

St. Joseph River Watershed Management Planning Project



Section 319 Grant

Dr. Sandra Nordmark

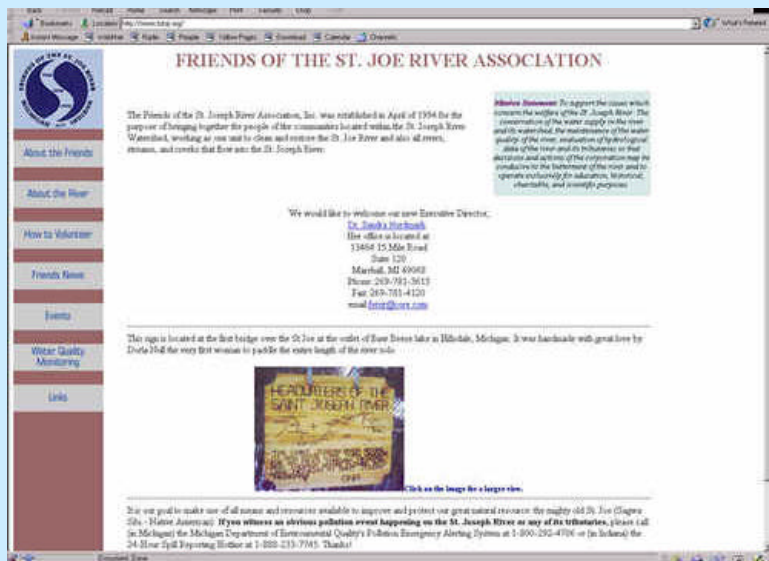
Friends of the St. Joseph River Association

Friends of the St. Joseph River Association



Recipients of this Section 319 grant to develop a Watershed Management Plan.

Established in 1994 by Al and Margaret Smith of Athens, MI.

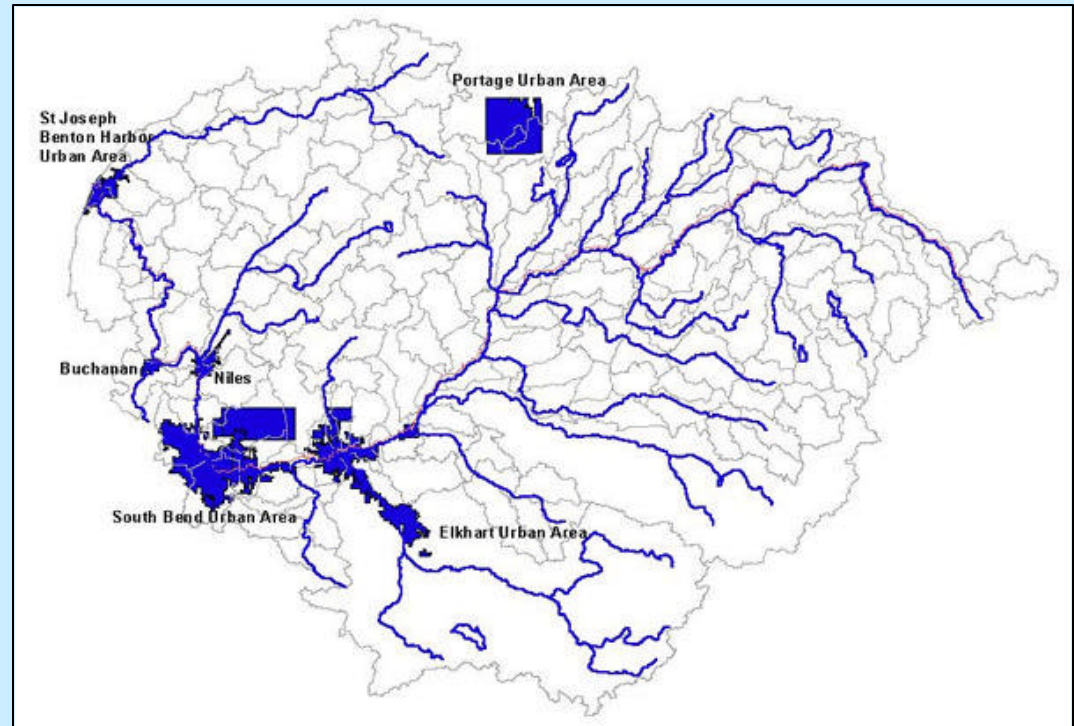


Newly designed website at
<http://www.fotsjr.org>



The St. Joseph River Watershed

Southwestern
Michigan and
Northeastern
Indiana



Major cities: St. Joseph/Benton Harbor, MI;
South Bend, IN; Elkhart, IN

Steering Committee Formation

Representation from:

- Michigan Department of Environmental Quality
- Michigan Department of Natural Resources
- U.S. Geological Survey
- Cass County
- Calhoun County
- City of Niles
- City of Elkhart
- Potawatomi RC&D Council
- Michiana Watershed Council
- Michiana Area Council of Governments
- Rocky River Watershed Management Planning Project
- Great Lakes Commission
- St. Joseph County Conservation District
- Friends of the St. Joseph River
- St. Joseph River Basin Commission
- American Electric Power
- Branch County
- Prism Science and Technology
- Cubbage Environmental Controls
- KIESER & ASSOCIATES

Designated and Desired Uses

All surface waters are to be protected to meet the following designated uses:

- Warm Water Fishery
- Other Aquatic Life/Wildlife
- Partial Body Contact, Recreation
- Full Body Contact, Recreation, May-Oct.
- Navigation
- Industrial Water Supply
- Agriculture
- Public Water Supply: Surface Intake Point
- (Some waters are also protected as a cold water fishery.)



Where are these uses being met?

Where are they threatened or impaired?

What is the source of those impairments?

What are the goals to correct those impairments?

What are the additional desired uses of the watershed?

Steering Committee Watershed Concerns

- Sedimentation

- Sources include: stream bank erosion, construction runoff, storm water

- Habitat Preservation

- Combined Sewer Overflows

- Nutrients

- Hydrologic Modification

- Pathogens

- Hydropower Licensing

- Biota

- Regulation & Enforcement

- Landfills

- Wetlands

- Pesticides

- Septic Systems

- Litter

- Irrigation

- Exotic Species

- Historic Preservation

- Urbanization and Land Use

- Information Gaps

- Runoff

- Recreation

- Animal Waste

- Floodplain Development



Technical Efforts & Information Dissemination

Nicole Ott

Project Scientist

KIESER & ASSOCIATES

Kalamazoo, MI



Work Plan Tasks

- 1. Background Information Collection**
- 2. Drainage Basin Characterization**
- 3. Identification of Critical Areas**
4. Prioritization of Concerns
5. Improvement Opportunities
- 6. Communication**
7. Education
8. Watershed Management Plan

Task 1: Collection of Data

Links

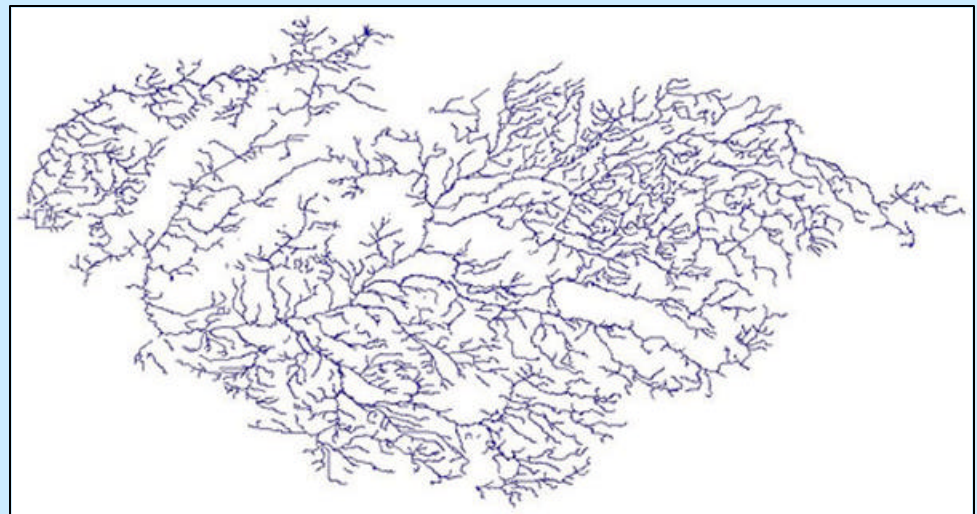
Bibliography

All available watershed resources cataloged in downloadable bibliography.

