MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

Water Use Advisory Council

February 8, 2022

1. Welcome

EGLE

WUAC Chair Order for 2/8/22

- Laura Campbell, Senior Conservation & Regulatory Relations Specialist
  Michigan Farm Bureau (Items 1-5)

- Bryan Burroughs, Executive Director
  Michigan Trout Unlimited (Items 6-7)

- Brian Eggers, Principal
  AKT Peerless Environmental (Items 8-11)

Water Use Advisory Council (WUAC) Meeting

Hosted by the Department of Environment, Great Lakes, and Energy (EGLE)

Tuesday, February 8, 2022
1:00 p.m.- 4:00 p.m.
Con Con Conference Room
South Atrium, Constitution Hall
525 West Allegan
Lansing, MI 48933

Remote Option Available Via Teams
Click here to join the meeting
Or call in (audio only)
+1 248-509-0316,,798308928# United States, Pontiac
Phone Conference ID: 798 308 928#

AGENDA

1. Welcome
2. Roll Call
3. Approval of Agenda-Roll Call Vote
4. Approval of Minutes-Roll Call Vote
5. Public Comment (3 Minute Limit)
6. Committee Chairs Reports
   - A. Data Collection Committee
   - B. Models Committee
   - C. New Topics Committee
   - D. Conservation and Efficiency Committee
   - E. Implementation Committee
7. 2022 WUAC Report Update: Content, Logistics and Timeline
8. EGLE Update
9. Future
   - a. Meeting Dates
   - b. Formats
   - c. Quorum
10. Open Comments (3 Minute Limit)
11. Motion to Adjourn

2. Roll Call

3. Approval of Agenda –Roll Call Vote

4. Approval of Minutes—Roll Call Vote

5. Public Comment

Co-Chair Bryan Burroughs

Agenda Items 6-7

A. Data Collection Committee

Bryan Burroughs

EGLE

WUAC – Data Committee Update February 2022

- Data Committee has not met for several months
- Scheduling 2022 meeting dates
- Had been:
  - Assessing data collection and use standards/documentation
  - Lakes ARI assessment platforms, WI work, and possible paths for MI
  - Assessing needs for implementing past recommendations, and committee involvement in implementation, if funding is acquired.
- Need to:
  - Develop priorities for work and recommendations for next report
  - Replan workflow for existing/previous topics and recruit help towards them

B. Models Committee

Dave Hamilton

Jim Nicholas

Incorporation of watershed-scale accounting and water use sector-specific return flows in the Michigan Water Withdrawal Assessment Program's streamflow depletion accounting process: a statewide analysis

Authors: Troy Zorn, Jared Ross, Dana Infante, Hao Yu, Andrew LeBaron

Work group: Bryan Burroughs, Laura Campbell, David Hamilton, Jim Milne, Howard Reeves, Gary Whelan, Dana Infante, Jared Ross, Hao Yu, Andrew LeBaron, Kyle Herreman, Troy Zorn (chair)

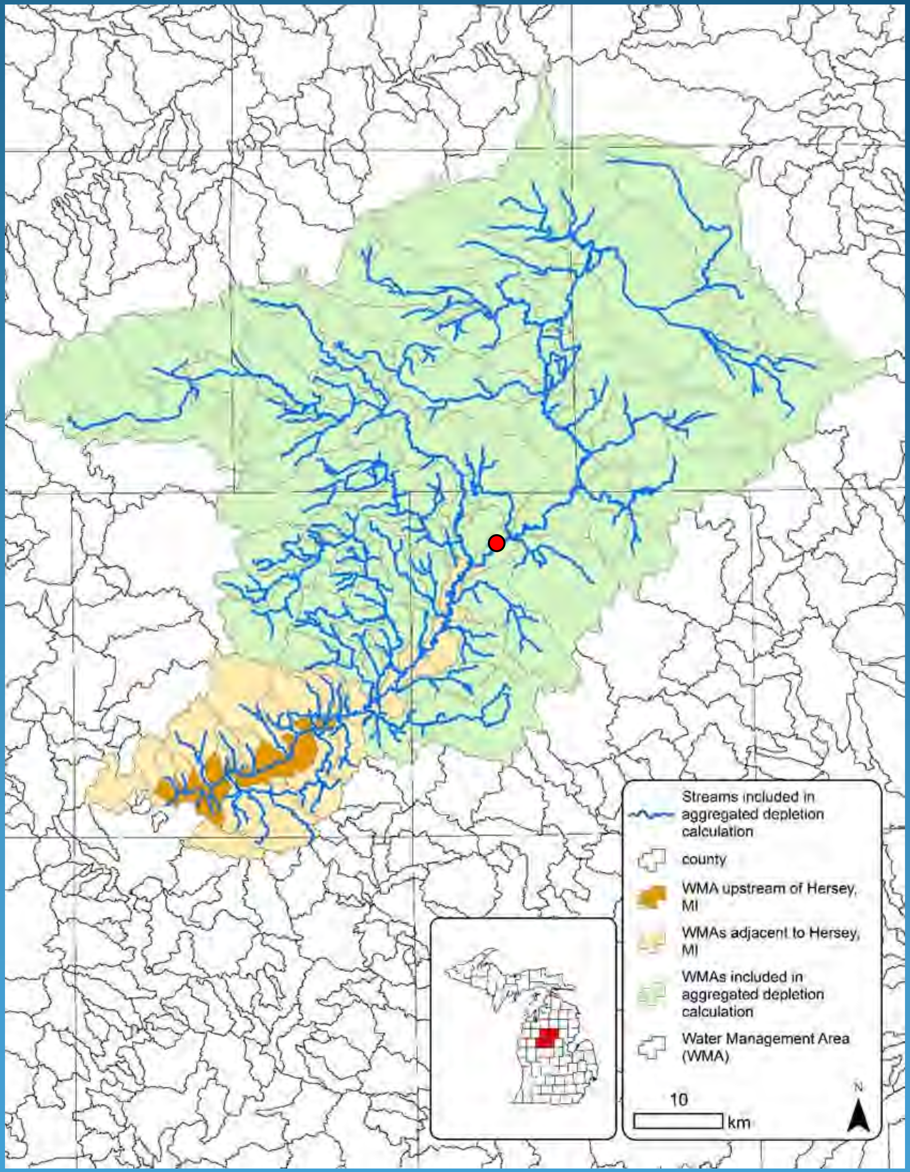
Water Use Advisory Council meeting
February 2022

Watershed (catchment)

- Definition: area that drains water to a specific location on a stream
- Properties measured at the watershed scale collectively shape physical and biological characteristics at the site.
  - Examples: watershed area, climate, geology, topography, land use (urban, agric, forestry), & surface/ground water use
- Index Flow estimates in WWAP are predicted from watershed-scale variables: watershed area, aquifer transmissivity, forest cover, annual precipitation, and soil permeability (Hamilton et al. 2008)
- What is happening throughout the watershed, including LQWs, can have an important influence on flow conditions at a site

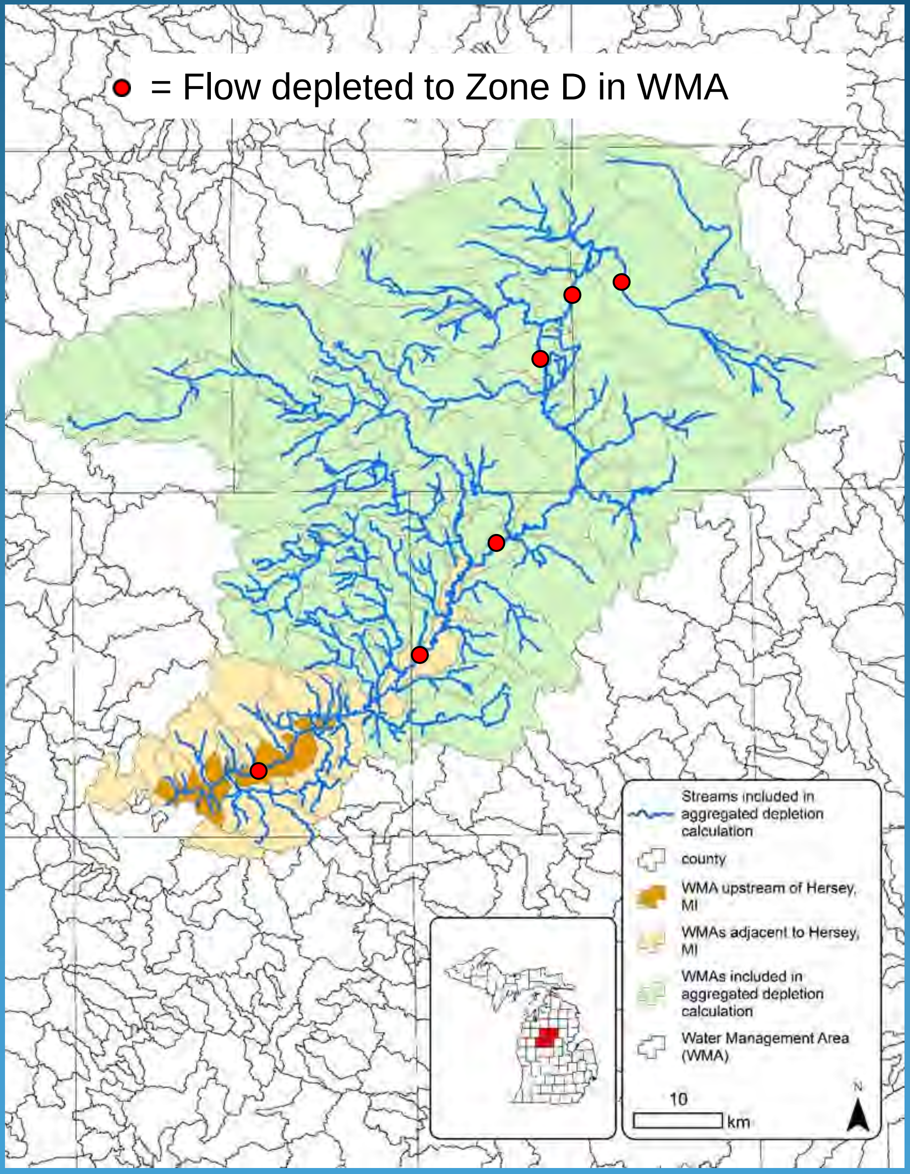
Cumulative effects, watersheds, & WWAP

- When a new LQW is proposed, the WWAP looks at adjacent WMAs.
  - Watershed level accounting occurs for WMAs made up of 1-2 WMAs.
- But… Muskegon R. at Evart
  - Most of watershed would be ignored, including a Zone D condition at red dot (if it occurred)

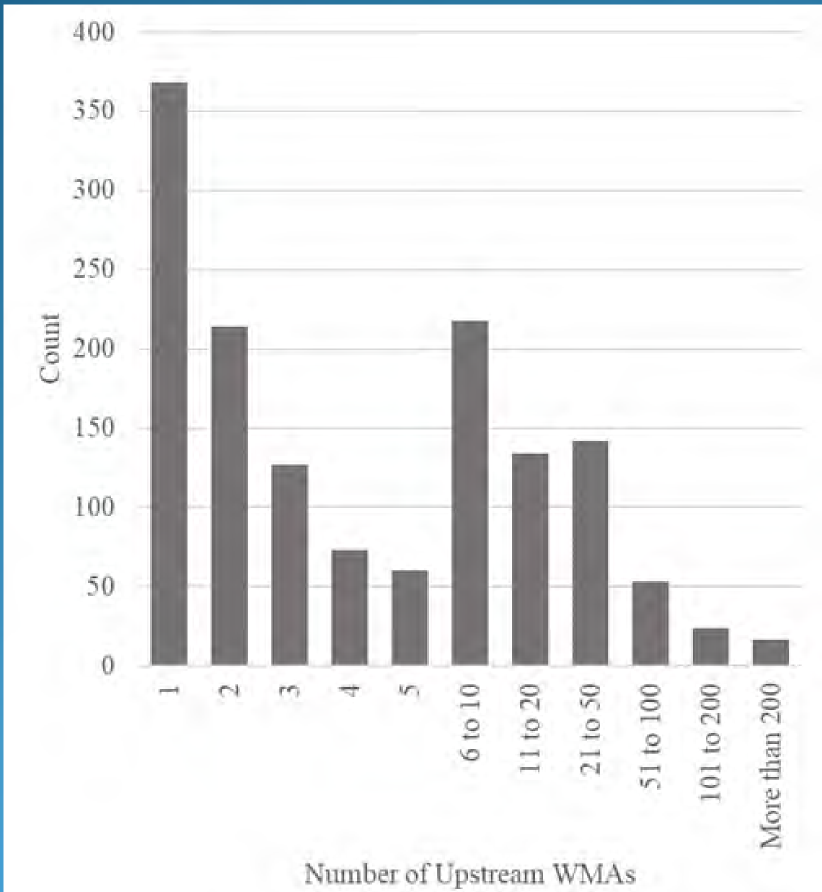


Implication for larger streams….

