

**NEW BRUNSWICK
WETLAND CLASSIFICATION FOR
2003 – 2012 PHOTO CYCLE**

**Department of Natural Resources
Fish and Wildlife Branch**

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Wetland classification

Wetlands are lands transitional between terrestrial and aquatic systems where the water table is at or near the surface and/or the land is covered by shallow water at some time during the growing season. Wetlands are characterized by poorly drained soils, and have predominantly hydrophytic or water tolerant vegetation. New Brunswick contains both freshwater and coastal wetlands.

The New Brunswick Wetland Classification System for the 2003-2012 photo cycle recognizes several wetland classes and coastal /shoreline feature classes typically found in New Brunswick. A Wetland Class (WC) defines wetland habitats such as Freshwater Marsh (FM), Coastal Marsh (CM), Aquatic Bed (AB), Bog (BO), Fen (FE), Shrub Wetland (SB), Forested Wetland (FW). Wetland classes are further defined by attributes such as Wetland Category (Freshwater or Coastal), Specific Vegetation Cover Types (VT), Water Regime Indicator (WRI), Impoundment Modifier (IM), and Percent Vegetation Cover (SPVC).

Coastal / Shoreline Feature Class defines non-wetland habitats such as Rocky Shores (RK), Beaches (BC), Tidal Flats (TF), and Dunes (DU). Table 1 provides a complete listing of all fields and attributes used to describe wetland classes and coastal / shoreline features in the DNR Wetland Inventory layer.

Table 1: Attributes for Wetland and Coastal / Shoreline Feature Classes in the DNR Wetland Inventory layer.

<i>Section 1 – Wetlands</i>					
Wetland Class (WC)	Wetland Category (WLOC)	Water Regime Indicator (WRI)	Impoundment Modifier (IM)*	Specific Vegetation Cover Type (VT)	Percent Vegetation Cover for Specific Vegetation Cover Types (SPVC)
Freshwater Marsh (FM)	F	PF or SF	BP, DI, MI, or uncoded, if no impoundment exists.	All Vegetation Types (FH, FS, AW, SV, EV, OV, OW).	1, 2, 3, 4 or 5
Coastal Marsh (CM)	C	TD	BP, DI, MI, or uncoded.	FV	1, 2, 3, 4 or 5
Aquatic Bed (AB)	F	PF or SF	BP, DI, MI, or uncoded.	OV, OW	1, 2, 3, 4 or 5
Bog (BO)	F	SA	BP, DI, MI, or uncoded.	All Veg Types, except FH.	1, 2, 3, 4 or 5
Fen (FE)	F	SA	BP, DI, MI, or uncoded.	All Veg Types, except FH.	1, 2, 3, 4 or 5
Shrub Wetland (SB)	F	PF or SF	BP, DI, MI, or uncoded.	All Veg Types	1, 2, 3, 4 or 5
Forested Wetland (FW)	F	PF or SF	BP, DI, MI, or uncoded.	All Veg Types Except OV, OW.	1, 2, 3, 4 or 5
* Assignment of this attribute is dependant on the existence of an impoundment.					

Section 2**Coastal / Shoreline Features**

Coastal / Shoreline Feature Class (WC)	Wetland Category (WLOC)	Water Regime Indicator (WRI)	Impoundment Modifier (IM)	Specific Vegetation Cover Type (VT)	Percent Vegetation Cover for Specific Vegetation Cover Types (SPVC)
Rocky Shore (RK)	C	TD	N/A	FV or FU	1, 2, 3, 4 or 5
Beach (BC)	F or C	TD* (Coastal only)	N/A	FU	1
Dune (DU)	F or C	TD* (Coastal only)	N/A	FV or FU	1, 2, 3, 4 or 5
Tidal Flat (TF)	C	TD	N/A	FV or FU	1, 2, 3, 4 or 5

* Freshwater Beaches and Dunes are not recognized as being under tidal influence. For these features the inventory would not show any code in the WRI field.

1. **Wetland Class (WC):** Each wetland polygon is interpreted from DNR aerial photographs and is assigned a dominant Wetland Class (Table 1, Section 1) or Coastal/Shoreline Feature Class (Table 1, Section 2). Interpretation of NBDNR aerial photos was done at a resolution capable of identifying wetlands of one hectare or larger. The inventory may also contain wetland polygons measuring less than one hectare in size, especially if these are distinct features on the landscape, or were easily identified on the aerial photograph by the interpreter.

This document contains examples of aerial photographs depicting different wetland classes and coastal features for reference purposes. Please note that not every wetland class has been identified in each aerial photo, as the intent is only to highlight certain wetland classes. A description of the wetland and coastal / shoreline classes and their associated inventory codes are provided below.

Wetland Classes (WC):

Freshwater Marsh (FM): Includes all wetlands dominated by rooted herbaceous plants. This class includes most typical marshes as well as seasonally flooded wet meadows.

Coastal Marsh (CM): Coastal marshes are wetlands dominated by rooted herbaceous plants. These wetlands drain directly into coastal waters and have the potential to be at least partially inundated with salt or brackish water.

