



Dylan Savelle, Manistee News Advocate



Lower Manistee Watershed Water Quality Monitoring

Kayla Knoll, Conservation Specialist

The Manistee Conservation District

Mission

Promote positive stewardship of the land, water, and soil of NW MI through locally – driven solutions.

History

2013 - on the edge of permanently closing
2014 - approved a 4 year millage of 0.1 mils
2016 - received 2-year MiCorps VSMP grant
→ Huge for the district! Catalyst for...

Outreach & Education



Volunteer Base



Science!



Publicity



Manistee River Watershed



- Regionally important Lake Michigan tributary
- 250 miles of mainstem, 100 tribs, drains 1,800 square miles
- Supports regionally recognized fishery
- Essential to the local economy and way of life in our region
- Overall very good water quality



Threatened by:

- Sedimentation
- Non-point source pollutants
- Invasive species
- Residential development



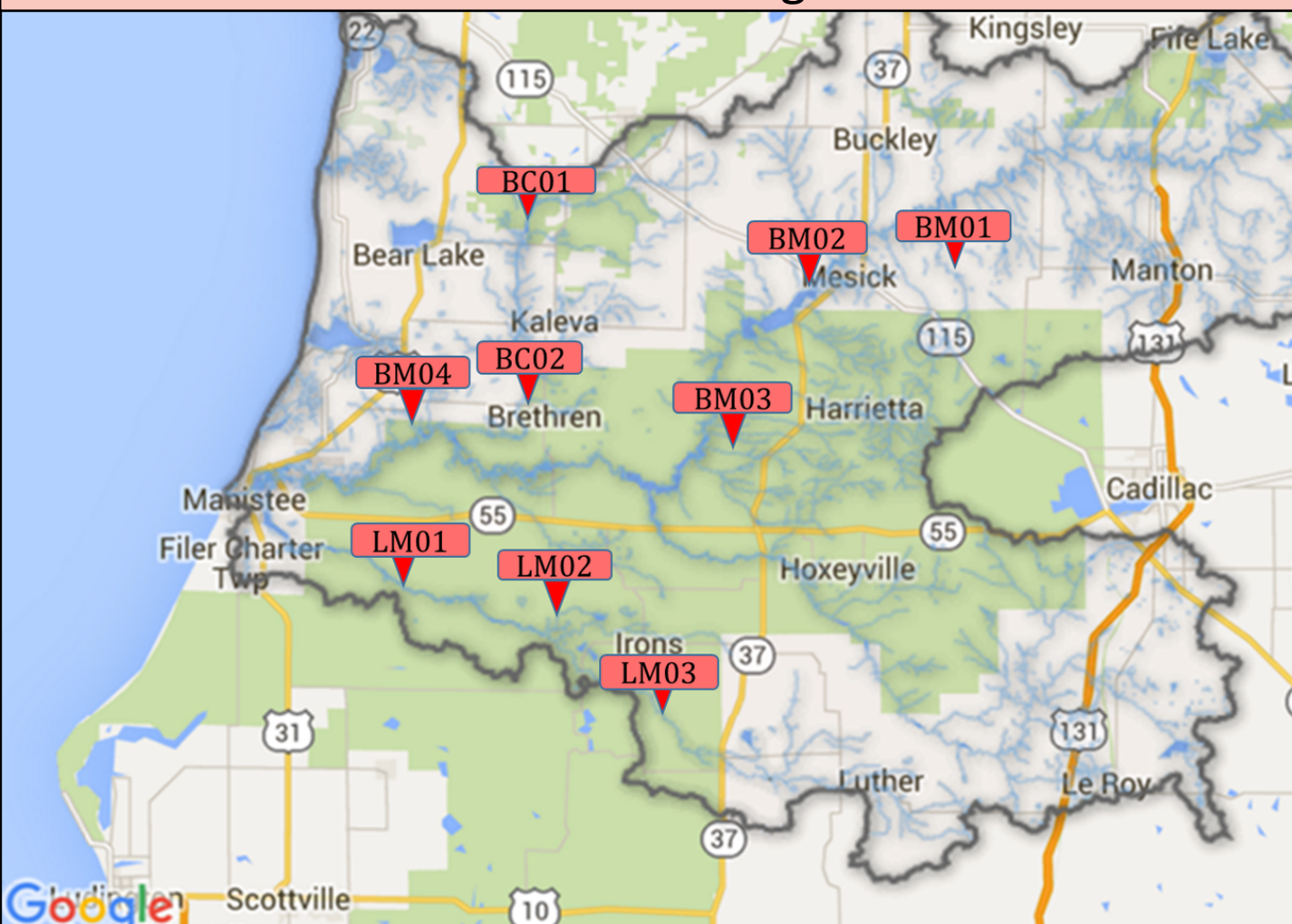
VSMP Goals

1. Foster stewardship by educating watershed residents on water quality issues and protection.
2. Engage local citizens and partners as stakeholders to monitor and identify threats to the health of the waterways.
3. Generate water quality data to identify problem areas where quality has been degraded and BMP's can be implemented.
