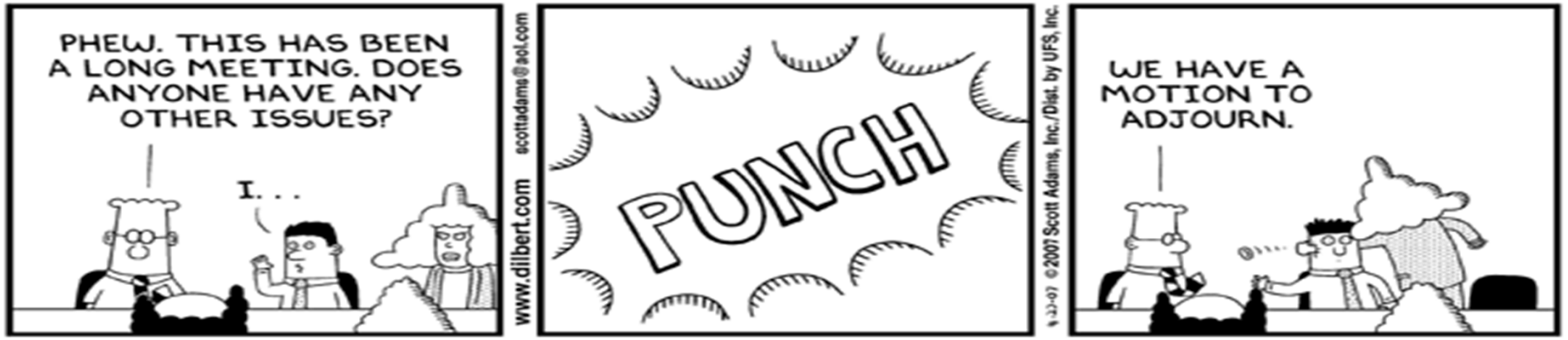
Using Wetland Monitoring and Assessment in Virginia's Regulatory Program



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Office of Wetland and Stream Protection
Department of Environmental Quality

Virginia Wetland Monitoring & Assessment Strategy

- **Virginia Water Protection Permitting Program**

  The goal of Virginia's nontidal wetlands program is "*to achieve a no net loss of wetland acreage and function through our regulatory program and a net gain in wetland resources through voluntary programs*" (§62.1-44.15 of the code of Virginia).

- **Status of wetland resources**
  - location and extent of wetlands in watersheds
  - knowledge of the quality of these wetlands
- **Functions of impacted wetlands must be evaluated to assess whether functions are being compensated**

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Objectives

- Establish baseline conditions in various broad contexts (i.e., land use, watershed, and wetland type) to guide:
  - management decisions regarding restoration efforts
  - programmatic compensatory mitigation
  - integration with overall water quality standards
- Strategy becomes an integral part of VA's comprehensive water quality monitoring program strategy.

