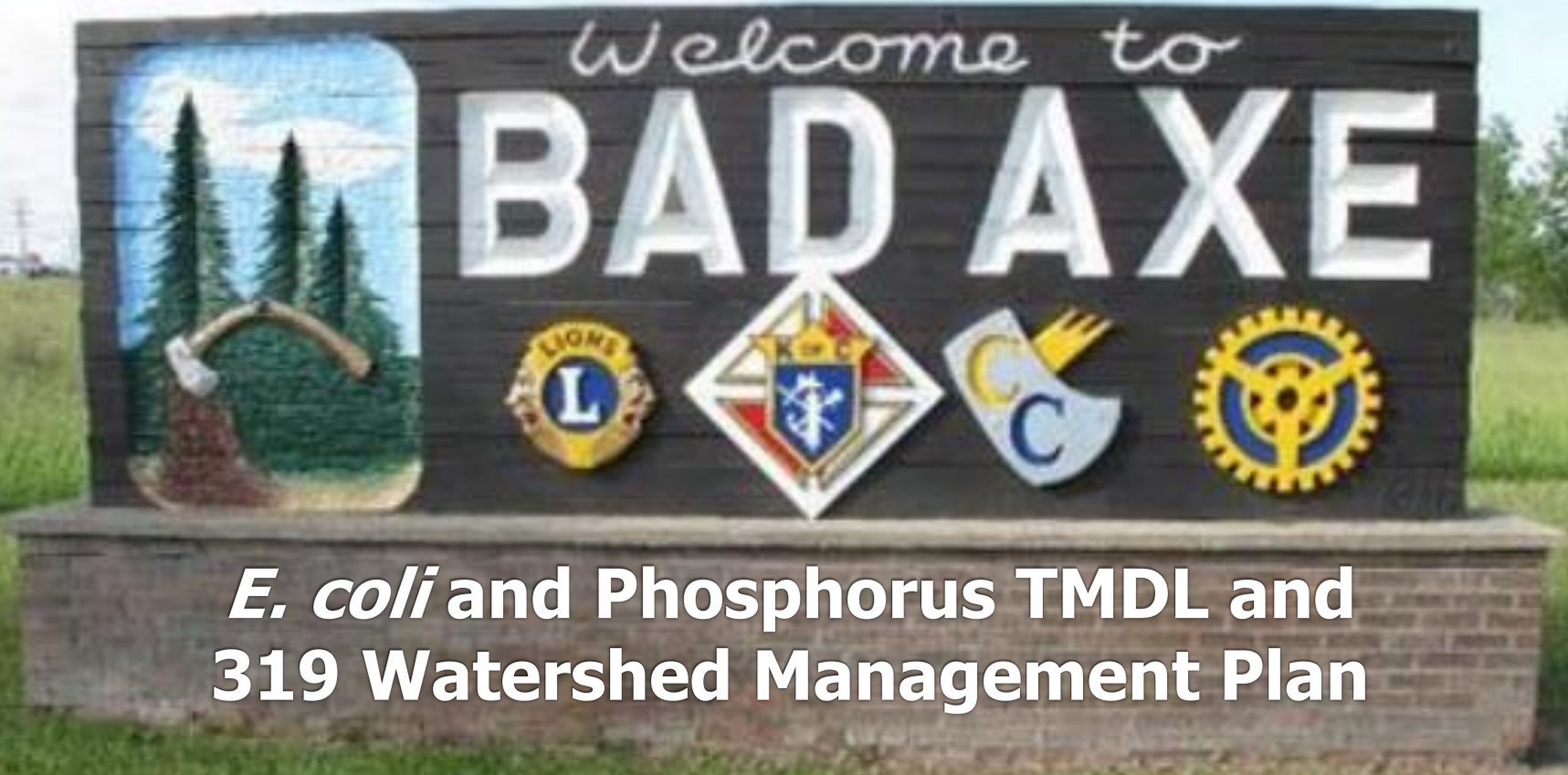


The Bad Axe Creek TMDL/WMP Hybrid



***E. coli* and Phosphorus TMDL and
319 Watershed Management Plan**

Molly Rippke, Michigan DEQ

Purpose: Hybrid



Question: Could our awesome TMDLs serve as WMPs?

Our TMDLs had grown to be fairly robust, including:

