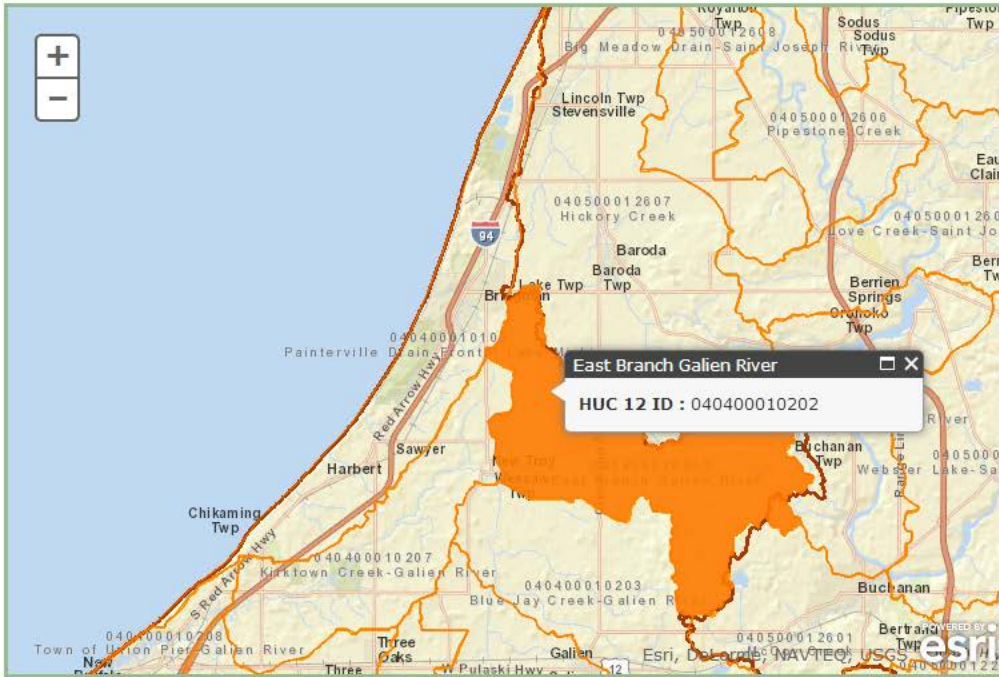


Project Creation

Please use the map below to select a 12 digit watershed. Watersheds will display when zoomed in to the county scale.



HUC 12 Watershed



HUC 8 Watershed



County

Project Name:*

Group Name:

Create Project

Screenshots


[edit project](#)

Hide Details ^

1. Visioning

Start


- 1.1 Project Description
- 1.2 Community Characteristics
- 1.3 Module Review

 Module Incomplete

2. Community Overview

Start


- 2.1 Past Land Use Change
- 2.2 Future Land Use Change
- 2.3 Natural Resource Assets
- 2.3 Areas of Environmental Concern
- 2.4 Module Review

 Module Incomplete

3. Tipping Points

Start

- 3.1 Prime Farmland Locations
- 3.2 Open Space Locations.
- 3.3 Runoff and Water Quality
- 3.4 Stream Invertebrate Health
- 3.5 Nutrients Sources (MI only)
- 3.6 Coastal Wetland Health
- 3.7 Module Review

 Module Incomplete

4. Action Strategies and Registers

Start

- 4.1 Action Strategies

1. VISIONING: SCREENSHOTS PROJECT

EAST BRANCH GALIEN RIVER WATERSHED

Step

1.1

1.2

1.3

PROJECT DESCRIPTION

How To: Modify the text below to create an introduction for your watershed action plan. Text, maps, charts, and other information will be collected throughout the process for inclusion in the final document.

B / **I** **U** ABC | | Styles | Heading 2

Tipping Points and Indicators

Tipping Points and Indicators is a Great Lakes Extension Program comprised of a web-based decision support system and facilitated community action planning process for a local watershed. The program is designed to enable effective protection and management of natural resources throughout Great Lakes states by providing land use planners, natural resources managers, and community stakeholder groups with a process to assess community sustainability using Great Lakes tipping points. The collaborating research team identified land use indicator variables that determine the threshold, or tipping points, that when exceeded can impact aquatic ecosystems. The indicators provide insight into the stressors such as impervious surfaces, habitat fragmentation, and pollutants that negatively affect water quality and natural resources within the Great Lakes as well as allow for the identification of locations where the presence of multiple stressors are greatly impacting ecosystem health. Sea Grant Extension specialists facilitate the Tipping Points and Indicators Program in each Great Lakes state to guide community groups through an interactive action planning process for a local watershed. The Tipping Points and Indicators process utilizes the weTable as the primary participation tool to allow for group collaboration, participatory decision making and exploration of the website, customized tools, and GIS maps to determine planning priorities.

[Watershed/Project Name] Summary

The Tipping Points and Indicators Action Plan for [Watershed/Project Name] includes an overview of the current community status, whether the community is nearing or exceeding Great Lakes tipping points, and provides education strategies, example policies, and sample ordinances to improve current conditions. This action plan is the result of four modules that include:

1. Visioning
- Community Characteristics
2. Community Overview

Path: h2

Article Image Page Break Read More Toggle editor

Save and Continue

CHARACTERISTICS

Which of the following ten community characteristics are most important to you? Each team member ranks community characteristic priorities and the team averages are used to highlight the most relevant tipping points and indicators action strategies to implement as part of the community watershed action plan.

How To: Each person should rank the characteristics below using a maximum of 30 stars and use the update button to submit their choices.

YOUR NAME :

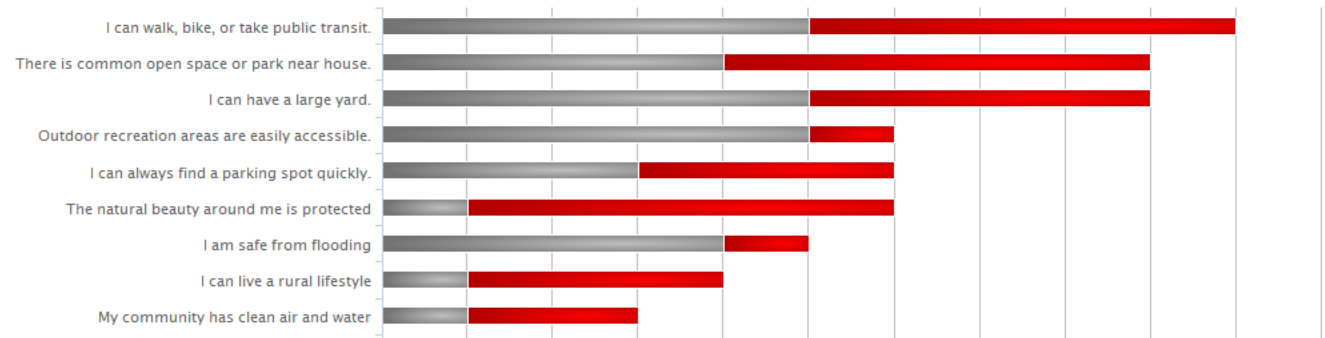
AVAILABLE STARS : 10/30

CHARACTERISTIC	RATING
I can walk, bike, or take public transit.	☺ ★★★★★
There is common open space or park near house.	☺ ★★★★★
I am safe from flooding	☺ ★★★★★
Outdoor recreation areas are easily accessible.	☺ ★★★★★
I can have a large yard.	☺ ★★★★★
I can always find a parking spot quickly.	☺ ★★★★★
I can live a rural lifestyle	☺ ★★★★★
My house will significantly appreciate in value	☺ ★★★★★
My community has clean air and water	☺ ★★★★★
The natural beauty around me is protected	☺ ★★★★★

