

Wetland Partnership Project

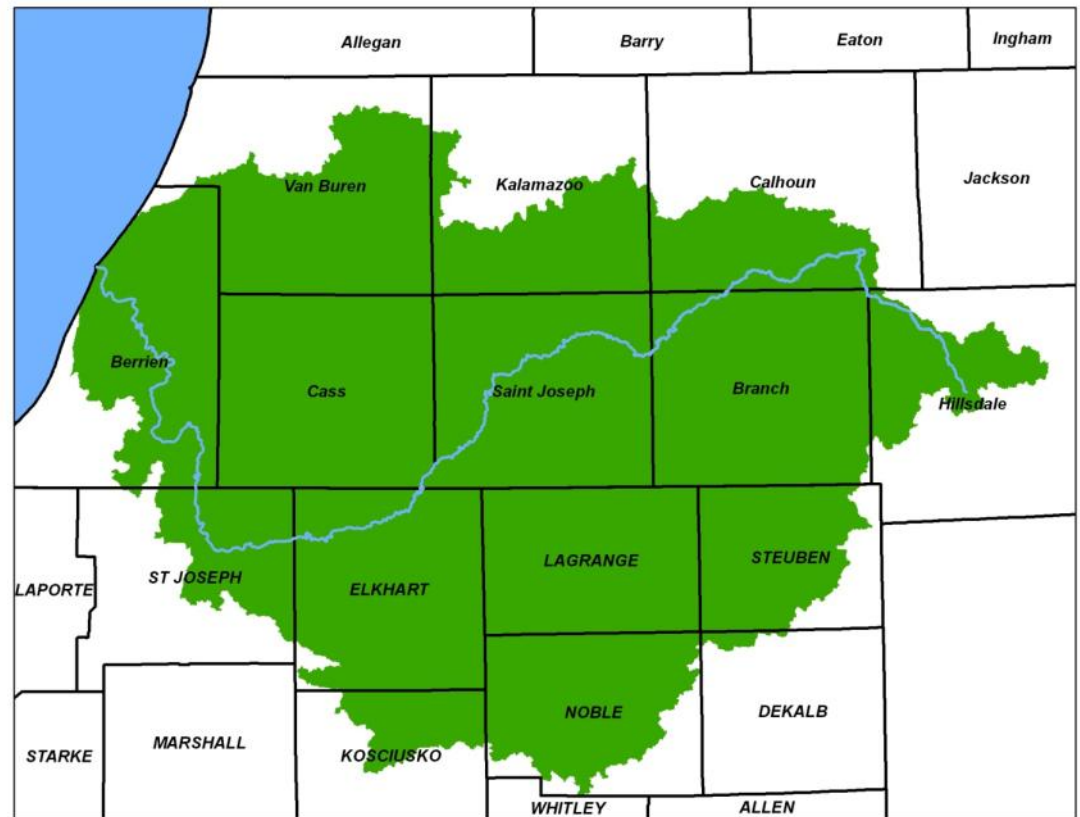
*a strategy for watershed
improvement*



Matt Meersman

Friends of the St. Joe River

St. Joseph River Watershed

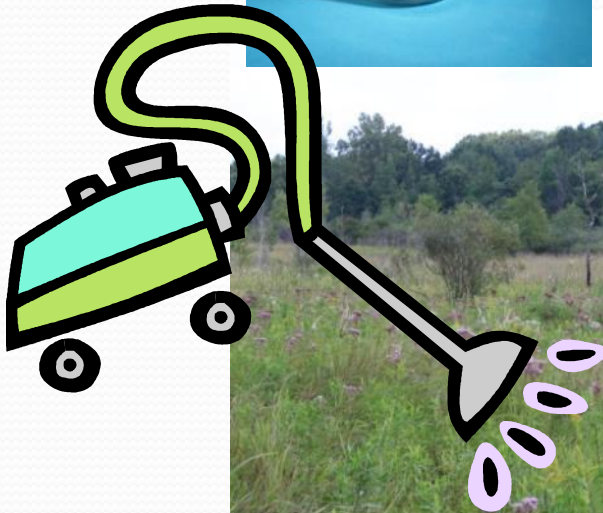


Why are we focused on wetlands?



Wetland Functions

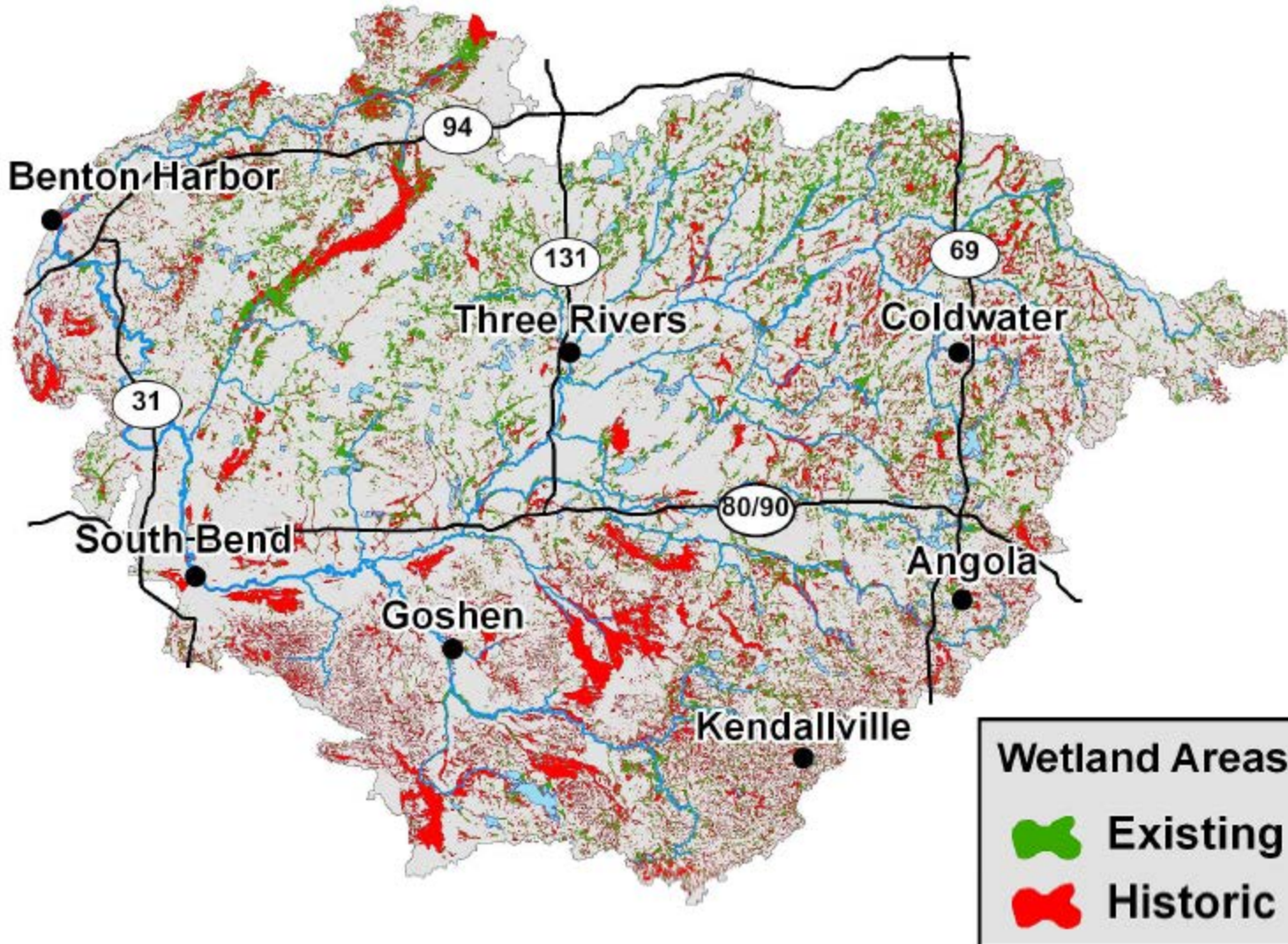
Water Quality Related



Habitat Related



Wetland Loss - SJRW



**53% Loss
of Wetland
Acres**

**What does
that mean
in terms of
functions?**

671,721 Acres Wetlands Pre-Settlement

315,878 Acres of Wetland Remaining



**We need to restore WETLANDS,
But where do we start???**

SJRW Wetland Project

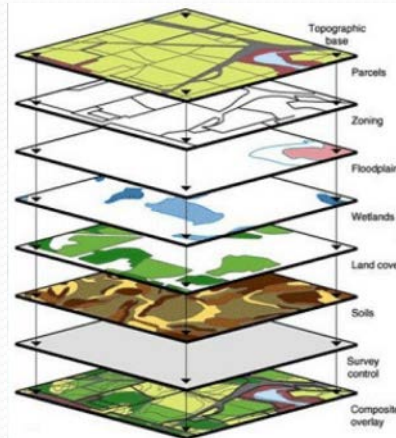
A 3 Step Strategy for Watershed Improvement:

1. **ENHANCE** existing and historic wetland data
2. **PRIORITIZE** by geography and functional significance
3. **UTILIZE** results to direct implementation efforts

52% Acreage Lost in the SJRW



58% Flood Storage Capacity Lost

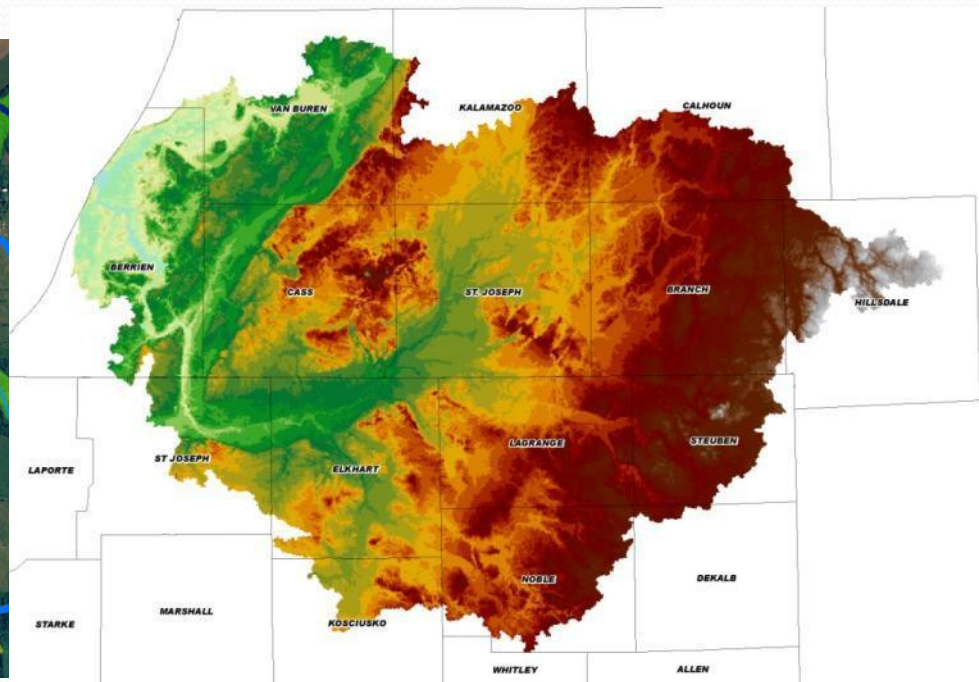
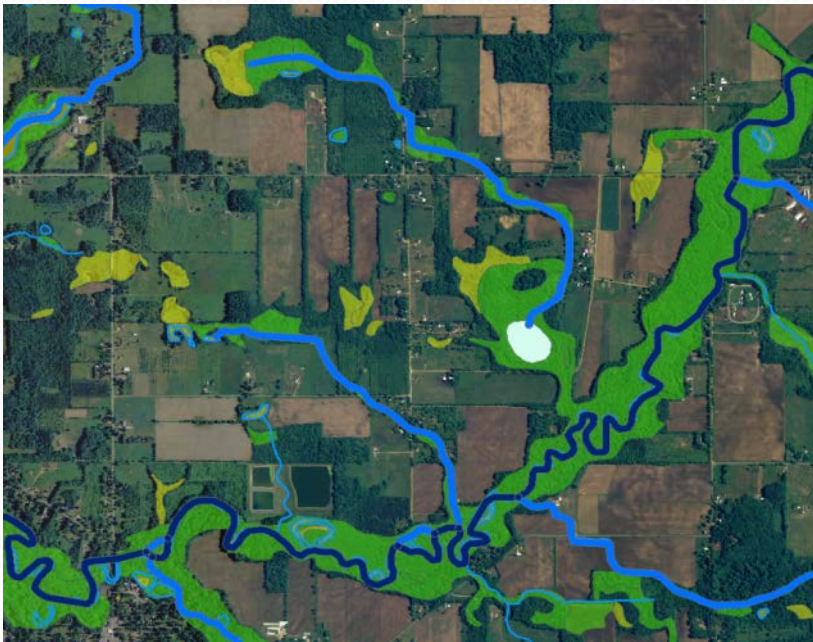
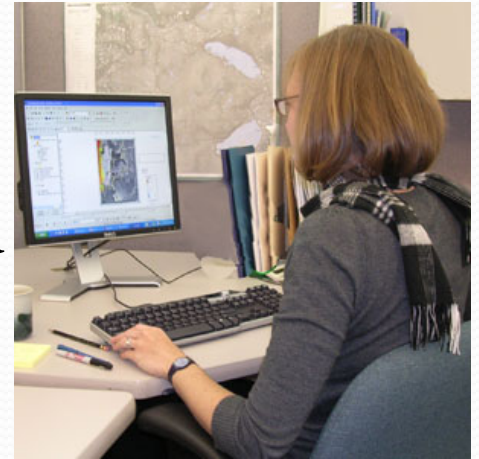


Christiana Creek Subwatershed (0405000114)		
Rank	Potential Landowner	Wetland Acres
1	NELSON FAMILY TRUST	232
2	COUNTY OF CASS, MI	193
3	WESTPHAL, CHARLES R	219
4	LARF LLC	141
5	STATE OF MICHIGAN DNR	148
6	WARREN, DWAIN K & CYNTHIA J	80
7	MC KENZIE, DARLENE J TRUST	132
8	BRANCALEON, TEENA	75
9	SPARKS CEDARLEE FARM	81
10	PAPANDREA, STEPHEN	65

Step 1. Enhance

-Level 1 Assessment

- Add information to existing wetland data
- Create Pre-Settlement wetland data
- Determine functional significance



Step 1. Enhance

- Add Hydrogeomorphic (HGM) Attributes to National Wetland Inventory (NWI)

