



NORTH CENTRAL REGION
WATER NETWORK

Welcome to *The Current*, the North Central Region Water Network's Speed Networking Webinar Series

Results from a Regional Youth Water Education Needs Assessment: 2PM CT

1. Submit your questions for presenters via the chat box. The chat box is accessible via the purple collaborate panel in the lower right corner of the webinar screen.
2. There will be a dedicated Q & A session following the last presentation.
3. A phone-in option can be accessed by opening the Session menu in the upper left area of the webinar screen and selecting "Use your phone for audio".

This session will be recorded and available at northcentralwater.org and learn.extension.org.



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Today's Presenters:

- **Justin Hougham**, Associate Professor, University of Wisconsin-Madison Division of Extension, Director, Upham Woods Outdoor Learning Center
- **Kristi Lekies**, Associate Professor and Extension Specialist, The Ohio State University
- **Zuzana Bohrerova**, Research Scientist, The Ohio State University, and Associate Director, Ohio Water Resources Center

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Justin Hougham



Dr. Hougham is faculty at the University of Wisconsin- Madison where he supports the delivery of a wide range of science education topics to K-12 students, volunteers, youth development professionals, graduate students, and in-service teachers. Justin's scholarship is in the areas of youth development, place-based pedagogies, STEM education, and environmental justice. Justin has taught 17 different undergraduate and graduate courses as well as instructed over 1000 days in the field. He continues to teach courses, clinics, and trainings that develop pedagogies in experiential education.





Determining the Gaps in Youth Water Education in the North Central Region of the United States

Dr. Justin Hougham
University of Wisconsin – Madison
Division of Extension

TEAM- North Central Region Water Network

*Dan Downing – University of Missouri
*Amy Zimmerman – University of Nebraska
*Monica Day – Michigan State
*Kristi Lekies – The Ohio State University
*Zuzana Bohrerova – The Ohio State University
*Christine Wood – South Dakota State University
*Andrea Lorek Strauss – University of Minnesota
Brandon Schroeder – Michigan State
Katherine Jaeger – South Dakota State
Katrina Sally Widhom – University of Illinois
Bradley Cogdill – North Dakota State
Rebecca Power – NC Water Network
Amber Mase – NC Water Network
Anne Nardi – NC Water Network



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Why the needs assessment?





We wondered...



What is the current state of water education?

What **opportunities** exist for more strategic engagement among water educators?

What organizational **needs** are most pressing among organizations?



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3 Steps for Status & Needs Assessment

Ask questions

Gather key
Information

Put information into
Action



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What can a

Status and Needs Assessment

do for you?