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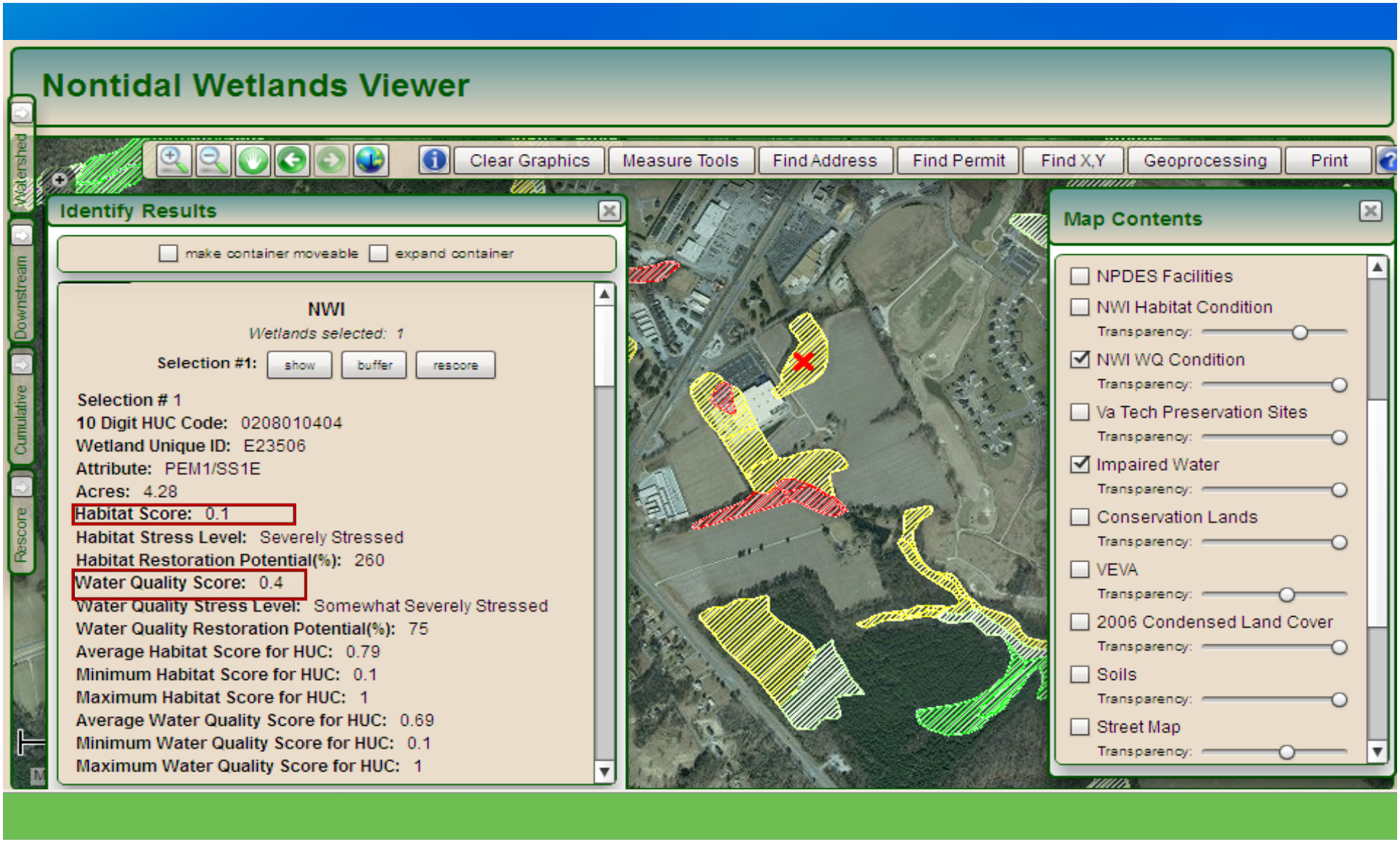
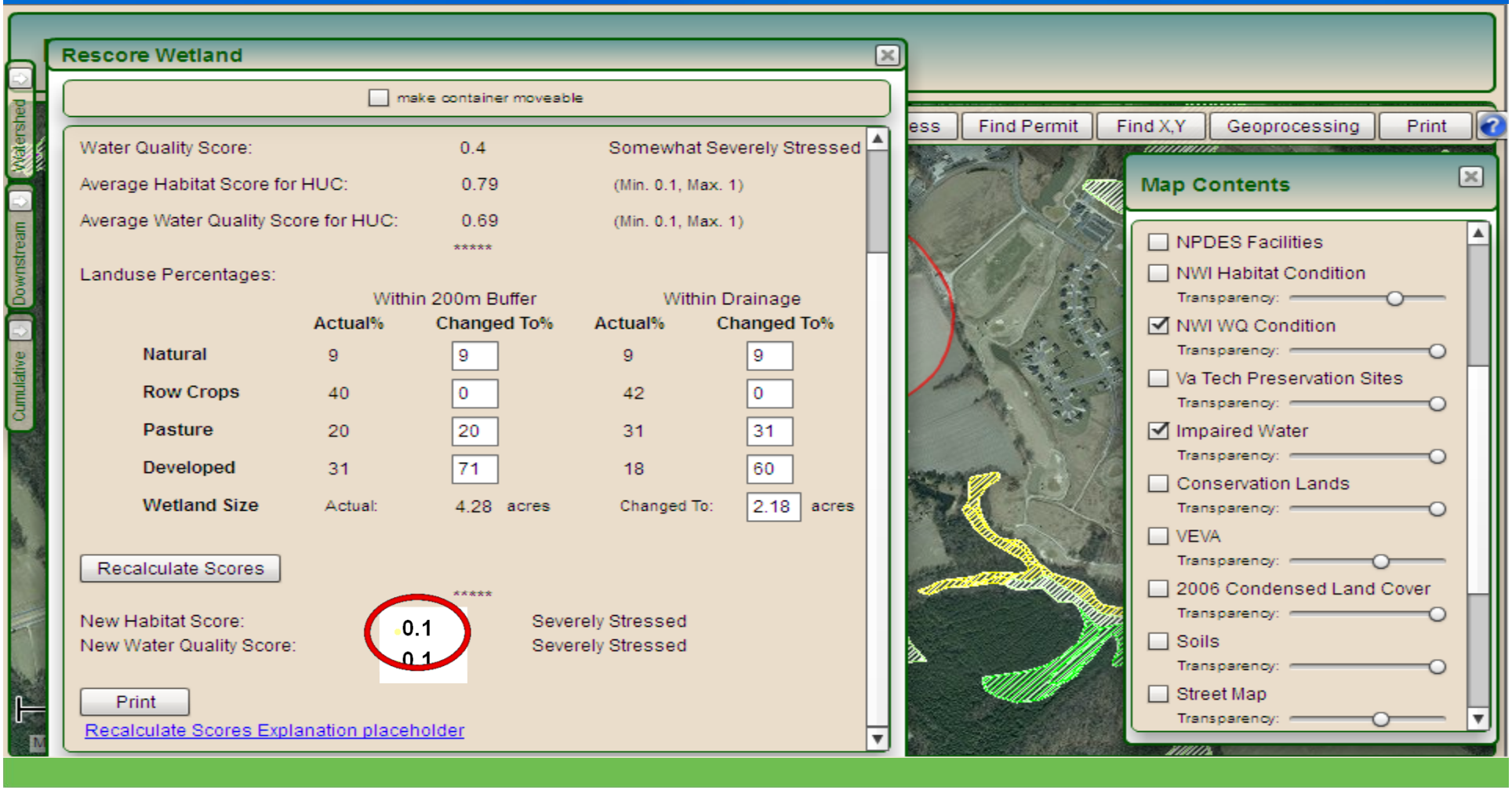
