

# DEVELOPING LANDSCAPE TOOLS FOR AQUATIC SPECIES MANAGEMENT

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## A Report to MAFWA on the Status of the Multistate Grant

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Partnership



# Midwest and Great Plains Fish Habitat Partnerships Habitat Assessments - 2010-2011



# Collaborative Infrastructure

Midwest Regional Coordinator

## Fish Habitat Partnership Science and Data Teams

MGLP

DARE

FFP

GLBFHP

ORB/SARP

GPFHP

### MAFWA Fish Chiefs Workgroup

MN, WI, MI, OH, IN, IL, ND, SD, IA, NE, KS, MO, KY

### Midwest Science Advisory Network

FHP  
S&D team leads

Field Experts

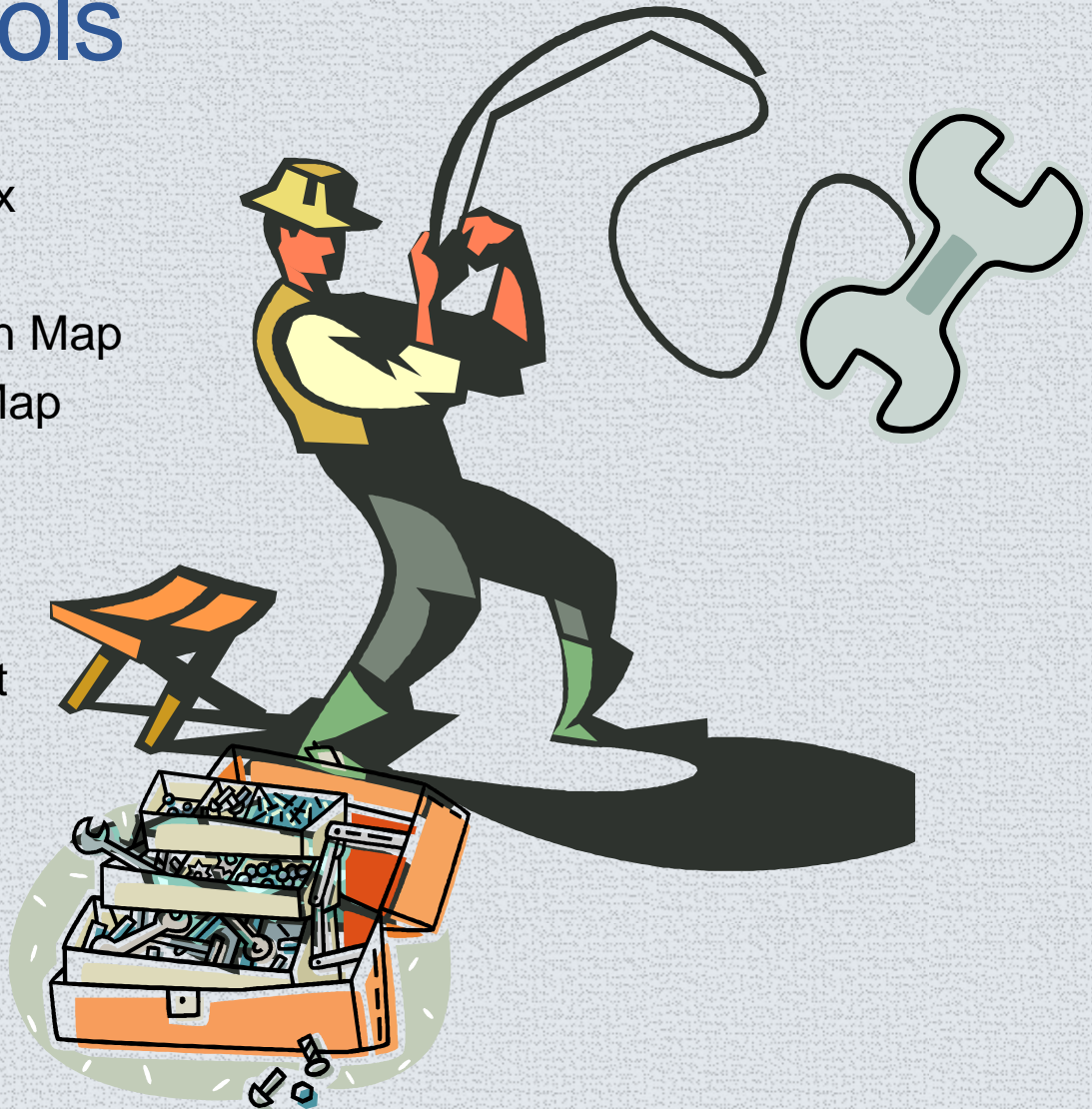
NFHP SDC

Downstream Strategies

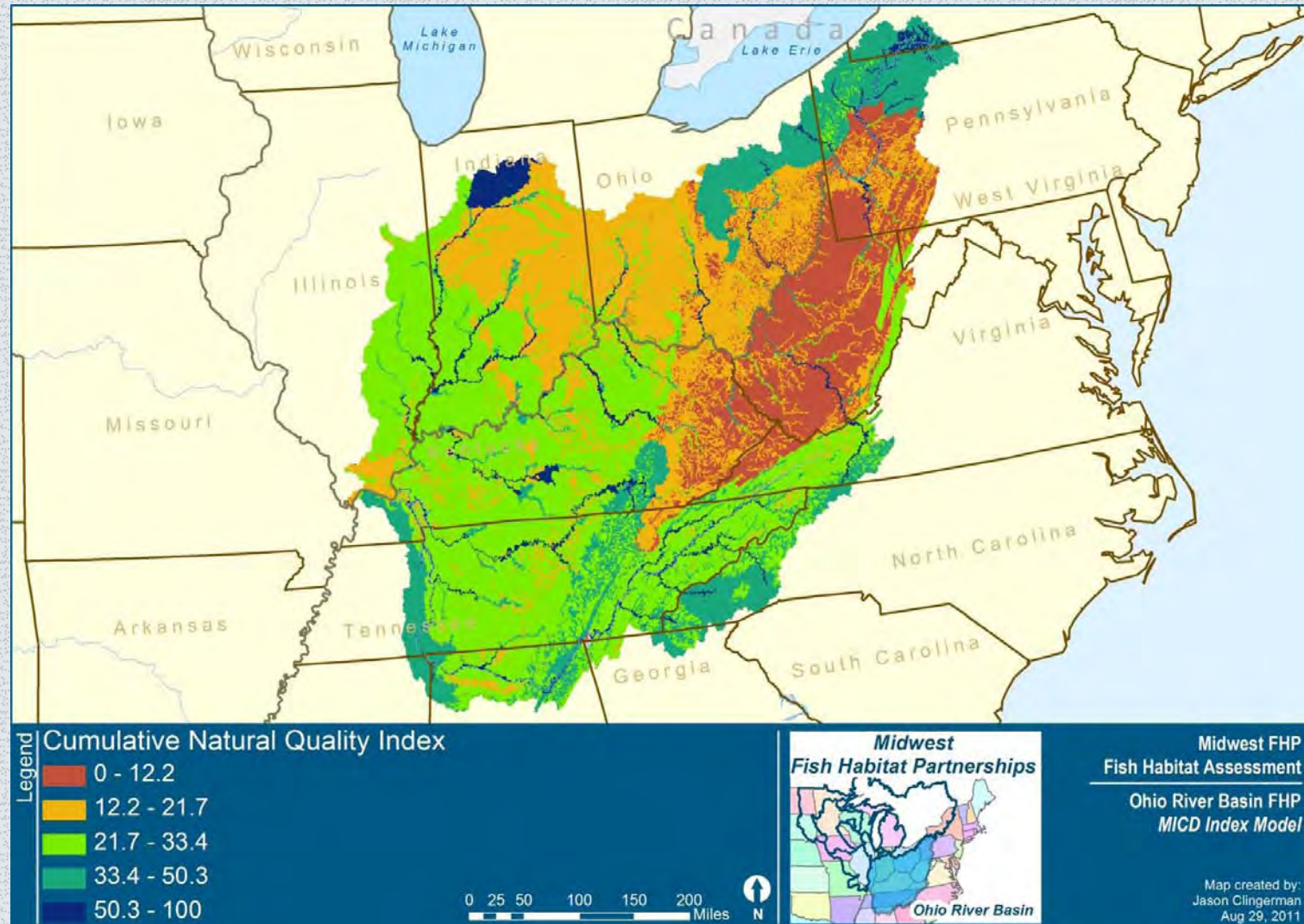


# Landscape Tools

- Natural Habitat Quality Index
- Human Impact Index
- Catchment Habitat Condition Map
- HUC 12 Habitat Condition Map
- Geodatabase
- Website
- Map books
- GIS based Decision Support System

