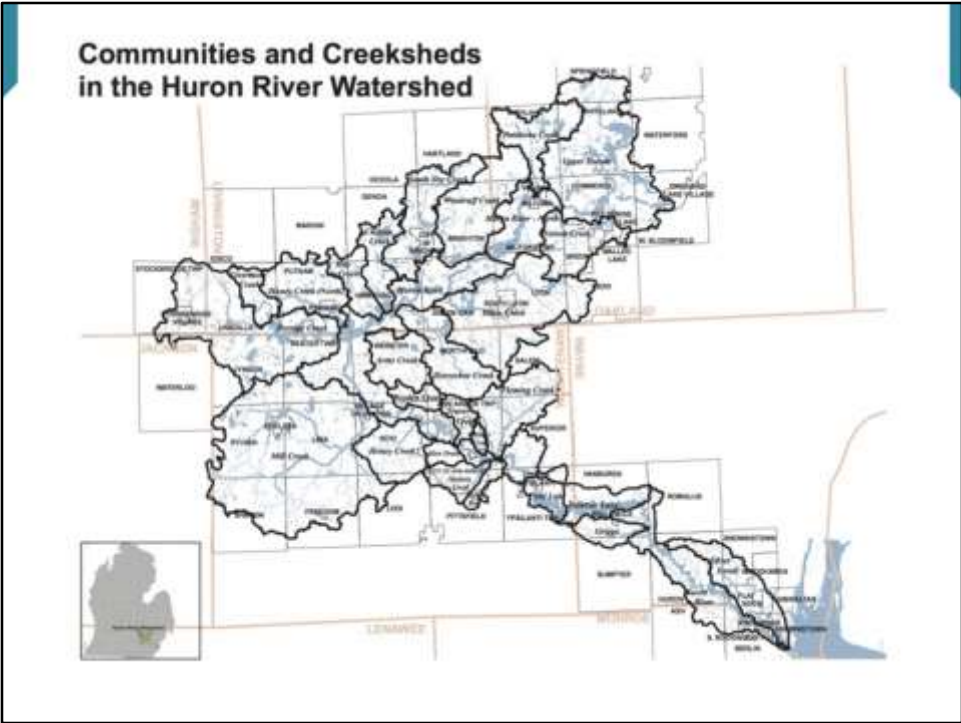


Community Techniques for Protecting Water Quality



Beginning slide



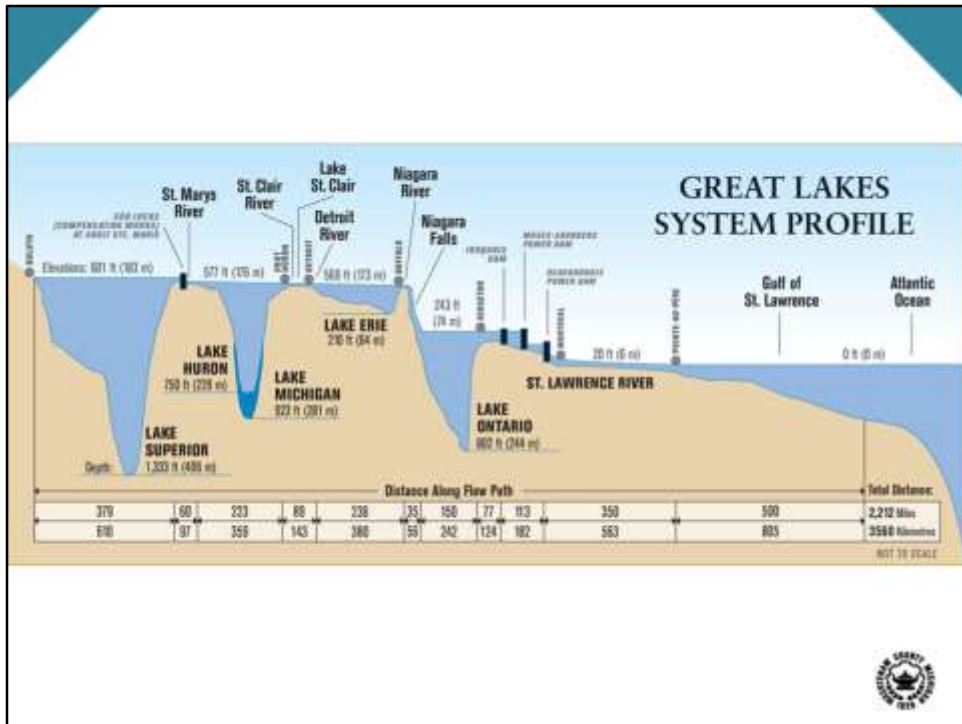
Huron River



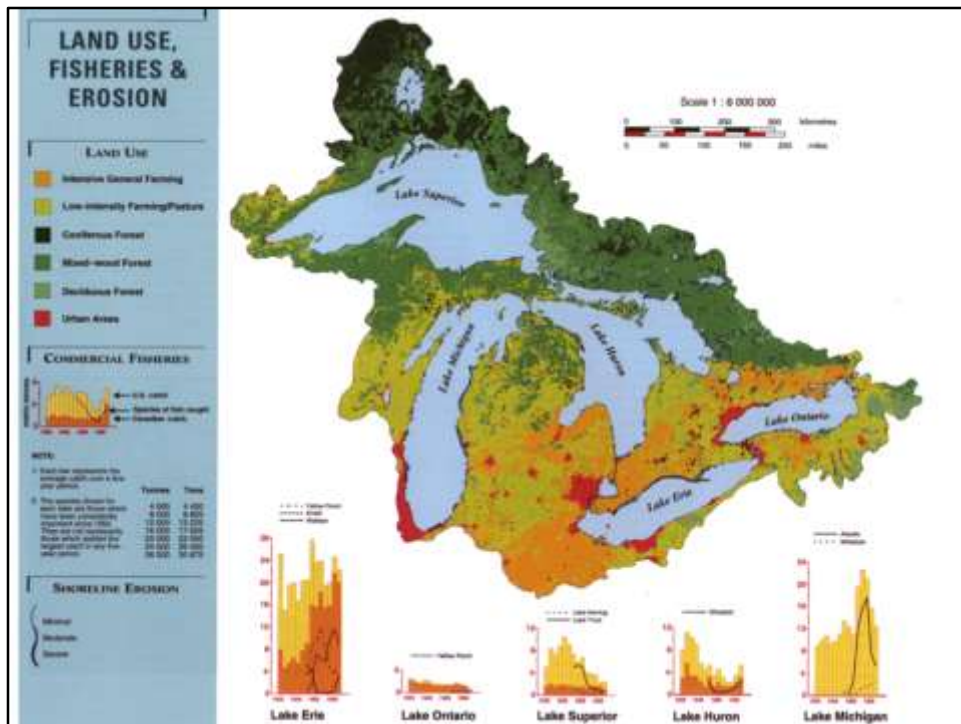
Context: Direct Erie watershed is unique... land use