[Update](#)

[Generate PDF](#)

Characteristic



VISION DOCUMENT REVIEW

[Open PDF](#)[Save and Publish](#)

Project Name : Screenshots
Group :
HUC : East Branch Galien River

Groups and organizations are sustained because they accomplish what they set out to do (see figure below, The Visioning Process). The group should be clear about its mission and objectives. The activities in which it engages must support those objectives. Many groups focus on activities without ever asking themselves whether those activities lead toward or away from the groups objectives and mission. It is equally important for the watershed group to evaluate where their group mission fits into the overall community vision for their watershed.

Many communities have already undertaken planning or visioning processes. Conservation districts may have developed plans for watersheds within their district. Municipal water agencies, city and county planning agencies, farm organizations, environmental groups and other organizations may have also engaged in a visioning process and developed a priority list of what needs to be done. In some communities a watershed study group may have already worked with others in a visioning process. The watershed group needs to assemble prior visioning and planning documents and work with other groups in the community to make known the vision and update it as necessary. There are different techniques for developing a vision and defining results that will lead the community toward that vision. Understanding the vision will help the watershed group refine its mission and develop projects and activities that contribute to the desired future results. It will also help the group build partnerships with other organizations and agencies. SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis is a commonly used strategy, but unless conducted by a very skilled facilitator, can result in much time spent on weaknesses and threats which is useful only if used to prioritize the opportunities. A different approach which alleviates "visioning fatigue" and results in a plan of work where activities contribute to outputs

[Save and Publish](#)

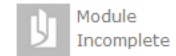
1. Visioning Modify

- 1.1 Project Description
- 1.2 Community Characteristics
- 1.3 Module Review



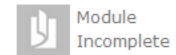
2. Community Overview Start

- 2.1 Past Land Use Change
- 2.2 Future Land Use Change
- 2.3 Natural Resource Assets
- 2.3 Areas of Environmental Concern
- 2.4 Module Review



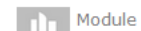
3. Tipping Points Start

- 3.1 Prime Farmland Locations
- 3.2 Open Space Locations.
- 3.3 Runoff and Water Quality
- 3.4 Stream Invertebrate Health
- 3.5 Nutrients Sources (MI only)
- 3.6 Coastal Wetland Health
- 3.7 Module Review



4. Action Strategies and Registers Start

- 4.1 Action Strategies
- 4.2 Action Registers



HOW HAVE THE NATURAL RESOURCES IN OUR COMMUNITY CHANGED IN THE PAST?

Examine the natural resources changes in your watershed community from 2001 to 2006 using National Land Cover Database statistics.

How To: Hold down your left mouse button over a map and move your mouse to pan. Use the scroll wheel or the + and - buttons on the map to zoom. Use the Measurement tools to examine the size of features and the basemap tool to examine the underlying landscape.

Measurements ▾ Basemaps ▾

2006 National Land Cover Data
 2001 National Land Cover Data (V2)

LEGEND

LC_Past

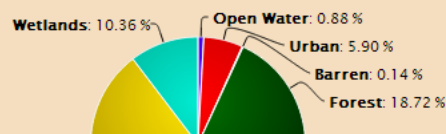
2006 National Land Cover Data

- Open Water
- Ice/Snow
- Urban
- Barren
- Forest
- Grassland/Shrub
- Agriculture
- Wetlands

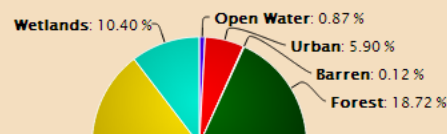
DESCRIPTION

National Land Cover Database 2006 (NLCD2006) is a 16-class land cover classification scheme that has been applied consistently across the conterminous United States at a spatial resolution of 30 meters. NLCD2006 is based primarily on the unsupervised classification of Landsat Enhanced Thematic Mapper+ (ETM+) circa 2006 satellite data. It was created by the Multi-Resolution Land Characteristics Consortium. For more information visit [their website](#).

2001 Land Cover Statistics



2006 Land Cover Statistics

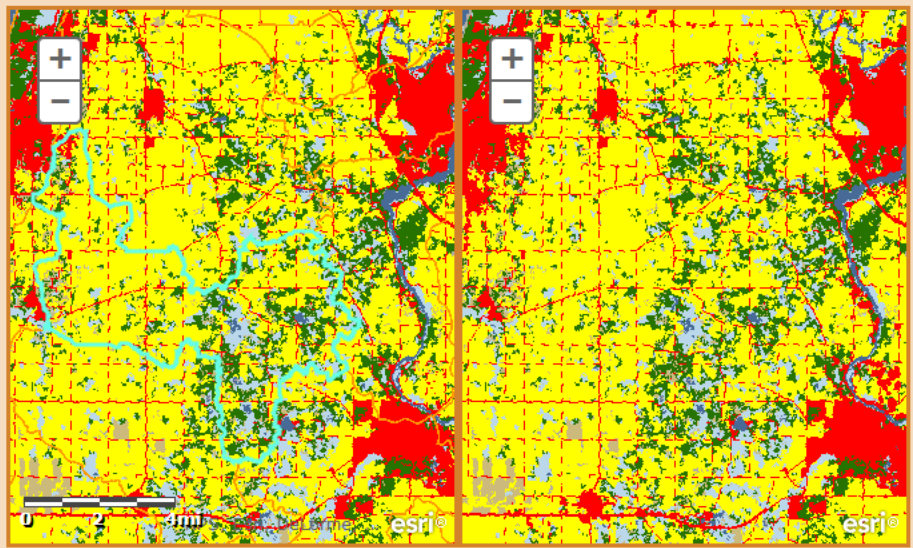


<input checked="" type="radio"/> Business as usual	<input checked="" type="radio"/> 2010	<input type="radio"/> 2010
<input type="radio"/> Biofuels Expansion	<input type="radio"/> 2020	<input type="radio"/> 2020
<input type="radio"/> Rapid Urban Growth	<input type="radio"/> 2030	<input type="radio"/> 2030
	<input type="radio"/> 2040	<input checked="" type="radio"/> 2040
	<input type="radio"/> 2050	<input type="radio"/> 2050