4. Create a sustainable monitoring project that will transcend the MiCorps funding period.

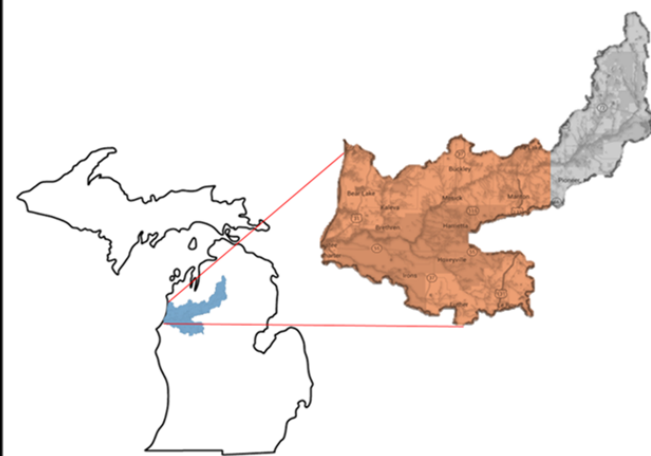


Lower Manistee River Watershed

stream monitoring sites



- BM01** - Big Manistee River, Adams Creek at 16 Road
- BM02** - Big Manistee River, Fletcher Creek at Fletcher Park Road
- BM03** - Big Manistee River, Hinton Creek at N Warfield Road
- BM04** - Big Manistee River, Sickie Creek at River Road
- BC01** - Bear Creek at Leffew Road
- BC02** - Bear Creek at Spirit of the Woods Conservation Club
- LM01** - Little Manistee River at 6 Mile Bridge
- LM02** - Little Manistee River, Cool Creek at Hamilton Road
- LM03** - Little Manistee River at Johnson's Bridge



VSMP Program Overview

- Fall and Spring collection events
- Habitat assessment every other Fall
- 4 StreamTeams of 4 – 5 people
 - 3 teams are assigned 2 sites
 - 1 team is assigned 3 sites
- Host 2 evening macro-ID workshops after each collection event



VSMP Results - Stream Health

Fall 2016 Results

- Average SQI = 40.6 or GOOD
- Only 1 site rated as FAIR
 - Potentially impacted by undersized RSX

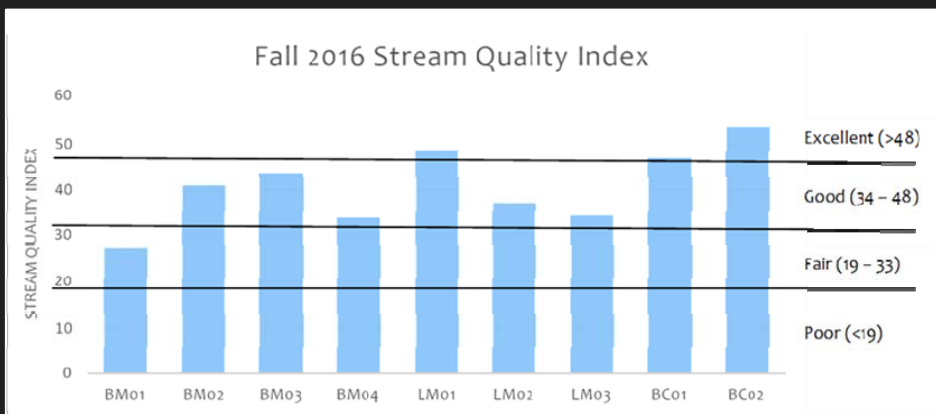


Figure 1. Fall 2016 Stream Quality Index results.