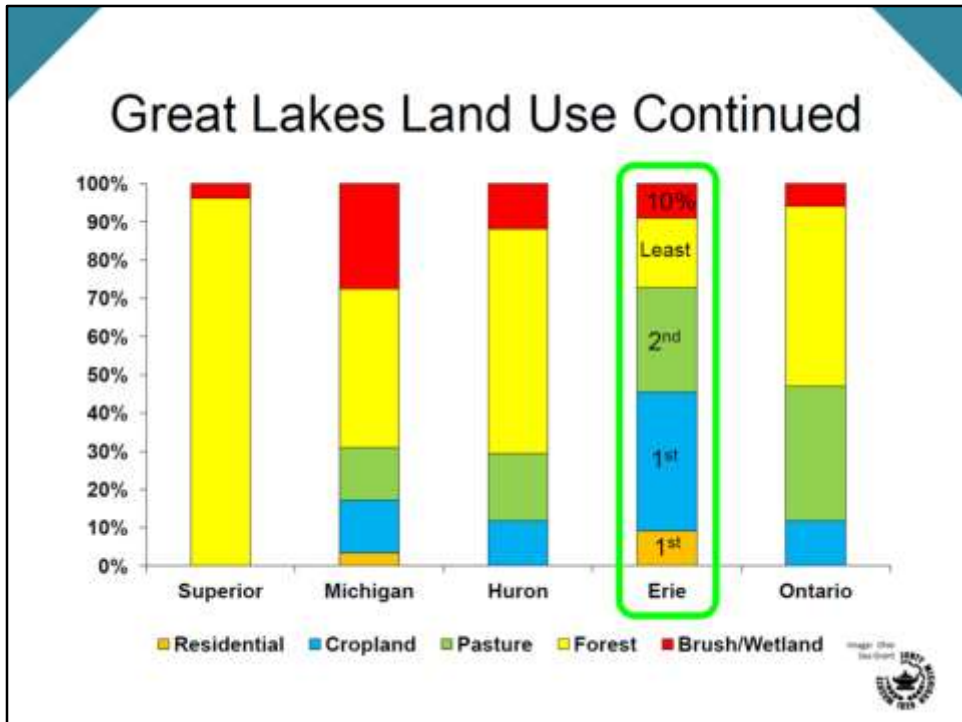
Context : Where we are in Freedom Twp drains to Huron River and then to Lake Erie.
All of michigan drains to a great lake, and all lakes that drain Michigan drain trough Lake Erie



