# Day Three

## Quote of the Day

A dawn wind stirs on the great marsh. With almost imperceptible slowness it rolls a bank of fog across the wide morass like the white ghost of a glacier the mists advance, riding over phalanxes of tamarack, sliding across bog meadows heavy with dew. A single silence hangs from horizon to horizon.

Our ability to perceive quality in nature begins, as in art, with the pretty. It expands through successive stages of the beautiful to values as yet uncaptured by language.

Marshland Elegy: Aldo Leopold *A Sand County Almanac*,1949

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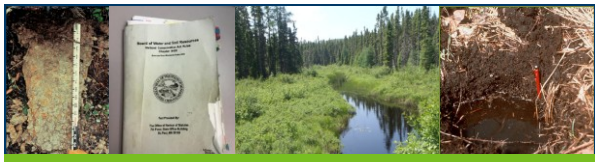

MN Wetland Professional Certification Program
Introduction Class- Day 3

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## Quiz

1) Which of the following key characteristics are related to wetland hydrology?

a) Depth and source of saturation/inundation
b) Frequency and source of saturation/inundation
c) Frequency and duration of saturation/inundation
d) Vegetation adapted to live in saturated soil conditions and hydric soils

2) Describe what the following hydrology indicators look like:

Drift Deposits: debris deposited or entangled to fixed objects

Water-Stained Leaves: Dead leaves turned greyish or black due to inundation for long periods

Saturation: Visual Observation of water glistening on soil associated with water table

Geomorphic Position: Concave landscape positions, drainage ways, floodplains, toe slope

Sediment Deposits: Sediment remaining after ponding or flooding

3

## Quiz

3) Which of the following meets the technical standard for hydrology?

a) Saturation to the surface observed during the growing season in a normal year.

b) Observation of two primary hydrology indicators.

c) Water table within 12 inches of the surface for at least 14 consecutive days during the growing season in a normal year.

d) Water table observed in an open bore hole.

4) Which of the following soil textures could use the "S" hydric soil group indicators?

a) Sandy clay loam

b) Loamy fine sand

c) Loam

d) Fine sandy loam

4

4

## Quiz

5) For the following description of a soil layer, what is the value of the matrix?

0– 10" 10YR 3/2 with 2% 7.5YR 4/6 concentrations

a) 6

b) 4

c) 3

d) 10

6) Which of the following is true regarding hydric soil indicators?

a) The final version is located in the regional supplements

b) Their applicability varies by region

c) They all require the presence of iron in the soil

d) They can all be assessed within 2 feet of the soil surface

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7) Circle the three processes that normally occur in a soil when it is saturated for an extended period?

a) It becomes aerobic

b) It becomes anaerobic

c) Iron becomes reduced

d) It becomes a wetland

e) Organic matter accumulates

8) The hydric soil indicators A, F, and S are used for what soil types. Use the table below.

| Indicator | Soils |
|---|---|
| A | All Soils |
| F | Loamy and clay Soils |
| S | Sandy Soils (sand, loamy fine sand) |

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9) Which of the following is not used in identifying Hydric Soil Indicators:

a) Land Resource Region

b) Soil textures

c) Soil colors

d) Flood frequency >25%

10) When assessing wetland hydrology for a wetland delineation on cropland utilizing aerial imagery, what does the term "normal years" refer to?

a) Years when the area being evaluated was in normal crop production.

b) Years when crop production was unaffected by wetland hydrology.

c) Years when antecedent precipitation conditions were normal.

d) Years when both antecedent precipitation and crop production were normal.

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## Basic Agenda

Monday

- 3 Parameters, Wetland Function & Classification Systems, Hydrology Indicators, Delineation Methods & Critical Definitions, Data Sheet Field Exercise

Tuesday

- Quiz 1, Antecedent Precipitation, Offsite Resources and Hydrology Methods, Soil Concepts, Hydric Soil Indicators, Web Soil Survey, Soil Texture Lab, Soil profile description field exercise

Wednesday

- Quiz 2, Intro to Regulatory Programs, WCA Basic Decision Types, LGU Duties, Technical Evaluation Panel, WCA Application Procedures, Wetland Vegetation, Vegetation Field Plots Exercise

Thursday

- Quiz 3, Small Group delineation Field Exercise, Submitting Delineations, Replacement Plans, Wetland Banks, Monitoring

Friday

- WCA Enforcement, Altered Hydrology and Wetland Restoration, Functional Assessments Methods, Course Summary & Summary Quiz

- MWPCP Professional Exams

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## Wetland Regulatory/Compliance Programs in Minnesota

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## Learning Objectives

**Introduction to Wetland Regulatory Programs**

- Describe the purpose and "no net loss" principle as the foundation of Minnesota Wetland Conservation Act of 1991.
- Identify activities regulated under WCA, including draining, filling, and excavation of protected wetlands.
- Identify the roles of implementing Minnesota Rules Chapter 8420- including oversight and rulemaking authority.
- Identify key administrative boundaries used in WCA implementation, including pre-settlement areas and wetland bank service areas, and explain their regulatory significance.
- Identify activities and situations outside the scope of WCA, including Public Waters Wetlands (PWW), Permit to Mine activities, normal farming practices, and incidental wetlands.
- Identify the primary federal and state agencies responsible for administering wetland and water resource regulatory programs in Minnesota.
- Describe the purpose and scope of Section 404 of the federal Clean Water Act and the role of the U.S. Army Corps of Engineers in administering the program.
- Describe the purpose and scope of the Minnesota Public Waters Permitting Program and the role of the Minnesota Department of Natural Resources in administering the program.

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## Regulations in MN

- Wetland Regulations in MN


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## Programs

**Federal**
- Section 404 of the Clean Water Act (404)
- Section 401 of the Clean Water Act (401)
- Swampbuster provisions of the Food Security Act (FSA)

**State**
- Public Waters Work Permit Program (PWWPP)
- Minnesota Wetland Conservation Act (WCA)

US Army Corps of Engineers

DNR

BWSR

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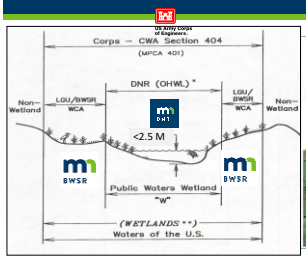
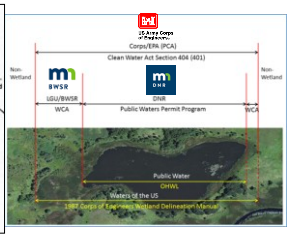
## Jurisdiction

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## Section 404 Clean Water Act (in MN)

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Overview

US Army Corps of Engineers

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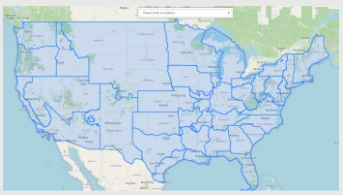
## Corps Regulatory Program Administration

- National Program with regulatory authority delegated to 36 separate Districts.
- Each district develops their own tools and procedures to implement the Regulatory Program consistent with laws and national guidance.



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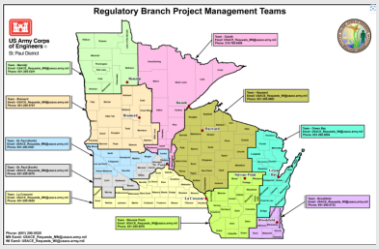
## St. Paul District field offices, general areas of responsibility and contact info. (on website)

- St. Paul District comprises the boundaries of Wisconsin and Minnesota
- District Office: St. Paul
- 8 field offices:
  - 4 in MN
  - 4 in WI

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## Corps Jurisdiction in MN

| Authority | Waters Regulated (Geographic Jurisdiction) | Scope of Regulation (Regulated Activities) |
|---|---|---|
| Section 10 Rivers & Harbors Act | Navigable Waters | Work in, over or under a navigable water |
| Section 404 Clean Water Act | WOTUS (which includes navigable waters) | Discharges of dredged or fill material |

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## Corps Jurisdiction in MN

1) Navigable - waters that are themselves jurisdictional Waters - ex. Mississippi River
   a) Determined by our regulations, specifically Sections 9 and 10 of the Rivers and Harbors Act,
   b) Determined by Federal Courts,
   c) or meet the legal definition of navigable-in-fact.
2) Waters that are connected to navigable waters.
   a) Tributary to a navigable water
   b) Wetlands adjacent to the navigable water or a tributary of a navigable water.


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## Section 10 Geographic Jurisdiction

- Navigable waters are jurisdictional in themselves.
- They don't rely on a connection to other waters.
- There is a list on our website: https://www.mvp.usace.army.mil/Missions/Regulatory/Additional-Information/

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## Section 404 Geographic Jurisdiction

- Geographic Jurisdiction of Section 404 of the CWA are waters that meet the definition of a Water of the United States (WOTUS).
- The rulemaking process determines WOTUS.
- The definition of WOTUS changes with supreme court decisions and changes to the final rule.


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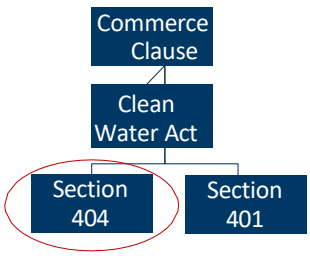
## Section 404 of the Clean Water Act

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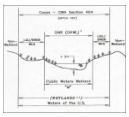
## Section 404 Clean Water Act

- **Regulates:** Discharges of dredged or fill material into waters of the US including wetlands and below the ordinary high water mark of rivers, streams and lakes
- **Administered by:** U.S. Army Corps of Engineers – St. Paul District
- **Authorities:** 33 U.S.C. §1251; 33 CFR Parts 320-332; 40 CFR Part 230
- **Delineating Aquatic Resources:** 1987 Corps of Engineers Wetland Delineation Manual with appropriate Regional Supplement(s); Regulatory Guidance Letter 05-05 for Ordinary High Water Mark."
- **Jurisdictional boundary:** Waters of the United States as defined under current final rule
- **Review Standards:** Sequencing, public interest, adequate compensatory mitigation, guidelines compliance
- **Appeals:** COE administrative appeal
- **Enforcement:** COE and USEPA; administrative orders
- **Application:** Joint Application Form for Activities Affecting Water Resources in Minnesota

US Army Corps of Engineers



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## 404 Jurisdiction Trigger

Two Fold

1. Must have geographic jurisdiction.
2. Must have a "discharge" of dredged or fill material into WOTUS.

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## Discharge of Dredged Material

- **Discharge of Dredged Material:** is defined as any addition of dredged material into, including the redeposit of dredged material within, the WOTUS.

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## Discharge of Fill Material

- **Discharge of Fill Material:** addition of any material into WOTUS that has the effect of replacing any portion of a water body with dry land or changing the bottom elevation of a water body.

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## Section 404 - Permitting

- **General Permit (GP)** – for categories of activities where regulated activities have minimal impacts. Can be issued on a nationwide, regional or state basis.
- We have Nationwide permits and Regional General permits.
- Review goal: 60 days
- ~97% of permit activities authorized by General Permits.