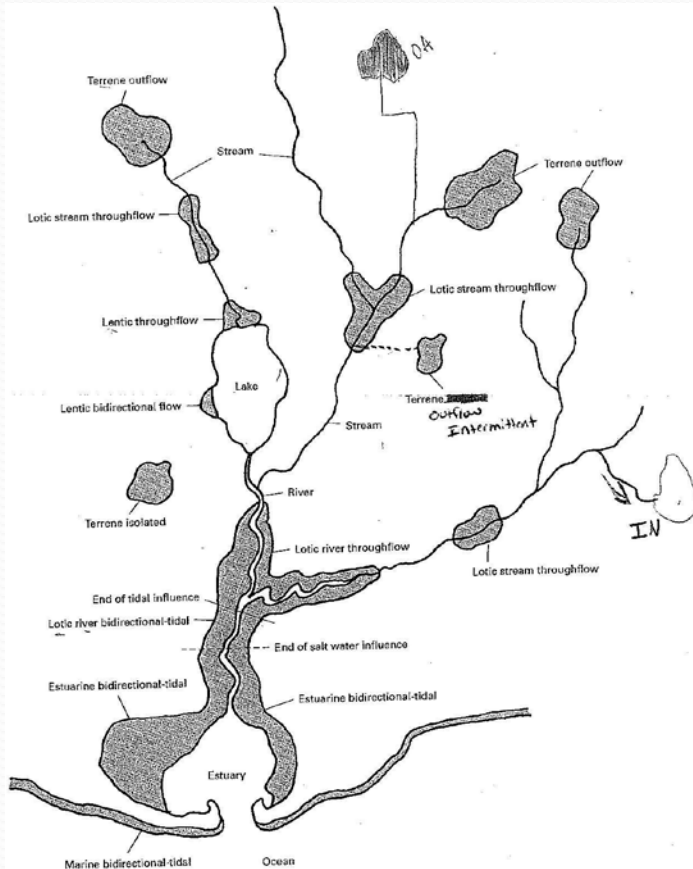


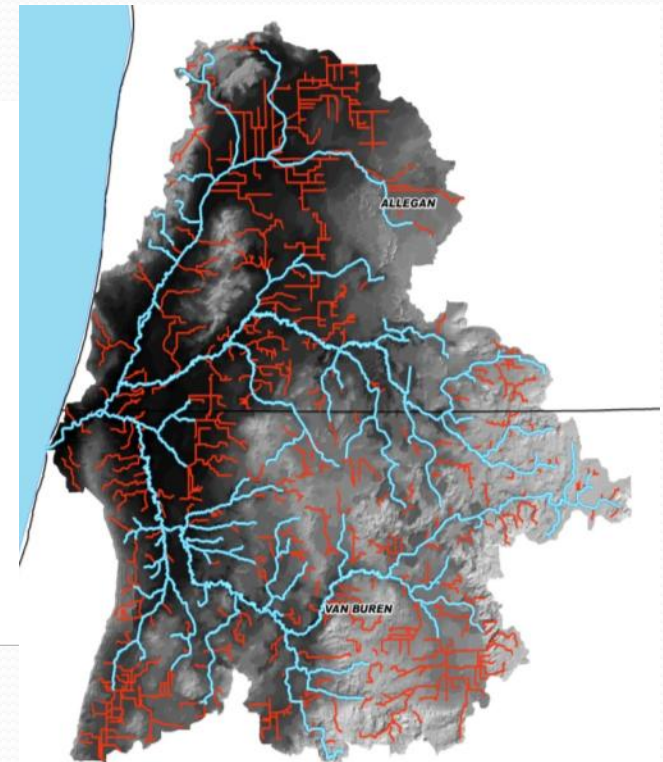
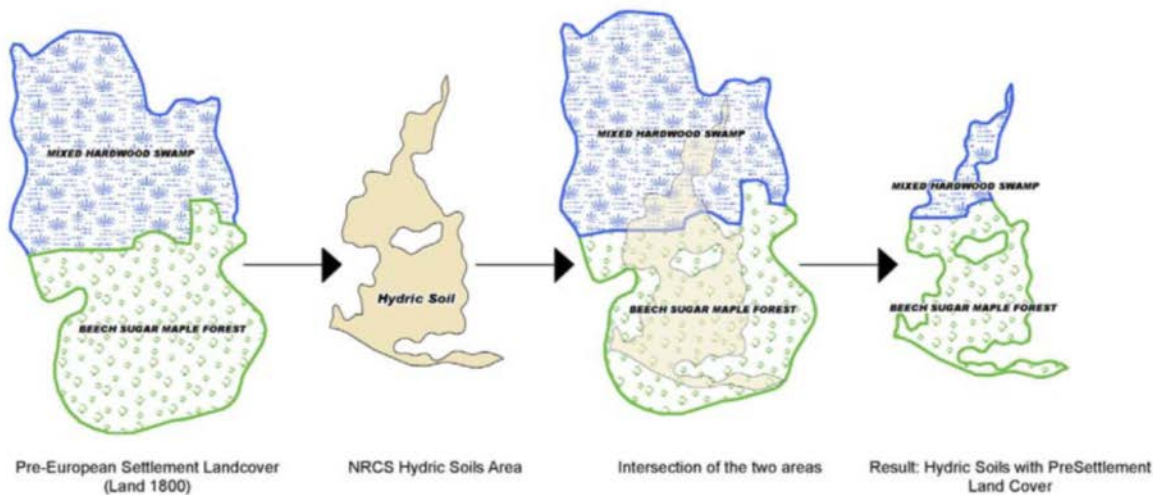
Figure 14.4. Typical wetland landscape positions and water flow paths in the eastern United States.

Landscape Position	Landform	Waterbody Type	Waterflow Path
Terrene (TE) Wetland that is: 1. Surrounded by upland 2. Borders a pond that is surrounded by upland. (Modifier <i>pd</i>) 3. Is adjacent to but is not affected by the stream/river.	Slope (SL) Wetlands occurring on a slope of 5% or greater.	Natural Pond (PD1) A natural pond that is less than 5 acres in size.	Isolated (IS) Wetland is typically surrounded by upland (non-hydric soil); receives precipitation and runoff from adjacent areas with no apparent outflow.
Lentic (LE) Wetland lies along a lake or within its basin (i.e., the relatively flat plain contiguous to the lake).	Island (IL) A wetland completely surrounded by water.	Dike/Impounded Pond (PD2) A pond that is dike/impounded and less than 5 acres in size.	Inflow (IN) Wetland is a sink receiving water from a river, stream, or other surface water source, lacking surface-water outflow.
Lotic River (LR) Wetland that is periodically flooded by a river.	Fringe (FR) Wetland occurs in the shallow water zone of a permanent waterbody. <i>*NWI water regime F, G, and H</i>	Excavated Pond (PD3) A pond that is excavated and less than 5 acres in size.	Outflow (OU) Water flows out of the wetland naturally, but does not flow into this wetland from another source.
Lotic Stream (LS) Wetland that is periodically flooded by a stream.	Floodplain (FP) Wetland occurs on an active alluvial plain along a river and some streams. <i>*Modifiers FPba (Basin) and FPfl (Flat)</i>	Natural Lake (LK1) A natural lake that is greater than 5 acres in size.	Outflow Intermittent (OI) Water flows out of the wetland intermittently, but does not flow into this wetland from another source.
	Basin (BA) Wetland occurs in a distinct depression. <i>*NWI water regime C and E</i>	Dammed River Valley (LK2) A lake created by damming a river valley and greater than 5 acres in size.	Outflow Artificial (OA) Water flows out of the wetland, in a channel that was manipulated or artificially created.
	Flat (FL) Wetland occurs on a nearly level landform. <i>*NWI water regime A and B</i>	Excavated Lake (LK3) A lake that is excavated and is greater than 5 acres in size.	Throughflow (TH) Water flows through the wetland, often coming from upstream sources (typically wetlands along rivers and streams).
		River (RV) A polygonal feature on a U.S. Geological Survey map (DRG) or a National Wetlands Inventory Map.	Throughflow Intermittent (TI) Water flows through the wetland intermittently, often coming from upstream sources (typically wetlands along streams).
			Throughflow Artificial (TA) Water flows through the wetland, in a channel that was manipulated or artificially created.
			Bidirectional (BI) Wetland along a lake and not along a river or stream entering this type of waterbody; its water levels are subjected to the rise and fall of the lake levels

*** In Modifier: Any landscape position or waterbody type associated with a 1st order stream

Step 1. Enhance

- Create Pre-Settlement wetland data
 - Based on the presence of hydric soils
 - Utilize historic land cover data
 - Determine historic drainage extent
 - Add HGM attributes



Step 1. Enhance

- Determine functional significance
 - Based on correlations between wetland characteristics in the database and wetland functions on the landscape

