



National Association of Wetland Managers and Saint Mary's University GeoSpatial Services

Tribal Clean Water Act Training Module #4

Thinking Geospatially

GEOSPATIAL THINKING TOWARDS ENVIRONMENTAL STEWARDSHIP

Welcome!

If you have any technical difficulties during your online training experience, please send your question to Portia Osborne at portia@nawm.org or call (207) 892-3399.



Online Training Modules

Welcome

Introduction to Online Course and Optional Quiz

(7 knowledge questions)

Trainer Introduction

Training Presentation

(3 sections)

How to Access the Online Quiz and Receive a Certificate of Completion

(For use in obtaining CEUs)



Tribal Clean Water Act Training Module #4

Thinking Geospatially

Target Audience:

Tribal staff and members who want to learn more about thinking geospatially as it relates to environmental stewardship.

Learning Objectives:

By taking part in this online training, participants should be able to:

1. Define “geospatial”.
2. Understand the potential benefits of “thinking geospatially”.
3. Gain confidence in taking action to explore a question with geospatial components.



What is on the Quiz?

Seven questions related to key takeaways from the online training presentation.

This module will provide information on how to access the quiz after the presentation is complete (3 sections).

On average, the quiz takes less than 15 minutes to complete.



Trainer Introduction



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Thinking Geospatially

- Define
- Benefits
- Action
- Resources





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Thinking Geospatially

PART 1: DEFINITION AND BENEFITS

Thinking Geospatially - Defined



What do we mean by “thinking geospatially”?

Understanding and analyzing phenomena by considering their spatial context, relationships, and patterns on the Earth's surface.

Involves recognizing the significance of location, distance, direction, and the interplay between human and physical landscapes.



How do we define “geospatial”?



Relating to specific geographic locations on the Earth’s surface

Without location information it is not geospatial data

Examples of Geospatial Questions

- How can we develop sustainable land management practices that balance conservation with economic development for our tribe?
- What are the impacts of climate change on the availability of traditional fishing grounds for our nation?
- What are the potential risks and benefits of resource extraction projects on our lands?

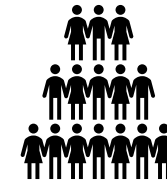
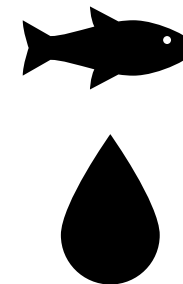