Status and
Needs



Data to inform decision-making and programming, understand trends and challenges



Adapt to changing contexts, build capacity

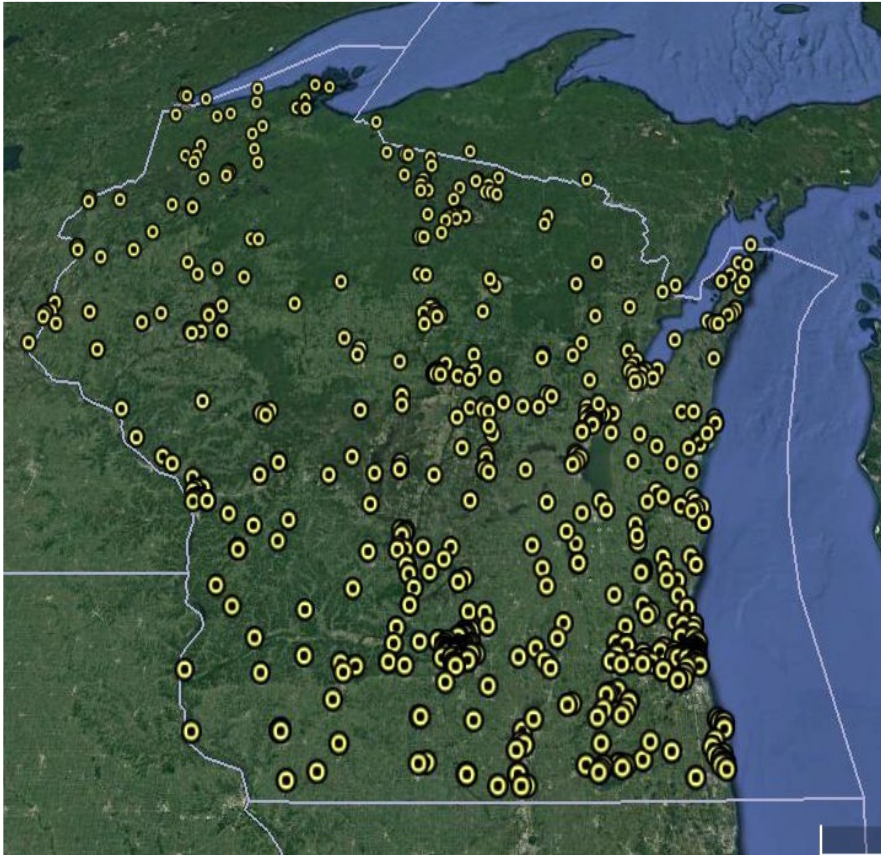


Enhance the overall quality of EE through strategic action



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2019 Status & Needs Survey



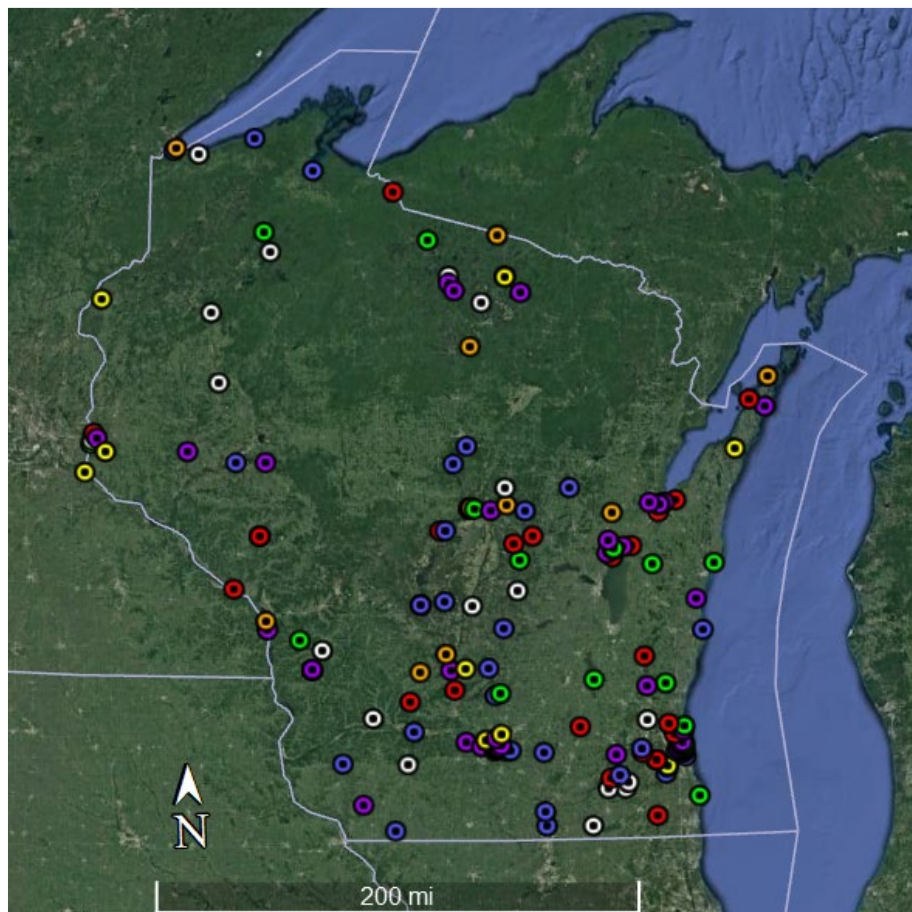
709 Recipients

Example at a state-wide scale: Wisconsin



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2019 Status & Needs Survey



Example at a state-wide scale: Wisconsin

193 Respondents

173 Organizations

	Camps (n=18)
	Clubs and Formal Education Organizations (n=34)
	Conservation Organizations (n=47)
	Fundraising Organizations (n=11)
	Museums, Zoos, Nature Centers (n=22)
	Outdoor Learning Centers (n=12)
	Public Parks (n=30)



