



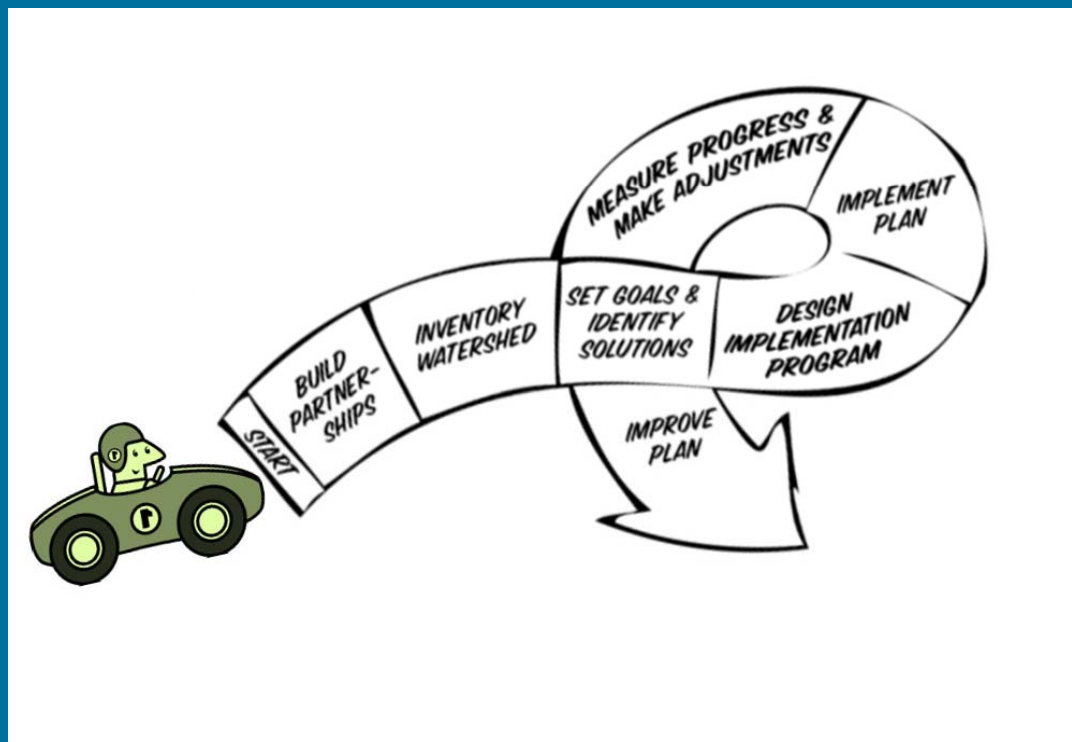
TRICKS AND TRAPDOORS IN WATERSHED PLANNING

How to turn volunteer data into action and solutions,
not just reports, plans and discussions

OUTLINE

- Concepts in Watershed Planning
- Problem areas that could cause you to:
 - Get bogged down
 - Lose focus and volunteers
 - Go on a wild goose chase
 - Get over-extended
- Good and bad examples
- Tools, strategies and resources
- Getting plans approved and implemented