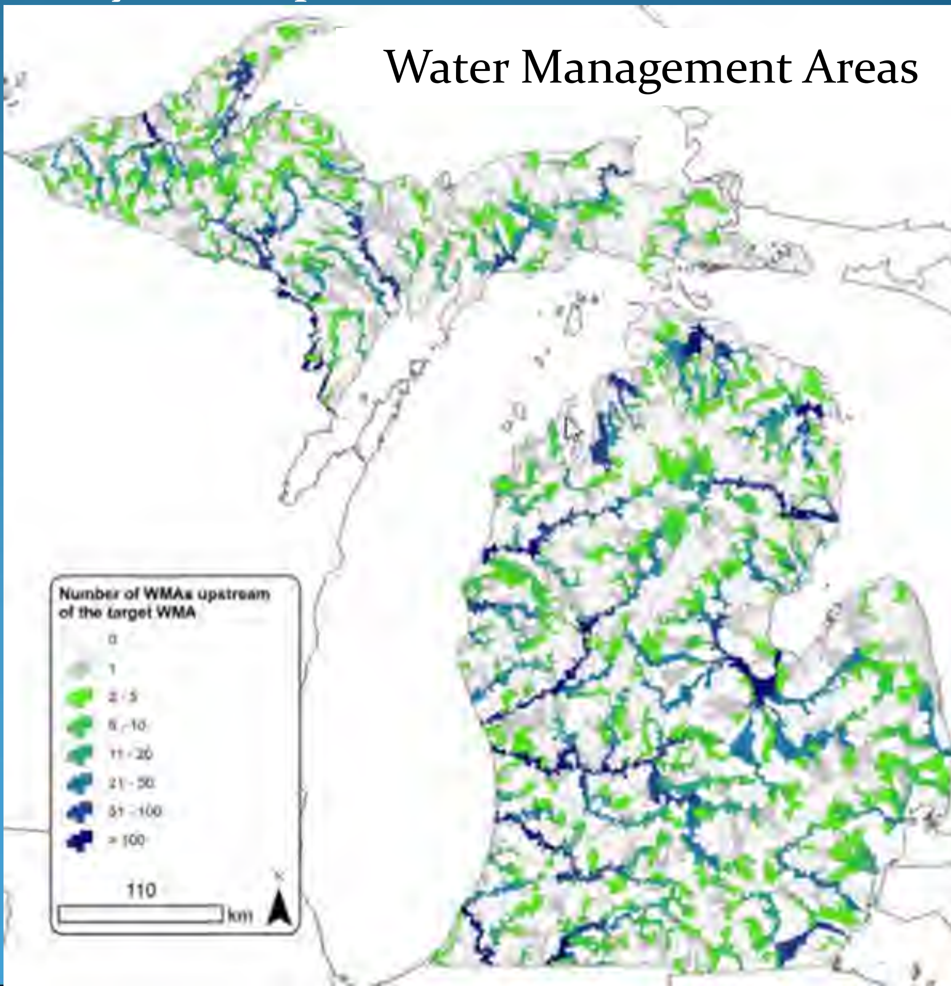
- By ignoring flow depletions occurring more than 1 WMA's distance upstream, the WWAP essentially restores the full Index Flow (IF) as downstream WMA boundaries are passed. The main channel's IF could be reduced to ARI levels at multiple intervals along its length.
  - Example. Up to 130 cfs is again available for depletion when >1 WMA downstream of the Evart reach of Muskegon R. Assumes IF=592 cfs, Zone D at 22% flow depletion for Large River – Warm class.
- Is the current approach scientifically defensible for larger rivers?



- For larger streams, WWAP could suggest more water is available than true because upstream flow depletions in much of the watershed are ignored.
  - Technical Underpinning Work Group item #3 (p. 112) in 2014 “Final report of the WUAC”
  - Assessing cumulative effects is potentially a widespread issue.

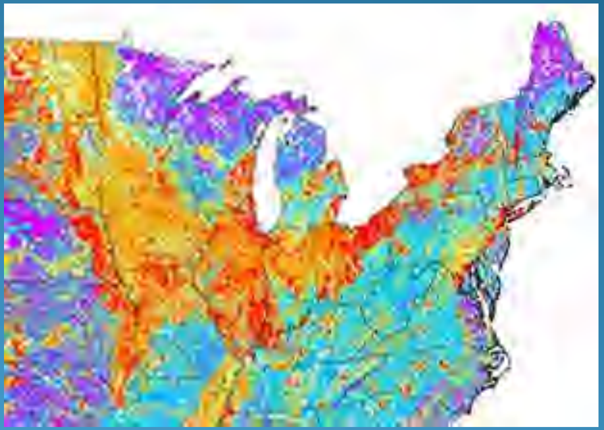


Note: 4158 WMAs are headwaters with no upstream WMA



Possible solution within reach

- Watershed-scale accounting:
  - Is consistent with current hydrologic modelling and landscape ecology principles;
  - Is aligned with the intent and spirit of the Great Lakes Compact
  - Could improve and increase the validity of the WWAP.
  - Seems feasible
- Available resources
  - Dr. Dana Infante's lab at MSU
  - EGLE streamflow depletion database State
- State Wildlife Grant funding
- Objectives
  1. To demonstrate the feasibility of incorporating watershed-scale accounting in the WWAP. *Expectation = less water available in downstream WMAs.*
  2. To incorporate water use sector-specific return rates into the streamflow depletion accounting process. *Expectation = more water available.*
  3. To depict the status of Michigan WMAs following such changes



Methods

- Acquire data from EGLE
  - Flow depletion totals for each WMA, with individual values adjusted using water-sector specific return %'s
  - Topological relationships among WMAs for MI river networks
- Review and reverse topological coding to "look upstream"
- Run aggregation coding to sum all flow depletions upstream of each WMA

Water use sector	Return Flow (%)
Industry	90
Commercial	90
Mining	90
Thermoelectric power generation	98
Domestic and public supply	88
Irrigation	10
Livestock	17

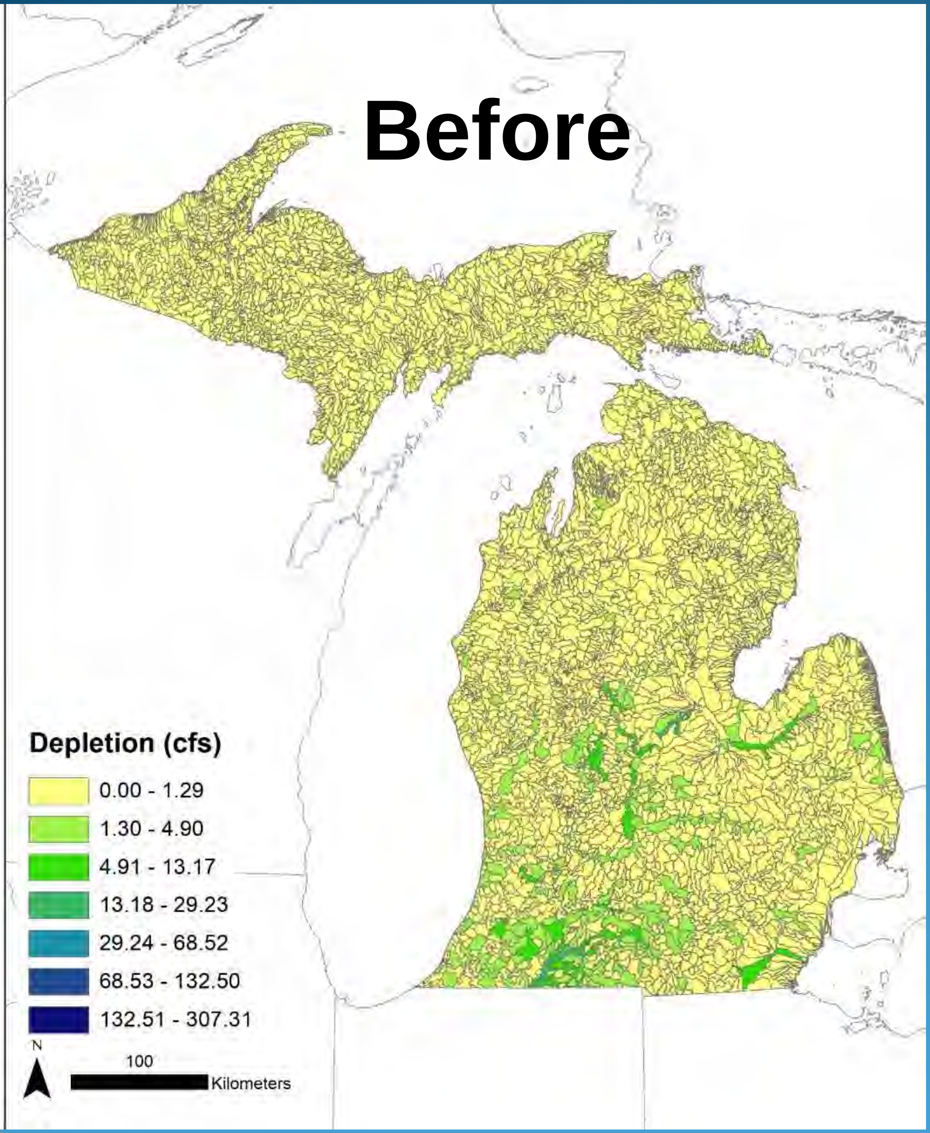
Source: Shaffer & Runkle (2007) as reported in Appendix 1, Table 2-2 of Shaffer (2009).

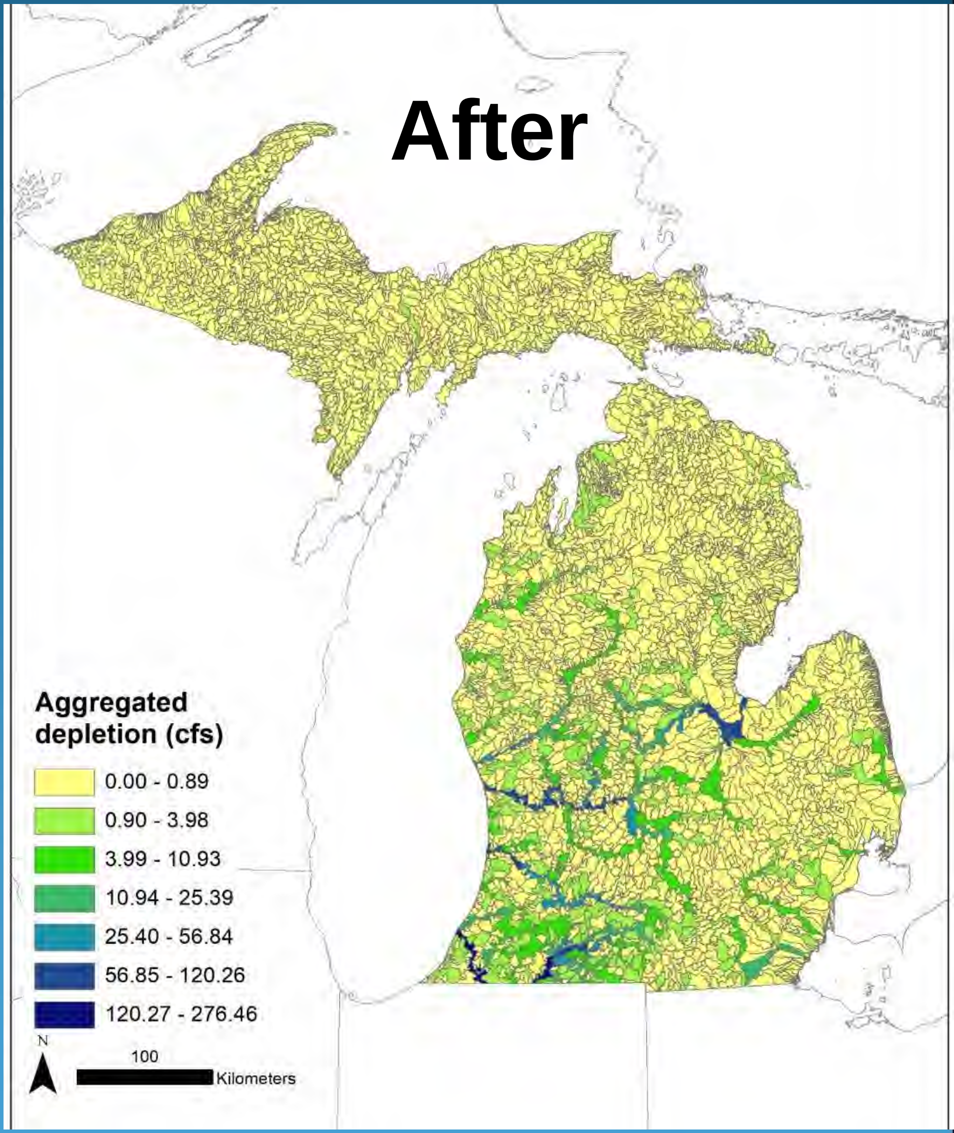
Effects on non-headwater WMAs

Table 3. Number and percent (%) of WMAs in Zone D by stream size class (i.e., number of upstream WMAs in watershed) of non-headwater Michigan stream segments before and after watershed-scale accounting, with and without return flows. Highlighted values show before application of watershed-scale accounting and return flows, and then after both are applied.

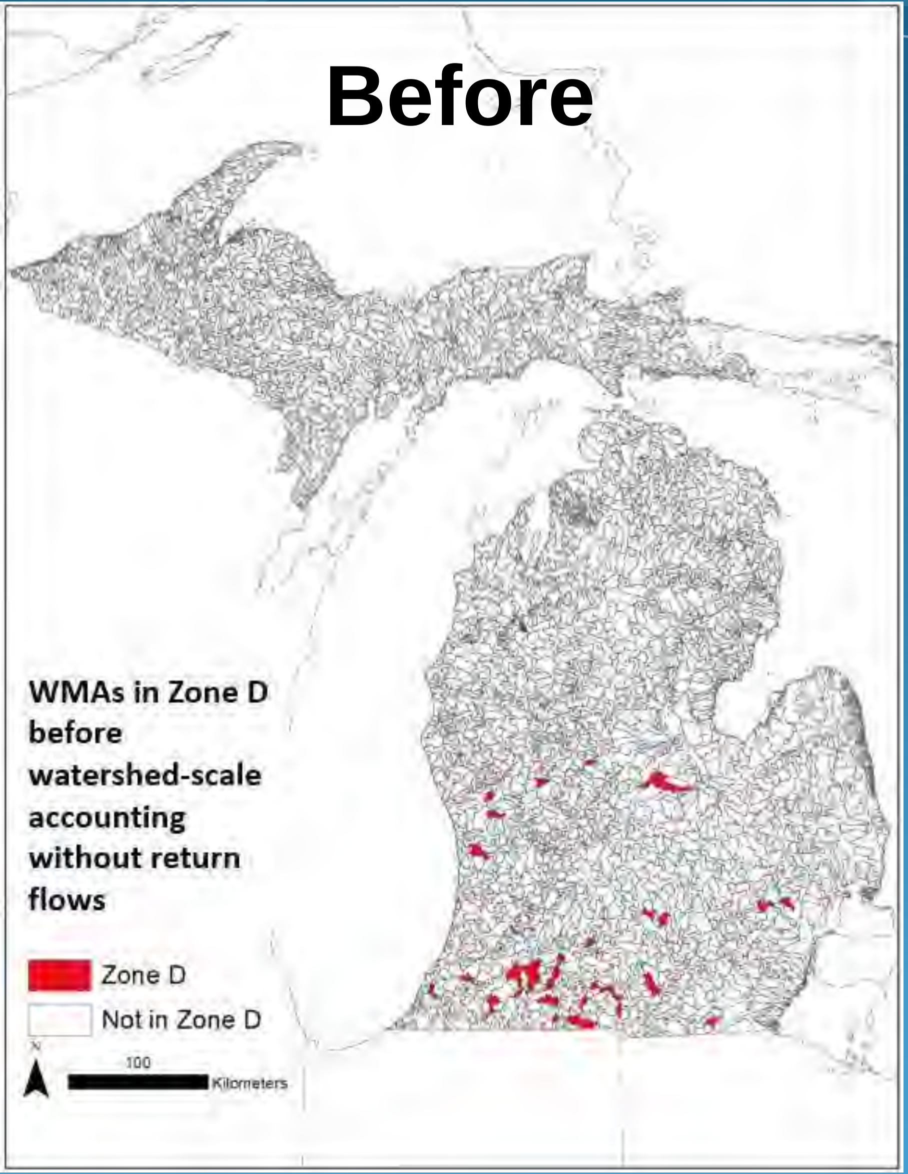
Stream size class (# upstream WMAs)	# WMAs in class	WMAs in Zone D		WMAs in Zone D	
		Count	Percent	Count	Percent
Before watershed-scale accounting		*Without return flow*		*With return flow*	
1-4	708	3	0.4	2	0.3
5-10	326	2	0.6	0	0.0
11-25	193	0	0.0	0	0.0
26-50	107	0	0.0	0	0.0
51-100	56	0	0.0	0	0.0
> 100	41	0	0.0	0	0.0
After watershed-scale accounting		*Without return flow*		*With return flow*	
1-4	708	37	5.2	27	3.8
5-10	326	24	7.4	22	6.8
11-25	193	15	7.8	15	7.8
26-50	107	3	2.8	3	2.8
51-100	56	3	5.4	1	1.8
> 100	41	2	4.9	2	4.9