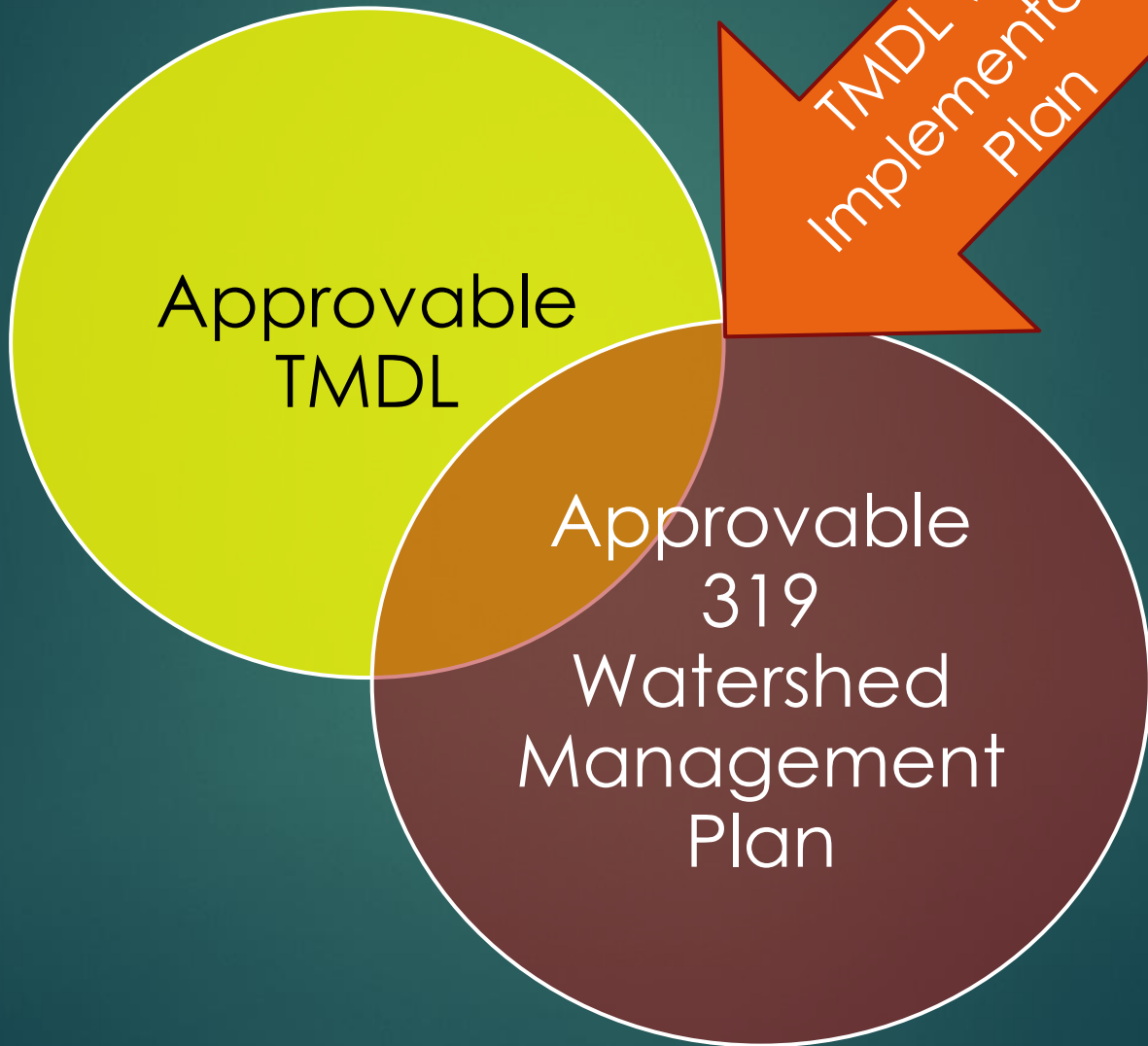
- Use of spatial analysis and monitoring data to identify critical areas
- Field inventories of nonpoint sources
- Recommending BMPs by catchment



Answer: No. But we
have an idea!



Hybrid





Saginaw Bay – A big problem

- ▶ DEQ and EPA have a goal of reducing phosphorus loads to the Bay

Image Landsat / Copernicus

Why Bad Axe?

- ▶ Bad Axe Drain is one of the few nutrient impairments on our 303d List
- ▶ And the only one in Saginaw Bay

