



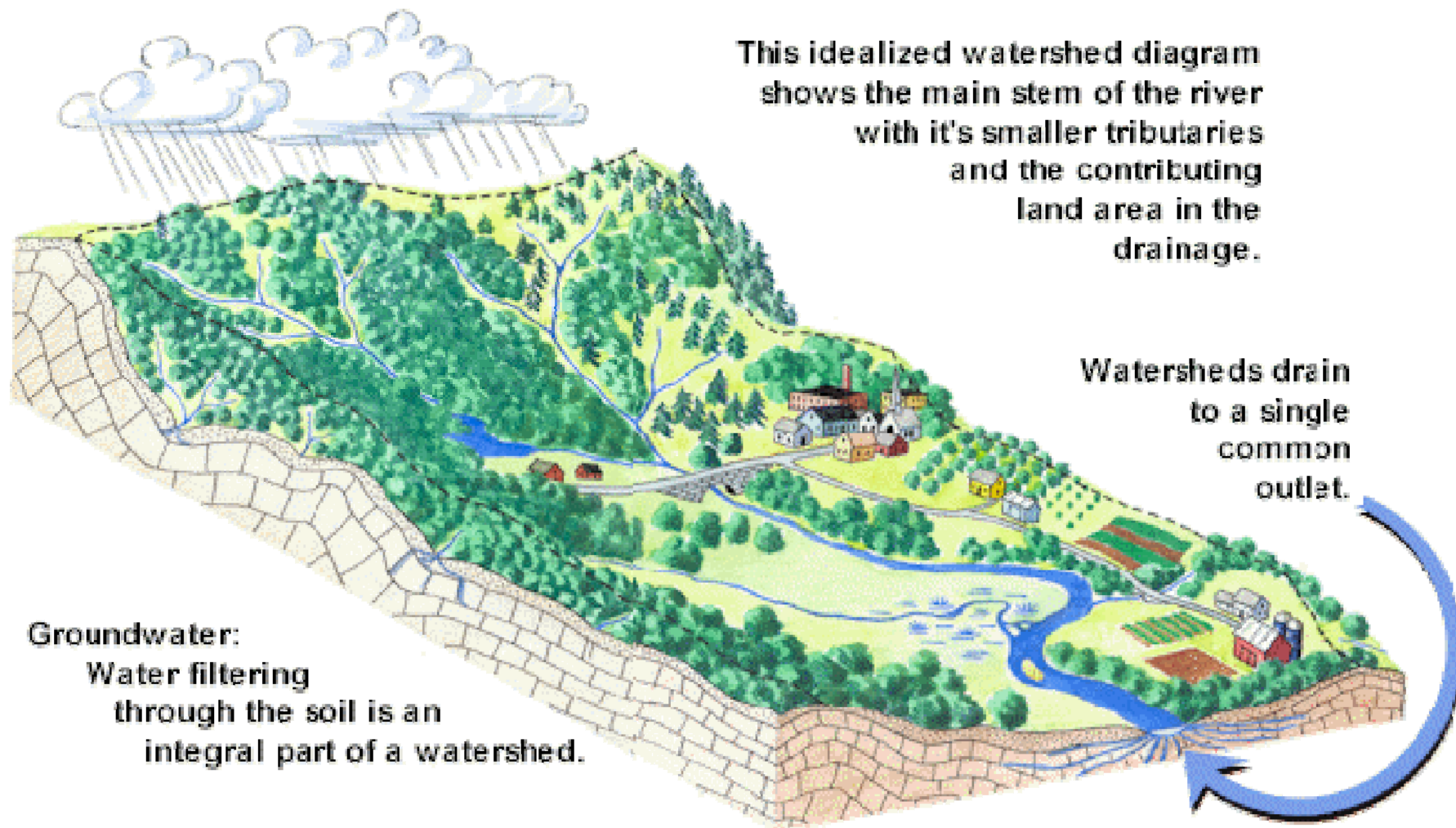
Watershed Management Plans

Bob Sweet
Michigan NPS
Program

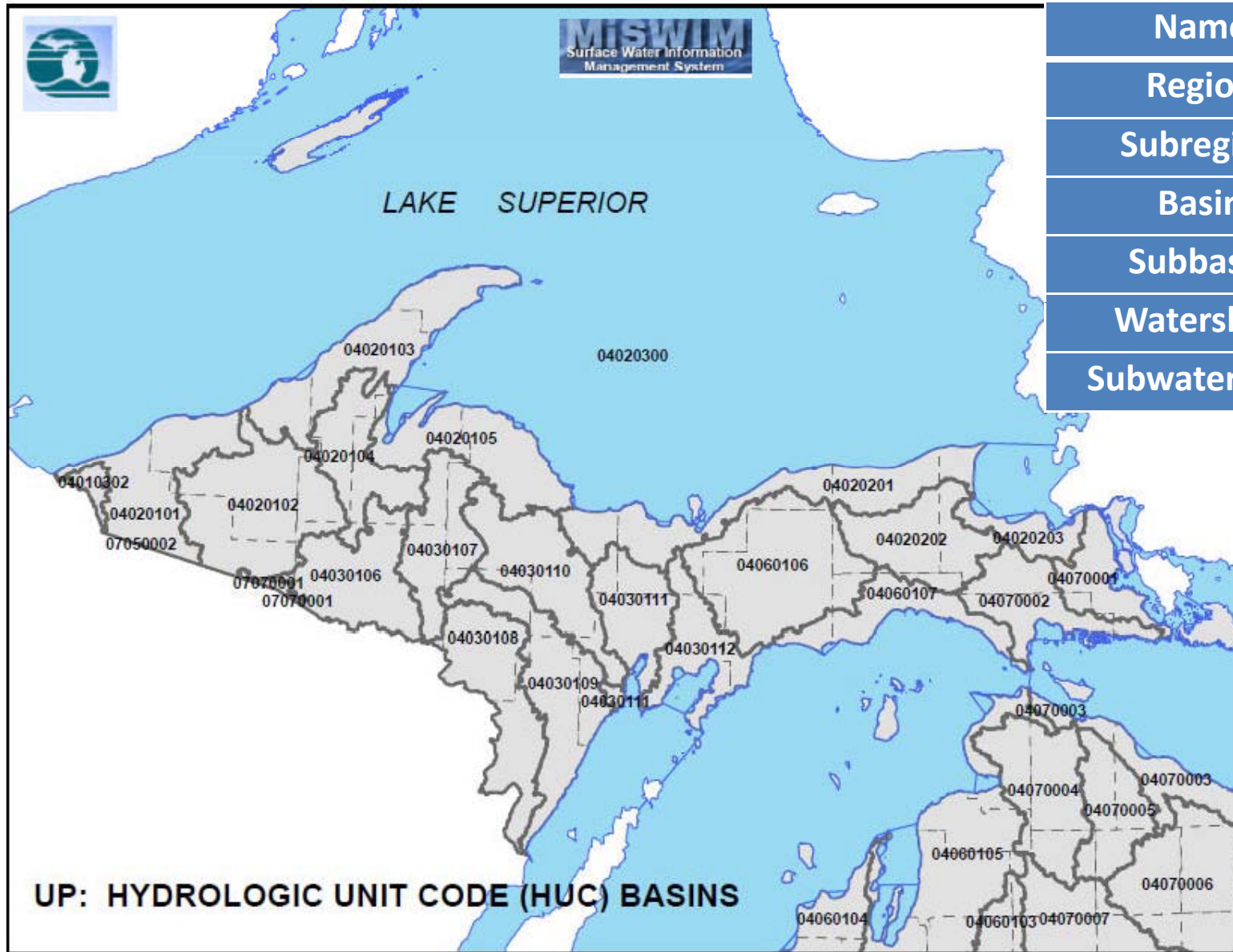
Simple Watershed



From "The Slate Roof Bible" online



Hydrologic Unit Codes (HUC)



Name	Digits
Region	2
Subregion	4
Basin	6
Subbasin	8
Watershed	10
Subwatershed	12





What is Nonpoint Source Pollution?

The term "nonpoint source" is defined to mean any source of water pollution that does not meet the legal definition of "point source" in section 502(14) of the Clean Water Act. That definition states:

The term "point source" means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include agricultural storm water discharges and return flows from irrigated agriculture.