Flood Water Storage	High	<ul style="list-style-type: none"> • Wetlands along Streams and Rivers • Island Wetlands • Ponds that are Throughflow & Throughflow Intermittent • Terrene Basin Isolated
	Moderate	<ul style="list-style-type: none"> • Terrene & Outflow or Outflow Intermittent wetlands • Other Ponds • Terrene wetlands that are associated with Ponds • All Lake side wetlands not already High
Streamflow Maintenance	High	<ul style="list-style-type: none"> • All Headwater Wetlands (hw) <ul style="list-style-type: none"> ▪ 1st order perennial streams and above ▪ 2nd order perennial streams
	Moderate	<ul style="list-style-type: none"> • Lotic Floodplain Wetlands • Lotic Stream Fringe Wetlands • Throughflow & Outflow Ponds & Lakes • Terrene Outflow Wetlands associated with a Pond • Terrene Outflow Wetlands Outflowing to streams

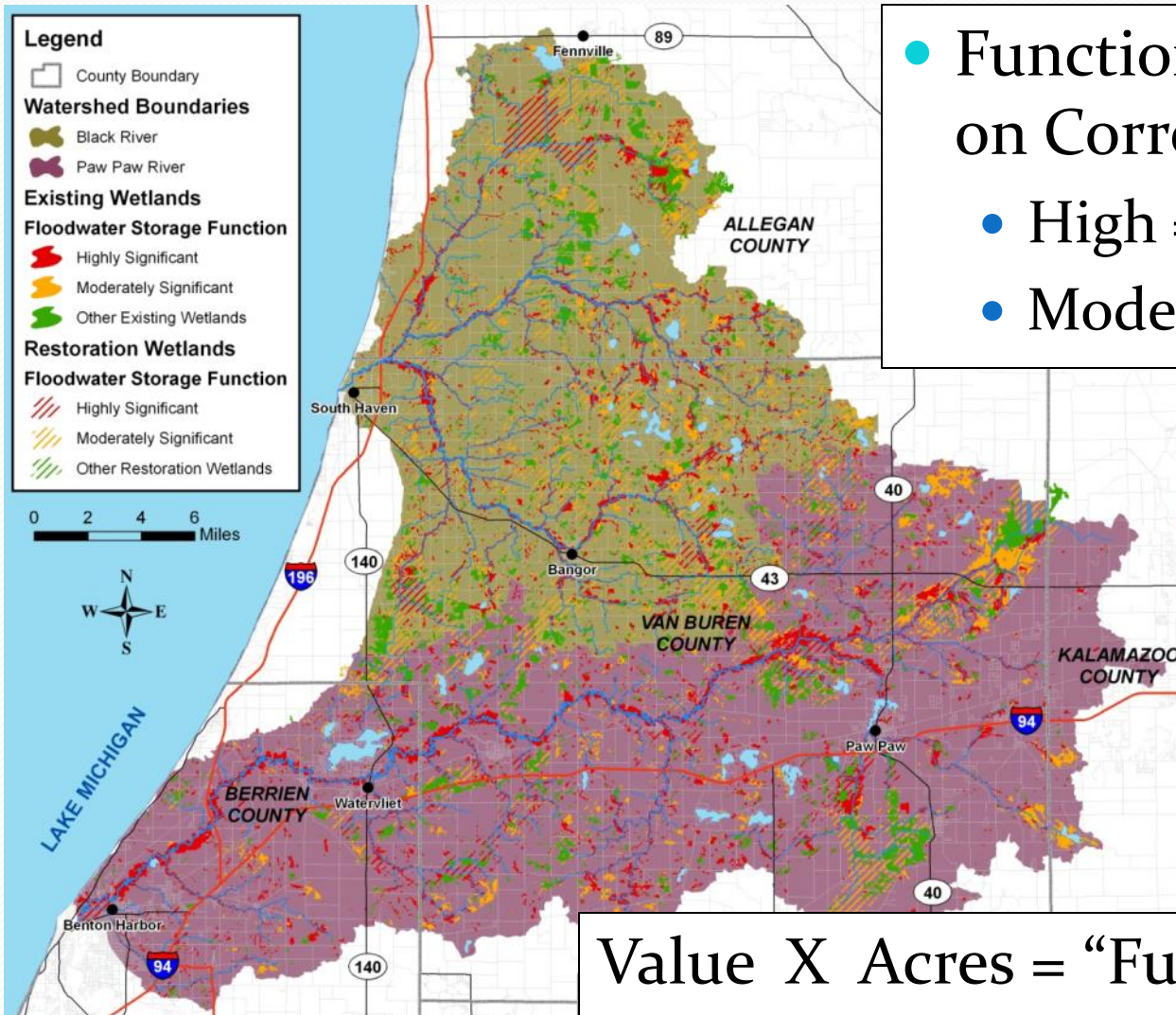
Step 1. Enhance

- Functional Significance Continued...

Nutrient Transformation	High	<ul style="list-style-type: none"> • Vegetated Wetlands from NWI P_ (AB, EM, SS, FO, and mixes) with water regime C, E, F, H, G. No Open Water types.
	Moderate	<ul style="list-style-type: none"> • Seasonally Saturated and Temporarily Flooded Vegetated Wetlands from NWI P_ (AB, EM, SS, FO, and mixes) with A, B water regime. • Lacustrine vegetated wetlands (no open water)
Sediment and other Particulate Retention	High	<ul style="list-style-type: none"> • Basin Wetlands associated with Lakes • Fringe and Island Wetlands associated with Lakes • Floodplain Wetlands • Lotic Stream basin, flat, and fringe wetlands that are Throughflow or Throughflow Intermittent • Lotic River Floodplain or Fringe Throughflow wetlands • Throughflow or Throughflow Intermittent Ponds • Island Wetlands • Terrene Basin wetlands that are Isolated
	Moderate	<ul style="list-style-type: none"> • Terrene Basin wetlands that are Outflow, Outflow Intermittent or Outflow Artificially • Natural Ponds not already "High" • All Wetlands associated with a Pond

Step 2. Prioritize

Calculate Functional Units



- Functional Value based on Correlations
 - High = 2
 - Moderate = 1

Value X Acres = "Functional Units"

Step 2. Prioritize

Understand Acreage vs. Function Loss

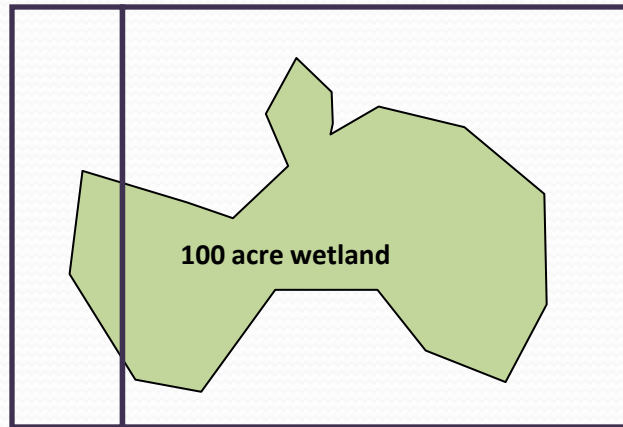
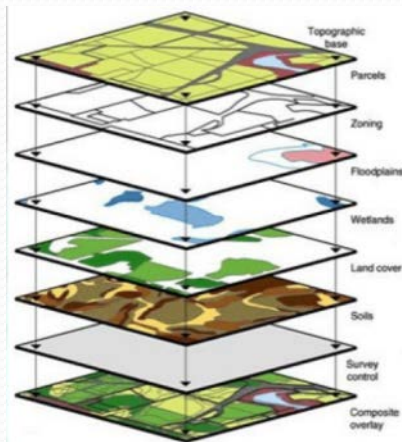
Area	Acreage Loss	Floodwater Storage Loss	Sediment Retention Loss	Fish Habitat Loss	Combined Water Quality Loss	Overall Habitat Loss
Prairie River	49%	59%	52%	66%	53%	56%
St. Joseph County	35%	45%	39%	51%	37%	42%
St. Joseph River Watershed	53%	59%	49%	69%	52%	55%

- **Water Quality**- Floodwater Storage, Sediment Retention, Nutrient Transformation, Shoreline Stabilization, Streamflow Maintenance, Carbon Sequestration, and Pathogen Retention
- **Wildlife Habitat**- Fish, Waterfowl, Interior Forest Bird, Shorebird, and Amphibian Habitat.