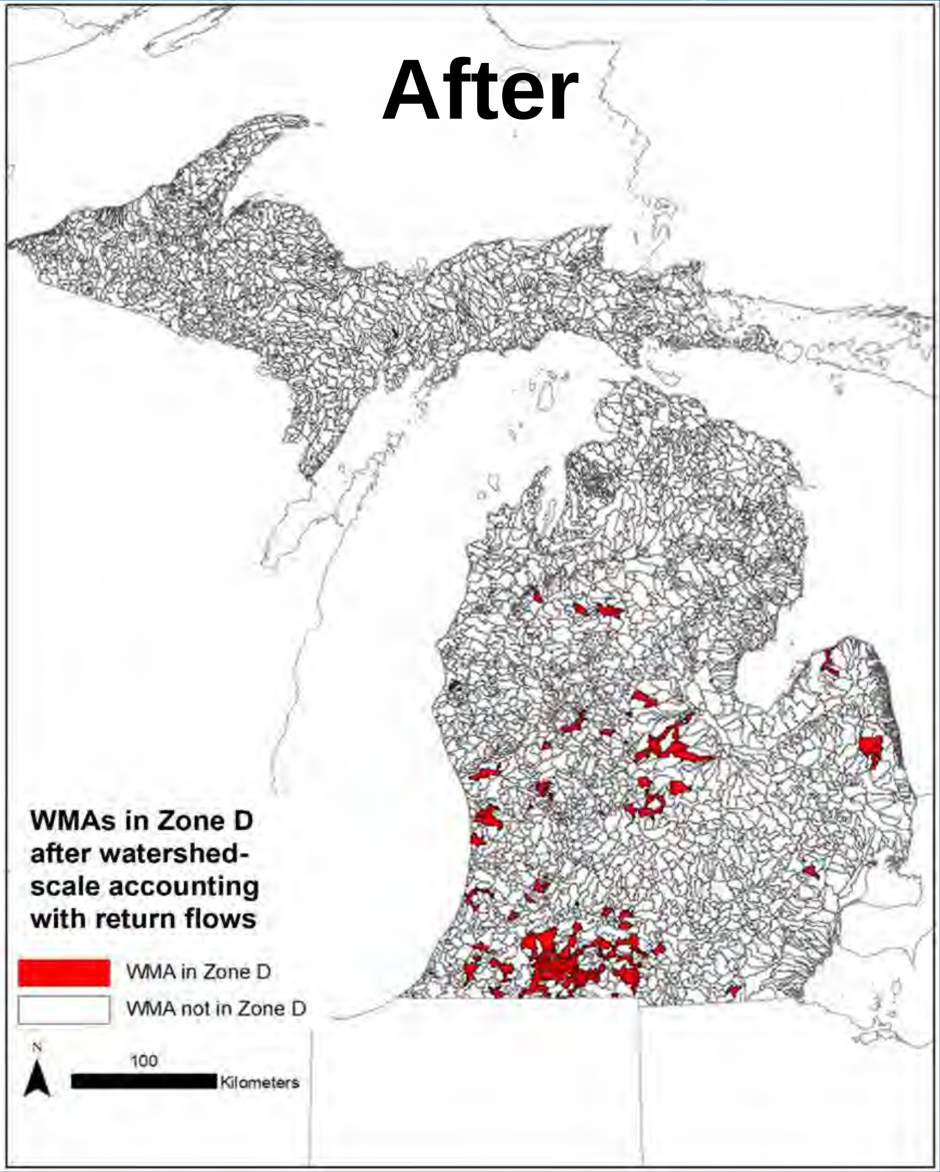
Flow depletions by WMA before vs after watershed accounting & return flows





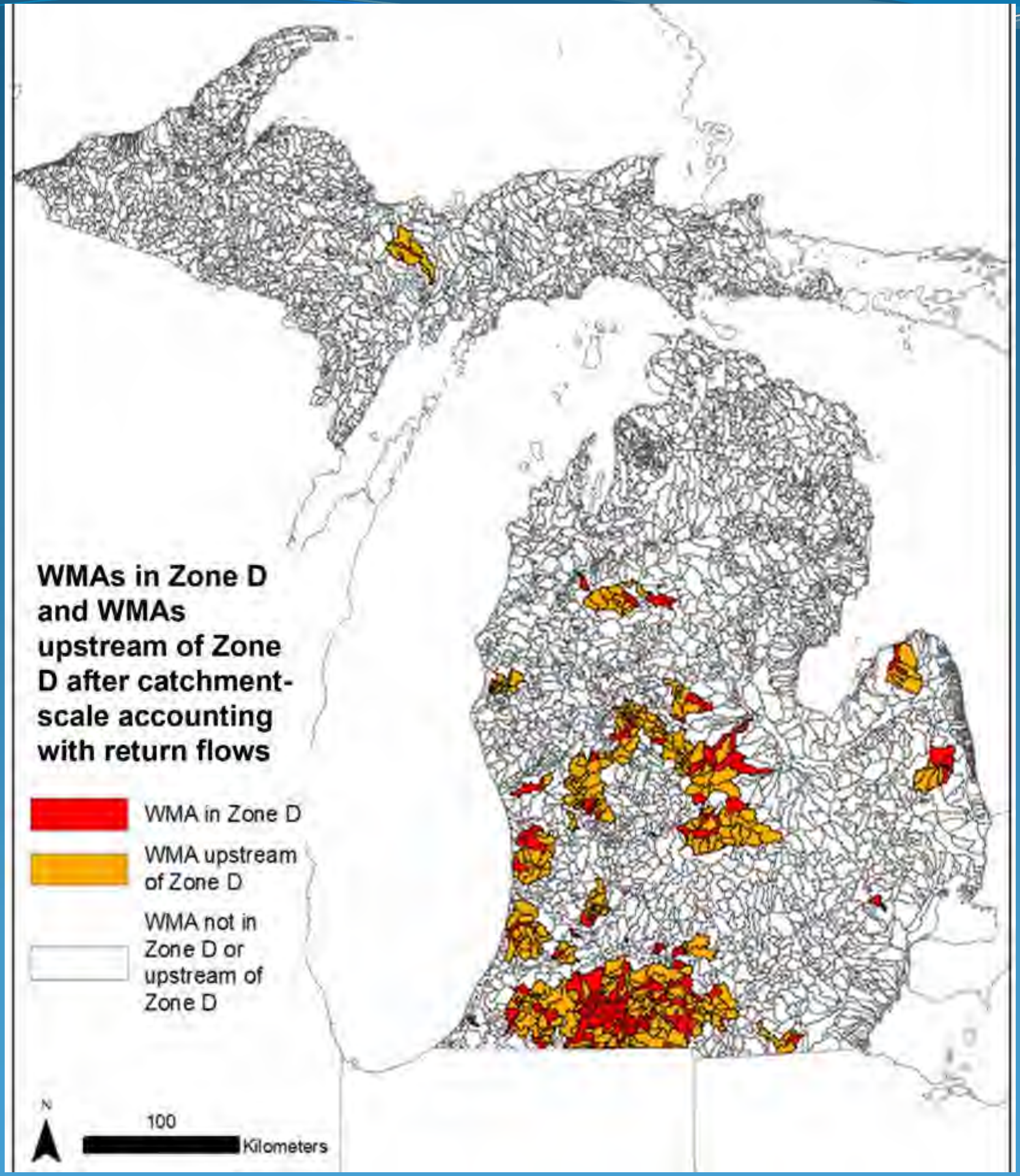
Potential Zone D WMAs before vs after watershed accounting & return flows





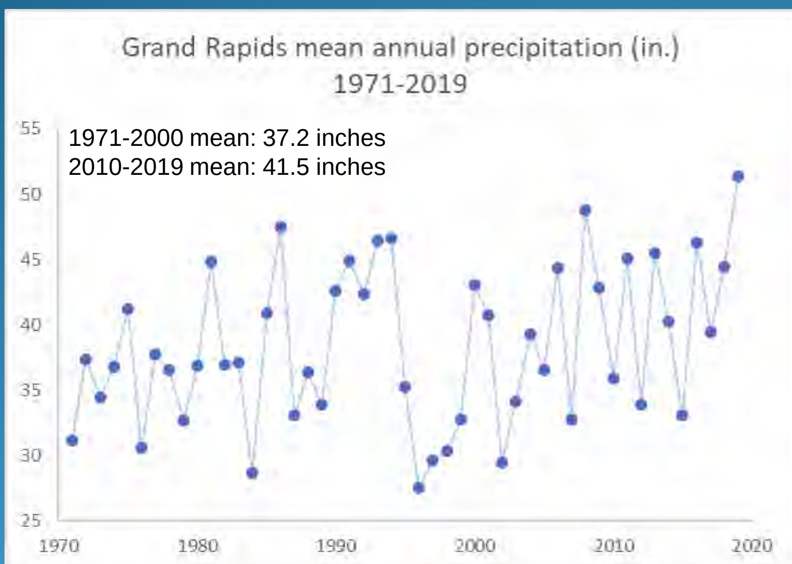
Water management areas where the difference between the Index Flow and cumulative streamflow depletions puts the Index Flow at or below Zone D (ARI).

Potentially-contributing WMAs upstream of Zone D WMAs are in orange



Challenges to field documentation of withdrawal effects.

- Number and location of long-term gages
- Documentation of withdrawal activities
- Hydrologically complex landscapes
- Spatio-temporal climatic variation



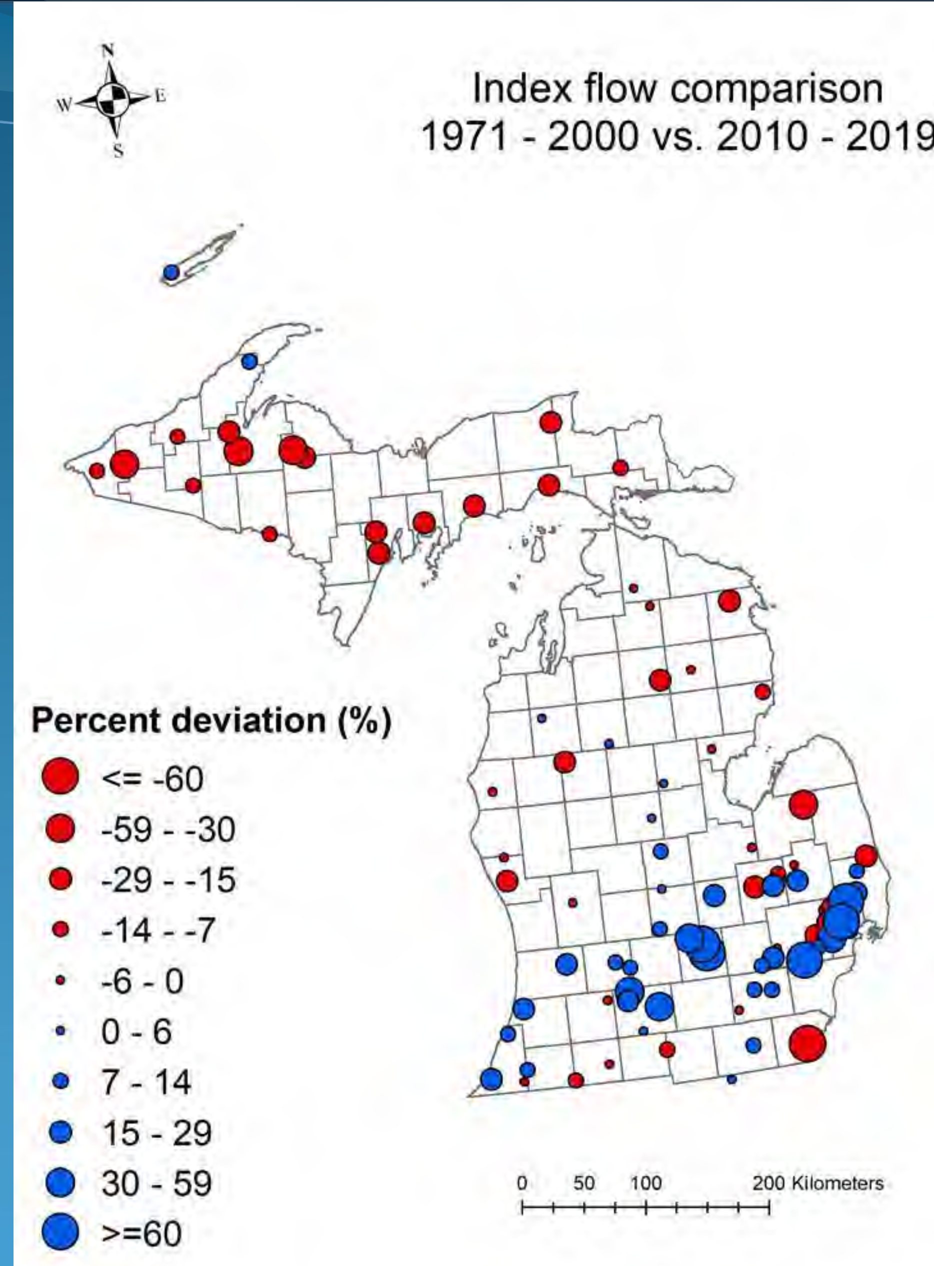


Figure 7. Percent deviation of index flow for 2010-2019 from index flow calculated for 1971-2000 (Hamilton et al. 2008). The 1971-2000 period provided the baseline to quantify precipitation for predicting Index Flow values for WMAs in the WWAP. The data suggest index flows during 2010-2019 were lower in the north and often higher in the south (likely due to climatic variation) than average values for the 1971-2000 baseline period.