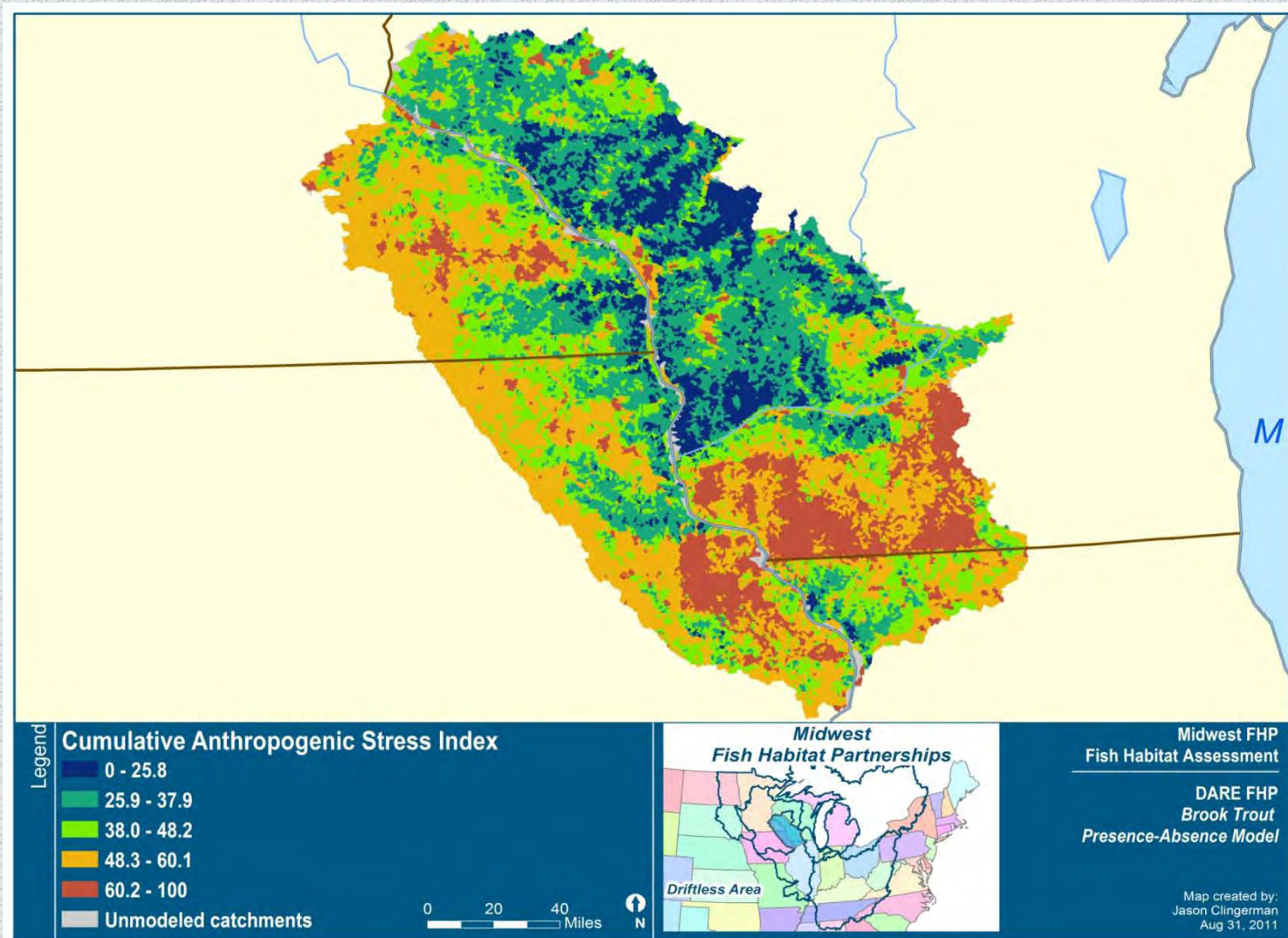


# Natural Habitat Quality Index



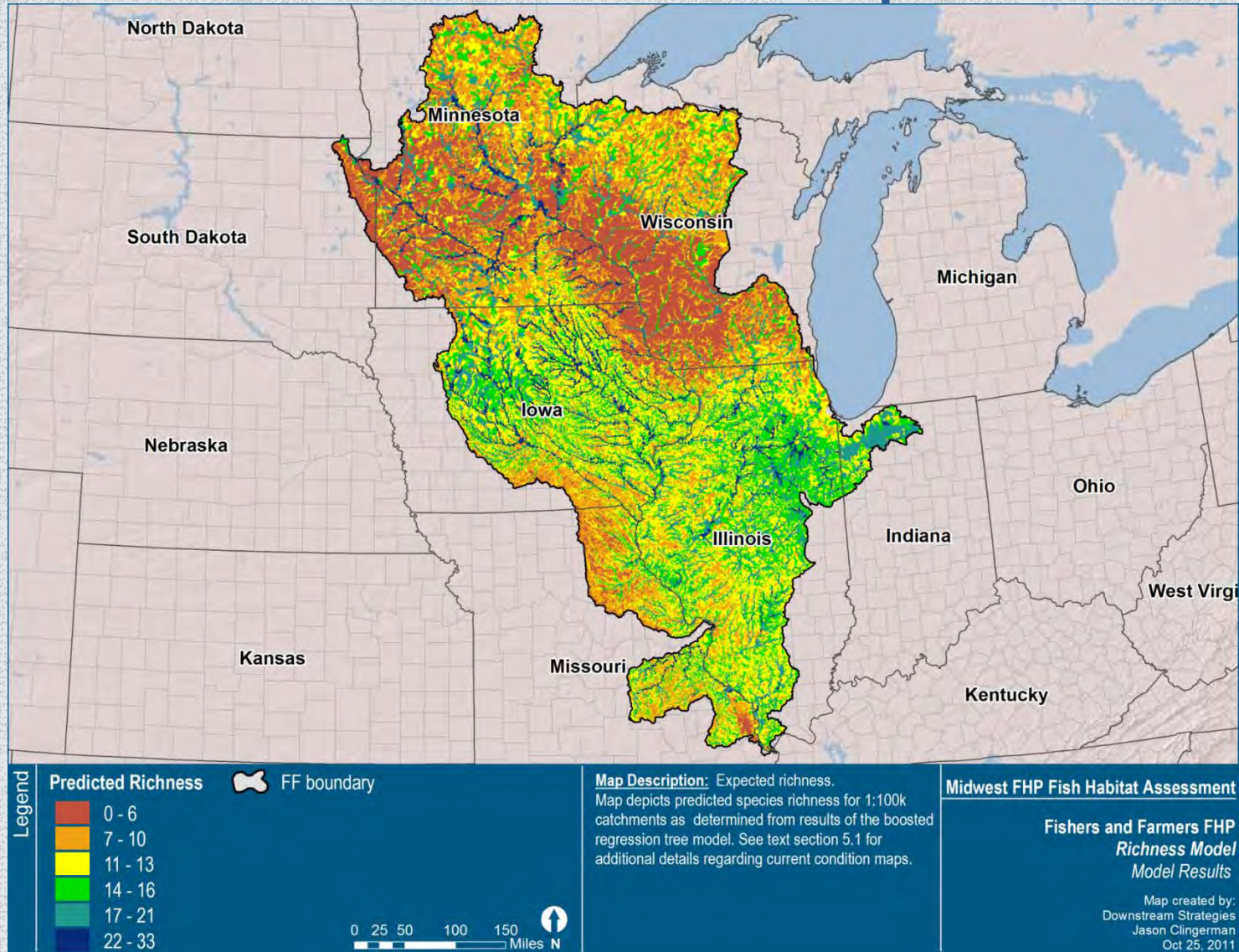


# Human Impact Index



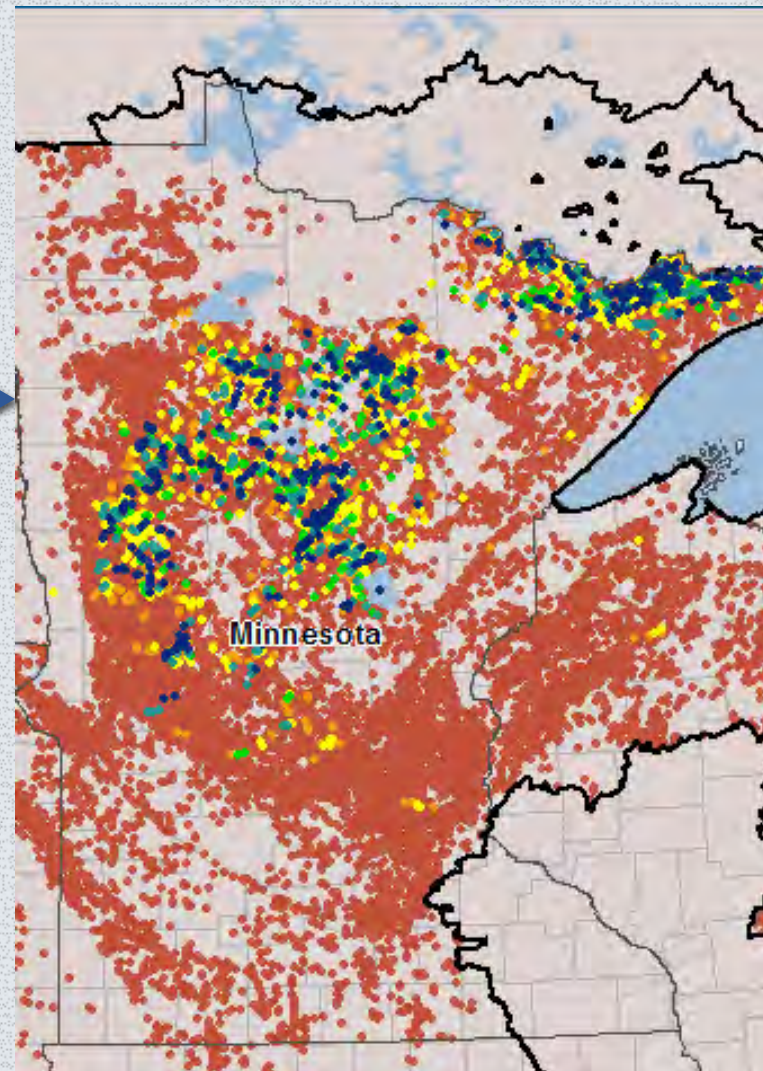
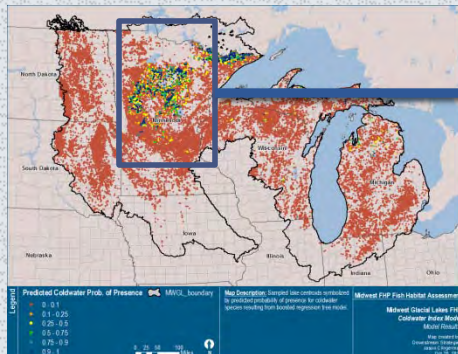