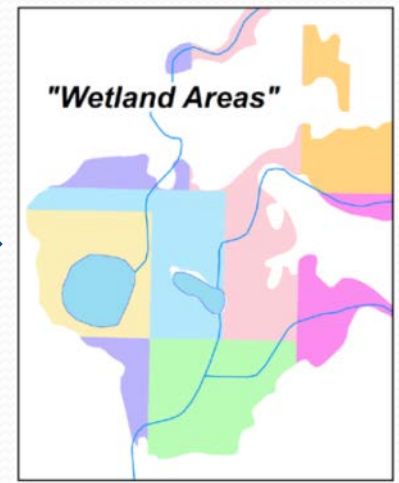
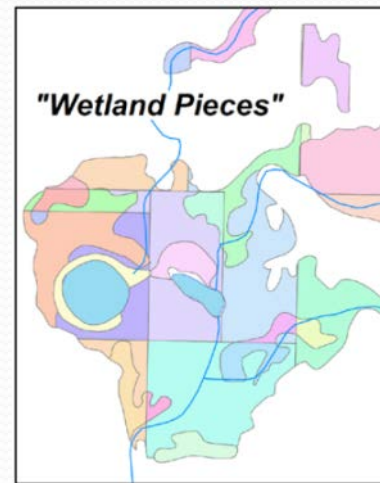
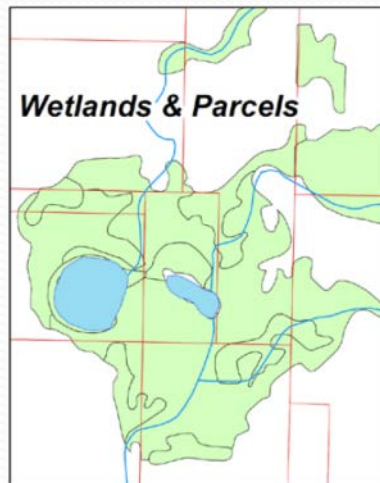
Step 2. Prioritize

Use GIS to Score Wetland Areas

“Restoration Practicality”

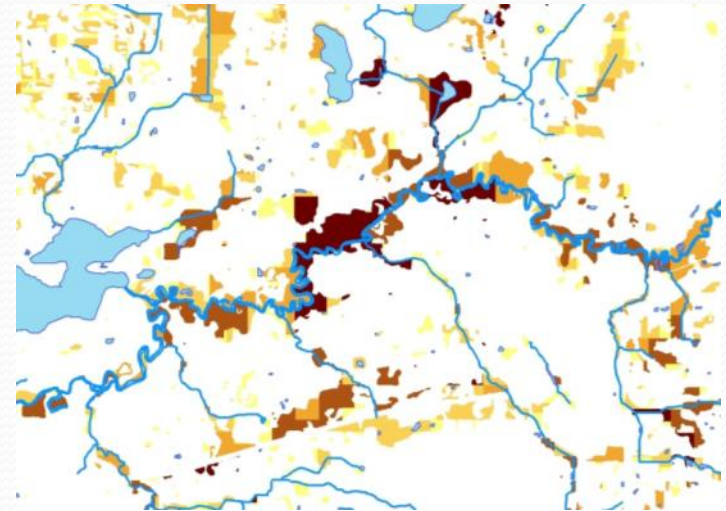
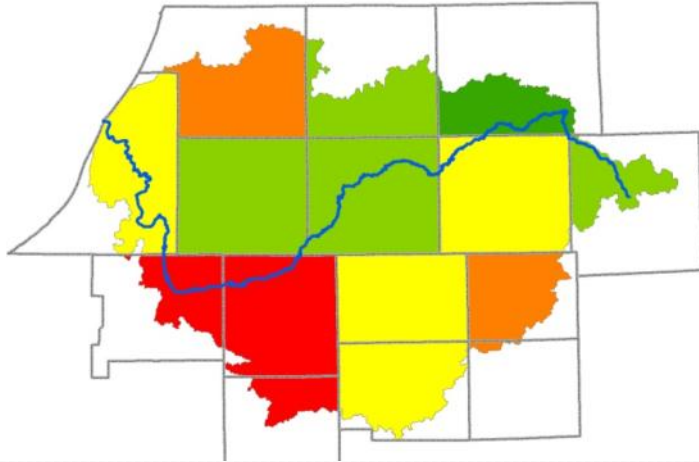


Parcel
Example:



Step 2. Prioritize

Rank by Geography & Function



High Remaining Sediment Retention Capacity

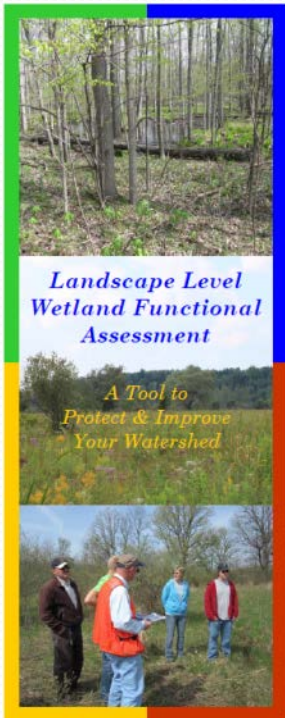
Rank	Municipality Name	Wetland Acres	% Wetlands Loss
1	Almena Township	5400.3	32.7%
2	Waverly Township	4190.6	47.8%
3	Hartford Township	3566.1	44.2%
4	Lawrence Township	2885.6	36.1%
5	Paw Paw Township	3263.0	49.7%
6	Benton Township	1614.4	42.6%
7	Antwerp Township	1904.3	24.6%
8	Hamilton Township	1889.9	6.3%
9	Watervliet Township	1423.9	31.5%
10	Keeler Township	1548.8	33.3%
11	Bainbridge Township	1237.4	27.5%
12	Hagar Township	1000.0	28.1%
13	Coloma Township	941.2	28.2%
14	Bangor Township	1104.3	60.5%
15	Bloomington Township	816.6	65.7%
16	Decatur Township	866.2	78.0%

"Top 25" Existing Wetland Owners

	Landowner Name	Wetland Acres	Sediment Retention Functional Units
1	STATE OF MICHIGAN	2,543	1,973
2	BUSY BEE FARMS	252	226
3	HAMLIN HAROLD & MARTHA	140	194
4	HAWKSHEAD COUNTRY CLUB LLC	97	188
5	CONSUMERS ENERGY COMPANY	200	166
6	OAK HAVEN	116	137
7	MICHIGAN NATURE ASSOCIATION	75	133
8	GHIDOTTI BERT	189	129
9	SISCO VICTORIA	60	116
10	BUCK'S & BEARD'S LLC	111	112
11	BAKER KENNETH F	54	109
12	CITY OF BANGOR	82	109
13	THOMAS DAVID L & MELISSA	99	102
14	HEATON ROGER P	59	100
15	WALGREN LAWRENCE C JR	48	95

Step 3. Utilize

- Targeting Outreach
- Strategic Planning
- Decision Making



Wetlands at Work
Protecting & Restoring Wetlands for Clean Water

WETLANDS WORK FOR US; they filter pollutants, absorb floodwaters, provide habitat, and perform a number of other functions that keep our lakes and rivers clean.

YOU ARE INVITED to learn about programs, tools and financial incentives for landowners and public officials to protect existing wetlands and restore degraded or destroyed wetlands.

Join staff from these organizations:

- Natural Resources Conservation Service (NRCS)
- Michigan Department of Environmental Quality
 - US Fish & Wildlife Service
 - Southwest Michigan Land Conservancy
 - Conservation Districts
 - Van Buren County Drain Commission
 - Two Rivers Coalition
 - And more!

