the Draw & Measure tool after		
		1 to 10 hectares.	0	specifying Aerial as the Basemap. However, do not rely entirely on wetland		
		10 to 100 hectares.	0	boundaries shown in online wetlands layers. [PH, SBM, WBN]		
		>100 hectares.	0			
F3		The area of wetlands and surface water ponded during most of the growing season that is both (1) in or adjacent to		See definition of adjacent in OF2. If the AA's wetland vegetation extends beyond 1		
		the AA and (2) within 1 km is:	0	km, include only the part within 1 km. "Ponded" means not flowing in rivers or		
		<0.01 hectare (about 10 m x 10 m).	0	streams. [Sens, WBF]		
		0.01 - 0.1 hectare.	0			
		0.1 - 1 hectare.	0			
		1 to 10 hectares.	0			
		10 to 100 hectares.	0			
		>100 hectares.	1			
F4	_	The largest vegetated patch or corridor that includes the AA's vegetation plus all adjacent upland vegetation that is		See definition of adjacent in OF2. Use Google Earth Pro's polygon ruler (as described		
	, -	not lawn, row crops, heavily grazed lands, conifer plantation is:		above). Exclude conifer plantations only if it is obvious that trees were planted in		
	Tract or Corridor	<0.01 hectare (about 10 m x 10 m).	0	rows. [AM, PH, SBM, Sens]		
		0.01 - 0.1 hectare.	0			
		0.1 - 1 hectare.	0			
		1 to 10 hectares.	0			
		10 to 100 hectares.	0			
		100 to 1000 hectares.	0			
		>1000 hectares. [This is nearly always the answer in relatively undeveloped landscapes.]	0		<u> </u>	
F5	Distance to Large	The minimum distance from the edge of the AA to the edge of the closest vegetated land (but excluding row crops,		To measure distance, use Google Earth Pro (Ruler > Line tool). Or use Draw &		
	Vegetated Tract	lawn, conifer plantation) larger than 375 hectares (about 2 km on a side), is:		Measure tool at GeoNB. The 375-ha criterion is from the Fundy Model Forest Project.		

	=			,		-
J		<50 m, and not separated from the 375-ha vegetated area by any width of paved roads, stretches of open water,	0 7	[AM, PH, POL, SBM, Sens]	4	1
J		row crops, bare ground, lawn, or impervious surface. Or the AA itself contains >375 ha of vegetation. [This is often	1	1 J	4	1
J	4	the answer in relatively undeveloped landscapes.]	4	J	4	1
J		<50 m, but completely separated from the 375-ha vegetated area by those features, and AA does not contain >375	0	1 J	4	1
J		ha of vegetation.	0	J	4	1
J		50-500 m, and not separated.	1 °	J	4	1
J		50-500 m, but separated by those features.		_l	4	1
J	4	0.5 - 5 km, and not separated.	0 '	1 J	4	1
J	4	0.5 - 5 km, but separated by those features.	0	1 J	4	1
J	4	None of the above (the closest patches or corridors which are that large are >5 km away).	1	⊿	4	1
.)F6		The AA's vegetation cover is >10% herbaceous* but uplands within 5 km have <10% herbaceous cover. If so, enter	0	For this question only, consider moss to be herbaceous vegetation. Determine the	1	
		"3" and continue to OF7. If not, consider:	1	score by viewing aerial imagery in Google Earth after successively drawing or	4	1
J	•	The AA's vegetation cover is >10% herbaceous* but uplands within 1 km have <10% herbaceous cover. If so enter "2"	1	estimating the boundaries of the buffers of 5 km, 1 km, and 100 m radius focused on	4	1
J		and continue to OF7. If not, consider:	1	the center of the AA. Circles of specified radius can be drawn in Google Earth Pro by		1
J		The AA's vegetation cover is >10% herbaceous* but uplands within 100 m of the wetland edge have <10%	1	clicking on the Ruler icon, then Circle in the pop-up menu. [AMv, PHv, POLv, SBMv,	4	1
J		herbaceous cover. If so, enter "1".		WBFv, WBNv]	4	1
J	4	[* NOTE: Exclude lawns, row crops, heavily grazed lands, forest, shrublands. Include moss as well as grasslike plants	1	1 J	4	1
J	4	in this use of "herbaceous vegetation"]	1	1 J	4	1
		•	4		 '	4
OF7		The AA's vegetation cover is >10% woody* but uplands within 5 km have <10% woody cover. If so, enter "3" and		See above. Do not consider conifer plantations to be forest if it is obvious that trees	4	1
J		continue to OF8. If not, consider:	1	were planted in rows. [AMv, PHv, POLv, SBMv]	4	1
J		The AA's vegetation is >10% woody* but uplands within 1 km have <10% woody cover. If so enter "2" and continue	1	1 J	4	1
J		to OF8. If not, consider:	1	1 J	4	1
J		The AA's vegetation is >10% woody* but uplands within 100 m of the wetland edge have <10% woody cover. If so,	1	1 J	4	1
, J	4	enter "1"	1	1 J	4	1
J	·	[* NOTE: woody cover = trees & shrubs taller than 1 m.]	1 _ '	J	·'	1J
OF8	Local Vegetated	Draw a 5-km radius circle measured from the center of the AA. Ignoring all permanent water in the circle, the		In Google Earth, draw the 5 km buffer and then estimate land cover percentages, or	1	
, ,	_	percent of the remaining area that is wooded or unmanaged herbaceous vegetation (NOT lawn, row crops, bare or		do GIS analysis of an appropriate land cover layer. [AM, PH, POL, SBM, Sens]	4	1
, J		heavily grazed land. clearcuts. or conifer plantations) is:		⊿	4	1
, J		<5% of the land.	0	1 J	4	1
, ,	,	5 to 20% of the land.	0	1 J	4	1
, J	4	20 to 60% of the land.	1	⊿	4	1
, J	I -	60 to 90% of the land.	0	1 J	4	1
, J		>90% of the land. SKIP to OF10.	0	1 J	4	1
OF9	<u> </u>	Within the 5-km radius circle, and ignoring all permanent water, the land area that is bare or non-perennial cover is		[AM, SBM]		
		mostly:		[Alvi, Solvi]	4	1
, J		Impervious surface, e.g., paved road, parking lot, building, exposed rock.	1	⊿	4	1
, ,		Bare pervious surface, e.g., lawn, recent (<5 yrs ago) clearcut, dirt or gravel road, cropland, landslide, conifer	1	⊿	4	1
, J		plantation.		⊿	4	1
OF10				"Population center" means a settled area with more than about 5 regularly-	4	
		<100 m.	0	inhabited structures per square kilometer. In Google Earth, click on the Ruler icon,	1 ,	1
		100 - 500 m.		then Path, and draw and measure the route. Or use the GeoNB's Draw & Measure	,	1
. J	I	100 - 500 m. 0.5- 1 km.	1 0	tool> Freehand Line to draw and measure the route to Settlements (click on Place	1 ,	1
, J	-	0.5- 1 km. 1 - 5 km.	1	Names in menu) or other areas not close to mapped settlements but which meet the	,	1
. J	I -	1 - 5 km. >5 km.		criteria.[FAv, FRv, NRv, PH, PU, SBM, WBFv]	,	1 ,
2511			1 7	The state of the state of the second linear section of the state of the second		
	I	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 and measuring with the Ruler>Line tool. Or use the GeoNB's Draw Line tool. [AM, FAv, FRv, NRv, PH, PU,	4	1
, J '	I -	<10 m.		SBM, STR, WBN]	4	1
	-	10 - 25 m.	1 0	SBIVI, STR, VVDIVI	4	1
i h	4	25 - 50 m.		⊿	4	1
	I -			<u> </u>	4	-
		50 - 100 m. 100 - 500 m.	0		`	1

		>500 m.	0]	1	
	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	In NB, enable the Wetlands layer in GeoNB (despite its omissions) to show surrounding wetlands and roads, while estimating the location of the 5 km circle (or draw the 5 km circle in Google Earth Pro using the Circle tool and compare). Evaluate using Google Earth, being cautious to search for roads hidden under forest canopy.		
OF13	Distance to Ponded Water	The distance from the AA center to the closest (but separate) ponded water body visible in GoogleEarth imagery is:		In Google Earth, zoom in closely to examine the surrounding landscape for ponds, lakes, and wetlands that appear to be permanently flooded. Enable the GeoNB		
		<50 m, and not separated by any width of paved roads, stretches of open water, row crops, lawn, bare ground, or impervious surface.		viewer's Wetlands layer as well. [AM, PH, SBM, Sens, WBF, WBN]		
		<50 m, but completely separated by those features.	0			
		50-500 m, and not separated.	0			
		50-500 m, but separated by those features.	0			
		0.5 - 1 km, and not separated.	0			
		0.5 - 1 km, but separated by those features.	1			
		None of the above (the closest patches or corridors that large are >1 km away).	0			
OF14	Distance to Large	The distance from the AA center to the closest (but separate) non-tidal body of water that is ponded during most of		Determine this by viewing aerial imagery in Google Earth. [Sens, WBF, WBN]		
	Ponded Water	the year and is larger than 8 hectares during most of a normal year is:	^	ļ		
		<100 m.	0			
		100 m - 1 km.	0			
		1 -2 km.	0			
		2-5 km.	0			
		5-10 km.	0]		
		>10 km.	1			
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		
		<100 m.	0	river, whichever is closer. If you need to see how far upriver a river is tidal, see the		
		100 m - 1 km.	0	KMZ file provided with this calculator for NB (NB Headtide). Points shown in those		
		1 - 5 km.	1	files are only an approximation, so local information if available may be preferable.		
		5-10 km.	0	[FA, WBF]		
		10-40 km.	0	1		
		>40 km.	0	1		
OF16	Upland Edge Contact	Select one:		[NR, SBM, Sens]		
		The AA has no upland edge (or upland is <1% of perimeter). The AA is entirely surrounded by (& contiguous with)	0	1		
		other wetlands or water. 1-25% of the AA's perimeter abuts upland (including filled areas). The rest adjoins other wetlands or water that is	0	1		
		mostly wider than the AA.	U			
		25-50% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0			
		50-75% of the AA's perimeter abuts upland. The rest adjoins other wetlands or water that is mostly wider than the AA.	0			
		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			
OF17	Flood Damage from	Within 5 km downstream or downslope of the AA (select first true choice):		In the GeoNB map viewer: click on "More" in upper right, then "Flood Information".	 	
l	Non-tidal Waters	Maps show Flood Zone or Flood Risk areas and there appears to be infrastructure vulnerable to river flooding not	0	Expand the menu under it by clicking on the arrow to its left and the slider to its		
		caused by tidal storm surges.	ľ	right. Uncheck the first (Limits of Data) box. Where available, LiDAR imagery can		
I		Maps show Flood Zone or Flood Risk areas, but infrastructure is absent or is not vulnerable to floods from a non-tidal	0	provide finer elevational resolution useful for flood modeling. [WSv]		
		river. In some cases levees, upriver dams, or other measures may partly limit damage or risk from smaller events.				
		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there appears to be infrastructure vulnerable to river flooding unrelated to tidal storm surges.	0	1		
		Maps do not show Flood Zone or Flood Risk areas (or no such mapping has been done locally) and there is no	1	1		
		infrastructure vulnerable to river flooding unrelated to tidal storm surges.				