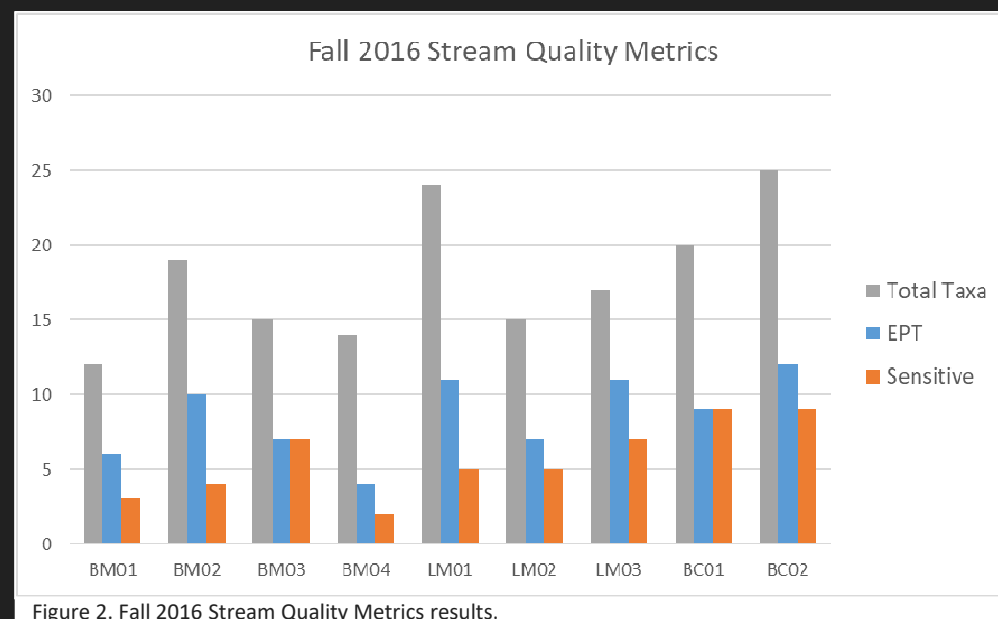


Figure 2. Fall 2016 Stream Quality Metrics results.

VSMP Results - Engagement

- 13 macro-related events
- 40 different volunteers
- 460 volunteer hours
- 16 newspaper & newsletter articles
- Tons of fun!



VSMP Lessons Learned:

- Create a 'site details' page for each site
 - Front: satellite image of 300' stretch
 - Back: helpful pictures
- Strong leaders = robust program
- Soliciting and using volunteer feedback is integral for program success
- Hold separate events for children



Notes about site:

Warning! Stream can be too deep for wading in some locations. Do not attempt to sample in deep areas. Not for beginners.

- Located in Manistee county
- Sample stretch is the 300'
- This site falls within the Spirit of the Woods Conservation Club property
- Site is
- Site is
- There
- Must d



Beach is the end of sample stretch



Abandoned weir



The end of the staircase is the start of the sample stretch

VSMP Lessons Learned:

- Local newspaper advertising – share events & reports!
- Facebook – paid advertisements are worth it
- Take group photo before heading out
- Use your resources! (other program managers, MiCorps staff)

ama will travel to Saugatuck for its football playoff opener. PAGE 1B

MANISTEE ADVOCATE
0021452 07/16/2017 R001
MANISTEE CONSERVATION DIST
8840 CHIPPEWA HWY
BEAR LAKE, MI 49614-9423
51 / 51.50 Weekend

MONDAY
Oct 23, 2017

STEWARDS OF THE STREAMS

Blue Skies, Warm Sunlight
Knoll Leads Through Bear Creek
on Saturday, collecting macroinvertebrates for the Manistee Conservation District's new watershed monitoring program.

Manistee Conservation District kicks off watershed monitoring program

By DYLAN SAVELA
STAFF WRITER

Saturday morning's soft sunlight poked through branches and bounced off Bear Creek as it bubbled gently through Manistee County.

This quiet scene, however, isn't reflected under the surface of the waterway, which is a bustling ecosystem with millions of lively moving parts.

The Manistee Conservation District enlisted a team of community volunteers to document this underwater world through its new Lower Manistee River Watershed

The Manistee Conservation District enlisted a team of volunteers for its Lower Manistee River Watershed Volunteer Monitoring Program, which kicked off Saturday. The group collected macroinvertebrates from the area's water-

dominated channels that provides poor habitat for many sensitive macroinvertebrates.

While the data showed the overall water quality to be good, Knoll stressed that this is a long term citizen-based science project.