All St. Joseph River Watershed electronic data accessible at links page. Educational links also included.

Spatial Data

GIS files obtained from public sources such as Indiana Geological Survey, Michigan Center for Geographic Information or created in-house.



<http://www.stjoeriver.net>

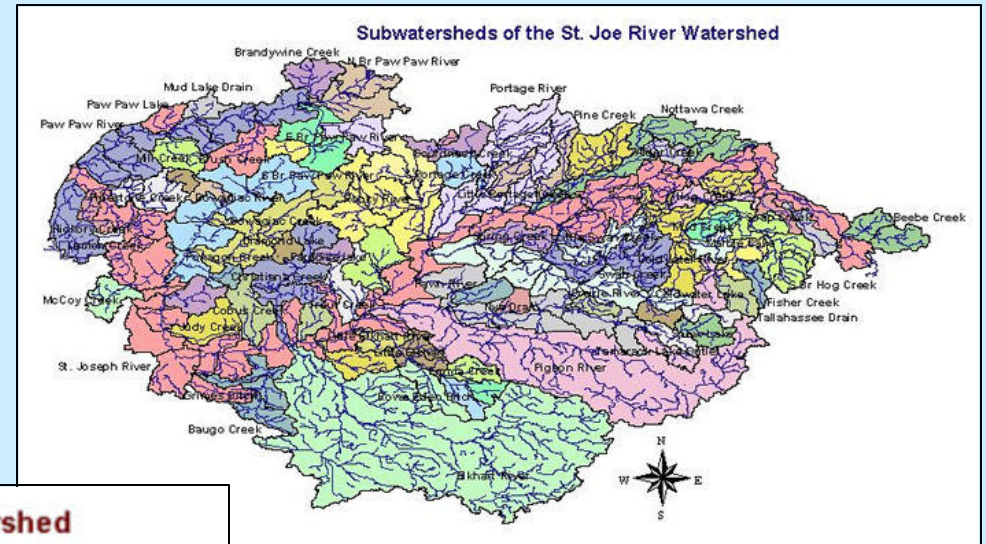
Task 2: Drainage Basin Characterization

Creation of Maps

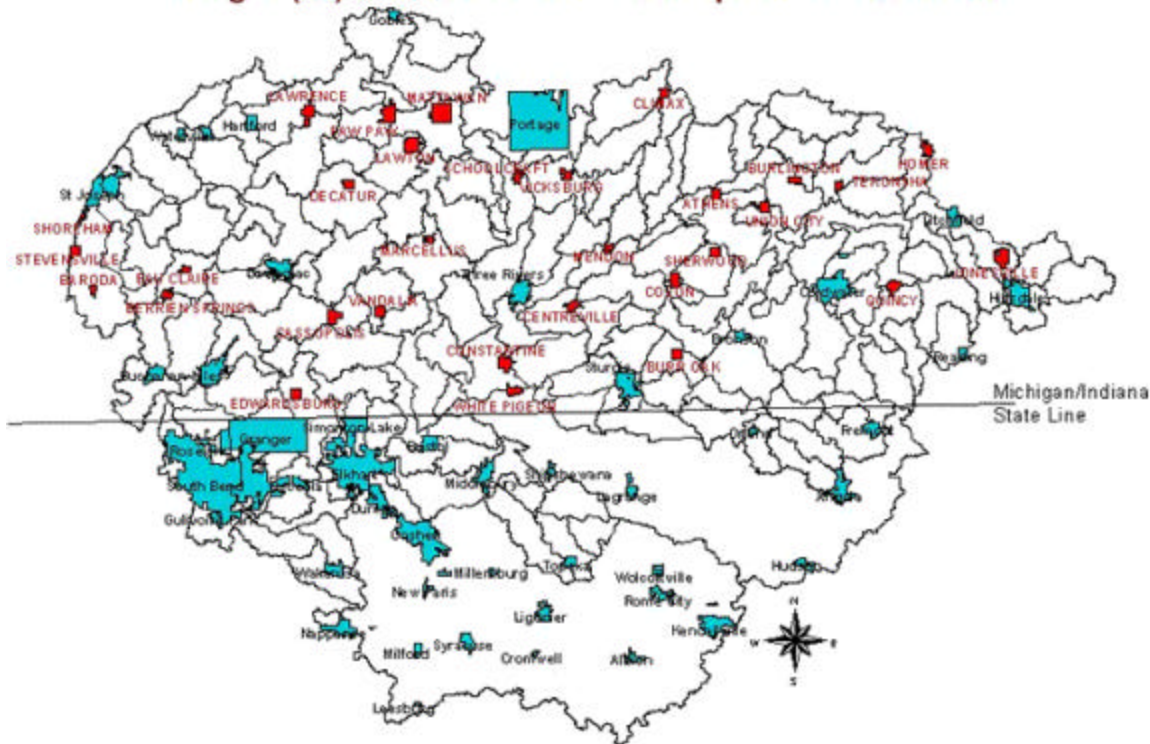
Subwatersheds

Water Bodies

Cities/Villages



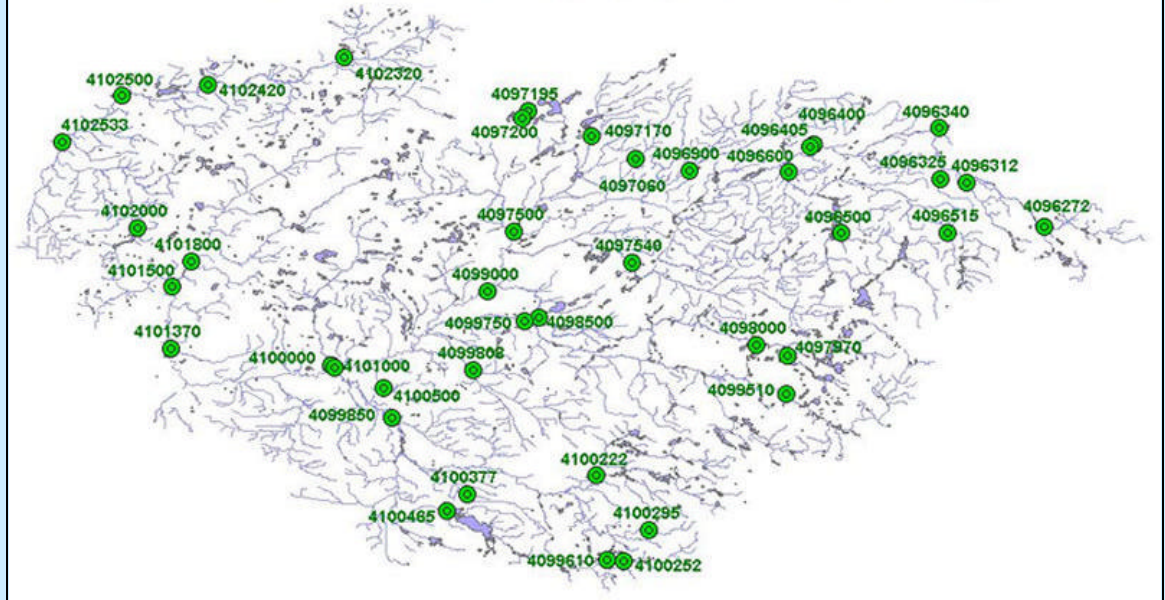
Villages (MI) and Cities in the St. Joseph River Watershed