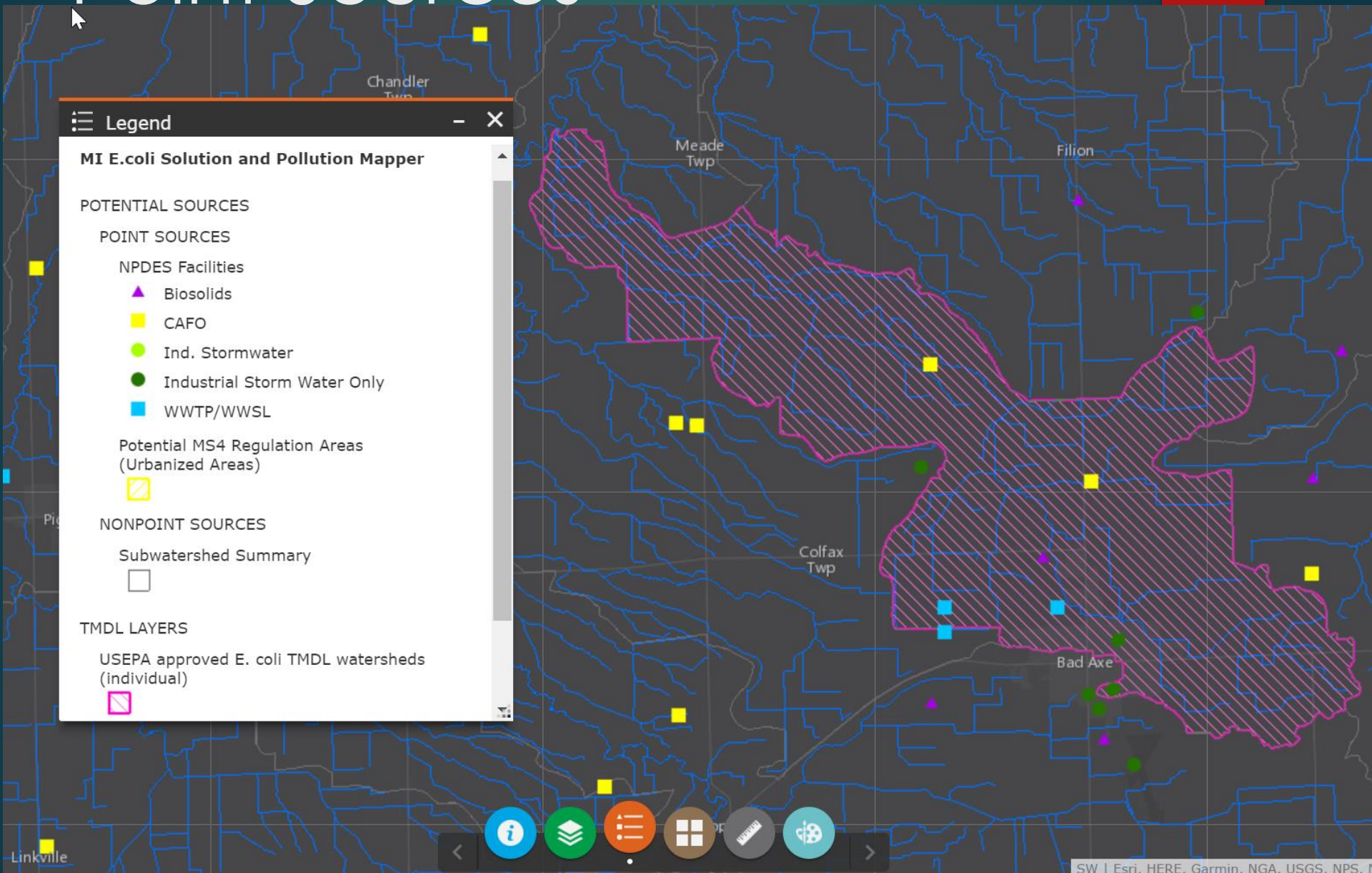
Image Landsat / Copernicus

Bad Axe Creek subwatershed

- ▶ Subwatershed of the Pinnebog River Watershed
- ▶ Much of the watershed was a wetland and is now agriculture.
- ▶ Highly impacted by
 - ▶ wetland loss
 - ▶ Artificial drainage
 - ▶ Farming in the riparian zone
 - ▶ Manure land-application (hogs and cattle)
- ▶ Designated uses impaired by phosphorus and bacteria



Point Sources



New Definition :

“Watershed management plan (light!)*”



*Like diet soda,
but without the
chemicals

319 Plan Elements (full coverage)

Element A: Identification of causes and sources

B: Load reductions from management measures

C: Description of management measures

H: Criteria to assess progress

I: Monitoring to evaluate effectiveness



319 Plan Elements (less coverage)

Element D: Estimate of technical, financial and regulatory assistance needed

- ▶ INCLUDES general description of the regulating agencies and available resources
- ▶ DOES NOT INCLUDE cost estimate for BMPs (general or specific)



319 Plan Elements (less coverage)

Element E: Public information, education and participation

- ▶ INCLUDES a recommendation of to develop an I&E strategy
- ▶ DOES NOT NEED TO INCLUDE ANYTHING ELSE



319 Plan Elements (less coverage)



Element F and G: Schedules for implementation and interim milestones

- ▶ INCLUDES schedule of milestones
- ▶ DOES NOT INCLUDE commitments by stakeholders to implement practices, and provides much less detail than typical

Process issues that came up:

- ▶ Which to do first? The TMDL or the Watershed Implementation Plan (IP)?
 - ▶ We did the IP first, but was that best?
 - ▶ Didn't have P target until the very end
 - ▶ Point sources can be significant in nutrient TMDLs, and doing the TMDL last meant that our Permit section wasn't brought in until the end.



Stakeholders



- ▶ Huron Conservation District was active and engaging, and already knew stakeholders who would implement BMPs.
- ▶ We had a great turn out at the final public meeting, but the presentation was far too technical for the audience

Next Steps

- ▶ Michigan has very few P impairment listings, and a new statewide *E. coli* TMDL (DRAFT) will address all *E. coli* impairments
- ▶ This leaves very few TMDLs left to write
- ▶ So where do we go from here?



Next Steps for Michigan

- ▶ Concepts of a “WMP-light” could be used in the future to provide implementation plans where TMDLs already exist (such as the statewide *E. coli* TMDL)
- ▶ We think that this is a good approach for watersheds with willing stakeholders but no capacity to develop complete nine-element plans
- ▶ DEQ staff could fill WMP/IP development roles where needed (if time/budget allows)

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