Ottawa County
Water Resources Study – Phase-2

Status Update

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Ottawa County Water Resources Study – Phase-2

❑ Current and Recent Activities

- ➢ Statewide Groundwater Quality Assessment
- ➢ Streamflow Measurements
- ➢ PAWS Modeling
- ➢ IGW Modeling

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❑ Statewide Groundwater Quality Assessment

- ➢ Basic assessments are finished
- ➢ Developing a risk ranking scheme is in progress
- ➢ Final report is in progress

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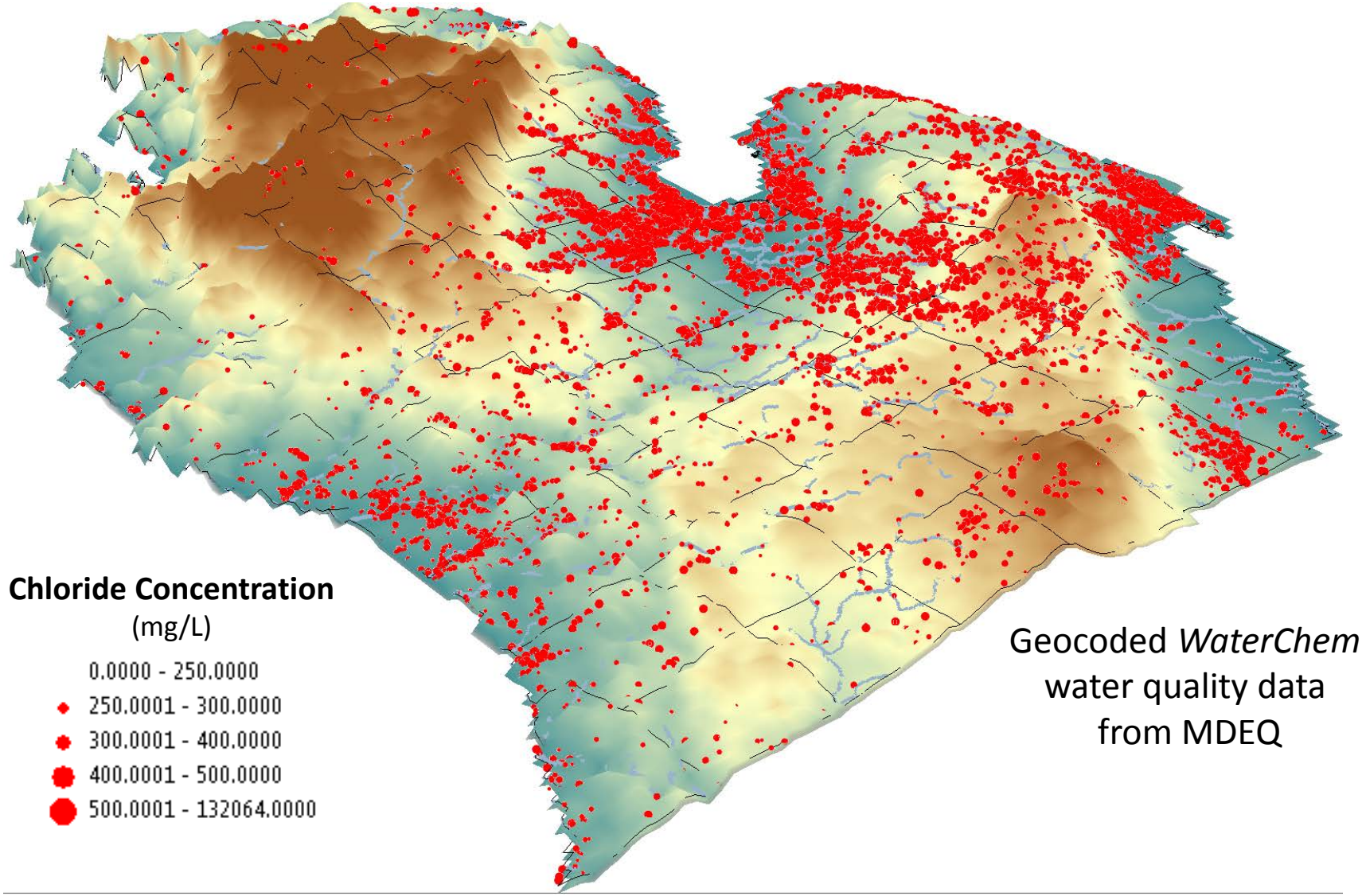
❑ Statewide Groundwater Quality Assessment



Geocoded *WaterChem* water quality data from MDEQ

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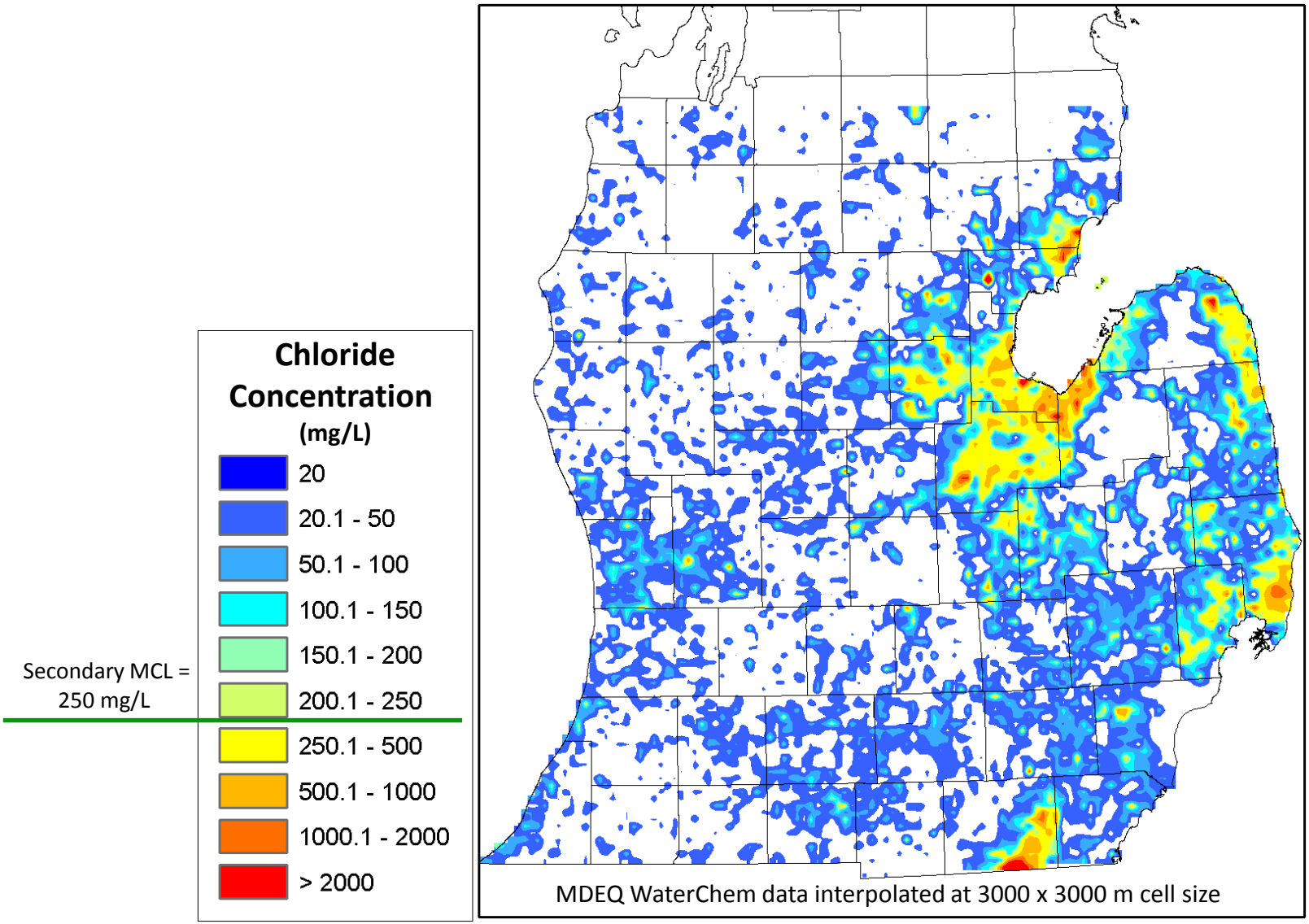
❑ Statewide Groundwater Quality Assessment