Aquatic Bed (AB): Includes all wetlands dominated by permanent shallow standing water that may contain plants that grow on or below the surface of the water.

Bog (BO): Includes all wetlands typically covered by peat, which have a saturated water regime as well as a closed drainage system (i.e. no water contributions from the upland). Bogs are distinguished from fens by their raised topography. The surface is frequently covered by ericaceous shrubs, sedges and sphagnum moss, with black spruce often being the common tree species present.

Fen (FE): Includes wetlands typically covered by peat, having a saturated water regime, and an open drainage system. Fens are natural depressions that receive water from surrounding upland areas or bogs through seepage, streams, or surface runoff. The surface is typically covered by sedges and grasses. Alder swamps (shrub wetland) are not considered fens.

Shrub Wetland (SB): Includes all wetlands dominated by a variety of shrubs or alder thickets*, in areas adjacent to emergent wetlands, other wetland classes, or along watercourses.

*(*Shrub wetlands include those “Alders on Poor sites” (AP) from NFLC in the FOREST layer of the pre- 2003-2012 Forest Inventory that were adjacent to wetlands or along watercourses, including intermittent streams).*

Forested Wetland (FW): In this wetland class are forested areas where the water table is at or near the surface, soil conditions are water-saturated, or standing water is present. Examples of forested wetlands include red maple swamps, cedar swamps, and black spruce swamps, as well as the seasonally flooded forest of the Saint John River floodplain.

2. Coastal or Shoreline Features (WC):

Rocky Shore (RK) - Rocky shores are areas of bedrock exposed between the extreme high and extreme low tide levels on the coastal shores. Rocky shores are often vegetated with rockweed and other plants that attach to the rock substrate.

Beach (BC) – Beaches are unconsolidated deposits of sand, gravel, cobble and boulders on the shores.

Dune (DU) - Dunes are unconsolidated sand or gravel deposits capping beach environments recognized by raised topography. Dunes may be vegetated with salt-tolerant vegetation such as marram grass or may be established with ericaceous vegetation or tree species (e.g. forested dune).

Tidal Flat (TF) - Tidal flat habitats are areas of mud and sandy mud exposed between the extreme high tide and extreme low tide marks. They form from the deposition of mud in sheltered tidal water, particularly in estuaries where there is a large sediment load. Tidal flats can be vegetated with various types of seaweed or sea grasses such as eel grass.

- 4. Wetland and Coastal Feature Category/Location Modifier (WLOC):** Wetlands and coastal features will receive a “Wetland and Coastal Feature Category/Location Modifier” based on their location. The inland or coastal assignment will be based on the polygon’s location relative to the “Ordinary High Water Mark or Landward Limit of a Coastal Feature” line. This line is available to interpreters as a layer for reference purposes.

Origin of Line: This line was created to represent the ordinary high water mark from the ETB98 data (derived from photos to represent medium high tide between spring and neap tides). The shapefile depicting the line represents the WACFLL and WACFOHLL codes combined, which were queried from the SNB Topo98 EDTB layer.

Limitations: On the major tributaries (i.e. Restigouche River), the delineation of coastal versus freshwater areas, as indicated by the “Ordinary High Water Mark or Landward Limit of a Coastal Feature” line, may not be representative of the actual extent of coastal waters. These areas should be interpreted using common sense boundaries as is done with assignment of ocean and river attributes.

WLOC Codes:

Coastal (C) - Coastal habitats can be periodically or permanently covered by salt water or they are created by the influence of salt water. Wetlands seaward of the high water mark/landward limit line are considered to be coastal wetlands.

Freshwater/Inland (F) – These wetlands are typically beyond the extent of salt water inundation and are landward of the high water mark/landward limit line.

- 5. Water Regime Indicator (WRI):** Each wetland and coastal/shoreline feature is assigned a water regime indicator which is a measure of the occurrence of water within the wetland.

Permanently Flooded (PF) – Greater than 20% of the wetland is covered by standing surface water for all or most of the growing season. Standing surface water includes vegetated and unvegetated ponds as well as all creeks not identified in the water body layer.

Saturated (SA) - The substrate is saturated to the surface for extended periods during the growing season, but less than 20% of the wetland is covered by surface water. Bogs and fens have saturated water regimes.

Seasonally Flooded (SF) – Surface water is present on the wetland only for a short period each year, usually in the spring.

Tidal (TD) –Surface water may only be present on wetlands and coastal features during high tide. The level of water fluctuates with tidal influence. Coastal features may be influenced by the tides (i.e. beach and dune formations are often affected by tidal fluctuations and storm surges, but are not necessarily covered with water on a daily basis). All Coastal Marshes and other Coastal Features will be coded with WRI=TD (Tidal).

Impoundment Modifier (IM): Wetlands with an obvious altered water regime may receive one of the following qualifiers.

Beaver Pond (BP) – Only to be used if the beaver dam is affecting the water regime of a wetland (does not include old beaver dams that are still visible but are not retaining water). A wetland polygon can be subdivided if the beaver dam is only affecting a portion of the wetland’s water regime.