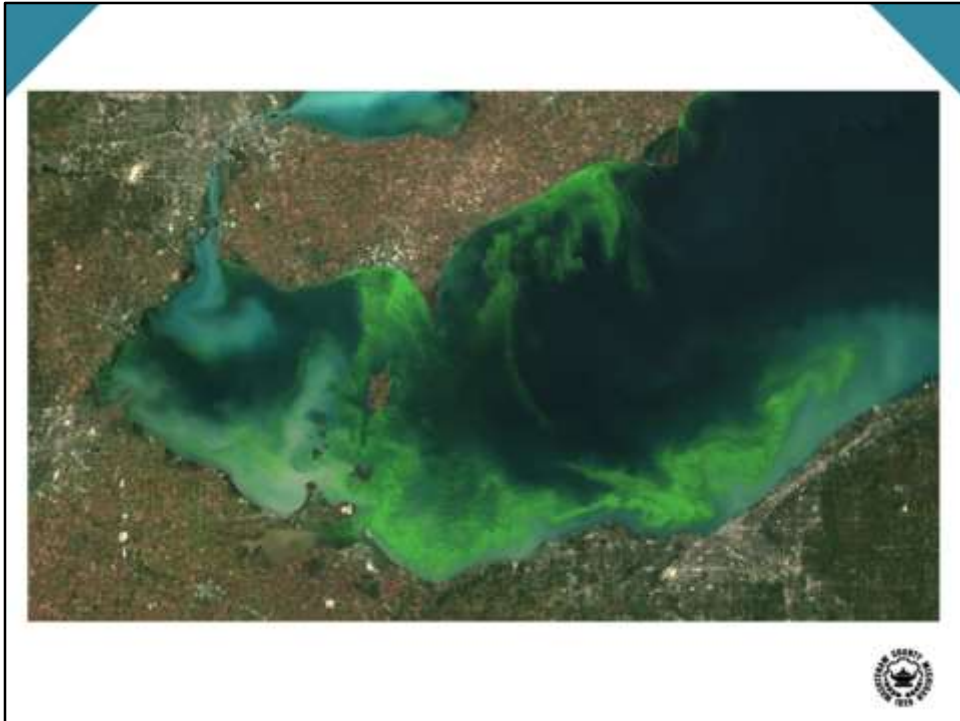
Context: Erie is different... Depths



Context: Highest percentage of heavy cropland and urban land use



Context: Most biologically active, Toledo water intake, microcystin, wwtp vs nps runoff



Context: As a result, it gets the most sediment and nutrients. Most biologically productive, Toledo water intake, microcystin, WWTP vs NPS runoff. WWTP not enough to cause the problem. It's a tiny bit of phosphorus coming off every acre. The solution needs to be as widespread.



Nonpoint: Problem is widespread and everywhere – nonpoint source pollution

Stormwater Runoff



Sediment



Nutrients and Fertilizers



Oil, Antifreeze, Grease, Metals



Herbicides, Pesticides, Fertilizers



Nonpoint: Problem is widespread and everywhere – nonpoint source pollution



Nonpoint: Problem is widespread and everywhere – nonpoint source pollution

How much gets there...



Water quantity is Water Quality, greenspace absorbs runoff



Even low density zoning will cause stream impacts, 1 acre zoning = 10% imperviousness. Don't let this happen STORMWATER MGT!



Urban is 40+% Creeks turn into pipes. Don't let this happen, Prevention is cheaper.