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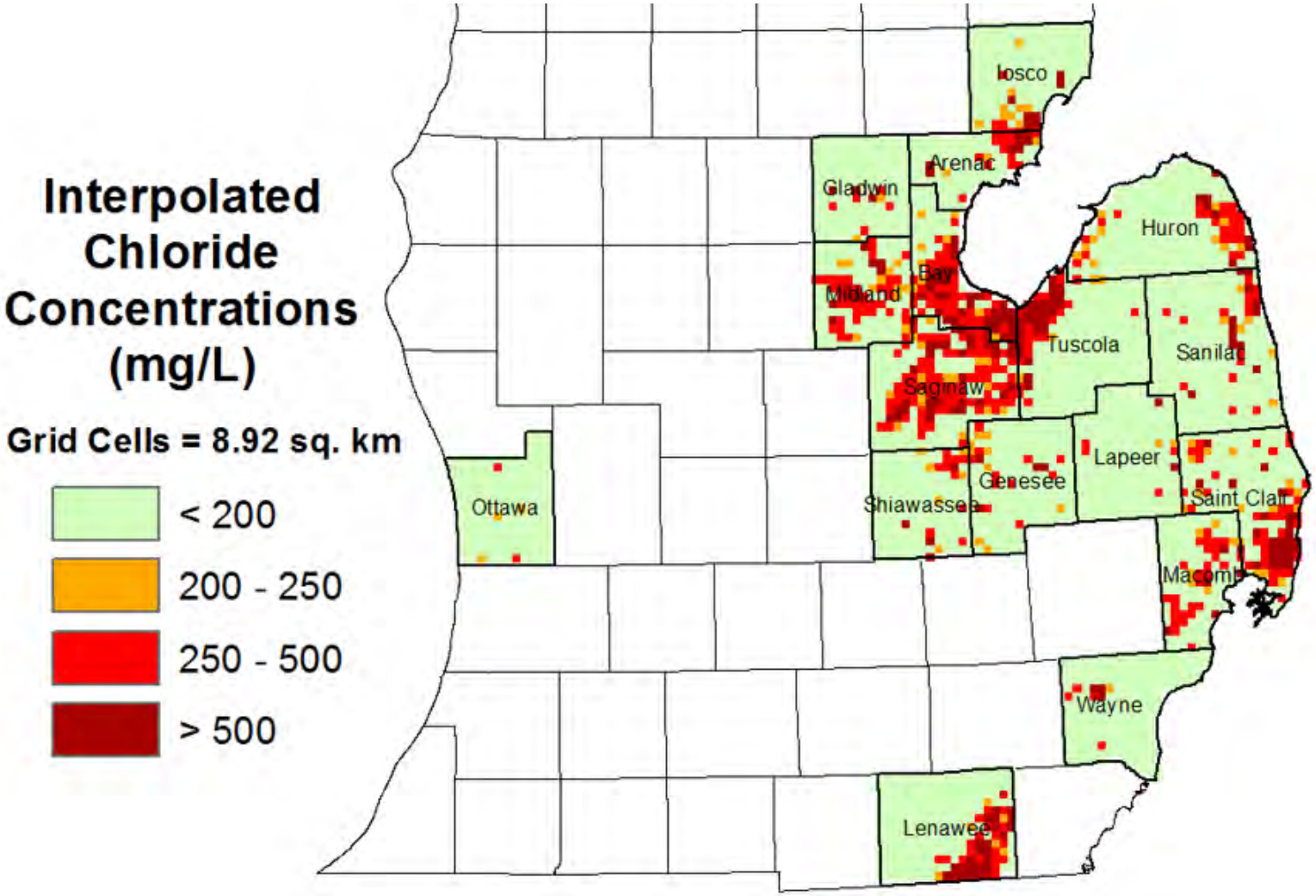
❑ Statewide Groundwater Quality Assessment