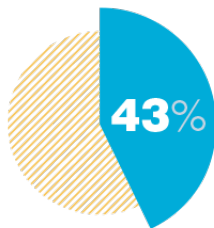
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Overview - EE in Wisconsin

3,100 + employees

1.1 million days of outreach/ year

\$40 million industry

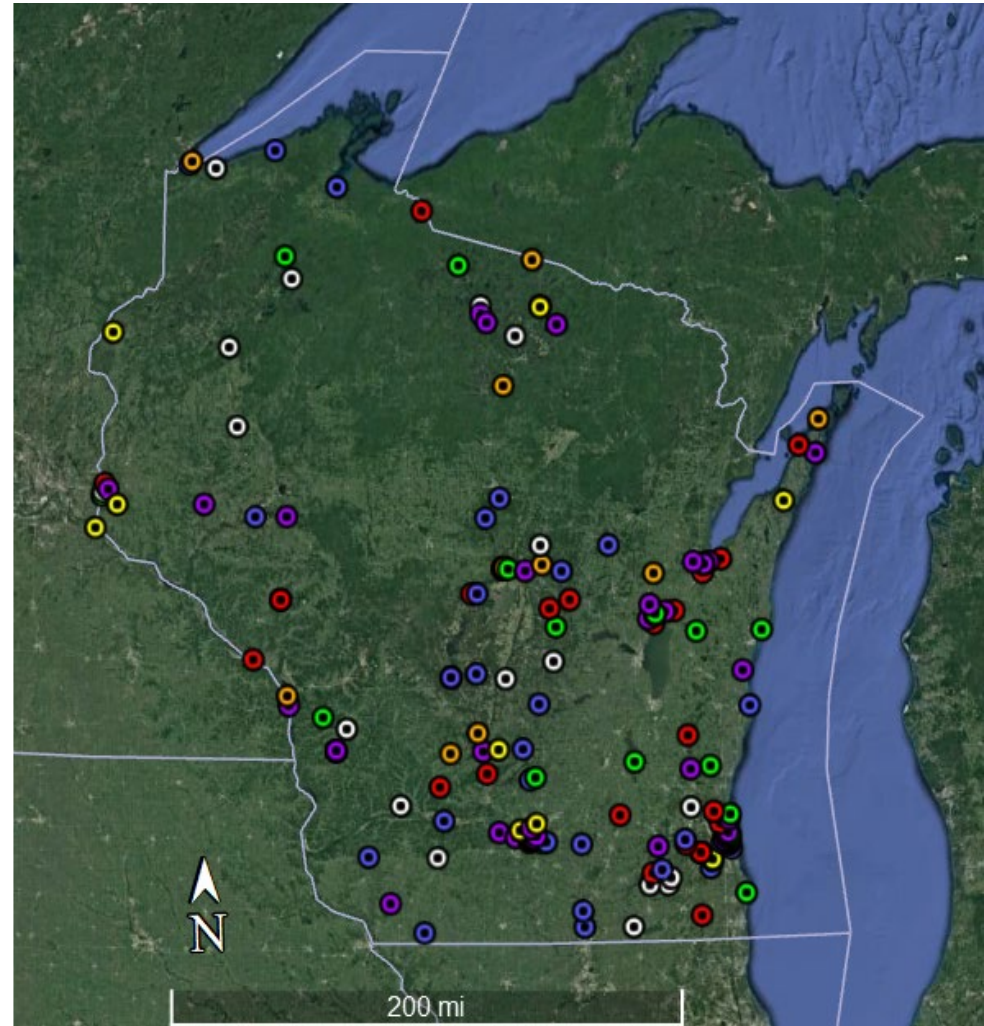


On average,
organizations
spend **43%** of
their budget on
staff.

Regularly partner with other EE organizations
(59.5% - Yes)

Correlate programming to academic standards
(75.3% - Yes)

(Hougham et al., in review)



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Project Rationale and Global Context

According to the World Economic Forum (January 2015),
“...Water crisis[es] is the #1 global risk based on impact to society (as a measure of devastation), and #8 global risk based on likelihood (likelihood of occurring with 10 years).”