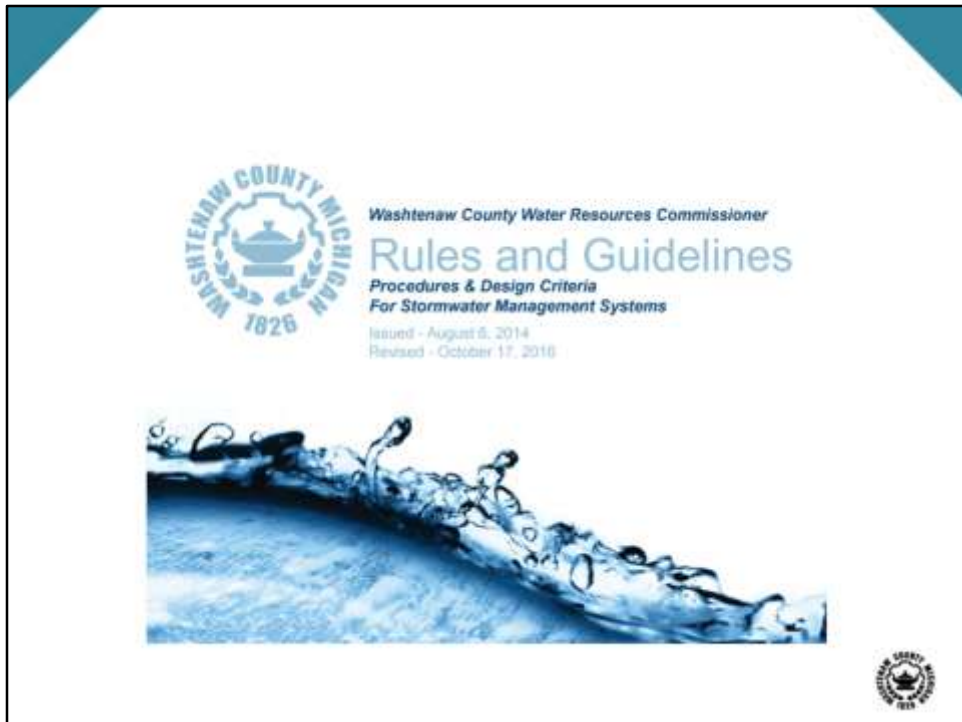
Evident in Large Events



June 2015 Flood (Blissfield or Dundee?)



NPS and volume – obvious when it's flooded, but any heavy rain will cause it.



Many communities have their engineer use our new rules, some use our old rules, some have a different standard.

WCWRC RULES:

3 KEY CHANGES

1. MANDATORY PRE-APPLICATION MEETING
2. METHOD OF CALCULATING RUNOFF
3. INFILTRATION REQUIREMENT



PRE-APPLICATION MEETING

Purpose: Engage Owner, clarify changes and benefits

- Soil types – testing!
- Information on geology and hydrology including estimate of groundwater table elevation
- Topography
- Land cover
- Other pertinent natural or man-made features
- Potential locations for infiltration BMPs



Method: 1% STORM

- 24 hour 1% storm was = **4.36 inches**
- NOAA Atlas 14, Volume 8
 - Published 2013
 - Provides data for discrete locations
 - Ann Arbor, Milan & Ypsilanti Stations
 - Range for the 24 hour 1% storm at these stations varies minimally
 - All indicate the 24 hour 1% storm = 5.11 inches
 - Chelsea Station
 - 24 hour 1 % storm = 5.21
 - New WCWRC Rules 24 hour 1 % storm = **5.11 inches**



Take home: 5.11" must be detained

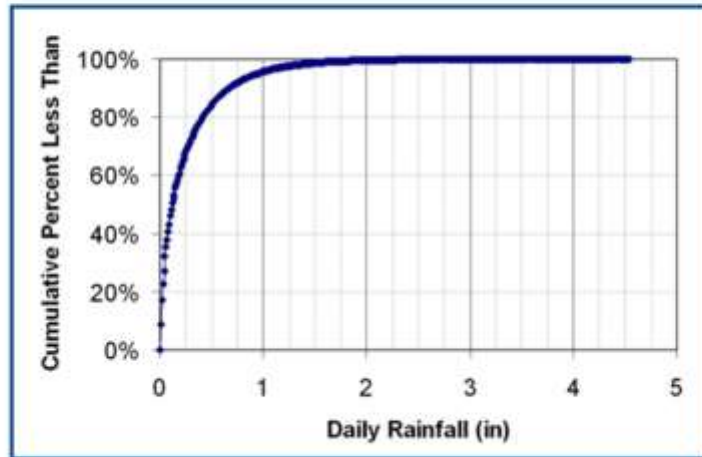
INFILTRATION

- WCWRC Rules will require an attempt to infiltrate the first 1" of runoff
- If unable, must hold back extra



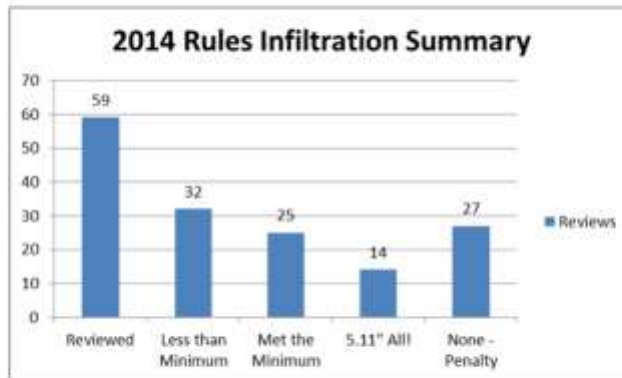
Take home: the first 1" must be infiltrated

Most Events Are Less Than 1"



Most storm less than 1" and that's our first flush

More Than Half of Sites Infiltrate Some



Most storm less than 1" and that's our first flush

HOW DOES DEVELOPMENT BENEFIT?