- ➢ **Focused on 17 counties in the Lower Peninsula**



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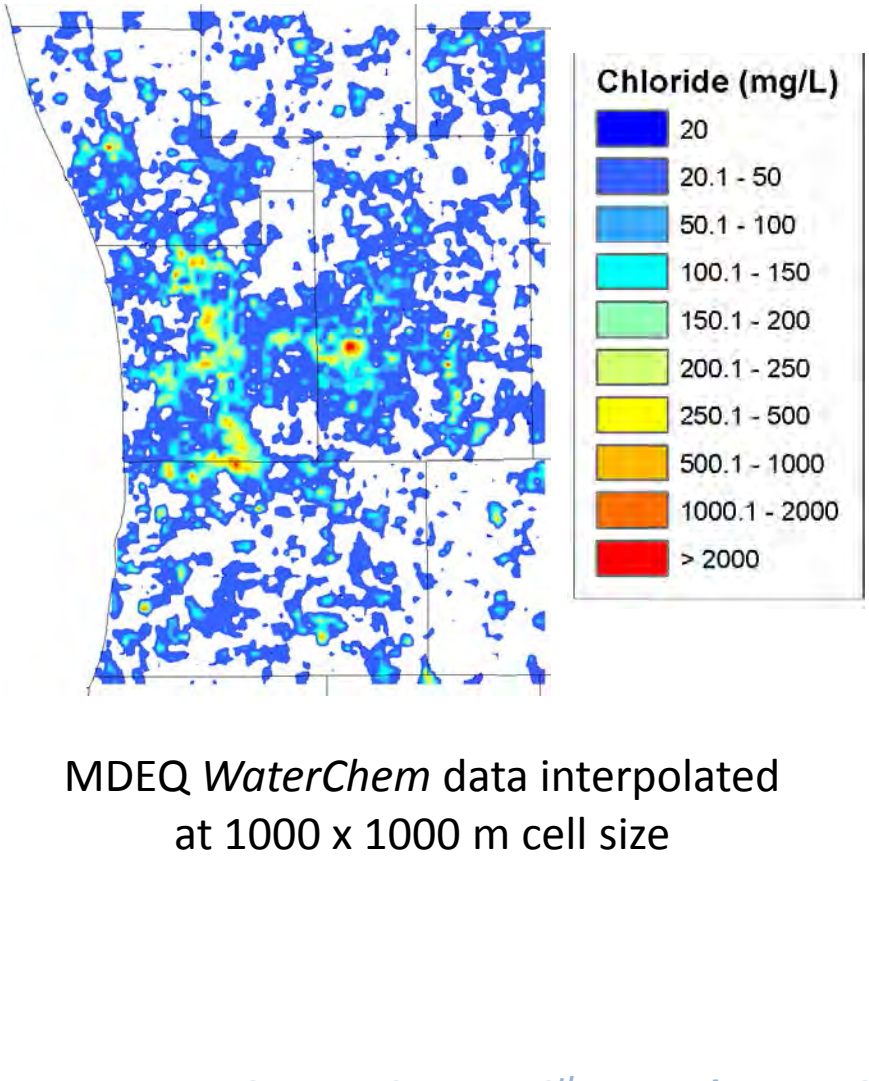
❑ Statewide Groundwater Quality Assessment



MDEQ *WaterChem* data interpolated at 1000 x 1000 m cell size

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❑ Streamflow Measurements

- ➢ Conducted from July 22 – 31, 2015
- ➢ 139 potential sites were field inspected
- ➢ 18 stream segments had no flow (dry)
- ➢ 33 stream segments > 1.5 m wide had flow
  - 22 were measured with Acoustic Doppler Current Profiler
  - 11 were measured with an electromagnetic current meter

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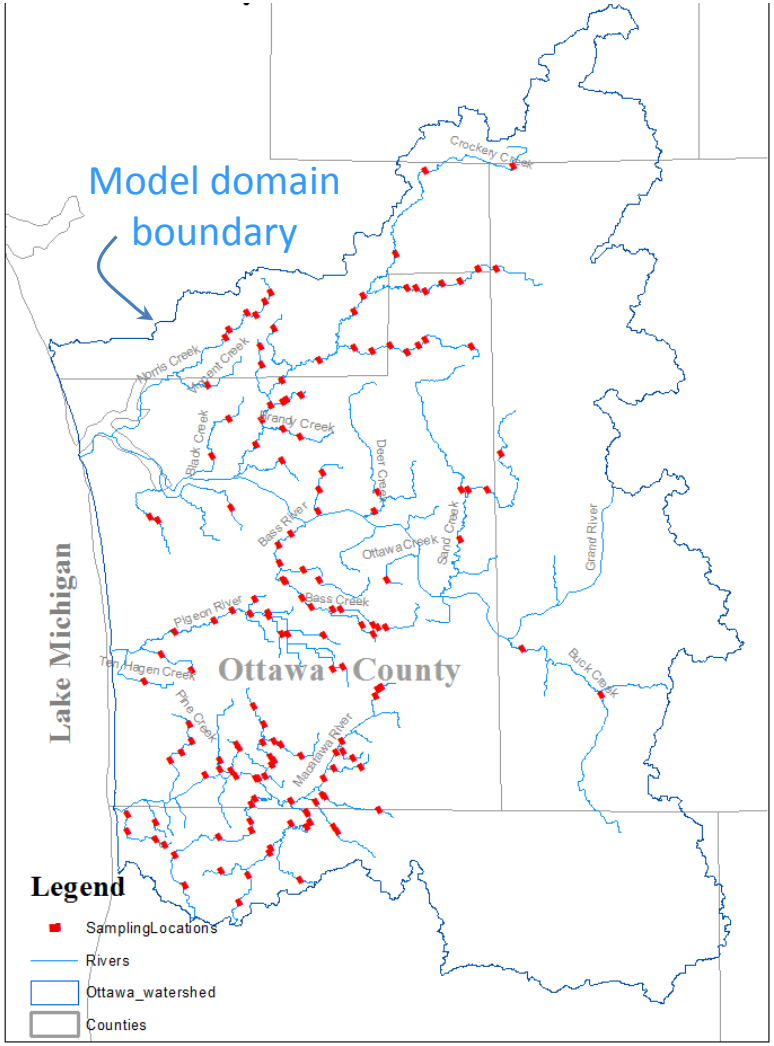
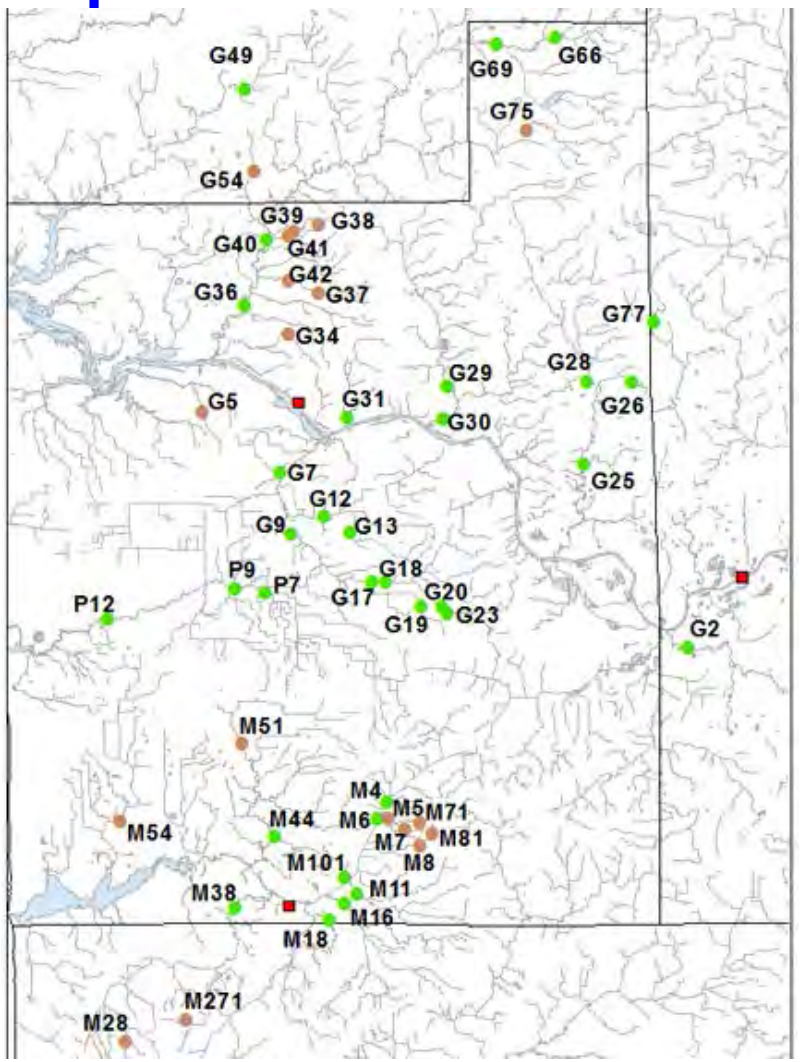
❑ Streamflow Measurements