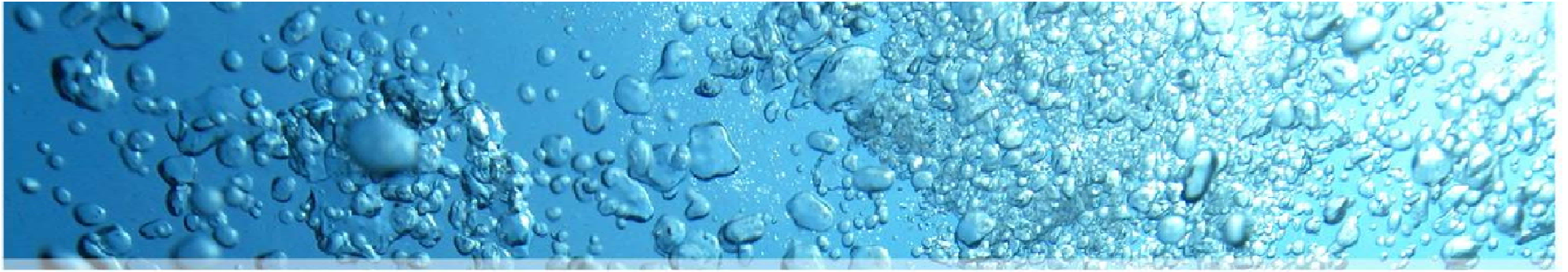
What is Nonpoint Source Pollution Take 2

- Pollution originating from a wide area.
- Most commonly polluted runoff.
- Could also result from precipitation, atmospheric deposition, drainage, seepage or hydrologic modification.



NPS Pollutants

- Sediment
- Nutrients
 - Nitrogen
 - Phosphorus
- Bacteria, *E. coli*
- Dissolved Oxygen
- Temperature
- Oil, Grease and Toxics



NPS Program Goals:

- **Find and fix water bodies impaired by nonpoint source pollution.**
- **Protect high quality waters from nonpoint source pollution impacts.**