# Catchment Condition Map





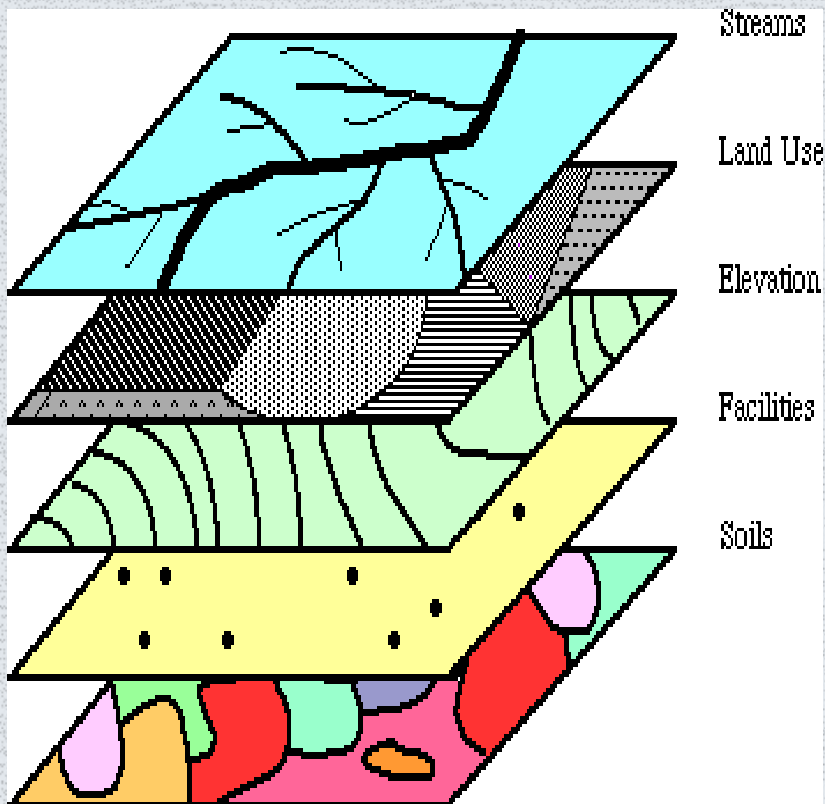
It's not just for streams – Lakes >10ac.



Coldwater Index  
Condition Map



# Decision Support System



[http://www.inforain.org/coquille\\_atlas/index.html](http://www.inforain.org/coquille_atlas/index.html)