- **Individual Permit (IP)** - for regulated activities with more than minimal, and potentially significant effects.
- Does not have categories.
- Longer review time.
- Review goal: 150 days

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## Section 404 - Permitting

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- **Individual Permit (IP)** - for regulated activities with more than minimal, and potentially significant effects.
- Does not have categories.
- Longer review time.
- Review goal: 120 days

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## Nationwide Permits (NWPs)

- Each Corps District has the discretion adopt some or all NWPs for use in their district
- In general, cannot exceed ½ acre or 300 linear feet of impact

**2026 Nationwide Permits available for use in Minnesota and Wisconsin**

Collapse All Expand All

- Nationwide Permit Regional Conditions, General Conditions and Definitions
- 1. Aids to navigation
- 2. Structures in artificial canals
- 3. Maintenance
- 4. Fish and wildlife harvesting, enhancement and attraction devices and activities
- 5. Scientific measurement devices
- 6. Survey activities
- 7. Outfall structures and associated intake structures
- 9. Structures in fleeting and anchorage areas
- 10. Mooring buoys
- 11. Temporary recreational structures
- 13. Bank stabilization

https://www.mvp.usace.army.mil/missions/regulatory/nwp/

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## Regional General Permits (RGPs)

**Regional General Permits available for use in Minnesota and Wisconsin**

Collapse All Expand All

- Bank Stabilization and Habitat Improvement
- Beach Creation and Nourishment
- Beach Raking
- Minor Discharges
- Piers and docks
- Transportation
- Utility
- Wildlife Ponds

https://www.mvp.usace.army.mil/missions/regulatory/rgp/

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## General Permit Application (PCN) and process

- Submit complete Preconstruction Notification (PCN) if required to usace_requests_mn@usace.army.mil with county name in the subject line of the email (e.g. Washington County).
- Corps sends acknowledgment email with assigned project number and Corps contact.
- Corps notifies applicant within 30 days if PCN incomplete.
- On average, general permit verifications are made within +/- 60 days

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## Individual permit process

- Submit complete application to usace_requests_mn@usace.army.mil with county name in the subject line of the email (e.g. Washington County).
- Corps sends acknowledgment email with assigned project number and Corps contact.
- Corps issues 15-30 day public notice within 15 days of receiving a complete application
- Includes a public notice, public interest review, environmental documentation, a Section 404(b)(1) Guidelines compliance analysis
- Goal of the Corps is to process individual permit decisions within +/- 120 days

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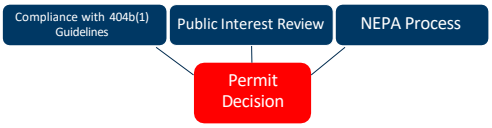
## Individual Permit Process

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## Individual Permit Process

| Decision Element | Type | Critical Elements |
|---|---|---|
| Public Interest Review | Substantive criteria for making a decision. | Project need, practicable alternatives and extent/permanence of effects. |
| 404b(1) Guidelines | Substantive criteria for making a decision. | Practicable alternatives, minimization of potential harm, significant degradation to aquatic system, Federal mitigation rule.<br><br>Must be LEDPA |
| NEPA | Procedural requirement, public disclosure and factors that must be considered in decision making. | EIS/EA, consultation with other agencies, consideration of effects on the human environment, alternatives, mitigation. |

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## Other Important Considerations in MN

- **Section 7 of Endangered Species Act (ESA)** Corps must consult with U.S. Fish and Wildlife Service regarding affects on federally-threatened and endangered species by proposed permit actions.
- **Section 106 of National Historic Preservation Act (NHPA)** Corps must consider effects of regulated activities on historic properties, which includes sites listed on or eligible for listing on the National Register of Historic Places (NRHP). Consultation with State Historic Preservation Office (SHPO), Tribal Preservation Office (THPO) and other consulting parties depending on resource proposed to be impacted.

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## Section 401 of Clean Water Act (in MN)

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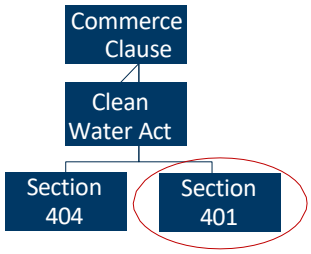
## Section 401 of the Clean Water Act

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## 401 Review Trigger

No federal 404 Permit Required → No 401 Certification Required

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## Section 401 Program Basics

- Federal agencies may not issue a permit unless a certification that the discharge complies with water quality requirements or waives certification.
- Minnesota Pollution Control Agency (MPCA) is responsible for adopting state water quality standards and issuing Section 401 certifications outside of the exterior boundaries of Federally Recognized Indian reservations.
- On tribal lands where the Tribe is not authorized to issue water quality certification, EPA is the certifying authority.

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## Program Administration

- All General Permits (GPs) in MN have various levels of certifications, denials or special conditions depending on the location of the project and general permit.
- Individual Permits (IP's) and GPs without certification require an individual certification.

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## Outstanding Resource Values Waters (ORVWs)

**Two Types of ORVWs:**

- **Restricted** – activities are restricted as necessary to preserve the existing water quality and to maintain and protect the exceptional characteristics.
- **Prohibited** - prohibits activities that result in a net increase in loading or other causes of degradation.

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## WCA, Corps, and 401Comparison

| Program Element | Corps Regulatory Program | 401 |
|---|---|---|
| Basis of Authority | Section 404 of Clean Water Act and Section 10 of Rivers and Harbors Act | Section 401 of Clean Water Act |
| Regulated Waters | Waters of the U.S. (WOTUS) | Waters of the U.S. (WOTUS) |
| Regulated Actions | Discharges of dredged or fill material | Federally permitted or licensed activities that may result in a discharge into WOTUS |
| Program Administration | Corps Districts implement, EPA oversight | MPCA, EPA and Authorized Tribes implement |
| Type of Approvals | Permit authorizations via IPs, GPs, NWPs | Water Quality Certifications |
| Applying for Approval | Pre-Construction Notification (PCN) for GPs/NWPs, Application for IP | Request Pre-filing meeting 30 days in advance of request for certification. Anti-degradation assessment form. |
| Mitigation for Impacts | Compensatory Mitigation | Mitigation |

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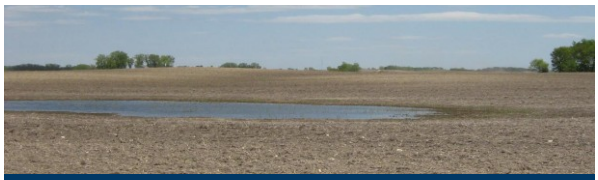

## Food Security Act (Wetland Conservation Provisions)

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## Program Basics

- The U.S. Dept of Agriculture (USDA) via the 1985 Food Security Act provides benefits (loans, assistance payments, insurance premium subsidies, etc.) to producers of agricultural crop commodities. Typically referred to as the "Farm Program".
- The program is modified and re-authorized periodically by congress. This is typically referred to as the "Farm Bill".

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## **Agency Roles** (related to wetland conservation provisions)

- **Natural Resource Conservation Service (NRCS):**
  - Makes technical determinations by assigning labels to farm fields that are significant in determining compliance with wetland conservation provisions.
  - Provides technical assistance to producers to assist in wetland conservation compliance.
- **Farm Service Agency (FSA):**
  - determines whether production/planting occurred on converted wetland and if producer is in compliance with wetland conservation provisions.

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## Wetland Conservation Provisions of Food Security Act

Producers must complete form AD-1026 certifying they will not:

- Plant or produce an agricultural commodity on a converted wetland; or
- Convert a wetland with the intent to make production of an agricultural commodity possible.

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## How Does NRCS Evaluate Compliance?

Primarily through Certified Wetland Determination (CWD).

Involves identifying wetlands and then assigning a label that has implications for compliance. For example, if producer drains a wetland for crop production, that would result in a label change that could result in producer being ineligible.

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## How Does NRCS Evaluate Compliance?

- For 404 purposes, a PC (Prior Converted Cropland) determination that impacts Corps jurisdiction.
- Corps does not have jurisdiction over PC areas unless there is a change in use.
- All other determinations, do not necessarily impact Corps jurisdiction including PC/NW.

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## Public Waters Work Permit Program (PWWPP)

Overview

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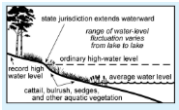
## Public Waters Permit Program

- **Regulates:** changes to "course, current or cross-section"
- **Administered by:** DNR – Area Hydrologists
- **Authorities:** M.S. 103G; M.R. Chapter 6115
- **Jurisdictional boundary:** "Ordinary High Water Level"
- **Review standards:** Public interest; reasonable/practical, Riparian rights, Availability of feasible & prudent alternatives, Compensatory mitigation
- **Appeals:** Contested case hearing
- **Enforcement:** DNR Conservation Officers; cease & desist, restoration orders
- **Application:** on-line via "MPARS"

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## Purpose

To conserve and utilize the water resources of the state in the best interest of its people.


Sylvan Lake, Cass County
Photo Credit: Ben Meyer

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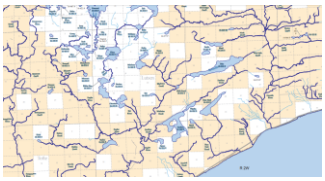
## What is a Public Water?

Waters that are (paraphrased and shortened from statute):

- Assigned a shoreland management classification; navigable waters; lakes; for a designated mgmt. purpose (trout and game lakes); designated as scientific and natural areas; located within and totally surrounded by publicly owned lands; state or federal govt. holds title to any of the beds or shores, with publicly-owned and controlled access; natural and altered watercourses with a total drainage area greater than two square miles; trout streams; and public waters wetlands.



https://www.dnr.state.mn.us/waters/watermgmt_section/pwi/maps.html

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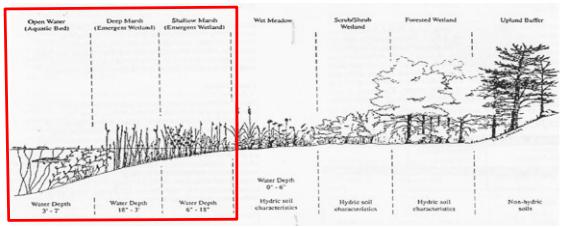
## What is a Public Water Wetland?

- All types 3, 4, and 5 wetlands that are ten or more acres in size in unincorporated areas or 2.5 or more acres in incorporated areas.

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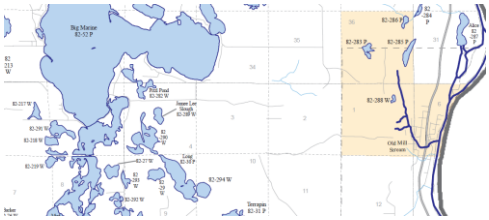
## Watercourses and Wetlands



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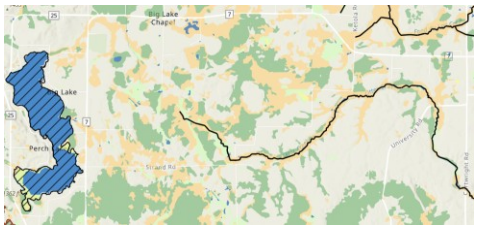
## Public Wates – Wetland Finder



- https://wetland-finder.dnr.state.mn.us/

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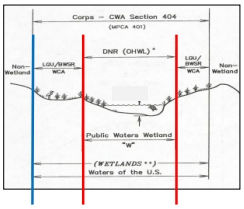
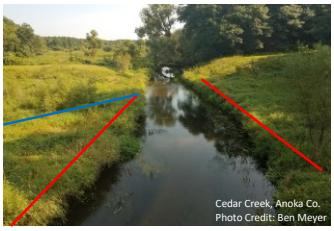
## Public Watercourses

Top of bank

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## Delineation of Public Waters/Public Waters Wetlands

- PWWPP does not use the same criteria and delineation methods as WCA (or any other programs we will discuss in this class.
- Uses the **Ordinary High Water Level (OHWL)** to define boundaries.
- OHWL is an elevation delineating the highest water level that has been maintained for a sufficient period of time to leave evidence upon the landscape, commonly the point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial.

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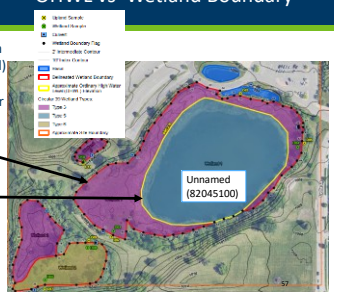
## OHWL vs Wetland Boundary

- **Wetlands** are transitional lands between *terrestrial* (living/growing on/in land/soil) and *aquatic* systems (living/growing on/in water). Wetland boundary is upper limit of hydric soils, wetland hydrology and hydrophytic vegetation.
- **Public waters** includes wetlands, but their boundaries are the upper limit of where high water has left evidence on the landscape, often this is the point where there is predominantly aquatic vegetation.

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## OHWL vs Wetland Boundary

| | Wetland Delineation | OHWL |
|---|---|---|
| Boundary Type | Line representing change from where all 3 parameters are present to where one or more parameters is absent. | Elevation representing where high water has left evidence on the landscape. |
| Key Factors | Hydrophytic vegetation, hydric soils and wetland hydrology | Evidence on landscape |
| Determination | Applicants/consultants make determination, regulatory agencies review and approve. | DNR makes determination |

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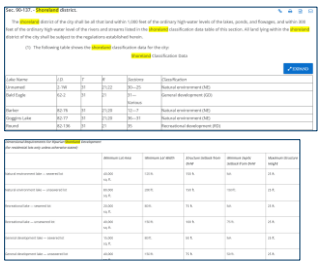
## What is shoreland?

- DNR definition:
  - 1,000 ft from the OHWL of a public water basin or the shoreland area defined in local ordinance, which can be more restrictive
  - 300 ft from the OHWL of a public watercourse or the shoreland area defined in local ordinance, which can be more restrictive



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## Standards (example)

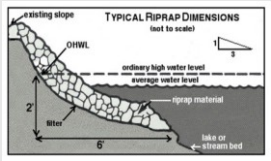
Filling Public Waters

- Standards - Minimize encroachment, must be clean fill, must consider alternatives, must have erosion control, be consistent with floodplain/shoreland ordinance, etc.
- Prohibitions – in fish spawning areas, for veg control, to construct roadways (except public roads under certain circumstances), for disposal of materials, etc.