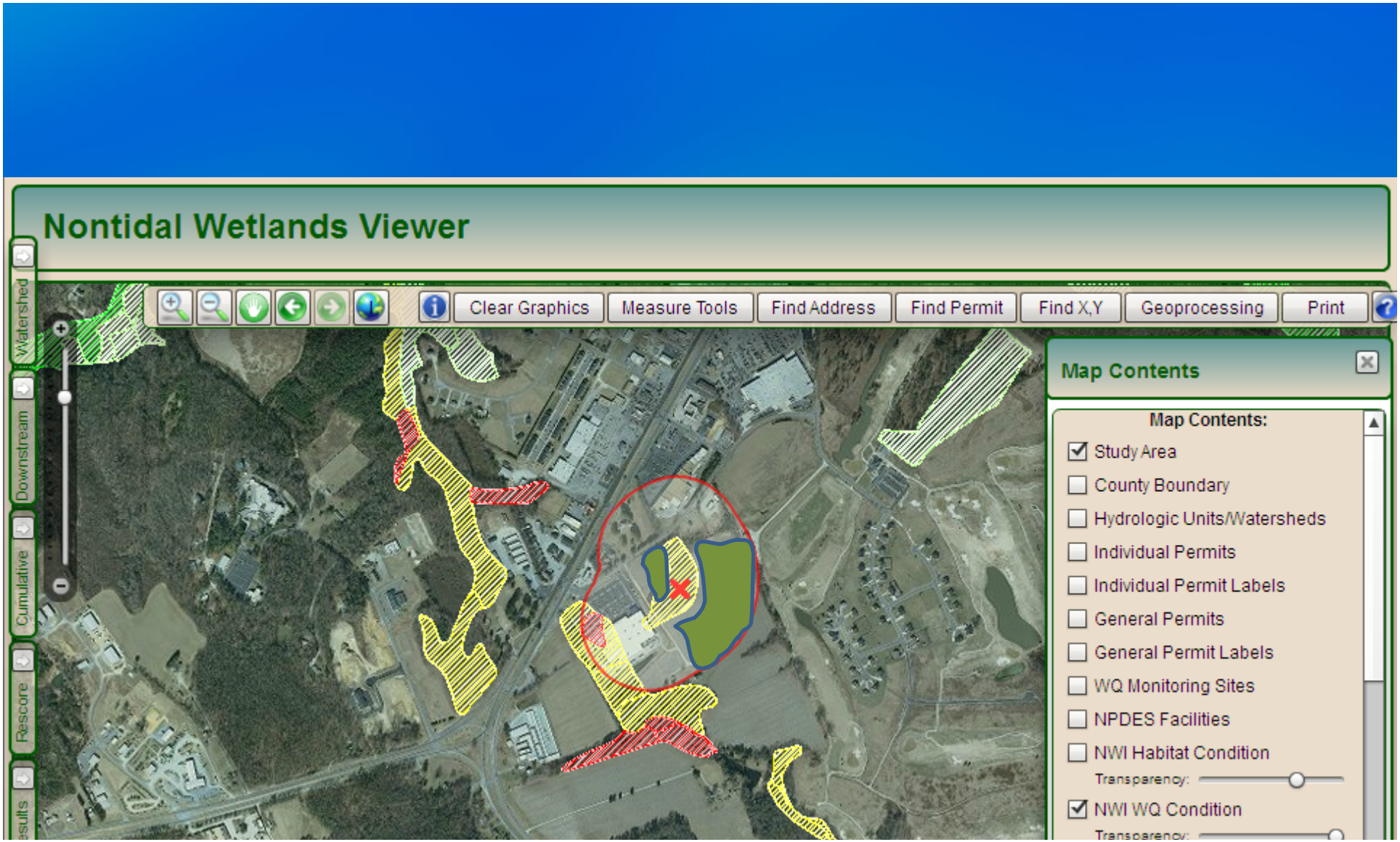
Method to the madness….