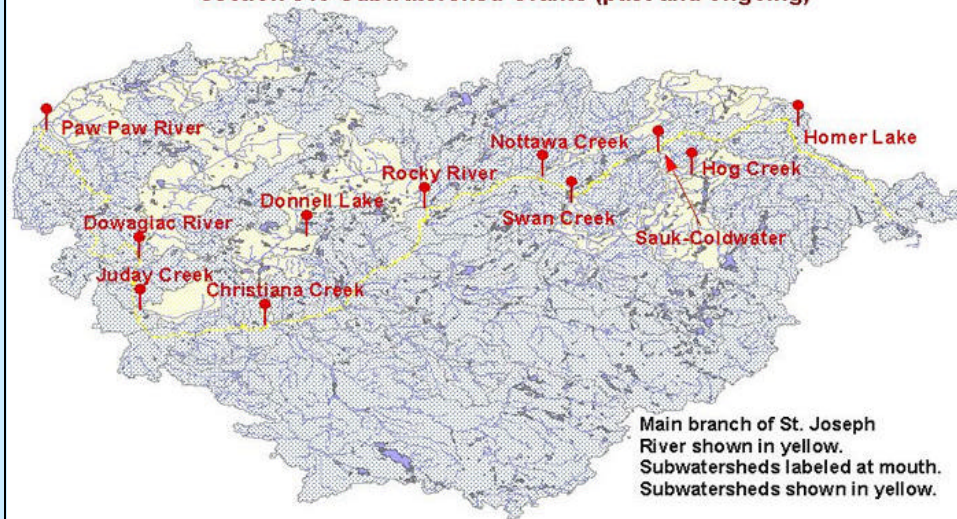
USGS Flow Stations

Other Section 319 Projects

USGS Stream Flow Gauges Displaying Mean Daily Discharge Data

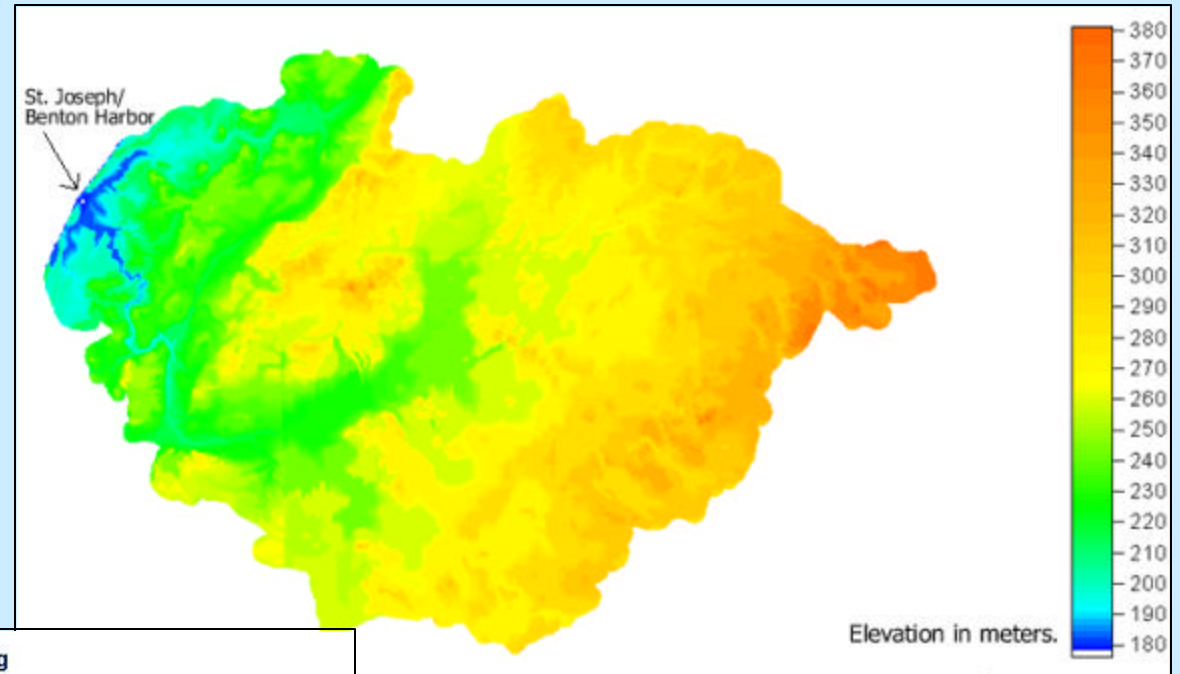


Section 319 Subwatershed Grants (past and ongoing)

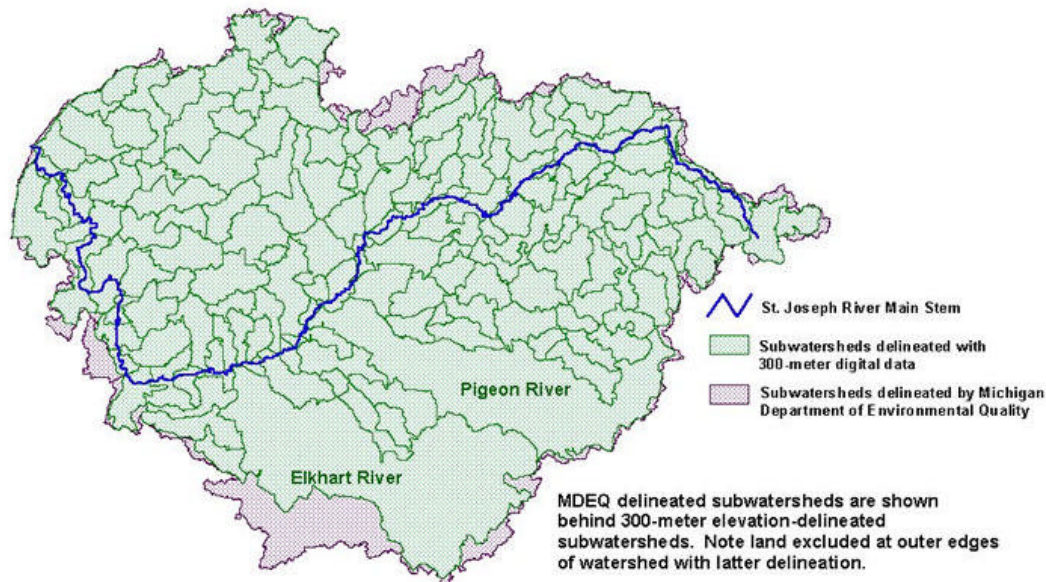


Digital Elevation Modeling

Watershed Delineation

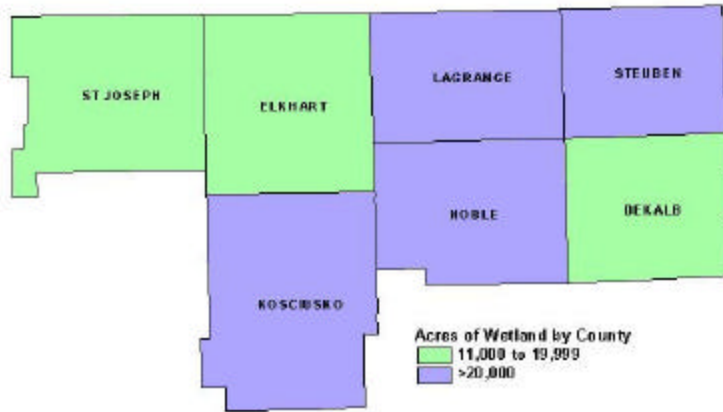


Comparison of subwatershed boundaries using
30-meter and 300-meter digital elevation data