Thinking Geospatially - Benefits

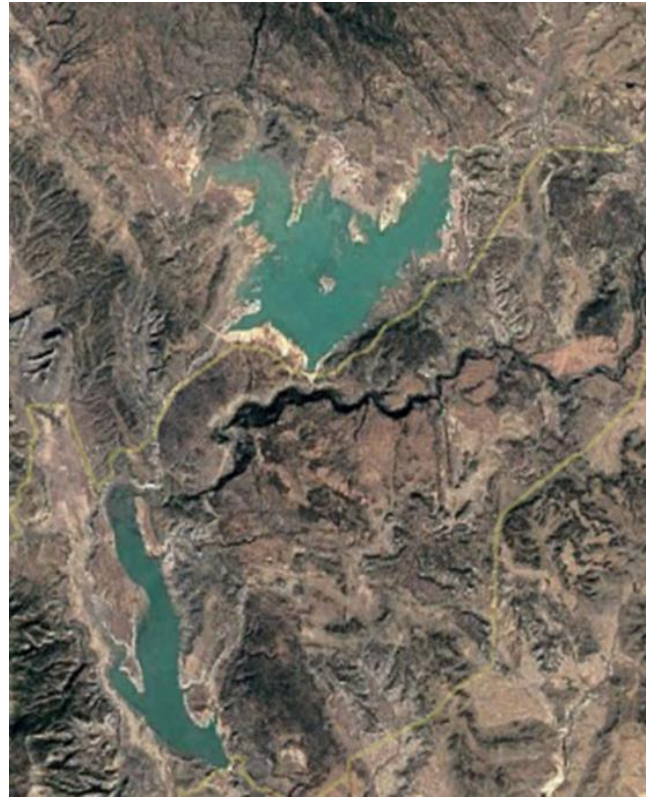


Benefits of Thinking Geospatially

Becoming an
informed decision maker



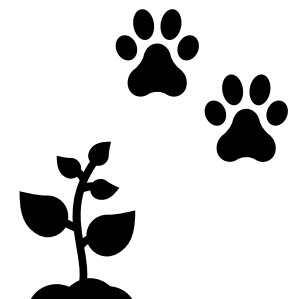
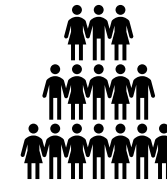
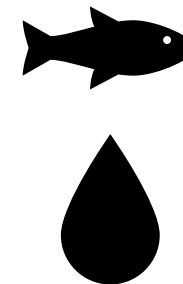
Benefits of Thinking Geospatially



Allows for
spatial analysis
and data visualization

Benefits of Thinking Geospatially

Improved resource management
and environmental protection



Benefits of Thinking Geospatially

Community engagement through enhanced communication and collaboration





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Thinking Geospatially

PART2:ACTION

Thinking Geospatially – Action



Thinking Geospatially Action: Question

- What question are we trying to answer?
- Has anyone else had a similar question they answered using geospatial tools?



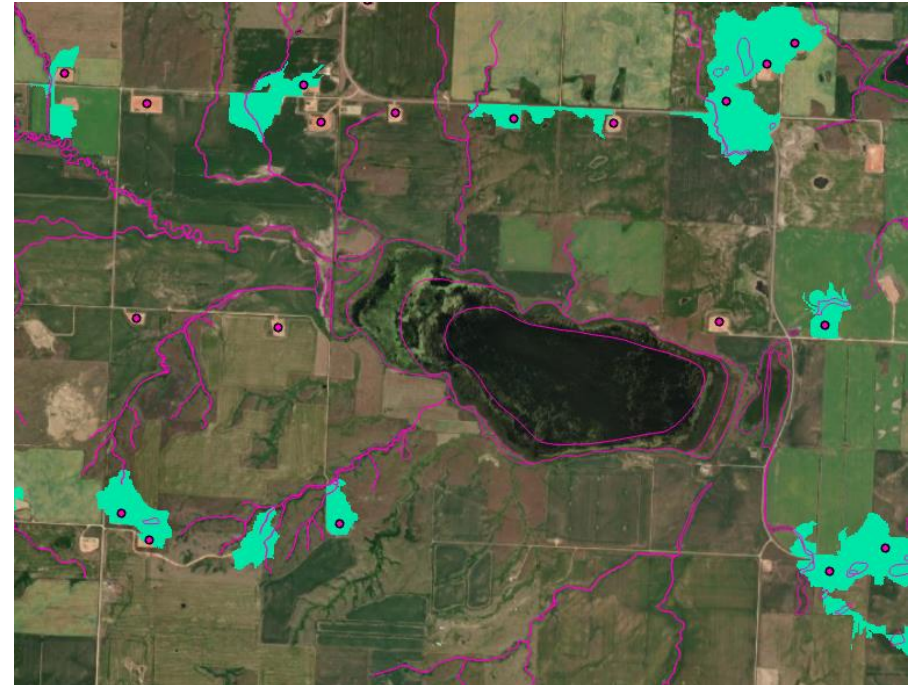
Thinking Geospatially Action: Question Example

- How healthy are the wetlands in our community?
 - Where and what type of wetlands exist on the landscape?
 - What sort of surface water connectivity occurs among these wetlands?
 - What functions might these wetlands provide?
 - How is the water quality within specific wetlands?