➢ 139 potential sites field inspected – 51 measured





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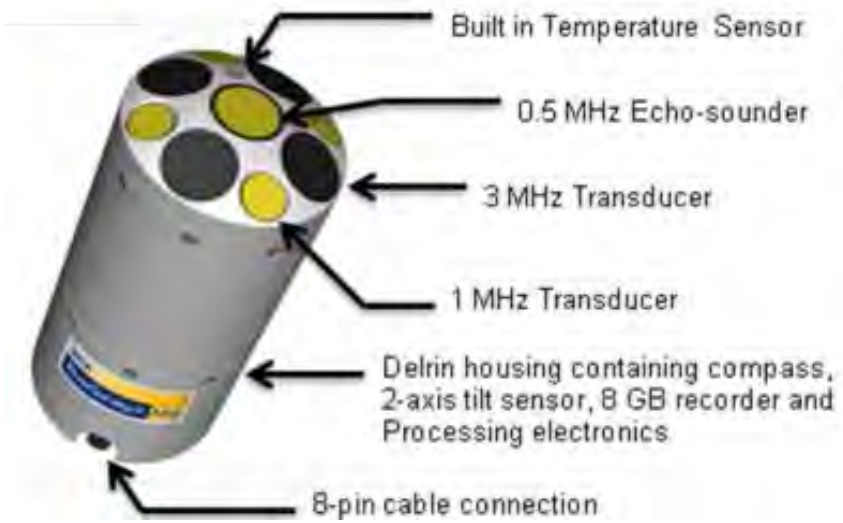
❑ Streamflow Measurements

➢ *RiverSurveyor* M9 Acoustic Doppler Current Profiler



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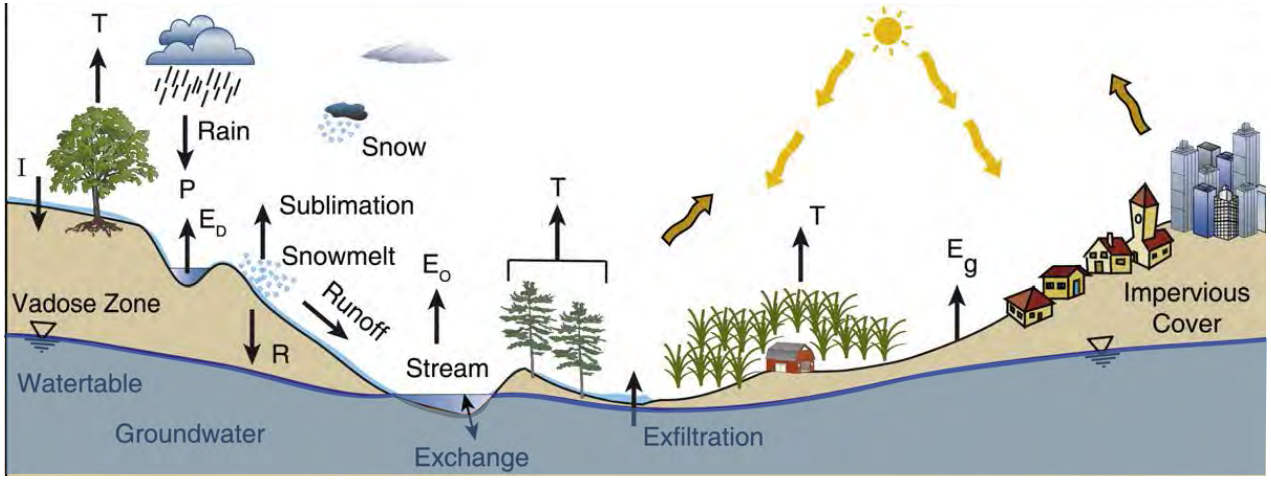
❑ Streamflow Measurements

➢ *Ott MF Pro* electromagnetic current meter

Ottawa County Water Resources Study – Phase-2

❑ PAWS (Process-based Adaptive Watershed Simulator) modeling

- ➢ Course resolution (1000 m cells) version compiled and preliminary products produced
- ➢ Fine resolution (300 m cells) version compiled and being calibrated



***Key processes modeled in PAWS**. **T**: transpiration, **P**: precipitation, E_O: evaporation from overland flow/stream, E_g: evaporation from bare soil; E_D: evaporation from depression storage; **I**: infiltration; **R: Recharge**.*