"Essentially we're collecting data now to create a baseline for some of these sites that we don't have any history on," she said. "The data is considered preliminary until we've had a third year of collecting."

Conservation district sets baseline for water health monitoring

By DYLAN SAVELA
STAFF WRITER

MANISTEE COUNTY On an early October morning, the Manistee Conservation District enlisted a team of community volunteers to kick off its Lower Manistee River Watershed Volunteer Monitoring Program. Equipped with waders, nets and buckets, these stewards of the streams set out to nine locations across Manistee County to collect macroinvertebrate and conduct habitat analysis, the results of which were released this week.

"All of our data should be considered preliminary," said Kayla Knoll, conversation

See STREAMS Page 7A

News Advocates the photo

The Manistee Conservation District enlisted a team of volunteers for its Lower Manistee River Watershed Volunteer Monitoring Program, which kicked off in October. The group collected macroinvertebrates from the area's waterways.

VSMP Looking forward...

QAPP is important!

- Staff & volunteer turnover
- Provides framework for achieving objectives
- Assures data is comparable, representative, and accurate

Partnerships are key!

- Share results with partners & stakeholders
- May lead to other projects or funding sources...



Aquatic Resource Partnership

- Partnership between MCD & US Forest Service
- MCD worked as a consultant to survey 8 lakes within Huron-Manistee Nations Forest Service
 - Recruit and manage volunteers to assist
- Used MiCorps' CLMP program
 - Ensured data was high-quality and reliable
 - Provided training and other support



Aquatic Resource Partnership

Goals:

1. Produce baseline water quality and trophic status data for lakes of interest
2. Monitor lakes for exotic plants to allow for early detection & rapid response
3. Educate public on AIS and water quality issues
4. Use data to make science-based recommendations for potential restoration projects



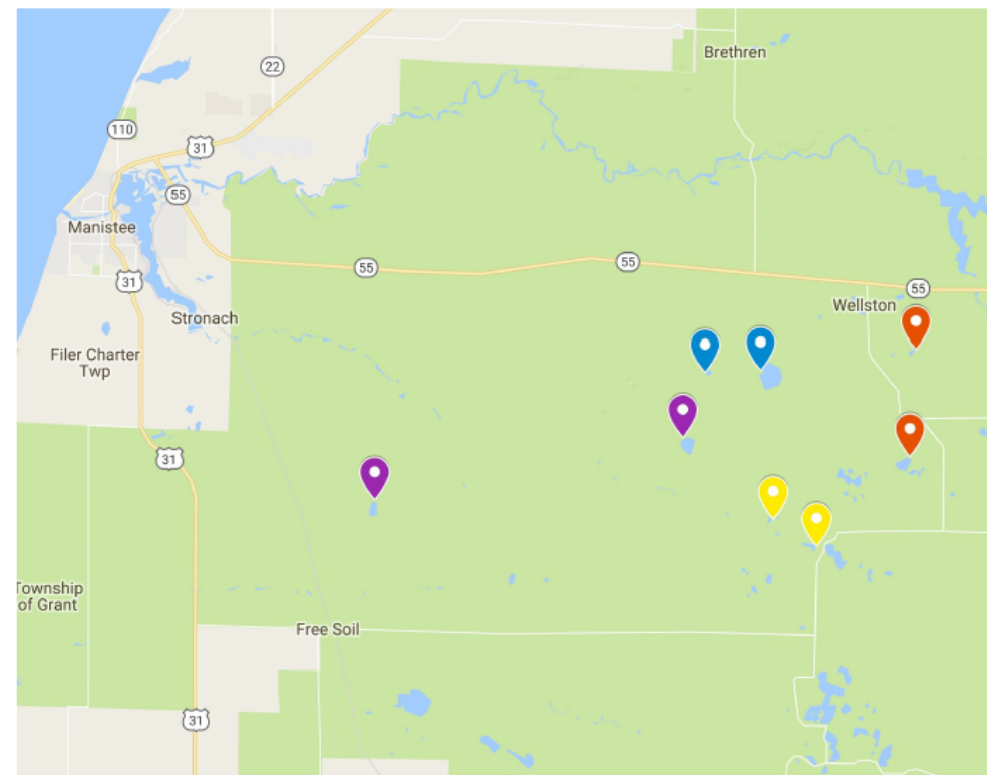
Aquatic Resource Partnership

- 8 lakes
- % FS ownership varied from 10% - 100%
- Lake size varied from 11 – 166 acres
- Most had historical data from the 40's
- One (List Lake) had no previous data