## 1. Current Catchment Condition Visualization

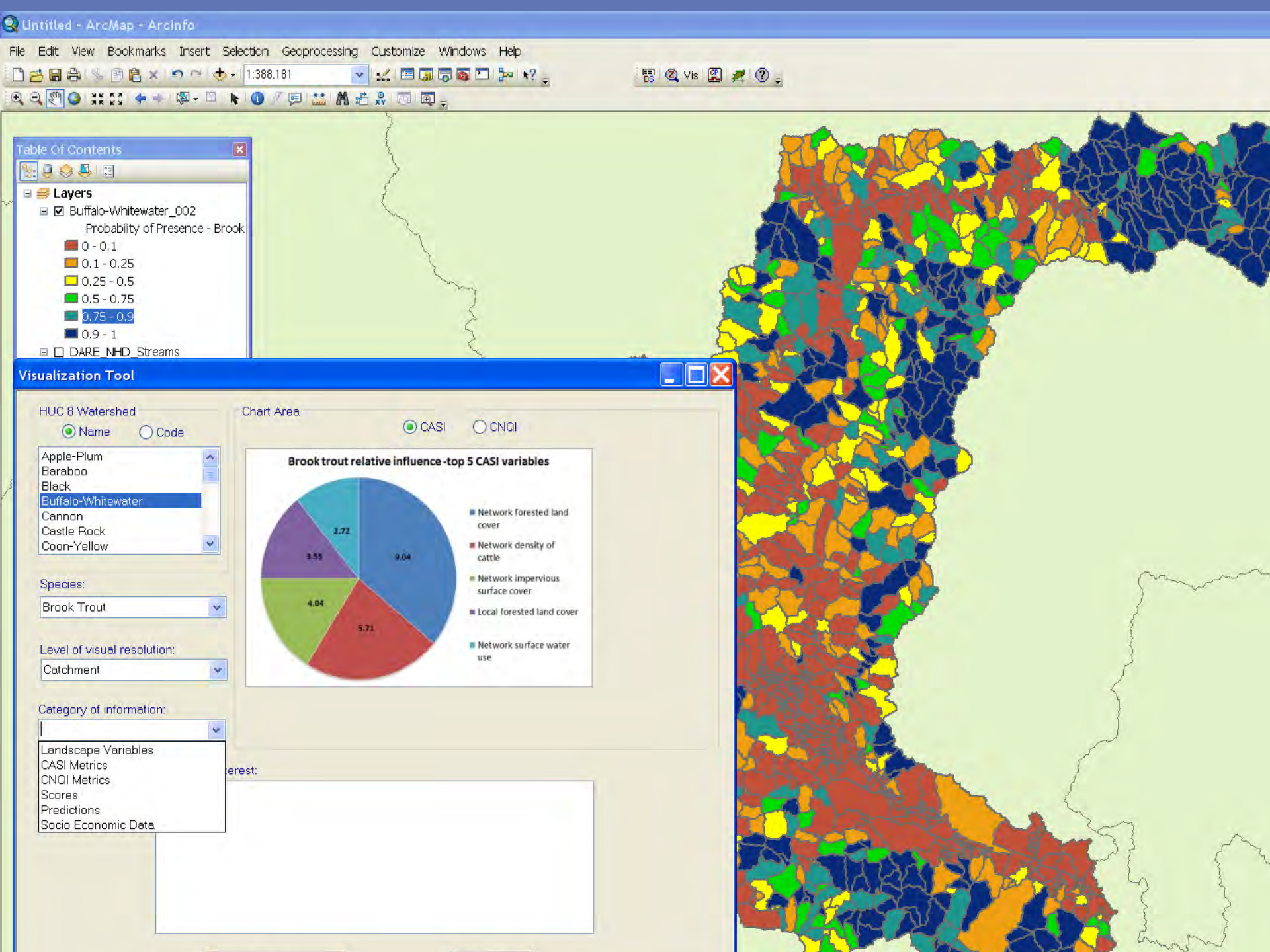
- Allows user to identify habitat condition status of any catchment or glacial lake
- Models determine variable weight

## 2. Catchment Ranking

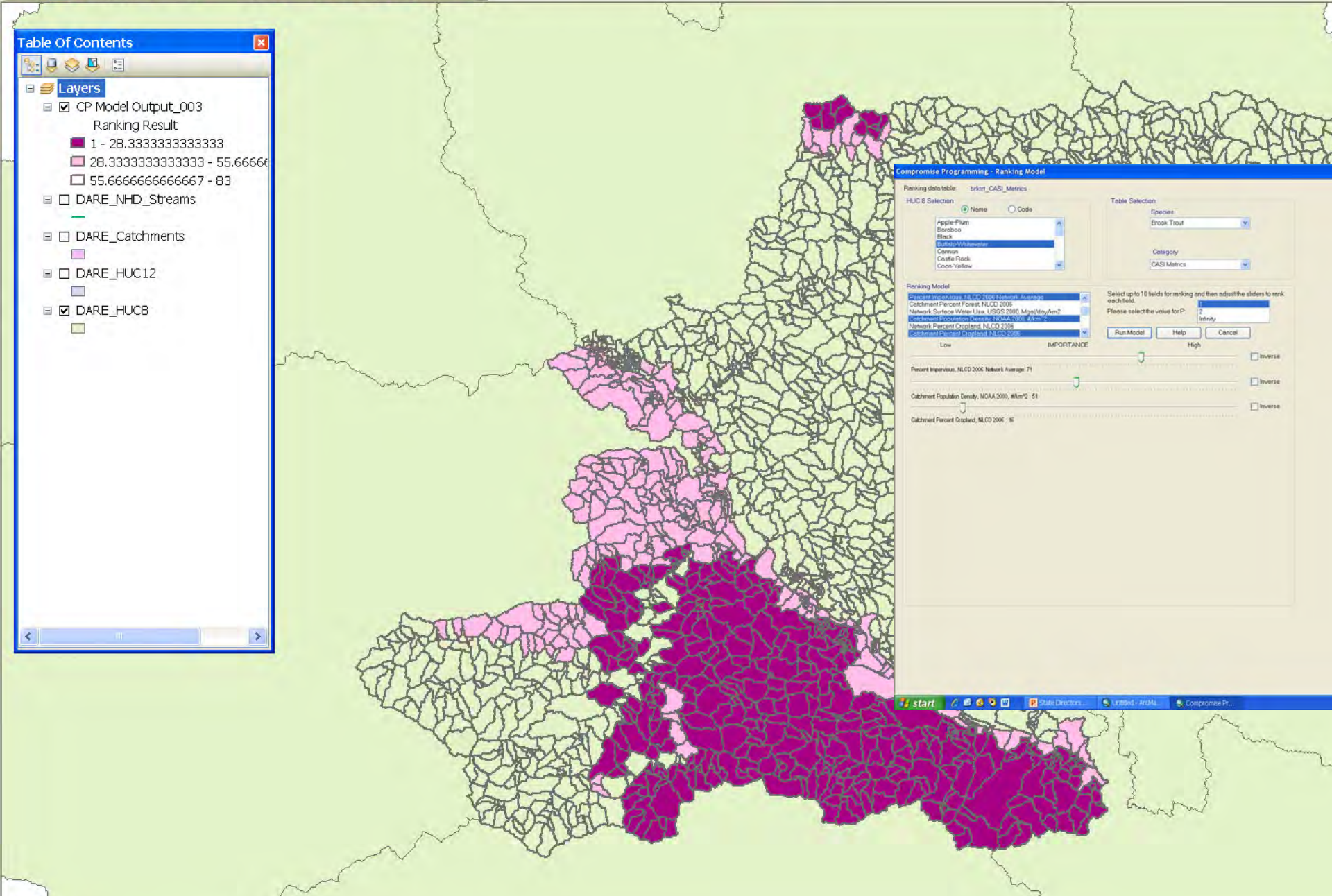
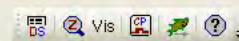
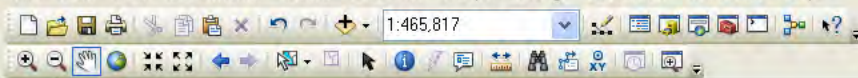
- User determines variable weight
- Ranks catchments by selected criteria
- Flexibility in identifying priorities