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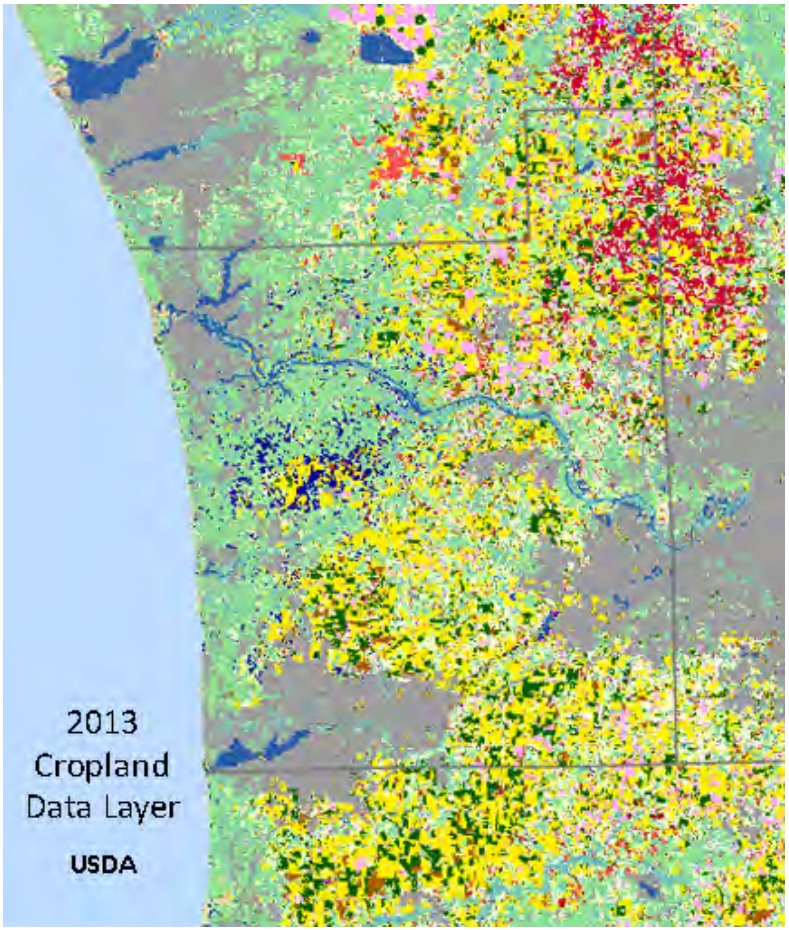
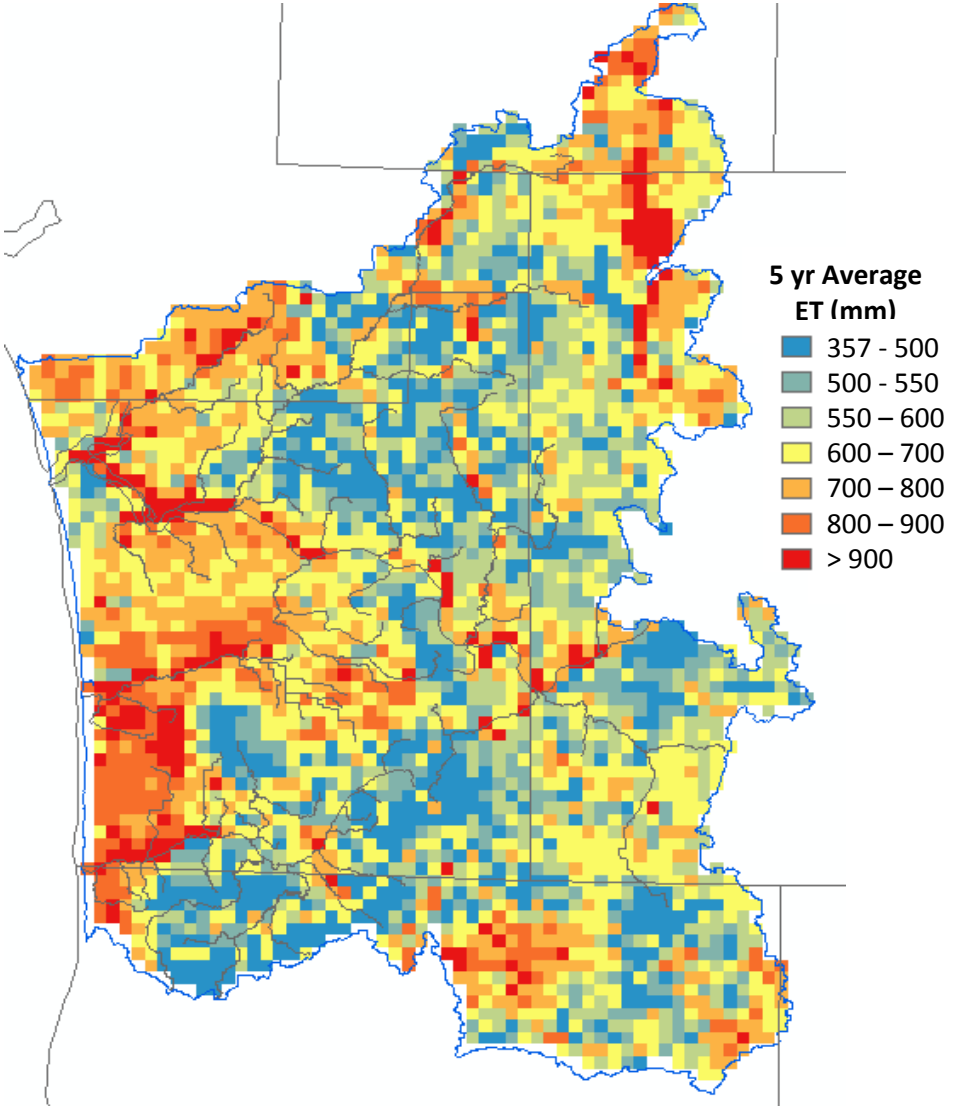
❑ PAWS model output – 5 year average ET

2013 Cropland Data Layer (USDA)
Light & medium blue = water; Gray = Urban; Light green = Broadleaf forest; all other colors = cropland.