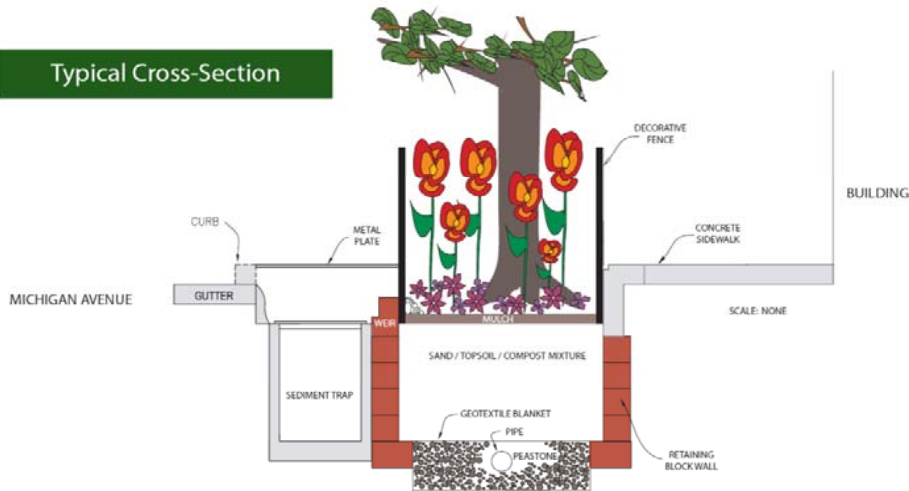


Michigan's
Nonpoint Source
Program

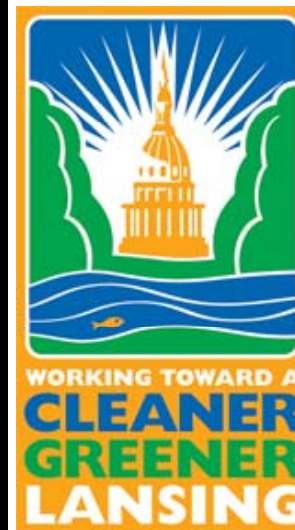
Michigan Avenue Bioretention Facilities

City of Lansing

Typical Cross-Section

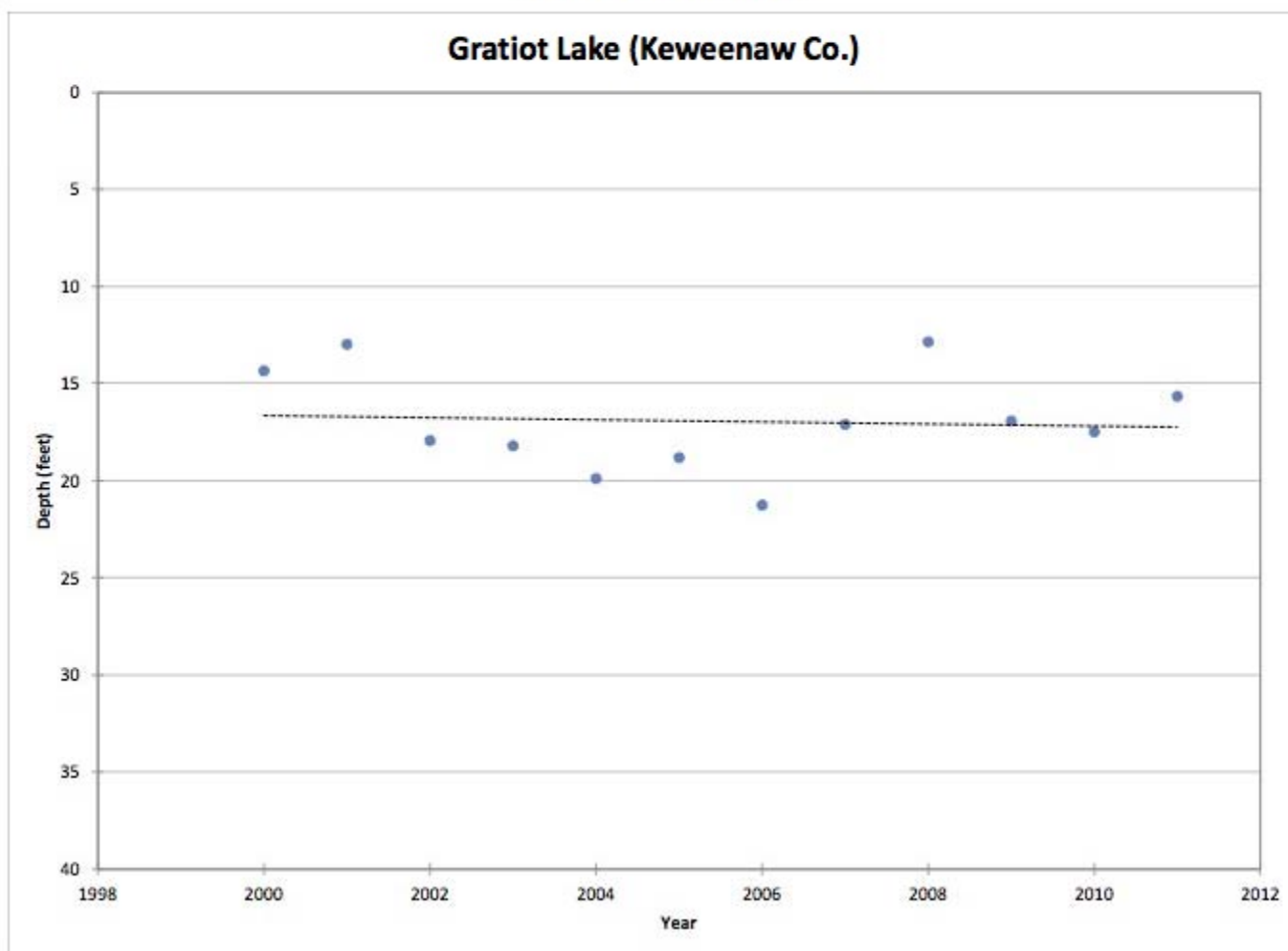


Virg Bernero, Mayor



COOPERATIVE LAKES MONITORING PROGRAM
SUMMER MEAN TRANSPARENCY

Gratiot Lake (Keweenaw Co.)



A watershed approach helps to...