- **Level 1 (Model Development):**
  - Census of all NWI wetlands using a GIS-based analysis of remotely sensed information. (200,000 polygons, 70 pages of GIS code)
  - Grouped by watersheds (14 digit HUC).
  - Condition of wetland based on landscape position.
- **Level 2 (Calibration):**
  - statistically selected subsample of the watershed wetland population (stressors identified within 100 meter radius)
  - involves a more sophisticated analysis of remotely sensed information and a site visit for verification and additional data collection. (2126 sites visited)
- **Level 3 (Validation):**
  - very detailed analysis of wetland performance of specific functions (habitat provision & water quality modification)
  - Extensive sampling of a limited number of sites (80-90 sites)

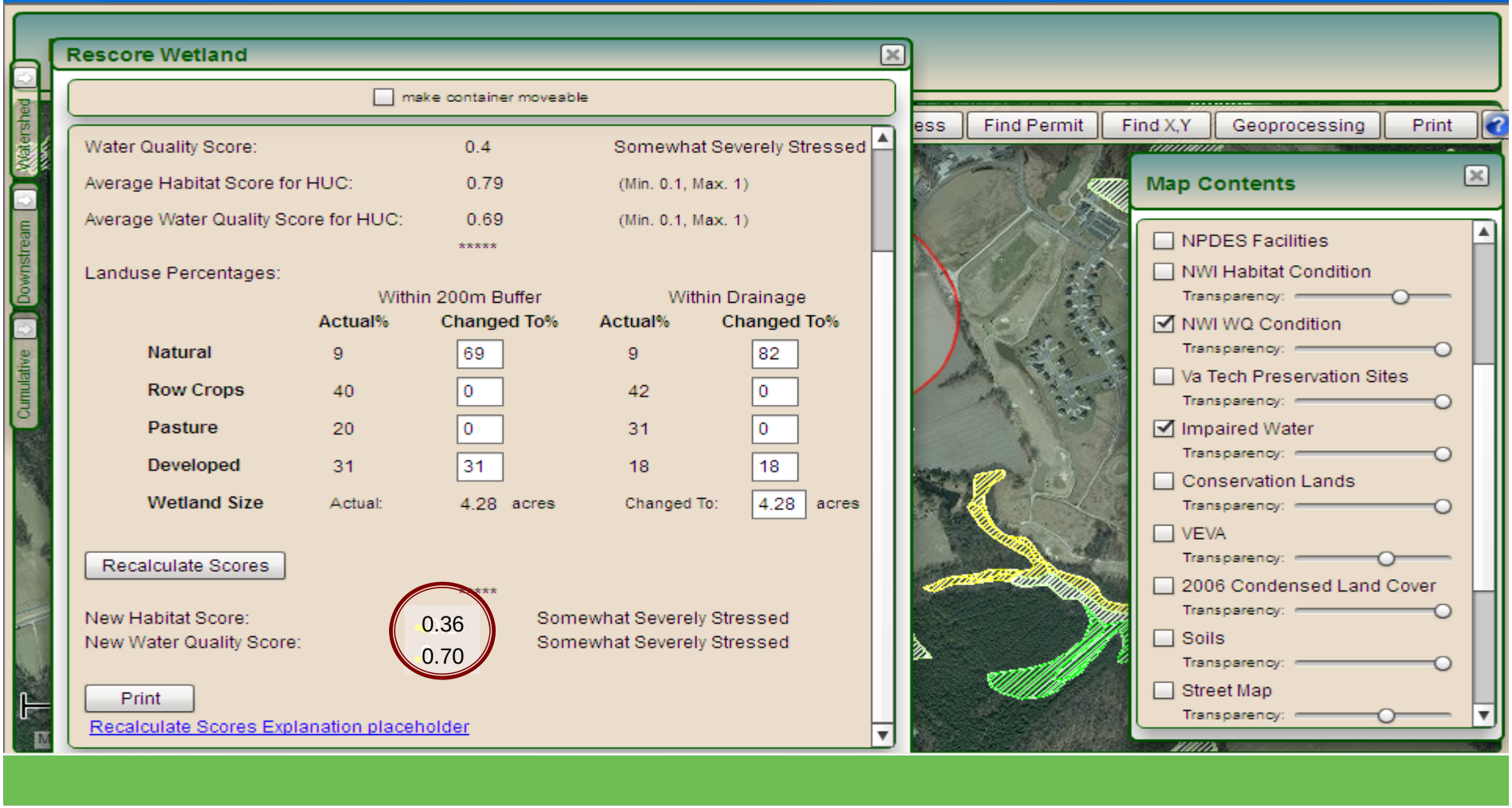

Nontidal Wetlands Viewer
Watershed
Downstream
Cumulative
Rescore
Clear Graphics
Measure Tools
Find Address
Find Permit
Find X,Y
Geoprocessing
Print
Identify Results
make container moveable
expand container
NWI
Wetlands selected: 1
Selection #1:
show
buffer
rescore
Selection # 1
10 Digit HUC Code: 0208010404
Wetland Unique ID: E23506
Attribute: PEM1/SS1E
Acres: 4.28
Habitat Score: 0.1
Habitat Stress Level: Severely Stressed
Habitat Restoration Potential(%): 260
Water Quality Score: 0.4
Water Quality Stress Level: Somewhat Severely Stressed
Water Quality Restoration Potential(%): 75
Average Habitat Score for HUC: 0.79
Minimum Habitat Score for HUC: 0.1
Maximum Habitat Score for HUC: 1
Average Water Quality Score for HUC: 0.69
Minimum Water Quality Score for HUC: 0.1
Maximum Water Quality Score for HUC: 1
Map Contents
NPDES Facilities
NWI Habitat Condition
Transparency:
NWI WQ Condition
Transparency:
Va Tech Preservation Sites
Transparency:
Impaired Water
Transparency:
Conservation Lands
Transparency:
VEVA
Transparency:
2006 Condensed Land Cover
Transparency:
Soils
Transparency:
Street Map
Transparency:

Wetland Impact Score

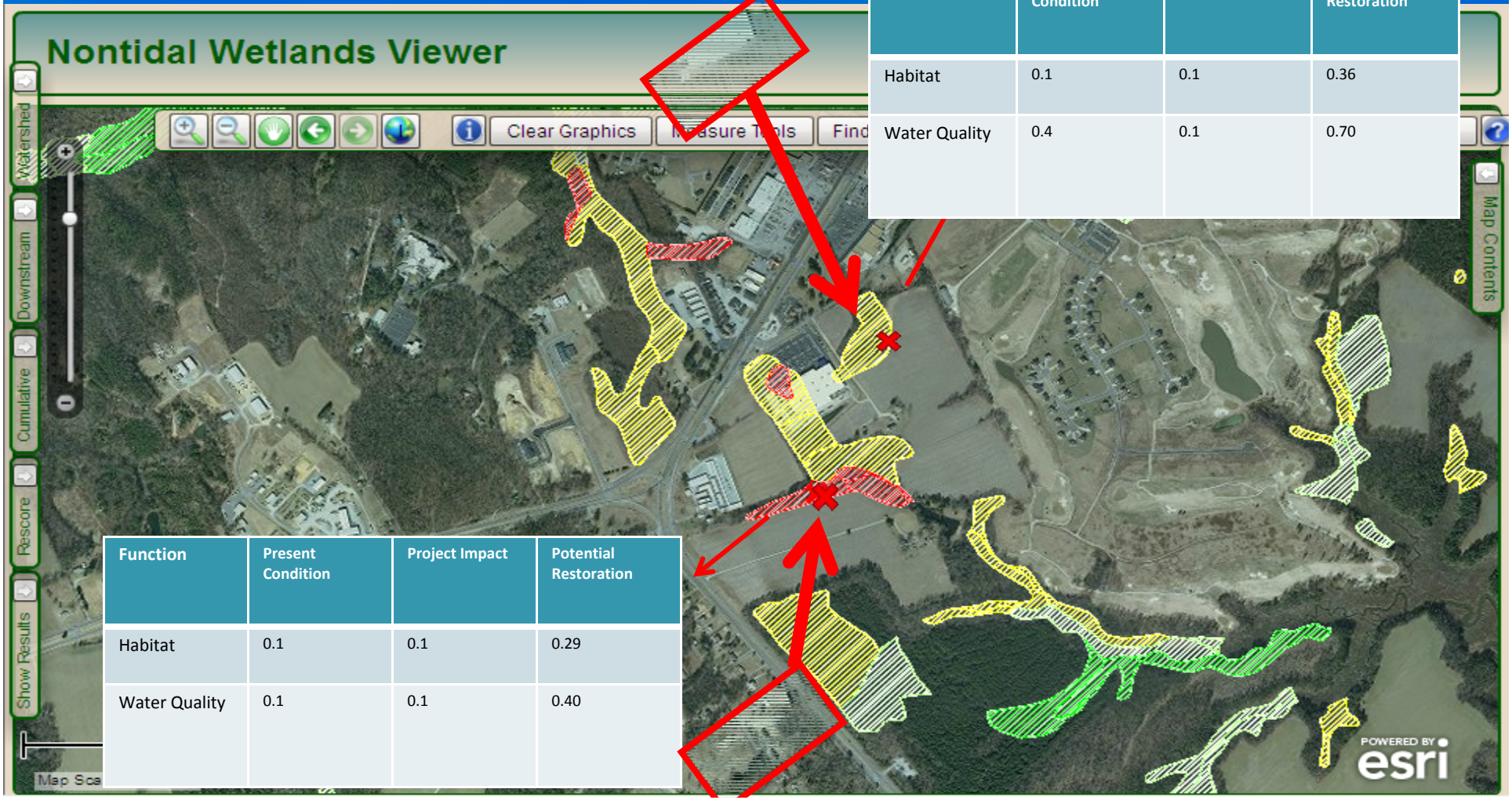



Nontidal Wetlands Viewer
Watershed
Downstream
Cumulative
Rscore
Clear Graphics
Measure Tools
Find Address
Find Permit
Find X,Y
Geoprocessing
Print
Map Contents
Map Contents:
Study Area
County Boundary
Hydrologic Units/Watersheds
Individual Permits
Individual Permit Labels
General Permits
General Permit Labels
WQ Monitoring Sites
NPDES Facilities
NWI Habitat Condition
Transparency:
NWI WQ Condition