Measurements ▾ Basemaps ▾

LEGEND

- LC_Future
2010 Urban
- Open Water
 - Developed
 - Barren Land
 - Forest
 - Shrub/Scrub
 - Agriculture
 - Wetlands

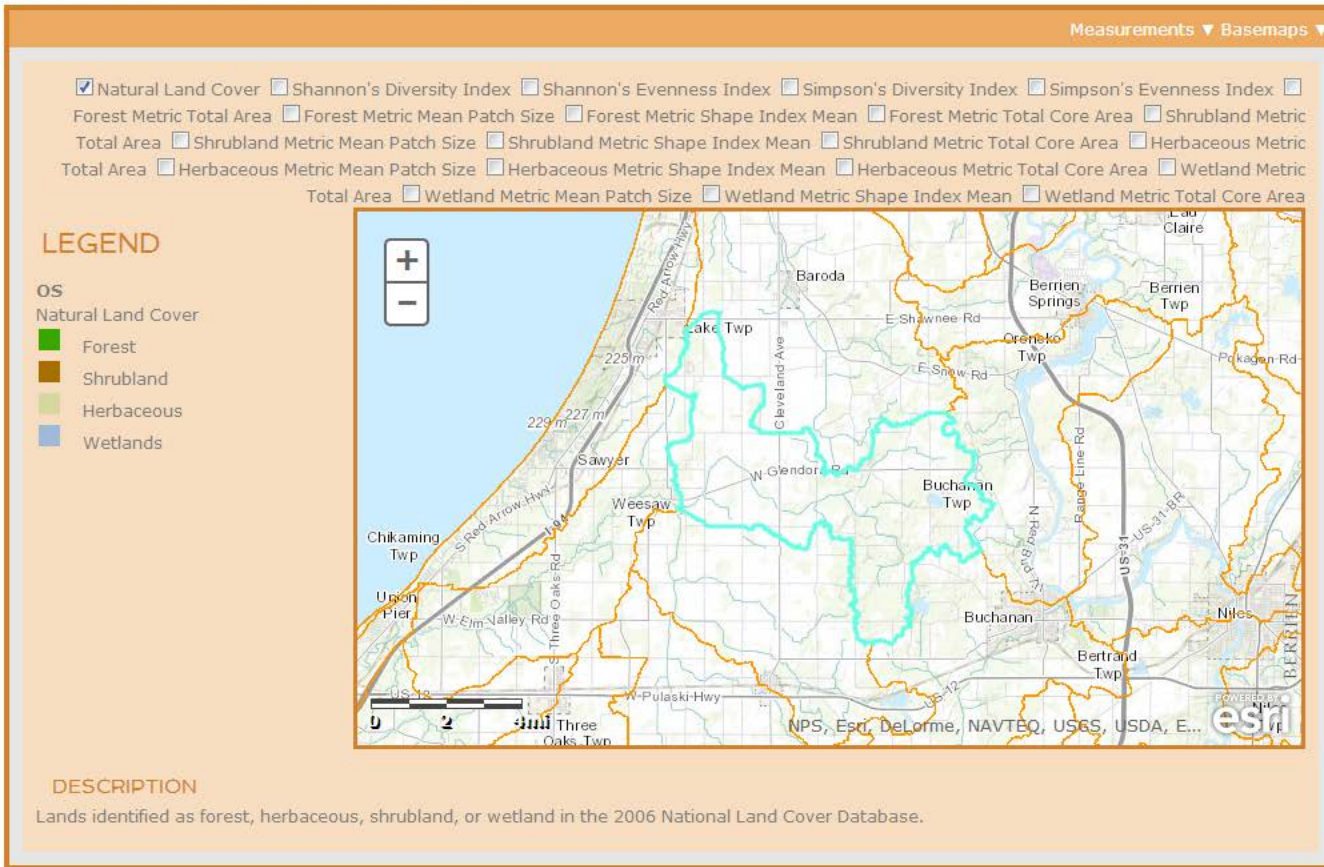


Future outlook comparison chart



OPEN SPACE

LAND COVER TYPE WITH PATCH SIZE

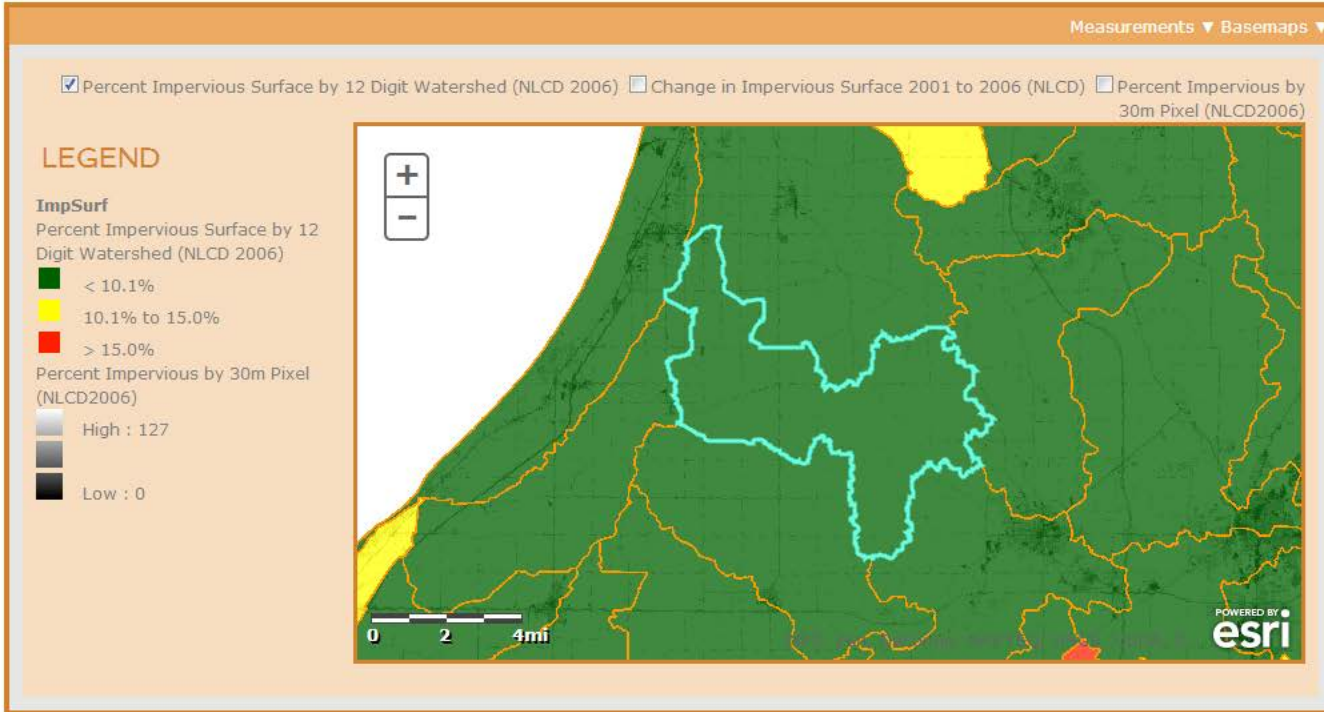


WATER QUALITY

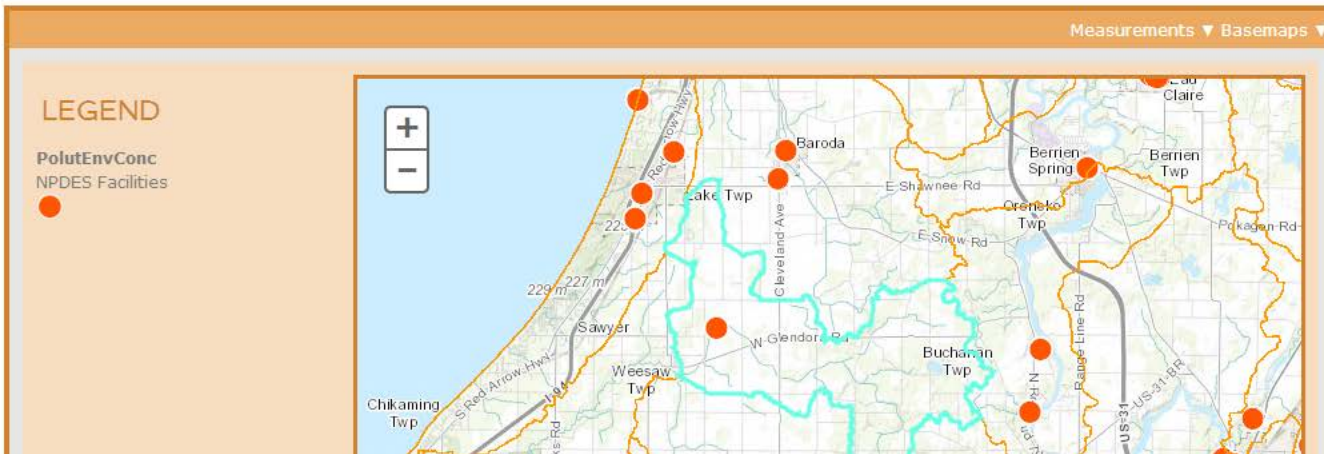
GROUND WATER RESOURCES MAP



IMPERVIOUS SURFACE



EXISTING NPDES SITES



COMMUNITY OVERVIEW DOCUMENT REVIEW

[Open PDF](#)[Save and Publish](#)

Project Name : Screenshots
Group :
HUC : East Branch Galien River

Prime farmland is a designation assigned by U.S. Department of Agriculture defining land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these land uses. Prime farmland has the soil quality, growing season, and moisture supply needed for the agricultural productivity to sustainably produce high yields of crops when treated and managed according to acceptable farming methods(e.g. water management). In general, prime farmlands have an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt and sodium content, and few or no rocks. They are permeable to water and air. Prime farmlands are not excessively erodible or saturated with water for a long period of time, and they either do not flood frequently or are protected from flooding.

Prime farmland tends to be well suited to "growing" houses. Thus prime farmland is also prime developable land and prone to conversion when in proximity to urban growth areas. USDA prime farmland designation helps growth management and resource conservation efforts in urban growth areas to use zoning and conservation easements in order to preserve prime farmland resources, maintain local economic diversity, and establish green belts. Nonprofit organizations like American Farmland Trust specialize in helping communities use these techniques. Other designations used by USDA to complement Prime Farmland are Farmland of statewide importance, Farmland of local importance, and Unique farmland.

Unique farmland is land other than prime farmland that is used for the production of specific high value food and fiber crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce economically sustained high quality and/or high yields of a specific crop when treated and managed according to acceptable farming methods. Examples of crops are tree nuts, olives, cranberries, citrus and other fruits, and vegetables.