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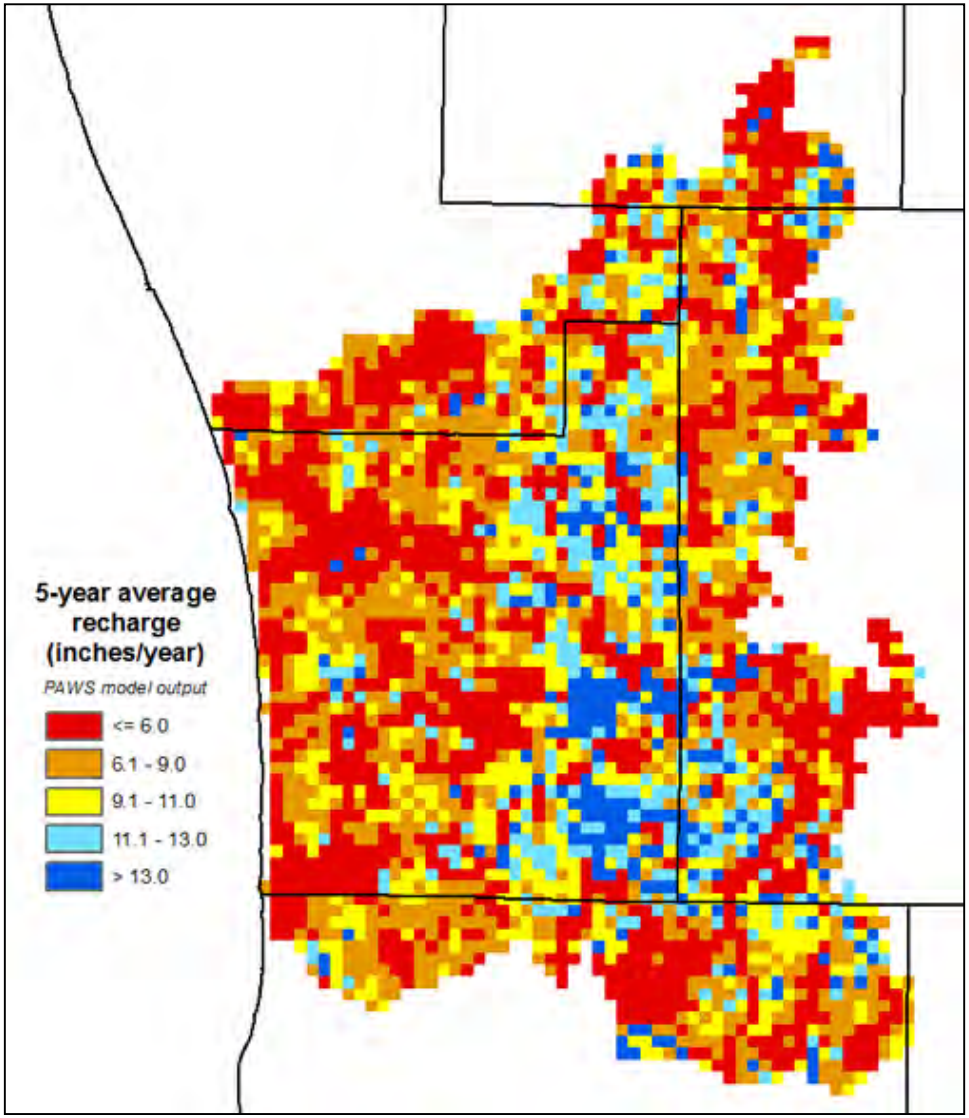
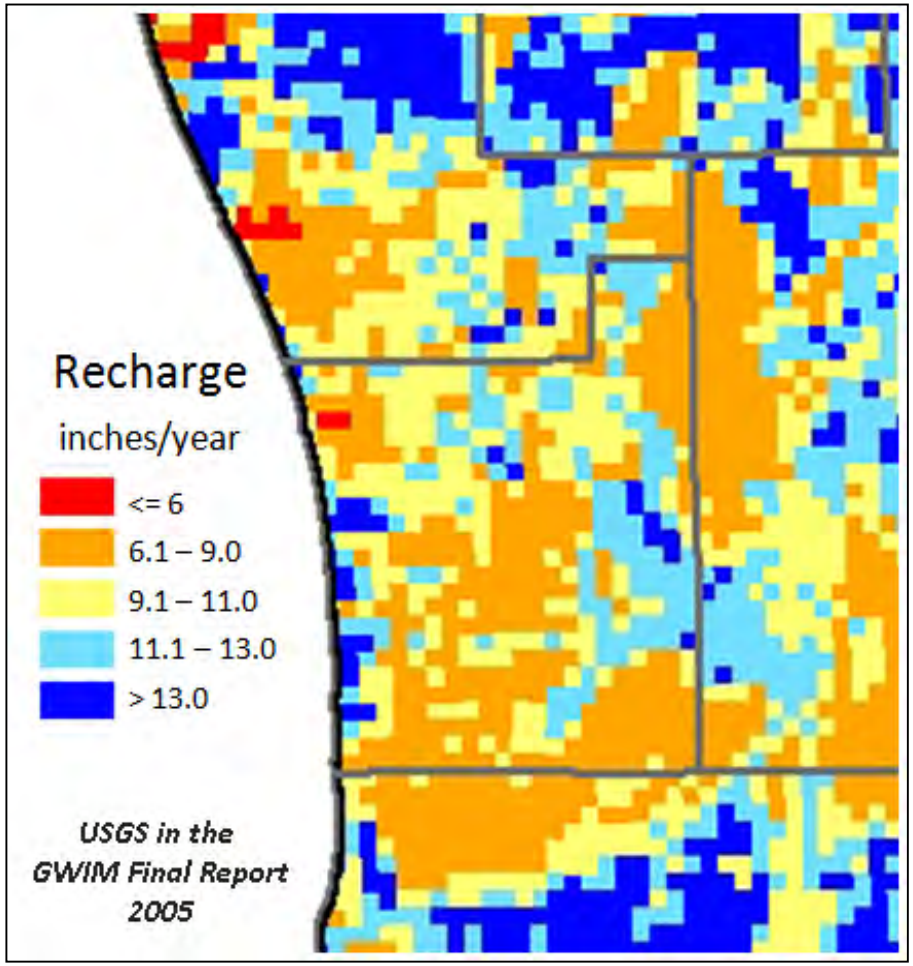
❑ PAWS model output – 5 year average recharge