## 3. Future Catchment Condition Prediction

- Predict biological response to change in catchment conditions
- Driven by modeled thresholds
- Set restoration and protection targets
- Calculate downstream effects.







**Table Of Contents**

- Layers
  - ☒ CP Model Output\_003
    - Ranking Result
      - 1 - 28.3333333333333
      - 28.3333333333333 - 55.6666666666667
      - 55.6666666666667 - 83
  - ☐ DARE\_NHD\_Streams
  - ☐ DARE\_Catchments
  - ☐ DARE\_HUC12
  - ☒ DARE\_HUC8

**Compromise Programming - Ranking Model**

Ranking data table: brkrt\_CASI\_Metrics

HUC 8 Selection: ☒ Name ☐ Code

Table Selection: Species: Brook Trout, Category: CASI Metrics

Ranking Model:
 

- Network Imperviousness, NLD 2006 Network Average
- Catchment Percent Forest, NLD 2006
- Network Surface Water Use, USGS 2006, Mgd/day/km2
- Catchment Percent Forest, NLD 2006
- Network Percent Cropland, NLD 2006
- Catchment Percent Cropland, NLD 2006

Select up to 10 fields for ranking and then adjust the sliders to rank each field. Please select the value for P: 2

Run Model Help Cancel

Low IMPORTANCE High

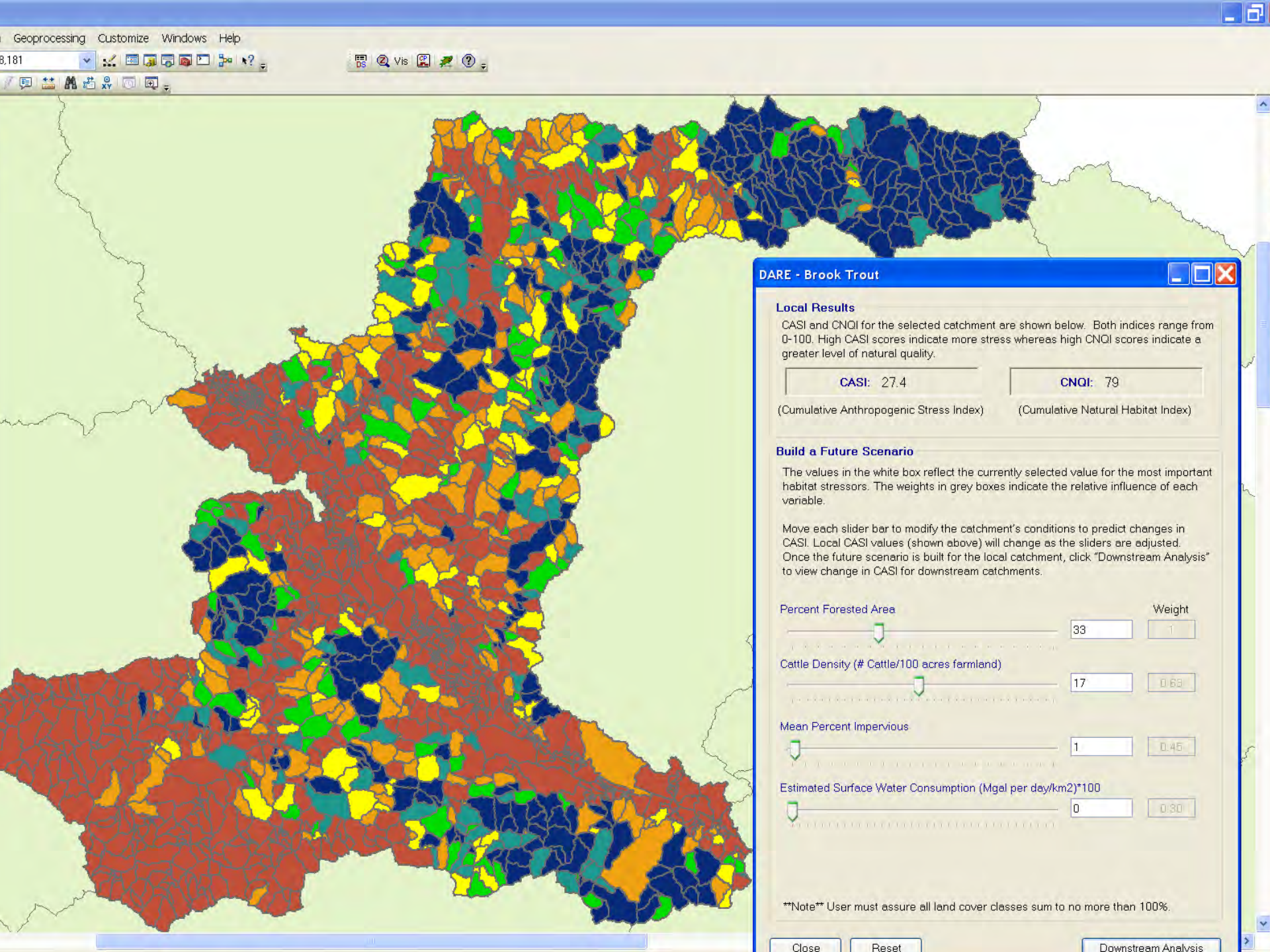
Percent Impervious, NLD 2006 Network Average: 71