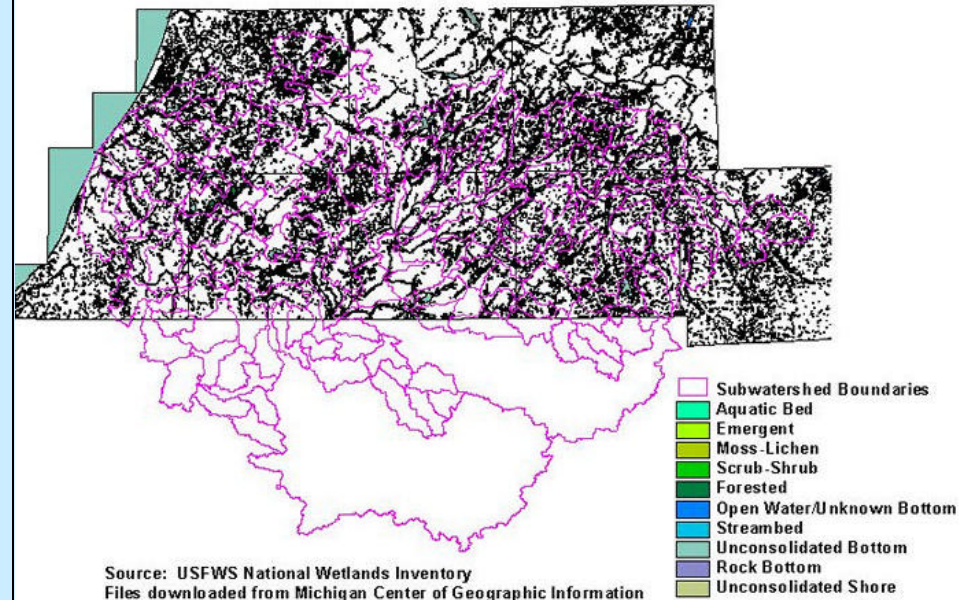
Wetlands

**Indiana Wetland Density by County, mid-1980s
Counties of the St. Joseph River Watershed**



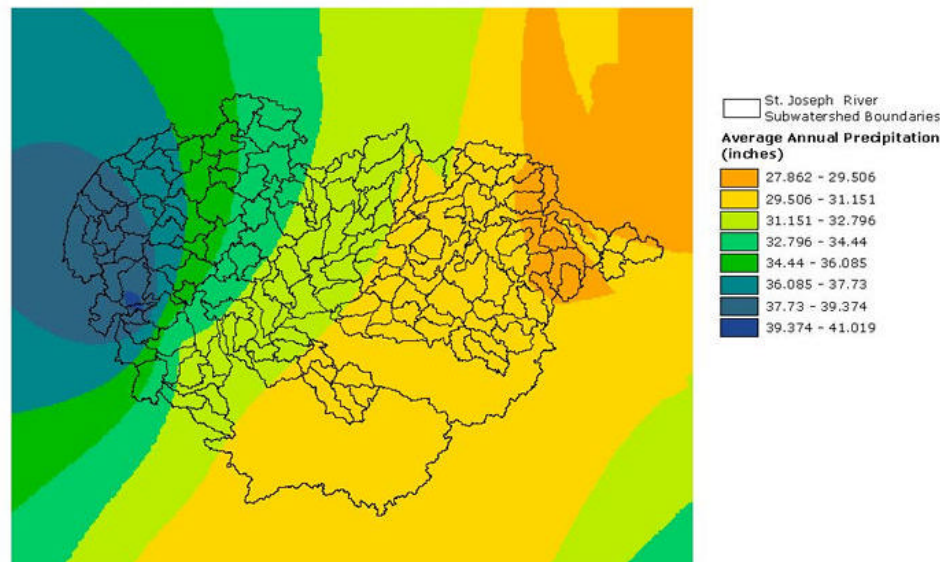
Source: Indiana Department of Environmental Management
http://www.in.gov/dem/water/planbr/401/county_wetlands_map.html

**Wetlands of the Michigan Counties
in the St. Joseph River Watershed**



Source: USFWS National Wetlands Inventory
Files downloaded from Michigan Center of Geographic Information

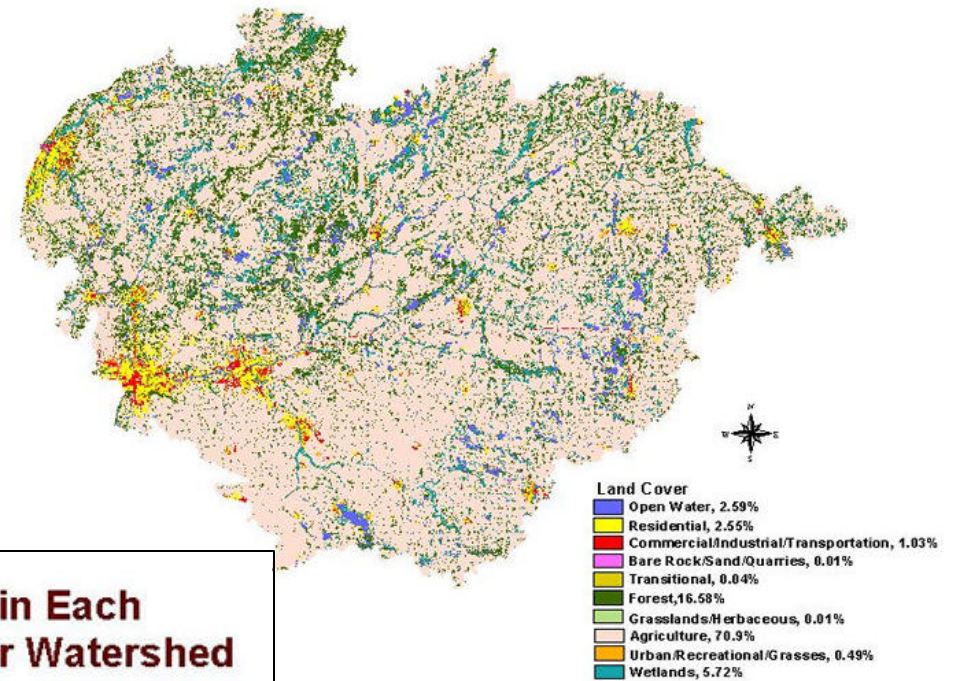
Average Annual Rainfall from 1950-1999



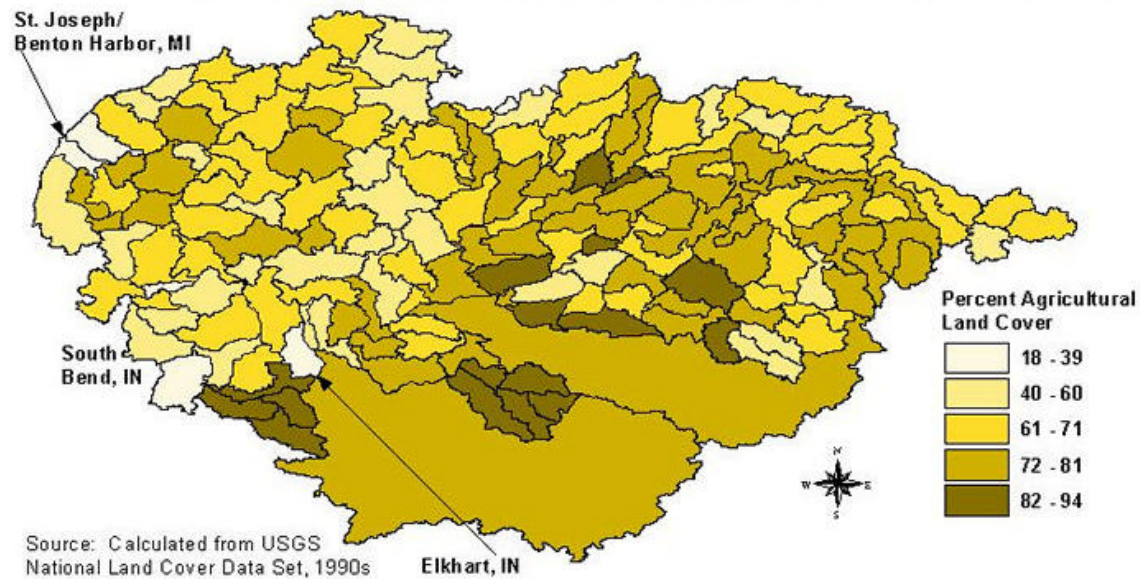
Rainfall

Land Cover

Land Cover in the St. Joe River Watershed



Percent Agricultural Land Cover in Each Subwatershed of the St. Joseph River Watershed