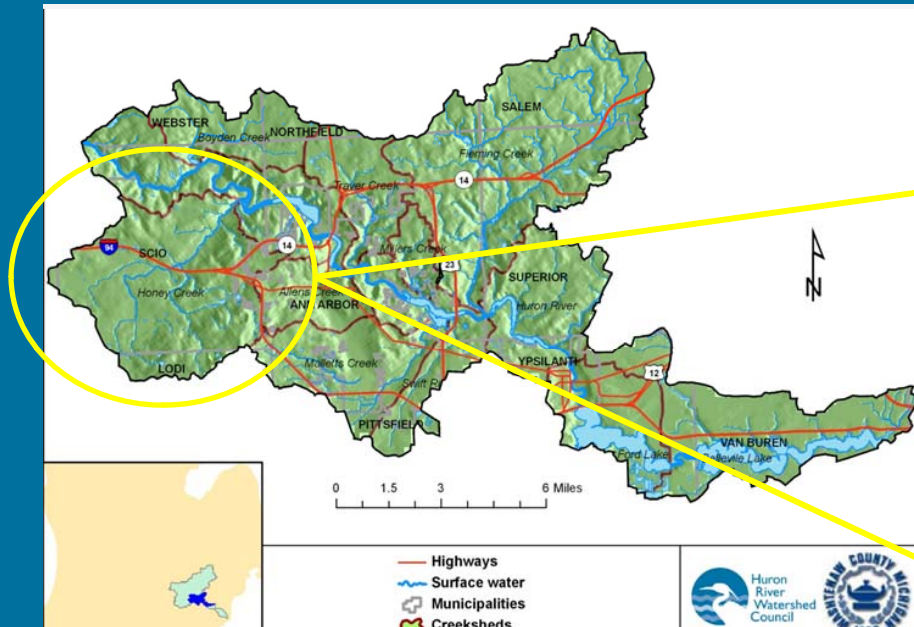
WATERSHED PLANNING PROCESS



BEFORE YOU START

- Watershed plan development is not a linear process
- Familiarize yourself with all the “steps” and requirements, including EPA’s “9 minimum measures”
- Define your watershed scale – best to stay within 10-25 sq mi range
- Talk with existing partners and develop a general goal(s) for the watershed to develop focus.
 - Why do you want to do the plan?
 - Result could be a simple, informal task list or a complicated, comprehensive, multi-agency plan

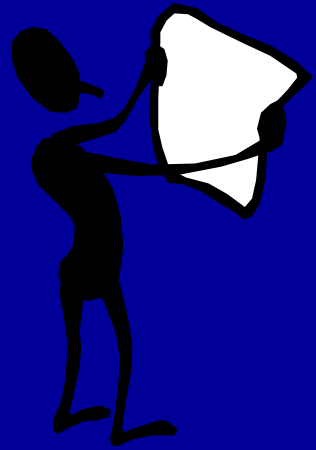
EFFECTIVE SCALE



217 sq mi



23 sq mi
12-digit HUC



Step 1. Build Partnerships

- ID stakeholders
- ID issues of concern
- Set preliminary goals
- Develop indicators
- Conduct outreach



PARTNERSHIP ISSUES

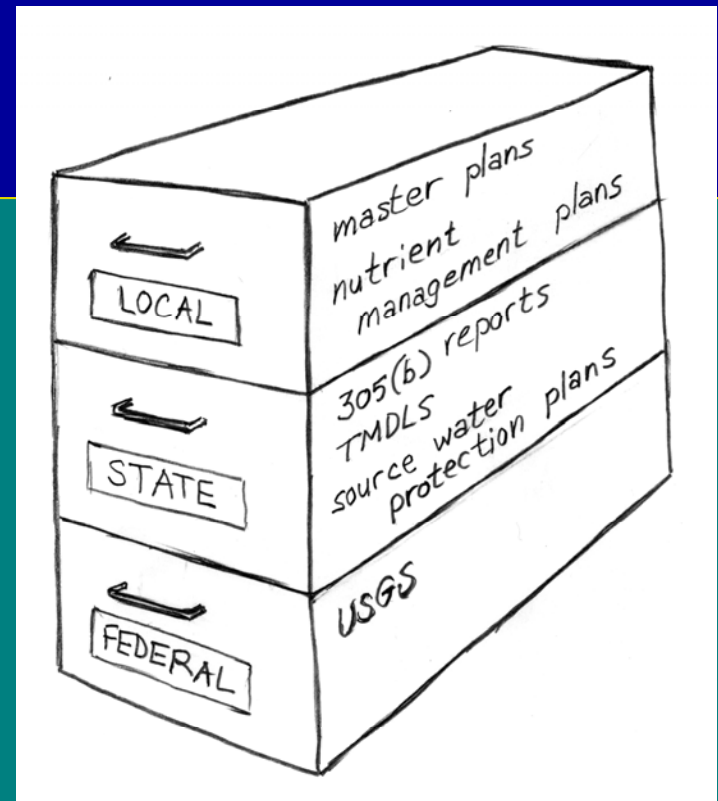
- Truth is, partnerships necessary at every step
- Some partners contribute more to problems than solutions
- Sometimes consensus solutions are not best or can't be reached
- Find out what expertise is missing and who can influence change
- Develop a core team of advisors or collaborators, if possible



Step 2. Characterize Watershed



- ◆ Gather existing data
- ◆ Create data inventory
- ◆ ID data gaps
- ◆ Collect additional data, if needed
- ◆ Analyze data
- ◆ ID pollution causes and sources
- ◆ Estimate pollutant loads



CHARACTERIZATION ISSUES

- Unending elements to characterize in each watershed – focus on what is important
- Inventory what you have first, then ID gaps
- What are the MOST important issues or impairments?
- How much data collection is enough?
- To model or not to model (and which one)?
- Loading and reduction estimates are not as precise as most plans imply
- Look for **opportunities** as well as *impairments*

MONITORED VS MODELED LOADS

Table 3. Loading estimates for Middle Huron streams using two different time periods. All figures in lbs/day.