Catchment Population Density, NOAA 2000, #/km2: 51

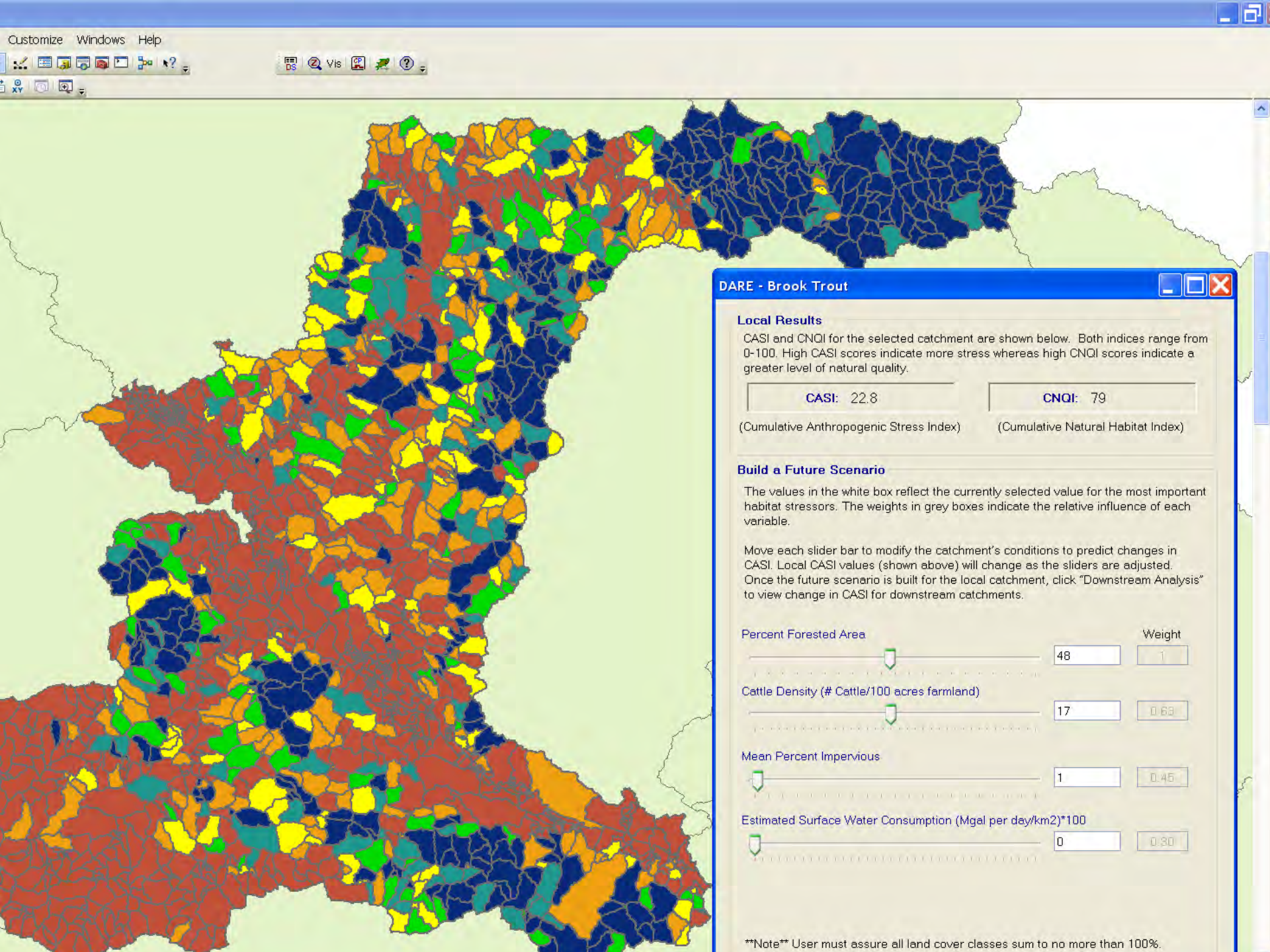
Catchment Percent Cropland, NLD 2006: 16

☐ Inverse









### DARE - Brook Trout

#### Local Results

CASI and CNQI for the selected catchment are shown below. Both indices range from 0-100. High CASI scores indicate more stress whereas high CNQI scores indicate a greater level of natural quality.

CASI: 22.8

CNQI: 79

(Cumulative Anthropogenic Stress Index)

(Cumulative Natural Habitat Index)

#### Build a Future Scenario

The values in the white box reflect the currently selected value for the most important habitat stressors. The weights in grey boxes indicate the relative influence of each variable.

Move each slider bar to modify the catchment's conditions to predict changes in CASI. Local CASI values (shown above) will change as the sliders are adjusted. Once the future scenario is built for the local catchment, click "Downstream Analysis" to view change in CASI for downstream catchments.

Percent Forested Area



48

Weight

1

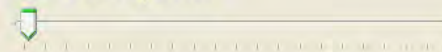
Cattle Density (# Cattle/100 acres farmland)