This event will be offered at two times and locations:
Thursday, January 31, 2013
3-5 p.m. at Sarett Nature Center, Benton Harbor
7-9 p.m. at Lake Michigan College, South Haven

 Sponsored by the Van Buren Conservation District
www.VanBurenCD.org • 269-657-4030 x5



VAN BUREN CONSERVATION DISTRICT

January 7, 2013

Dear Landowner:

Over the last century, Michigan has lost more than 50% of its wetlands. As a result, we have seen increased flooding, degraded water quality and threats to public health and safety. The Van Buren Conservation District is leading a local effort to safeguard our area by targeting wetland restoration and protection.

Why You Received This Letter: As part of our project, a study was completed which found extraordinary wetland resources on land that appears to be owned by you or the organization you represent. We invite you to join us for a short program on **Thursday, January 31st** to discuss protection and restoration options.

Why You Should Attend: There can be financial advantages to protecting or restoring wetlands on your property. Programs exist that cover restoration costs and pay you for each acre of wetland restored. There can be significant tax benefits to protecting wetlands with a permanent conservation easement. Learn more about these opportunities and **bring this letter to be eligible to win a local foods gift basket!**

What is the Study? A *Landscape Level Wetland Functional Assessment* (information enclosed) was completed to rank current and historic wetlands based on the significance of the functions they provide (for example, soil retention, floodwater storage, frog habitat, etc.). These functions protect our agricultural resources, our water quality and, ultimately, our livelihoods.

Please join us at one of the following times on Thursday, January 31st to learn more:

- 3:00-5:00 pm at Sarett Nature Center (2300 North Benton Center Road, Benton Harbor)
- 7:00-9:00 pm at Lake Michigan College (125 Veterans Boulevard, South Haven)

Representatives from key organizations/agencies will be present to answer questions. There is no admission fee and light refreshments will be provided. If you're not able to make it but would still like information about wetland restoration or protection, please don't hesitate to contact us.

Thank you for your time. We hope to see you there!

Sincerely,

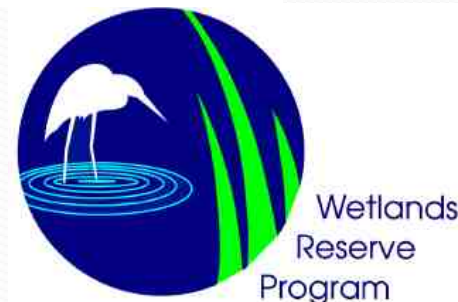
Matt Meersman and Erin Fuller
Watershed Coordinators
Van Buren Conservation District

1035 E. Michigan Avenue, Paw Paw, Michigan 49079
Phone 269.657.4030 x5 • Fax 269.657.4925
WWW.VANBURENCD.ORG

Step 3. Utilize

Targeting Outreach

- Educating landowners about their wetlands, restoration programs and protection incentives



Step 3. Utilize

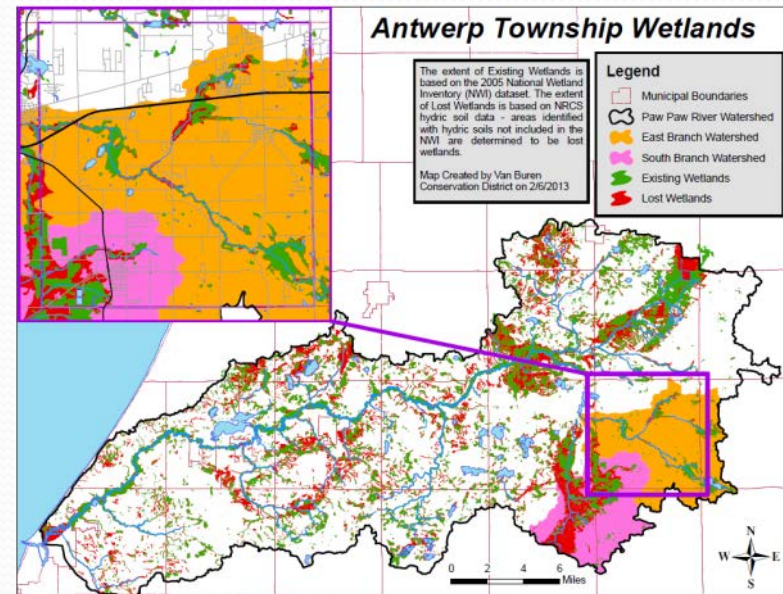
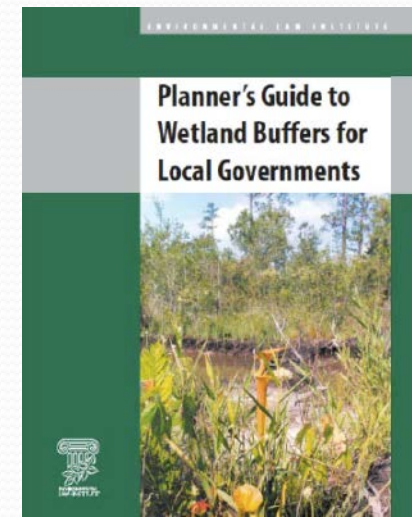
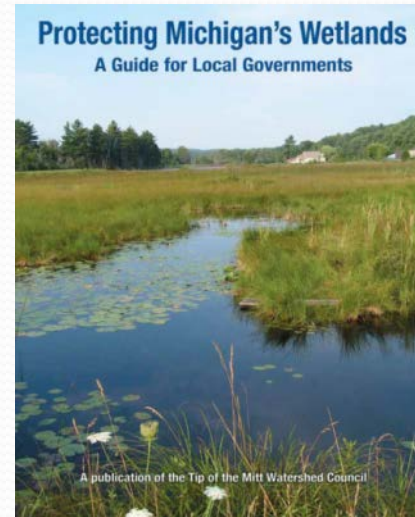
Targeting Outreach