Site	TP Mean Daily Load Est. (2003-12)	TP Mean Daily Load Est. (1995)	% Difference
Huron @ N. Territorial (upstream)	63.19	41.07	+53.86%
Mill Creek	42.43	30.25	+40.26%
Honey Creek	7.98	2.22	+259.46%
Allens Creek	3.85	2.74	+40.51%
Traver Creek	3.57	5.08	-29.72%
Fleming Creek	7.31	3.52	+107.67%
Millers Creek	0.47	5.36	-91.23%
Malletts Creek	11.60	14.76	-21.41%
Swift Run	1.99	0.82	+142.68%
Superior Drain	1.05	NA	NA
Cumulative Load	143.44	105.8	+35.6%
Huron @ Ford Lake (US-12)	151.43	200.59	-24.5
Mass balance of remaining sources/(sinks)	7.99	94.8	

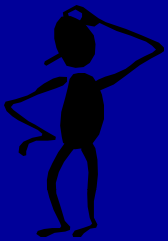
USEFUL DATA COLLECTION TOOLS

- Windshield surveys (see USSR from Center for Watershed Protection (CWP)) for upland assessment
- In-stream surveys (see USA from CWP) for target or critical stream segments
- Road crossing surveys (see Huron Pines)
- General long-term monitoring vs targeted, short-term studies
- Use DEQ and federal agency data and STAFF