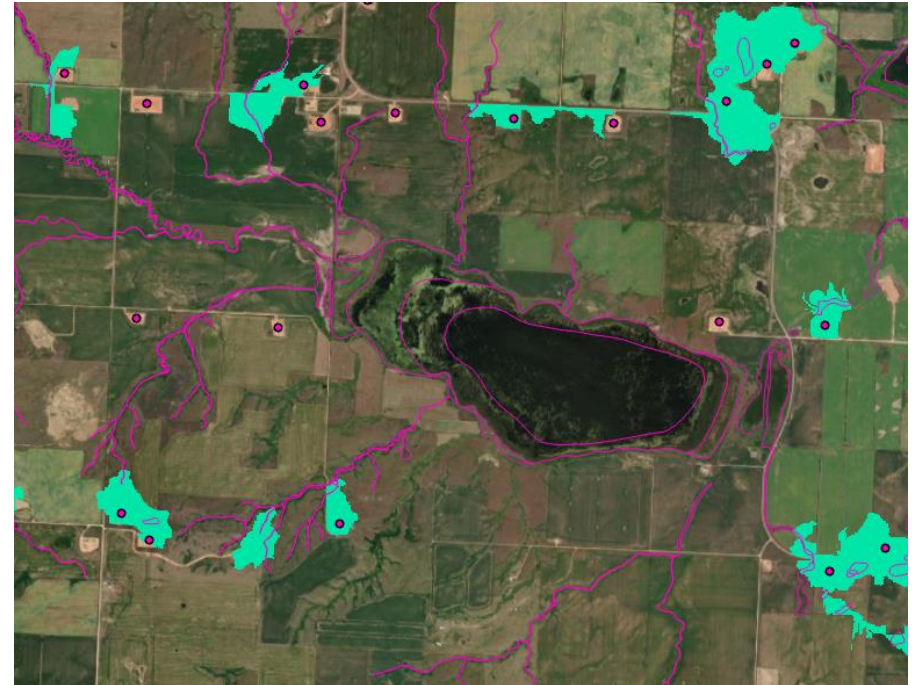
Thinking Geospatially Action: Data

- What data inputs might I need?
- Do those inputs exist somewhere already?
- Do I need to collect data to answer the question I am asking?



Thinking Geospatially Action: Data Example

- What data inputs might I need to examine how healthy the wetlands are?
 - Satellite imagery
 - Wetlands as polygons
 - Surface water as lines
 - Mining locations as points or polygons



Thinking Geospatially Action: Resources

- Are we going to need additional resources to complete this work?
 - Budget: Time/Funds
- Do we need further expertise?



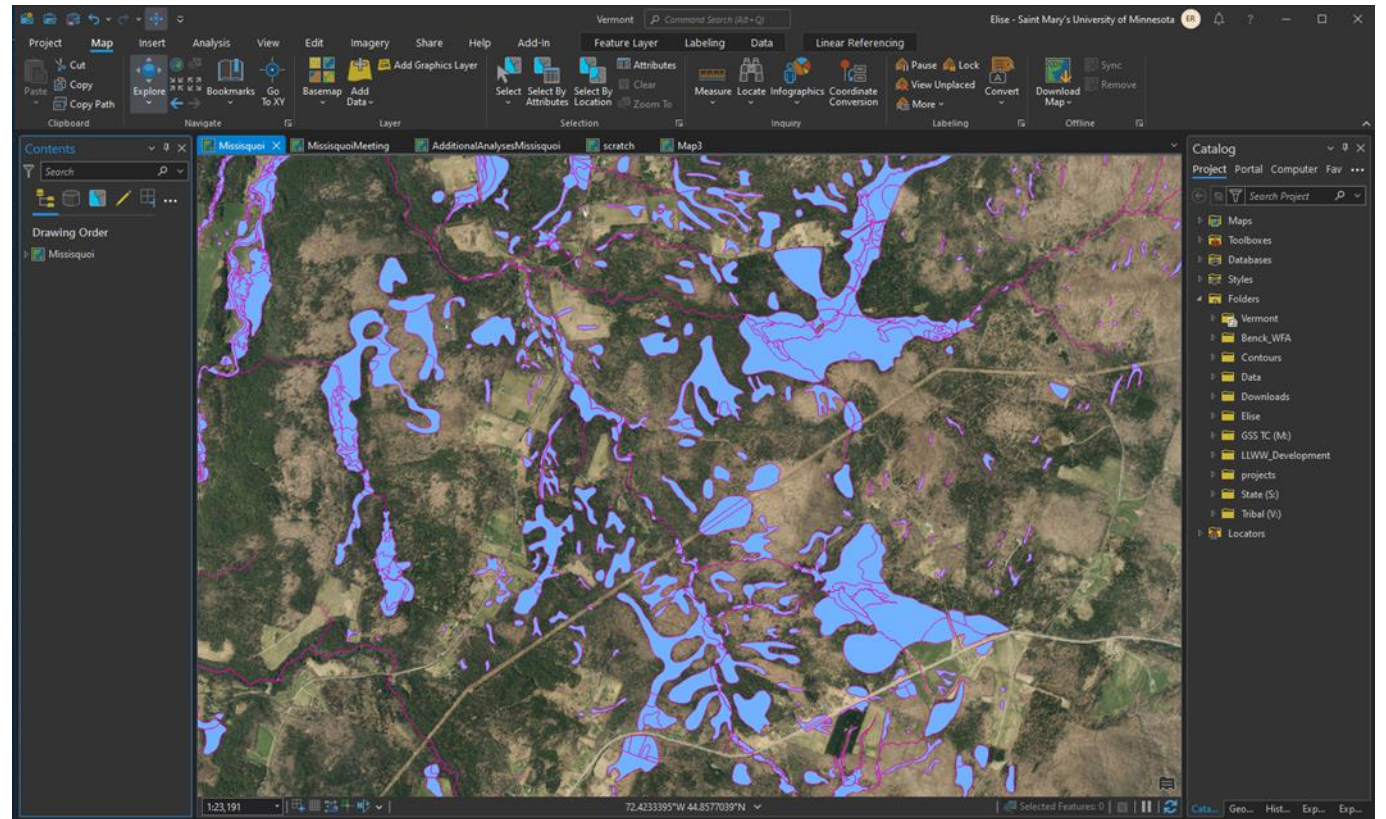
Thinking Geospatially Action: Resources Example