60

## PW and applications

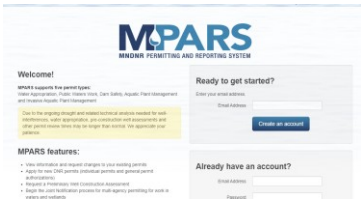
- No Permit Required – sand beach blankets (under certain conditions), riprap, in a watercourse with 5 sq. mile or less drainage area (under certain conditions), etc.
- Check with the LGU on WCA implications!




61

## Permit Application Process

- Apply through Minnesota Permit Application Reporting System (MPARS), an online permit system.
- DNR has schedule of application fees.
- Application is noticed to city, SWCD, watershed district, Corps and BWSR.

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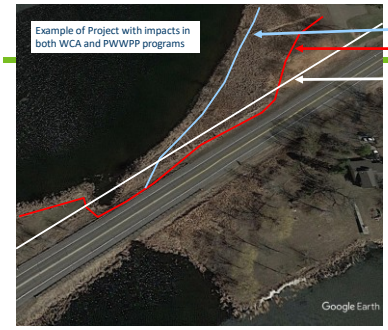
## Waiving Jurisdiction between WCA and PWPP

- Jurisdiction between the two programs can be waived from one program to the other if a project impacts wetland areas both within and outside of public waters. But only for wetland areas, not watercourses or deepwater habitats (lakes).

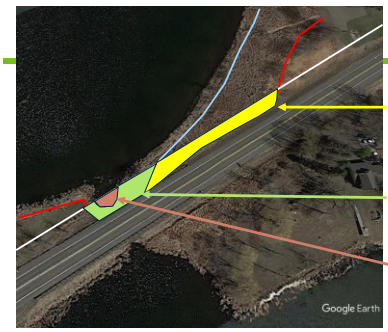

Wetland_WCA_WCA-DNR_Prot_Waters_Permit_Prog_Coord_Guidance

63

63


Example of Project with impacts in both WCA and PWWPP programs
Boundary of Public Water (blue)
Boundary of Wetland (red)
Boundary of fill for road widening (white)
Google Earth
64

64


Wetland fill outside Public Water (yellow) **Can be waived to PWWPP for permitting.**
Wetland fill within Public Water (green) **Can be waived to WCA for permitting.**
Non-Wetland fill within Public Water (pink). ***Cannot*** **be waived to WCA for permitting because it is not wetland.**
Google Earth
65

65


Wetland Conservation Act (WCA)
Overview
BOARD OF WATER AND SOIL RESOURCES
Minnesota Wetland Professional Certification Program

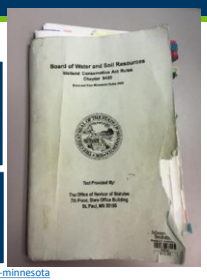
66

## WETLAND CONSERVATION ACT (WCA)

State Law passed in 1991

MN Statute **103G** and parts of 103A,B,E,F

MN Rule Chapter 8420



https://bwsr.state.mn.us/wetlands-regulation-minnesota

67

## Wetland Conservation Act

- **Regulates:** draining, filling, some excavation
- **Administered by:** Local Government Units, SWCDs, Watershed Districts
- **Oversight by:** MN Board of Water and Soil Resources
- **Authorities:** M.S. 103A, 103B, 103G; M.R. Chapter 8420
- **Jurisdictional boundary:** 1987 Corps of Engineers Wetland Delineation Manual and Regional Supplements
- **Review standards:** Avoid, minimize, replace (sequencing)
- **Enforcement:** DNR Conservation Officers; cease & desist, restoration orders
- **Application**: Joint Application Form for Activities Affecting Water Resources in Minnesota

Communities and Local Government

BWSR

MASWCD

MINNESOTA WATERSHEDS

DEPARTMENT OF NATURAL RESOURCES

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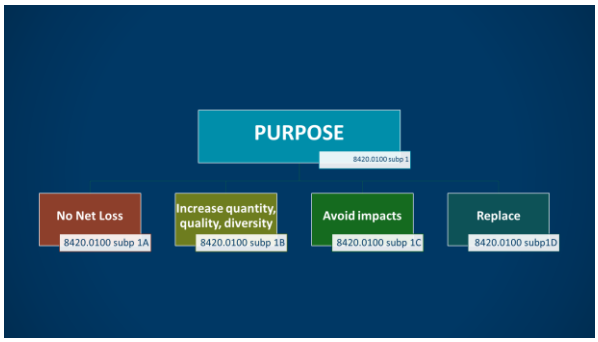


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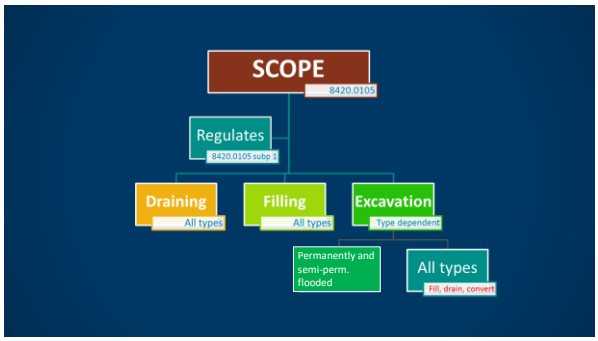
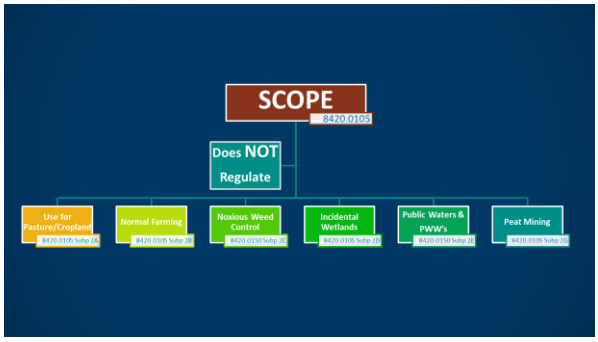



70

## Is this regulated under WCA?

71




72

## Incidental Wetlands

- Wetlands created in naturally non-wetland areas not on purpose.

Temporary puddles

Stormwater ponds

Sewage treatment wetlands

Roadside ditch in upland

73

## WCA Authority on Tribal Lands?

- Tribes have special legal status as sovereign nations
- Tribal lands are composed of Trust lands, allotted trust lands, fee lands
- Many tribes have enacted their own environmental regulations
- Federal regulatory environmental laws apply on Tribal Lands


- WCA does not have jurisdiction on Trust lands
- Fee lands are held by an owner (tribal member or not)
- Authority of state environmental laws on tribal land is limited to fee lands held by a non-tribal owner

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## Applications and Decisions

- In general, applicants demonstrate through their application submittal that they are compliant with WCA.
- An LGU's decision to approve, deny or approve with conditions is saying if the project complies with WCA or not.
- An LGU can take the WCA decision process and fold it into a permit that they issue for a project. This is optional, but common among watershed districts and counties that issue permits for various other things.
- In general, LGUs can have more restrictive local requirements, but not less restrictive requirements.

75

## WCA Decision Types and Application Requirements

| Decision Type | Application Requirement |
|---|---|
| Wetland Boundary/Type | Application required |
| Exemption or No-Loss Provision | Application not required (unless LGU has more restrictive local requirement) |
| Replacement Plan | Application required |
| Banking Plan | Application required |

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## WCA and Corps Comparison

| Program Element | WCA | Corps Regulatory |
|---|---|---|
| Basis of Authority | State statutes and rule (Mn Rules Chapter 8420) | Section 404 of Clean Water Act (CWA) and Section 10 of Rivers and Harbors Act (RHA) |
| Regulated Waters | Wetlands except incidental and wetland areas of Public Waters (unless waived) | Navigable Waters and Waters of the U.S. (WOTUS) |
| Regulated Actions | Fill and Drain in all wetland types<br>Excavate (in semi-perm. or permanently flooded areas) | Discharges of dredged or fill material (404 CWA)<br>Work in, over, or under navigable waters (Section 10 RHA) |
| Program Administration | LGU implementation, BWSR oversight, DNR enforcement | Corps Districts implement, EPA oversight on 404 |
| Type of Approvals | WCA decisions | Permit authorizations via IPs, GPs, NWPs |
| Applying for Approval | Joint Application | Joint Application: Pre-Construction Notification (PCN) for GPs/NWPs, Application for IP |
| Mitigation for Impacts | Replacement | Compensatory Mitigation |

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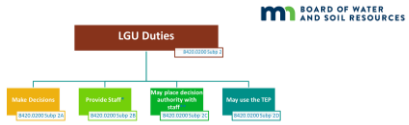
| Program Element | WCA | PWWPP |
|---|---|---|
| Basis of Authority | Mn Rules Chapter 8420 and associated statutes | Mn Rules Chapter 6115 and associated statutes |
| Regulated Waters | Wetlands except incidental and wetland areas of Public Waters (unless waived) | Public Waters and Public Waters Wetlands (which includes deepwater habitats, streams and wetlands) |
| Jurisdictional Boundaries | Wetland Delineation per 87 Manual & Regional Supplements | OHWL |
| Regulated Actions | Fill, drain, excavate (semi-perm. Flooded areas) | Changes in course, current or cross-section |
| Program Administration | LGU implementation, BWSR oversight, DNR enforcement | DNR implementation |
| Type of Approvals | WCA decisions | Permit authorizations |
| Applying for Approval | WCA application or request for decision | MNPARS online application |

78

## How many jurisdictions?


79




## WCA Local Government Duties

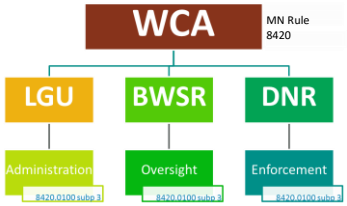
80

## Learning Objectives

- **WCA Local Government Unit Duties**
- Identify the Local Government Unit (LGU) responsible for administering the Wetland Conservation Act for a proposed project.
- Explain the duties and responsibilities of the LGU throughout the WCA regulatory process, including application review, coordination with technical experts, notice requirements, and decision-making.
- Determine the appropriate LGU based on project location and jurisdiction.
- Describe how the LGU coordinates with state and federal agencies during WCA implementation.

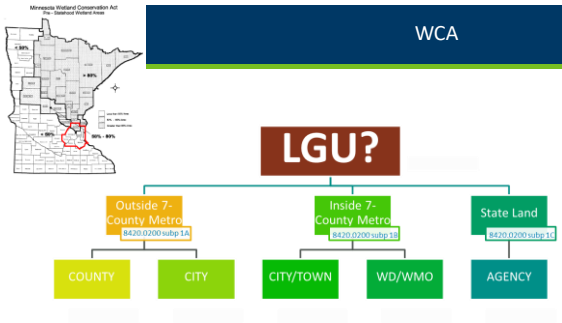
81

## WCA



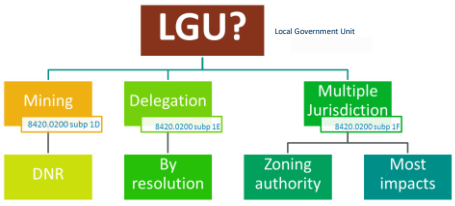

82

## WCA




83

## WCA




84

## Who is the LGU?

- LGU's can delegate some or all of their authority to another entity provided that both parties pass resolutions (see BWSR website for example resolutions).
- If project overlaps LGU jurisdiction, then the LGU is:
  - One with zoning authority over the project
  - If both have zoning authority, then the one in which the most impact occur.
  - Both LGUs can maintain separate jurisdiction if agreed upon.
- BWSR may coordinate project review to ensure consistency

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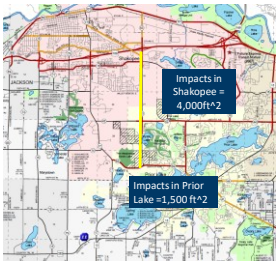
## Example




Scenario 1 – Shakopee delegates duties to PL but is still noticed and comments. Prior Lake responsible for LGU duties.

Scenario 2 – Per rule (most impact) Shakopee reviews entire application and is responsible for LGU duties

Scenario 3 – Cities agree that both review and approve application within their respective jurisdictions, and both administer LGU duties. Result: two applications.

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## Who defines a project?