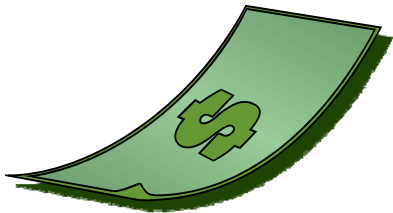
1. Encourage Sound Science



2. Facilitate Communication and Partnerships



3. Provide Means of Cost-Effective Management



4. Focus on Environmental Results



Your Basic Creek



Creek Through a Golf Course

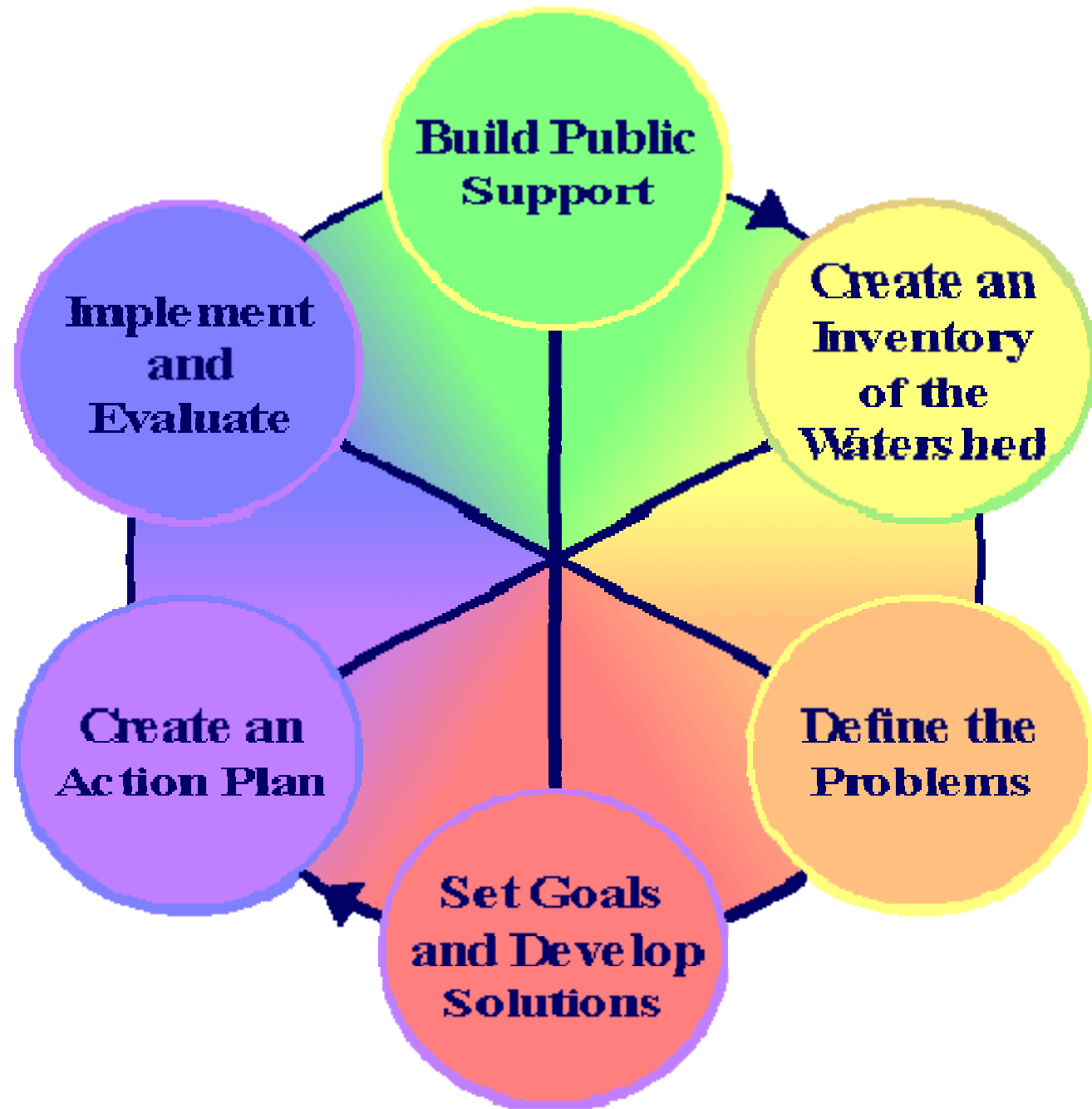


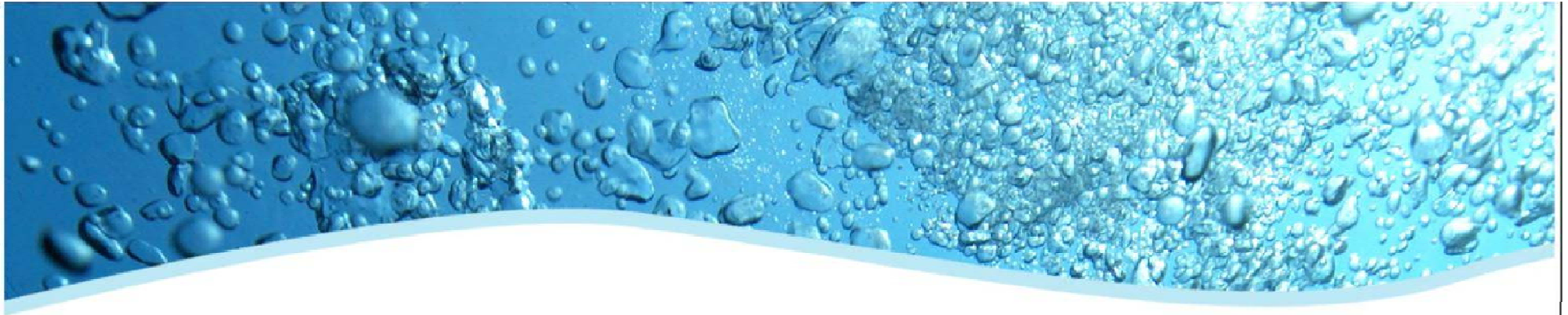
Creek Through a Pasture



Context for planning & management

- **We have problems**
 - Polluted waters
 - Cultural disconnects
 - Limited authority
 - Few resources
- **We have solutions**
 - Interested people
 - Improving science & technology
 - Excellent relationships among public/private sectors





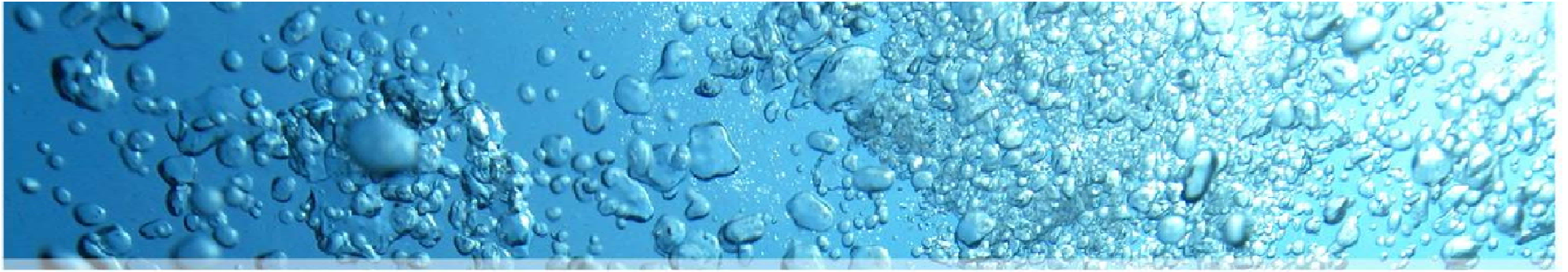
Watershed Plan Criteria

Clean Michigan Initiative (CMI)

- 1998 – CMI rules
- 11 elements
- Strong inventory and outreach
- “Blue Book”

Federal Clean Water Act (319)