- Are we going to need additional resources to complete this work?
 - Wetland Program Development Grant – EPA
- Do we need further expertise?
 - GeoSpatial Services SMUMN– to map wetlands using aerial imagery, run connectivity analysis



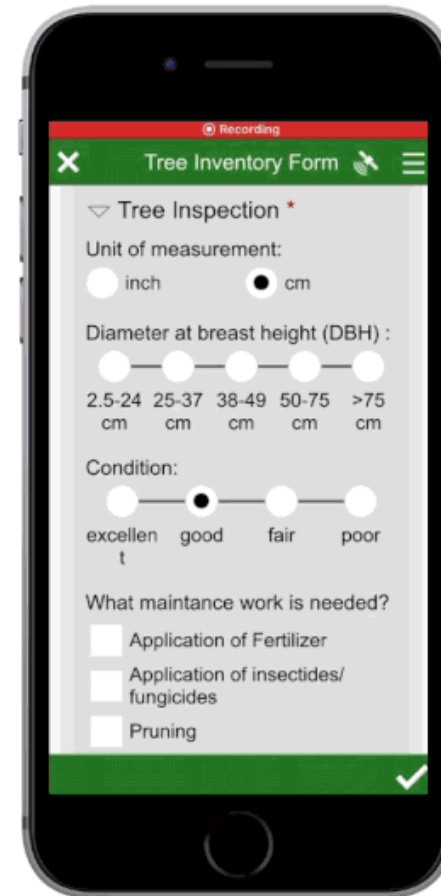
Thinking Geospatially Action: Complete Work

- Desktop GIS
 - Visualization
 - Spatial Analysis
 - Connectivity
 - Other factors of interest
 - Wetland functions
 - Potentially restorable wetlands