### The LGU defines the project

Definition of "project" (8420.0111 Subp. 54):

Project means a specific plan, contiguous activity, proposal, or design necessary to accomplish a goal as defined by a local government unit. As used in this chapter, a project may not be split into components or phases for the purpose of gaining additional exemptions.

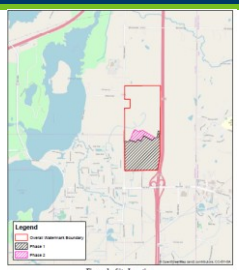
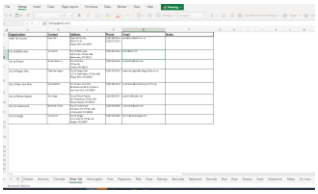


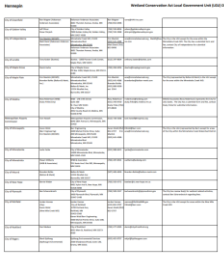
Figure 1 - Site Location

87

## LGU List

WCA Contacts





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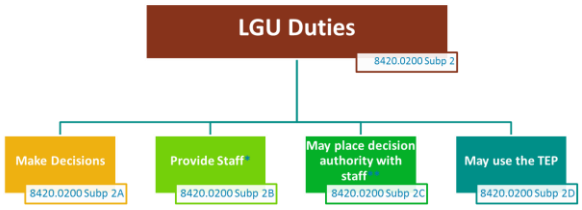
## LGU Duties

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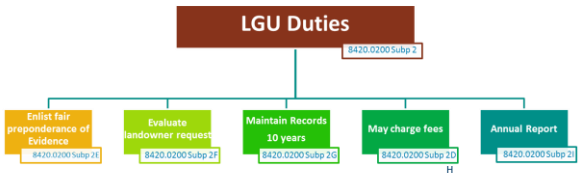
## LGU Duties, cont.




90

## Delegation of Decision-Making Authority to Staff

- Decision authority by default rests with the elected/appointed governing board (City Council, County Board, WMO Board, etc.)
- However, the LGU *may*, through resolution, rule, or ordinance, place decision-making authority with staff according to procedures it establishes.

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## Failure to Apply Law

If the LGU is not following WCA:

1) BWSR notify LGU in writing of its concerns
2) Spot Checks, PRAP, Audits
3) Can then impose moratorium on making decisions

92

## Local Wetland Ordinances

- WCA provides minimum standards
- Local governments may require more procedures and more wetland protection, but not less

93

## Learning Objectives

**Technical Evaluation Panel Procedures**

- Describe the purpose of the Technical Evaluation Panel (TEP) and its role in providing technical expertise during WCA implementation.
- Identify the required and optional members of a TEP, including circumstances under which the Minnesota Department of Natural Resources is or is not an official panel member.
- Explain when TEP review is required and the types of projects and decisions that benefit from TEP involvement.
- Describe TEP meeting procedures, documentation requirements, and the development of Findings of Fact and recommendations.
- Explain how TEP recommendations inform, but do not replace, Local Government Unit decisions under the Wetland Conservation Act.

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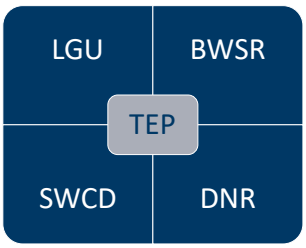
## Technical Evaluation Panel

- Plays a key role in implementation.
- Representative from LGU, SWCD, BWSR and DNR (if project effects public waters and/or in shoreland zone).
- Primary role is to advise LGU on decisions. Some decisions depend on TEP recommendation/concurrence.
- TEPs often advise landowners/applicants during pre and post application reviews.




95

95

## Key Roles in WCA Implementation

- **LGU** – make WCA decisions, leads Technical Evaluation Panel
- **SWCD** – serve on TEP, write restoration plans for violation orders
- **BWSR** – serve on TEP, hear appeals, administer wetland bank, oversee and train LGUs.
- **DNR** – serve enforcement orders and coordinate/collaborate with TEP, LGU and SWCD on enforcement process.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## TEP

A TEP

Too many people for a TEP

97

## TEP Roles

- Determine technical issues
- Generates findings Document specific evidence
- Makes recommendations to LGU
- Operate objectively, clearly, concisely, and timely

**The TEP <u>does not</u>:**

- Make decisions
- Perform LGU duties (notices, extensions, etc.)

Minnesota Wetland Conservation Act
Technical Evaluation Panel Form

| | |
|---|---|
| Local Government Unit: | [Insert] |
| County: | [Insert] |
| Landowner/Applicant Name: | [Insert] |
| Project Location/Name: | [Insert] |
| Meeting Topic (check all that apply): | ☐ In-Person, not onsite. Specify Date(s): [Insert]<br>☐ Onsite Review. Specify Date(s): [Insert]<br>☐ Electronic Exchanges (email, zoom, teams, etc.) ☐ Other. Specify: [Insert] |
| Purpose: | ☐ Pre-Application Review ☐ Application Review (related to WCA decision)<br>☐ Local Government Road Wetland Replacement Program Eligibility<br>☐ Other. Specify: [Insert] |
| Findings and Recommendations: | [Insert] |
| Attachments (if applicable): | [Insert] |
| Public Waters Wetlands? (check all that apply) | ☐ Project Activity may affect Public Waters<br>☐ Project Activity may occur within a shoreland protection zone |

Signatures

| | |
|---|---|
| LGU TEP Member:<br>Name: [Insert]<br>Date signed: [Insert]<br>Signature: [Insert] | ☐ I agree with Findings and Recommendations<br>☐ I disagree with Findings and Recommendations<br>Comments (optional): [Insert] |
| SWCD TEP Member:<br>Name: [Insert]<br>Date signed: [Insert]<br>Signature: [Insert] | ☐ Not applicable, SWCD and LGU TEP member are the same<br>☐ I agree with Findings and Recommendations<br>☐ I disagree with Findings and Recommendations<br>Comments (optional): [Insert] |
| BWSR TEP Member:<br>Name: [Insert]<br>Date signed: [Insert]<br>Signature: [Insert] | ☐ I agree with Findings and Recommendations<br>☐ I disagree with Findings and Recommendations<br>Comments (optional): [Insert] |
| DNR TEP Member:<br>Name: [Insert]<br>Date signed: [Insert]<br>Signature: [Insert] | ☐ I agree with Findings and Recommendations<br>☐ I disagree with Findings and Recommendations<br>Comments (optional): [Insert] |

TEP Form Template provided by MN Board of Water & Soil Resources – 10/11/2021

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## TEPs can and do operate informally

- Not subject to open meeting law.
- Field reviews.
- Open discussions.
- Healthy debates.
- Gather info.

99

## When should you hold a TEP meeting?

- Complex or difficult projects
- Visible, high-profile, or public projects
- LGU is applicant
- Enforcement cases
- Bank plan and monitoring report reviews
- Local Government Road Wetland Replacement Program projects

100

## When is TEP required to make findings?

- Requested by LGU, landowner, or a member of TEP
- LGU extends decision timeline beyond 5 years
- Enforcement when determining whether restoration is not possible or prudent

101

## TEP

### Who can Request a TEP?

- LGU
- TEP member
- Landowner
- Others who have requested to be noticed


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## TEP Meetings

- Step 1: Define purpose of TEP discussion/review (set a formal agenda)
- Step 2: Have an open discussion (there will be disagreements)
- Step 3: Summarize and agree to conclusions (find common ground)
- Step 4: Write Findings Report (be clear and concise)

103

## TEP findings & recommendations:

- Communicate the cumulative result of field visits, report reviews & informal discussions.
- Give the applicant/landowner direction on next steps (if any).
- Often provide the LGU with the basis for their decision.

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## Tips on Well-Written TEP Findings

- Purpose & audience
- Timing
- Active voice
- Subjective language & “legal-ease”
- Relevant
- Findings vs minutes
- Honesty

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# Basic WCA Decision Types

BOARD OF WATER AND SOIL RESOURCES

Minnesota Wetland Professional Certification Program

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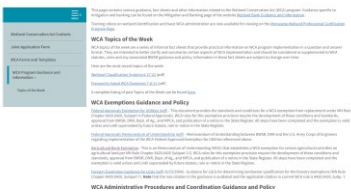
## Learning Objectives

- **WCA Basic Decision Types**
- Interpret commonly used WCA terms, including wetland, impact, fill, project, etc.
- Apply WCA definitions to determine how proposed activities are evaluated under the Act.
- Explain the purpose of a Boundary and Type application and its role in establishing wetland jurisdiction and classification under the Wetland Conservation Act.
- Explain the importance of field verification and identify procedures for marking wetland boundaries for regulatory review.
- Explain the regulatory concept of "no loss" and distinguish No-Loss determinations from Exemptions and Replacement Plans.
- Apply No-Loss criteria to support technically sound and legally defensible regulatory decisions.
- Distinguish between activities that qualify for a No-Loss determination and activities that qualify for an Exemption from replacement requirements.
- Apply exemption standards consistently to support accurate and legally defensible regulatory decisions: esp. common exemptions such as de minimis, drainage, agricultural, and utility
- Identify the general conditions that apply to all exemptions, including limitations related to calcareous fens, wetland bank sites, project-specific replacement sites, and combining exemptions within a project.

107

## WCA

- WCA Program Guidance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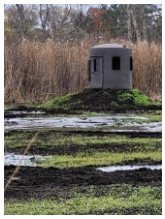
## Basic WCA Decision Types

| WCA Basic Decision Types | |
|---|---|
| **Boundary and Type** | Approves wetland delineation |
| **No-Loss** | Approves activities that do not result in permanent impacts |
| **Exemption** | Approves impacts exempt from replacement |



109

1. Is it a *Wetland*?
2. Is the activity *Regulated*?
3. Is the activity an *Impact*?

110

## What is regulated by WCA?

What is considered Impact?

A loss in quantity, quality, or biological diversity of a wetland *caused* by draining or filling in all types or by excavation in semipermanently and permanently flooded areas.

111

## What is Drainage?

*Any* method for removing or diverting waters from a wetland.

- Excavation of a ditch
- Tile Installation
- Filling
- Diking
- Pumping
- Diverted water
- Etc.


112

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## What is Fill?

Any solid material **added or redeposited** in a wetland

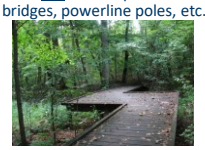
- Alters cross-section or hydrological characteristics,
- Obstructs flow patterns,
- Changes Boundary, or
- Converts to non-wetland.

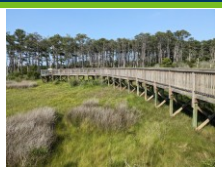
113

113

## Wetland Fill

- Does not include posts for walkways, bridges, powerline poles, etc.





- Does not include slash or woody vegetation as long as it originated from vegetation growing in the wetland and does not impair flow or circulation of water.

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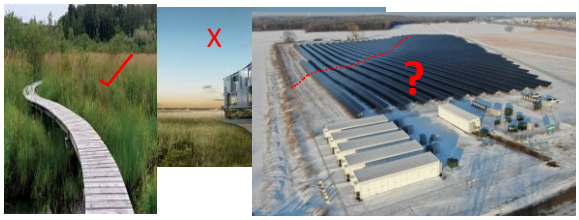
- Wetland fill *does not* include posts and pilings unless it turns wetland into a nonaquatic use or significantly alters its functions and value.




115

## What is Excavation?

Removal of soil by any method if it results in an impact.

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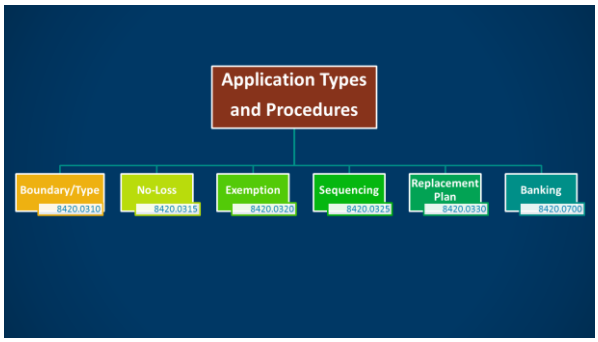


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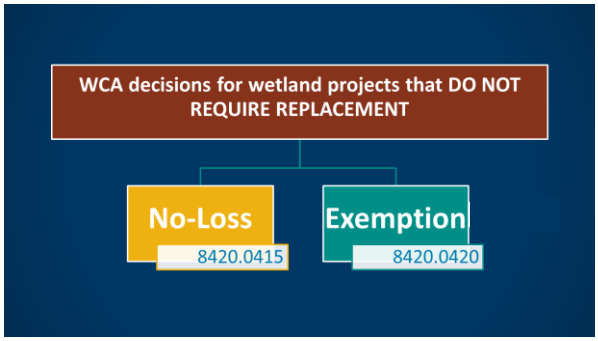
## Boundary/Type Applications: Where wetland regulation meets science

- Boundaries must be delineated using USACE 1987 Manual and Supplements (8420.0405 subp 1)
- Wetland Types must be identified using HGM (WCA) and Eggers and Reed (Corps)
- Requires NOA and NOD.
- Technical Decision- one member of TEP must make a site visit

118

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## No-loss and Exemption conditions

- Every activity in wetland, regardless of whether an application is submitted must:
  - Implement erosion control measures to prevent sedimentation of wetlands
  - Not block fish activity
  - Comply with all other applicable local, State, Federal requirements, including best management practices

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## No Loss Activity Basics

Defined:

No permanent loss of, or impact to, wetlands from an activity.


