User Guide for

Wetlands

LIO Data Class

Provincial Mapping

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Table of Contents

[Disclaimer 2](#_Toc155617873)

[Additional Information 2](#_Toc155617874)

[Table of Contents 3](#_Toc155617875)

[1. Introduction 4](#_Toc155617876)

[2. Objectives 4](#_Toc155617877)

[3. Data Class: Wetlands 5](#_Toc155617878)

[Evaluated Wetlands 6](#_Toc155617879)

[Provincially Significant Wetlands (PSW) 7](#_Toc155617880)

[Policy and Plans Protecting Wetlands 8](#_Toc155617881)

[Use Constraints 9](#_Toc155617882)

1. Introduction

The Wetlands Data Class provides spatial representation and attribute information for wetlands in Ontario. Not all wetlands have been identified and mapped. Active maintenance is ongoing throughout the province.

Certain attributes identify which wetlands have been evaluated with the [Ontario Wetland Evaluation System](https://www.ontario.ca/page/wetlands-evaluation) (OWES) and of those which ones have been designated as Provincially Significant Wetlands (PSW). Not all wetlands in Ontario have had an OWES evaluation.

The Wetland Consolidation project was carried out in the spring of 2011 to consolidate several wetlands datasets into one comprehensive layer (Wetlands Data Class). The MNRF district staff were consulted to identify the best available existing wetland data for their district. The resulting data were added to the Wetlands layer where they did not overlap existing OWES evaluated wetland data. Sources for wetlands data included Wetland Interim (OBM/NTS), Forest Resource Inventory (FRI), Southern Ontario Land Resource Inventory System (SOLRIS) and MNRF district data stored in the Significant Ecological Area layer.

The Wetlands data are managed independently from the Ontario Hydro Network (OHN) layers and may overlap waterbodies or other OHN data. Wetlands data may also overlap other Natural Heritage features including Woodlands and Areas of Natural and Scientific Interest (ANSI).

1. Objectives

This guide is intended for users with a general interest in the Wetlands Data Class. The remainder of this document describes the extent and context of the information collected for Wetlands.

1. Data Class: Wetlands

Wetlands are lands that are seasonally or permanently flooded by shallow water as well as lands where the water table is close to or at the surface. In either case, the presence of abundant water causes the formation of hydric (moist) soils and has favoured the dominance of hydrophytic (water loving) or water tolerant plants.

An individual spatial polygon represents a discrete wetland type. Values for wetland types are Bog, Fen, Marsh, Swamp, Open Water (Marsh) or Unknown.

* Bog: Bogs are peat-covered areas or peat-filled depressions with a high water table and a surface carpet of mosses, chiefly Sphagnum. The water table is at or near the surface in the spring, and slightly below during the remainder of the year. The mosses often form raised hummocks, separated by low, wet interstices. The bog surface is often raised, or, if flat or level with the surrounding wetlands, it is virtually isolated from mineral soil waters. Hence, the surface bog water and peat are strongly acidic and upper peat layers are extremely deficient in mineral nutrients. Peat is usually formed in situ under conditions of closed drainage and low oxygen levels.
* Fen: Fens are peatlands characterized by surface layers of poorly to moderately decomposed peat, often with well-decomposed peat near the base. Fen peats generally consist of mosses and sedges. Sphagnum, if present, is usually composed of different Sphagnum species than occur in bogs. There are two main fen types: nutrient rich fens typically are fed by groundwater and have a high pH. Nutrient-poor fens, such as those in moraine dominated landscapes, can occur in isolated depressions with less groundwater inputs and a lower pH (but not as low as in bogs).
* Marsh: Marshes are wet areas periodically inundated with standing or slowly moving water, and/or permanently inundated areas characterized by robust emergents, and to a lesser extent, anchored floating plants and submergents. Surface water levels may fluctuate seasonally, with declining levels exposing drawdown zones of matted vegetation or mud flats. Water remains within the rooting zone of plants during at least part of the growing season.
* Open Water (Marsh): These areas are not to be confused with lakes and rivers. They have been identified as wetlands but they may overlap or be coincident with OHN lakes and rivers. All wetlands dominated by submergents, floating plants, free floating plants or unvegetated are considered to be open water marsh. Typically, there is enough open water for a duck to swim or to navigate a canoe.
* Swamp: Swamps are wooded wetlands with 25% cover or more of trees or tall shrubs. In swamps, standing to gently flowing waters occur seasonally or persist for long periods on the surface. Frequently there is an abundance of pools and channels indicating subsurface water flow.
* Unknown: The “Unknown” value may be used for wetland polygons that have not had the type identified and may be updated when the type is known.

Some of the attributes relate to the specific Wetland polygon while other attributes are only populated if the polygon has been associated with an evaluation through OWES.

Wetland attributes that will be populated for all polygons include Wetland Type, Evaluated Wetland Indicator and Location Accuracy. Evaluated Wetland Name, Evaluated Wetland ID and Wetland Significance will only be populated if the polygon has been associated with an OWES evaluation.