0=15				[r., a a a a a]	- ·-	1
UF18		In Google Earth, enable the Terrain layer (lower left menu) and open the NB_Watersheds KMZ file that accompanies		[FA, NR, Sens, SFSv, WCv, WSv]	ShedPos	
	Watershed	this calculator. Then determine the AA's approximate elevation (bottom right, NOT the "eye alt"). Then move cursor	1.10		1	
		around to determine the watershed's maximum and minimum elevation. Divide the AA's elevation by the (max-				
0540		min)				
OF 19	Water Quality	In Google Earth, open the KMZ file NB_Watershed Protected Area which accompanies this calculator. The AA is	Ü	If an ACCDC report is available for this AA, it also may contain such information.		
		within such an area. Enter 1= yes, 0= no.		[NRv]		
0500	or Area	Constitution to the constitution of the consti		Manager of the state of the sta		
OF20	Degraded Water	Sampling indicates a problem with concentrations of metals, hydrocarbons , nutrients , or other substances		May use existing data, or sample those waters as part of this wetland assessment.		
	Upstream	(excluding bacteria, acidic water, high temperatures) being present at levels harmful to aquatic life or humans, and:		"Harmful" should be evaluated with regard to current federal or provincial water		
		The condition is present within the AA.	0	quality standards. [AM, FA, FR, NRv, PRv, SRv, STR, WBF, WBN]		
			0			
		The condition is present in waters within 1 km that flow into the AA, but has not been documented in the AA itself.	U			
		Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in	n			
		either the AA or inflowing waters.	U			
		Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the	1			
		situation for nearly all wetlands in this region.				
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,	1	
	_	The condition is present within 1 km downslope and connected to the AA by a channel.	n	PRv, SRv]		
		The condition is present within 5 km downslope and connected to the AA by a channel, or within 1 km but not	0			
		connected to the AA by a channel.	Ĭ			
		Sampling during both low water periods and times with high runoff (storms, snowmelt) indicates no problems in	0	1		
		either the AA or inflowing waters.	Ŭ			
		Data are insufficient (no or inadequate sampling within 1 km, or condition exists only at >1 km upstream). This is the	1			
		situation for nearly 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		Topographic maps may be viewed online at the National Atlas of Canada		
	Contributing Area	entire wetland of which the AA may be only a part. Then adjust those boundaries if necessary based on your field		(Toporama): http://atlas.gc.ca/toporama/en/index.html [NR, PR, Sens, SR,		
	(Catchment)	observations of the surrounding terrain, and/or by using procedures described in the Manual. Divide the area of the		WS]		
		wetland (not just the AA) by the approximate area of its catchment excluding the area of the wetland itself. When				
		doing the calculation, if ponded water is adjacent to the wetland, include that in the wetland's area. The result is:				
		<0.01, or catchment size unknown due to stormwater pipes that collect water from an indeterminate area.	0			
		0.04 += 0.4		-		
		0.01 to 0.1.	0			
		0.1 to 1.	1			
		>1 (wetland is larger than its catchment (e.g., wetland with flat surrounding terrain and no inlet, or is entirely	0			
0525		isolated by dikes, or is a raised bog).				
OF23		The proportion of the AA's contributing area (measured to no more than 1000 m upslope) that is comprised of		[FA, INV, NRv, PRv, SRv, STR, WCv, WSv]		
		buildings, roads, parking lots, other pavement, exposed bedrock, landslides, and other mostly-bare surface is about:				
	Area	<10%.	0			
			0	1		
		10 to 25%.	U			
		>25%.	1			
OF24	Transport From	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as		[NRv, PRv, SRv, WSv]		
	Upslope	runoff (surface water), as 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.				
		Mostly true.	0	1		
		Somewhat true.	1			
					I	ı

		Mostly untrue.	0]		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]		
		Northward (N, NE). north-facing contributing area.	1			
		Southward (S, SW). south-facing contributing area.	0			
		Other (E, SE, W, NW), or no detectable uphill slope or input channel (flat).	0			
OF26	Internal Flow	The horizontal flow distance from the wetland's inlet to outlet is:		Identify inlets and outlets, if any, from topographic maps (use elevations to		
		<10 m.	0	determine which are inlets and which are outlets) and augment by field inspection.		
		10 - 50 m.	0	[NR, OE, PR, SR, WS]		
		50 - 100 m.	0	1		
		100 - 1000 m.	0	1		
		1- 2 km.	0			
		>2 km, or wetland lacks an inlet and outlet.	1			
OF27	Growing Degree	In Google Earth, open the KMZ file that accompanies this calculator, called NB-PEI_GrowingDegreeDays. Place your		This layer was provided by Dr. Dan McKenney of the Canadian Forest Service [AM,	GrowD	
		cursor over the AA and left-click. From the pop-up, enter the GRIDCODE in the next column.	1500	CS, FR, INV, NR, OE, PH, PR, Sens, SR, WBF, WCv, WS]		
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. In NB, the list of stocked waters is at:		
		Is known to support rearing and/or spawning by Atlantic salmon or other anadromous species or eels. In NB, consult	0	http://www2.gnb.ca/content/gnb/en/departments/erd/natural_resources/content/f		
		Figure A-2 in Appendix A of the Manual. Contact local fishery biologists, review the ACCDC report, and visit these		ish/content/StockedWaters.html		
		websites: http://www.salmonatlas.com/atlanticsalmon/canada-east/index.1.html		[AM, FA, FR, INV, WBF, WBN]		
		Has not been documented to support Atlantic salmon rearing and/or spawning, but is connected to nearby waters	0			
		likely to contain Atlantic salmon or other anadromous species or eels and is probably accessed by those during some				
		conditions.				
		Is probably is not accessed by any anadromous fish species but is known or likely to have other fish at least	0			
		seasonally. Is known or likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	1			
		is known of likely to be fishless (e.g., too small, dry, and/or not accessible even temporarily, and not stocked).	'			
OF29	Species of	Within the past 10 years, in the AA (or in its adjoining waters or wetland), qualified observers have documented		Request information from ACCDC and/or conduct your own survey at an appropriate		
	Conservation	[mark all applicable]:		season using an approved protocol. For birds, also check eBird.org. [AMv, EC, PHv,		
	Concern	Presence of one or more of the plant species listed in the Plants_Rare worksheet of the accompanying Supplnfo file,	0	POLv, SBMv, Sens, WBFv, WBNv]		
		or the AA is within a mapped Atlantic Coastal Plain Flora Buffer Presence of one or more of the amphibian or reptile species (AM) of conservation concern as listed in the	0			
		Wildlife Rare worksheet of the accompanying Supplnfo file.	·			
		Presence of one or more of the waterbird species (WBF, WBN) of conservation concern as listed in the Wildlife_Rare	0			
		worksheet of the accompanying SuppInfo file.				
		Presence of one or more of the nesting songbird or raptor species (SBM) of conservation concern as listed in the	1			
		Wildlife_Rare worksheet of the accompanying SuppInfo file, during their nesting season (May-July for most species).				
		None of the above, or no data.	0			
OF30	Important Bird Area	In Google Earth, open the KMZ file that accompanies this calculator, called IBAs_Canada. The AA is all or part of an	0	The source of this layer, which should be checked periodically for updates, is:		
	(IBA)	officially designated IBA. Enter 1= yes, 0= no.		http://www.ibacanada.com/mapviewer.jsp?lang=EN [SBMv, WBFv, WBNv]		
OE31	Black Duck Nesting	In Google Earth, open the KMZ file that accompanies this calculator, called BlackDuck. Adjust its alignment and	^	This was provided by Dr. David Leske. [WBNv]		
	_	opacity. Determine the predicted density (pairs per 25 sq. km) of nesting American Black Duck in the AA's vicinity:	U	Tills was provided by Dr. David Leske. [WDIVV]		
	, с	<10 (enter 0), 10-20 (enter 1), 20-30 (enter 2), >30 (enter 3). If outside of region shown in map, change to blank .				
						<u> </u>
OF32	_	If AA is on private land with no information, change to blank (not 0). If on public/crown land, in Google Earth open		[SBM]		
	Moose	the KMZ file that accompanies this report called NB_DeerWinteringAreas.Otherwise: Enter: yes= 1, no= 0.				
	Concentration Areas					