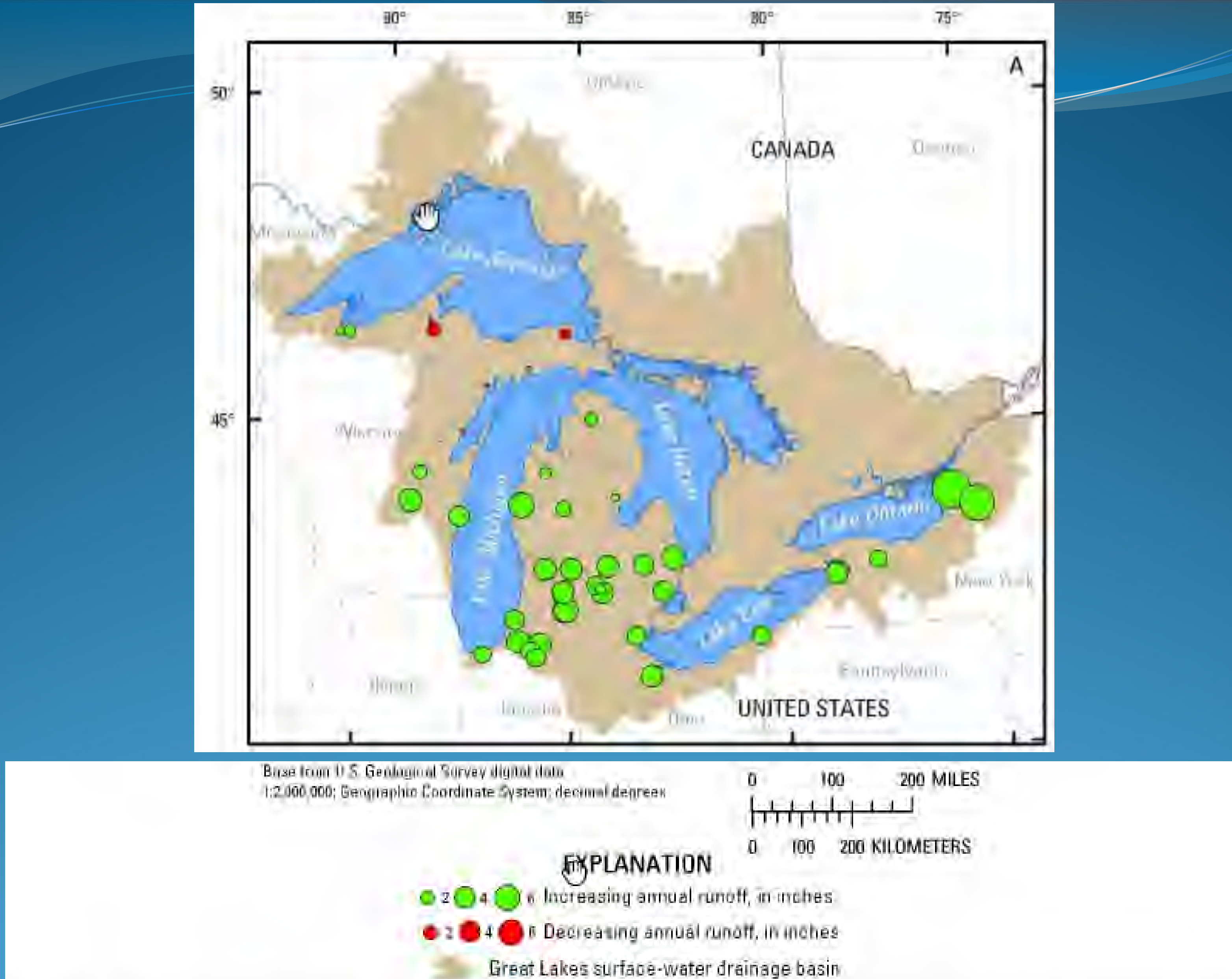
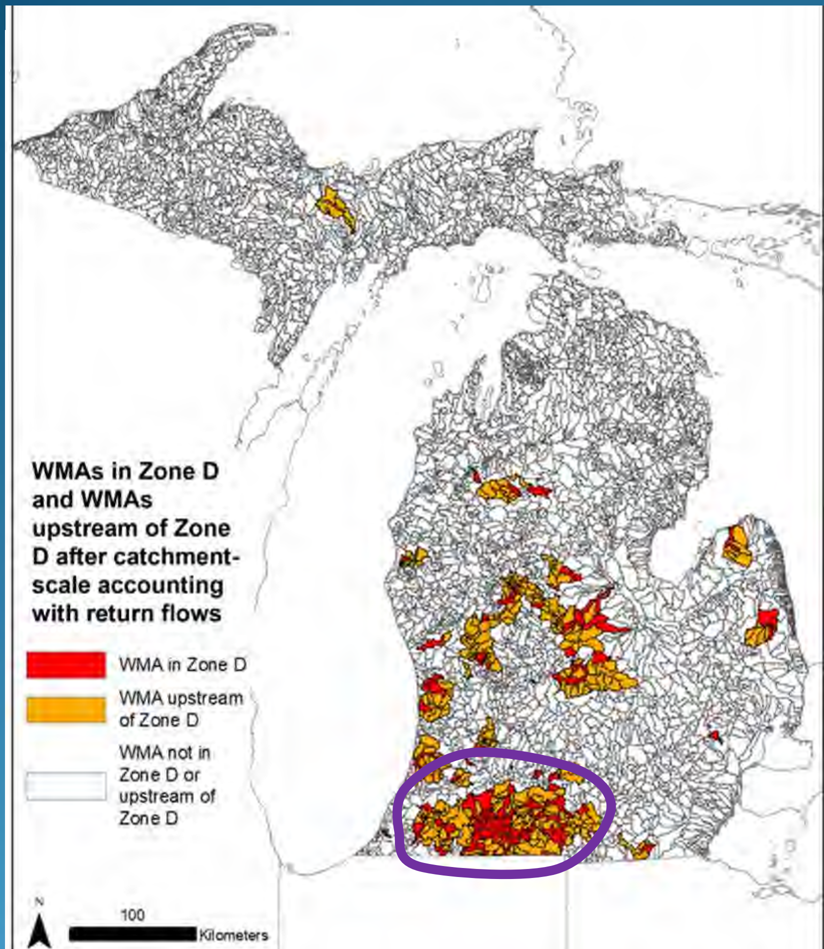


Figure 6. Changes in annual runoff, by station, for (A) 1955–2004 and (B) 1935–2004. Circle sizes proportional to increases or decreases.

Hodgkins, G.A., Dudley, R.W., and Aichele, S.S., 2007, Historical changes in precipitation and streamflow in the U.S. Great Lakes Basin, 1915–2004: U.S. Geological Survey Scientific Investigations Report 2007–5118, 31 p.

Watershed-scale depletions?

- Reduced flows during a wet period.



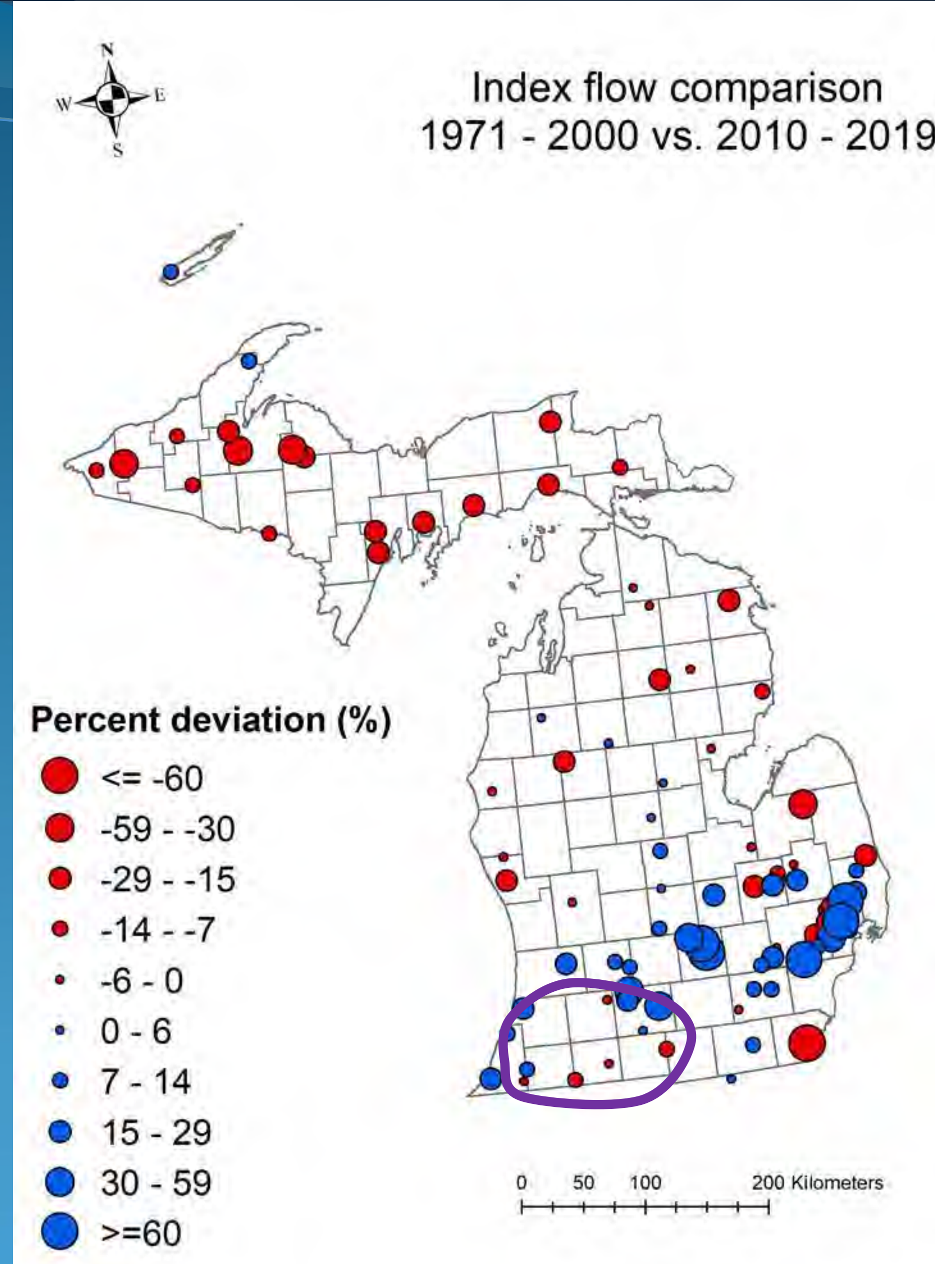
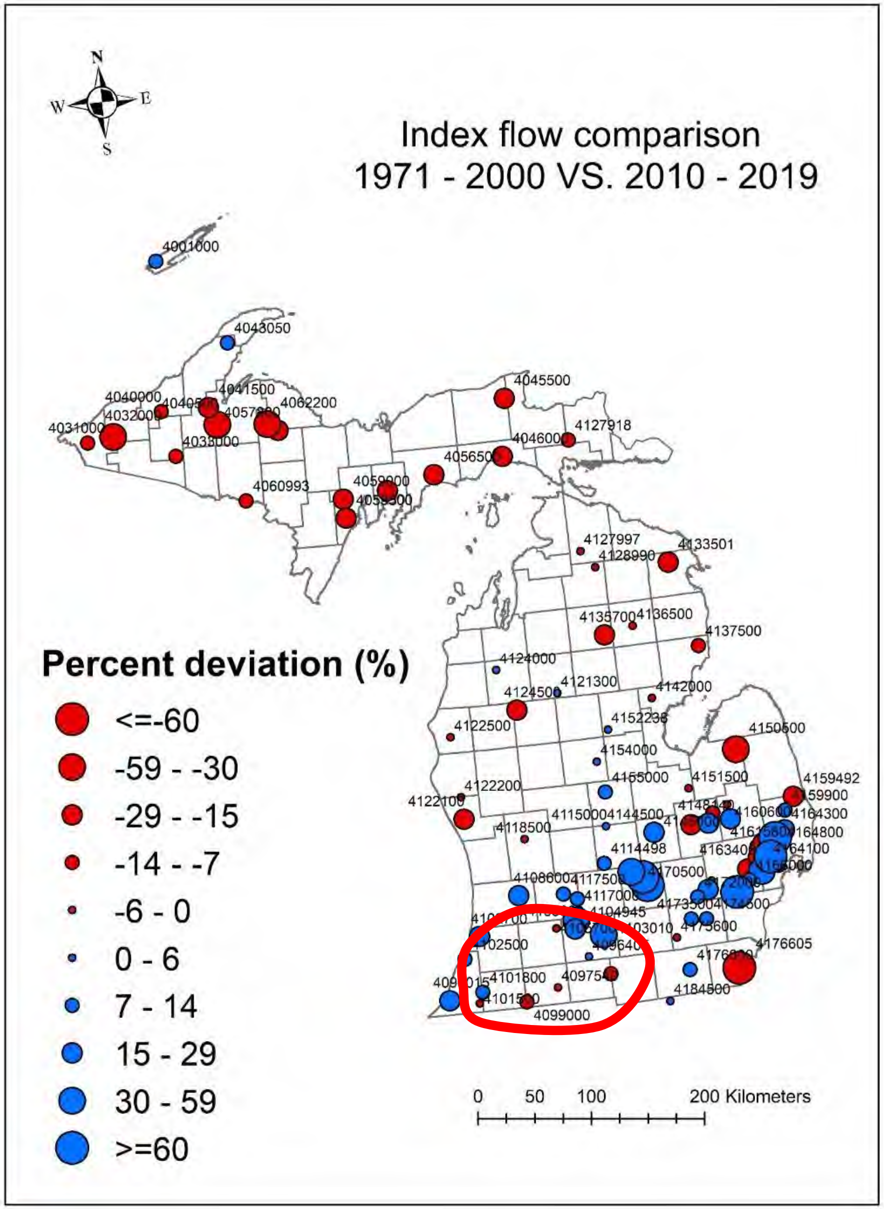


Figure 7. Percent deviation of index flow fo … -2000 (Hamilton et al. 2008). The 1971-2000 period provided the baseline to quantif … or WMAs in the WWAP. The data suggest index flows during 2010-2019 were lower in … e to climatic variation) than average values for the 1971-2000 baseline period.