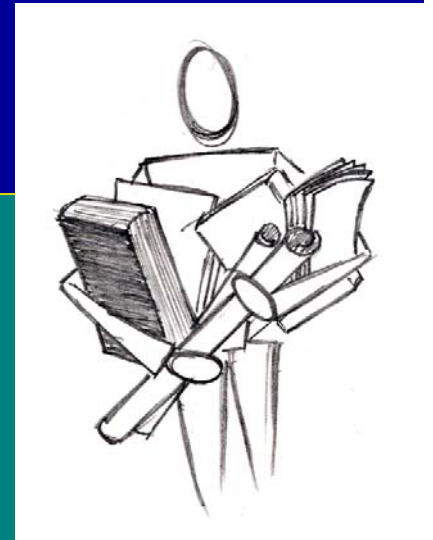
REACH SURVEYS



STEP 3: FINALIZE GOALS AND IDENTIFY SOLUTIONS



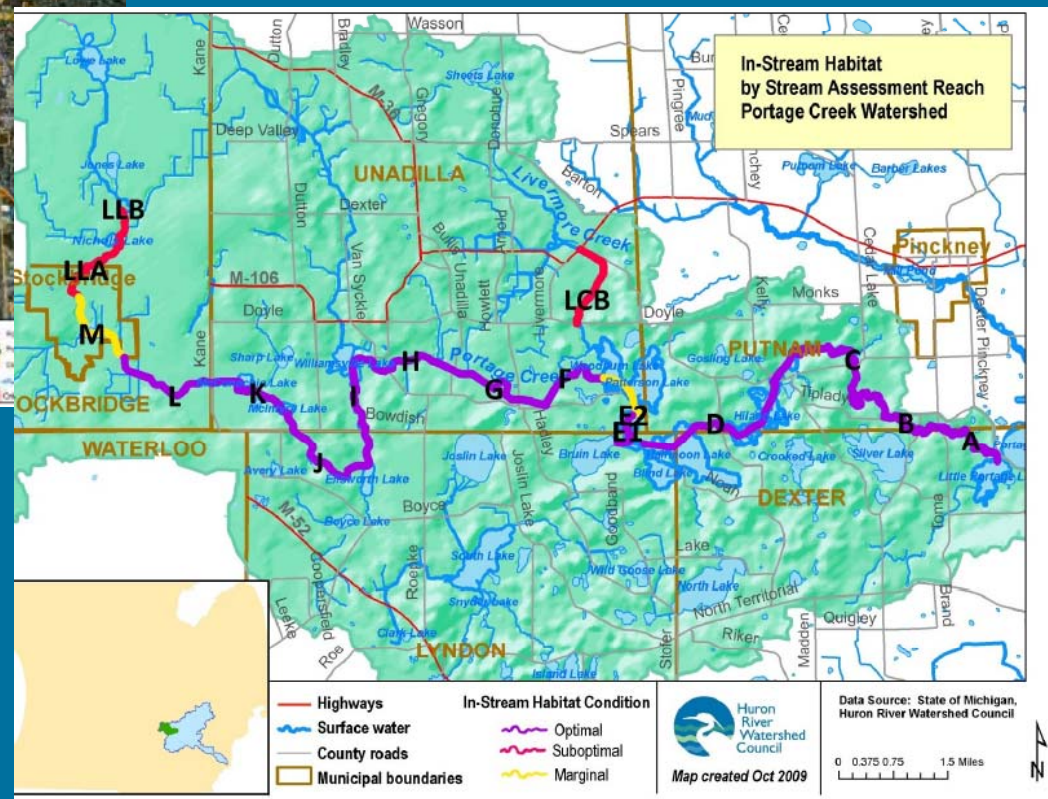
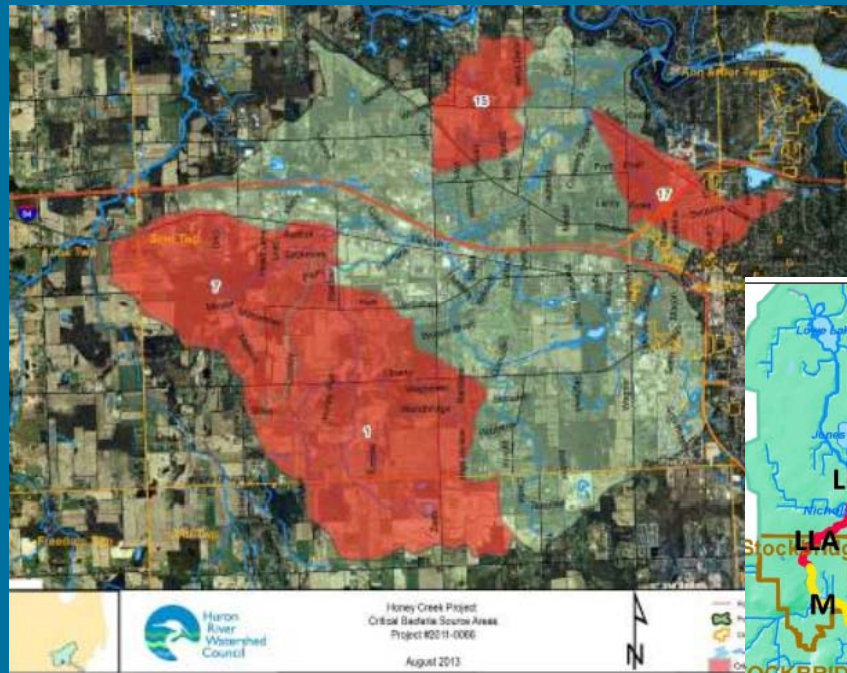
- ◆ Set goals and management objectives
- ◆ Develop indicators/targets
- ◆ Determine load reductions needed
- ◆ ID critical areas
- ◆ ID management measures needed



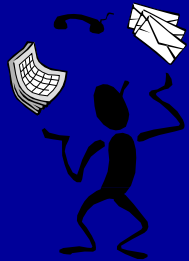
GOALS AND SOLUTIONS ISSUES

- Determine initial goals early, then modify
- Are partners in support of goals?
- Use load reduction estimates as guidelines for scope
- Use data results to define “critical areas” to focus projects or policies
- Don’t forget protection goals and policies to go with
- Check solutions with partners – what is realistic?