- 1.1 Project Description
- 1.2 Community Characteristics
- 1.3 Module Review



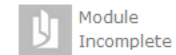
2. Community Overview Modify

- 2.1 Past Land Use Change
- 2.2 Future Land Use Change
- 2.3 Natural Resource Assets
- 2.3 Areas of Environmental Concern
- 2.4 Module Review



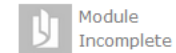
3. Tipping Points Start

- 3.1 Prime Farmland Locations
- 3.2 Open Space Locations.
- 3.3 Runoff and Water Quality
- 3.4 Stream Invertebrate Health
- 3.5 Nutrients Sources (MI only)
- 3.6 Coastal Wetland Health
- 3.7 Module Review



4. Action Strategies and Registers Start

- 4.1 Action Strategies
- 4.2 Action Registers
- 4.3 Module Review



PRIME SOILS

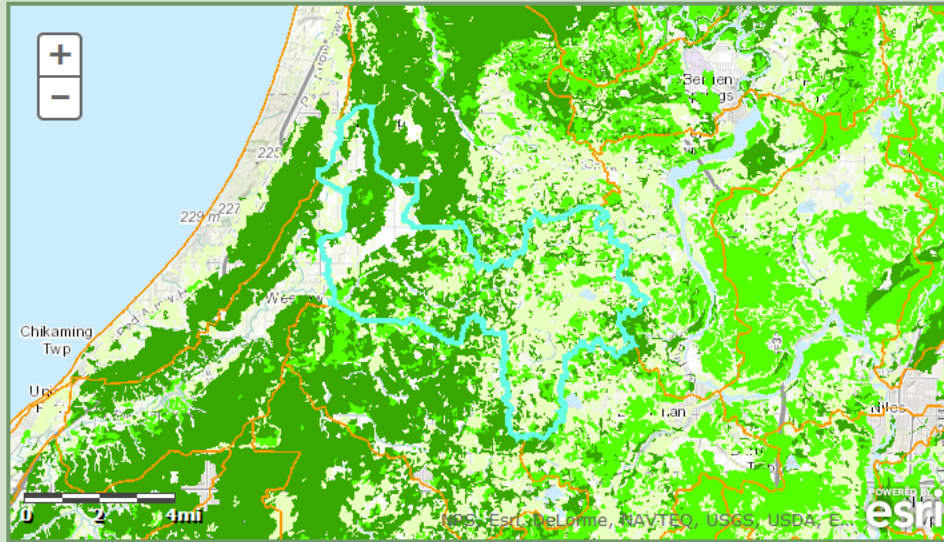
Measurements ▾ Basemaps ▾

LEGEND

PF

Prime Farmland Soils

- Prime Farmland
- PF if drained
- PF if flood protection
- PF if irrigated
- PF if drained and flood protection
- PF if irrigated and drained
- PF of statewide importance
- PF of local importance
- PF of unique importance



SELECT THE PRIORITY LEVEL FOR THE PRIME SOIL CLASSES BELOW

PRIME FARMLAND CLASS	HIGH	MEDIUM	LOW	NONE
Prime Farmland (PF)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PF if drained	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
PF if flood protection	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
PF if irrigated	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
PF if drained and flood protection	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
PF if drained and irrigated	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
PF of importance	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

CROP TYPES

Measurements ▾ Basemaps ▾

LEGEND



OPEN SPACE

Given your watershed community's natural resource assets and known conditions, determine which categories of lands (forest, scrubland, herbaceous, wetlands) your community will focus on for future protection. This map can be used in future steps to help guide placement of new developed and natural resource lands.

