HABs State of the Science webinar series: Educate and Engage

Speakers:

Lesley D'Anglada – US EPA

Patrick Lawrence – University of Toledo

Justin Chaffin – Ohio State University

Kelly Turner – Kent State University

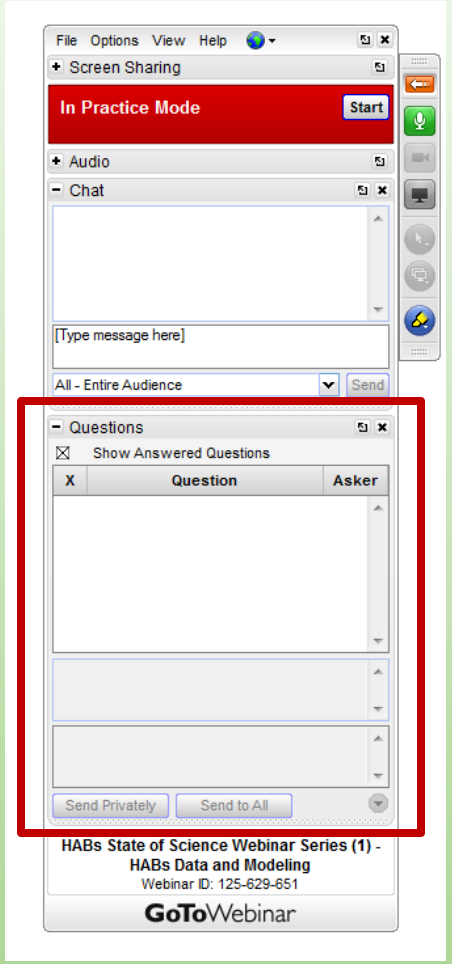
Lauren Lindemann – The Nature Conservancy

In partnership with:

GoToWebinar Housekeeping Items

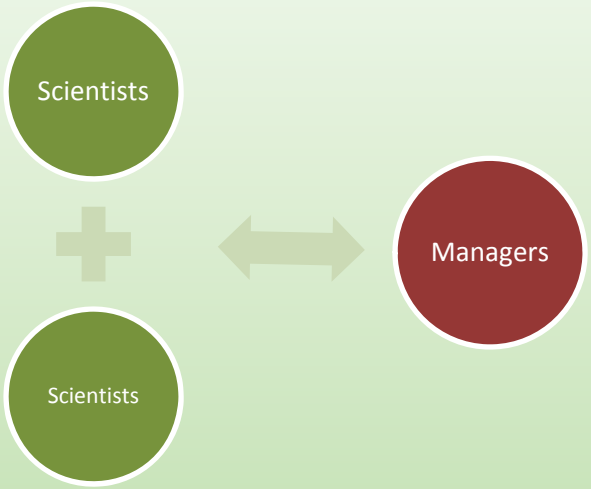
- Submit your text questions and comments using the Questions Panel

- Note: This webinar is being recorded and will be posted on the HABs Collaboratory website



Great Lakes HABs Collaboratory

"A virtual laboratory for information sharing and collective actions to address HABs"



- Multidisciplinary group, 100+ members from different Agencies, Ministries, Colleges, Universities and Organizations across the Great Lakes

Great Lakes Commission des Grands Lacs

USGS science for a changing world

HABs State of the Science webinar series

- Result of the inaugural meeting of the HABs Collaboratory
  - Identified need for communication between researchers, and between researchers and managers
- Present on-going research projects related to HABs in the Great Lakes region
- Goals:
  - Improve communication
  - Knowledge transfer
  - Opportunities for collaboration

Ohio Sea Grant / OSU Stone Lab

- Managing 55 HABS related projects (~$7,000,000)
  - 18 funded by Ohio Sea Grant
  - 5 funded by OSU's Field 2 Faucet initiative
  - 32 funded under the Ohio Department of Higher Education (OSU/UT; 18 vs. 14)

- 9/15/16 "State of Science" meeting in Toledo
  - Stranahan Theater
  - Modeling, BMPs, and Public Health-Water treatment
  - https://ohioseagrant.osu.edu/news/calendar/2016/09/15/o47km/understanding-algal-blooms