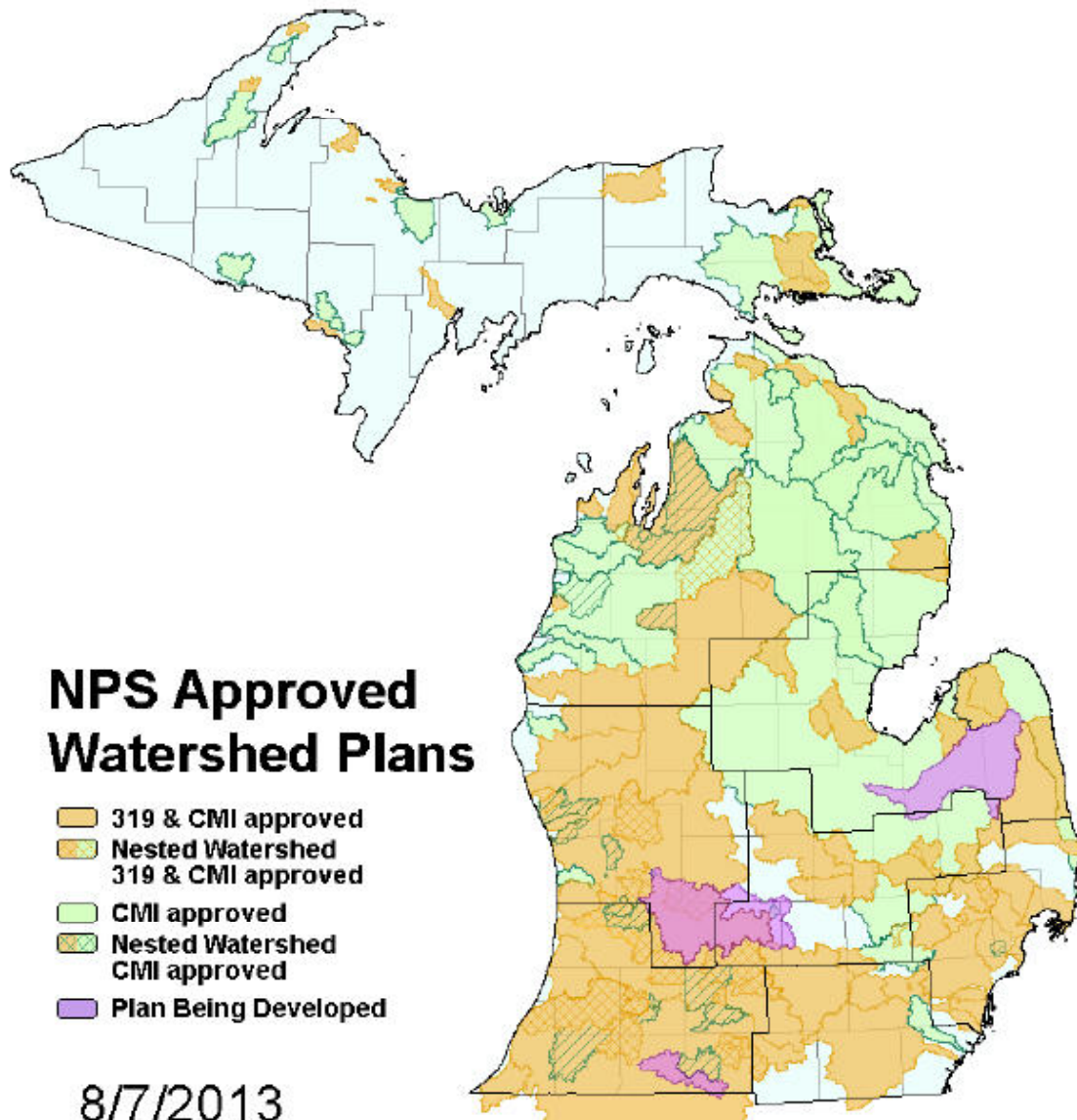
- 2004 Nonpoint Source Guidance
- 9 elements
- Focus on quantification
- Handbook



Contents (very general)

- Watershed Description
- Designated and desired uses
 - Water Quality Impairments and Impacts
- Sources and Causes
- Critical and Priority areas
- Water Quality Goals and Loads
- Prioritized Tasks and Schedule with Milestones
- Watershed Monitoring Plan

Approved Watershed Management Plans



141 CMI Plans Approved
87 Are Also Approved
Under 319

8/7/2013

Michigan Surface Water Information Management System (MiSWIMS)

[Michigan.gov Home](#) [DEQ Home](#) [DNR Home](#) [Geographic Data Library](#) [MiSWIM Home](#) [Text Search](#) [Map Search](#) [MiSWIM Contact](#) [Help](#)

Michigan Surface Water Information Management System
Department of Environmental Quality & Department of Natural Resources

MICHIGAN.GOV
Michigan's
Official
Web Site

Results (1 Total) [New Search >>](#)

Waterbody = Higgins Lake

Waterbody Assessments Water Quality Septage Hauler Land Application Wastewater Discharges NPS Grants USGS Gage Stations Beach/River E. Coli High Flow Low Flow Fish Contaminant

[First](#) [Previous](#) Page Display: 1/1 Page Size: 10 [Next](#) [Last](#)

Name	County	Size	More
Higgins Lake	Crawford Roscommon	10197 acres	Fish Stocking Fish Survey DNR Lake Info Reports View on Map

www.mcgi.state.mi.us/miswims/mcgi.aspx

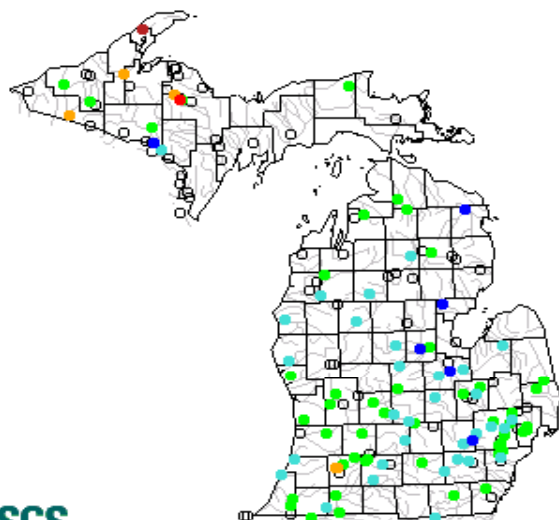
USGS Real-Time Water Data for Michigan

--- Predefined displays --- Introduction	Group table by - no grouping -	Select sites by number or name <input type="text"/> <input type="button" value="go"/>
---	-----------------------------------	--

Daily Streamflow Conditions

Select a site to retrieve data and station information.

Friday, February 02, 2007 12:06ET



Explanation

- High
- ≥ 90th percentile
- 75th - 89th percentile
- 25th - 74th percentile
- 10th - 24th percentile
- < 10th percentile
- Low

The colored dots on this map depict streamflow conditions as a [percentile](#), which is computed from the period of record for the current day of the year. Only stations with at least 30 years of record are used.

The **gray circles** indicate other stations that were not ranked in percentiles either because they have fewer than 30 years of record or because they report parameters other

[Statewide Streamflow Table](#)

[Statewide Lake and Reservoir Table](#)

[Statewide Ground-Water Table](#)

[Statewide Water-Quality Table](#)

Real-time data typically are recorded at 15-60 minute intervals, stored onsite, and then transmitted to USGS offices every 1 to 4 hours, depending on the data relay technique used. Recording and transmission times may be more frequent during critical events. Data from real-time sites are relayed to USGS offices via satellite, telephone, and/or radio and are available for viewing within minutes of arrival.

All real-time data are [provisional and subject to revision](#).