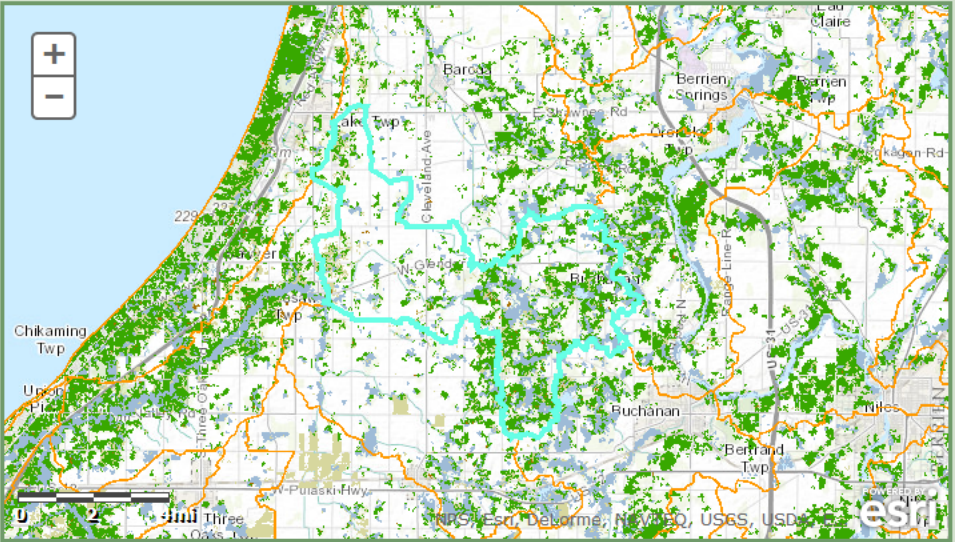
How To: Enter values for minimum patch size and interior distance in the boxes below. Once finished click the "Generate Composite Map" button. It typically takes 30-60 seconds to complete. The legend and map will appear once the status animation stops.

Measurements ▾ Basemaps ▾

LEGEND

OS
Natural Land Cover

- Forest
- Shrubland
- Herbaceous
- Wetlands



DESCRIPTION

Lands identified as forest, herbaceous, shrubland, or wetland in the 2006 National Land Cover Database.

Forest Minimum Patch Size Acres

Forest Interior Distance Meters

Shrub Minimum Patch Size Acres

Shrub Interior Distance Meters

Herbaceous Minimum Patch Size Acres

Herbaceous Interior Distance Meters

the map and see how it affects the nutrients and pollutants gauges. Click the paint button again to turn your paintbrush back into a cursor.