121

121

## No-Loss Criteria

"No-loss" means no permanent loss of, or impact to, wetlands from an activity according to the criteria in this part.

- **Will not impact a wetland (**8420.0415 Subp A.)
- **Excavation limited to removal of sediment or debris** Trees, logs, beaver dams, trash, blockage of culverts (8420.0415 Subp B.)
- **Water level management (**8420.0415 Subp C.)
- **Excavation limited to removal of sediment** in wetlands utilized as storm water basins. (8420.0415 Subp E.)
- **Operation, Maintenance or Emergency Repair**. (culverts) (8420.0415 Subp F.)
- **Temporary impact** if: Returned to previous conditions. Activity completed within 6 months (8420.0415 Subp H.)

122

## No-Loss

- **Temporarily crossing or entering a wetland to perform silvicultural activities**, including timber harvest as part of a forest management activity, so long as the activity limits the impact on the hydrologic and biologic characteristics of the wetland; the activity does not result in the construction of dikes, drainage ditches, tile lines, or buildings; and the timber harvesting and other silvicultural practices do not result in the drainage of the wetland or public waters (8420.0415 Subp G)
- **Activity conducted as part of an approved replacement or banking plan, conducted or authorized by public agencies** for the purpose of wetland restoration or fish and wildlife habitat restoration (8420.0415 Subp D)

123

## General Exemption Requirements for ALL

- Only has to fit one; not disqualified if not exempt by another
- If impacts exceed max allowed = nothing is exempt
- Max may not apply to all situations or wetlands-**very specific**
- May not be combined on a project
- Must stabilized to prevent sedimentation/erosion.

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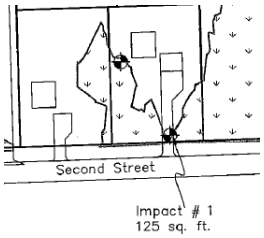
124

## Exemptions 8420.0420

- Impacts to wetlands that **DO NOT** require replacement.
  - The activity is still regulated.
  - WCA does not REQUIRE an application; some LGU's may via ordinance.
  - May not be combined on a project.
- Exemptions do not apply to calcareous fens, wetland bank sites, project-specific replacement sites (8420.0420 Subp 1B)




125

## Exemptions – Agricultural Activities

"Agricultural land" means land devoted to the following uses and includes any contiguous land associated with the uses:

(1) pasture or hayland for domestic livestock or dairy animals;

(2) producing agricultural crops;

(3) growing nursery stocks; or

(4) animal feedlots.

126

## Agricultural Exemption Statute

Replacement plan for wetlands is not required for:

- impacts to wetlands on agricultural land labeled prior-converted (PC) cropland and
- impacts to wetlands resulting from drainage maintenance activities authorized by the Natural Resources Conservation Service, on areas labeled farmed wetland, farmed wetland pasture, and wetland.

Provision 1

Provision 2

The prior-converted cropland, farmed wetland, farmed-wetland pasture, or wetland must be labeled on a valid final certified wetland determination issued by the Natural Resources Conservation Service.

Applies to both

Landowner is responsible to provide a copy of the final certified wetland determination (026 and CWD map) to, and allow the Natural Resources Conservation Service to share related information with, the local government unit and the board for purposes of verification;

127

## Exemptions – Ag Activities

Exempt under Ag Exemption

- Prior Converted Cropland (PC)

Exempt if applying for drainage maintenance under Ag Exemption

- Wetland (W)
- Farmed Wetland (FW)
- Farmed Wetland Pasture/Hayland (FWP)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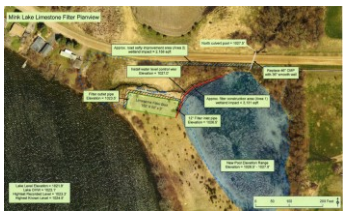
## Exemptions – Agricultural Activities

Subp. 2. C.

Impacts resulting form soil and water conservation projects that are certified by the SWCD staff after review by TEP

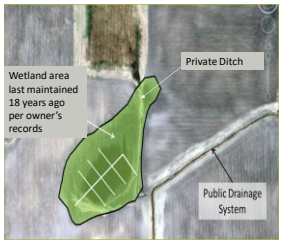
- The projects must minimize impacts to the hydrologic and biologic characteristics of the wetland.




129

## Exemptions – Drainage Exemption

A replacement plan is not required for draining or filling of wetlands, except for draining wetlands that have been in existence for more than 25 years, resulting from maintenance and repair of existing drainage systems, including public drainage systems.




130

## Drainage/Ditch Maintenance

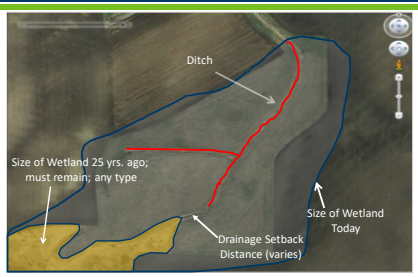
Replacement not required for maintenance or repair of existing drainage systems

**WHEN:**

The work does not drain Wetland that have existed more than 25 years.


131

## Drainage/Ditch Maintenance Illustration




132

## Ditch Maintenance

**CONDITIONS:**

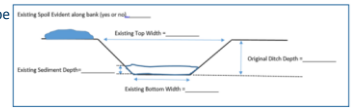
- Spoil must be placed and stabilized to minimize impacts.
  - place on existing spoil and/or remove
- Ditch must be stable and not degrade water quality downstream.

133

## Drainage/Ditch Maintenance

What items may be needed to demonstrate this exemption is met?

- Past records of maintenance (receipt to contractors)
- Aerial Photo review
- Amount of Sediment Proposed to be removed(can be critical)
- Depth of ditch/soil types
- Culvert elevation and location
- Site visit
- Lateral Effect Calculations or estimates




134

## Exemptions

- **Federal Approvals** 8420.0420 Subp 4

Impacts authorized by Corps of Engineers that meet standards agreed to by BWSR, Dept. of Ag., DNR, and MPCA.

  - Pipelines, electrical, broadband, etc.

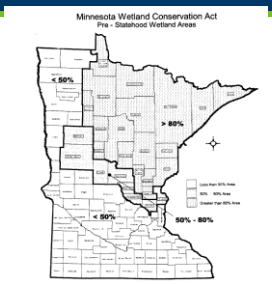
- **Utilities** MS 103G.2241

A replacement plan for wetlands is not required for wetland impacts resulting from:

- new placement or maintenance, repair, enhancement, realignment, or replacement of existing utility or utility-type service, including pipelines, when wetland impacts are authorized under and conducted in accordance with a permit issued by the United States Army Corps of Engineers under section 404 of the federal Clean Water Act
- Repair and updating existing septic systems to comply with local, state and federal regulations

135

## Pre-Statehood Areas




Different regulations apply depending on whether you are in a <50% area, 50 – 80% area, or >80% area.

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## Exemptions – de minimis

- The de minimis exemption covers small impacts to wetlands typically used for driveways, culverts, small projects by landowners, etc.
- Very specific requirements depending on location in state, local area, shoreland, etc.

**Table 1: de minimis exemption amounts per MS 103G.2241 (Aug. 1, 2024)**

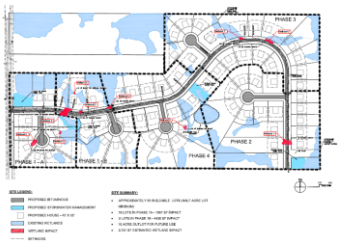
| Impacts to wetlands, **excluding** permanent and semipermanently flooded areas of wetland. | Presettlement area of state | Impact area up to (acres): | Impact area up to: (square feet): |
|---|---|---|---|
| Outside of Shoreland Wetland Protection Zone | Greater than 80 percent area | One-quarter (1/4) | 10,890 |
| | 50 to 80 percent area | One-tenth (1/10) | 4,356 |
| | Less than 50 percent area | One-twentieth (1/20) | 2,178 |
| Within Shoreland Protection Zone, but beyond structure setback | Statewide | N/A | 100 |
| Within Shoreland Protection Zone and structure setback | Statewide | N/A | 20 (100)* |
| Impacts to permanent and semipermanently flooded areas of wetlands | Statewide | N/A | 400 |

*Increased amount shown in parenthesis may be allowed if wetland is isolated from the public water, or if permanent water runoff retention or infiltration measures are established in proximity to the impact and approved by the shoreland management authority.

137

## De Minimis Exemption

- Can't be combined
- If total area of impacts exceed de minimis, a replacement plan is required for the entire amount.
- May not divide property simply to get more




138

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## Exemptions

- Subp. 7. **Forestry.** The exemption under this subpart is for roads and crossings solely constructed, and primarily used, for the purpose of providing access for the conduct of silvicultural activities. A replacement plan is not required for impacts resulting from construction of forest roads and crossings so long as the activity limits the impact on the hydrologic and biologic characteristics of the wetland; the construction activities do not include, or result in, the access becoming a dike, drainage ditch, or tile line; impacts are avoided wherever possible; and there is no drainage of the wetland or public waters.

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## Exemptions

- **Wildlife Habitat** 8420.0420 Subp 9
- Excavation or the associated deposition of spoil within a wetland for the primary purpose of wildlife habitat, if:
  - Deposition is less than 5% or ½ acre
  - No adverse effect on Threatened & Endangered Species
  - Improve habitat as determined by SWCD
  - All spoil must be stabilized with native, noninvasive vegetation.

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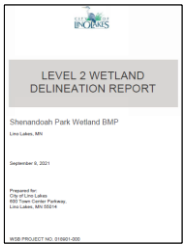
## Summary of Basic WCA Decisions

- Boundary/Type: approving wetland delineation that used Corps manual: Level 1, 2, 3 or comprehensive.
- No-loss: activity that does not result in wetland impacts
- Exemptions: wetland impacts that are exempt from replacement

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## Exempt?

- Located in >80% area
- Not in shoreland
- Proposed impact=7,490 SF


| Impacts to wetlands, **excluding** permanent and semipermanently flooded areas of wetland. | Presettlement area of state | Impact area up to (acres): | Impact area up to: (square feet): |
|---|---|---|---|
| Outside of Shoreland Wetland Protection Zone | Greater than 80 percent area | One-quarter (1/4) | 10,890 |
| | 50 to 80 percent area | One-tenth (1/10) | 4,356 |
| | Less than 50 percent area | One-twentieth (1/20) | 2,178 |

Qualifies for de minimis exemption
MN Rule 8420.0420 Subp. 8

Yes, less than ¼ acre (10,890 SF)

142

## De minimis - Examples

**Table 1: de minimis exemption amounts per MS 103G.2241 (Aug. 1, 2024)**

| Impacts to wetlands, **excluding** permanent and semipermanently flooded areas of wetland. | Presettlement area of state | Impact area up to (acres): | Impact area up to: (square feet): |
|---|---|---|---|
| Outside of Shoreland Wetland Protection Zone | Greater than 80 percent area | One-quarter (1/4) | 10,890 |
| | 50 to 80 percent area | One-tenth (1/10) | 4,356 |
| | Less than 50 percent area | One-twentieth (1/20) | 2,178 |
| Within Shoreland Protection Zone, but beyond structure setback | Statewide | N/A | 100 |
| Within Shoreland Protection Zone and structure setback | Statewide | N/A | 20 (100)* |
| Impacts to permanent and semipermanently flooded areas of wetlands | Statewide | N/A | 400 |

*Increased amount shown in parenthesis may be allowed if wetland is isolated from the public water, or if permanent water runoff retention or infiltration measures are established in proximity to the impact and approved by the shoreland management authority.

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## Scenario 1

A project is located outside of shoreland in a 50-80% area of the State and proposes to fill and impact 4,975 ft^2 of saturated mineral flat wetland for a driveway access.