Restoration Score

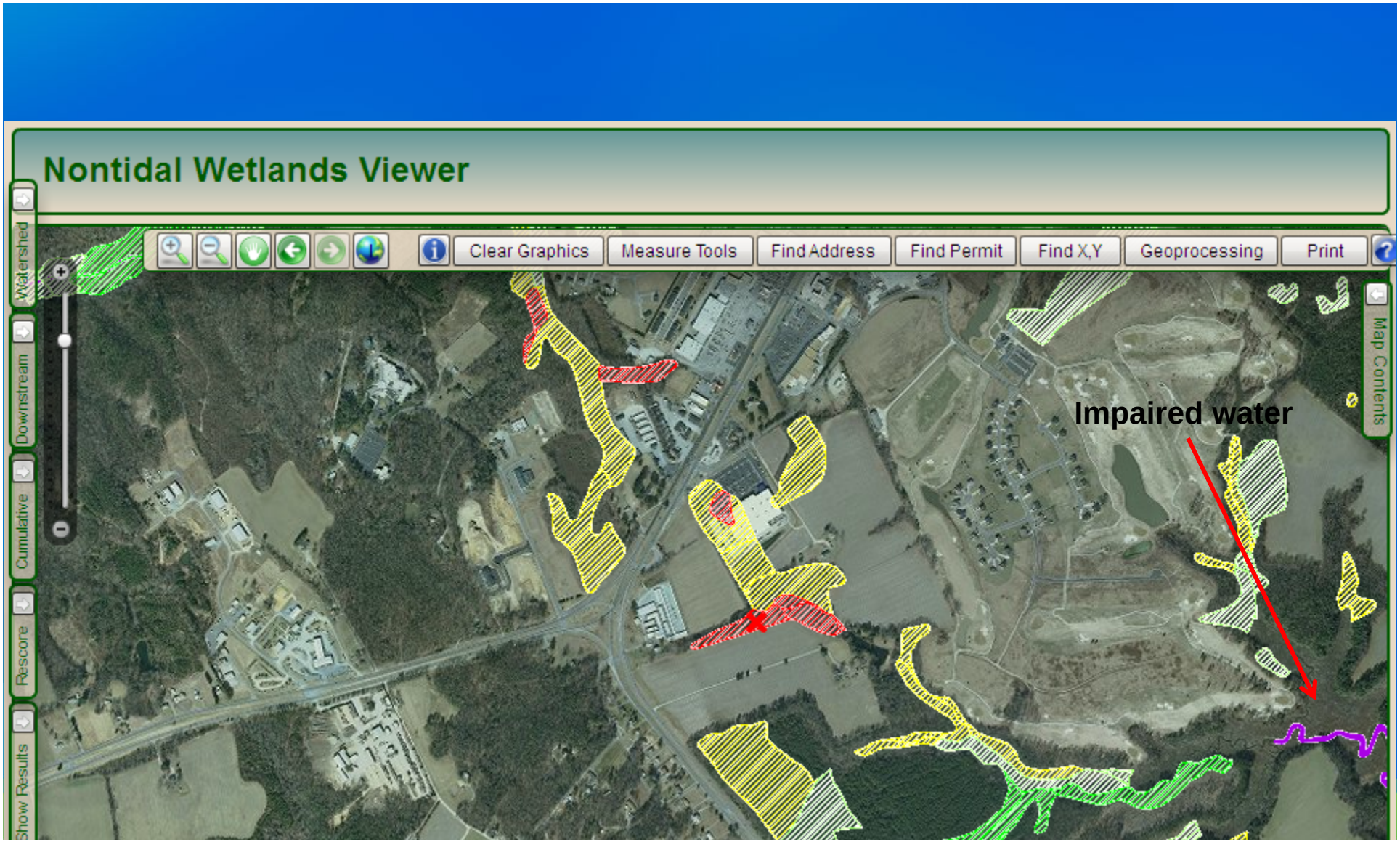


Alternative Analysis



Function	Present Condition	Project Impact	Potential Restoration
Habitat	0.1	0.1	0.36
Water Quality	0.4	0.1	0.70