Measurements ▾ Basemaps ▾

LEGEND

HUC_12_Highlight
HUC 12 Watershed Boundary

Urban Forest Agriculture

Clear Paints

0 1 2mi

POWERED BY esri

Nitrogen 0 2.5 5 7.5 10

Phosphorus 0 0.5 1 1.5 2

Suspended Solids 0 25 50 75 100

Lead 0 5 10 15 20

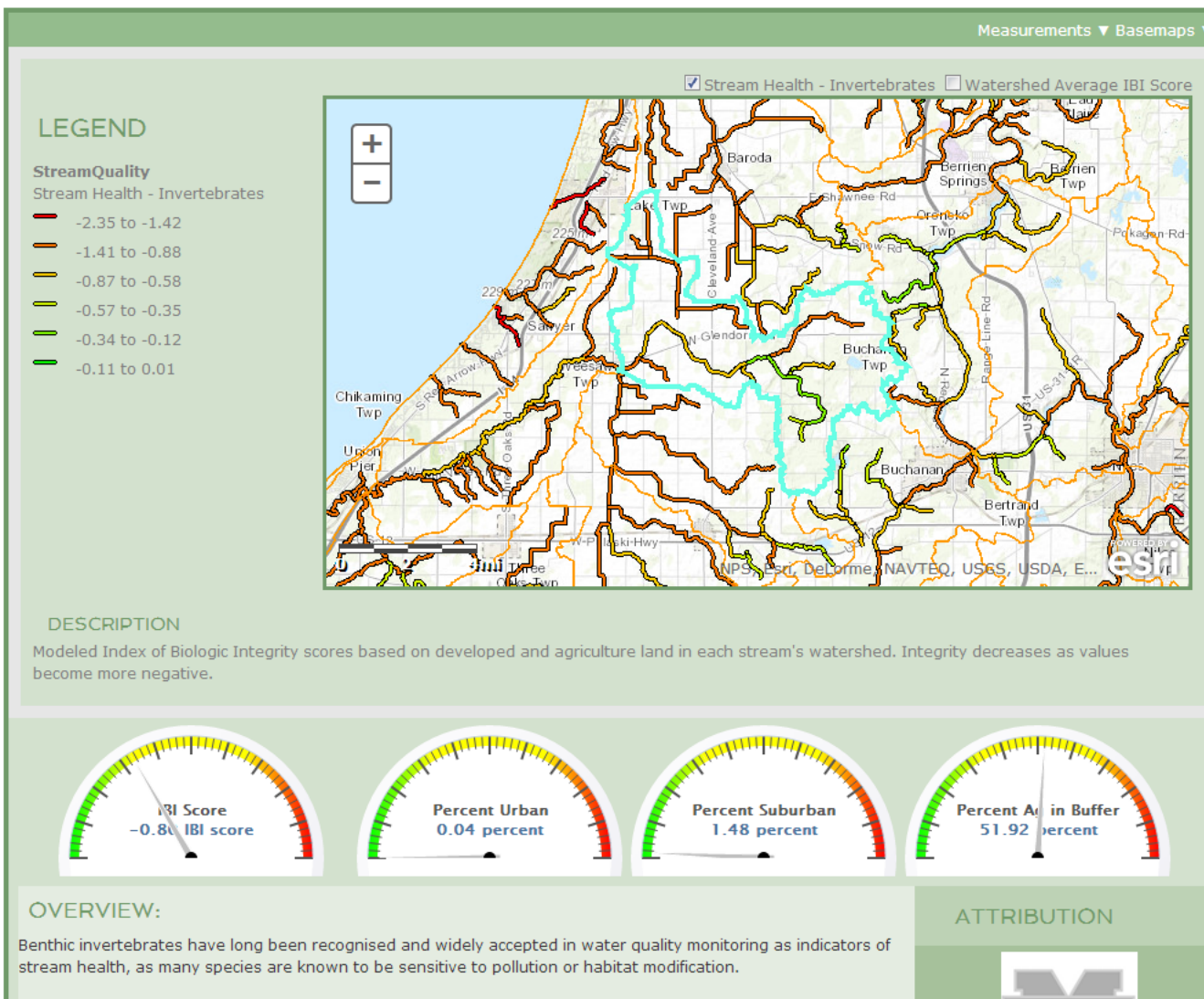
Copper 0 5 10 15 20

Zinc 0 10 20 30 40

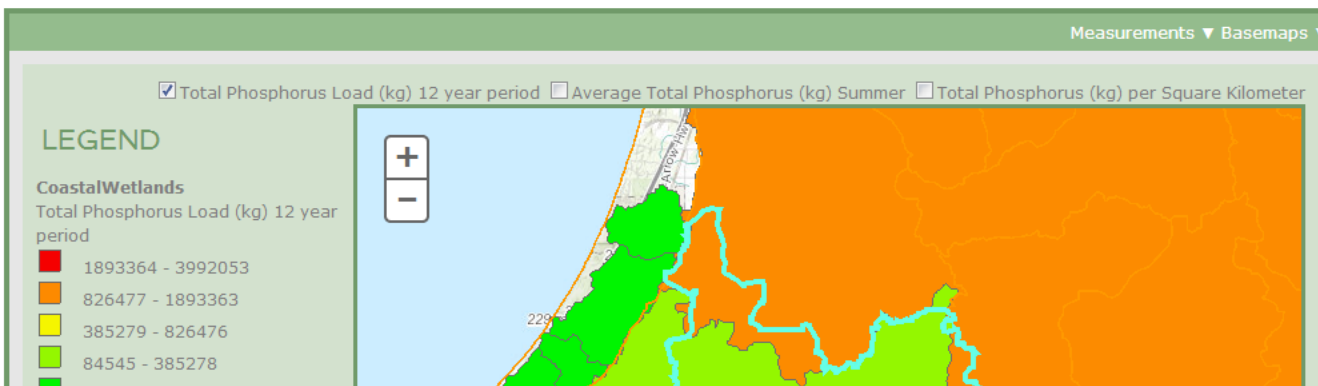
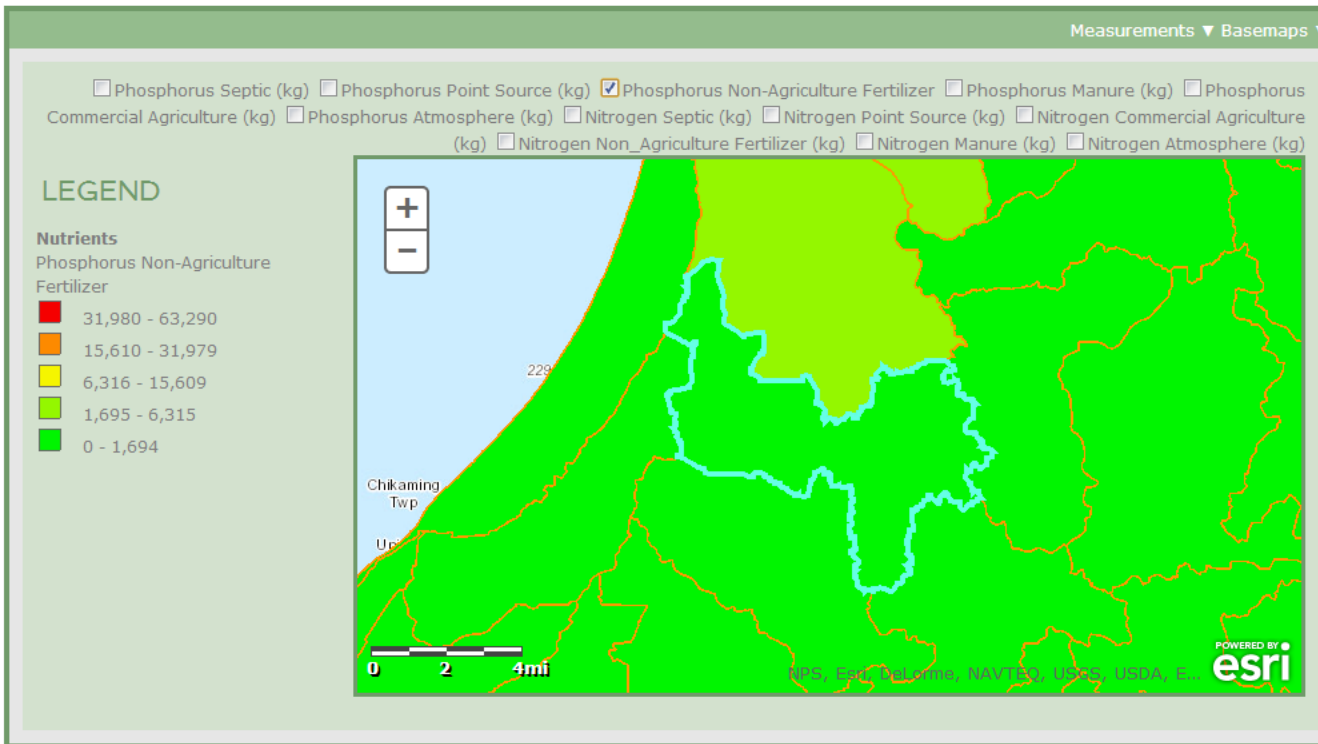
STREAM INVERTEBRATE HEALTH

Below are modeled stream invertebrate health indexes based on watershed and riparian buffer land use.