**Does Not Qualify**:
De minimis is up to 1/10 acre (4,356 sf)


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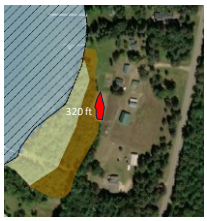
## Scenario 2

A project is located within the building setback zone within shoreland in a >80% area of the State and proposes to fill and impact 320 ft^2 of a lacustrine fringe wetland.

**Does not Qualify**:
De minimis statewide for all wetland types within building setback is up to 20 sf.

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## Scenario 3

A project is located outside of shoreland in a greater 80% area of the State and proposes to fill and impact 5,800 ft^2 of a saturated mineral flat wetland.

Qualifies:
De minimis is up to 10,890 sf (1/4 acre)


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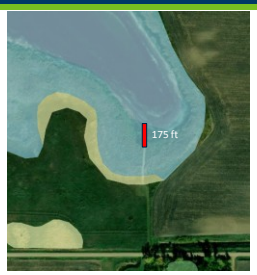
## Scenario 4

A project is located in the less than 50% area of the State and proposes to excavate 175 ft^2 of a permanently flooded area of wetland.

Not enough info to determine:
What is the shoreland status?

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# WCA Application Procedures

BOARD OF WATER AND SOIL RESOURCES

Minnesota Wetland Professional Certification Program

148

## Learning Objectives

- **WCA Application Procedures**
- Identify the information required to prepare and review a complete Wetland Conservation Act application.
- Explain when a Notice of Application (NOA) is required and identify the types of applications that are exempt from notice requirements.
- Prepare a Notice of Application that accurately summarizes the proposed project, identifies applicable comment periods, and communicates opportunities for public and agency review.
- Describe the procedures and timelines for receiving, considering, and responding to comments submitted during the application review process.
- Explain the purpose and legal significance of the Notice of Decision (NOD) as the official record of the Local Government Unit's decision.
- Prepare a Notice of Decision that documents Technical Evaluation Panel findings, Local Government Unit findings and conclusions, the final regulatory decision, and any conditions of approval.
- Apply the decision timelines established under Minnesota Statutes section 15.99 to ensure timely and legally compliant application processing.

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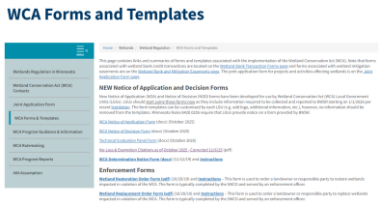
## BWSR website

- WCA Forms and Templates

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## WCA Application Procedures

- LGU Roles
- Application Procedures
- Agency Action Deadlines
- Noticing Requirements
- Technical Evaluation Panel

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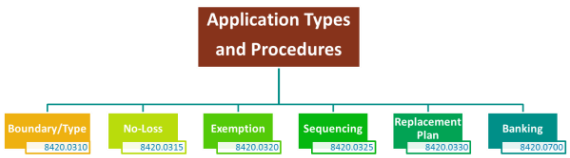
## Application

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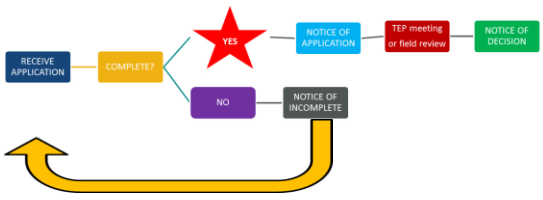
## Procedures and Process

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## Timelines and deadlines- MN Statute 15.99

**Determine Complete Application**
- **15** Business days from the date of receipt (date stamp!)

**Send the Notice of Application**
- **15** Business days from date of receipt of a complete application

**Set the Comment Period**
- MINIMUM **15** Business days from the date of sending the Notice of Application
  - Can be longer

**Make a Decision**
- **60** Calendar days from the receipt of a complete application
- Can extend 60 days, additional extension requires applicant approval

**Send the Notice of Decision**
- **10** ~~Business~~ days from date of decision

Removal of " business" proposed in update rule.

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## Timelines

**Appeal a Decision**
- **30** Calendar days from the date of decision

**How long is the Decision Valid?**
- **5** Years
- Unless longer is specified when TEP advises longer period

**How long do I (LGU) keep all this paperwork?**
- **10** Years

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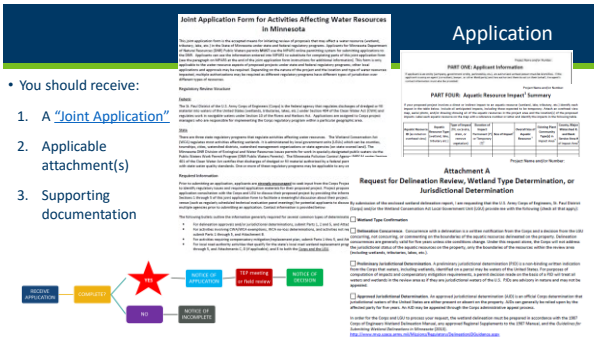
## Application

- You should receive:
  1. A "Joint Application"
  2. Applicable attachment(s)
  3. Supporting documentation

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## Is the application complete?

- Application must contain sufficient/required information found on 1st page of application
- Consider what is being asked, where it fits in Rule, what information the Rule requires
- Local application requirements such as fees?



Joint Application Form for Activities Affecting Water Resources in Minnesota

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## Application Review

- Use checklists/guidance
- Missing Information = Incomplete Application
- Notify applicant
  - Within 15 business days of receipt
  - Provide list of what is missing



St. Paul District REGULATORY
US Army Corps of Engineers

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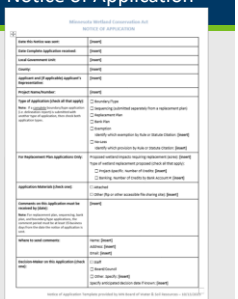
## It's Complete! Notice of Application

- Complete BWSR form
- Mark all decision types
- Specify comment Period (min 15 days)
- Decision time information
- Send to applicant, agent, TEP, Tribal governing body and others who requested notice



Minnesota Wetland Conservation Act
NOTICE OF APPLICATION

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## NOA Use

| Summary of LGU Application Types | | |
|---|---|---|
| Decision Type | NOA Required | NOD Required |
| Boundary or Type | Yes | Yes |
| No-Loss | No | Yes |
| Exemption | No | Yes |
| Sequencing | Yes | Yes |
| Replacement Plan | Yes | Yes |
| Bank Plan | Yes | Yes |

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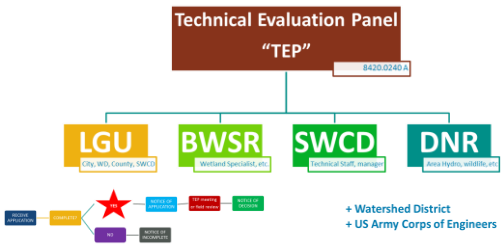
## Review

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## Notice of Decision

Notice of Decision (NOD) should include:

- Summarize the project- Decision type requested, proposed impact including wetland type and amount
- Clearly state the decision
- Applicable rule citation(s)
- TEP findings
- Conditions of approval
- Location map

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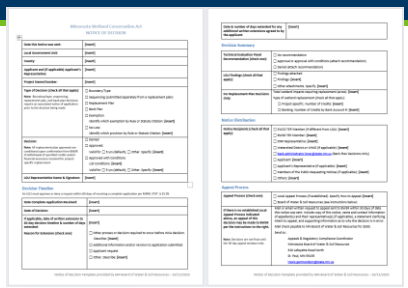
## Notice of Decision



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## TEP Form Attached to NOD

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## LGU Decision

- Based on standards and procedures in WCA, TEP Findings, and Recommendation.
- Must occur within 60 day of complete application (or as extended)
- Requires a Notice of Decision within 10 days


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## General Appeal Process

- 30 day appeal window following NOD
  - Any work completed during this period may be at risk.
- 30 days starts from postmarked date of mailing or date of electronic transmission
- LGUs can have local appeal process
- Extension possible by mutual agreement


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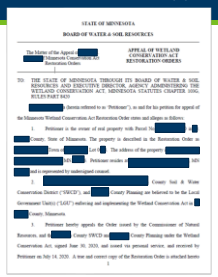
## Appeals

- Appeals may be made by
  - landowner,
  - those required to be noticed (TEP/other), or
  - 100 residents in county where wetland is located.
- Appeal goes to BWSR.
- Heard by Dispute Resolution Committee with final decision by full BWSR Board.



STATE OF MINNESOTA

BOARD OF WATER & SOIL RESOURCES

[redacted] Minnesota Conservation Act Restoration Orders

APPEAL OF WETLAND CONSERVATION ACT RESTORATION ORDER(S)

TO: THE STATE OF MINNESOTA THROUGH ITS BOARD OF WATER & SOIL RESOURCES AND EXECUTIVE DIRECTOR, AGENCY ADMINISTERING THE WETLAND CONSERVATION ACT. MINNESOTA STATUTES CHAPTER 103G, RULES PART 8420

[redacted] (herein referred to as "Petitioner"), as and for his petition for appeal of the Minnesota Wetland Conservation Act Restoration Order states and alleges as follows:

1. Petitioner is the owner of real property with Parcel No. [redacted] in [redacted] County, State of Minnesota. The property is described in the Restoration Order as [redacted]. The address of the property is [redacted]. Petitioner resides at [redacted] and is represented by undersigned counsel.

2. [redacted] County Soil & Water Conservation District ("SWCD"), and [redacted] County Planning are believed to be the Local Government Unit(s) ("LGU") enforcing and implementing the Wetland Conservation Act in [redacted] County, Minnesota.

3. Petitioner hereby appeals the Order issued by the Commissioner of Natural Resources, and the [redacted] County SWCD on [redacted] County Planning under the Wetland Conservation Act, signed June 30, 2020, and issued via personal service, and received by Petitioner on July 14, 2020. A true and correct copy of the Restoration Order is attached hereto

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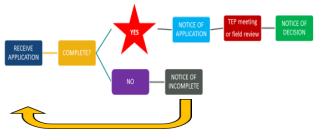
## WCA Application Procedures Review

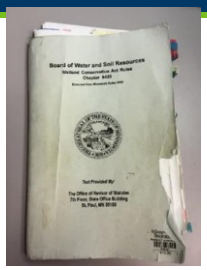
- LGU Roles
- Application Procedures
- Agency Action Deadlines
- Noticing Requirements
- Technical Evaluation Panel




168

## How long is a WCA decision valid for?

A) One year
B) Three Years
C) Five Years
D) Ten Years



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## Hydrophytic Vegetation Indicators and Determination

BOARD OF WATER AND SOIL RESOURCES

MWPCP | bwsr.state.mn.us

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## Learning Objectives

- **Wetland Vegetation**
- Define a hydrophyte and describe the morphological, physiological, and reproductive adaptations associated with wetland plants.
- Apply the National Wetland Plant List and wetland indicator status ratings to evaluate vegetation.
- Determine dominant species using accepted quantitative methods including the Rapid Test, Dominance Test (50/20 Rule), Prevalence Index, and morphological indicators
- Recognize and evaluate problematic hydrophytic vegetation under atypical or disturbed site conditions.

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## Outline

- Hydrophytic Vegetation Definition
  - Define Hydrophyte
  - What makes a plant a hydrophyte
  - Why it matters
- Hydrophytic Vegetation Indicators
  - Indicator status
  - Field indicators
  - Dominance
- Determining Hydrophytic Plant Community
  - Rapid Test
  - 50/20 Rule
  - Prevalence Index
  - Morphological Adaptations

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## Hydrophytic Vegetation Definition

Wetland definition includes the language: "…and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."

1987 Manual says in a wetland, "The prevalent vegetation consists of macrophytes that are typically adapted to areas having hydrologic and soil conditions described above. Hydrophytic species, due to morphological, physiological, and/or reproductive adaptation(s), have the ability to grow, effectively compete, reproduce, and/or persist in anaerobic soil conditions."

**Hydrophytic Vegetation:** Hydrophytic vegetation is defined herein as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present.

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## Hydrophytic Vegetation Definition

What Is a Hydrophyte?

Hydrophyte
Water Plant

OR

Any plant that is adapted to grow in water or in wet habitats.