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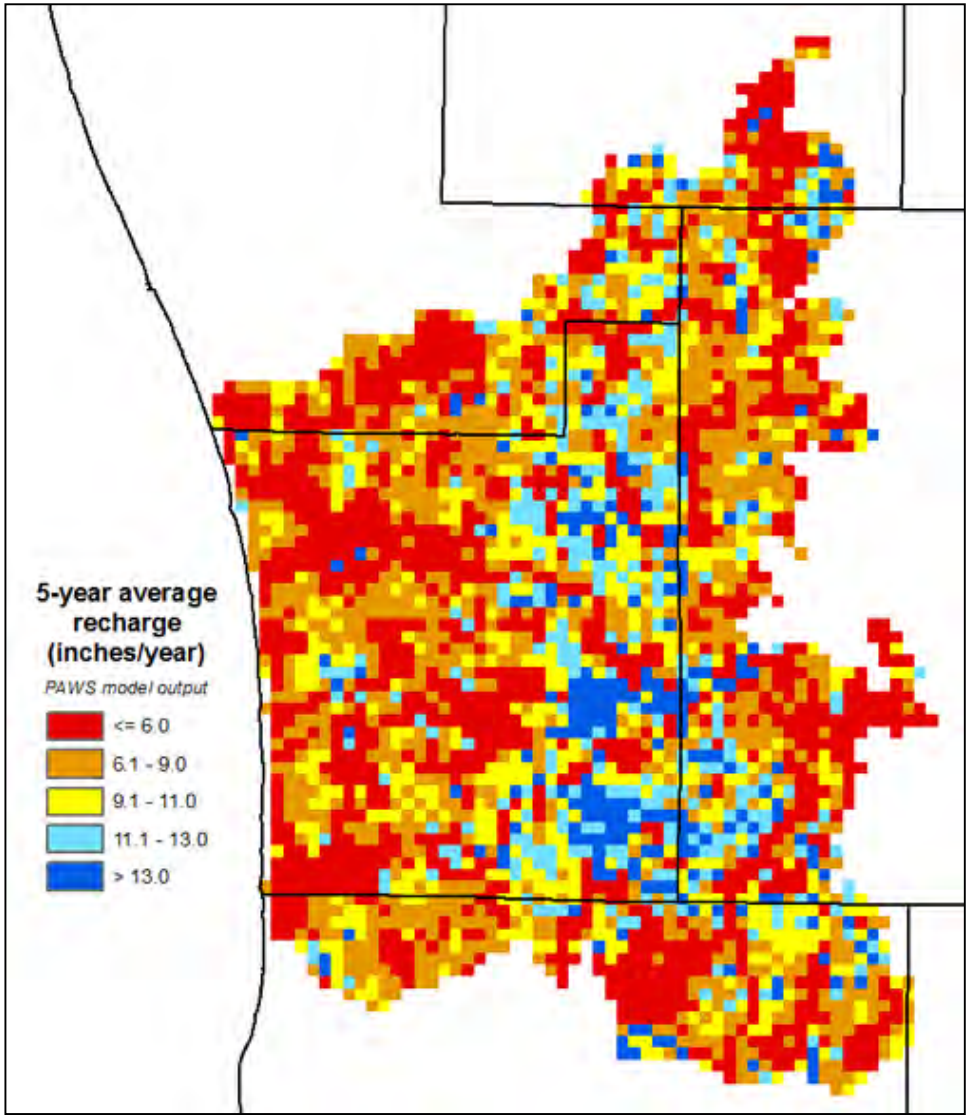
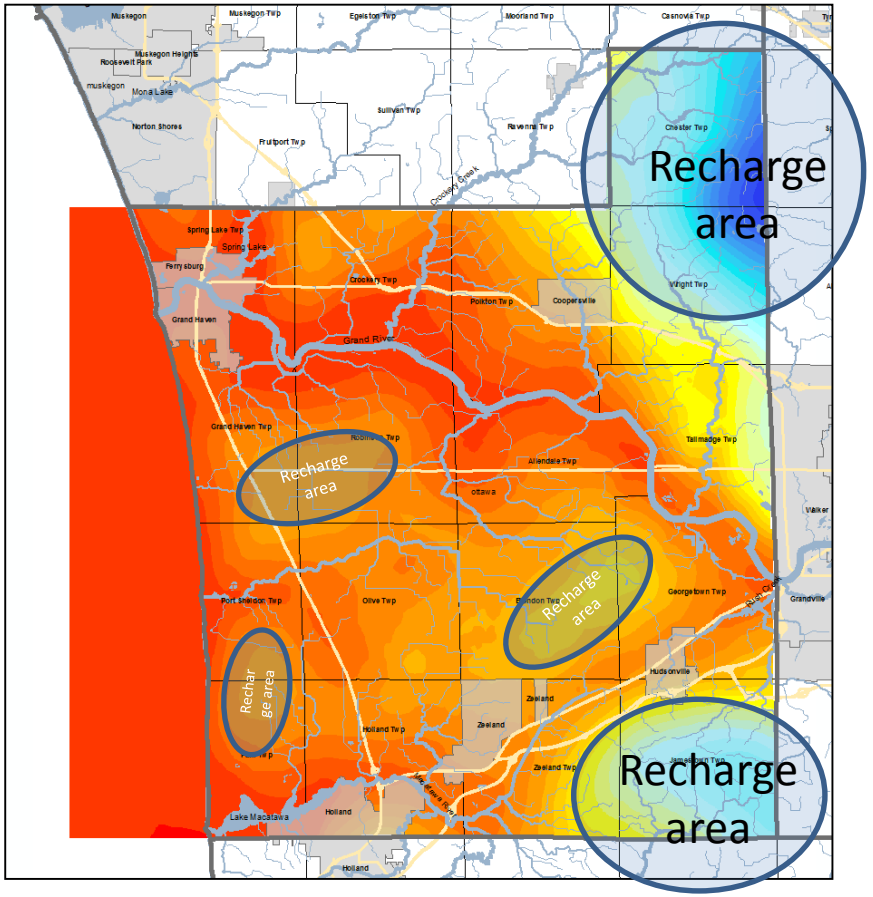
❑ PAWS model output – 5 year average recharge