- Promote planning and zoning to public officials

Landscape Level Wetland Functional Assessment Report

Antwerp Township & the Paw Paw River Watershed

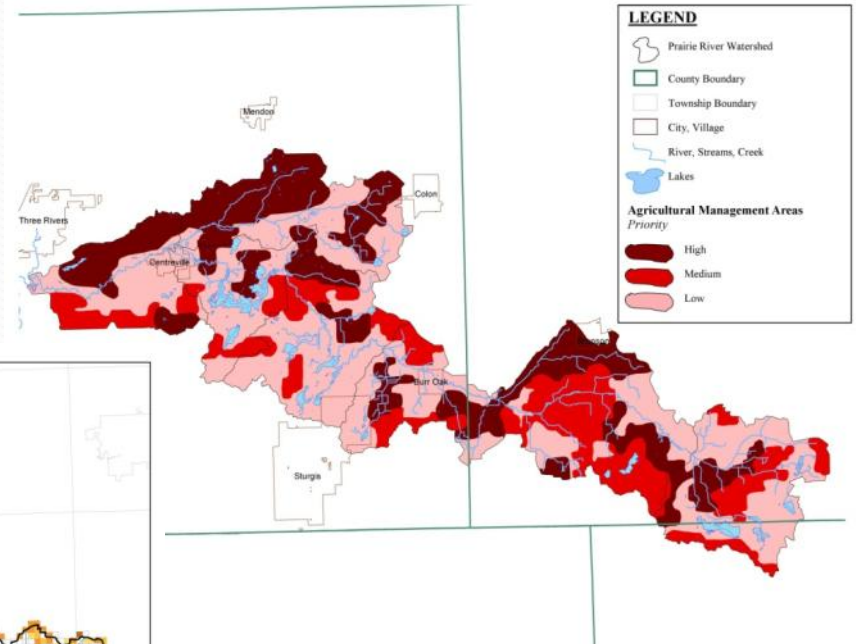
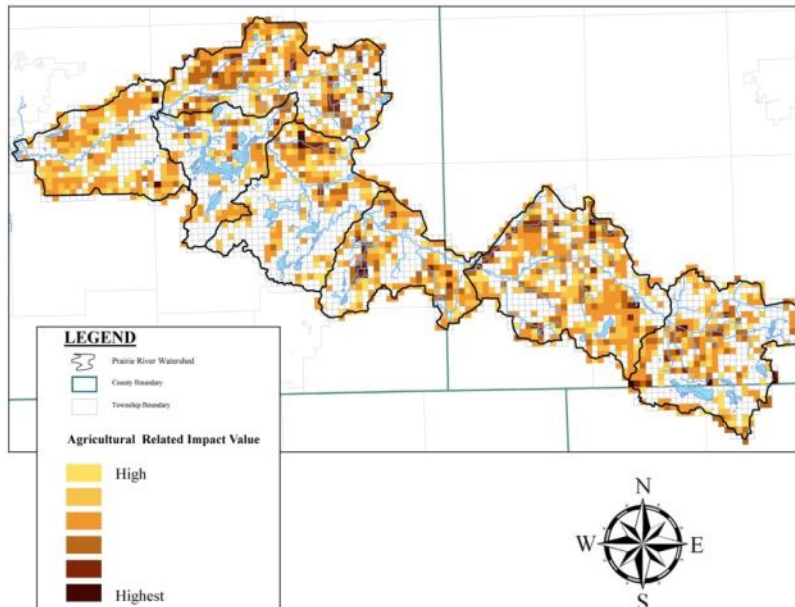
	<i>Watershed (HUC 10)</i>	<i>Watershed in Township</i>	<i>Subwatershed</i>	<i>Subwatershed</i>
NAME AND/OR ID:	Paw Paw River (0405000124/5)	Antwerp Township	East Branch Paw Paw River	South Branch (Lawton Drain) Paw Paw River
TOTAL ACRES:	285,799	22,378	21,647	16,768
EXISTING WETLAND ACRES:	37,391	1,904	2,010	1,836
HISTORIC WETLAND ACRES:	64,792	2,525	2,451	5,858
WETLAND LOSS:	42%	25%	18%	69%
	<i>Predicted Percent Change in Functional Capacity *</i>			
FUNCTION:				
<i>Water Quality Combined</i>	-45%	-31%	-25%	-58%
Floodwater Storage	-52%	-38%	-31%	-64%
Streamflow Maintenance	-38%	-28%	-14%	-44%
Nutrient Transformation	-44%	-30%	-23%	-51%
Sediment Retention	-53%	-35%	-35%	-70%
Shoreline Stabilization	-40%	-28%	-21%	-55%
<i>Habitat Combined</i>	-50%	-45%	-24%	-51%
Fish	-51%	-45%	-20%	-64%
Waterfowl	-17%	-14%	7%	-28%
Shorebird	-44%	-28%	-21%	-45%
Forest Bird	-45%	-34%	-26%	-51%
Amphibian	-72%	-79%	-52%	-57%



