Site Name: Williams Lake **Site Code**: HRM_40
Date of Field Assessment: 08/31/2020
Assessor: Emma Bocking **PID:** 00271585
GPS Coordinates: 44.616341, -63.600103
Wetland Type: Marsh **Size:** 1 ac/0.4 ha
Landowner: Church of Christ Development Company Ltd.

Site Context: This site is accessible by a trail used frequently by both residents and hikers from nearby Colpitt Lake by way of Governor's Brook. The local stewardship organization is Williams Lake Conservation Company. Adjacent land use includes low density residential and conservation (the new Shaw Wilderness Park).

Site Summary: This wetland has a high public use value because of the presence of an active volunteer stewardship organization and the proximity to hiking trails and residential areas. This proximity also leads to increased stressors, such as the potential for inputs of stormwater (particularly via Governor's Brook), fertilizers, road salt and pesticides. Residents are concerned about persistently low water levels during the summer in Williams Lake. This wetland is naturally designed to function well during periods of low water. Additionally, it provides valuable nesting and feeding habitat for waterbirds and other wildlife.

Function/ Benefit	Rating	Description
Top Functions		
Waterbird Nesting Habitat	Higher	This wetland has habitat features that support a diversity and abundance of nesting waterbird species, such as ducks, shorebirds or herons. Such habitat features could include the presence of surface water, intermediate aquatic plant cover, mild water level fluctuation, tree snags and a wide vegetated buffer.
Pollinator Habitat	Higher	This wetland has habitat features that support pollinating insects and birds. It is likely to contain a diversity of flowering plants, and suitable nesting habitat such as tree snags, ground cover, downed wood, large trees and/or cliffs. The wetland is not persistently flooded.
Songbird, Raptor & Mammal Habitat	Higher	This wetland has habitat features that support a diversity and abundance of songbirds, raptors and mammals. Such habitat features could include a mix of open water and land cover, a wide vegetated buffer, tree snags, downed wood, varied microtopography, mature trees and diverse shrub cover.
Top Benefits		
Nitrate Removal & Retention	Higher	High concentrations of nitrate in aquatic systems can lead to toxic algal blooms that are harmful to people and wildlife. There may be domestic wells nearby, or a tributary is present that would transport soluble nitrates out of the wetland. In addition, there may be potential sources of nitrogen in the area from agriculture, urban areas or septic systems.
Resident Fish Habitat	Higher	This wetland may be a fishing spot (for both people and feeding waterbirds), which increases the value of a resident fish population. It may also be easily accessible by people.
Waterbird Feeding Habitat	Higher	This wetland may be recognized as an Important Bird Area or is known to host a rare migratory waterbird species. Alternatively, it may also be one of the few herbaceous wetlands or ponds in the local area, and/or it has the potential to have a high value for recreationists including birdwatchers and waterfowl hunters due its proximity to public roads and population centers.