OF33	Other Conservation	With GeoNB, click on Candidate PNA Map Viewer to identify Provincially Significant Wetland, Environmentally	0	[PU]
	Designation	Significant Area, Protected Natural Area but also include if 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. Enter: yes= 1, no= 0. If uncertain, consult NCC and agencies for more recent		
		information		
OF34	Conservation	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve,	0	[PU]
	Investment	create, restore, or enhance the wetland (excluding mitigation wetlands). Ask the property owner. Enter: yes= 1, no=		
		0. If no information, change to blank (not 0).		
OF35	Mitigation	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere. Ask the property owner. Enter:		[PU]
	Investment	yes= 1, no= 0. If no information, change to blank.		
OF36	Sustained Scientific	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and		[PU]
	Use	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 to blank		
OF37	Calcareous Region	The AA is in an area that is at least partly underlain by soil, sediment, or bedrock that is highly calcareous (enter 3 in	0	If GIS is available, you may use the Bedrock Geology shapefile obtainable at
		next column), moderately calcareous (enter 2), or slightly calcareous (enter 1), none= 0. Limestone is typically a		http://www.snb.ca/geonb1/e/DC/catalogue-E.asp [AM, FA, FR, INV, PH]
		major component (karst geology) and water is not acidic (pH is usually >8). See Figure A-6 in Appendix A of the		
		Manual. If no map coverage, change to blank.		
		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
OF38	Ownership	Select the ONE ownership that covers the most of the AA. In Google Earth, open KMZ file called NB Crown lands.Use		"Private lands" may include those owned or leased by non-governmental
		more recent information if available.		organizations, e.g., charitable conservation land trusts, DUC, TNC. [PU, STR]
		New timber harvest, roads, mineral extraction, and intensive summer recreation (e.g., off-road vehicles) are	0	
		permanently prohibited. Includes many publicly-owned Protected Lands, and private lands under long-term (30+		
		vear) legal agreements to maintain nearly-unaltered conditions.		
		Ownership is public (e.g., municipal, Crown Reservations/Notations) but some or all of the above activities are	0	
		allowed.		
		Ownership is private but public access is allowed, and/or a shorter-term conservation easement (whether renewable	0	
		or not) is in place.		
		Ownership is private and owner does not allow access, or access permission unknown, and not a conservation	0	
		easement.		

e: July 24, 2019	Site Identifier: Tapline WL-7	Investiga	ator: DM		
ards its core, in the conduct the assess re allowed and so erring with the lar tion pertains, see y, SFS= Stream Flo tat, FA= Anadrom	Non-tidal Wetland Data Form. WESP-AC version 2 for New Brunswick wetlar appears to the AA that is proposed for alteration. If no alteration is proposed, walk in a portion that appears to ment only after reading the accompanying Manual and the Explanations column of the data form. In the Data indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not windowner or other knowledgable persons, and/or reviewing aerial imagery. For most wetlands, completing this the accompanying Interpretations form. For detailed descriptions of each WESP-AC model, see Appendix B of the West West West West West West West Wes	be most ro a column, rite in sha a field data f the accor rate Remo tat, WBN=	epresentative of the wetland overall. Walk only where it is safe and legal to do change the 0 (false) to a 1 (true) for the best choice, or for multiple choices ided parts of this data form. Answering some questions accurately may require a form will require 1-2 hours on a site. For a list of functions to which each impanying Manual. Codes for functions and values are: WS= Water Storage & oval, CS= Carbon Sequestration, OE= Organic Nutrient Export, INV= Invertebrate = Nesting Waterbird Habitat, SBM= Songbird, Raptor, & Mammal Habitat, POL=		
Indicators	Condition Choices	Data	Definitions/Explanations	Cell Name	Comments
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		
	 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. 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 rariflor a). Wetland surface and surrounding landscape are seldom sloping and wetland often is domed (convex). Inlet and outlet channels are usually absent. If known, pH of peat is <4.0 	0	leaves. They include rhododendron, azalea, swamp laurel, leatherleaf, Labrador tea, and others. Most require acidic soil. Although not in the family Ericaceae, sweetgale (<i>Myrica gale</i>) should be counted also. [AM, CS, FA, FR, INV, NR, OE, PH, Sens, SFS, WBF, WBN]		
	 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). 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: 	1		Fen_	
	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			
	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		Marsh	
AA. The AA should a cifically, the AA should e. Throughout this da inmade or natural) col essarily considered to e considered adjacen					
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. A1. A2. B1. B2.	0 0 1 0	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]		
Woody Height & Form Diversity	Following EACH row below, indicate with a number code the percentage of the living vegetation in the AA which is occupied by that feature (6 if >95%, 5 if 75-95%, 4 if 50-75%, 3 if 25-50%, 2 if 5-25%, 1 if <5%, 0 if none). If the vegetated part of the AA is largely herbaceous (non-woody) vegetation, these percentages should not sum to 100%.		Deciduous shrubs in this region usually include buttonbush, Labrador tea, bayberry (<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		

ī			Inu nou onu o
	deciduous trees taller than 3 m.	4	PH, POL, SBM, Sens]
	coniferous or ericaceous shrubs or trees 1-3 m tall not directly below the canopy of trees.	4	
	deciduous shrubs or trees 1-3 m tall not directly below the canopy of trees.	3	
	coniferous or ericaceous shrubs <1 m tall not directly below the canopy of taller vegetation.	2	
	deciduous shrubs or trees <1 m tall (e.g., deciduous seedlings) not directly below the canopy of taller vegetation.	2	
<u>lote</u> : If none of top 4 rows	s in F3 was marked 2 or greater, SKIP to F9 (N fixers).		
4 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]
Abundant Shrub	those species together comprise > 50% of such cover.	0	
Species	those species together do not comprise > 50% of such cover.	1	
5 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		Estimate the diameters at chest height. If small-diameter trees are overtopped (shaded) by
Classes	upland edge (perimeter). The edge should include only the trees whose canopies extend into the AA.		larger ones, visualise a "subcanopy" at the average height of the smaller-dbh trees, to serve
	coniferous, 1-9 cm diameter and >1 m tall.		as a basis for the minimum 5% canopy requirement in this question. The trees and shrubs
	broad-leaved deciduous 1-9 cm diameter and >1 m tall.	1	need not be wetland species. [AM, CS, POL, SBM, Sens, WBN]
	coniferous, 10-19 cm diameter.	1	
	broad-leaved deciduous 10-19 cm diameter.	1	
	coniferous, 20-40 cm diameter.	1	
	broad-leaved deciduous 20-40 cm diameter.	1	
	coniferous, >40 cm diameter.	0	
11 1 1 6	broad-leaved deciduous >40 cm diameter.	0	TAM INIV ND DU ODM O 1
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 <u>each</u> 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 scattered and intermixed throughout the AA.	0	
	A2. Not A1. The two height classes are mostly in separate zones or bands, or in proportionately large clumps.	1	
	B. Either the vegetation shorter than 1 m comprises >70% of the vegetated part of the AA, or the vegetation taller than that does.		
	One 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.	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 absent.	0	
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 one
Standing Trees)	None, or fewer than 8/ hectare which exceed this diameter.	0	that are at least 2 m tall. [POL, SBM, WBN]
3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Several (>8/hectare) and a pond, lake, or slow-flowing water wider than 10 m is within 1 km.	1	
	Several (>8/hectare) but above not true.	0	1
B 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]
2000 11000	Few or none that meet these criteria.	0	
	Several (>5 if AA is >5 hectares, less for smaller AAs) meet these criteria.	1	
N Fixers	The percentage of the AA's vegetated cover that contains nitrogen-fixing plants (e.g., alder, sweetgale, clover, lupine, alfalfa,		Do not include N-fixing algae or lichens. [FA, FR, INV, NRv, OE, PH, SBM, Sens]
1111/010	other legumes) is:		2 - 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
	<1% or none.	0	1
	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	1
	>75% of the vegetated cover, in the AA or along its water edge (whichever has more).	0	
0 Sphagnum Moss	The cover of Sphagnum moss (or any moss that forms a dense cushion many centimeters thick), including the moss obscured		Exclude moss growing on trees and rocks. [CS, PH]
Extent	by taller sedges and other plants rooted in it, is:		
	<5% of the vegetated part of the AA.	0	
	5-25% of the vegetated part of the AA.	0	
	25-50% of the vegetated part of the AA.	0	
	50-95% of the vegetated part of the AA.	1	
	>95% of the vegetated part of the AA.	0	