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## Hydrophytic Vegetation Definition

- What makes a plant a hydrophyte?.....ADAPTATIONS!
  - Morphological adaptations ---→ visible changes/growth habits
  - Reproductive adaptations ---→ changes in how the reproduce
  - Physiological adaptations ----→ internal chemical process changes

175

## Morphological Adaptations

**List of Examples**

- Buttressed tree trunks
- Multiple trunks
- Pneumatophores
- Adventitious roots
- Shallow roots
- Hypertrophied lenticels
- Aerenchyma
- Polymorphic leaves
- Floating leaves

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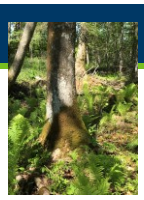
## Morphological Adaptations



Buttressed bases

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## Examples

Multiple Trunks

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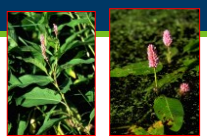
## Examples

Shallow Roots - Adventitious Roots

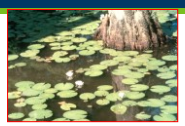


179

## Morphological Adaptations



Polymorphic Leaves
Water Smartweed (*Persicaria amphibia*)

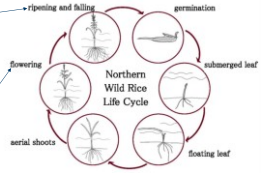


Floating leaves

Aerenchyma Tissue for Oxygen Transport

180

## Reproductive Adaptations




Wild Rice lifecycle

181

## Why Hydrophytes Matter

- They have adapted to life in saturated/ponded/anaerobic conditions
- A prevalence of hydrophytes in a plant community indicates the area likely experiences a period of ponded or saturated soils such that they out compete the non-hydrophytes
- The vegetation component in wetland delineation requires each species be classified as a hydrophyte or non-hydrophyte, and then apply to the community as a whole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## What about bryophytes?

- Bryophytes are not vascular plants.
- Includes lychophytes (club mosses)
- Sphagnum moss is listed as bog plant community species but does not have an indicator status

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## Plant Identification

Plant ID Applications:

Seek/iNaturalist
PictureThis
NatureID
LeafSnap
PlantIn
PlantNet
PlantSnap
FlowerChecker





BWSR does not endorse specific products.

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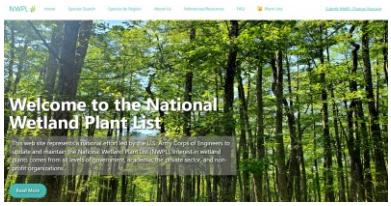
## Individual Plant Indicator Status




https://nwpl.sec.usace.army.mil/

https://www.usace.army.mil/Media/Announcements/Article/3679433/13-february-2024-final-2022-national-wetland-plant-list-is-available/

185

## Plant Indicator Status

| Wetland Indicator Status | Indicator Symbol | Definition |
|---|---|---|
| Obligate Wetland | OBL | Plants that almost always grow in wetlands. Estimated probability of >99% for growing in wetland. |
| Facultative Wetland | FACW | Plants that usually occur in wetlands. Estimated probability of 67% - 99% for growing in wetland (1%-33% in upland) |
| Facultative | FAC | Plants with similar likelihood of occurring in both wetland and upland. Estimated 33%-67% for growing in wetland. |
| Facultative Upland | FACU | Plants that sometimes grow in wetland. Estimated 1% - <33% for growing in wetland.(>67% - 99% in upland). |
| Obligate Upland | UPL | Plants that rarely occur in wetland. Estimated probability of <1% for growing in wetland (>99% in upland). |

hydrophytes

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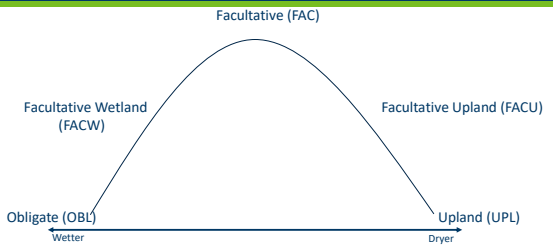
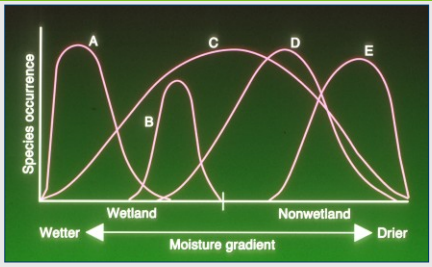
## Plant Indicator Status




187

## Plant Indicator Status Distributions




Indicator Status

| | |
|---|---|
| Obligate | A |
| FACW | B |
| FAC | C |
| FACU | D |
| Upland | E |

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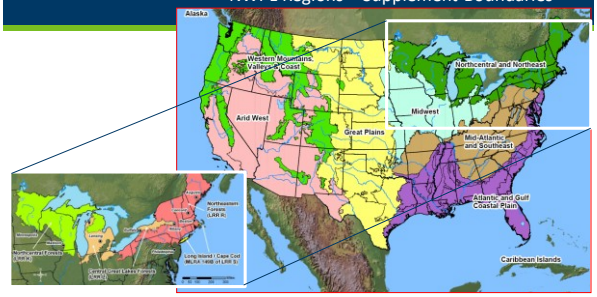
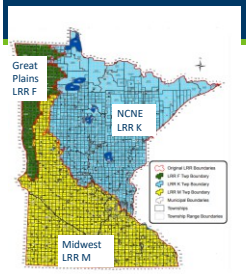
## NWPL Regions = Supplement Boundaries




189

## Plant Indicator Status




Plant Details

Scientific Name: Populus tremuloides Michx.
Family Name: Salicaceae Mirb. - Willow family
Common Name: quaking aspen
Symbol: POTR5
Date Modified: June 23, 2023, 1:27 p.m.

Wetland Ratings

| AGCP | AW | CB | EMP | GP | HI | MW | NCNE | WMVC | AK |
|---|---|---|---|---|---|---|---|---|---|
| FAC | FACU | | FAC | FAC | | FAC | FACU | FACU | FAC |

Figure 1. Map showing the Northcentral Great Lakes Subregion, which is indicated by blue polygons.

Table 2. Wetland indicator status ratings for the Northcentral Great Lakes Subregion.

| Scientific Name | Common Name | Wetland Indicator Status Rating: Northcentral and Northeast Region | Wetland Indicator Status Rating: Northcentral Great Lakes Subregion |
|---|---|---|---|
| Populus tremuloides | Quaking aspen | FACU | FAC |
| Abies balsamea | Common balsam fir | FACU | FAC |

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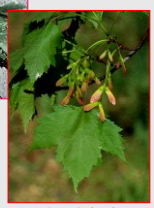
## Indicator Status Comparisons

**Silver Maple** (**FACW**: NC/NE; Midwest)(**FAC**:GP)



Genus: *Acer*

**Sugar Maple** (**FACU**: NC/NE; Midwest) (**UPL**: GP)

**Swamp Ecotype**: shallow root system

**Upland Ecotype**: tap root to water table

**Red Maple** (**FAC**)

191

## Indicator Status Comparisons

Genus: *Asclepias*

**Common Milkweed** (**UPL**: NC/NE; GP)(**FACU**: Midwest)
*A. syriaca*

**Swamp (Rose) Milkweed** (**OBL**: NC/NE; Midwest)(**FACW**: GP)
*A. incarnata*

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## Indicator Status Trust


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## Indicator Status Comparisons

Genus:
*Solidago*

**Canada goldenrod**
*S. canadensis*
(**FACU**: NC/NE, Midwest, GP)

**Giant goldenrod**
*S. gigantea*
(**FACW**: NC/NE, Midwest **FAC**: GP)

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## Reed Canary Grass - FACW

Is RCG a true hydrophyte because it occasionally occurs in uplands?

RCG fits well within the concept of a FACW species as it usually occurs in wetlands, but may occur in non-wetlands

The fact that RCG occasionally occurs in uplands is why it wasn't assigned an OBL indicator status

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## Indicator Status

Malus sylvestris
(crab apple)

### Plant species is not on the list…

- Using incorrect name or synonym?
- Searching under most current scientific name? (some have changed)
- If still not on the list (example domestic crab apple): then species is assigned as Upland (UPL)
- If species is not listed in your region, can use closest adjacent regional supplement:

| AGCP | AW | CB | EMP | GP | HI | MW | NCNE | WMVC | AK |
|---|---|---|---|---|---|---|---|---|---|
| FAC | | | FAC | | | FACW | FAC | | |

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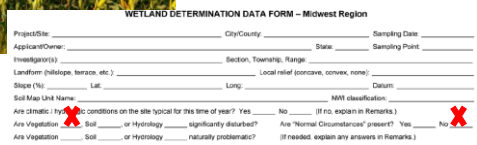
## Indicator Status for Crop Species?

Corn, soybeans and other crops do not have an indicator status:

Normal Circumstances? Atypical for vegetation?



**WETLAND DETERMINATION DATA FORM – Midwest Region**

Project/Site: _____ City/County: _____ Sampling Date: _____
Applicant/Owner: _____ State: _____ Sampling Point: _____
Investigator(s): _____ Section, Township, Range: _____
Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____
Slope (%): _____ Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)
Are Vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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## From Individual to the Community

Vegetation component focus is on plant communities and not individual plants

Identification of individual sedge

Focus

Recognition of a sedge (OBL) dominated plant community

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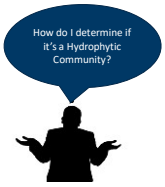
## From Individual to the Community




**Delineation relies heavily on FIELD based INDICATORS applied to the whole veg community**

**Field Indicators for Hydrophytic Vegetation relies on the dominance or prevalence of hydrophytes in the community**

**** Data collection/sampling is required to demonstrate/prove the veg community is dominated by hydrophytes for an indicator to be met.**

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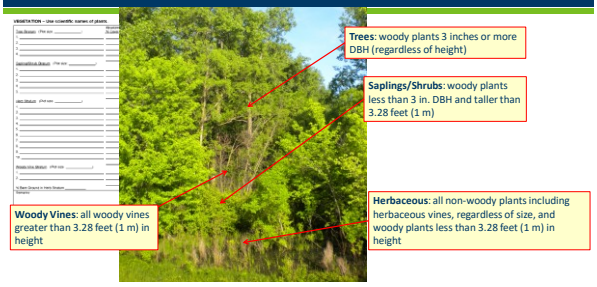
## Native Plant Communities of Minnesota


https://www.dnr.state.mn.us/npc/index.html

200

## Vegetation Strata (layers of vegetation)




201

## Vegetation Strata

Trees: woody plants 3 inches or more DBH regardless of height

Shrubs/Saplings: woody plants less than 3 inches DBH and taller than 1 meter (3.28 feet) in height

Herbaceous: all non-woody plants regardless of size AND woody plants less than 1 meter (3.28 feet) in height

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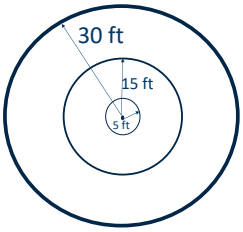
## Typical Vegetation Sampling




5 ft Herbaceous; 15 ft Shrub/Sapling; 30 ft Tree/Woody Vine

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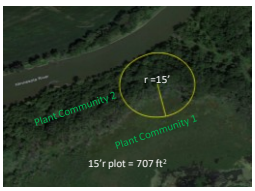
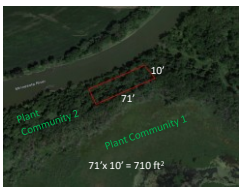
## Vegetation Sampling Adjustments

Circular plot overlaps two different plant communities?
Then use rectangular plot of same square footage.




204

## Determining Dominance- Sampling

Within plots relative abundance of a species is used as the metric for determining dominance.