Coincidence?



SW MI sites showing reduced or little change

04101500	St. Joseph River at Niles, Mich.
04099000	St. Joseph River at Mottville, Mich.
04097540	Prairie River near Nottawa, Mich.
04096515	South Branch Hog Creek near Allen, Mich.
04096405	St. Joseph River at Burlington, Mich.
04105700	Augusta Creek near Augusta, Mich.

Summary

- Demonstrated that cumulative withdrawals and return flows can be readily incorporated into the WWAP.
  - It's technically feasible.
- This information can help fill a key knowledge gap.
  - Cumulative withdrawal info can also aid in identifying areas for further examination.
- Workgroup charge accomplished. Further consideration of the issue is warranted.
  - Models Committee
  - WUAC

Thank you

"…understanding cumulative impacts of multiple withdrawals within a watershed is paramount to a sustainable approach for both the aquatic ecosystem and the human users of the resource." Hamilton and Seelbach (2011)

Water Use Advisory Council Models Committee

Downstream Accounting

Examples: Kalamazoo River
St. Joseph River

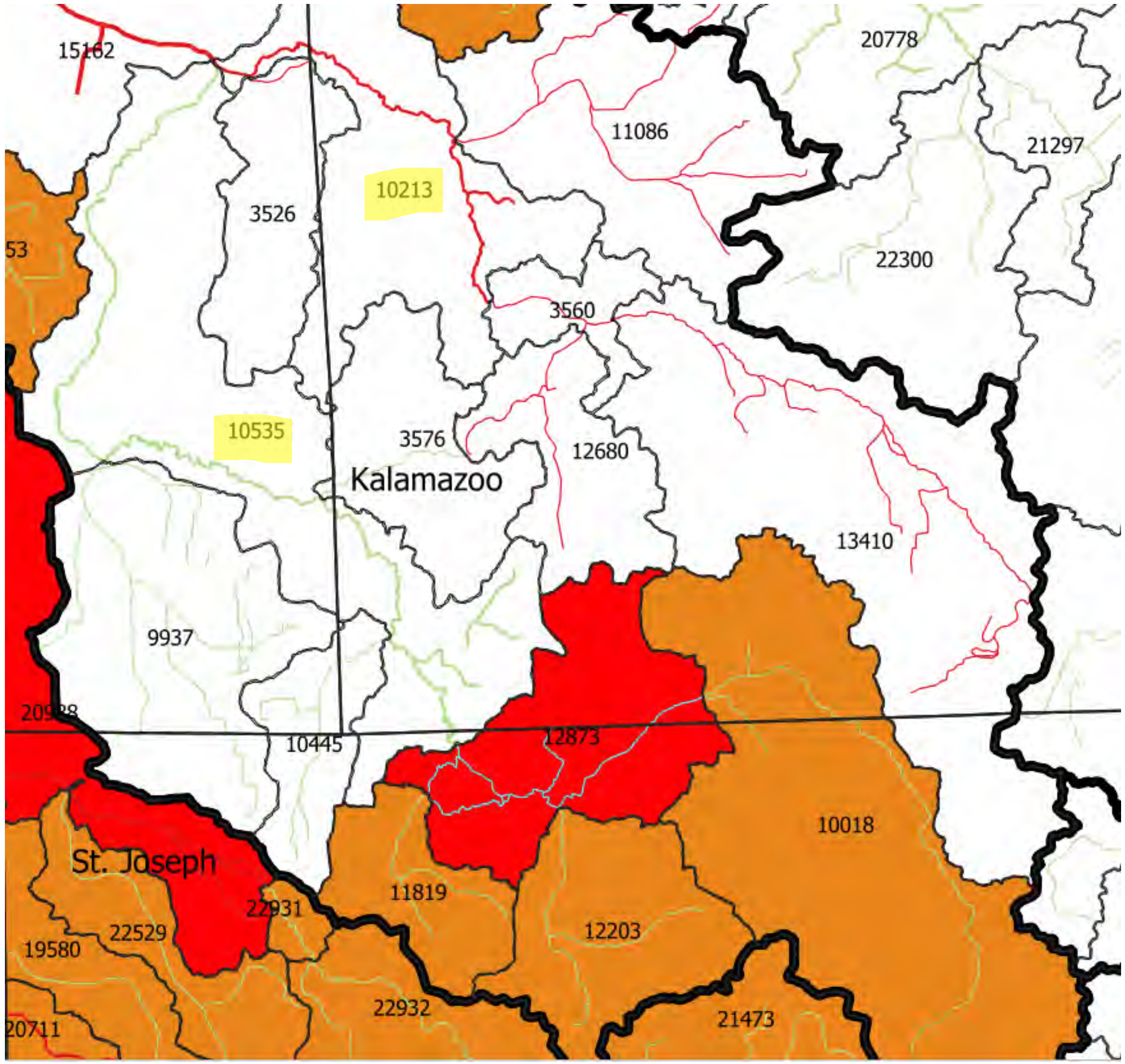
David A. Hamilton February 8, 2022

Downstream Accounting results in the Kalamazoo River

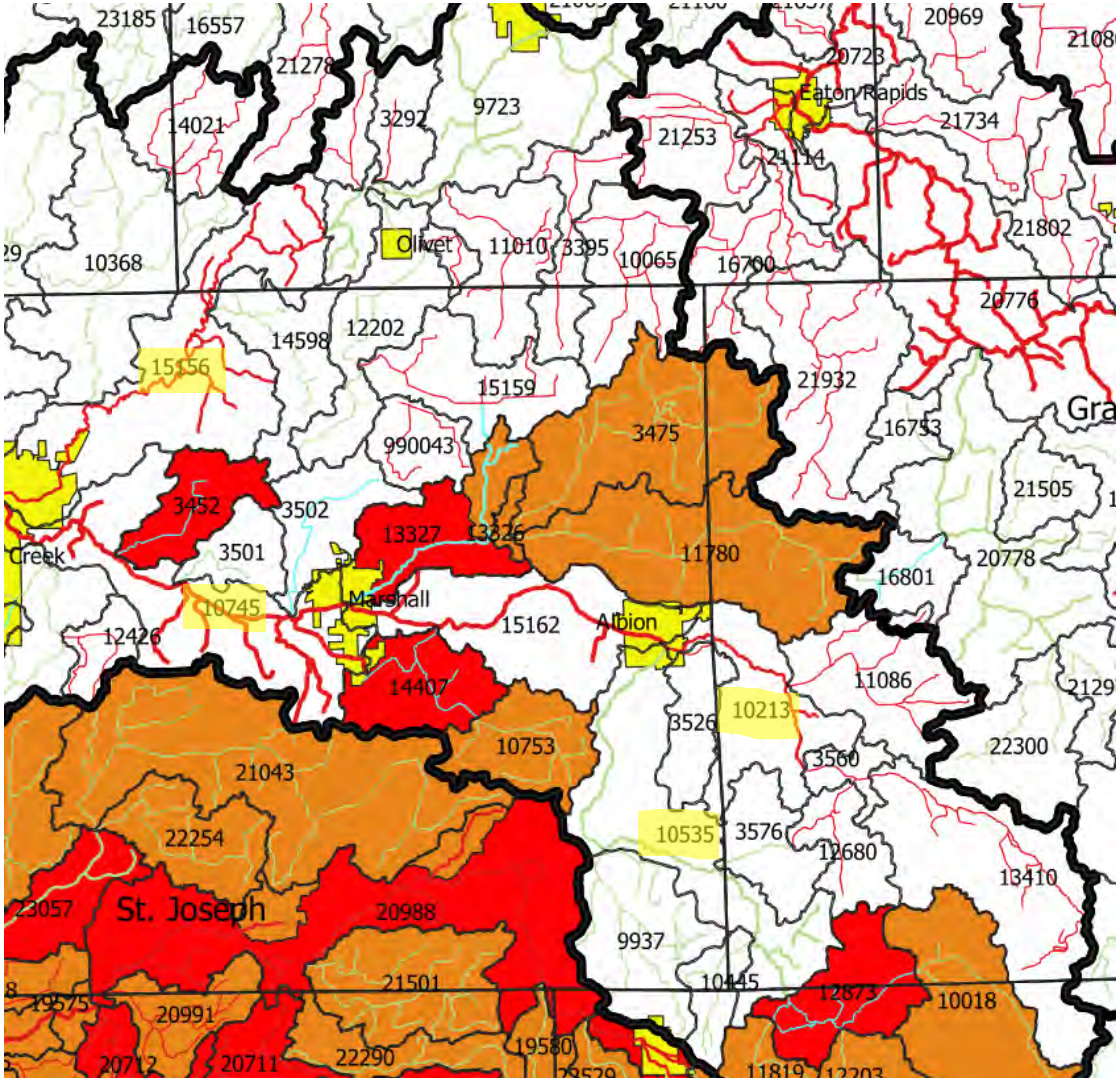
	Net Area (sqmi)	WMA #	Index flow (gpm)	TYPE	Zone B %	Zone C %	Zone D %	Zone B gpm	Zone C gpm	Zone D gpm	WWAT DEPLETION	Net depletion w/ return flow	Curr Zone	Zone w/ d/s acct
S Br Kalamazoo River	75.6	12873	19300	Cold transitional s	0	0.04	0.040001	0	772	772	433	923	B	D
S Br Kalamazoo River	151.3	10535	24237	Cool small river	0.15	0.19	0.25	3636	4605	6059	279	2987	A	A
N Br Kalamazoo River	103.8	10213	24686	Warm small river	0.08	0.13	0.17	1975	3209	4197	108	2833	A	B
Kalamazoo @ Battle Cr	539.5	10745	116696	Warm large river	0.1	0.16	0.22	11670	18671	25673	1208	12667	A	B
Battle Creek River	280.4	15156	34445	Warm small river	0.08	0.13	0.17	2756	4478	5856	620	315	A	A
Kalamazoo @ Gun R	1364.9	15161	223060	Warm large river	0.1	0.16	0.22	22306	35690	49073	174	19525	A	A
Kalamazoo @ mouth	2018.2	3138	357239	Warm large river	0.1	0.16	0.22	35724	57158	78593	9	26923	A	A

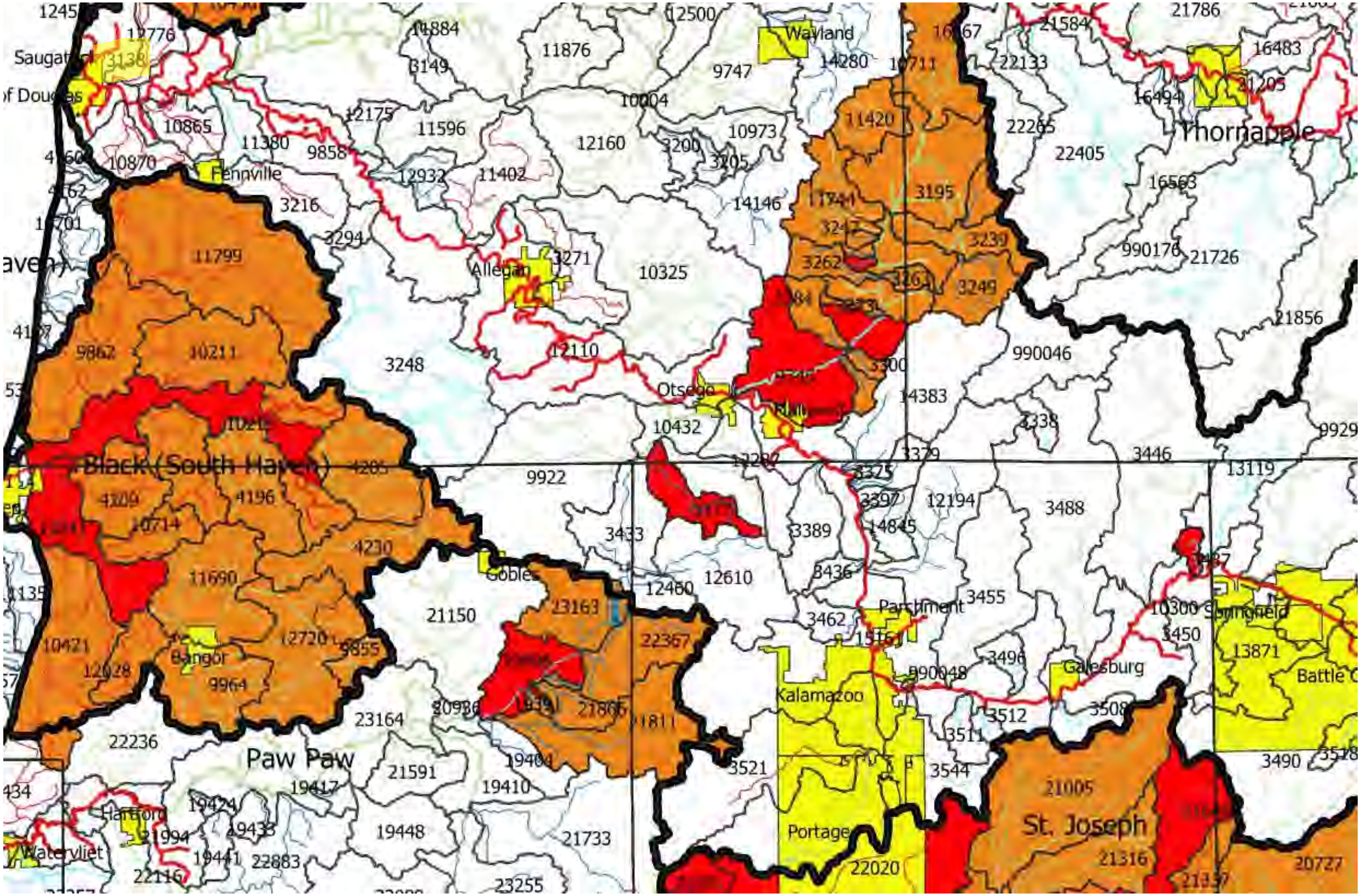
The current WWAP accounting system only depletes streamflow associated with LQW from the home, and possibly neighboring WMAs. It is not accounted for in downstream WMAs. The value is shown under “WWAT Depletion”.