11 %	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		Thatch is dead plant material (stems, leaves) resting on the ground surface. Bare ground that	
Т	hatch	ground layer, the predominant condition in those areas at that time is:		is present under a tree or shrub canopy should be counted. Boulders count as bare ground.	
		Little or no (<5%) bare ground is visible between erect stems or under canopy anywhere in the vegetated AA. Ground is	1	Wetlands with mineral soils and that are heavily shaded or are dominated by annual plant	
		extensively blanketed by dense thatch, moss, lichens, graminoids with great stem densities, or plants with ground-hugging		species tend to have more extensive areas that are bare during the early growing season.	
		foliage. Slightly bare ground (5-20% bare between plants) is visible in places, but those areas comprise less than 5% of the unflooded	0	[AM, EC, INV, NR, OE, POL, PR, SBM, Sens]	
		parts of the AA.	U		
		Much bare ground (20-50% bare between plants) is visible in places, and those areas comprise more than 5% of the unflooded	0	1	
		parts of the AA. Other conditions.	0	-	
			0	-	
0 0	Name of Land and a 26	Not applicable. Surface water (either open or obscured by emergent plants) covers all of the AA all the time.	0	The decree is a second of the	4
2 6	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		The depressions may be of human or natural origin. [AM, EC, INV, NR, PH, POL, PR, SBM, SR, WS]	
		mineral soil that are raised or depressed >10 cm compared to most of the area within a few meters surrounding them is:		or, wol	
		· · · · · · · · · · · · · · · · · · ·			
		Few or none (minimal microtopography; <1% of the land has such features, or entire AA is always water-covered).	1		
		Intermediate.	0	-	
0 1		Several (extensive micro-topography).	0	TAM ND ODER	_
3 U	Ipland Inclusions	Within the AA, inclusions of upland are:		[AM, NR, SBM]	
		Few or none.	1		
		Intermediate (1 - 10% of vegetated part of the AA).	0	-	
1 0		Many (e.g., wetland-upland "mosaic", >10% of the vegetated AA).	0	100 MB 05 BM BB 0 0 050 MB	4
14 S	oil 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		[CS, NR, OE, PH, PR, Sens, SFS, WS]	
		to check in at least 3 widely spaced locations, and use the soil texture key (in Appendix A of the Manual).] Loamy: soils that may contain a little fine grit and do not make a "ribbon" longer than 2 cm when moistened, rolled, squeezed,	0	1	
		and extended between thumb and forefinger.			
		Fines: includes silt, clay, silt, soils that make a ribbon longer than 2 cm when moistened, rolled, squeezed, and extended	0	1	
		between thumb and forefinger.			
		Deep Peat, to 40 cm depth or greater.	1		
		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 between thumb and forefinger.	0		
15 S	horebird Feeding	During any 2 consecutive weeks of the growing season, the extent of mudflats, bare unshaded saturated areas not covered by		This addresses needs of many but not all migratory sandpipers, plovers, and related species.	-
_	labitats	thatch, and unshaded waters shallower than 6 cm is: [Include also any area that is adjacent to the AA.]		[WBF]	
		None, or <100 sq. m.	1	i '	
		100-1000 sq. m.	0		
		1000 – 10,000 sq. m.	0		
		>10,000 sq. m.	0		
16 H	lerbaceous % of	In aerial ("ducks eye") view, the maximum annual cover of herbaceous vegetation (all non-woody plants except moss) is:		[AM, WBF, WBN]	
٧	egetated 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	NoHerbCo
		5-25% of the vegetated part of the AA.	1		
		25-50% of the vegetated part of the AA.	0		
		50-95% of the vegetated part of the AA.	0	1	
		>95% of the vegetated part of the AA.	0	1	
17 F	orb 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,	-
·' ['	015 00001	<5% of the herbaceous part of the AA.	0	horsetails, or others that lack showy flowers. [POL]	
		5-25% of the herbaceous part of the AA.	1	, i	
		25-50% of the herbaceous part of the AA.	0	1	
		50-95% of the herbaceous part of the AA.	0	1	
		>95% of the herbaceous part of the AA.	0	1	AllForbCo
8 .5	edge Cover	Sedges (Carex spp.) and cottongrass (Eriophorum spp.) occupy:		[CS]	-
آ آ		<5% of the vegetated area, or none.	0	11	
		5-50% of the vegetated area.	1		

		50-95% of the vegetated area.	0		
		>95% of the vegetated area.	0		
9	Dominance of Most	Determine which two herbaceous species comprise the greatest portion of the herbaceous cover (excluding mosses and floating-		For this question, include ferns as well as graminoids and forbs. [EC, INV, PH, POL, Sens]	1
	Ahundant	leaved aquatic plants). Then choose one of the following:			
	Herbaceous 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		
0	Invasive Plant Cover	How extensive is the cover of invasive plant species in the AA? For species, see Plants_invasive worksheet in the accompanying		[EC, PH, POL, Sens]	1
		Supplnfo file.			
		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	0		
		invasives are woody).			
		invasive species comprise 5-20% of the herb cover (or woody cover, if the invasives are woody).	0		
		invasive species comprise 20-50% of the herb cover (or woody cover, if the invasives are woody).	0		
		invasive species comprise >50% of the herb cover (or woody cover, if the invasives are woody).	0		
21	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		If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an	1
	Ü	invasive plant species is:		exotic species, assume the unidentified plant to also be exotic. If vegetation is so senesced	
	- p = 191	none of the upland edge (invasives apparently absent), or AA has no upland edge.	1	that exotic species cannot be identified, answer "none". [PH, STR]	
		some (but <5%) of the upland edge.	0		
		5-50% of the upland edge.	0		
		most (>50%) of the upland edge.	0	1	
22		During most of the year, open water within or adjacent to the vegetated part of the wetland is much wider than the maximum	0	[WBF, WBN, WCv]	
		width of the vegetated zone within the wetland. Enter "1" if true, "0" if false.	O	[WBI , WBIN, WOV]	
23		The vegetated part of the AA is within or adjacent to a body of non-tidal standing open water whose size exceeds 8 hectares	0	[FR, PR, PU, WBF, WBN]	
		during most of a normal year.	•		
24	% of AA Without	The percentage of the AA that <u>never</u> contains <u>surface</u> water during an average year (that is, except perhaps for a few hours after		1 hectare is 10,000 sq. m or about 2.5 acres. It could have dimensions of 100 m by 100 m,	ł
		snowmelt or rainstorms), but which is still a wetland, is:		1000 m by 10 m, or similar. [AM, FA, FR, INV, NR, PH, PR, SBM, Sens, SRv, WBF, WBN, WC	
		<1% . In other words, all or nearly all of the AA is covered by water permanently or at least seasonally.	0	1	
		1-25% of the AA, or <1% but >0.01 ha never contains surface water.	0		
		25-50% of the AA never contains surface water.	1		
		50-75% of the AA never contains surface water.			
			0		A 110 - 10
		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	0		AllSat2
		99-100%. AND there is no persistent ponded water body larger than 1 ha within the AA. Enter "1" and SKIP to F42 (Channel	0		AllSat1
		Connection).	U		Alloat
25	% of AA with	Identify the parts of the AA that still contain surface water (flowing or ponded, open or hidden beneath vegetation) even during		If you are unable to determine the condition at the driest time of year, ask the land owner or	
	, , , , , , , , , , , , , , , , , , , ,	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		neighbors about it if possible. Indicators of persistence may include fish, some dragonflies,	
		AA that still contains surface water is:		beaver, and muskrat. [AM, CS, FA, FR, INV, NR, POL, PR, SBM, WBF, WBN]	
		None. The AA dries up completely (no water in channels either) or never has surface water during most years. SKIP to F27.	0		NoPer
		1-20% of the AA.	1		
		20-50% of the AA.	0		
		50-95% of the AA.	0		
		>95% of the AA. True for many fringe wetlands.	0		AllWet
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		[FA, WC]	1
		features that are within the AA at that time is:			
		<5% of the water is shaded, or no surface water is present then.	0		
		5-25% of the water is shaded.	0		
		25-50% of the water is shaded.	0		
		50-75% of the water is shaded.	0		
		>75% of the water is shaded.			
07			1	Floring to Alexander of Selfer and the Company of t	
27		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	
	Flooded Only	None, or <0.01 hectare and <1% of the AA. SKIP to F29.	0	when not 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	NoSea
	Seasonally	1-20% of the AA, or <1% but >0.01 ha.			

		20-50% of the AA.	0	Tmultiplying by ∠ the banktul neight and visualising where that would intercept the land along the river. [CS, FA, INV, NR, OE, PH, SR, WBF, WBN, WS]	
		50-95% of the AA.	0		
		>95% of the AA.	0		
	Innual Water Tuctuation 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,]
		<10 cm change (stable or nearly so).	1	INV, NR, OE, PH, PR, SR, WBN, WS]	
		10 cm - 50 cm change.	0		
		0.5 - 1 m change.	0		
		1-2 m change.	0		
		>2 m change.	0	1	
the A	A plus adjacent po	nded water smaller than 0.01 hectare (about 10m x 10m, or 1m x 100 m)? If so, enter "1" in column D and			TooSmall
(IP TO	F42 (Connection)				
		During most of the time when surface water is present during the growing season, its depth, averaged over the entire inundated		If a boat is unavailable, estimate this by considering wetland size and local topography. Or if	1
		part of the AA, is:		timing and safety allow, depths may be measured by drilling through winter ice. This question is	
		<10 cm deep (but >0).	1	asking about the spatial median depth that occurs during most of that time, even if inundation	
		10 - 50 cm deep.	0	is only seasonal or temporary. If inundation in most but not all of the wetland is brief, the	
		0.5 - 1 m deep.	0	answer will be based on the depth of the most persistently inundated part of the wetland.	
		1 - 2 m deep.	0	Include surface water in channels and ditches as well as ponded areas. [CS, FA, FR, INV,	
		>2 m deep. True for many fringe wetlands.	0	OE, PH, PR, Sens, SFS, SR, WBF, WBN, WC]	
0 D	epth Classes -	When present, surface water in most of the AA usually consists of (select one):	Ť	Estimate these proportions by considering the gradient and microtopography of the site. [FR,	1
	epur Classes - Evenness of	One depth class that comprises >90% of the AA's inundated area (use the classes in the question above).	1	INV, WBF, WBN]	
		,	1	iivv, voi , voivj	
Р	Proportions	One depth class that comprises 50-90% of the AA's inundated area.	0	4	
		Neither of above. There are 3 or more depth classes and none occupy >50%.	0		4
	6 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		Nearly all wetlands with surface water have some ponded water. [AM, CS, INV, NR, OE, PR,	
		sediment is not held in suspension) AND (2) is likely to be deeper than 0.5 m in some places, is:		Sens, SR, WBF, WBN, WC, WS]	l
FI	lowing)	<5% of the water, or it occupies <100 sq.m cumulatively. Nearly all the surface water is flowing. SKIP to F34.	0	4	NoPonde
		5-30% of the water.	0		
		30-70% of the water.	0		
		70-95% of the water.	0		
		>95% of the water.	1		
	onded Open Water - Iinimum 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.	OpenW
I					
	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, and unhidden by a forest or shrub canopy) is:		[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	
		In ducks-eye aerial view, the percentage of the ponded water that is open (lacking emergent vegetation during most of the growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).	0	[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	NoOpenF
		growing season, and unhidden by a forest or shrub canopy) is:	0	[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	
		growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed).		[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	
		growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water.	0	[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	
		growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water.	0 0 0	[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	
		growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water.	0 0 0 0	[AM, CS, FA, FR, INV, NR, OE, PR, SR, WBF, WBN, WC]	NoOpenF
th	nat is Open	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water.	0 0 0		NoOpenF
th	nat is Open Vidth of Vegetated	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in the AA that	0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed.	NoOpenF NoOpenF AllOpenP
th	nat is Open	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area <u>in the AA</u> that separates adjoining uplands from open water within the AA is:	0 0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	NoOpenF
th	nat is Open Vidth of Vegetated	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area <u>in the AA</u> that separates adjoining uplands from open water within the AA is: <1 m.	0 0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed.	NoOpenF
th	nat is Open Vidth of Vegetated	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area <u>in the AA</u> that separates adjoining uplands from open water within the AA is: <1 m. 1 - 9 m.	0 0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	NoOpenF
th	nat is Open Vidth of Vegetated	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in the AA that separates adjoining uplands from open water within the AA is: <1 m. 1 - 9 m. 10 - 29 m.	0 0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	NoOpenF
th	Vidth of Vegetated Cone within Wetland	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in the AA that separates adjoining uplands from open water within the AA is: <1 m. 1 - 9 m. 10 - 29 m. 30 - 49 m.	0 0 0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	NoOpenF
th	Vidth of Vegetated Cone within Wetland	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in the AA that separates adjoining uplands from open water within the AA is: <1 m. 1 - 9 m. 10 - 29 m. 30 - 49 m. 50 - 100 m.	0 0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	NoOpenF
th	Vidth of Vegetated Cone within Wetland	growing season, and unhidden by a forest or shrub canopy) is: None, or <1% of the AA and largest pool occupies <0.01 hectares. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 1-4% of the ponded water. Enter "1" and SKIP to F41 (Floating Algae & Duckweed). 5-30% of the ponded water. 30-70% of the ponded water. 70-99% of the ponded water. 100% of the ponded water. At the time during the growing season when the AA's water level is lowest, the average width of vegetated area in the AA that separates adjoining uplands from open water within the AA is: <1 m. 1 - 9 m. 10 - 29 m. 30 - 49 m.	0 0 0 0 0 0	"Vegetated area" does not include underwater or floating-leaved plants, i.e., aquatic bed. Width may include wooded riparian areas if they have wetland soil or plant indicators. [AM,	NoOpenF