Typical abundance measures include:

- basal area for tree species
- **percent areal cover**
- stem density
- frequency based on point-intercept sampling

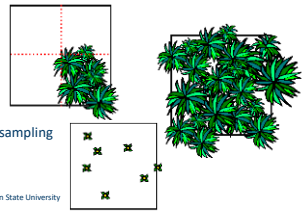


Photo Credit: © 2007 Mark V. Wilson and Oregon State University

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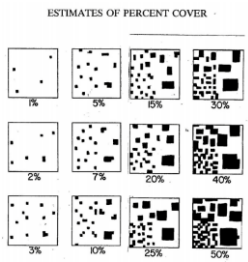
## Determining Dominance- Sampling




Percent Areal Cover

- Estimate can vary from person to person
- Almost NEVER adds up to 100%...sometimes more; sometimes less
- Is recommended method for determining cover
- Used by 50/20 Rule
- Used by Prevalence Index

- Is different than Absolute Cover = Actual or Total cover

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## Determining Dominance- Sampling

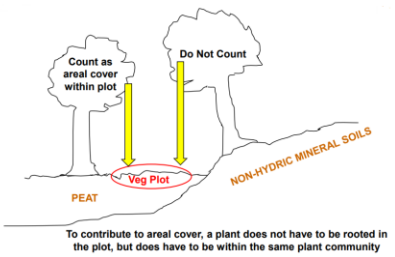


Photo credit USACE

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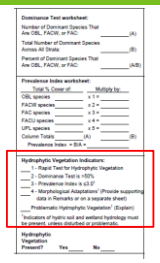
## Determination of Hydrophytic Vegetation

Sequence of Field Indicators

1. Rapid Test
2. Dominance Test (“50/20 Rule”)
3. Prevalence Index
4. Morphological Adaptations



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## Determining Hydrophytic Vegetation

The procedure for using hydrophytic vegetation indicators is as follows:

1. Apply Indicator 1 (Rapid Test for Hydrophytic Vegetation).
2. Apply Indicator 2 (Dominance Test).
   a) **If the plant community fails the dominance test, but indicators of hydric soil and wetland hydrology are both present, proceed to step 3.**
3. Apply Indicator 3 (Prevalence Index).
4. Apply Indicator 4 (Morphological Adaptations).
   a) If none of the indicators is satisfied, then hydrophytic vegetation is absent unless indicators of hydric soil and wetland hydrology are present and the site meets the requirements for a problematic wetland situation

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## Hydrophytic Plants – Rapid Test

Definition:

All dominant species across all strata are rated OBL or FACW, or a combination of these two categories, based on a visual assessment.

100% Lake sedge

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## Rapid Test for Hydrophytic Vegetation - Example

75% cattail (OBL), 25% areal cover by reed canary grass (FACW)

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## Hydrophytic Plants – Dominance Test

- Dominance Test AKA 50/20 Rule
  - Used to determine which species are dominant in each strata (layer of veg)
  - Once dominate species are identified their percent cover does not matter; all treated equally
    - Example: Tree Strata may have low number of species compared to Shrub Strata, but may still have a dominant component.
  - IF greater than 50% of the dominant species across all strata are OBL, FACW, or FAC, THEN hydrophytic plant community exists
    - Example: 5 dominant species are identified. 3 dominant species are FACW and 2 dominants are FACU. MEETS CRITERIA FOR HYDROPHYTIC PLANT COMMUNITY; 3/5=.6 or 60% FACW dominants

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## Hydrophytic Vegetation – Dominance Test (50/20 Rule)

1. Estimate absolute percent cover of each species in first stratum. Species must be at least 5% to be considered dominant.
2. Rank species from most to least abundant
3. Calculate the total percent cover of all species (usually not 100 percent) in that stratum
4. Calculate 50% of total cover
5. Calculate 20% of total cover
6. Begin at top of list and add percent covers together until 50% threshold is met
7. Continuing after last species in 50%, next identify species that ALONE meet or exceed 20% threshold
8. Repeat for each stratum

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## Hydrophytic Vegetation – Dominance Test

50/20 Rule Example

Strata 1

| Species | % Cover |
|---|---|
| *Species a* | *45* |
| *Species b* | *30* |
| *Species c* | *25* |
| *Species d* | *10* |
| *Species e* | *5* |
| *Species f* | *5* |
| Total Cover | 120 |

120 x 50% (0.50) = 60
120 x 20% (.20) = 24

Species a + Species b = 75 ---Together exceed 50%

Species c = 25 ---individually meet/exceed 20%

Species a, b, and c are dominant

Note: if species percent cover is a tie, include both

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50/20 Example #2

Strata 1

Species A: 60%
Species B: 35%
Species C: 35%
Species D: 25%
Species E: 20%
Species F: 10%

Tied; count both

Dominants

TOTAL : 185

50% = 185 x 0.50 = 92.5 20% = 185 x 0.20 = 37

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## Dominance Test

| Stratum | Species Name | Wetland Indicator Status (Region 1) | Absolute Percent Cover | Dominant? |
|---|---|---|---|---|
| Herb | Impatiens capensis | FACW | 15 | Yes |
| | Geranium carolinianum | UPL | 7 | Yes |
| | Taxodiendron radicans | FAC | 5 | No |
| | Lonicera tatarica | FACU | 2 | No |
| | Glyceria striata | OBL | 2 | No |
| | Parthenocissus quinquefolia | FACU | 1 | No |
| | Arisaema triphyllum | FACW | 0.5 | No |
| | Carex laxiflora | FACU | 0.5 | No |
| | | Total cover | 33.0 | |
| | | 50/20 Thresholds: 50% of total cover = 16.5% 20% of total cover = 6.6% | | |
| Sapling/shrub | Carpinus caroliniana | FAC | 35 | Yes |
| | Carya ovata | FACU | 10 | No |
| | Acer saccharum | FACU | 5 | No |
| | Quercus rubra | FACU | 5 | No |
| | | Total cover | 55.0 | |
| | | 50/20 Thresholds: 50% of total cover = 27.5% 20% of total cover = 11.0% | | |
| Tree | Quercus bicolor | FACW | 40 | Yes |
| | Fraxinus pennsylvanica | FACW | 17 | Yes |
| | Ulmus americana | FACW | 10 | No |
| | Carya ovata | FACU | 8 | No |
| | | Total Cover | 75.0 | |
| | | 50/20 Thresholds: 50% of total cover = 37.5% 20% of total cover = 15.0% | | |
| Woody vine | Taxodiendron radicans | FAC | 1 | No[2] |
| Hydrophytic Vegetation Determination | Total number of dominant species across all strata = 5. Percent of dominant species that are OBL, FACW, or FAC = 80%. Therefore, this community is hydrophytic by Indicator 2 (Dominance Test). | | | |

1. Tally number of dominants across all strata – 5
2. Tally number of dominants that are FAC, FACW, or OBL – 4
3. Calculate if FAC, FACW, OBL dominants comprise more than 50% of plant communities – 4/5 = 80%

Data sheet requires greater than 50% FAC or wetter.

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## Class exercise

How many dominant species are there in the sample point data?

1, 2, 3, or 4?

Note: if fails but have Hydrology and Soil, go to Prevalence Index

| Species | Strata | % Coverage |
|---|---|---|
| Species A | Herbaceous | 35 |
| Species B | Herbaceous | 30 |
| Species C | Herbaceous | 22 |
| Species D | Herbaceous | 20 |
| Species E | Herbaceous | 15 |
| Species F | Shrub/sapling | 5 |
| Species G | Tree | 3 |

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## Class exercise

How many dominant species are there in the sample point data?

3

| Species | Strata | % Coverage |
|---|---|---|
| Species A | Herbaceous | 35 |
| Species B | Herbaceous | 30 |
| Species C | Herbaceous | 22 |
| Species D | Herbaceous | 20 |
| Species E | Herbaceous | 15 |
| Species F | Shrub/sapling | 5 |
| Species G | Tree | 3 |

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## Apply indicator – Result?

- Does this pass the dominance test?
- IF greater than 50% of the dominant species across all strata are OBL, FACW, or FAC, THEN hydrophytic plant community exists

| Species | Strata | Ind. Status |
|---|---|---|
| Species A | Herbaceous | FACW |
| Species B | Herbaceous | FAC |
| Species C | Herbaceous | FAC |
| Species D | Herbaceous | FACW |
| Species E | Herbaceous | FAC |
| Species F | Shrub/sapling | FACU |
| Species G | Tree | OBL |

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## Hydrophytic Vegetation – Prevalence Index

- Prevalence Index
  - A numerical calculation used to determine whether a hydrophytic plant community is present
  - Uses a weighted average and uses all plant species in the plot, not just dominant
  - Values range from 1 to 5
  - Values less than or equal to 3 indicate hydrophytic plant community

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | | x 1 = |
| FACW species | | x 2 = |
| FAC species | | x 3 = |
| FACU species | | x 4 = |
| UPL species | | x 5 = |
| Column Totals: | (A) | (B) |

Prevalence Index = B/A = _____

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## Hydrophytic Vegetation – Prevalence Index

| Species | % Cover | Indicator |
|---|---|---|
| Tree Strata | | |
| *Species a* | *45* | *FACW* |
| *Species b* | *30* | *OBL* |
| *Species c* | *25* | *FAC* |
| *Species d* | *10* | *FAC* |
| *Species e* | *5* | *FACU* |
| *Species f* | *5* | *UPL* |
| Herbaceous Strata | | |
| Species A | 55 | OBL |
| Species B | 35 | FACW |
| Species C | 35 | FACW |
| Species D | 25 | FAC |
| Species E | 20 | FACU |
| Species F | 10 | UPL |

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 85 | x 1 = | 85 |
| FACW species | 115 | x 2 = | 230 |
| FAC species | 60 | x 3 = | 180 |
| FACU species | 25 | x 4 = | 100 |
| UPL species | 15 | x 5 = | 75 |
| Column Totals: | 300 (A) | | 670 (B) |

Prevalence Index = B/A = 2.23

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## Class Exercise

| Herb Stratum | Plot Size ( 5 ) | Absolute % Cover | Dominant Species | Indicator Status |
|---|---|---|---|---|
| 1 | *Poa pratensis* | 30 | Y | FACU |
| 2 | *Bromus inermis* | 20 | Y | UPL |
| 3 | *Rubus idaeus* | 15 | Y | FAC |
| 4 | *Phalaris arundinacea* | 5 | N | FACW |
| 5 | *Solidago canadensis* | 5 | N | FACU |

**Prevalence Index Worksheet**

| Total % Cover of: | | |
|---|---|---|
| OBL species | x 1 = | |
| FACW species | x 2 = | |
| FAC species | x 3 = | |
| FACU species | x 4 = | |
| UPL species | x 5 = | |
| Column totals | (A) | (B) |

Prevalence Index = B/A = _____

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## Class Exercise

**Prevalence Index Worksheet**

Total % Cover of:

| | | | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 5 | x 2 = | 10 |
| FAC species | 15 | x 3 = | 45 |
| FACU species | 35 | x 4 = | 140 |
| UPL species | 20 | x 5 = | 100 |
| Column totals | 75 (A) | | 295 (B) |

Prevalence Index = B/A = 3.93

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: |
|---|---|
| OBL species | x 1 = |
| FACW species | x 2 = |
| FAC species | x 3 = |
| FACU species | x 4 = |
| UPL species | x 5 = |
| Column Totals: (A) | (B) |
| Prevalence Index = B/A = | |

**Hydrophytic Vegetation Indicators:**

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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## Hydrophytic Vegetation – Morphological Adaptations

### Morphological Adaptations

- Use when more than 50% of FACU plants exhibit morphological adaptations to saturated soil conditions AND criteria for hydric soils and hydrology is present
  1. For each FACU species exhibiting adaptations, record percentage of individuals with morphological adaptations on data sheet so long as the adaptations are not also common in the same species within nearby uplands areas.
  2. If more than 50% have adaptations then re-assign indicator status for that species from FACU to FAC
  3. Recalculate dominance test and/or prevalence index

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## Learning Objectives

- **Vegetation Sampling Plot Field Exercise**
- Establish and sample vegetation plots using standard delineation protocols.
- Document delineation findings in accordance with accepted professional standards and Minnesota regulatory requirements.

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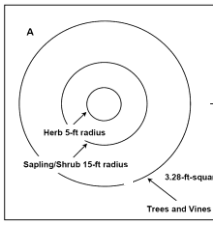
## Vegetation Sampling Field Exercise

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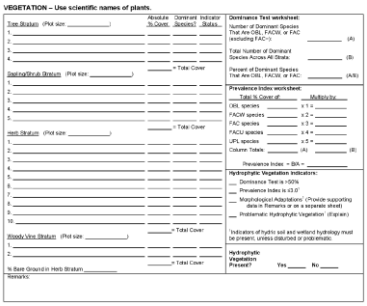

**VEGETATION – Use scientific names of plants.**

| Tree Stratum (Plot size _____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | | | = Total Cover |
| Sapling/Shrub Stratum (Plot size _____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | | | = Total Cover |
| Herb Stratum (Plot size _____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | | | = Total Cover |
| Woody Vine Stratum (Plot size _____) | | | |
| 1. | | | |
| 2. | | | |
| | | | = Total Cover |

% Bare Ground in Herb Stratum _____

Remarks:

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: |
|---|---|
| OBL species _____ | x 1 = _____ |
| FACW species _____ | x 2 = _____ |
| FAC species _____ | x 3 = _____ |
| FACU species _____ | x 4 = _____ |
| UPL species _____ | x 5 = _____ |
| Column Totals: _____ (A) | _____ (B) |

Prevalence Index = B/A = _____

**Hydrophytic Vegetation Indicators:**

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes _____ No _____

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