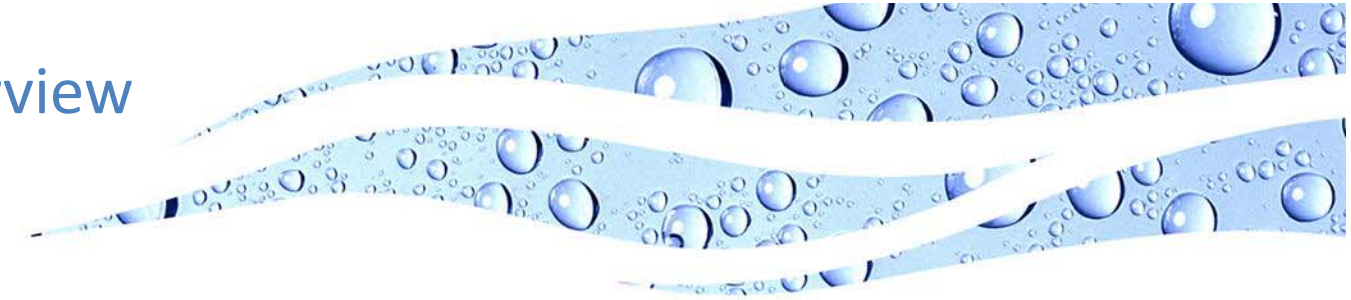
EPA United States Environmental Protection Agency

US EPA OW's Education and Engagement Efforts in Cyanotoxins

Lesley V. D'Anglada, Dr.PH
US Environmental Protection Agency
Office of Water/Office of Science and Technology

HABs State of the Science Webinar
September 1st, 2016

Presentation Overview

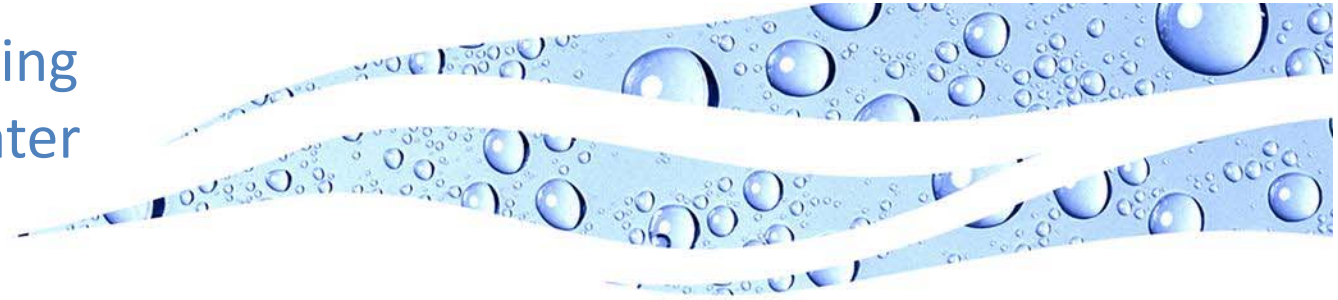


- Briefly describe the Education and Engagement activities at EPA's Office of Water relating to cyanotoxins
- Opportunity for Questions

Disclaimer

The views expressed in this presentation are those of the author and do not necessarily represent the views or policies of the U.S. Environmental Protection Agency.

EPA's Efforts in Drinking and Recreational Water



Regulations, Guidelines and Recommendations

- Contaminant Candidate List (CCL)
- Health Advisories (HAs) and Recommendations for Public Water Systems
- Drinking Water Protection Act (H.R. 212) and Strategic Plan for Drinking Water
- Recreational Ambient Water Quality Criteria for Cyanotoxins

Assessments

- Unregulated Contaminant Monitoring Rule (UCMR)
- National Aquatic Resource Surveys: Lakes, Wetlands, Rivers and Streams and Coastal

Outreach and Communications

- Website, Fact Sheets and Newsletter, Webinars and Workshops, and Partnerships and Collaborations

Research

- Office of Research and Development research activities related into four categories water quality, human and ecological health effects, monitoring/analytical methods, drinking water treatment.

EPA's Efforts to Address HABs in Drinking and Recreational Water

Regulations, Guidelines and Recommendations

- Contaminant Candidate List (CCL)
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CyanoHABs Website

CyanoHABs Webpage

- To help inform the public, states, tribal and local governments, and other federal agencies about key issues regarding cyanobacteria blooms in recreational waters and drinking water.
- Includes information on:
  - Causes, prevention and mitigation
  - Human health and ecological effects
  - Detection methods
  - Available policies and guidelines
  - Research and News
  - Links to states HABs programs and laboratories
- Published on 2012 and updated frequently.