		<1% of the water edge.	0		
		1-25% of the water edge.	0		
		25-50% of the water edge.	0		
		50-75% of the water edge.	0		
		>75% of the water edge.	0		
6 Robu	ust Emergents	The percentage of the emergent vegetation cover in the AA that is cattail (Typha spp.), common reed (Phragmites), or tall		Emergent vegetation is herbaceous plants whose stems are partly above and partly below	1
	•	(>1m) bulrush is:		the water surface during most of the time water is present. [WBN]	
		<1% of the emergent vegetation, or emergent vegetation is absent. SKIP to F38.	0		NoRobustEn
		1-25% of the emergent vegetation.	0		
		25-75% of the emergent vegetation.	0		
		>75%, of the emergent vegetation.	0		
7 Inters		During most of the part of the growing season when water is present, the spatial pattern of emergent vegetation within the water		[AM, FA, FR, INV, NR, OE, PH, PR, SBM, SR, WBF, WBN]	1
		is mostly:		[AIVI, FA, FK, IIVV, NK, OL, FTI, FK, SDIVI, SK, VVDI , VVDIV]	
Wate	. go o p o	Scattered. More than 30% of such vegetation forms small islands or corridors surrounded by water.	0		
vvale	, i	Intermediate.	0		
		Clumped. More than 70% of such vegetation is in bands along the wetland perimeter or is clumped at one or a few sides of the	0		
		surface water area.			
8 Persi		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	0		DeepPersis
Area		weeks during the growing season, enter "1" and continue. If not, enter "0" and SKIP to F42.(Connection).			
				For this question, consider only the wood that is at an above the water surface. Fatirestee of	4
-	•	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	
Aqua	AUG 0010.	Little or none.	0	should not be attempted. [AM, FA, FR, INV]	
		Intermediate.	0	Should not be attempted. [Awi, 1 A, 1 K, 1149]	
		Extensive.	0		
0 Isolat		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	_	[WBN]	-
เรื่อเลเ		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	U	[VADIA]	
		sufficiently large and dense to support a waterbird nest.			
1 Floati		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,	0	[EC, PR, WBF]	1
	0 0	or blanket >50% of the underwater substrate. If true, enter "1" in next column. If untrue or uncertain, enter "0".			
		The most persistent surface water connection (outlet channel or pipe, ditch, or overbank water exchange) between the AA and a		Consider the connection regardless of whether the surface water is frozen. The "downslope	4
		downslope stream network is: [Note: If the AA represents only part of a wetland, answer this according to whichever is the least		stream network" could consist of ditches, rivers, ponds, or lakes which eventually connect to	
& Ou		permanent surface connection: the one between the AA and the rest of the wetland, or the surface connection between the		the ocean. If this cannot be determined while visiting the AA, consult topographic maps	
		wetland and the downslope stream network 1		perhaps by viewing these online with Toporama	
		Persistent (surface water flows out for >9 months/year).	1	(http://atlas.nrcan.gc.ca/toporama/en/index.html) [CS, FA, FR, NR, OE, PR, Sens, SFS, SR,	
		Seasonal (surface water flows out for 14 days to 9 months/year, not necessarily consecutive).	0	WCv, WS]	
		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	0	1	OutNone1
		F47 (pH Measurement).			
		No surface water flows out of the wetland except possibly during extreme events (<once 10="" a<="" flows="" into="" only="" or,="" per="" td="" water="" years).=""><td>0</td><td></td><td>Outnone</td></once>	0		Outnone
		wetland, ditch, or lake that lacks an outlet. SKIP to F47 (pH Measurement).			4
3 Outflo		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	
		Mostly passes through a pipe, culvert, narrowly breached dike, berm, beaver dam, or other partial obstruction (other than natural	1	snowmelt. [CS, NR, OE, PR, Sens, SR, STR, WS]	
		topography) that does not appear to drain the wetland artificially during most of the growing season.	0		
		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	0		
		edge, which drain the wetland artificially, or water is pumped out of the AA. At least once annually, surface water from a tributary channel that is >100 m long moves into the AA. Or, surface water from a		If inlet tributaries cannot be searched for due to inaccessibility of part of the AA, follow	Inflows
1 Tribu	,	larger permanent water body adjacent to the AA spills into the AA. If it enters only via a pipe, that pipe must be fed by a mapped	0	suggestions in F42 above. [NRv, PH, PRv, SRv]	IIIIIOWS
4 Tribut		stream or lake further upslope. If no, SKIP to F47 (pH Measurement).		Suggestions in 1 42 above. [rive, 1 11, 1 10, oten]	
4 Tribut			0	[WCv]	1
		Based on lack of shade, water source characteristics, or actual temperature measurements, the inflow is likely to be warmer than	U		-
5 Input	t Water	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		
5 Input Temp	t Water perature	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. During its travel through the AA at the time of peak annual flow, water arriving in channels: [select only the ONE encountered by	0	[FA, FR, INV, NR, OE, PR, SR, WS]	