This study accumulates all streamflow depletions as we move downstream through the river system. This example shows what the effect would be in the Kalamazoo River. The accumulated value is shown under “Net Depletion w/return flow”. The zones are also shown for both cases.



15162
20778
11086
21297
10213
3526
53
22300
3560
10535
3576
12680
Kalamazoo
13410
9937
12873
10445
10018
St. Joseph
11819
22931
12203
22529
19580
22932
21473
20711


23185
16557
21278
14021
3292
9723
20969
20723
Eaton Rapids
21734
21253
21114
21802
Olivet
11010
3395
10065
16700
10368
20776
14598
12202
15156
15159
21932
Gra
16753
3475
990043
21505
3452
3502
13327
13326
11780
Creek
3501
20778
16801
Marshall
10745
15162
Albion
12426
11086
14407
10213
3526
22300
10753
3560
21043
10535
3576
12680
22254
13410
23057
St. Joseph
20988
9937
10445
12873
21501
10018
19575
20991
20712
20711
22290
19580
11819
12203



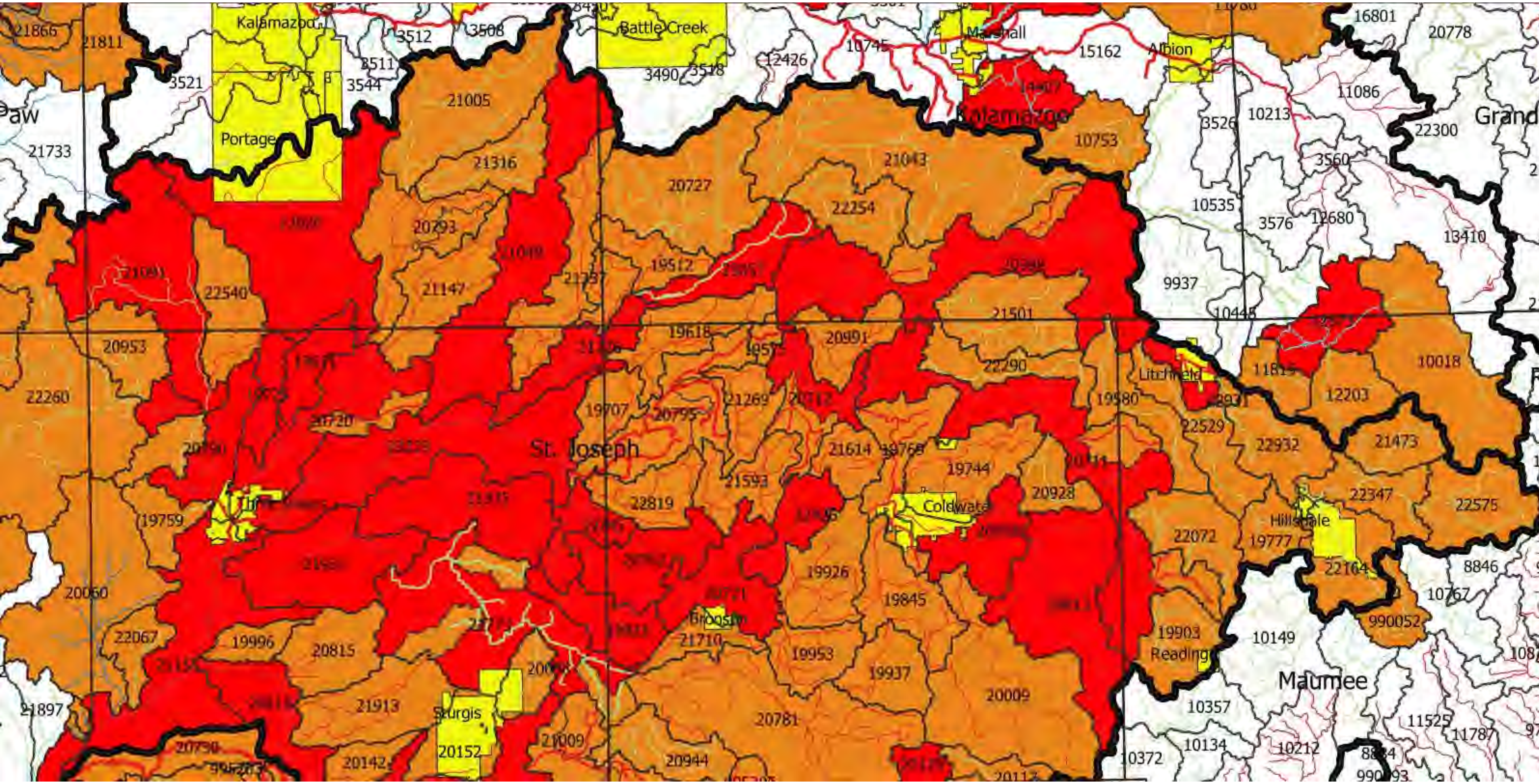
Saugatuck
Fennville
Allegan
Wayland
Thornapple
Otsego
Black (South Haven)
Gobles
Bangor
Paw Paw
Hartford
Watervliet
Parchment
Kalamazoo
Portage
Galesburg
Springfield
Battle C
St. Joseph

Downstream Accounting results in the St. Joseph River

	Net Area (sqmi)	WMA #	Index flow (gpm)	TYPE	Zone B %	Zone C %	Zone D %	Zone B gpm	Zone C gpm	Zone D gpm	WWAT DEPLETION	Net depletion w/ return flow	Curr Zone	Zone w/ d/s acct
St Joseph nr Burlington	229.7	20988	34111	Warm small river	0.08	0.13	0.17	2729	4434	5799	2528	6114	A	D
St Joseph nr Colon	704.5	20795	125673	Warm large river	0.1	0.16	0.22	12567	20108	27648	683	22899	A	C
St Joseph @Three Rivers	1179	23229	178112	Warm large river	0.1	0.16	0.22	17811	28498	39185	32121	53978	C	D
St Joseph u/s Pigeon	1756	21151	305136	Warm large river	0.1	0.16	0.22	30514	48822	67130	5031	91707	A	D

The current WWAP accounting system only depletes streamflow associated with LQW from the home, and possibly neighboring WMAs. It is not accounted for in downstream WMAs. The value is shown under “WWAT Depletion”.

This study accumulates all streamflow depletions as we move downstream through the river system. This example shows what the effect would be in the St. Joseph River. The accumulated value is shown under “Net Depletion w/return flow”. The zones are also shown for both cases.



Kalamazoo
Battle Creek
Marshall
Albion
Portage
Paw
Grand
St. Joseph
Litchfield
Hillsdale
Sturgis
Bronson
Reading
Maumee
16801
20778
21866
21811
3521
3512
3508
3511
3544
3490
3518
12426
10745
15162
11086
10213
3526
10753
22300
21733
21005
21316
21043
20727
22254
20293
10535
3576
12680
13410
21147
22540
19512
9937
20953
19618
20991
21501
22290
11815
10018
22260
19707
20795
21269
19580
12203
22529
22932
21473
21614
19744
20928
19759
22819
21593
22347
22575
22072
19777
19926
22164
8846
20060
19845
10767
19903
10149
22067
19996
20815
21710
19953
19937
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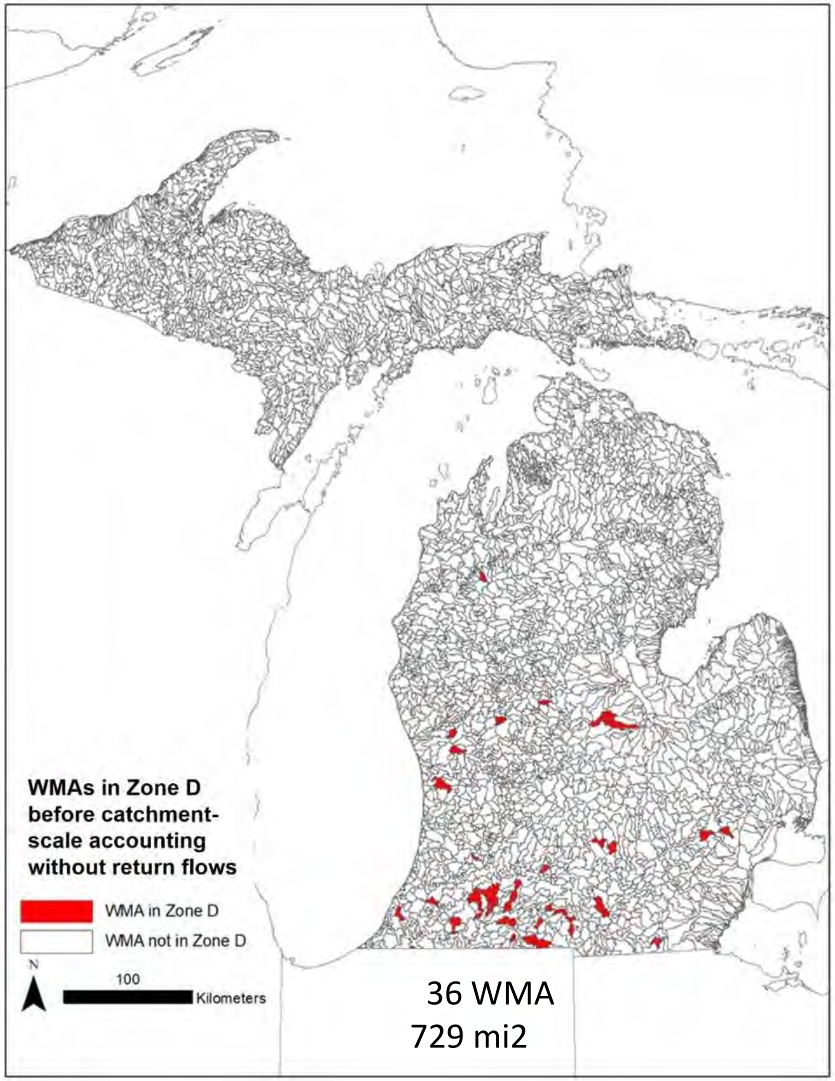
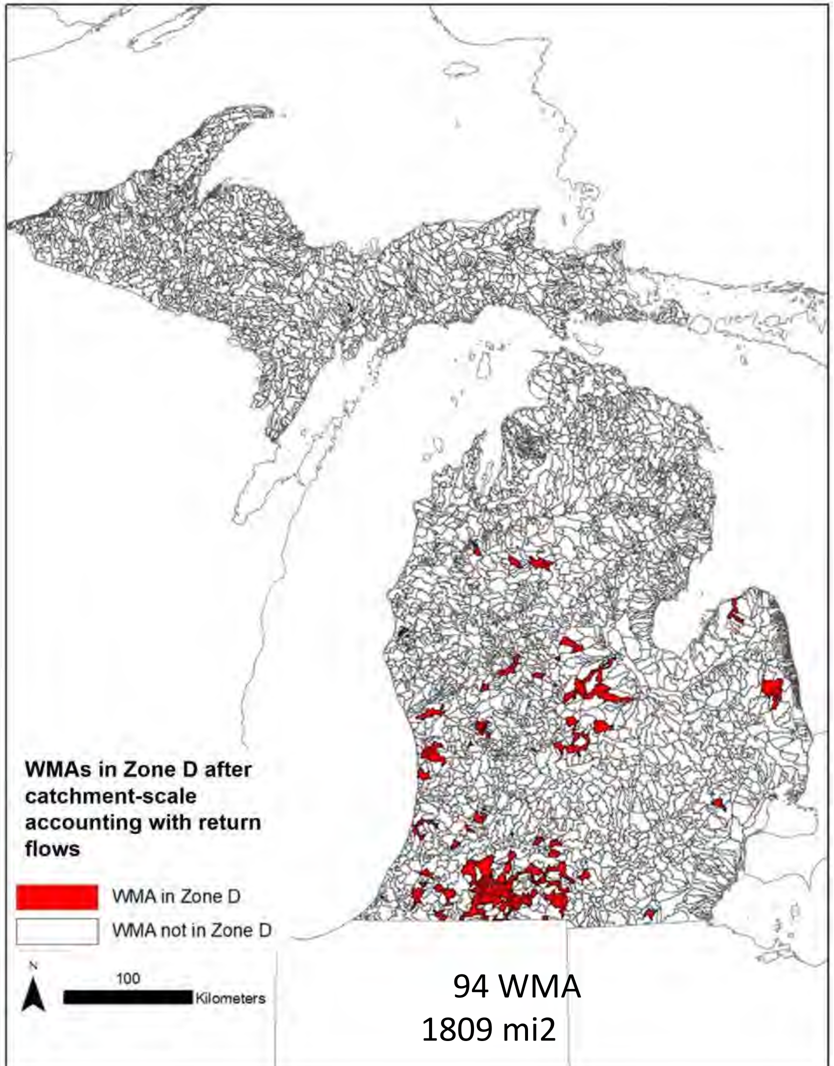
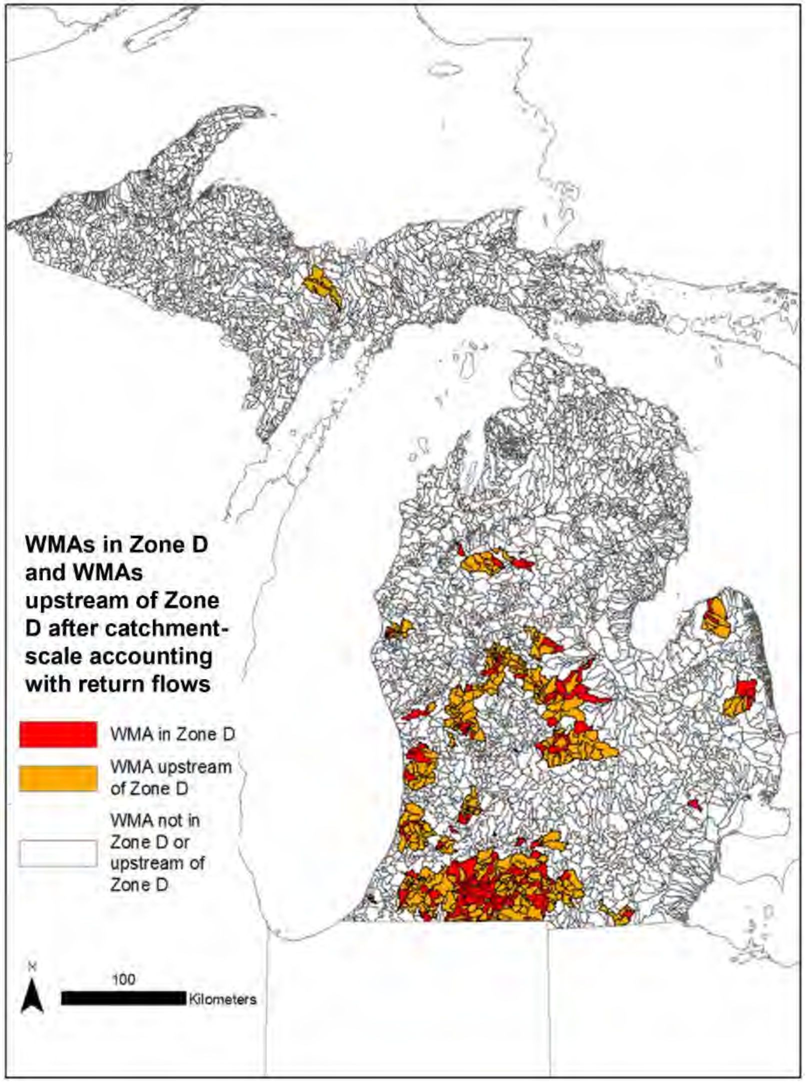
10212
10372
11525
11787