Fact Sheets and Newsletter

Fact Sheets

- 2012 - Cyanobacteria and Cyanotoxins: Information for Drinking Water Systems (Updated September 2014)
- 2013 - Climate Change and Harmful Algal Blooms

Freshwater HABs Newsletter

- 2014 - Monthly newsletter with information on news and recently published research, upcoming events, EPA's efforts related to HABs, and beach closures and Health Advisories.
- https://www.epa.gov/nutrient-policy-data/research-and-news

Webinars and Workshops

Webinars

- Inland HABs Discussion Group Webinars
  - 2012- Informal discussion group to discuss HABs-related issues such as research, monitoring, human and ecological health risks, and others.
  - Led by EPA, CDC, and USGS, and conducts webinars three times a year.
  - http://www.epa.gov/nutrient-policy-data/inland-hab-discussion-group
- EPA's Office of Science and Technology Webinars
  - Occurrence and Detection Methods (2012), Human Health Risks (2013), Prevention, Control and Mitigation (2014), and Recreational Ambient Water Quality Criteria (2016)
- EPA's Office and Research and Development Webinars
  - EPA's small drinking water systems webinar series (2016)

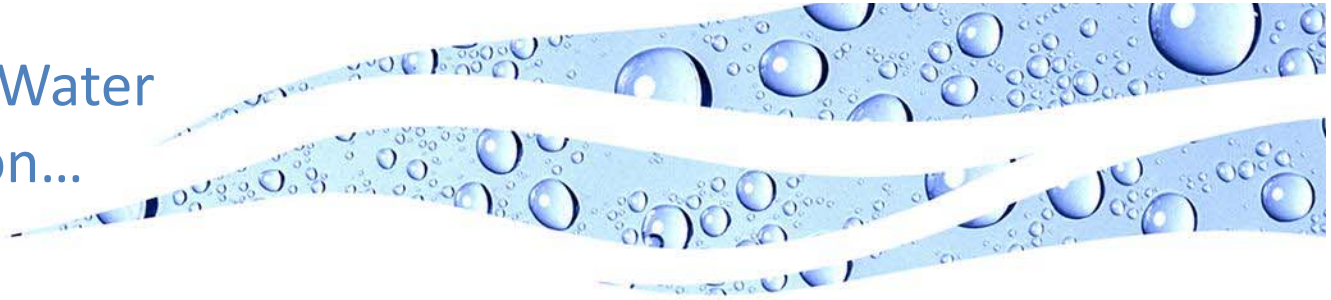
Workshops

- EPA Regional Workshops on HABs
  - Discuss HABs-related issues in fresh and coastal waters and provide opportunities for collaborations with national and regional partners
  - Region 8 (2015), Regions 1, 5 and 10 (2016) and Regions 2, 6, 7 and 9 (2017)
- EPA's small drinking water Systems Workshop
  - 2016 - monitoring and treatment and breakout discussion group

Partnerships and Collaborations

- IWG-HABHRCA
- National HABs Committee (NHC)
- Cyanobacteria Assessment Network (CyAN) Project
- Great Lakes HABs Collaboratory
- Source Water Collaborative
- Great Lakes Interagency Task Force
- EPA Regions Partnerships through MOA, Grants and Cooperative Agreements
  - Region 1 Cyanobacteria Monitoring & Bloom Watch Program
- Videos on HABs
  - Protect your pooch from harmful algal blooms (2013)
  - EPA's Efforts to Safeguard Drinking Water from HABs (2015)
  - Science safeguards drinking water from harmful algal blooms (2015)
  - https://www.youtube.com/watch?v=mnok5G0HBgM

Other EPA's Office of Water Activities Coming Soon…



- ✓ Drinking Water Cyanotoxin Management Risk Communication Toolbox
- ✓ Cyanotoxin Management Plans
- ✓ Modification and Implementation of the Comprehensive Performance Evaluation (CPE) for Optimizing Drinking Water Treatment when Challenged by a Bloom of Toxic Cyanobacteria