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 pearland (e.g., Labrador tea) are prevalent. Enter "1". **The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information): Tos is: [Enter the reading in pm or ormg/L in the column to the right, if measured. Or answer next row.] Conductivity is: [Enter the reading in pm or ormg/L in the column to the right, if measured. Or answer next row.] Conductivity is: [Enter the reading in pm or ormg/L in the column to the right, if measured. Or answer next row.] Conductivity is: [Enter the reading in pm or ormg/L in the column to the right, if measured. Or answer next row.] Conductivity is: [Enter the reading in pm ormg/L in the column to the right, if measured. Or answer next row.] Conductivity is: [Enter the reading in pm or ormg/L in the column to the right, if measured. Or answer next row.] Conductivity is: [Enter the reading in pm or ormg/L in the column to the right, if measured. Or answer next row.] Conductivity is: [Enter the reading in pm or ormg/L in the column to the right.] Was not measured, but plants that indicate saline conditions cover much of the vegetated AA. Enter "1". O Neither of above 1 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 vertical post of the vegetated areas near surface water. Likely beased not in the reading in pm or ormg/L in the column to the right.] To the column to the right. If measured, or answer next row.] Likely beased not incommodate in pure or answer next row.] Conductivity: FR, NR, WBF, PH, PS, San, WBF, WBN] FA, FR, PH, SBM, Sens, WBF, WBN	incised channels that have minimal contact with wetland expectation, or through a zone of open water such as an instream pond or lake. Bumps into harbaceous vegetation but mostly remains in fairly straight channels. Bumps into trabeacous vegetation and mostly spreads throughout, or is in widely meandering, multi-branched, or braided Bumps into tree trunks and/or shrub stems but mostly remains in fairly straight channels. Bumps into tree trunks and/or shrub stems and follows a fairly indirect path from entrance to exit (meandering, multi-branched, or or braided). Pol Measurement The pit in most of the AA's surface water and is distrily its evolution to the right. Was resourced, and is: [resist the reading in the column to the right.] Was not reasoured to surface water is present and is distrily les-coloured. Or if no surface water, then mosses and plants that notices the reading in particular to provide water for this meander (e.g., Labndot tea) are prevident. Enter "1". Bit Dis and the reading in part and so in plants of an accommon to the right.] Was not measured but surface water in the column to the right. I measured. Or answer most row.] Conductivity is: [Enter the reading in part or many in the column to the right.] Was not measured but plants that indicate saline conditions courremed in the reading in past or particular to the vegetated AA. Enter "1". Dis its [Enter the reading in past or past or provident in the column to the right.] Was not measured but plants that indicate saline conditions courremed in the column to the right.] Was not measured but plants that indicate saline conditions courremed in the vegetation or prosence of graved limbs, dams, trads, dons, lodges, or extensive the vegetation or many plants and plants are season. Likely based on known courrence in the region and proximity to suitable healths, which may include (i) a condition or multiple stands of hardwood trees and shorts in sensitional in septimals chains: a sected area or or other area where beaver are routifully			Deep not hump into many plant atoms as it travels through the AA Meanly all the water continues to travel in water to the Advantage of the Adv		ו
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indicate position (e.g. Labrador tea) are prevalent. Enter "1". Neither of above. Enter "4". Neither of above. Enter "4". To Sand/or Conductivity To Sis (Enter the reading in ppm or mg/L. in the column to the right, if measured, or answer next row.] Conductivity Evident the reading in ppm or mg/L. 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". Beaver Probability Evident from direct observation or presence of gnawed limbs, dams, tracks, dens, lodges, or extensive stands of water-killed united from direct observation or mid-gradient (~10%) channel, and (b) a comfor or multiple stands of hardwood trees and shrubs in vecetated 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. Groundwater Strength of Evidence Strength of Evidence Strength or Evidence Strength or Evidence Strength of Evidence Strength or Evidence Strength or Evidence Strength of Evidence Strength or Evidence Strength or Evidence Strength of Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence Strength or Evidence	indicate posation (e.g. 1_strator treal) are prevalent. Enter 1". Internal Gradient Int				0	absent, do not dig holes or make depressions in peat in order to provide water for this
Neither of above. Enter "1". TDS and/or The TDS (total dissolved solids) or conductivity off the AA's surface water is: (select the first true row with information): Conductivity TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in ppm or mg/L in the column to the right.] TDS is: [Enter the reading in the column to the right.] TDS is: [Enter the reading in the column to the right.] TDS is: [FN, NR, WBF, WBN] See above for measurement guidance. [FR, INV, NR, VP, PP, PP, SPS, WBN] [FA, FR, PH, SBM, Sens, WBF, WBN] [FA, FR, PH, SBM, Sen	Neither of above. Enter "1". 1 FX. N., WBF, PH, PR, Sens, WBF, WBN]					
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The polar for the next three questions: If the AA lacks an upland edge, evaluate based on the AA's entire perimeter, and moving outward into whatever eas are adjacent. In many situations, these questions are best answered by measuring from aerial images. We getated Buffer as % of Perimeter % of Perimeter % of Perimeter % of Solution (Solution) (Solu	Vegetated Buffer as % of Perimeter 5%. 5 to 30%. 30 to 60%. 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: 5 to 30%. 0 to 60%.	-52		5 to 30%. 30 to 60%.	0	

	Type of Cover in Buffer	Within 30 m upslope of where the wetland transitions to upland, the upland land cover that is NOT perennial vegetation is mostly (mark ONE):		[AM, FA, INV, NRv, PH, POL, SBM, STR, WBN]	
ľ	Dullei	Impervious surface, e.g., paved road, parking lot, building, exposed rock.	0	1	
		Bare or nearly bare pervious surface or managed vegetation, e.g., lawn, row crops, unpaved road, dike, landslide.	1		
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		[NRv, PRv, Sens, SRv]	
	Danier 0.0p0	area has a percent slope of:		[,,,	
		<1% (flat almost no noticeable slope) or all the area within 30 m of the AA edge is other wetlands.	0	1	
		2-5%.	1		
		5-30%.	0		
		>30%.	0	1	
	·	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 (ves) or 0 (no).	0	Do not include upturned trees as potential den sites. [POL, SBM]	
	New or Expanded	Human actions within or adjacent to the AA have persistently expanded a naturally occurring wetland or created a wetland where		Determine this using historical aerial photography, old maps, soil maps, or permit files as	
,	Wetland	there previously was none (e.g., by excavation, impoundment):		available [CS, NR, OE, PH, Sens]	
		No.	1		
		Yes, and created or expanded 20 - 100 years ago.	0		
		Yes, and created or expanded 3-20 years ago.	0		
		Yes, and created or expanded within last 3 years.	0		
		Yes, but time of origin or expansion unknown.	0		
		Unknown if new or expanded within 20 years or not.	0		
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,	
		Burned within past 5 years.	0	PH, STR]	
		Burned 6-10 years ago.	0		
		Burned 11-30 years ago.	0		
		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		[PU, STR, WBFv]	
		buildings, or public maintained trails that intersect, adjoin, or are within 100 m of the AA (select one) is:			
		<25%.	1		
		25-50%.	0		
		>50%.	0		
	•	Assuming access permission was granted, select ALL statements that are true of the AA as it currently exists:		[PU, STR]	
	Uses - Actual or Potential	For an average person, walking is physically possible <u>in</u> (not just near) >5% of the AA during most of the growing season, e.g., free of deep water and dense shrub thickets.	1		
		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	0	1	
		tours.			
60 l	Unvisited Core Area	The percentage of the AA almost never visited by humans during an average growing season probably comprises: [Note: Only		[AM, FAv, FRv, PH, PU, SBM, STR, WBF, WBN]	
		include the part actually walked or driven (not simply viewed from) with a vehicle or boat. Do not include visitors on trails outside			
1		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.1 <5% and no inhabited building is within 100 m of the AA.	0	1	
		<5% and inhabited building is within 100 m of the AA.	0	1	
		5-50% and no inhabited building is within 100 m of the AA.	0	1	
		5-50% and inhabited building is within 100 m of the AA.	0	1	
		50-95%, with or without inhabited building nearby.	0	1	
		>95% of the AA with or without inhabited building nearby.	1		
61 F	Frequently Visited	The part of the AA visited by humans almost daily for several weeks during an average growing season probably comprises:		[AM, PH, PU, SBM, STR, WBF, WBN]	
		[See note above.]		[MINI, I II, I O, ODINI, OTIX, VYDIX]	
ľ	Area	<5%. If F60 was answered ">95%" (mostly never visited), SKIP to F64.	1]	
		5-50%.	0		

	1	>95% of the AA.	0]	ĺ	
F62	BMP - Soils	Boardwalks, paved trails, fences or other infrastructure and/or well-enforced regulations appear to effectively prevent visitors from	0	[PH, PU]	1	
F63	BMP - Wildlife Protection	walking on soil within nearly all of the AA when the soil is unfrozen. Enter "1" if true. 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]		
F64	Consumptive Uses	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select ALL that apply.		[FAv, FRv, WBFv]	1	
	(Provisioning	Low-impact commercial timber harvest (e.g., selective thinning).	1			
	Services)	Commercial or traditional-use harvesting of native plants, their fruits, or mushrooms.	0			
		Waterfowl hunting.	0			
		Fishing.	0			
		Trapping of furbearers.	0			
		None of the above.	0			
F65	Domestic Wells	The closest wells or water bodies that currently provide drinking water are:		[NRv]		
		Within 0-100 m. of the AA.	0	1		
		100-500 m. away.	0	1		
		>500 m. away, or no information.	1			
F66	Calcareous Fen	The AA is, or is part of, a calcareous fen. See the Plants_Calcar worksheet in the accompanying SuppInfo file for list of plant indicators (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]		