17

0.63

Mean Percent Impervious



1

0.45

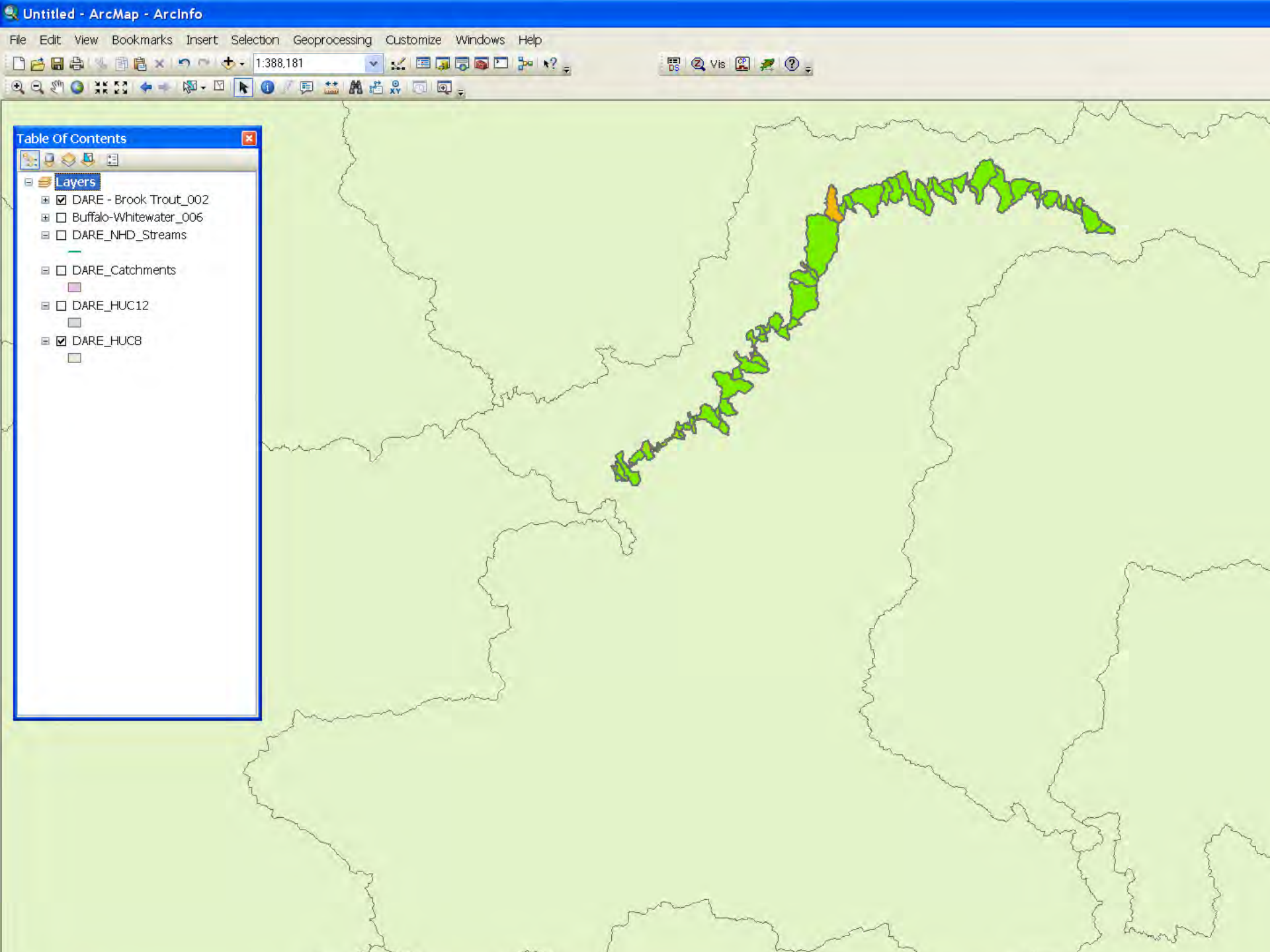
Estimated Surface Water Consumption (Mgal per day/km2)\*100



0

0.30

\*\*Note\*\* User must assure all land cover classes sum to no more than 100%.





# Midwest Fish Habitat Partnerships

Driven by Science, Powered by Community

Conserving Fish Habitats  
Preserving the Heartland  
Improving Local Economies

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## PARTNERSHIPS

### Midwest Glacial Lakes Partnership (MGLP)

Fishers and Farmers Partnership (FFP)

Great Lakes Basin FHP (GLB)

Ohio River Basin FHP (ORB)

Dirftless Area Restoration Effort (DARE)

Great Plains FHP (GPFHP)



### Working Together:

The Midwest Fish habitat Partnership is made up of 6 Regional Organizations focused on conservation, preservation and reclamation of fish habitats and aquatic life.

Through improving natural habitats we not only increase the quantity and quality of fish and other aquatic species, we also improve the health of the local economies. Aside from the direct impact on angling, better habitats improve tourism which has a wider impact on the surrounding communities.

The Partnerships achieve success by combining Science and Technology with the collaborative efforts of local participants.

Review on-going projects, submit an application, or learn more about each of the individual partnerships.

[Link1](#) | [Link2](#) | [Link3](#)

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# Next Steps

- Midwest Regional Models
- Inreach and Outreach
- Website finalized by June 2012
- Training Spring 2012
- Launch at AFS August 2012
- Model and DSS Validation begins Spring 2013
- Data Sharing Agreement



Pat Rivers MN DNR

<http://youtu.be/Lat6mONI5Ho>



Restoration of 1 mile  
of Driftless Area  
Stream - \$100,000

Building Science  
Partnerships through  
LCCs – \$243,000

Meeting NFHAP  
Goals through a  
Coordinated  
Scientific Network -  
\$398,500

Collaboration of  
more than 75  
organizations -  
\$1,477,522



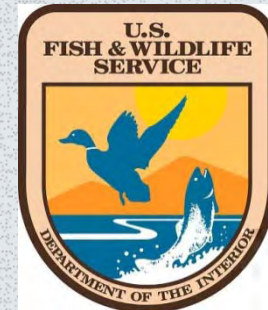
Building Relationships, learning from each other, and  
solving shared problems to conserve fish habitat

# Priceless

# Collaboration Takes Leadership

Special thanks to: Louise Mauldin, Ken Lubinski, Randy Claramunt, Pam Dryer, Jeff Thomas, Rob Simmonds, Pat Rivers, Lyn Bergquist, Steve Krentz, Jana Stewart and Gust Annis for their leadership.

and



For information on the assessments please visit  
[MidwestFishHabitats.org](http://MidwestFishHabitats.org)