Lake Monitoring

Untitled layer

- Hoags Lake (44.15103, -86.19406)
- Lake of the Woods (44.17246, -86.0464)
- Timmerman Lake (44.19465, -86.0358)
- Pine Lake (44.19537, -86.00922)
- List Lake (44.14439, -86.00318)
- Elbow Lake (44.13518, -85.9824)
- Sand Lake (44.16596, -85.93771)
- Dorner Lake (44.20247, -85.93468)



Parameters... we did 'em all

2017 Lake Monitoring Schedule

Month	Secchi	Phosphorus	DO & Temp	Chl-a	Plant Mapping	Score the Shore
April (2 weeks ice out)						
May (mid)						
May (end)						
June (mid)						
June (end)						
July (mid)						
July (end)						
August (end)						
August (mid)						
September (mid)						



Lake Monitoring Results

Staffing

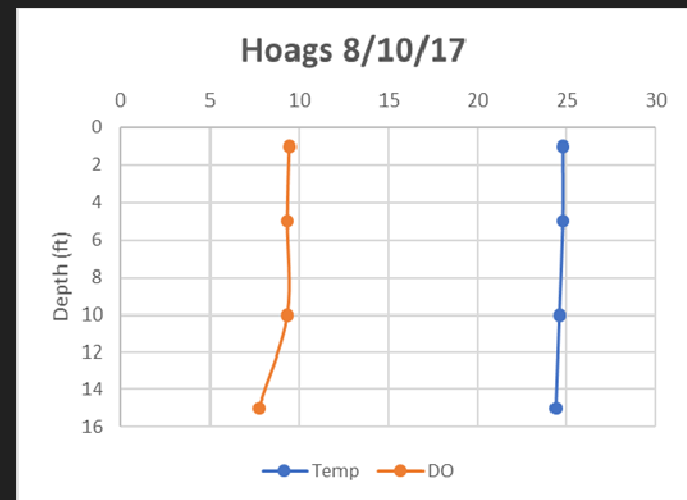
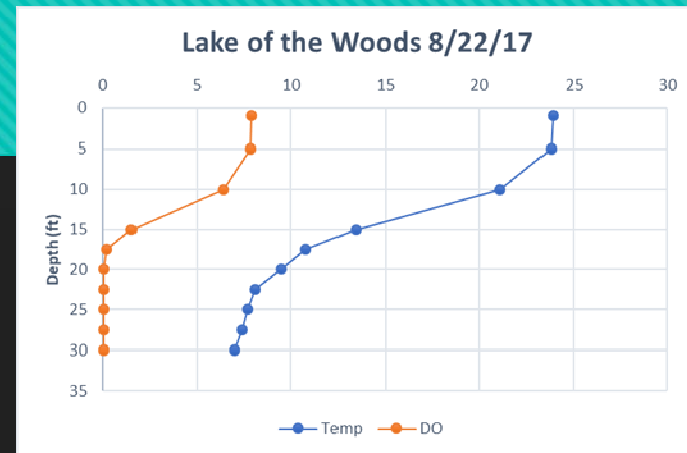
- 328 program manager hours
- 5 riparian residents recruited as volunteers
- 113 volunteer hours

Parameters

Secchi

- Lowest: Timmerman Lake - 5.2ft (**Eutrophic**)
- Highest: Sand Lake - 18.7ft (**Oligotrophic**)
- Average: 11.2ft (**Mesotrophic**)

DO/temp



Lake Monitoring - Lessons learned

Overall, great partnership opportunity

- Produced useful data for USFS
- Will generate reports to share with riparian landowners
- Helped support the MCD financially

Spend more time on volunteer recruitment

- Many hands make light work
- Can be tricky on remote lakes
- Reinforces education aspect

Know your limitations

- Plant mapping is very time consuming
- Don't overcommit

Learn how to tie knots



Rebirth & Redirection

The MiCorps VSMP grant and CLMP program has been a catalyst for:

- partnerships
- education & outreach
- doing science
- volunteer base

The Manistee Conservation District looks forward to continuing both of these programs into the future.



Questions?

Thank you!

Greater Bear
Watershed Management Plan

Arcadia-Pierport Watershed



**Portage Lake
Watershed
Forever**



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