Ducks Unlimited Impoundment (DI)

Man Made Impoundment (MI) – Not a Ducks Unlimited impoundment. Created intentionally to impound water.

Specific Vegetation Cover Type (VT): In addition to the overall Wetland Class or Coastal Feature type, wetland polygons are classified (and can be further subdivided) into Specific Vegetation Cover Types. Aerial photographs depicting different vegetation cover types are provided for reference. Please note that not every vegetation type has been delineated in each aerial photo as the intent is to only highlight certain vegetation types. On each reference photo there is a code for the vegetation type (e.g. FV) and percent vegetation cover (e.g. 5). The descriptions for the codes are provided below each photograph.

Forested Hardwood Vegetation (FH) – Non-commercial or commercial hardwood tree species such as red maple or silver maple that are located in a forested wetland. Hardwood dominated forested wetlands are normally found in floodplain areas.

Forested Softwood Vegetation (FS) - Non-commercial or commercial softwood tree species such as cedar, tamarack and black spruce that are located in a forested wetland.

Alders (AW) – Alder stands or swales that are associated with a watercourse or a wetland.

Shrub Vegetation, except alders (SV) – Some dominant species of shrub are willows, dogwoods, meadow sweet, bog rosemary, leatherleaf, Labrador tea and saplings of trees such as red maple.

Emergent Vegetation (EV) - Common marsh plants including cattails, bur-reeds, various sedges, rushes and grasses like bluejoint and cordgrass species, flowering herbaceous plants, goldenrods, asters and many others.

Open Water Vegetated (OV) – Open water with vegetation present on top of or just below the water surface. This includes areas of shallow water with visible submergent vegetation. This designation is used for freshwater wetlands only.

Open Water Unvegetated (OW) – Open water and no vegetation is present. This designation is used for freshwater wetlands only.

Coastal/Shoreline Feature Vegetated (FV) – This vegetation type is used to describe coastal or shoreline features that have visible vegetation (i.e. exposed at low tide or visible submerged vegetation). Dunes may be vegetated with salt-tolerant vegetation such as marram grass or may be established with ericaceous vegetation or tree species (e.g. forested dune). Tidal flats can be vegetated with various types of submerged aquatic vegetation such as eel grass in large expansive areas extending from the shoreline or in narrow fringing beds along steeper shorelines. Rocky shores can be vegetated with various seaweeds commonly known as rockweed.

Coastal/Shoreline Feature Unvegetated (FU) – This vegetation type is used to describe coastal features or shoreline features that do not have visible vegetation.

9. Percent Vegetation Cover for Specific Vegetation Cover Types (SPVC):

This attribute is an estimate of the amount of wetland vegetation versus water or non-vegetated area in each of the Specific Vegetation Cover Types. All inland/freshwater wetland classes will typically be a ratio of vegetation to water, whereas coastal wetlands and features may be a ratio of vegetation to water or vegetated to non-vegetated areas. For example, the percent vegetation for tidal flats and rocky shores will be a ratio of vegetated to non-vegetated areas as they are flooded daily and may be covered with water when the aerial photo was taken. Coastal marshes may have dry areas and/or tidal pools or pannes. Both of these should be considered when deciding the vegetation cover percentage. Features that are not vegetated (e.g. beach) will receive a SPVC = 1.

1. Less than 5% of the wetland area or coastal feature is covered in vegetation.
2. 5 - 25% of the wetland area or coastal feature is covered in vegetation.
3. 26 - 75% of the wetland area or coastal feature is covered in vegetation.
4. 76 - 95% of the wetland area or coastal feature is covered in vegetation.

5. Greater than 95% of the wetland area or coastal feature is covered in vegetation.

10. Explanation of Wetland Number and Other fields to be populated after photo interpretation.

1. **NBWLID** - Stores a Wetland ID for wetland naming/labeling purposes. Within the inventory a named wetland may be comprised of several individual wetland polygons.

2. **DATASRC** - Stores the source of the information and the level of verification of the photo interpretation for each wetland polygon. Codes are:

INTERP – Source is the original photo interpretation. Some proportion of the original interpretation is verified by a photo audit performed by DNR staff.

GROUND – Polygon delineation and/or attributes have been modified from the original photo interpretation, based on site visits or in-house knowledge of the wetland.

3. **DATAYR** - Year of data. Normally = PHOTOYR, unless delineation/attributes based on a site visit in a year different than PHOTOYR, (ie: DATASRC=GROUND)

4. **PHOTOYR** - Year of the photo interpretation block.

5. **WLPOLYID** - Provides a unique ID for each wetland polygon. This identifier (field) will provide a position-based label similar to the Forest Management Branch stand labels.

11. NEW* WATER CLASSIFICATION (NON-WETLAND):

Salt/Brackish Water/Salt Lake (SL) – Parts of the water body may be inundated by salt water allowing a brackish or salt condition to occur. These water bodies may be in the form of ponded water behind beach ridges, man-made constrictions on former tidal embayments or on marsh surfaces transitional between upland and salt marsh environments.

*Salt lakes are identified as water layer features in the 2003-2012 Classification. In the 1993-2002 Classification they were identified in the wetland layer.