WMAs in Zone D before catchment-scale accounting without return flows
WMA in Zone D
WMA not in Zone D
N
100
Kilometers
36 WMA
729 mi2



94 WMA
1809 mi2


WMAs in Zone D and WMAs upstream of Zone D after catchment-scale accounting with return flows
WMA in Zone D
WMA upstream of Zone D
WMA not in Zone D or upstream of Zone D
N
100
Kilometers

	Net Area (sqmi)	WMA #	TYPE	Curr Zone	Zone w/ d/s acct	WWAT DEPLETION (cfs)	Net depletion w/ return flow (cfs)	IF (cfs)	gage record extended thru 2018
S Br Kalamazoo River	75.6	12873	Cold transitional s	B	D	1.0	2.1	43.0	
S Br Kalamazoo River	151.3	10535	Cool small river	A	A	0.6	6.7	54.0	
N Br Kalamazoo River	103.8	10213	Warm small river	A	B	0.2	6.3	55.0	
Kalamazoo @ Battle Cr	539.5	10745	Warm large river	A	B	2.7	28.2	260.0	
Battle Creek River	280.4	15156	Warm small river	A	A	1.4	0.7	76.7	
Battle Creek @ BC	**274.0**	**gage 1050**						**70**	**73**
Kalamazoo @ Gun R	1364.9	15161	Warm large river	A	A	0.4	43.5	497.0	
Kalamazoo @ mouth	2018.2	3138	Warm large river	A	A	0.0	60.0	796.0	
St Joseph @ Burlington	**201**	**gage 964.05**						**61**	**65**
St Joseph nr Burlington	229.7	20988	Warm small river	A	D	5.6	13.6	76.0	
St Joseph nr Colon	704.5	20795	Warm large river	A	C	1.5	51.0	280.0	
St Joseph @Three Rivers	1179	23229	Warm large river	C	D	71.6	120.3	396.9	
St Joseph u/s Pigeon	1756	21151	Warm large river	A	D	11.2	204.3	679.9	
St Joseph @ Mottville	**1880**	**gage 990**						**850**	**865**

C. New Topics Committee

Pat Staskiewicz

Jason Walther

EGLE

D. Conservation and Efficiency Committee

Emily Finnell

Kelly Turner

EGLE

Water Conservation and Efficiency Committee

- U of M Dow Fellows Report Findings and Next Steps
  - Develop water stewardship statewide outreach program
  - Strengthen Public Private Partnerships between state and utilities to promote existing water energy savings programs
  - Strengthen partnerships with research institutions to advance water conservation through research and technologies
  - Develop metrics for water energy savings resulting from water infrastructure improvements
  - Use community based participatory processes for scenario planning with water users to support sustainable water use

- Finalize 2022 Work Plan
- Develop process for prioritizing topics for potential 2022 committee recommendations to WUAC
- Continue to invite speakers to increase knowledge and address gaps
- Joint Aquatic Sciences Meeting, May 14-20, 2022, Grand Rapids, MI

Water User Committees

- Draft Overview of Water Use Program and FAQs about Water Withdrawals and Water User Committee Document
  - Submit edits/comments by March 1, 2022
- Development of Water User Committee User's Manual and Case Study Integrated Assessment Project Grant Award
  - 225k – OGL Michigan Great Lakes Protection Fund
  - 125k – Michigan Sea Grant – NOAA
  - 2-year project - February 1, 2022 - January 31, 2024
  - Project Overview - Dr. Adam Zwickle, MSU

Building Capacity for Collaborative Governance through a Participatory Modeling Approach

Project Team:
Adam Zwickle
Jeremiah Asher
Maria Claudia Lopez
Laura Schmitt Olabisi
Glenn O’Neil
Brockton Feltman

MICHIGAN STATE UNIVERSITY

Project Goals

1. What are the current barriers associated with the convening of a WUC?
2. What is needed to overcome these barriers?
3. Once convened:
    a) what information, tools, and strategies does a WUC need to reach an agreement for sustainable collective water use,
    b) what is the best process for using these resources to reach an agreement?
4. Communicate this information in a broadly accessible WUC guide
5. Pilot the effectiveness of this guide by convening 2-3 pilot WUCs in a participatory modeling format

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Project Overview

- Water user survey – *early summer 2022*
- Focus groups – *fall 2022*
- Development of WUC guide – *fall 2022-summer 2023*
- Participatory Case studies – *summer-fall 2023*

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Project Structure

- Leadership Team
- Project Team
- Advisory Board

Dr. Adam Zwickle

Associate Professor - Department of Community Sustainability at Michigan State University, Environmental Science & Policy Program

Decision scientist, working towards climate resilience at the community, state, and federal scales.

Project role: Overall project leadership, advisory board liaison

Dr. Maria Claudia Lopez

Associate Professor - Department of Community Sustainability at Michigan State University

Environmental resource economist, working with rural communities identifying institutional arrangements that will help them manage in a sustainable way their natural resources.

Project Role: Water user survey lead

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Dr. Laura Schmitt Olabisi

Associate Professor – Department of Community Sustainability, Environmental Science & Policy Program

Ecologist and a participatory modeler, working directly with communities on the ground creating change in complex systems.

Project Role: Participatory modeling co-lead for focus groups and case studies

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Dr. Glenn O'Neil

Institute of Water Research

Modeler / GIS Specialist / Web Developer leading IWR's water modeling efforts (watershed and groundwater) and developing and maintaining the Great Lakes Watershed Management System (GLWMS): website, database, GIS scripting

Project role: Assist in the utilization of the GLWMS in focus groups and case studies activities

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Dr. Jeremiah Asher

Assistant Director of the Institute of Water Research

Background in geographic information systems (GIS), natural resource management and the development of decision support systems. Recent research has involved developing sensors for managing water, floating vegetated wetlands, and groundwater recharge.

Project Role: Participatory modeling co-lead for focus groups and case studies

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Brockton Feltman

Doctoral candidate – Department of Community Sustainability, Environmental Science & Policy Program

Research focus on the local and collaborative governance of common pool resources

Project Role: Assist in all project phases

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Project Advisory Board

Need a **diverse** group of stakeholder perspectives

- Feedback before and after data collection
- Participate in participatory modeling focus groups
- Iterative feedback on guide drafts
- Input into case study site selection criteria and recruitment

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Contact:

Adam Zwickle
zwicklea@msu.edu

Thank you!

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E. Implementation Committee

7. 2022 WUAC Report Update: Content, Logistics, and Timeline

Co-Chair Brian Eggers

Agenda Items 8-11

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

8. Program Update

Water Use Advisory Council

February 8, 2022

Outline

- WUAU Personnel Updates
- Technical Reviews for Resource Permit Applications
- Program Metrics
- Depleted WMA Status Update
- Questions

WUAU Personnel Update

- Introduce Austen York
- Jill Van Dyke

EGLE

Technical Support for Resource Permit Applications

- Hydrogeological Studies
- Groundwater Models

Compliance Numbers

July 9, 2021 – December 31, 2021

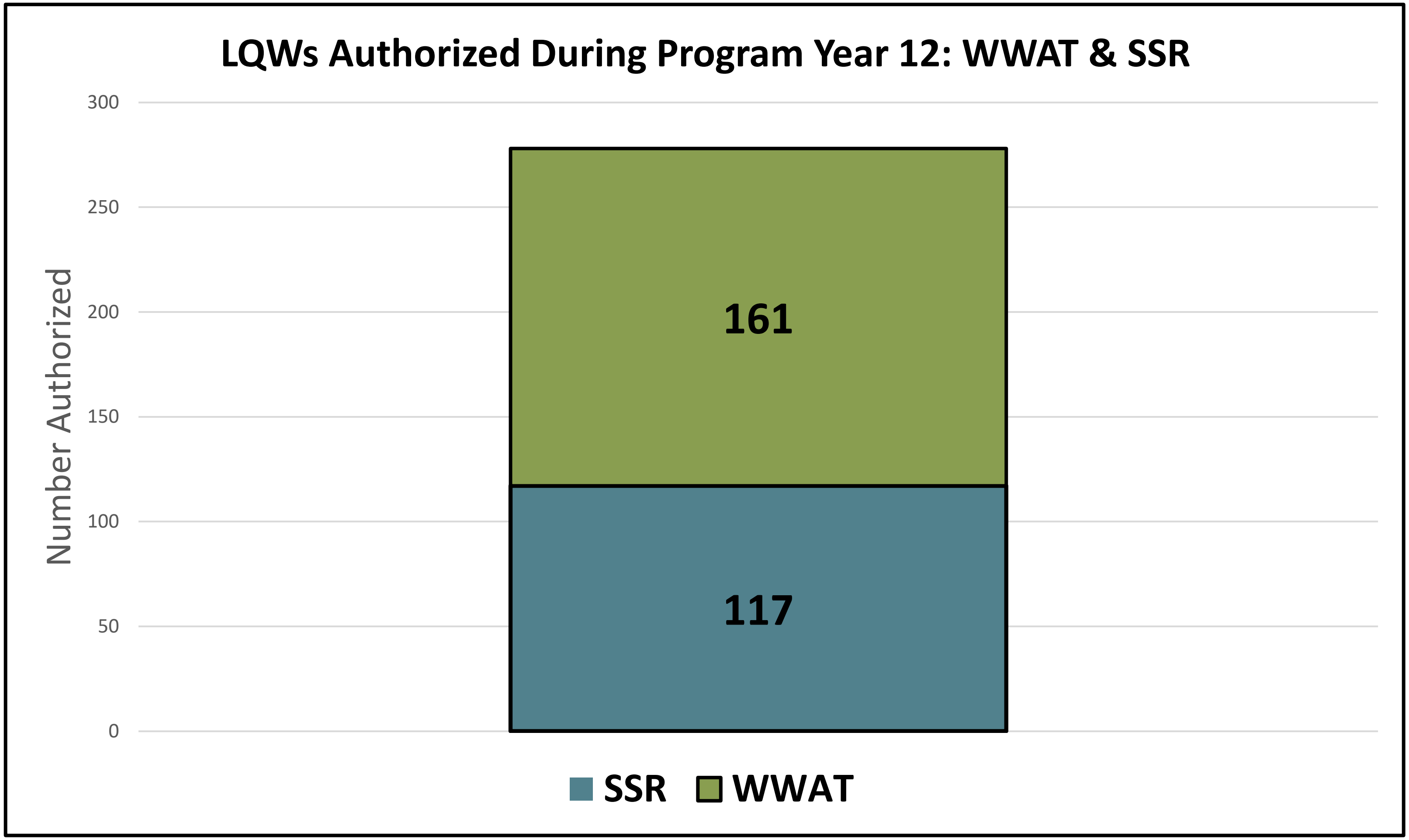
- Compliance Communications 329
  - After the Fact Registrations 24
  - Missing Pump Information Requests 71
  - Revised Registrations 125
  - Installation Verification Requests 109
- Violation Notices 29
- Complaints 7