Ottawa Water Resources Study – Phase 1



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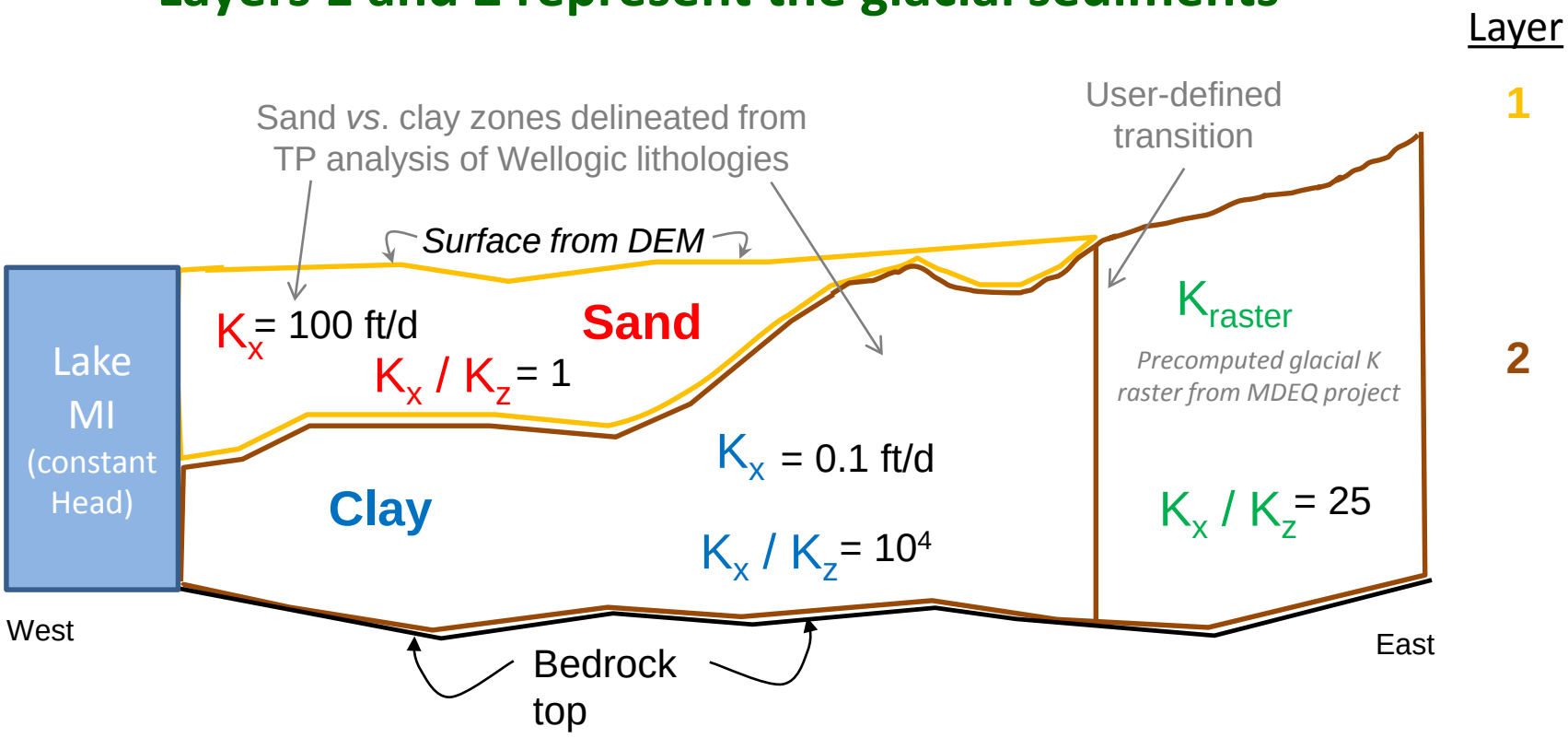
❑ IGW modeling

➢ 4-layer conceptual model developed and preliminary calibration completed

- **Layers 1 and 2 represent the glacial sediments**



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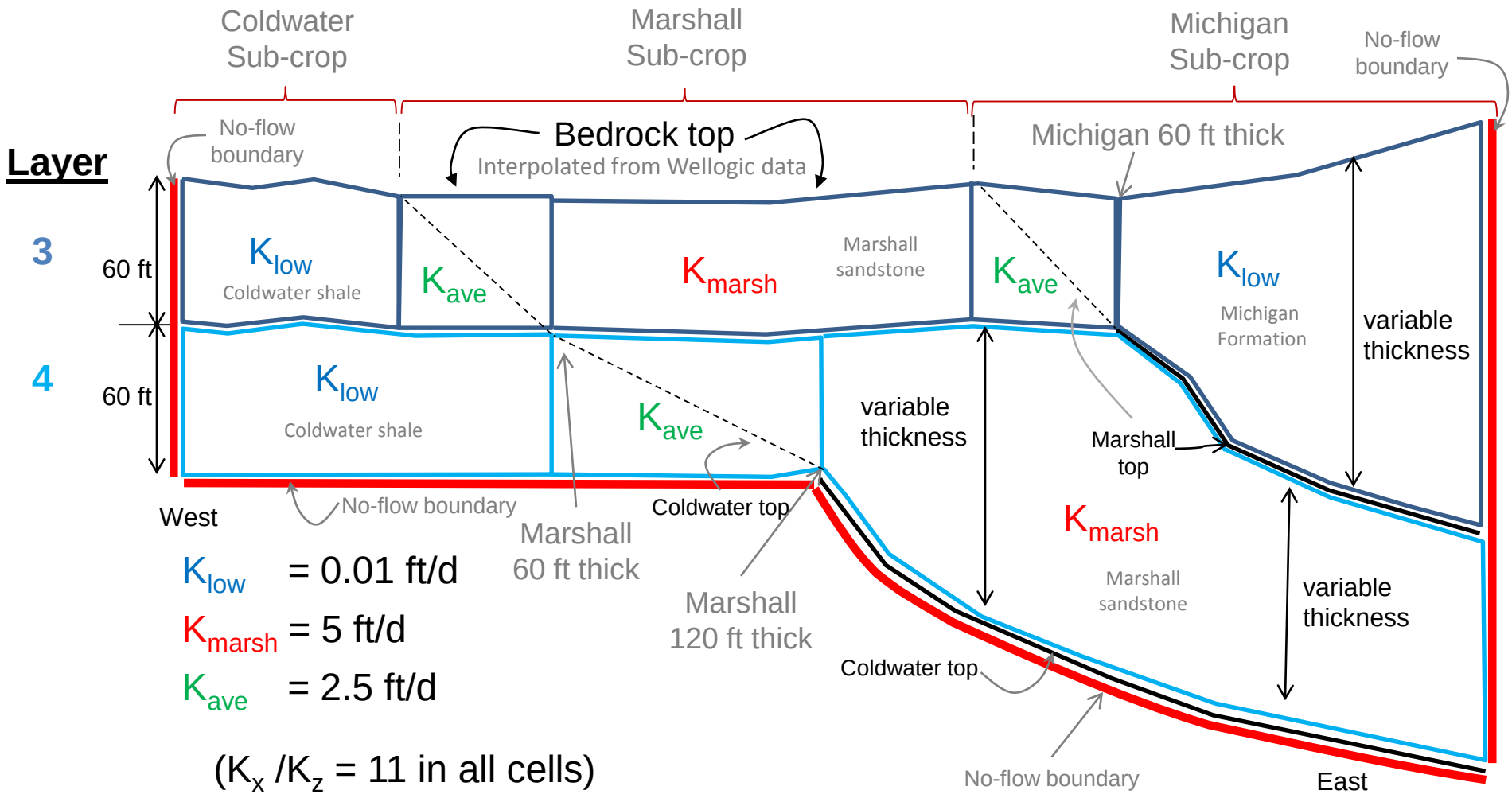
❑ IGW modeling

➢ Layers 3 and 4 represent the bedrock units



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