EPA

water.epa.gov

Contact Information

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EPA's Cyanobacteria HABs Website
www.epa.gov/cyanohabs

water.epa.gov

LAKE ERIE HABS STAKEHOLDERS INFORMATION MANAGEMENT PROJECT

Patrick Lawrence– Department of Geography and Planning, University of Toledo

THE UNIVERSITY OF TOLEDO 1872

OhioHigherEd Department of Higher Education

Project Overview

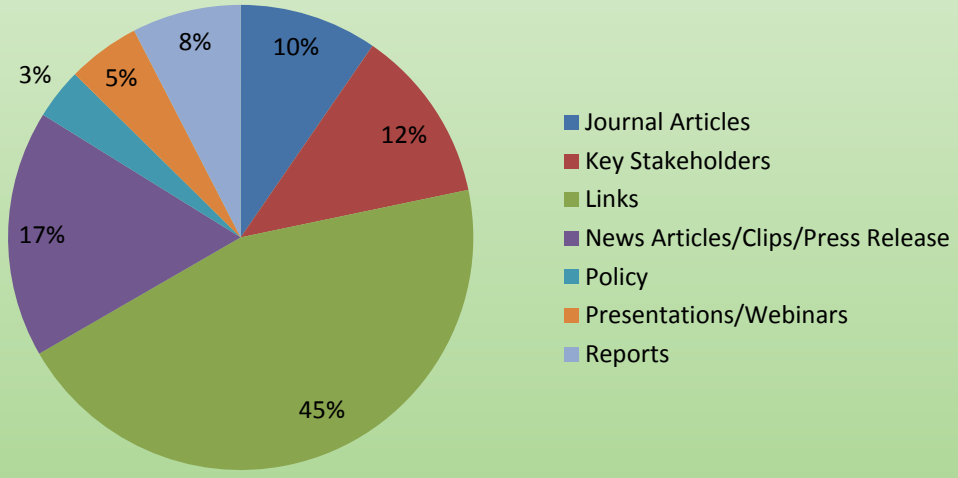
- Lake Erie HABs Stakeholders Information Management Project
  - Patrick Lawrence and Kevin Egan, University of Toledo
  - Funded by Ohio Department of Higher Education
  - Maumee Basin, 2015-2017
  - Engagement of stakeholders is necessary step in addressing informed decision-making for range of potential policy and economic actions to address Lake Erie HABs

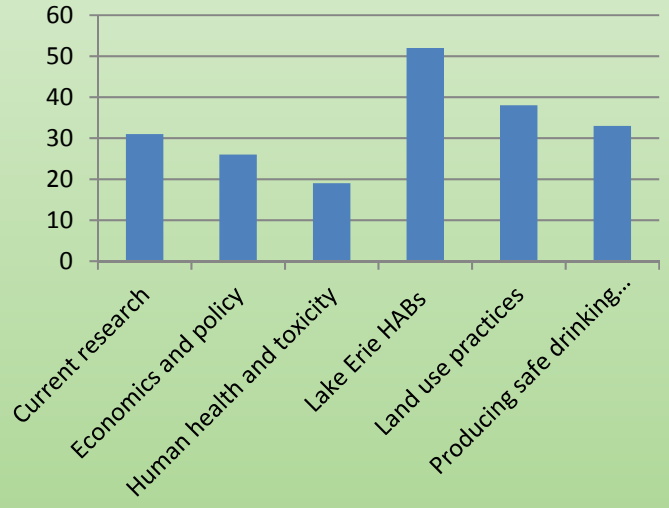
Approach

- Development of a searchable online information system that will contain key sources of reports, studies, papers, web links, and contacts (Lake Erie HABSIS)
- Will cover topics related to safe drinking water, land use practices, Lake Erie HABs and water quality, human health, and economic&policy
- Will be linked to work by team at Kent State for identification and assessment of Social Network Analysis for Maumee Watershed Stakeholders
- And comparative benefit-cost study of alternative potential economic based incentives to reduce nutrient loading (work by Dr Kevin Egan and graduate student at University of Toledo)

Summary of Findings

- Over 200 major sources of information identified, categorized and entered into the Lake Erie HABSIS
- Beta test of project website and Lake Erie HABSIS currently underway with selected stakeholders





HABs Collaboratory

- Working to add recent research reflecting current and on-going published sources of information on Lake Erie HABs
- Will provide public access to Lake Erie HABSIS, including invitations to key stakeholders in the Maumee Watershed
- Once ready to be released to the public, Great Lakes HABs Collaboratory could assist with sharing and disseminating link to Lake Erie HABSIS

CHARTER BOAT CAPTAINS HELP MONITOR LAKE ERIE WATER QUALITY

Justin Chaffin
Stone Laboratory
Ohio Sea Grant
The Ohio State University

Project Overview

- Charter boat captains help monitor Lake Erie water quality
- Ohio Charter Boat Association
  - 10 captains have collected samples
- Ohio EPA
- Western Basin of Lake Erie
  - 5 marinas between Oregon and Marblehead
- Weekly monitor program April-October