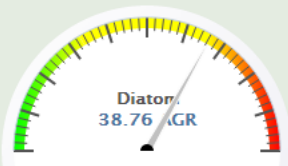
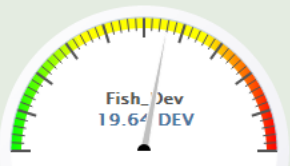
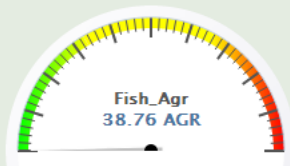
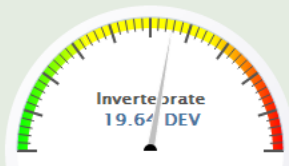
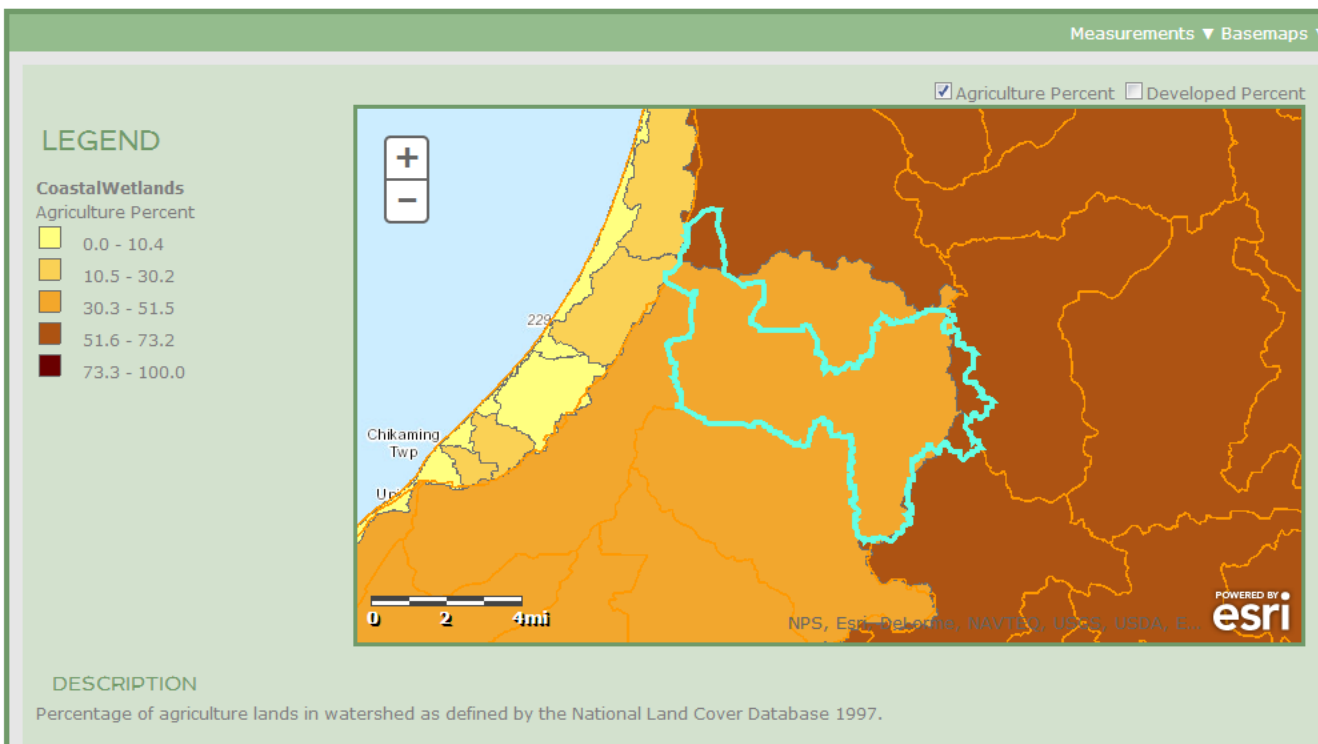
How To: Hold down your left mouse button over a map and move your mouse to pan. Use the scroll wheel or the + and - buttons on the map to zoom. Use the Measurement tools to examine the size of features and the basemap tool to examine the underlying landscape.



How To: Hold down your left mouse button over a map and move your mouse to pan. Use the scroll wheel or the + and - buttons on the map to zoom. Use the Measurement tools to examine the size of features and the basemap tool to examine the underlying landscape.



How To: Hold down your left mouse button over a map and move your mouse to pan. Use the scroll wheel or the + and - buttons on the map to zoom. Use the Measurement tools to examine the size of features and the basemap tool to examine the underlying landscape.



OVERVIEW:

Benthic invertebrates have long been recognised and widely accepted in water quality monitoring as indicators of stream health, as many species are known to be sensitive to pollution or habitat modification.

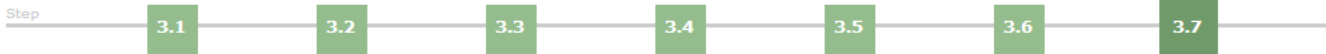
Insect larvae are the most commonly collected life stage in aquatic habitats, and primarily comprise the majority of aquatic invertebrates in terms of biomass and species. Most aquatic insects emerge as winged, terrestrial adults in the warmer months, where they may disperse to another stream, mate and lay eggs. Adult aquatic insects can form an important food resource for fish, spiders, birds and even bats.

[Source](#)

ATTRIBUTION

UNIVERSITY OF MINNESOTA DULUTH

Lucinda Johnson



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[Save and publish](#)



TIPPING POINTS & INDICATORS

Supporting Sustainable Communities in Great Lakes States

Project Name : Screenshots
Group :
HUC : East Branch Galien River

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CHOOSE ACTION STRATEGIES

Select from the following planning strategies, sample ordinances, incentive options and community education programs that have been filtered based on your selected priorities and desired community characteristics to improve future watershed conditions.

How To: Click the title area of a action strategy to expand the window and view the entire strategy. Click the check box on the right side of a strategy to include it in your watershed action plan.

PLANNING

WATER RESOURCES PLAN

Include

PRIME FARMLAND PROTECTION PLAN

DESCRIPTION

A type of open space plan that identifies prime agricultural land and productive farms in order to protect and promote agricultural activity.

STRENGTHS

By protecting prime agricultural soils and farmland on the urban fringe or in rural areas, communities can guide growth to areas that are already developed and thus promote their food security and the maintenance of their economic base.

WEAKNESSES

Protecting some agricultural activities (hobby farms, e.g.) can result in very large lot (5-acre and above) sprawl without protecting farms of sufficient size or capital to be able to employ efficient and sustainable food, livestock and crop production and harvesting processes.

Include

EXAMPLES

EXAMPLE 1: STATE/GENERAL GUIDANCE OR EXAMPLES

State/Contact: OH, Joe Lucente

Description: Ohio Balanced Growth Program

[Ohio Balanced Growth Program](#)

EXAMPLE 2: STATE/GENERAL GUIDANCE OR EXAMPLE STATE

Contact: MI, Mark Brederland

Description:

4. ACTION STRATEGIES AND REGISTERS: SCREENSHOTS PROJECT

EAST BRANCH GALIEN RIVER WATERSHED

Step

4.1

4.2

4.3

REGISTERS

Complete the action registers below to specify how to meet your communities goals.

How To: Enter text in the fields within each register.

GOAL:

Strategy	Action Item	Schedule	Responsible Party
		T1 T2 T3	
<input type="text" value="Limit Urban Development"/>	<input type="text" value="Implement Ordinances"/>	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="text" value="City Government"/>
	<input type="text" value="Rain Barrels"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="text" value="Watershed Enhancement Group"/>
	<input type="text"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="text"/>

REGISTERS

GOAL:

Strategy	Action Item	Schedule	Responsible Party
		T1 T2 T3	
<input type="text"/>	<input type="text"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="text"/>

Step

4.1

4.2

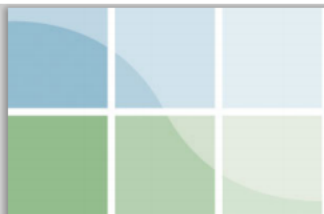
4.3

ACTION STRATEGIES AND REGISTERS

Your action strategies and registers pdf file will be displayed below. Click the update button if you have made changes and they are not incorporated. You can also download the pdf by clicking the link below.