HRM_40 Function and Benefit Scores

Wetland Functions or Other Attributes:	Function Score (Normalised)	Function Rating	Benefits Score (Normalised)	Benefits Rating
Water Storage & Delay (WS)	2.97	Lower	4.23	Moderate
Stream Flow Support (SFS)	3.03	Moderate	5.77	Moderate
Water Cooling (WC)	2.79	Moderate	7.72	Higher
Sediment Retention & Stabilisation (SR)	5.05	Moderate	7.91	Higher
Phosphorus Retention (PR)	2.08	Lower	6.86	Higher
Nitrate Removal & Retention (NR)	3.58	Moderate	10.00	Higher
Carbon Sequestration (CS)	2.86	Lower		
Organic Nutrient Export (OE)	6.68	Moderate		
Anadromous Fish Habitat (FA)	7.92	Higher	9.87	Higher
Resident Fish Habitat (FR)	8.47	Higher	10.00	Higher
Aquatic Invertebrate Habitat (INV)	4.59	Moderate	9.46	Higher
Amphibian & Turtle Habitat (AM)	7.01	Higher	7.25	Higher
Waterbird Feeding Habitat (WBF)	7.85	Higher	10.00	Higher
Waterbird Nesting Habitat (WBN)	9.26	Higher	10.00	Higher
Songbird, Raptor, & Mammal Habitat (SBM)	8.82	Higher	10.00	Higher
Pollinator Habitat (POL)	8.96	Higher	10.00	Higher
Native Plant Habitat (PH)	4.16	Moderate	8.34	Higher
Public Use & Recognition (PU)			8.84	Higher
Wetland Sensitivity (Sens)			2.43	Lower
Wetland Ecological Condition (EC)			0.72	Lower
Wetland Stressors (STR) (higher score means more stress)			6.40	Higher
Summary Ratings for Grouped Functions:				
HYDROLOGIC Group (WS)	2.97	Lower	4.23	Moderate
WATER QUALITY SUPPORT Group (max+avg/2 of SR, PR, NR, CS)	4.22	Lower	9.13	Higher
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC)	5.48	Moderate	8.55	Higher
AQUATIC HABITAT Group (max+avg/2 of FA, FR, AM, WBF, WBN)	8.68	Higher	9.71	Higher
TRANSITION HABITAT Group (max+avg/2 of SBM, PH, POL)	8.14	Higher	9.72	Higher
WETLAND CONDITION (EC)			0.72	Lower
WETLAND RISK (average of Sensitivity & Stressors)			4.42	Moderate

Introduction to Wetland Ecosystem Services Protocol (WESP) for Atlantic Canada

What is WESP?

WESP-AC (Wetland Ecosystem Services Protocol for Atlantic Canada) is a standardized method for rapidly assessing important natural functions of wetlands in Atlantic Canada. It was originally developed in western North America by Dr. Paul Adamus at Oregon State University.

Why is it used?

Wetlands are complex systems. Detailed wetland studies can be resource- and time-intensive. Conversely, one trained professional can use WESP to rapidly assess a wetland for 18 functions and benefits.

How is it used?

WESP consists of a field and office component. Practitioners visit the wetland and answer a series of questions relating to the site's vegetation, hydrology and public use. The office component is a series of questions relating to site location. Responses are recorded in an Excel spreadsheet that automatically calculates a score for each function and benefit. These scores rank the wetland on its ability to deliver each function relative to other wetlands in the province.

Who uses WESP-AC?

WESP practitioners have received specialized training to use this tool. They generally work for consultants, government or conservation organizations and have a background in wetland plants, soils and hydrology.

WESP data is used by provincial and municipal governments in Atlantic Canada as well as conservation organizations such as DUC to understand various wetland and watershed dynamics, including: which functions are represented by wetlands in an area, and whether restored wetlands are adequately replacing or compensating for functions that have been lost through wetland alteration or in-filling.

What is the difference between a function and a benefit score?

Function scores refer to the wetland's ability to deliver that function based on its structure, vegetation and hydrology. Benefit scores refer to the wetland's value for the people and wildlife in the watershed and are based off its location in the watershed and surrounding land use.

What do the scores and ratings mean?

Scores are calculated based on the answers inputted into the spreadsheet and calculations made by the model that reflect our understanding of which physical characteristics are representative of a wetland's ability to deliver the specified function. Scores are adjusted to be relative to other wetlands in the province. Ratings are Low, Moderate and High. WESP-AC is calibrated for each province in Atlantic Canada based on data collected from over 100 sites in each province. Scores and ratings are relative to other wetlands in Nova Scotia, therefore a "High" rating means that relative to other Nova Scotia wetlands, this wetland is highly beneficial or functional.

What can I do with this information?

WESP data has limitations. Like any model of a complex natural system, it is only an approximation of what is occurring. However, it can be used to give an idea of the functions and benefits of the wetland relative to other wetlands in the area. This information may be useful in making land-use decisions or directing further study.

Looking for more information?

This report was prepared by staff at Ducks Unlimited Canada. For more information, please contact:

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Ducks Unlimited Canada
Conserving Canada's Wetlands

September 30, 2020