Project background

- Charter Captains approached Ohio EPA in 2012 (following the 2011 HAB) asking “How can we help?”
- 2012 were trained and captains began collecting samples under Ohio EPA guidance
- Since 2013 Stone Lab coordinated the sampling program
  - 7 samples each week April through October
  - Microcystin, chla, TP, DRP, NO3, NH4, TKN, Si, TSS, Secchi, Temp, GPS location

Approach

- Each Monday 7 captains collect samples, record Secchi disk depth, and fill in the field data sheet.
  - Captains drop off samples at designated locations
- Stone Lab staff pick up the samples and drop off empty bottles and data sheets.
- Captains receive weekly data updates which show this year data to previous years. They can answer questions like “How is water quality this year?”

HABs Collaboratory

- Public outreach for HABs is needed.
  - Public and fisherman may trust the captains
    - Captains trained how to sample and with accurate info will help spread accurate info about HABs.
- Collaboration with captains in your area/lakes
  - Trust between the captains and scientists is needed.

SOCIAL NETWORK ANALYSIS OF LAKE ERIE HABS STAKEHOLDERS

V. Kelly Turner, Assistant Professor
Department of Geography, Kent State University

Project Overview

- A Social Network Analysis (SNA) of Lake Erie HABs Stakeholders
- V. Kelly Turner, Kent State University
- Department of Higher Education
- Maumee Basin (2014-16)
- Research hypothesis
  - The structure of relationships between stakeholders influences water quality outcomes in watersheds

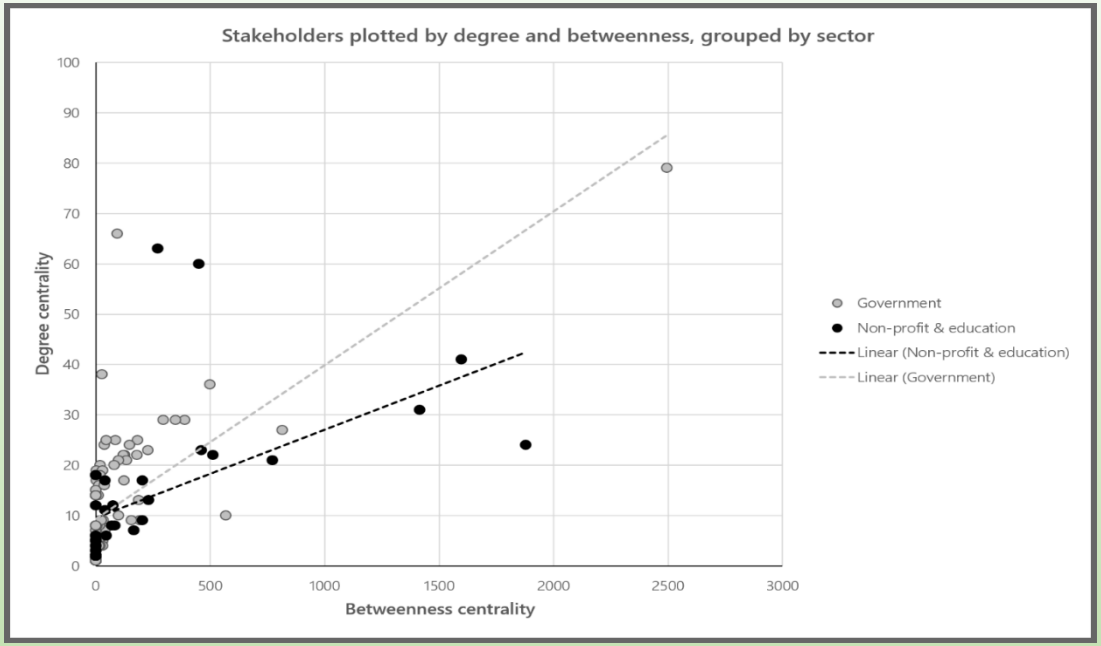
Approach

- Define ties among 127 organizations active in Maumee watershed
- Use "network metrics" to analyze network structure
  - Leadership
- Link network structure at the sub-watershed scale to water quality outcomes

Measure	Value	Percentage
Total stakeholders	127	100
Stakeholders by sector:		
County	46	36.22
Non-profit	23	18.11
State	19	14.96
Federal	16	12.60
Municipal	13	10.24
Education	10	7.87
Stakeholders by bound type:		
Political	100	78.74
Watershed	16	12.60
Other	11	8.66
Total ties	580	100
Total relationships	799	100
Relationships by type:		
Partnership	334	41.80
Financing	120	15.02
Education	86	10.76
Coordination	79	9.89
Activity reporting	71	8.89
Policy recommendation	65	8.14
Policy establishment	29	3.63
Commission	15	1.88
Average ties per stakeholder	4.57	
Average relationships per stakeholder	6.29	