[Open PDF](#)

[Save and Publish](#)



TIPPING POINTS & INDICATORS

Supporting Sustainable Communities in Great Lakes States

Project Name : Screenshots
Group :
HUC : East Branch Galien River

1

3. Tipping Points Modify

- 3.1 Prime Farmland Locations
- 3.2 Open Space Locations.
- 3.3 Runoff and Water Quality
- 3.4 Stream Invertebrate Health
- 3.5 Nutrients Sources (MI only)
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- 3.7 Module Review



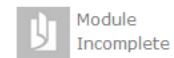
4. Action Strategies and Registers Modify

- 4.1 Action Strategies
- 4.2 Action Registers
- 4.3 Module Review



5. Action Plan Start

- 5.1 Generate action plan
- 5.2 Review watershed action plan



ACTION PLAN: SCREENSHOTS PROJECT





EAST BRANCH GALIEN RIVER WATERSHED



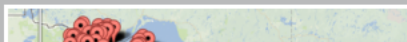
MODULE REPORT STATUS

Once all modules are complete you can use the tool below to combine them into a single document.

How To: View the results from individual modules by clicking the corresponding results link. Click the "Generate Final PDF" button to create the full document.

MODULE NAME	MODULE REPORT STATUS	REPORT LINK
VISIONING PDF:	MODULE COMPLETE	
COMMUNITY_OVERVIEW PDF:	MODULE COMPLETE	
TIPPING_POINTS PDF:	MODULE COMPLETE	
ACTION_STRATEGIES_AND_REGISTERS PDF:	MODULE COMPLETE	

[Generate Final PDF](#)



ACTION PLAN: SCREENSHOTS PROJECT

EAST BRANCH GALIEN RIVER WATERSHED

Step

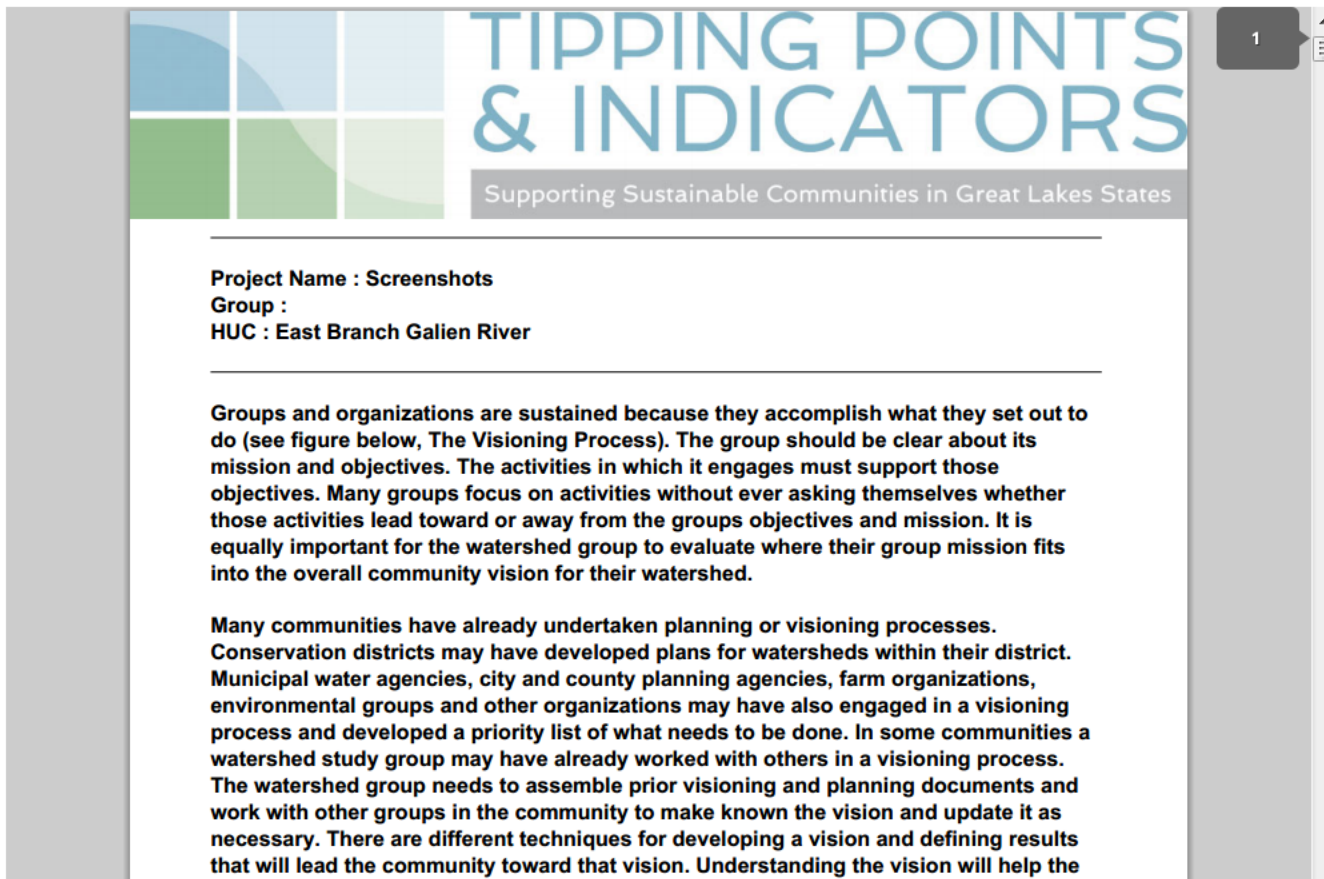
1.1

1.2

ACTION PLAN DOCUMENT REVIEW

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TIPPING POINTS & INDICATORS
Supporting Sustainable Communities in Great Lakes States

Project Name : Screenshots
Group :
HUC : East Branch Galien River

Groups and organizations are sustained because they accomplish what they set out to do (see figure below, The Visioning Process). The group should be clear about its mission and objectives. The activities in which it engages must support those objectives. Many groups focus on activities without ever asking themselves whether those activities lead toward or away from the groups objectives and mission. It is equally important for the watershed group to evaluate where their group mission fits into the overall community vision for their watershed.

Many communities have already undertaken planning or visioning processes. Conservation districts may have developed plans for watersheds within their district. Municipal water agencies, city and county planning agencies, farm organizations, environmental groups and other organizations may have also engaged in a visioning process and developed a priority list of what needs to be done. In some communities a watershed study group may have already worked with others in a visioning process. The watershed group needs to assemble prior visioning and planning documents and work with other groups in the community to make known the vision and update it as necessary. There are different techniques for developing a vision and defining results that will lead the community toward that vision. Understanding the vision will help the

- 2.2 Future Land Use Change
- 2.3 Natural Resource Assets
- 2.3 Areas of Environmental Concern
- 2.4 Module Review



3. Tipping Points

Modify

- 3.1 Prime Farmland Locations
- 3.2 Open Space Locations.
- 3.3 Runoff and Water Quality
- 3.4 Stream Invertebrate Health
- 3.5 Nutrients Sources (MI only)
- 3.6 Coastal Wetland Health
- 3.7 Module Review



4. Action Strategies and Registers

Modify

- 4.1 Action Strategies
- 4.2 Action Registers
- 4.3 Module Review



5. Action Plan

Modify

- 5.1 Generate action plan
- 5.2 Review watershed action plan