Evaluated Wetlands

Evaluated Wetlands are those identified and assessed using the technical criteria in the OWES manuals. Not all wetlands in Ontario have been evaluated.

These manuals are technical guidance documents that use scientific criteria to quantify wetland values and allow comparisons among wetlands.

The manuals provide the “evaluation procedures” referred to in the Provincial Policy Statement. They are used to determine wetland significance under Section 2.1 of that document. Great Lakes coastal wetlands are evaluated using these manuals.

There are 2 evaluation manuals, each used for different regions:

* the Southern Ontario Wetland Evaluation System manual is used for all wetlands located in Ecoregions 6 and 7.
* the Northern Ontario Wetland Evaluation System manual is used for all wetlands located in Ecoregions 2, 3, 4 and 5.

[Ontario Wetland Evaluation System Southern Manual (PDF)](https://www.ontario.ca/files/2023-02/mnrf-pd-rpdpb-ontario-wetlands-evaluation-system-southern-manual-2022-en-2023-02-02.pdf)

[Ontario Wetland Evaluation System Northern Manual (PDF)](https://www.ontario.ca/files/2023-02/mnrf-pd-rpdpb-ontario-wetlands-evaluation-system-northern-manual-2022-en-2023-02-01.pdf)

[Ontario Wetland Evaluation System Manuals Executive Summary](https://www.ontario.ca/document/executive-summary-ontario-wetland-evaluation-system)

An Evaluated Wetland consists of one or more adjacent (contiguous) Wetland polygons.

The Evaluated Wetland Indicator is a mandatory attribute that is used to identify whether the wetland has been evaluated through OWES with valid values of Yes or No.

Provincially Significant Wetlands (PSW)

The OWES evaluation information is collected to support the wetlands component of the Provincial Policy Statement (PPS). Wetlands that meet certain criteria through OWES are designated as Provincially Significant.

The Wetland Significance attribute is used to identify which Wetland polygons have been identified as Provincially Significant.

Since not all wetlands have been evaluated the attribute is optional. This attribute will be populated if the polygon is associated with an OWES evaluation.

Valid values are “Evaluated-Provincial”, “Evaluated-Other”, or “Null” for wetlands not evaluated through OWES. If the attribute value is “Evaluated-Provincial” then it has been evaluated through OWES and identified as a PSW.

If the attribute value is “Evaluated-Other” then it has been evaluated through OWES but not identified as a Provincially Significant Wetland.

Some municipalities and local planning authorities may have local wetland protection policies and may consider wetlands identified through OWES as “Evaluated-Other” to be “Locally Significant Wetlands”. This would be done at the local level and is not part of this Wetlands data set.

Policy and Plans Protecting Wetlands

The [Provincial Policy Statement (PPS) 2020](https://www.ontario.ca/page/provincial-policy-statement-2020) provides protection for significant wetlands and significant coastal wetlands that have been designated through OWES.

“In some parts of the province, protection of wetlands goes beyond provincially significant wetlands. In 2014, the PPS was updated to include protection for all non PSW (Great Lakes) coastal wetlands in 5E, 6E, and 7E, unless no negative impacts can be demonstrated. The Ontario Wetland Evaluation System and PPS define a coastal wetland as:

“Any wetland that is located on one of the Great Lakes or their connecting channels (Lake St. Clair, St. Marys, St. Clair, Detroit, Niagara and St. Lawrence Rivers); or

any other wetland that is on a tributary to any of the above-specified water bodies and lies, either wholly or in part, downstream of a line located 2 kilometres upstream of the 1:100 year floodline (plus wave run-up) of the large water body to which the tributary is connected.”

Coastal wetland can be identified with the Coastal\_Ind attribute.

“Landscape-level plans, including the Niagara Escarpment Plan, Oak Ridges Moraine Conservation Plan, Greenbelt Plan and the Lake Simcoe Protection Plan, also provide protection for unevaluated wet­lands, as well as wetlands that have been evaluated but did not meet the threshold for provincial signifi­cance.

Wetlands protected by a plan can be identified with the Plan Protection attribute.

Contact local municipalities for interpretation of policies related to wetlands.

Use Constraints

Accuracy of wetland boundaries will vary depending on data source and vintage.

Wetlands are dynamic ecosystems and wetland boundaries may change over time. Wetland boundaries represent the extent of the wetland at the time of interpretation.

Due to the size of Ontario, associated scale variations and the fact that original data was collected over many years by different contractors using a variety of photography or imagery products at varying resolution, the source datasets are inconsistent, even within a geographic area.

The Wetland data provides spatial representation and attribute information for wetlands in Ontario. Not all wetlands have been identified and mapped. Active maintenance is ongoing throughout the province.

Wetland evaluations are considered to be dynamic files and are subject to change as more information becomes available or as a consequence of changes to the wetland itself.

Users should confirm the spatial outline and contextual information before making business decisions.

The Wetlands data are managed independently from the OHN layers and may overlap waterbodies or other OHN data. Wetland data may also overlap other Natural Heritage features including Woodlands and Areas of Natural and Scientific Interest (ANSI).

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