Summary of Findings

- Two distinct leadership/network types
- ODNR = both
- Bridging networks – early phase participation and consensus building
- Bonding networks – mobilize and implement

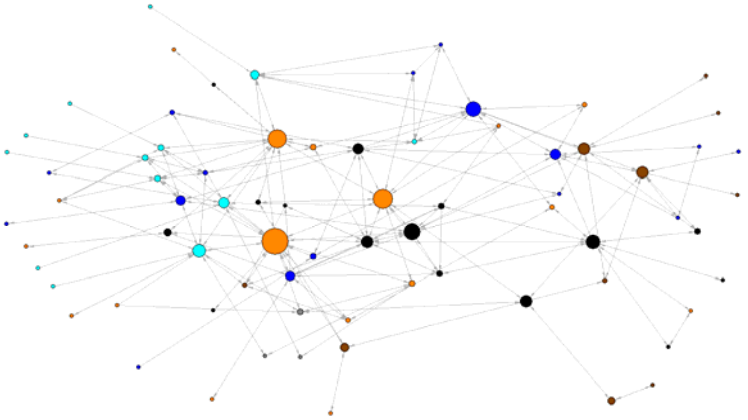


Leadership type	Sectors	Relations	Characteristics	Centrality
Bridging	Non-profit, Educational	Partnership, Education	Act as social entrepreneurs; Facilitate/mediate across groups; Bring diverse actors together	Higher-BC
Bonding	County, Municipal, State, Federal	Coordination, Policy recommendation, Activity reporting, Financing, Policy establishment	Advocate for particular issues; Represent stakeholder groups; Offer stability and institutional memory	Higher-DC

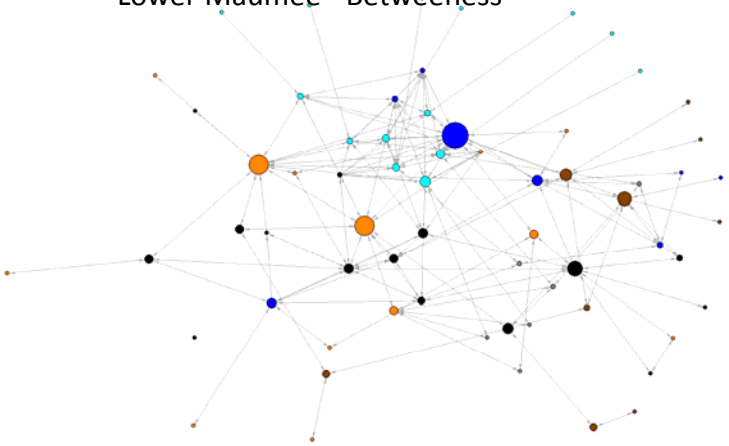
HABs Collaboratory

- What questions still need to be answered about HABs?
  - How does network structure differ across sub-watersheds?
  - Does network structure relate to water quality outcomes?
    - Chicken-or-egg problem: network <-> water quality
- How can collaboration help your research?
  - "Closing the loop" between human and natural systems through collaboration with environmental scientists
  - Stakeholders help interpret findings

St. Joseph Watershed - Betweeness



Lower Maumee - Betweeness



ENGAGING OTHERS

Lauren Lindemann – The Nature Conservancy

Project Overview

- Hardin County Field Day - Agricultural Conservation Protection Water: Keeping Soil and Nutrients in the Field

My Approach

- Targets
  - Clear Targets to Shoot For
- Relationships
  - Team build, Connection, Belonging
- Input
  - Discuss everyone's perspective or idea
- Choose the Path Forward Together
- Allow Them to Express Themselves
- Digress as Needed But Pull it Back In

End Products of Engagement

- Building Lasting Partnerships
  - Respect
  - Empower
  - Staying Humble
  - Future Opportunities


MORITZ

HABs Educate & Engage

In partnership with:

Coming up next:

Understanding Algal Blooms: State of the Science Conference
Thursday, September 15 2016, 9:30 am - 6 pm (EDT)
Stranahan Center, Toledo Ohio

To learn more about the HABs Collaboratory and the HABs State of the Science Webinar Series, visit us at:

http://glc.org/projects/water-quality/habs/