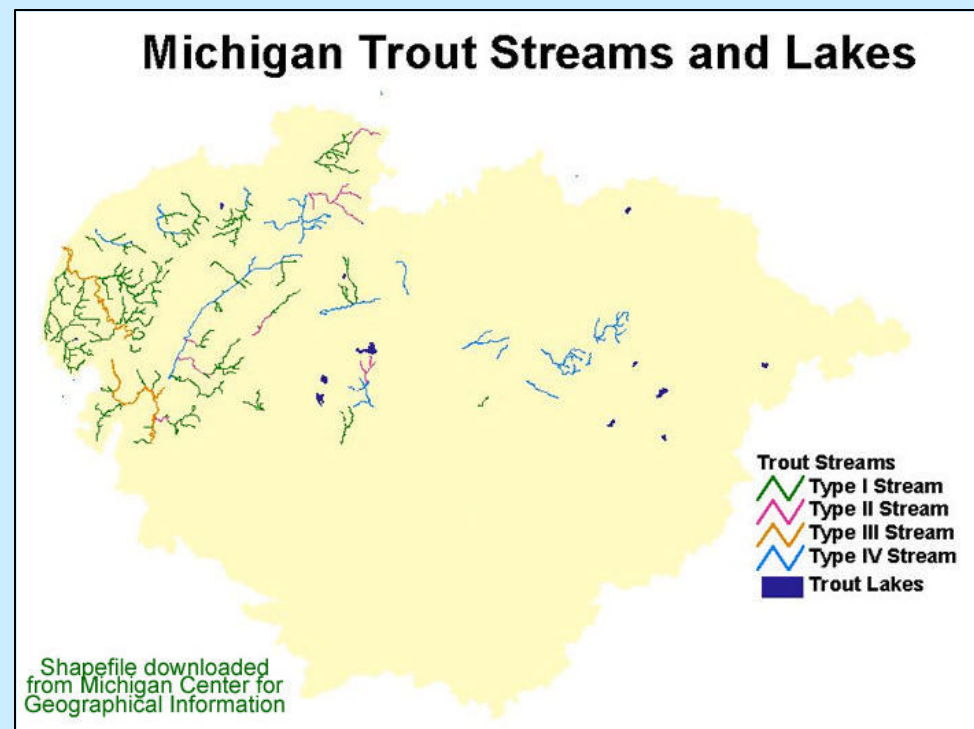
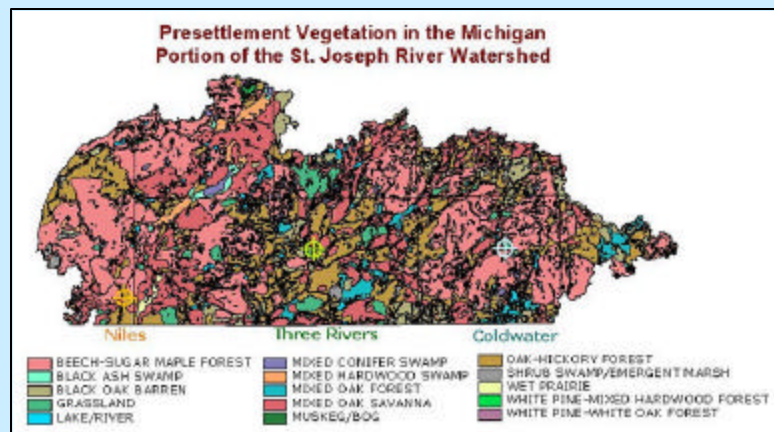
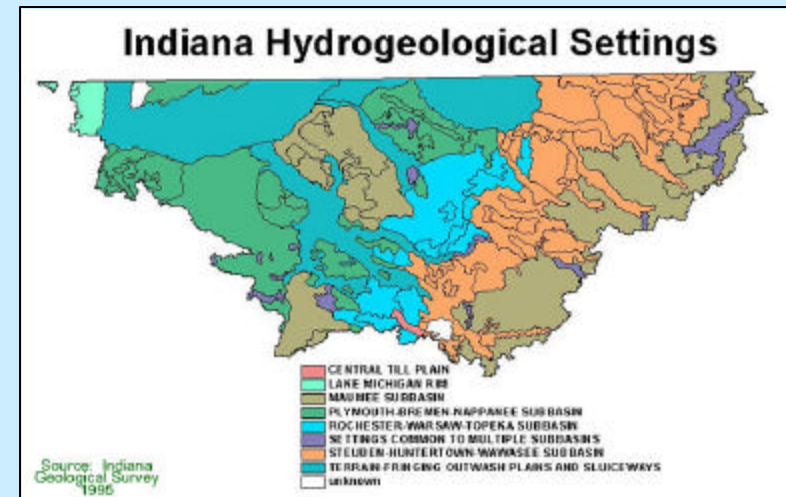