CRITICAL AREAS



STEP 4: DESIGN IMPLEMENTATION PROGRAM



- ◆ Develop Implementation schedule
- ◆ Set Interim milestones
- ◆ Determine how you will measure success
- ◆ Develop monitoring component
- ◆ Develop evaluation process
- ◆ ID technical and financial assistance needed
- ◆ Assign responsibility



Documentation of these items completes the plan

IMPLEMENTATION PLAN ISSUES

- Consider sequencing: do certain activities precede others?
- Address most important sources (or impairments) first
- Find the “low hanging fruit” or “no regrets actions”
- Most implementation schedules are overly optimistic and prescriptive
- What are partners **willing** to do? Can they provide match funding (even in-kind is helpful)?
- Use volunteer monitoring for success evaluation
- Distinguish process from outcome measures
- Don't forget outreach and education

IMPLEMENTATION SUMMARIES

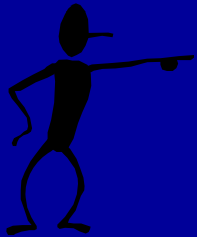
Table 5. Summary of the initial 5-Year E. coli Reduction Strategy, 2015-19

Activity	E. coli Source Reduced	Critical Areas	Implementation Timeframe	Cost Estimate 2013-2017	Lead Agency*	Success Measures
1A. Canine source detection	Human	15, 7	2015	\$8,500	HRWC, WCWRC	Linear feet inspected; sources identified
1B. Illicit discharge elimination program	Human	15, 7	2015-16, ongoing after	\$30,000	WCWRC, WCRC, Scio, HRWC	% sources eliminated; bacteria cfu reduced
1C. Septic Inspection, Education and Remediation Program	Human	15, 7	Ongoing. New targets 2015-17	\$27,000	WC Environmental Health, HRWC	Inspection call rate; annual septic remediations
2A. Public Education Program (PEP)	Multiple	1, 7, 17	2015-17	\$45,000	HRWC, SAG Members, Scio	Impairment knowledge from survey; participation rates, monitoring
2B. Education on Pet Waste	Pet waste	1, 7, 17	2015-17	Part of PEP	HRWC, SAG Members, Scio	Impairment knowledge from survey; participation rates, monitoring
2C. Agriculture/Farmland Education	Agricultural	1, 7, 17	2015-17	Part of PEP	HRWC, Scio, NRCS, WCCD	Impairment knowledge from survey; participation rates, monitoring
2D. Pooper Scooper Ordinance and education	Pet waste	1, 7, 17	2015-17	\$18,000	Scio	Ordinance passed; call volume; violation #
2E. Doggie Bags at target locations	Pet waste	1, 7, 17	2015-17	\$15,000	WC Parks, Scio	Stations established; use rate; pounds removed; monitoring
2F. Increasing Farm Bill Program participation	Agricultural	1, 7	2015-19	\$140,600	HRWC, NRCS, WCCD	Participation rates; acres treated; monitoring

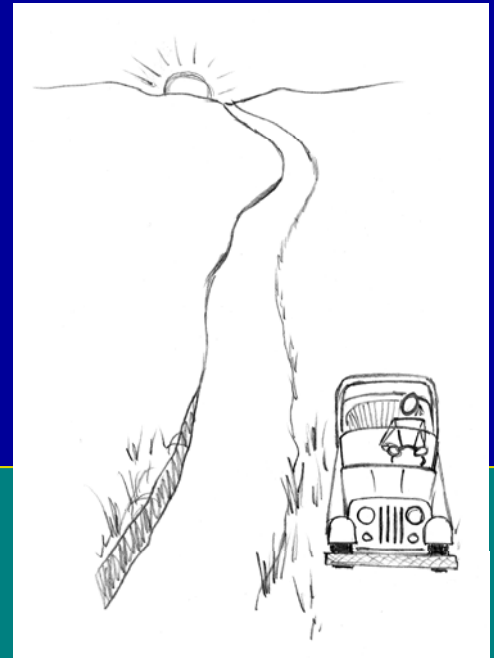
Table VI-N. Summary of Implementation Project Costs and Pollutant Reductions (Years 1-5)

Best Practice	Goal	Cost	Pollutant Reduction (lbs)
1. Restore Vegetated Stream Buffers ⁱ	82 acres	(\$500/ac + staff) \$75,000	177,039 TSS, 1,543 N, 200 P
Natural Shoreline Demonstration Project	3 sites	\$100,000	
2. Restore Wetlands ⁱⁱ	500 acres	(\$2,000/ac + staff) \$1,000,000	132,349 TSS, 546 N, 136 P
3. Develop Environmental Flow Recommendations	set of recommendations	\$25,000	
4. USDA Farm Best Practices and Farmer Outreach ⁱⁱⁱ	5 projects	(\$25,000/site + staff) \$139,625	382 TSS, 765 N, 382 P
5. Environmentally Sensitive Dirt and Gravel Roads Maintenance and Design ^{iv}	2 trainings, 1 demonstration project	\$28,000	
6. Repair Erosion Sites ^v	7582 lineal ft; 250 lf (moderate/severe)	\$303,280; \$25,000 (\$40/lf + staff) (moderate/severe)	166.2 tons Sediment, 332.7 N, 166.2 P
7. Remove Fish Barriers ^{vi}	10 sites	\$1,600,000; \$1,400,000 for culvert work only	
8. Detect and Correct Failing and High Risk Septic Systems ^{vii}		\$35,000	10% reduction N, P

