

# Wetlands in Yukon

Classification, Inventory and Mapping





# Overview

- What is a wetland?
- Where are the wetlands in the Yukon?
- What are the differences between a wetland classification
- and wetland inventory.



# What is a wetland?

Yukon government adopted the Canadian Wetland Classification System

*“A wetland is defined as: land that is saturated with water long enough to promote wetland or aquatic processes as indicated by poorly drained soils, hydrophytic vegetation and various kinds of biological activity which are adapted to a wet environment”*

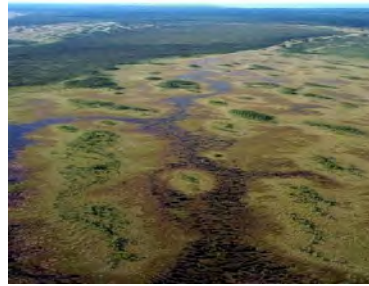
-National Wetlands Working Group, 1988

# Not all Wetlands are the same

**Organic soils,  
stable water  
table**

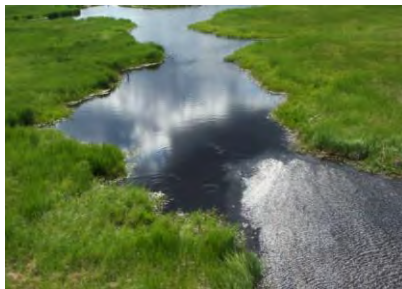


Bog



Fen

**Mineral  
soils,  
fluctuating  
water table**



Marsh



Swamp



Shallow Open  
Water

**Soils and  
hydrology  
determine  
wetland type**

# Bogs





# Fens



# Swamps





# Marsh







# Shallow Open Water



# Wetland Diversity





# Yukon Wetland Inventory

- No territory wide inventory exists that identifies wetlands to the five classes
- Coarse scale maps exist for Yukon but do not have the five classes and likely underestimate the amount of wetlands
- There are regional inventory products available that vary in the degree of classification and resolution





# Wetland Inventory

- A wetland inventory provides two benefits:
  1. A spatial product (map) identifying where wetlands are on the land
  2. Inference of wetland hydrology when wetlands are classified
    - Class of wetland has known hydrology (e.g. bogs are stagnant, fens have slow lateral flow)
- Helps make land use decisions such as where to place or how to build infrastructure such as roads or pipelines



# Wetland Inventory Methods

- Methods for doing inventory vary:
  - Satellite imagery looking at water, vegetation, terrain
  - Air photo interpretation of water, vegetation, terrain
  - Modelling, predicting wetlands in other areas
- Methods used are determined by the scale being mapped, the size of the area, and cost
- Scale is important and ground-truthing may be necessary

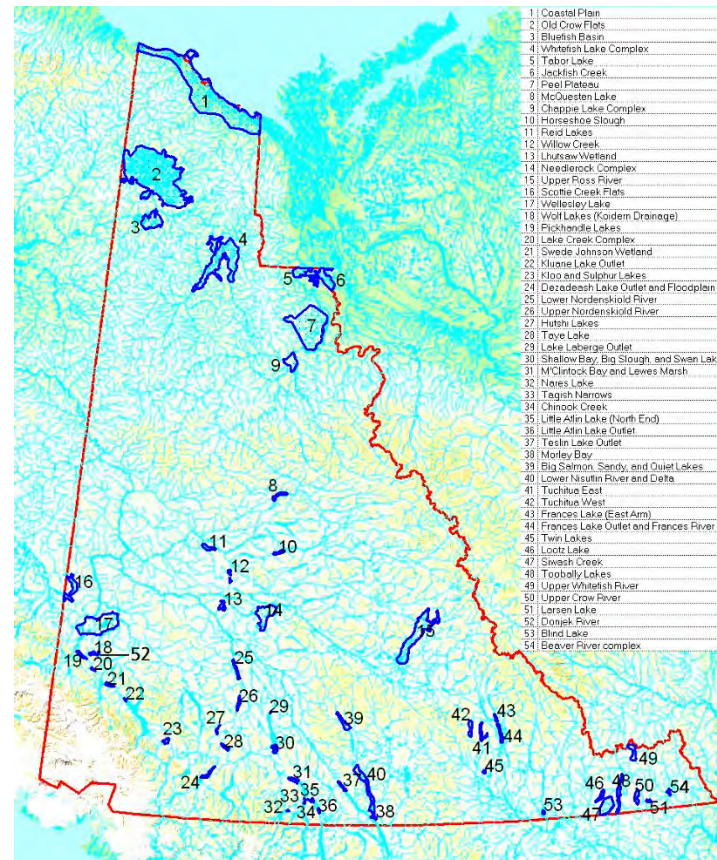


# Wetland Mapping Products

- Various products available but limited in the Yukon
- CanVec, topo mapping from Natural Resources Canada of visible surface water.
- Various agency e.g. Forestry mapping using land cover, surficial geology, mapping permafrost; Wildlife Key Areas (WKAs)
- The Ecological Land Classification system mapping at ecoregion, Broad ecosystem classification scale for certain areas
- Yukon Vegetation Inventory, limited mapping of wetland classes.
- Map of important wetland complexes in Yukon.
- Other mapping products, e.g. Ducks Unlimited wetland mapping.



# Yukon Important Wetland Complexes





# Limitations of Inventory in Yukon

- Scale appropriate, territorial vs regional vs local needs
- Limited areas that have been classified
- Underestimation of treed wetlands, more difficult to map
- Lack of ground-truthing or follow-up







# Wetland Characteristics

## Hydrology:

Presence of water, either at the surface (<2m depth) or in the plant root zone, so soil is **saturated** at some point during the growing season



# Wetland Characteristics

## Soil:

Uniquely *hydric* soil conditions, different from adjacent uplands, that are associated with low oxygen conditions



# Wetland Characteristics

## Vegetation:

Plants with specific adaptations to these hydrological conditions and hydric soils





# Wetland Characteristics

## Water Depth:

Water less than 2 meters deep allows for complete mixing of the water column, no stratification by temperature, and solar radiation penetrates the water column





# Classifying Wetlands

- Hydrodynamic regime
- Nutrient regime
- Moisture regime

