

MICHIGAN WATER COLLABORATION WORKSHOP
BREAKOUT GROUP NOTES – SOURCE TRACKING

What gap does the vision address?

This proposed partnership fills a critical knowledge gap regarding assessment of the state's surface waters. Advanced methods are needed to identify the extent and sources of fecal contamination in Michigan's waters.

Vision

The statewide partnership would work towards developing standard methods for microbial source tracking (MST) to assess Michigan's waters. We currently have a network of labs trained to use qPCR for *E. coli* to monitor recreational beaches and we envision expanding this network, both in terms of partners and scope of work. We would build on the current qPCR network to develop common methods for source tracking, including developing or assessing molecular markers, developing consistent standards, and sharing information and experiences. We would also expand the use of MST beyond recreational beaches to all types of water. The new network would provide a platform for innovation, education, and communication.

- State-wide standard method for using source tracking to assess surface waters, drinking water, irrigation water, pools and other applications
- Build an existing qPCR network
 - Communication and education
 - Training
 - More partners
 - Connect with groups developing genbanks for the Great Lakes

Resources

- Training from Dr. Orin Shanks, USEPA-ORD and Dr. Jean Pierre, MSU
- Draft Methods from USEPA
 - Human marker study published 2016, provides data acceptance metrics, automated spreadsheet for calculations, and self-administered proficiency test
 - Animal marker methods in draft form unpublished
- Consistent supply of DNA standards from USEPA-NIST
 - Require Governmental license (provide access without commercial cost, practically free)
 - 2 human markers
 - 10 animal markers

- Potential funding through Real-Time Beach Monitoring Program (\$500,000), Clean Michigan Initiative (\$100,000), BEACH Act (\$175,000), 319 (?)
- Shared info /data/experience—with broader network including USEPA and international labs (IWA, UNC)

Needs and Opportunities

- Invitation to Validation Study for the NIST material for standards
 - 12 targets total, 2 human and 10 animal
 - Perform standard curves with 12 targets, report results
- Standardized methods
 - QA/QC and standards available with USEPA draft methods
 - How to interpret results, automated calculation sheet from USEPA
- Assess surface waters
 - Expand use of MST to all surface waters, use not just in beach program but for TMDLs and other application
- Microbial source tracking
 - Develop and assess markers so we have MST markers we're confident in
- Work together to make the most of limited resources
- Trained staff, equipment

Attendees

- Erin Dreelin
- Shannon Briggs
- Molly Rippke
- Chris Vernier
- Olivia Bishop
- Emily Greeson
- Tami Sivy
- Bradley Cardinale
- Jason Travis
- Kristine Rendon
- Dale Ladouceur