STEP 5: IMPLEMENT WATERSHED PLAN



- ◆ Implement management strategies
- ◆ Conduct monitoring
- ◆ Conduct outreach activities

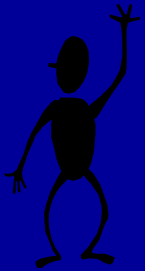


IMPLEMENTATION ISSUES

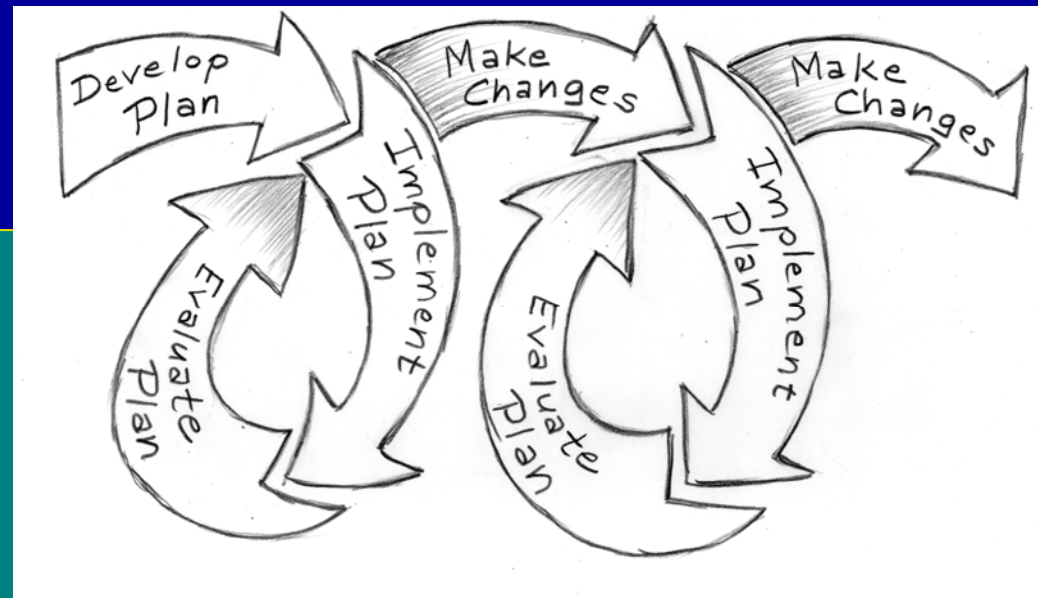
- Easier said than done
- Don't be afraid to adjust midstream if things don't work as initially planned
- Advisory teams can help to stay on track with goals
- Regularly return to activity plans to check progress and reset priorities



STEP 6: MEASURE PROGRESS AND MAKE ADJUSTMENTS



- ◆ Review and evaluate
- ◆ Share results
- ◆ Prepare annual plans
- ◆ Make adjustments



PROGRESS MEASUREMENT/ADJUSTMENT ISSUES

- Don't spend more time measuring than implementing
- Public education is difficult, but not impossible to measure
- Share success with partners and public (via media) early and often



RESOURCES

- Center for Watershed Protection (CWP)
 - www.cwp.org
 - Oodles of tools, urban watershed focus, comprehensive
- Michigan DEQ
 - http://www.michigan.gov/deq/0,4561,7-135-3313_3682_3714-69714--,00.html
 - Source of funding and approval, data, help with additional sampling, advice
- Michigan Center for Geographic Data
 - <http://www.mcgi.state.mi.us/mgdl/>
 - Rich source of statewide geographic (GIS) data

RESOURCES

- U.S. EPA
 - http://water.epa.gov/polwaste/nps/handbook_index.cfm
 - Tools, dense guidance, training, networks
- Natural Resource Conservation Service
 - <http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/water/watersheds/>
 - Limited tools and resources for rural watershed planning



Protecting the river since 1965

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