Function	Present Condition	Project Impact	Potential Restoration
Habitat	0.1	0.1	0.29
Water Quality	0.1	0.1	0.40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Print
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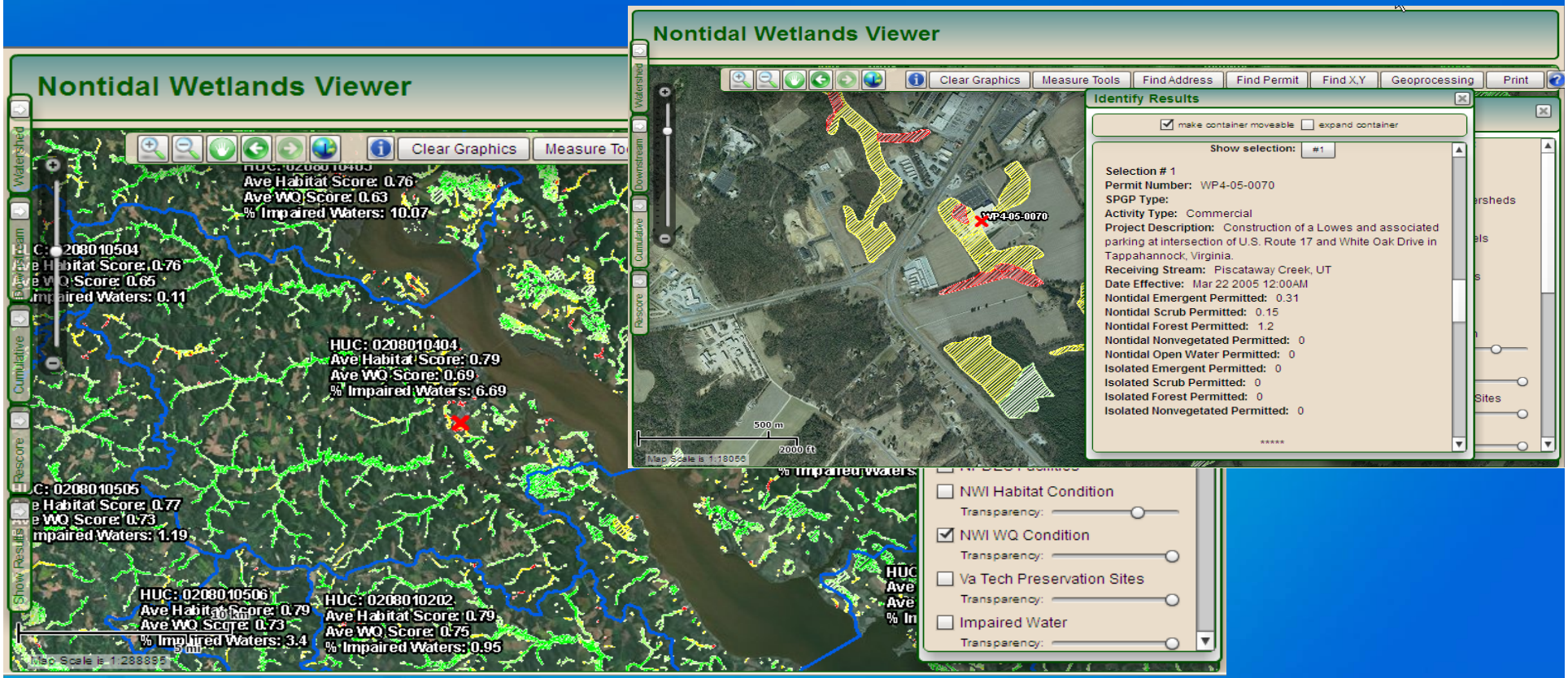
Impaired water

Identify permits in the area



Compare scores independent or relative to each HUC

Uses of Wetland Data Viewer

Regulatory:

- Potentially different permit conditions
- Ability to assess quality impacts vs. quantity of impacts (i.e. may want to permit impacts to 50 acres of stressed wetlands vs. 25 acres of higher quality wetlands
- Ability to use baseline of current wetland condition to justify purpose and need
- Potential enforcement action for functional loss of permitted compensation (i.e. secondary impacts to on-site preservation)

Non-regulatory:

- Ability to identify correlation between wetland condition and improved water quality (i.e. wetland restoration)
- Evaluate the cumulative impacts of wetland loss and restoration in watersheds relative to ambient ecological conditions
- Potentially target degraded watersheds for compensation due to a greater need to improve water quality and habitat
- Better landuse planning on a local level

Long Term Goals

- Develop a long-term implementation plan for a wetland monitoring and assessment program that protects the physical, chemical, and biological integrity of the Commonwealth's water resources;
- Allow for both general reporting on status/trends, and provide for more intense analysis of select watersheds that will be used as part of Virginia's 305(b) report; and
- Evaluate the effectiveness of regulatory and voluntary programs.
- Provide information for policy/program development

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QUESTIONS?

Answers to all those mathy questions….

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