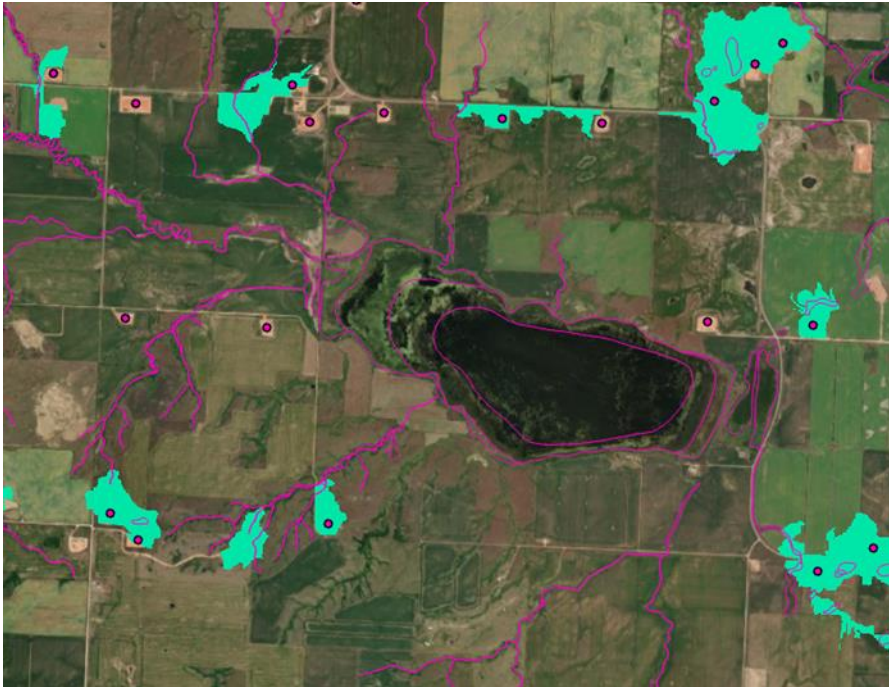


Thinking Geospatially Action: Complete Work

- Field Work– ground truth
 - ArcGIS Field Maps
 - point/line/polygon
 - ArcGIS Survey123
 - data forms