ressor (S) Data Form for Non-Tid	Site Identifier: Tapline WL-7		Date: July 24, 2019						
· /	al Wetlands. WESP-AC for New	w Brunswick. Version 2.		Da					
Aberrant Timing of Water Inputs In the last column, place a check mark next to any item that is like	ely to have caused the timing of water inputs (but not necessar	rily their volume) to shift by hours, days, or weeks, becoming eit	ther more muted (smaller or less frequent peaks spread over	er					
longer times, more temporal homogeneity of flow or water levels)	or more flashy (larger or more frequent spikes but over shorte			"					
Stormwater from impervious surfaces that drains directly to the water subsidies from wastewater effluent, septic system leakage									
Regular removal of surface or groundwater for irrigation or other	consumptive use.								
Flow regulation in tributaries or water level regulation in adjoining A dam, dike, levee, weir, berm, or fill within or downgradient fr	• • • • • • • • • • • • • • • • • • • •			-					
Excavation within the wetland, e.g., dugout, artificial pond, dead-		w invoic 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 inte Logging within the wetland.	rnal channel (incised below the historical water table level).								
Subsidence or compaction of the wetland's substrate as a result	•								
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 "0's" for the scores									
following rows. To estimate effects, contrast the current condition			any part of the 7th, then read the tree 10th the coefficient and						
	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 p			Ohith of house an exist day						
Input timing now vs. previously: Flashiness or muting:	Shift of weeks. Became very flashy or controlled.	Shift of days. Intermediate.	Shift of hours or minutes. Became mildly flashy or controlled.						
radimedo di maang.	Booting very madify of controlled.	momodato.	Sum	n=					
			Stressor subscore	= 0					
Accelerated Inputs of Contaminants and/o In the last column, place a check mark next to any item occurring		rated the inpute of contaminants or solts to the AA FAM EA DE	L DOL STD1						
Stormwater or wastewater effluent (including failing septic system	,	rated the inputs of contaminants of saits to the AA. [Aiii, FA, FF	i, i OL, 31Nj						
initial of wastewater emuerit (including railing septic system weters a chemical wastes from mining, should railyes, show son cidefault asp/lang=En&n=B85A1846.1	ins), ianums, muusina racimies. siorage areas, om gas extraction, other sources (download ma	ny locations from ivational Foliutant Nelease inventory and view	v Kiviz ovenay iii Googie Eartii. https://www.ec.gc.ca/iiiip-						
Road salt.									
Spraying of pesticides, as applied to lawns, croplands, roadsides		and the second section to the second section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of	ole of contaminate and a scale who the scale of the HOLE for the						
If any items were checked above, then for each row of the table b scores in the following rows. To estimate effects, contrast the cun			ns of contaminants and/or salts, then leave the "U's" for 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 Stressor subscore	_					
Accelerated Inputs of Nutrients			Stressor subscore	:- 0					
In the last column, place a check mark next to any item occurring	ng in either the wetland or its CA that is likely to have accele	rated the inputs of nutrients to the wetland. [NRv, PRv, STR]							
Stormwater or wastewater effluent (including failing septic system	ms), 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 below, assign points. However, if you believe the checked items did not cumulatively expose the AA to significantly more nutrients, then leave the "0's" for the scores in the following rows. To estimate effects, contrast the current condition with the condition if the checked items never occurred or were no longer present.								
To estimate effects, contrast the current condition with the conditi	Severe (3 points)	Medium (2 points)	Mild (1 point)	-					
		Moderate density septic, cropland, secondary wastewater	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	_					
Type of loading:	High density of unmaintained septic, some types of		Livestock, pets, low density residential.						
Type of loading: Frequency & duration of input:	industrial sources. Frequent and year-round.	treatment plant. Frequent but mostly seasonal.	Livestock, pets, low density residential. Infrequent & during high runoff events mainly.						
,,	industrial sources.	treatment plant.							
Frequency & duration of input:	industrial sources. Frequent and year-round.	treatment plant. Frequent but mostly seasonal.	Infrequent & during high runoff events mainly. In more distant part of contributing area. Sum	_					
Frequency & duration of input: AA proximity to main sources (actual or potential):	industrial sources. Frequent and year-round. 0 - 15 m.	treatment plant. Frequent but mostly seasonal.	Infrequent & during high runoff events mainly. In more distant part of contributing area.	_					
Frequency & duration of input:	industrial sources. Frequent and year-round. 0 - 15 m. buting Area	treatment plant. Frequent but mostly seasonal. 15-100 m. or in groundwater.	Infrequent & during high runoff events mainly. In more distant part of contributing area. Sum Stressor subscore	_					
Frequency & duration of input: AA proximity to main sources (actual or potential): Excessive Sediment Loading from Contril	industrial sources. Frequent and year-round. 0 - 15 m. buting Area In the CA that is likely to have elevated the load of waterborne of	treatment plant. Frequent but mostly seasonal. 15-100 m. or in groundwater.	Infrequent & during high runoff events mainly. In more distant part of contributing area. Sum Stressor subscore	_					
Frequency & duration of input: AA proximity to main sources (actual or potential): Excessive Sediment Loading from Contril In the last column, place a check mark next to any item present in Erosion from plowed fields, fill, timber harvest, dirt roads, vegeta Erosion from construction, in-channel machinery in the CA.	industrial sources. Frequent and year-round. 0 - 15 m. buting Area In the CA that is likely to have elevated the load of waterborne of	treatment plant. Frequent but mostly seasonal. 15-100 m. or in groundwater.	Infrequent & during high runoff events mainly. In more distant part of contributing area. Sum Stressor subscore	_					
Frequency & duration of input: AA proximity to main sources (actual or potential): Excessive Sediment Loading from Contrib In the last column, place a check mark next to any item present in Erosion from plowed fields, fill, timber harvest, dirt roads, vegeta Erosion from construction, in-channel machinery in the CA. Erosion from off-road vehicles in the CA.	industrial sources. Frequent and year-round. 0 - 15 m. buting Area In the CA that is likely to have elevated the load of waterborne of	treatment plant. Frequent but mostly seasonal. 15-100 m. or in groundwater.	Infrequent & during high runoff events mainly. In more distant part of contributing area. Sum Stressor subscore	_					
Frequency & duration of input: AA proximity to main sources (actual or potential): Excessive Sediment Loading from Contril In the last column, place a check mark next to any item present in Erosion from plowed fields, fill, timber harvest, dirt roads, vegeta Erosion from construction, in-channel machinery in the CA.	industrial sources. Frequent and year-round. 0 - 15 m. buting Area In the CA that is likely to have elevated the load of waterborne of	treatment plant. Frequent but mostly seasonal. 15-100 m. or in groundwater.	Infrequent & during high runoff events mainly. In more distant part of contributing area. Sum Stressor subscore	_					
Frequency & duration of input: AA proximity to main sources (actual or potential): Excessive Sediment Loading from Contrib In the last column, place a check mark next to any item present in Erosion from plowed fields, fill, timber harvest, dirt roads, vegeta Erosion from construction, in-channel machinery 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/ ga	industrial sources. Frequent and year-round. 0 - 15 m. buting Area the CA that is likely to have elevated the load of waterborne of the clearing, fires.	treatment plant. Frequent but mostly seasonal. 15-100 m. or in groundwater.	Infrequent & during high runoff events mainly. In more distant part of contributing area. Sum Stressor subscore	_					
Frequency & duration of input: AA proximity to main sources (actual or potential): Excessive Sediment Loading from Contribute In the last column, place a check mark next to any item present in Erosion from plowed fields, fill, timber harvest, dirt roads, vegeta 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/ ga Accelerated channel downcutting or headcutting of tributaries du	industrial sources. Frequent and year-round. 0 - 15 m. buting Area the CA that is likely to have elevated the load of waterborne of the clearing, fires.	treatment plant. Frequent but mostly seasonal. 15-100 m. or in groundwater.	Infrequent & during high runoff events mainly. In more distant part of contributing area. Sum Stressor subscore	_					
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In more distant part of contributing area. Sum Stressor subscore R, INV, PH, SRv, STR] ulatively add significantly more sediment or suspended onger present. Mild (1 point) Potentially (based on low-intensity* land use) with little or n direct evidence. >1 yr ago. Infrequent & during high runoff events mainly. In more distant part of contributing area. Sum Stressor subscore rithin past 100 years or since wetland was created or then leave the "0's" for the scores in the following rows. To						
Excessive Sediment Loading from Contril In the last column, place a check mark next to any item present in Erosion from plowed fields, fill, timber harvest, dirt roads, vegeta Erosion from off-road vehicles in the CA. Erosion from livestock or foot traffic 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/ ga Accelerated channel downcutting or headcutting of tributaries du Other human-related disturbances within the CA. If any items were checked above, then for each row of the table b solids to the AA, then leave the "0's" for the scores in the following. Erosion in CA: Recentness of significant soil disturbance in the CA: Duration of sediment inputs to the wetland: AA proximity to actual or potential sources: * high-intensity= extensive off-road vehicle use, plowing, grading, disturbance of soil or sediment. Soil or Sediment Alteration Within the Ass In the last column, place a check mark next to any item present in restored (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mou Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native Fill or riprap, excluding small amounts of upland soils containing Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause or If any items were checked above, then for each row of the table b estimate effects, contrast the current condition with the condition in Spatial extent of altered soil:	industrial sources. Frequent and year-round. 0 - 15 m. buting Area In the CA that is likely to have elevated the load of waterborne of a tion clearing, fires. It is extraction. I	treatment plant. Frequent but mostly seasonal. 15-100 m. or in groundwater. column. However, if you believe the checked items did not cum the condition if the checked items never occurred or were no local Medium (2 points) Potentially (based on high-intensity* land use) or scattered evidence. 1-12 months ago. Frequent but mostly seasonal. 15-100 m. ty= veg removal only with little or no apparent erosion or the wetland's soil. Consider only items occurring we soil imported from another wetland. s did not measurably alter the soil structure and/or topography, the measurably alter the soil structure and dege (if any). 1-12 months ago. Long-lasting but mostly revegetated.	Infrequent & during high runoff events mainly. In more distant part of contributing area. Sum Stressor subscore IR, INV, PH, SRv, STR] Mild (1 point) Potentially (based on low-intensity* land use) with little or n direct evidence. >1 yr ago. Infrequent & during high runoff events mainly. In more distant part of contributing area. Sum Stressor subscore ithin past 100 years or since wetland was created or Mild (1 point) Stressor subscore ithin past 100 years or since wetland was created or Stressor subscore Stressor subscore ithin past 100 years or since wetland was created or Stressor subscore Stressor subscore Stressor subscore ithin past 100 years or since wetland was created or Stressor subscore ithin past 100 years or since wetland was created or Stressor subscore Stressor subscore Stressor subscore Stressor subscore Stressor subscore ithin past 100 years or since wetland was created or Stressor subscore Stressor subscore ithin past 100 years or since wetland was created or Stressor subscore Stressor subscore ithin past 100 years or since wetland was created or Stressor subscore ithin past 100 years or since wetland was created or Stressor subscore ithin past 100 years or since wetland was created or Ithin past 100 years or since wetland was created or Stressor subscore Stressor subscore Stressor subscore ithin past 100 years or since wetland was created or						
Frequency & duration of input: AA proximity to main sources (actual or potential): Excessive Sediment Loading from Contril In the last column, place a check mark next to any item present in Erosion from plowed fields, fill, timber harvest, dirt roads, vegeta Erosion from off-road vehicles in the CA. Erosion from livestock or foot traffic 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/ ga Accelerated channel downcutting or headcutting of tributaries du Other human-related disturbances within the CA. If any items were checked above, then for each row of the table b solids to the AA, then leave the "0's" for the scores in the following Erosion in CA: Recentness of significant soil disturbance in the CA: Duration of sediment inputs to the wetland: AA proximity to actual or potential sources: * high-intensity= extensive off-road vehicle use, plowing, grading, disturbance of soil or sediment. Soil or Sediment Alteration Within the Ass In the last column, place a check mark next to any item present in restored (whichever is less). [CS, INV, NR, PH, SR, STR] Compaction from machinery, off-road vehicles, livestock, or mou Leveling or other grading not to the natural contour. Tillage, plowing (but excluding disking for enhancement of native Fill or riprap, excluding small amounts of upland soils containing Excavation. Ditch cleaning or dredging in or adjacent to the wetland. Boat traffic in or adjacent to the wetland and sufficient to cause or If any items were checked above, then for each row of the table b estimate effects, contrast the current condition with the condition in Spatial extent of altered soil: Recentness of significant soil alteration in wetland:	industrial sources. Frequent and year-round. 0 - 15 m. buting Area In the CA that is likely to have elevated the load of waterborne of the carrier in the carrier in the carrier in the carrier in the last grows. To estimate effects, contrast the current condition with Severe (3 points) Extensive evidence, high intensity.* Current & ongoing. Frequent and year-round. 0 - 15 m. excavation, erosion with or without veg removal; low-intensity. seessment Area In the wetland that is likely to have compacted, eroded, or other intensity. Intain bikes, especially during wetter periods. In the wetland that is likely to have compacted in the wetland that is likely to have compacted in the wetland that is likely to have compacted in the wetland that is likely to have compacted in the wetland that is likely to have compacted in the wetland that is likely to have compacted in the wetland that is likely to have compacted in the wetland that is likely to have compacted in the wetland that is likely to have compacted in the wetland that is likely to have compacted in the wetland that is likely to have compacted in the wetland that is likely to have compacted in the wetland that is likely to have compacted in the wetland that is likely to have compacted in the wetland that is likely to have compacted in the wetland that is likely to have compacted in the wetland that is likely to have compacted in the wetland that is likely to have compacted in the wetland that is likely to have compacted in the wetland that is likely to have compacted in the wetland that is likely to have compacted in the wetland that is likely to have compacted in the wetland that is likely to have compacted in the last in the last in the last is likely to have control in the last in the last in the last in the last in the last in the last in the last in the last in the last in the last in the last in the last in the last in the last in the last in the last in the last in the last in the last in the last in the last in the last in the last in the las	treatment plant. Frequent but mostly seasonal. 15-100 m. or in groundwater. or windborne sediment reaching the wetland from its CA. [FA, Fa, Fa, Fa, Fa, Fa, Fa, Fa, Fa, Fa, Fa	Infrequent & during high runoff events mainly. In more distant part of contributing area. Sum Stressor subscore IR, INV, PH, SRv, STR] Wild (1 point) Potentially (based on low-intensity* land use) with little or n direct evidence. >1 yr ago. Infrequent & during high runoff events mainly. In more distant part of contributing area. Sum Stressor subscore within past 100 years or since wetland was created or Mild (1 point) Stressor subscore within past 100 years or since wetland was created or Mild (1 point) <5% of wetland and <5% of its upland edge (if any). >1 yr ago.						