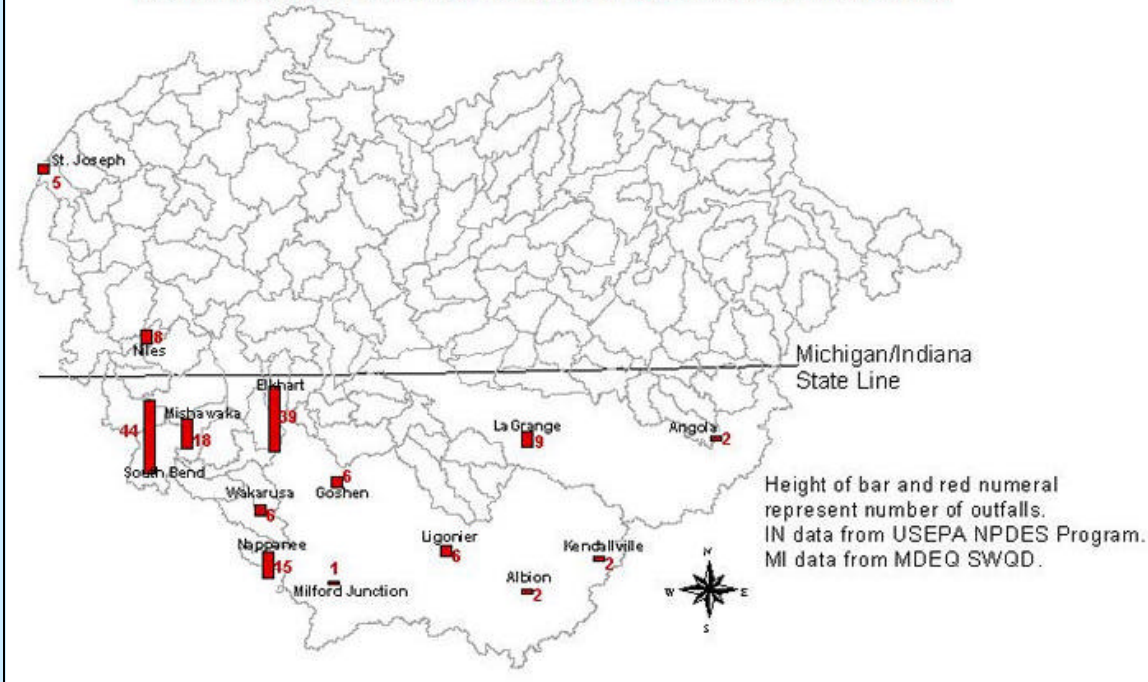
Trout Streams

IN Hydrogeological Setting

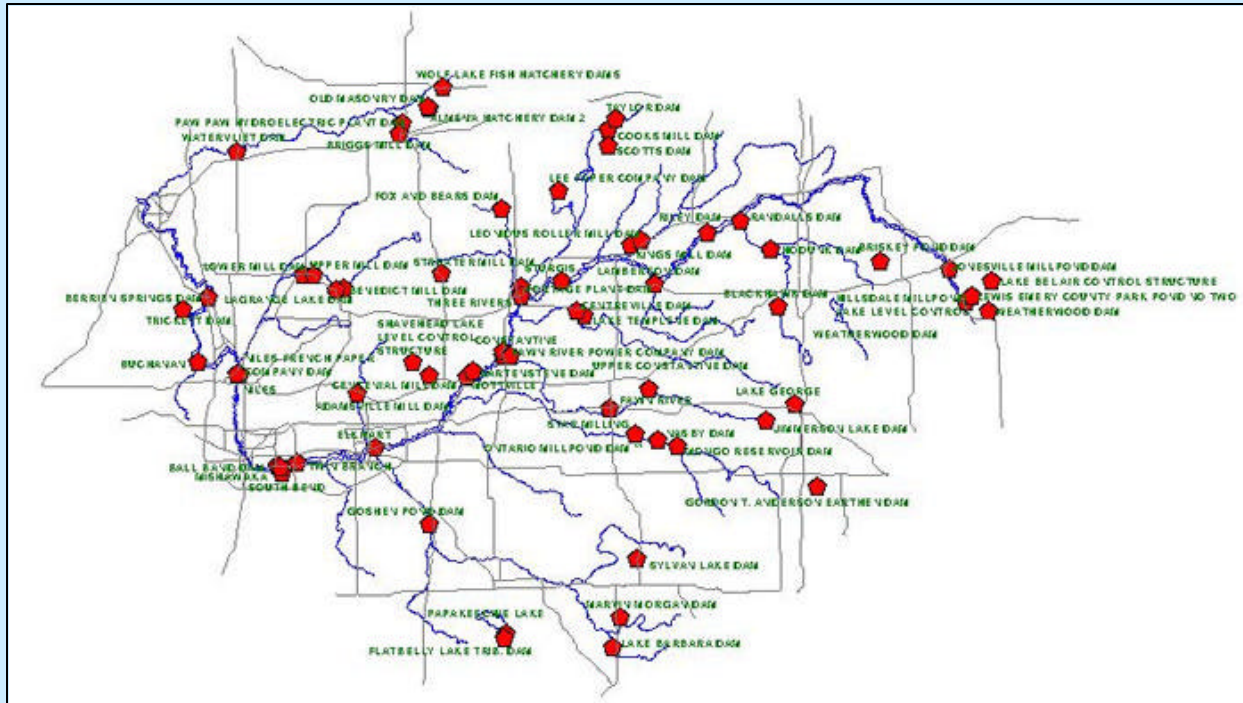
MI Presettlement Vegetation

GIS Applet





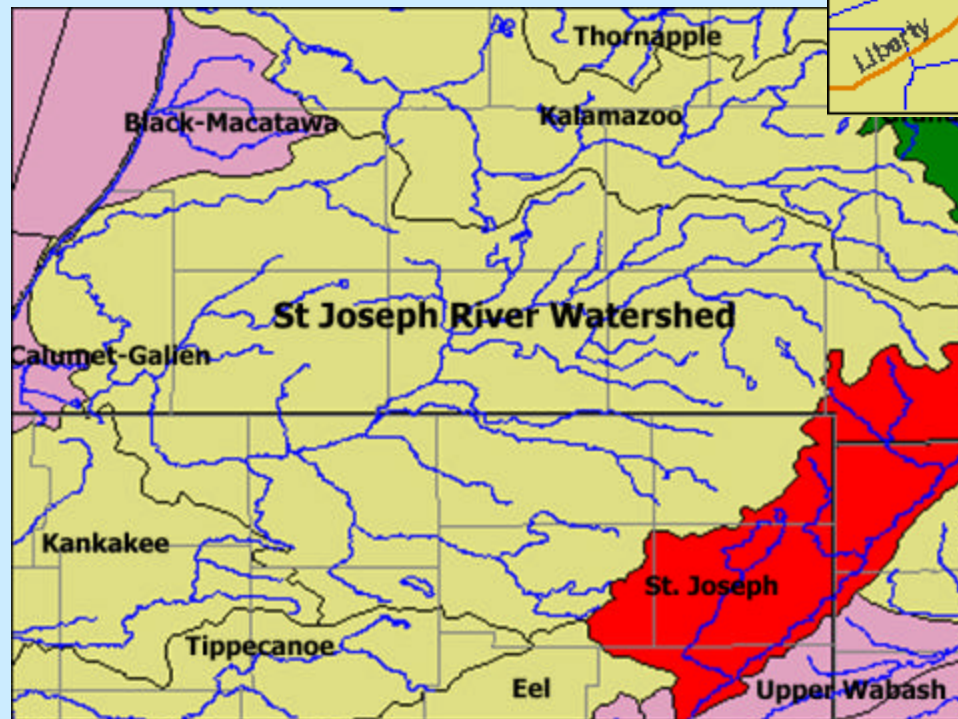
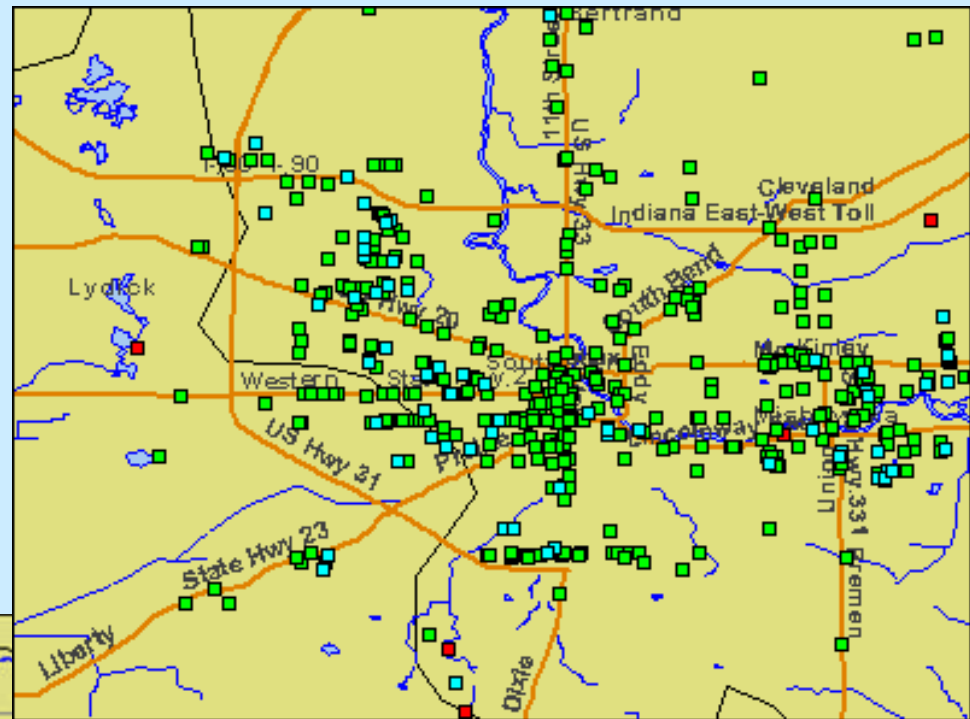
NPDES Permanent Dischargers