[Build Table](#)

Build a custom summary table for one or more stations.

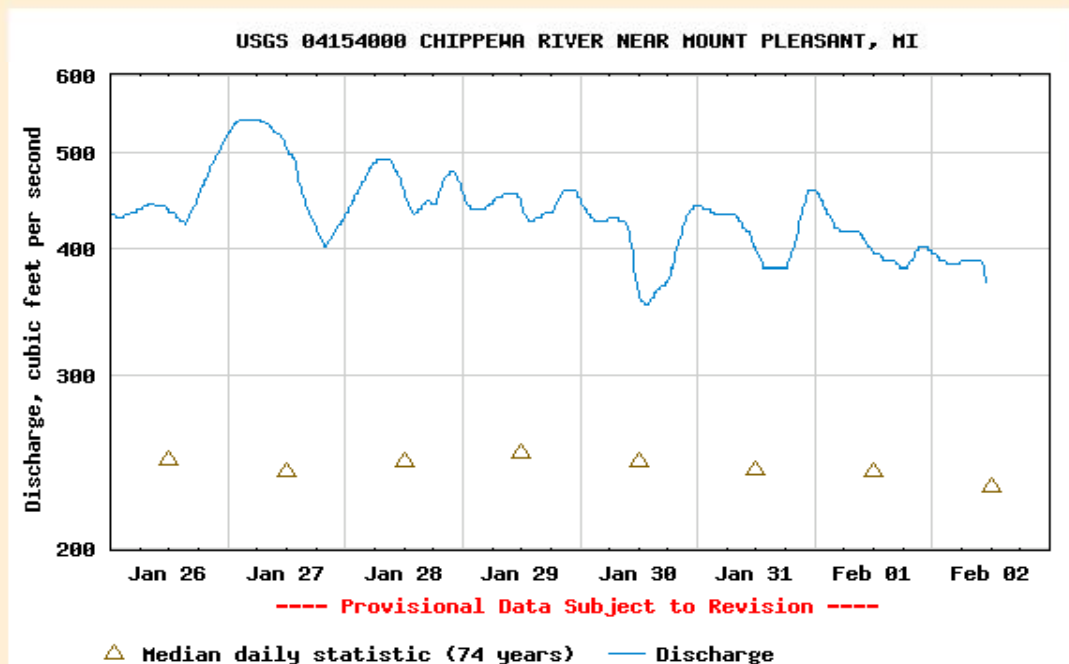
[Build Sequence](#)

Build a custom sequence of graphical or tabular data for one or more stations.



Discharge, cubic feet per second

Most recent instantaneous value: 371 02-02-2007 11:00



[Create presentation-quality graph](#)

Parameter 00060; DD 01

Daily discharge statistics, in cfs, for Feb 2 based on 74 years of record [more](#)

Min (1948)	20%	Median	Mean	80%	Most Recent Instantaneous Value	Max (1968)
110	185	231	284	352	371	1290


Gage height, feet

Most recent instantaneous value: 3.70 02-02-2007 11:00

USGS 04154000 CHIPPEWA RIVER NEAR MOUNT PLEASANT, MI

Flow data is available from the US Geological Survey web site at
<http://waterdata.usgs.gov/nwis/rt>

EPA - EJView



Environmental Justice Home

EJView Entry

EJView Help

- Filtering Map Features
- Running Reports
- Viewing Map Features
- Description of Features
- Define Report Area
- Using the Identify Tool
- Using the Search Tool
- Printing
- About EJView

U.S. ENVIRONMENTAL PROTECTION AGENCY

EJView [Share](#)

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EJView [How to use this page?](#)

EJView, formerly known as the Environmental Justice Geographic Assessment Tool, is a mapping tool that allows users to create maps and generate detailed reports based on the geographic areas and data sets they choose. EJView includes data from multiple factors that may affect public and environmental health within a community or region, including:

- demographic
- health
- environmental
- facility-level data

Visit the [How to Use This Page](#) guidance or the [Help](#) section in the EJView tool.

[Notes About EJView Accessibility](#)

Go to EJView

OR

A study area can be a place or an area. To map an area of interest, you can enter an address, ZIP code, city, county, watershed, township, or a pair of coordinates in the search box.

The following are examples:

- [Hollywood, MD](#)
- [77 W. Jackson Blvd, 60604](#)
- [77 W. Jackson Blvd, Chicago, IL](#)
- [Arlington County, VA](#)
- [Guam](#)
- [60085](#)
- [LAX](#)
- [38.1,-78.2](#)
- For *Watershed (HUC12)*, enter [huc12: 010900020304](#). Auto-suggestion is provided.
- For *Congressional District*, enter [cd: CA01](#). Auto-suggestion is provided.