Step 3. Utilize

Strategic Planning

- Identify critical areas in watershed planning



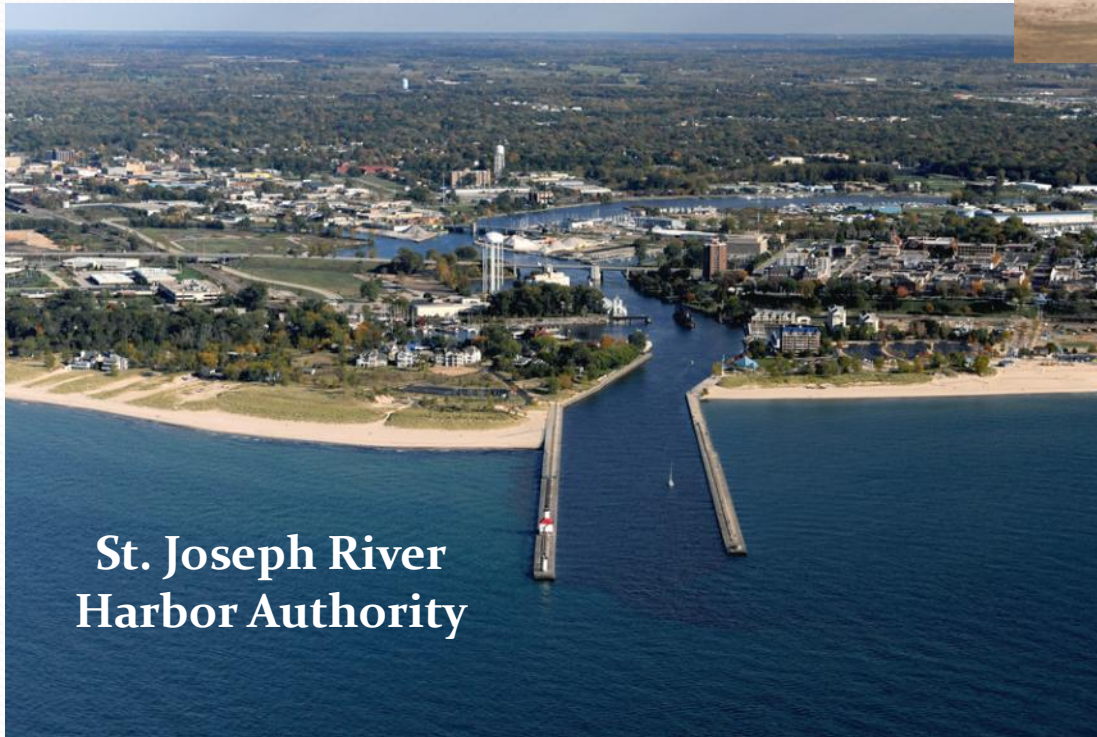
Step 3. Utilize

Strategic Planning

- Direct the efforts of water related groups



Village of Paw Paw



St. Joseph River
Harbor Authority




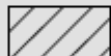
Step 3. Utilize

Decision Making


- Support more restrictive zoning and better land use planning


Legend


 Existing Wetlands

 Lost Wetlands

Future Land Use

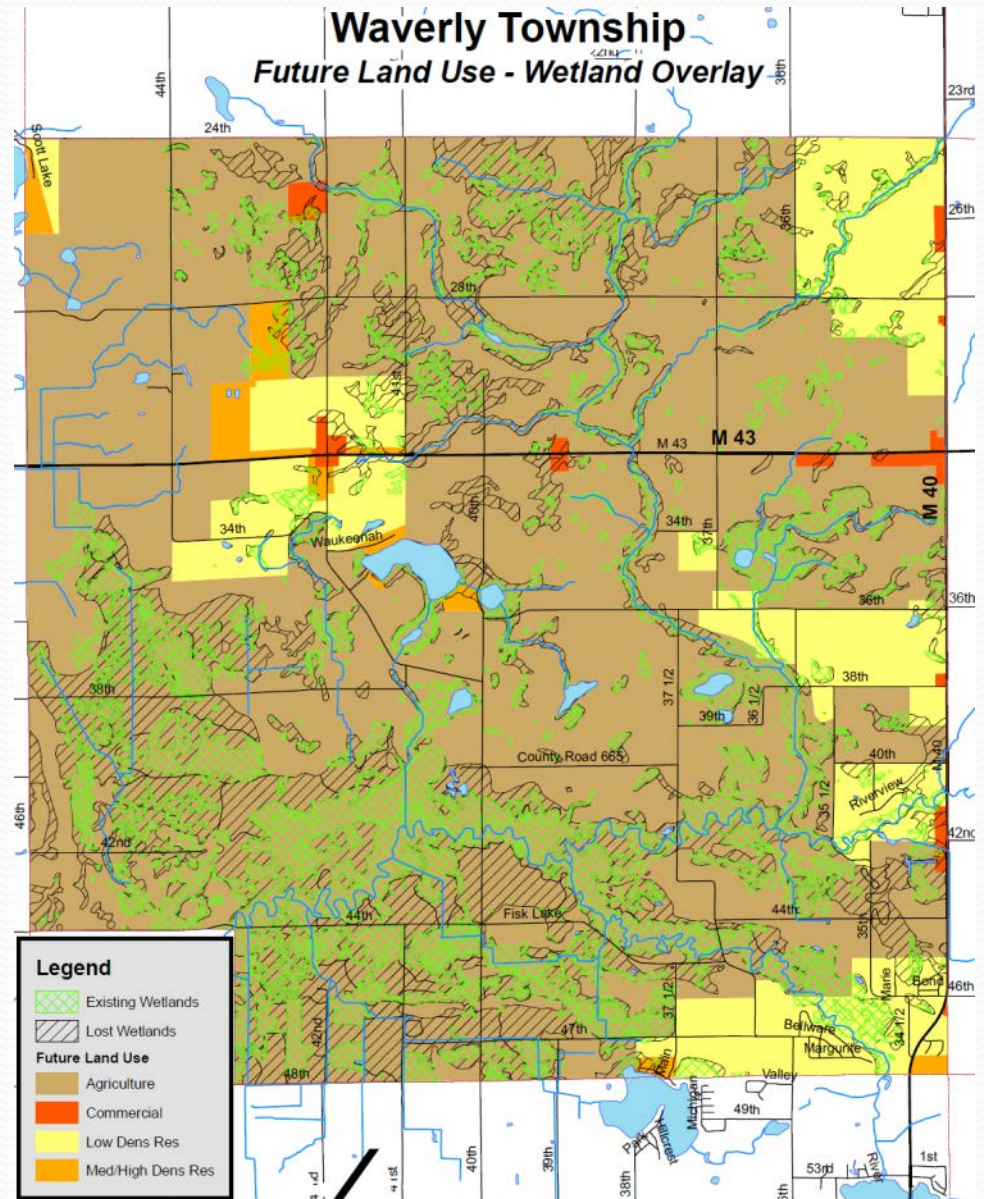
 Agriculture

 Commercial

 Low Dens Res

 Med/High Dens Res

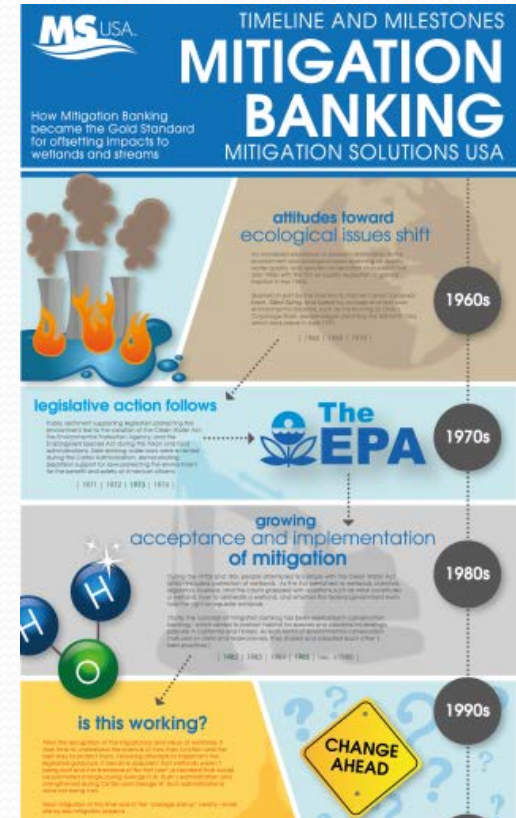
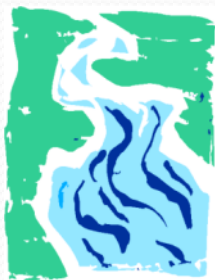
*Keeping Opportunities for
Protection and Restoration*



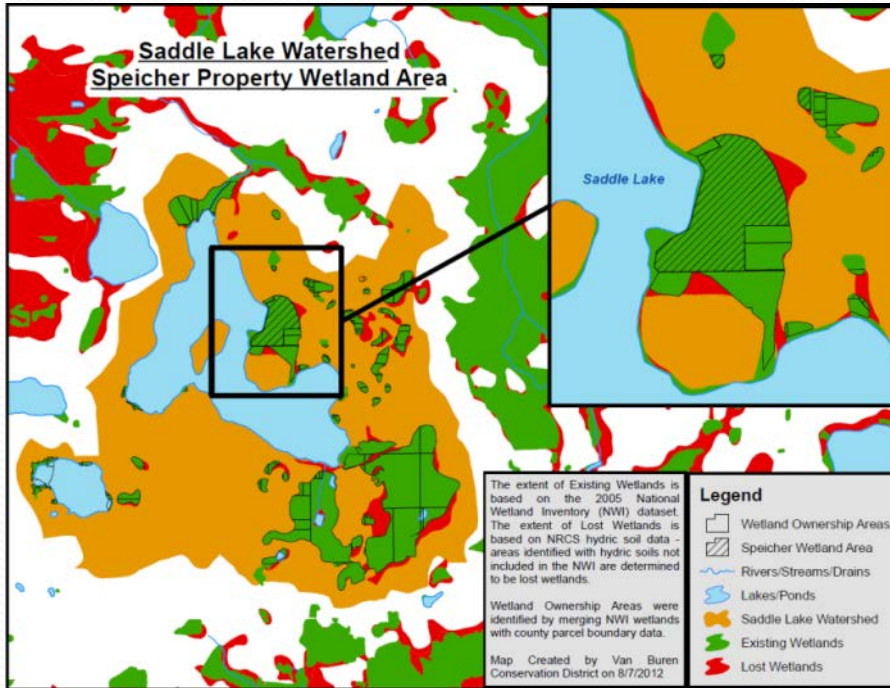
Step 3. Utilize

Decision Making

- Strengthen grant funding requests
- Assist agencies in evaluating projects
- Identifying mitigation sites



Step 3: Utilize Landowner Reports



Wetland Functional Report

Eureka! Property - Paw Paw River Watershed

WETLAND AREA FUNCTIONAL SIGNIFICANCE		
EXISTING WETLAND ACRES:	236	
	<i>Significance*</i>	<i>Rank**</i>
FUNCTION:		
<i>Water Quality Combined</i>	1.73	4***
Floodwater Storage	1.98	3
Streamflow Maintenance	0.97	10
Nutrient Transformation	1.82	4
Sediment Retention	1.94	3
Shoreline Stabilization	1.92	3
<i>Habitat Combined</i>	1.47	3****
Fish	1.93	4
Waterfowl	0.59	13
Shorebird	0.98	4
Forest Bird	1.9	2
Amphibian	1.94	4

Want to know how good
YOUR wetlands are for a
particular function???

* Functional Significance is rated on a scale of 0 to 2, with 1 being "Moderately Significant" and 2 being "Highly Significant".

** Ranking is based on Functional Units, which are calculated by multiplying the size of the Wetland Area by the Functional Significance. **Ranking is relative to 6,757 other wetland areas in the Paw Paw River Watershed.**

***Behind Pokagon Band of Potawatomi Indians, Almena Twp. and Sarett Nature Center

****Behind Almena Twp. and the Pokagon Band of Potawatomi Indians

Acknowledgements

Wetland Enhancement Methodology

- Chad Fizzel, Michigan Dept. of Environmental Quality
fizzellc@michigan.gov or 517-335-6928
- Jeremy Jones, Michigan Dept. of Environmental Quality
JONESJ28@michigan.gov or 517-241-3218



Municipal Planning and Zoning Techniques

- Marcy Colclough, Southwest MI Planning Commission
ColcloughM@swmpc.org or 269-925-1137



For more information:

- Wetland Partnership Project
www.fotsjr.org/wetlandpartnership
- Friends of the St. Joe River
www.FotSJR.org



Or contact:

- Matt Meersman
paddleheadz@gmail.com