Fish Advisories

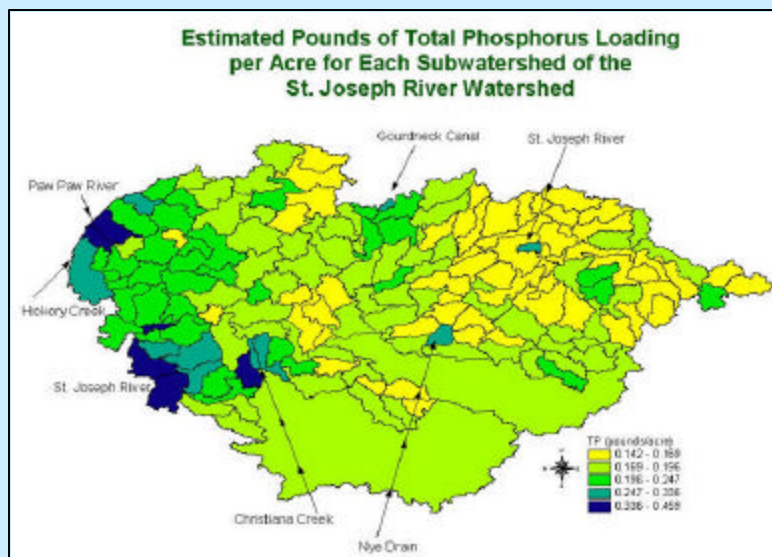
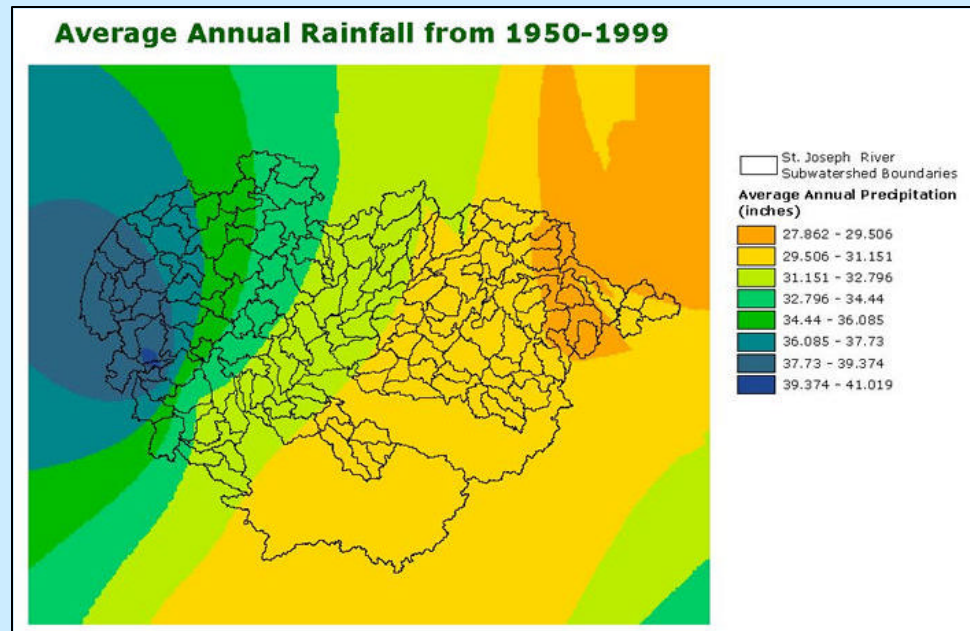
LaMP Data

Federally Regulated
Facilities



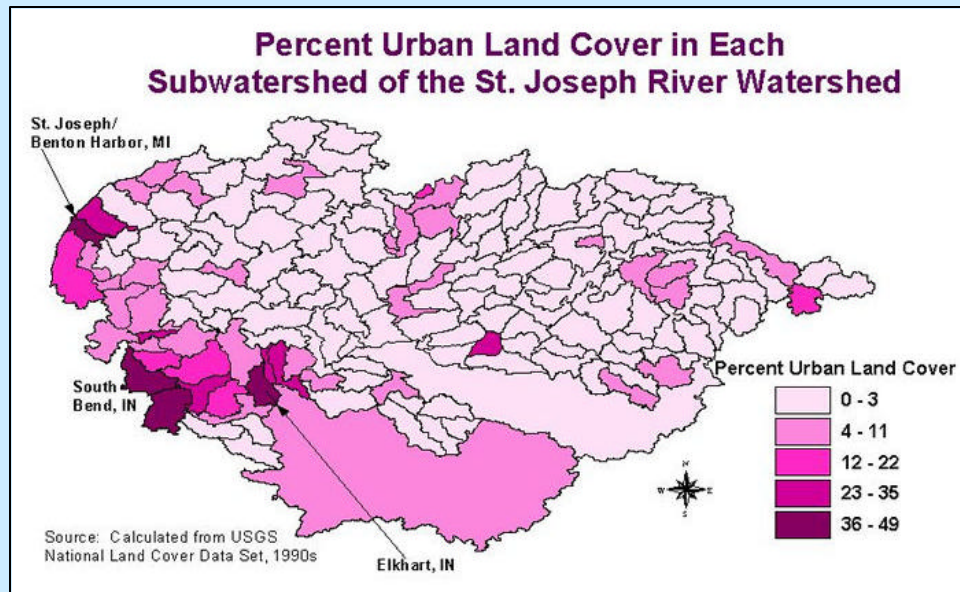
Nonpoint Source Modeling: Empirical

Land cover and continuous grid average annual precipitation values to generate runoff volumes.



EMCs for each land cover type multiplied by runoff value to generate loading. Calibrated with Robertson (1997) and point source values.

Nonpoint Source Modeling: GIS Based Platform

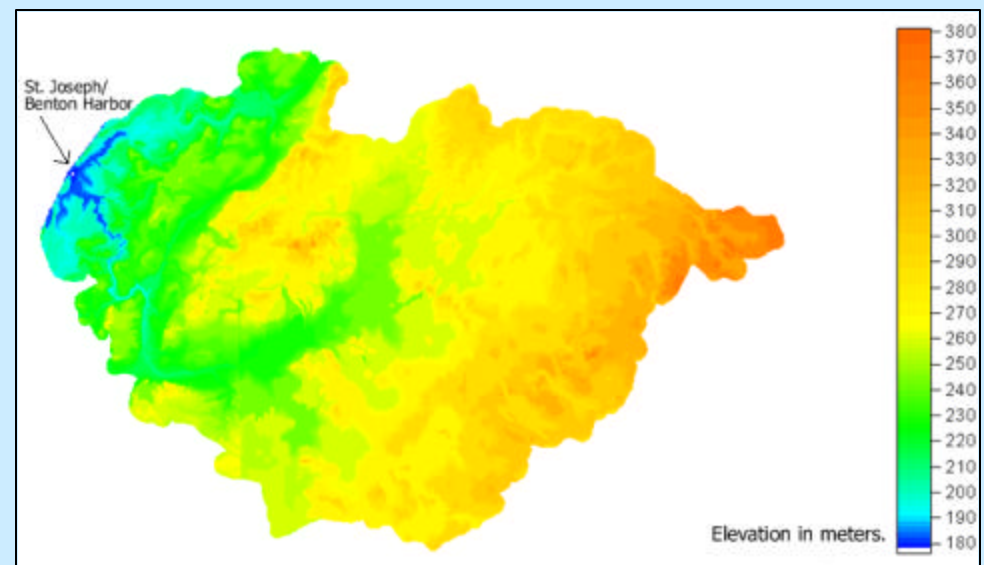


USEPA's BASINS used to perform more involved modeling.

SWAT (Soil and Water Assessment Tool)

HSPF (Hydrological Simulation Program Fortran)

How do these results correlate to known impairments in the watershed?




Task 6: Information Dissemination

Website and Tech Check

Monthly technical publication posted on website and distributed to Steering Committee



**Tech Check**
A monthly technical bulletin for the St. Joseph River Watershed

March 2003

This is the first issue of the monthly technical bulletin for the St. Joseph River Watershed Management Planning Project. Each month, KIESER & ASSOCIATES will publish this bulletin on the project website and distribute it by email to keep the Steering Committee apprised of the progress of the technical work products. Products are grouped by Task Number, as specified in the Work Plan. Clickable links allow you to navigate to online maps and work products.

Task 1 Background Information Collection

The [bibliography](#) has grown to include 240 entries. The bibliography may be downloaded as an Excel file from the website. The [links page](#) of the site represents an electronic watershed bibliography.