epamap14.epa.gov/ejmap/entry.htm



Environmental
Justice Home

EJView Entry

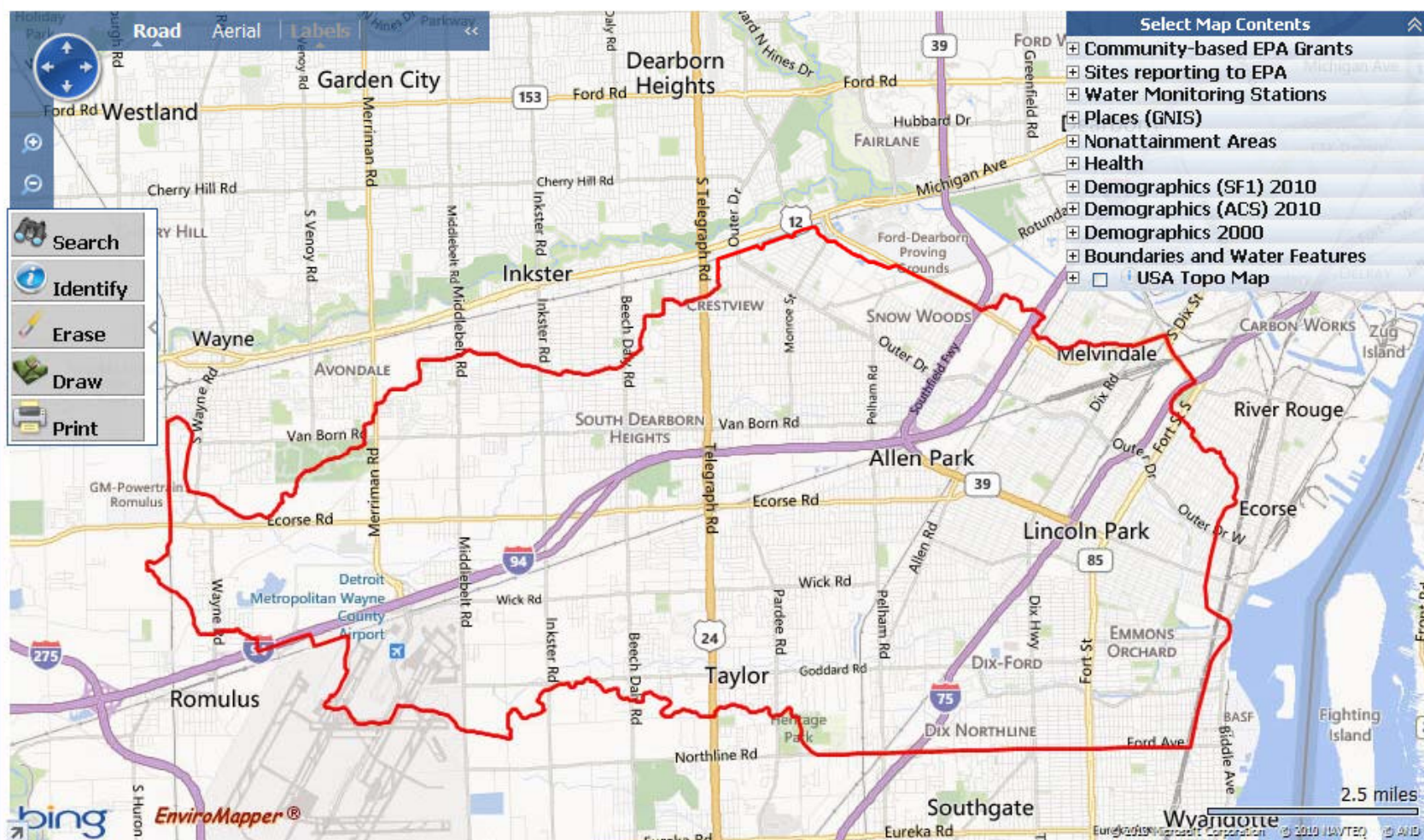
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U.S. ENVIRONMENTAL PROTECTION AGENCY





Environmental
Justice Home

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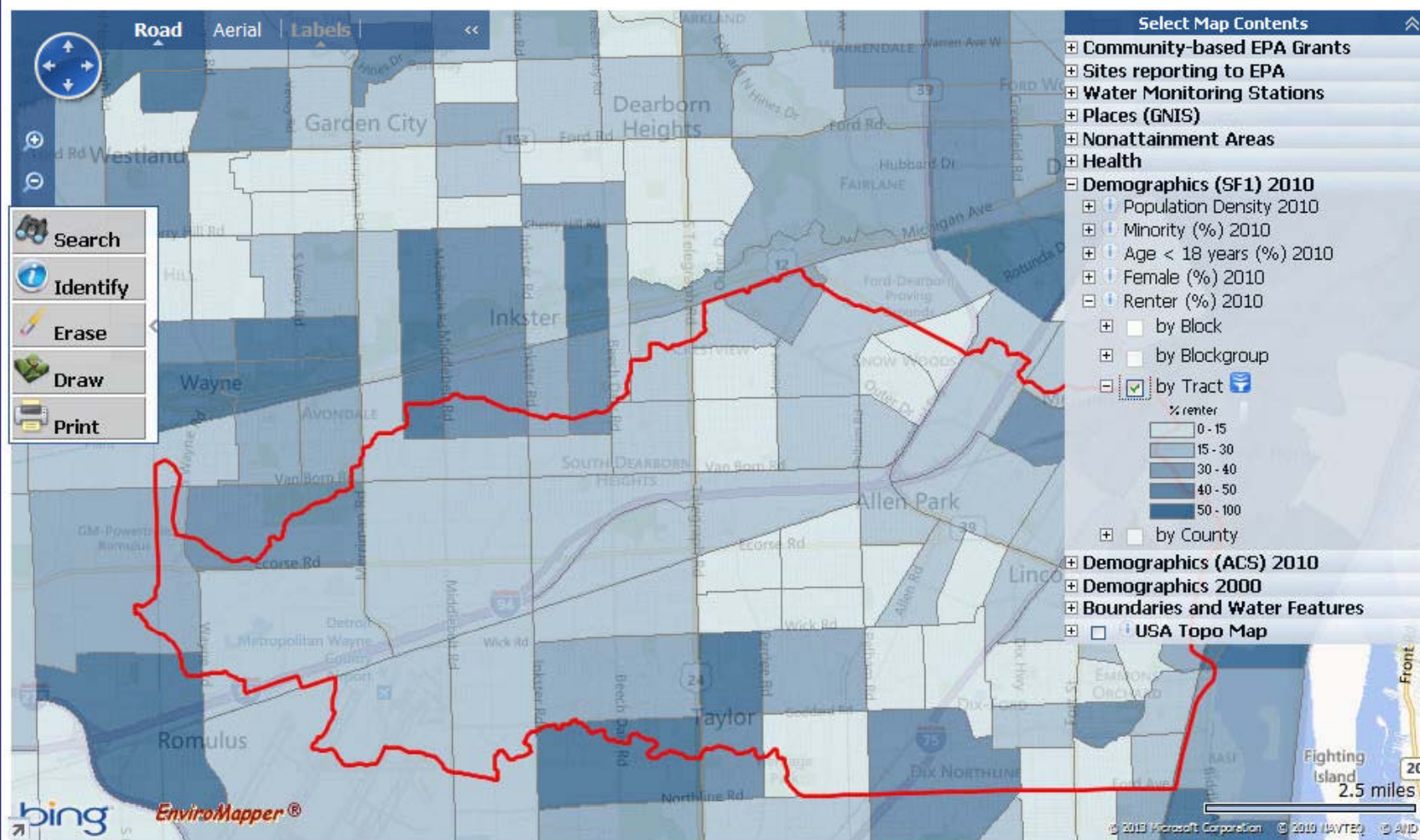
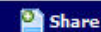
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U.S. ENVIRONMENTAL PROTECTION AGENCY



Excluding cattle from Fitzgerald Creek, a tributary to the Menominee River in Dickinson County, Michigan

Fitzgerald Creek Before:

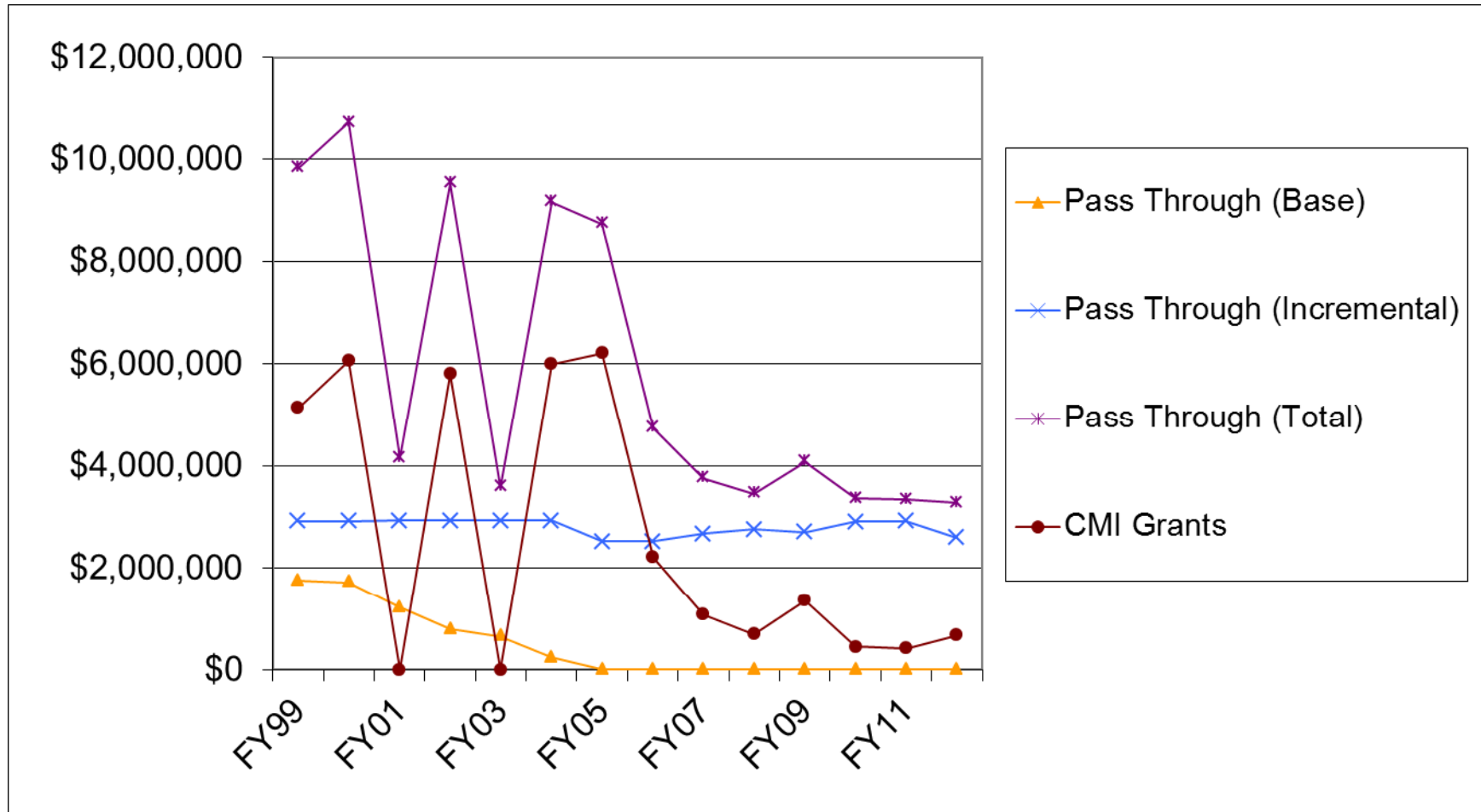


Fitzgerald Creek After:



Metric	Pre-BMP (2002)	Post-BMP (2012)
<i>Instream & Riparian Habitat Scores</i>		
Epifaunal substrate/ available cover	7	14
Pool substrate	7	15
Pool variability	11	17
Sediment deposition	10	20
Channel sinuosity	6	11
Bank stability	7	10
Vegetative protection	7	10
Overall rating	"Good"	"Excellent"
<i>Macroinvertebrate Community</i>		
Total taxa	24	28
Sensitive taxa	7	10

Pass Through Funding History



General SAW Information

- \$450 million – Proposal 2 (Great Lakes Water Quality Bond) passed Nov 2002
- \$97 million available this year
 - \$30 million available for loans, loan cap of \$10 million per applicant
 - Grant cap of \$2 million per applicant
- Selection based on “first come” basis

Grant and Loan Program

Grant

- **Planning and Design** of stormwater and wastewater projects
- Development of **Stormwater Management Plans** (NPS, MS4, SAW)
- Development of **Wastewater and Stormwater Asset Management Programs**
- Testing and demonstration of **Innovative Technology**

Loan

- Construction of projects identified in approved stormwater management plans
- Construction projects identified in approvable asset management programs
- Testing and demonstration/construction of projects of proven innovative technology

SAW Information

Revolving Loan Section 517-284-5433

www.michigan.gov/cleanwaterrevolvingfund

- SAW Program Highlights
- Loan Application
- FAQ
- Laws & Regulations
- SAW Committee Minutes



Wetland Mitigation Grants/Loans

- Part of the same legislation that established the SAW program.
- Created to encourage wetland banking.
- \$3 million available for FY14.
- Application and guidance materials coming soon.

Wetland Mitigation Grants/Loans

- Grants may be used for the following:
 - Developing a wetland banking proposal
 - Notifying LUGs and adjacent property owners
 - Planning and designing a wetland bank
 - Completing the wetland mitigation bank funding program loan application or for other funding sources
- Loans can be used for the following:
 - Completing and executing the banking agreement
 - Completing engineering and design for the bank
 - Purchasing land for the bank
 - Constructing the bank
 - Conducting monitoring and maintenance of the bank
 - Performing other activities associated with establishment of the bank if deemed necessary
- Contact:
Michael Pennington, Wetland Mitigation Specialist
PENNINGTONM@michigan.gov
517-284-5539

Other Funding Sources

- **DEQ Grants & Loans Catalog**
 - State Revolving Fund (SRF)
 - Coastal Zone Program
- **Catalog of Federal Funding Sources for Watershed Protection**
- **DNR Grants**
- **Cyber-Sierra's Conservation Grants Center**
- **Great Lakes Basin Program for Soil Erosion and Sediment Control**