Thinking Geospatially Action: Complete Work Example

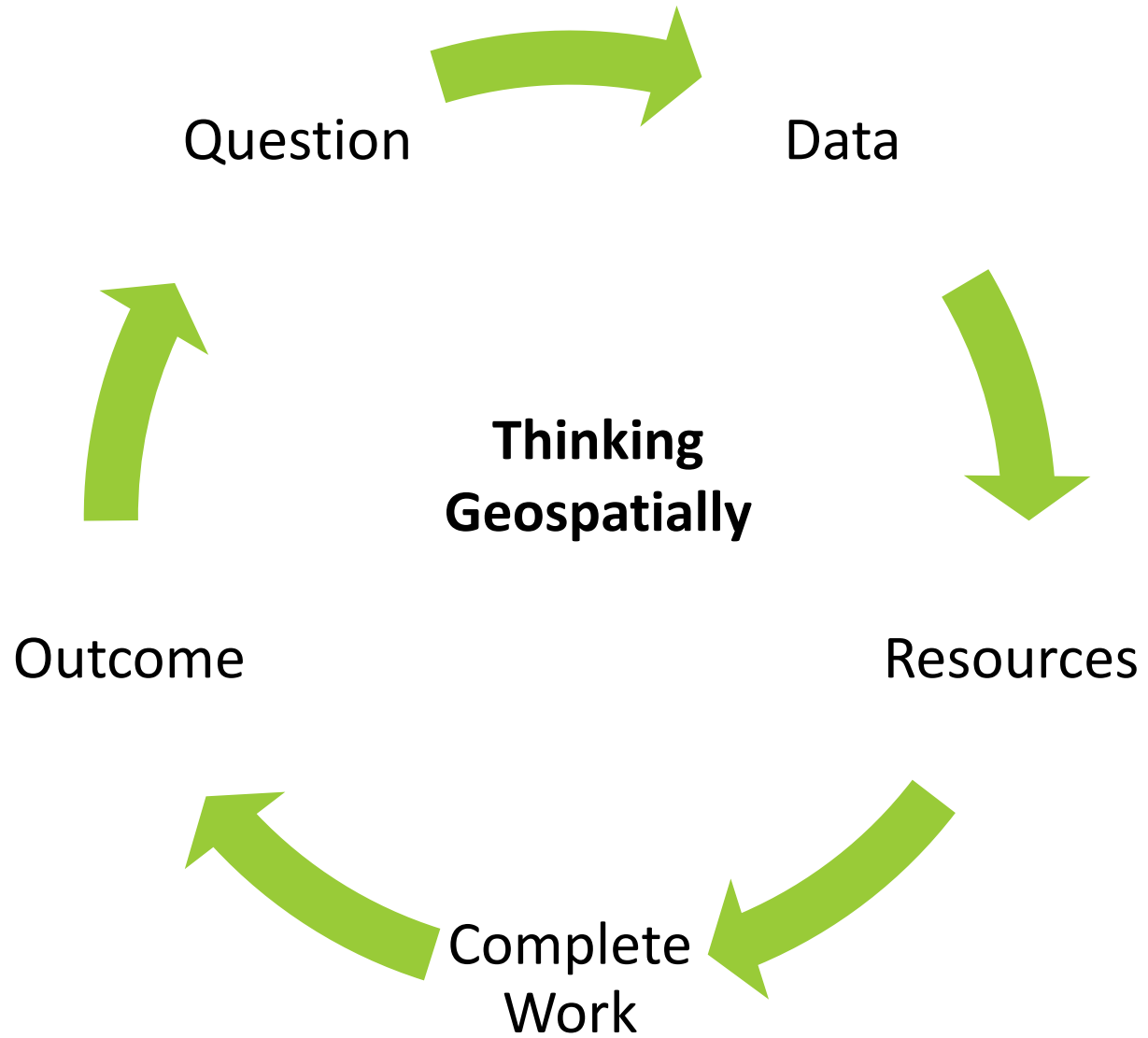


- Desktop – Connectivity Analysis
 - Wetland Polygon Creation
 - Locate Oil/Gas Infrastructure
 - Examine surface water flow
- Field Work -?

Thinking Geospatially Action: Outcome

- How are we going to monitor the outcomes of a particular project?
- Did the result of this project bring on additional questions?
- Were the results of the project what you intended to find?







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PART3:RESOURCES TO EXPLORE

Geospatial Resources to Explore

NAWM Tribal Wetland Programs

<https://www.nawm.org/wetland-programs/tribal-wetland-programs.html>

NAWM Tribal Wetland Training

<https://www.nawm.org/webinars-trainings/nawm-s-online-trainings/tribal-wetland-programs-online-training-series>

NAWM Clean Water Act Training Series

<https://www.nawm.org/webinars-trainings/nawm-s-online-trainings/tribal-clean-water-act-online-training-series>

Geospatial Thinking Aid

https://www.e-education.psu.edu/geog468/l3_p5.html

Tribal Story Maps

<https://www.esri.com/en-us/industries/tribal/challenge/winners/2022-winners>





Thank you!

Optional Online Quiz

Thank you!

Thank you for listening to this online training from the National Association of Wetland Managers and Saint Mary's University of Minnesota. We hope you found the presentation interesting and informative.

Optional Online Quiz

We invite you to take an optional online quiz for this training module. To take the quiz, you will need to return to the NAWM online training page on the NAWM.org website and select the link to the quiz for this module.

To Receive Your Certificate of Completion

In order to receive a Certificate of Completion to submit to an accrediting organization for continuing education credits or units (CEUs):

- You must complete the quiz; and
- You must receive a score of 80% or higher.

You will have the opportunity to retake the quiz one additional time if you do not pass.



Certificates of Completion

Certificates of Completion are available to you when you successfully complete the training module. Participants who both view the module presentation and complete the module quiz are eligible for a NAWM Certificate of Completion for 1.0 hours of training.

You will need to create a unique username and password in *ClassMarker* for each certificate. After completing the module quiz, you will be prompted to download your certificate.

You are responsible for sending the NAWM certificate to your accrediting organization.

Certificates are **free** for NAWM members and for tribal members and staff.

- For tribal members or tribal staff who are not a member of NAWM: if you are interested in taking the module quiz to earn a certificate, please contact Laura Burchill at the NAWM office at laura@nawm.org or (207) 892-3399.
- For non-members: there is a \$25 administrative fee per certificate that must be paid before you can access the quiz.

For complete details, please return to the NAWM online training modules webpage.