Assessment Area (AA) Results:

Wetland ID: Tapline WL-7

Date:

Observer: DM

Latitude & Longitude (decimal degrees):

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)	1.42	Lower	6.47	Higher	2.82	6.50
Stream Flow Support (SFS)	10.00	Higher	10.00	Higher	5.56	6.27
Water Cooling (WC)	3.50	Moderate	4.67	Moderate	2.33	2.81
Sediment Retention & Stabilisation (SR)	1.28	Lower	1.76	Lower	4.03	1.07
Phosphorus Retention (PR)	2.94	Moderate	1.86	Moderate	4.98	2.01
Nitrate Removal & Retention (NR)	1.41	Lower	5.50	Moderate	4.70	6.00
Carbon Sequestration (CS)	6.67	Higher			7.44	
Organic Nutrient Export (OE)	5.55	Higher			5.28	
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)	2.11	Lower	4.38	Moderate	4.61	3.60
Amphibian & Turtle Habitat (AM)	5.57	Moderate	5.62	Moderate	6.24	5.50
Waterbird Feeding Habitat (WBF)	5.19	Moderate	5.00	Moderate	4.13	5.00
Waterbird Nesting Habitat (WBN)	4.55	Moderate	5.00	Moderate	3.89	5.00
Songbird, Raptor, & Mammal Habitat (SBM)	8.89	Higher	10.00	Higher	7.37	10.00
Pollinator Habitat (POL)	7.97	Higher	0.00	Lower	6.42	0.00
Native Plant Habitat (PH)	4.25	Moderate	5.29	Moderate	4.80	4.59
Public Use & Recognition (PU)			1.90	Lower		1.68
Wetland Sensitivity (Sens)			5.46	Higher		3.84
Wetland Ecological Condition (EC)			7.11	Higher		8.33
Wetland Stressors (STR) (higher score means more stress)			3.00	Moderate		3.36
Summary Ratings for Grouped Functions:						
HYDROLOGIC Group (WS)	10.00	Higher	6.47	Higher	2.82	6.50
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	2.41	Lower	4.27	Moderate	6.36	4.51
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	7.64	Higher	8.17	Higher	5.00	5.25
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	4.32	Moderate	4.37	Moderate	4.55	4.30
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	7.96	Higher	7.55	Higher	6.78	7.43
WETLAND CONDITION (EC)			7.11	Higher		8.33
WETLAND RISK (average of Sensitivity & Stressors)			4.23	Moderate		3.60

е										
	Min	Max 9.42	Range	F_JenksLo	F_JenksHigh 5.12	Min 0.08	Max 10.00	Range 9.92	B_JenksLo 2.58	B_JenksHigh
	0.00	5.33	7.68 5.33	2.48	6.56	0.08	5.83	5.83	2.38	5.67 6.16
	0.00	6.67	6.67	1.80	5.30	0.00	6.02	6.02	1.45	4.79
	3.16	10.00	6.84	1.76	5.26	0.00	6.07	6.07	3.75	7.95
	2.90	10.00	7.10	2.66	4.17	0.33	9.38	9.04	1.71	4.55
	3.83	10.00	6.17	2.27	4.36	1.11	10.00	8.89	2.50	7.19
	4.56	8.88	4.31	3.13	5.70	1.11	10.00	0.07	2.50	7.17
	2.33	7.64	5.30	3.12	5.26					
	0.00	6.13	6.13	1.80	6.71	0.00	7.39	7.39	0.00	4.44
	0.00	5.95	5.95	1.40	6.29	0.00	7.09	7.09	0.00	4.48
	3.87	7.39	3.52	2.58	5.58	1.24	6.64	5.39	0.85	5.74
	3.30	8.58	5.28	3.30	6.25	2.09	8.16	6.06	2.27	6.30
	0.00	7.96	7.96	0.00	6.84	0.00	10.00	10.00	0.83	6.67
	0.00	8.54	8.54	1.95	5.42	0.00	10.00	10.00	0.00	6.67
	0.00	8.29	8.29	2.50	7.24	0.00	10.00	10.00	3.33	6.67
	0.00	8.05	8.05	0.00	7.81	0.00	10.00	10.00	0.00	6.67
	3.08	7.12	4.03	3.96	5.98	0.00	8.68	8.68	0.00	6.33
						0.33	7.44	7.11	2.40	5.51
						2.20	5.20	2.99	2.88	5.30
						4.24	10.00	5.76	3.25	6.39
						2.26	5.93	3.67	2.15	4.97
				2.48	5.12				2.58	5.67
				3.07	5.39				4.15	7.64
				3.82	6.04				1.34	4.99
				2.41	6.22				3.15	6.29
				4.68	7.60				0.00	5.33
									3.25	6.39
									2.71	4.33

New Brunswick Reference Scores

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 the 98 NB calibration wetlands that were assessed previously.

WETLAND
PARCEL
IDENTIFICATION
NUMBERS (PIDS)

Table F-1 Parcel Identification Numbers (PIDs) for WEC Site Study Area Wetlands

WETLAND ID	AREA (m²)	AREA (ha)	PI	D
			20086146	20145215
			20083317	20684429
			20096673	20080297
			20083325	20631123
			20561023	20077905
			20499273	20499695
			20499265	20563474
			20499182	20498713
			20086237	20100582
Α	1,209,905	121	20885273	20660486
			20885281	20593109
			20824520	20100137
			20885265	00000003
			20640793	20162194
			20619458	20489746
			20619441	20081279
			20089900	20503090
			20684437	20077863
			20881777	20499687
			20094009	20097762
			20528436	20138830
			20126637	20499208
			20083382	20078275
			20598603	20087565
			20667630	20126629
	2,013,435		20652608	20077830
			20088381	20498713
			20096921	20498986
			20599189	20644696
			20078325	20498754
			20657722	20086260
_			20508396	20782033
В		201	20098646	20100590
			20097754	20100582
			20496816	20660486
			20078317	20086252
			20824645	20100004
			20078432	20099990
			20675849	20086179
			20088779	20092680
			20613055	20086146
			20721767	20503124
			20509279	00000003
			20086195	20162194
			20098638	-

WETLAND ID	AREA (m²)	AREA (ha)	PID	
	458,256		20098646	20563953
		5	20097754	20097762
			20496816	20138830
			20078317	20499208
С			20078432	20078275
			20675849	20087565
			20088779	20077830
			20613055	20798195
			20721767	20498713
D	34,225	3	20498713	-
E	30,715	2	20840351	20798195
Ľ		3	20077830	20498713

Table F-2 Parcel Identification Numbers (PIDs) for Tapline Study Area Wetlands

WETLAND ID	AREA (m²)	AREA (ha)	PID	
	31,844	3	20498457	20080149
1			20090825	20695391
I			00000003	20080149
			20081196	-
2	4,328	<1	20498457	20509725
2			20090825	-
3	2,489	<1	20498457	20509725
5	2,274	<1	20503587	-
6	14,487	1	20075925	-
7	22,747	2	20745501	20075925