Many developers are finding lower cost for GI when used in greenfields.

- Less concrete infrastructure needed.
- Less surface area of storage needed if doing infiltration
- Less impact to developable area with co-location
- It will always be more costly to develop unsuitable land
 - This is why poorly suited land (soils, etc) is cheaper
 - Public cost of developing poorly suited land
 - **Whose job is it to look at total cost of a site?**



I'm sorry....

705 ZEEB ROAD REDUCED CONSTRUCTION COST

- 8 structures @ \$2,000 ea. = \$16,000
- 425 ft.-12in. RCP @ \$40/ft. = \$17,000
- 265 ft.-15 in. RCP @ \$50/ft. = \$13,250
 - Savings = \$46,250
- BUT SOILS ARE SUITABLE FOR 100% INFILTRATION
- Extra Savings: 1,950 cyd earthwork @ \$10/cyd = \$19,500
- **NET SAVINGS = at least \$65,750**



County Drain Jurisdiction for Stormwater Plan Review

- Platted Subdivisions
- Mobile Home Park Outlets
- Direct Discharges to a County Drain
- As directed by local ordinance (site condos, multi-parcel, etc.)
- 433 Districts – future county drain



We only look at some development, the rest is up to locals. Collaboration means prevention

SMART ASSESSMENTS: REDUCED MAINTENANCE, CLEANER WATER AND FEWER COMPLAINTS

By Matt Meersman¹, John Kerr², Mary Pales³ and Erin Fuller⁴



George Kautsch, Ben Pichon and Matt Meersman



Conservation credits for agriculture. WLEB, MAEAP and Farm Bill

How Would it Work

Current drain assessments:

- Municipalities pay up to 35%; parcels pay the other 65%
- Per parcel charge is based on assessors classification code (tax category) and acreage

But....

- Assessments per Drain Code can be based on "benefits derived"



Sediment and/or Volume



In Van Buren County, credit is tied to sediment. Less sediment = less maintenance. But could be volume too. Less need for repair and upsizing.



Contact Conservation District for MAEAP

Natural Resources Conservation Service
United States Department of Agriculture

Topics | Programs | Newsroom | Misc | Contact Us

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You are Here: Home / Programs / Farm Bill

Stay Connected

Programs

- 2014 Farm Bill
 - 2008 Farm Bill Archive
 - Regional Conservation Partnership Program
 - Landscape Initiatives
 - Financial Assistance
 - Technical Assistance
 - Easements
 - Landscape Planning
 - Alphabetical Listing & Archive

Compliance, Appeals, Mediation, Relief

- Conservation Compliance
- Equitable Relief
- Program Appeals
- Program Mediation

Related Topics

- Partnerships
- National Conservation Practice Standards
- Conservation Effects Assessment Process

Farm Bill

The 2014 Farm Bill was enacted on February 7, 2014. NRCS offers voluntary Farm Bill conservation programs that benefit both agricultural producers and the environment.

Some programs will be available immediately, while others will require limited time to be set up with the agency. Details are on each program page and at your local USDA Service Center.

Current Farm Bill contracts remain in effect; new sign-up information will be announced here as it becomes available.

Financial Assistance **Easements** **Partnership**

USDA United States Department of Agriculture

NRCS

Contact NRCS For Farm Bill Practices

Other Opportunities to Collaborate

- MSU, UMich, HRWC, RRWC, MDEQ and WCWRC
- Municipalities and the Road Commission in funding stormwater for repaving and reconstruction projects. Particularly at crossings!
- Specific Water Resources Programs
 - Community Partners
 - Rain Gardens
 - K-5 Education
 - Homeowners Handbook
 - Household Hazardous Waste
 - Lake Management
 - Asset Management
 - HOA Workshops
 - Green Infrastructure
 - Reforestation



Community Techniques for
Protecting Water Quality



InSite Design Studio, Inc



Ending slide