Task 2 Drainage Basin Characterization

[Digital Elevation Modeling](#) has been conducted to confirm the subwatershed boundaries being utilized for this project. Land cover types for each subwatershed have been calculated and used to create maps displaying the percentage of [wetlands](#), [agriculture](#), [urban/developed](#) and [forested/open](#) land cover for each subwatershed. [Section 319 grants](#) awarded to subwatersheds in the St. Joseph River Watershed have been mapped with links to available project information.

Task 3 Identification of Critical Areas

Nonpoint source modeling is being conducted in order to identify potential critical areas in the watershed. Maps of the [NPDES Phase II Communities](#), [dams](#) in the watershed and of the [federally regulated facilities](#) have been created. The latter was developed by linking to the U.S. EPA EnviroMapper program. Pages from the [Lake Michigan Lakewide Management Plan](#) illustrating tributary loading to the lake have been extracted and posted on the website.

What's Next?

Nonpoint source modeling is utilizing the U.S. EPA BASINS program. An on-line GIS Applet, which allows viewers to turn layers on and off and identify attributes in the watershed such as county names, is being developed for the website.

What's Needed?

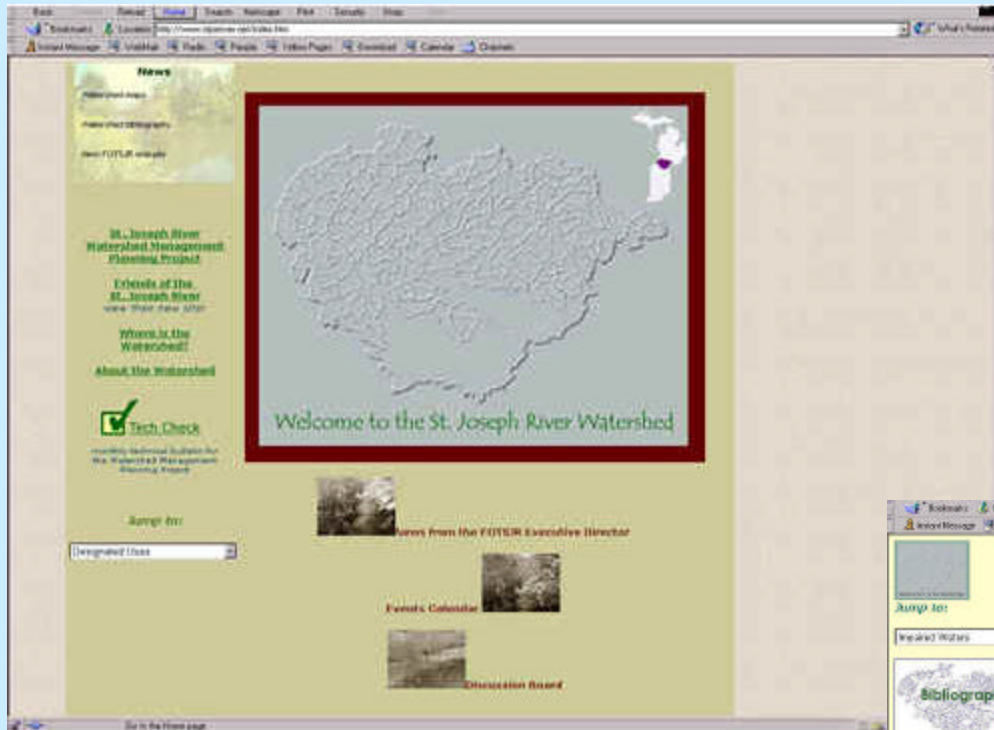
Steering Committee input is needed to help us find additional sources of information. This can include bibliography entries or spatial data (CAD or shapefiles). We also welcome feedback on the items presented in this bulletin. A [discussion board](#) has been developed for the website. You can provide information there or contact us directly at nott@kieser-associates.com.

St. Joseph River Watershed Management Planning
Project Technical Bulletin; Issue 1; March 2003

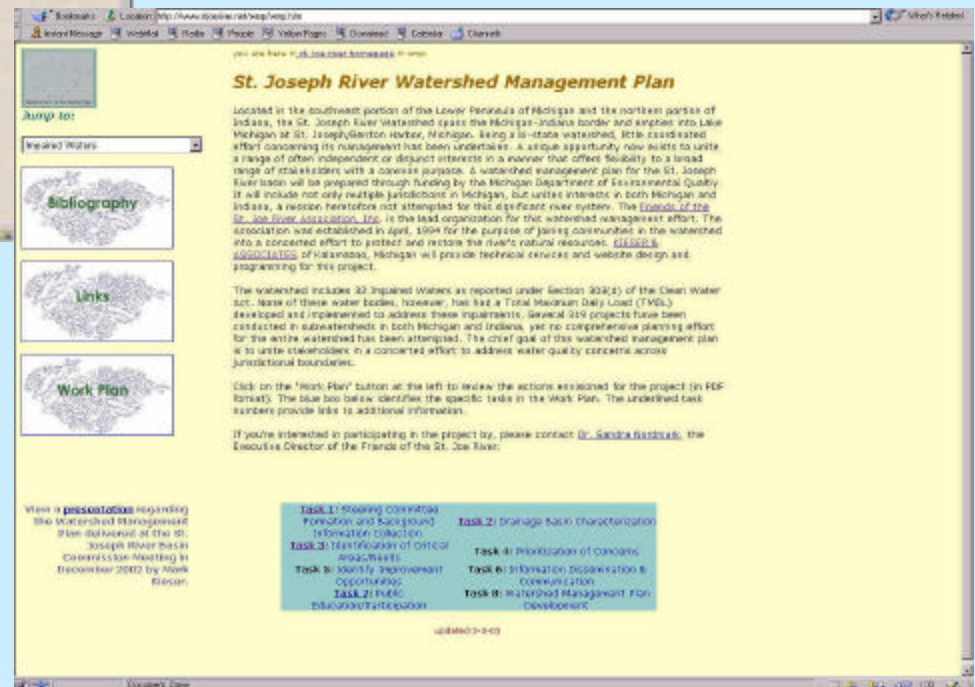
KIESER & ASSOCIATES
ENVIRONMENTAL SCIENCE & ENGINEERING

Design and Maintenance of Website

<http://www.stjoeriver.net>



Events Calendar
Discussion Board
“Jump To” Menus



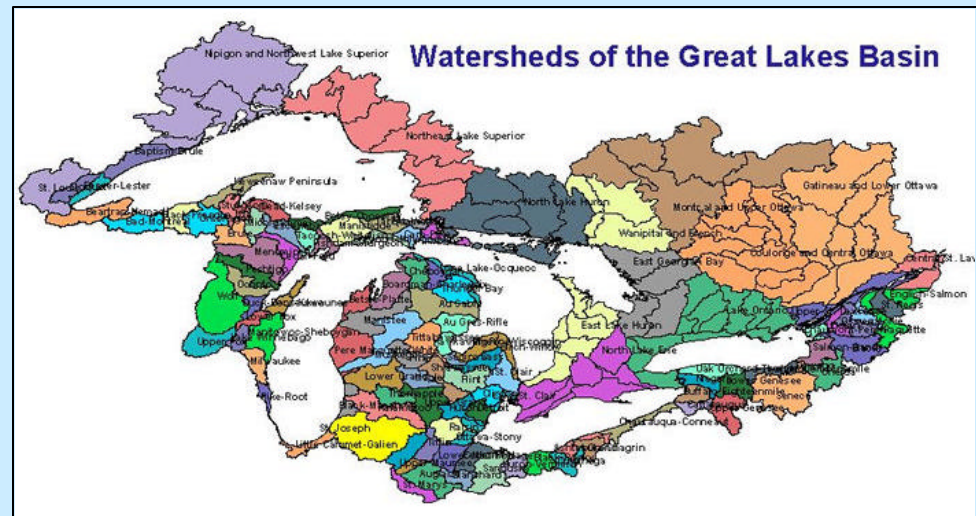
Next Steps

Water Quality Summary

Institutionalization of Road-Steam Crossing Inventory Method

Watershed Wide Meeting

New U.S. EPA Guidelines



Contacts

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