EGLE

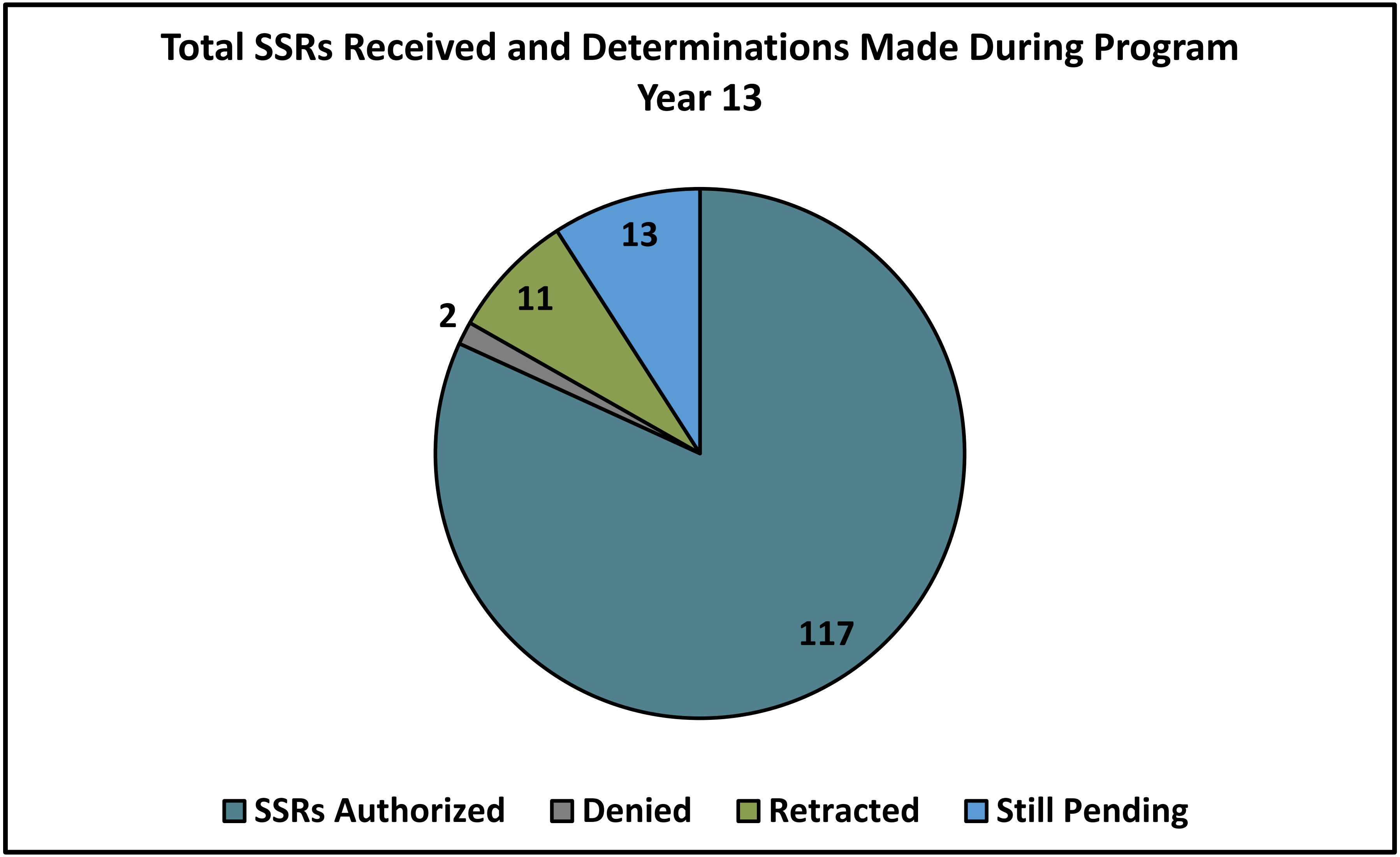
Annual Metrics

July 9, 2021-December 31, 2021

- 19 Pre-screening Reviews Passed
  - 10 Zone A
  - 6 Zone B
  - 2 Zone C
  - 1 Baseline Replacement
- 0 Pre-screening Reviews Denied
- 0 Pre-screening Reviews Retracted
- 1 327 Permit Issued



July 9, 2021 – December 31, 2021



July 9, 2021 – December 31, 2021

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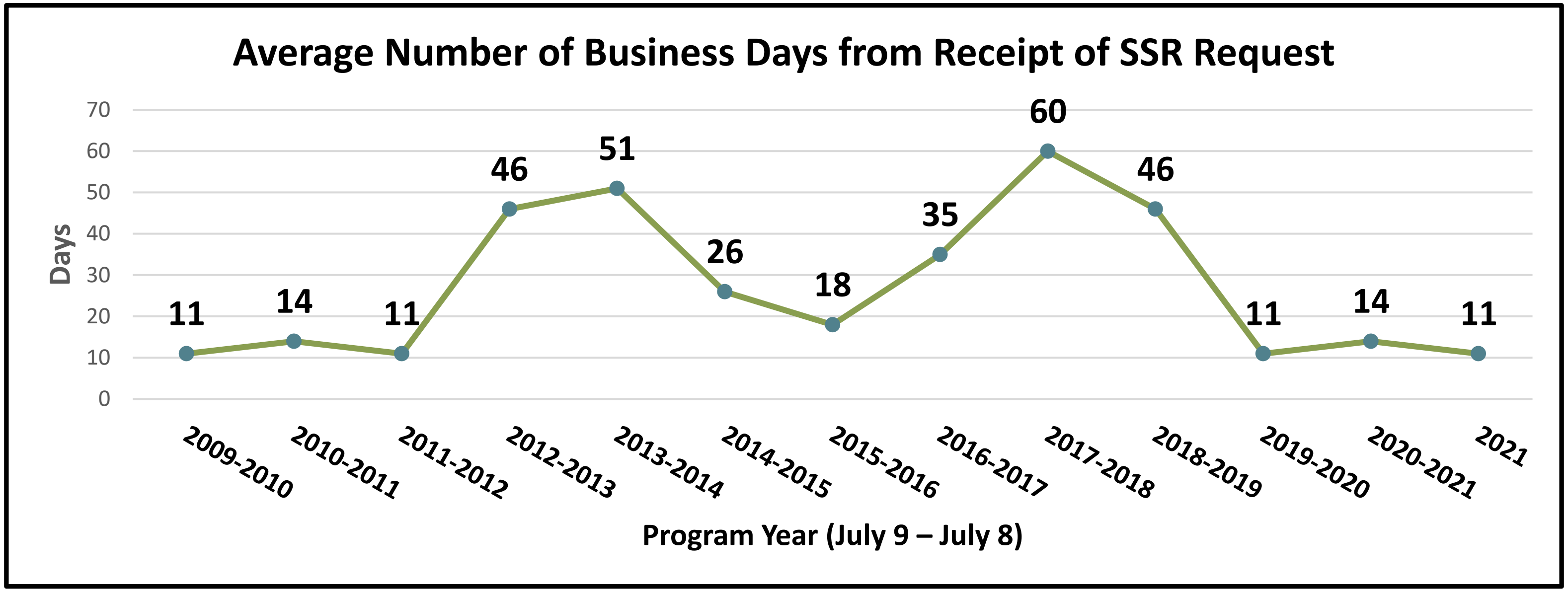
Program Year 13 Timeliness

Average Number of Business Days from Receipt of SSR Request:	**10.6 Days**
Percentage of SSRs completed within 10 Business Days:	**53%**

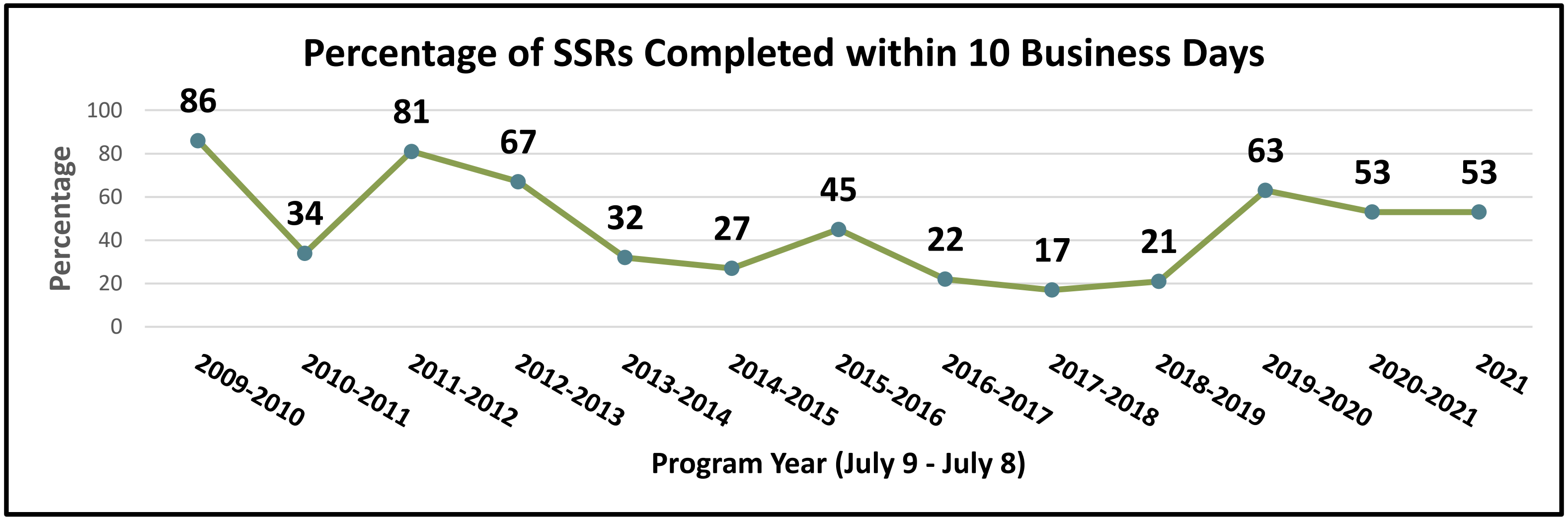
Statutory Deadline: 10 Business Days

July 9, 2021 – December 31, 2021

EGLE



Average Number of Business Days from Receipt of SSR Request
Days
70
60
50
40
30
20
10
0
11
14
11
46
51
26
18
35
60
46
11
14
11
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
2017-2018
2018-2019
2019-2020
2020-2021
2021
Program Year (July 9 – July 8)



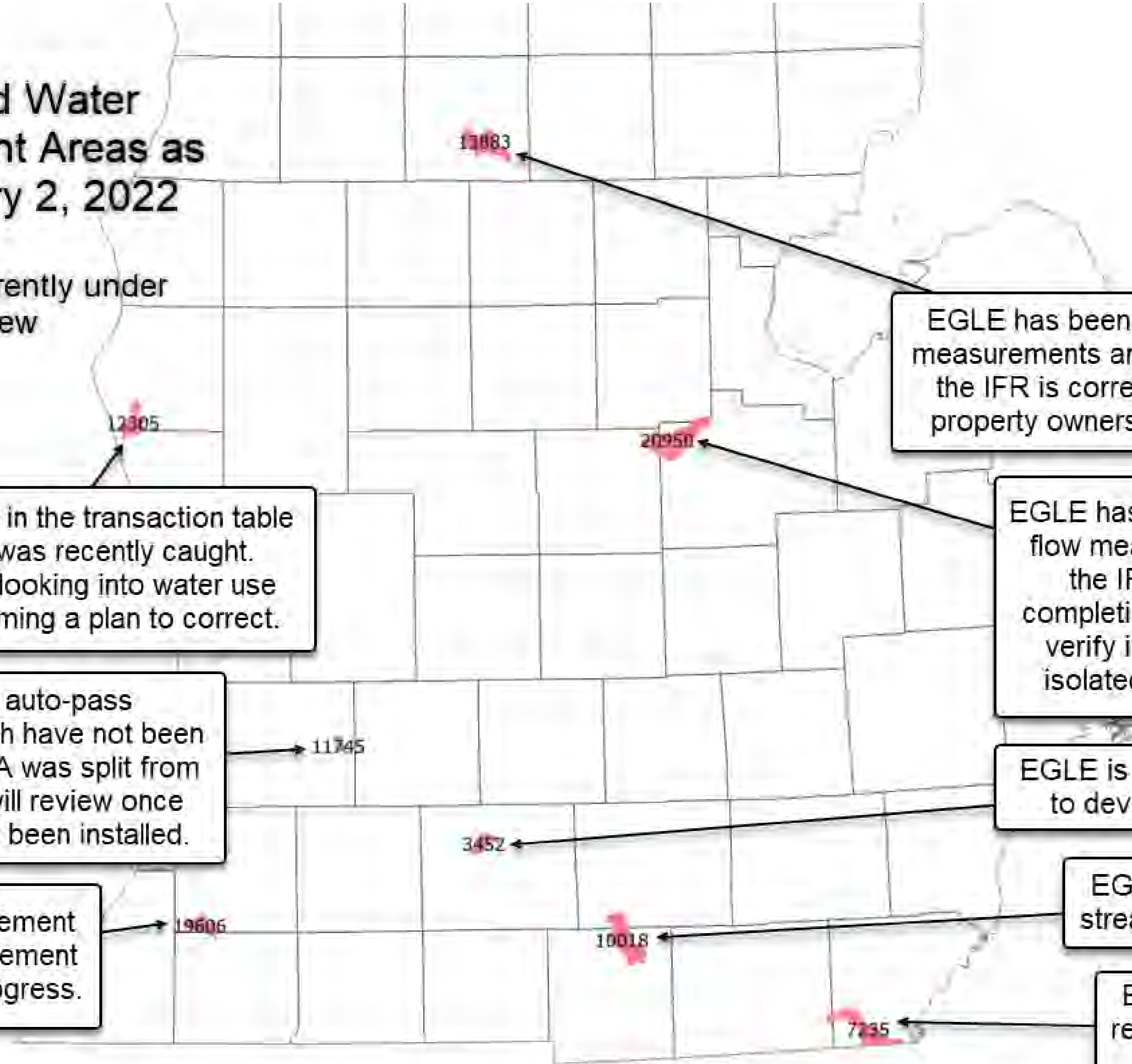
Percentage of SSRs Completed within 10 Business Days
Percentage
100
80
60
40
20
0
86
34
81
67
32
27
45
22
17
21
63
53
53
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
2017-2018
2018-2019
2019-2020
2020-2021
2021
Program Year (July 9 - July 8)

Depleted Watersheds as of 2/2/2022

Name	Number	County	Type	Index Flow (gpm)	Allowable Depletions	Current Depletions
South Branch Kalamazoo River	10018	Hillsdale/Jackson	Cool Stream	1930	482	-357
Greggs Brook	11745	Allegan	Cool stream	853	213	-174
Halfway Creek	7235	Monroe/ Lenawee	Warm Stream	583	140	-101
Dickinson Creek (Station #:041035285)	3452	Calhoun	CT Stream	898	39	-65
Unnamed	12305	Oceana/ Muskegon	Cool Stream	4443	1111	-51
Osborn Drain (Station #:041015313)	19606	Van Buren/ Cass	CT Stream	1571	63	-39
Whitmore Drain	20950	Saginaw/ Gratiot/ Midland	Warm Stream	135	32	-33
Butterfield Creek	13883	Missaukee	CT Stream	6732	269	-26

Depleted Water Management Areas as of February 2, 2022

8 WMAs currently under review



EGLE has been collecting stream flow measurements and will continue to verify the IFR is correct, prior to contacting property owners to reduce schedules.

A error was made in the transaction table in 2015, which was recently caught. EGLE has been looking into water use reporting and forming a plan to correct.

EGLE has been collecting stream flow measurements to verify if the IFR is correct and is completing a geology review to verify if any withdrawals are isolated from surface water.

Pending two auto-pass registrations, which have not been installed yet. WMA was split from another WMA, will review once withdrawals have been installed.

EGLE is waiting on a consultant to develop a model for this

Escalated Enforcement Referral. Pre-settlement negotiations in progress.

EGLE has been collecting stream flow measurements.

EGLE has reviewed the registrations and geology of the WMA.

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Questions?

Jim Milne
Water Use Assessment Unit
EGLE Water Resources Division
517-285-3253
milnej@michigan.gov

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Environment, Great Lakes, and Energy

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9. Future

a. Meeting Dates
b. Formats
c. Quorum

10. Open Comments

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11. Motion to Adjourn

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