Additionally, it is estimated that one in nine people in the world lack access to improved sources of drinking water, and one in three lack improved sources of water sanitation (World Economic Forum, January 2015).

With these facts in mind, public and private organizations both in the North Central Region and worldwide strive to improve water quality, preserve water quantity, and protect water as a natural resource.



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Goals

- Determine curriculum being used for youth water education
- Identify curriculum that make youth knowledgeable, passionate and active in water related issues
- Identify placed-based education
- Find gaps in program/curriculum either by age, stewardship or engagement



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Goals

The Youth Working Group for North Central Region Water Network has worked to:

- 1.) compile a list of curriculum and resources being used for youth water education in the North Central Region by land grant universities and their partners
- 2.) identify curriculum components that make youth knowledgeable, passionate and active in water related issues
- 3.) identify gaps in program/curriculum either by age, engagement, or organizational needs.



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Kristi Lekies



Dr. Kristi Lekies is Associate Professor in the School of Environment and Natural Resources and State Specialist in Program Evaluation and Leadership Development with Ohio State University Extension. Her research interests include human-nature experiences in the early part of the life span, outdoor environments for positive youth development, climate and sustainability education, and place attachment. She also leads an environmental education initiative which engages OSU students in planning programs for children and youth, as well as a youth-produced and inspired community radio program.





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The North Central Region Youth Water Education Assessment

Part II: Methods, Sample, and Program Information

Dr. Kristi Lekies, School of Environment and Natural Resources



North Central Region: 12 States



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Youth Water Education Study: Two Components

Tier I

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Tier 2

Community organizations
and partners

What can we learn about youth water education in the North Central region?



Tier 1: Cooperative Extension Personnel

Online survey distributed through:

- Agriculture and Natural Resource listserves
- 4-H listserves and newsletters
- Forwarding survey to others



Tier 2: Community Organizations and Partners

- Organizations identified through Tier 1 surveys
- Identifying other relevant organizations
- Forwarding survey to others

Nature Centers

Soil and Water Conservation Districts

Environmental Education Programs



Online Survey

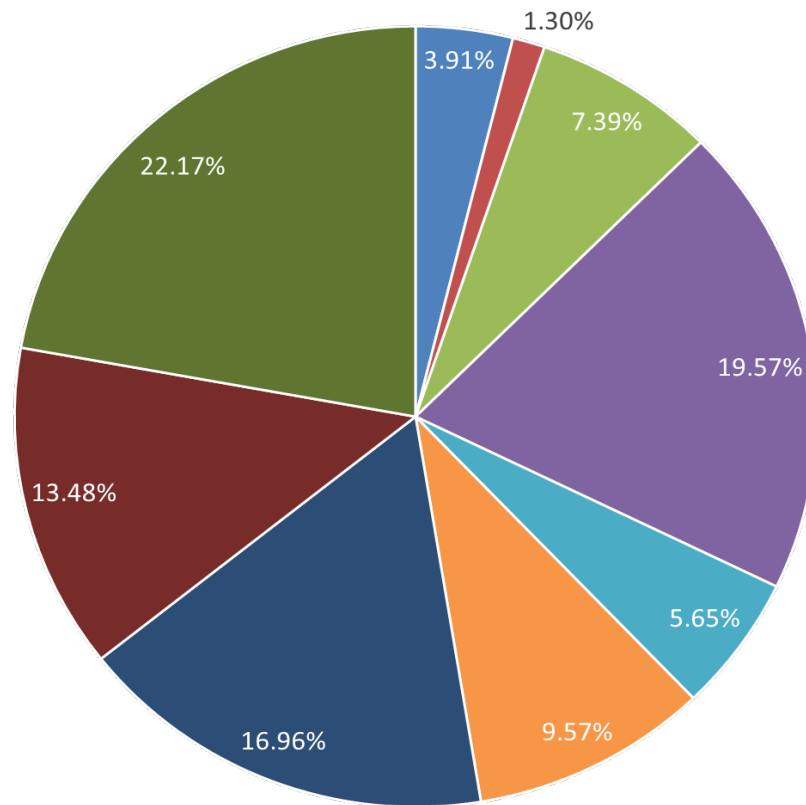
Open and closed-ended questions

- Ages/grades served
 - Location of youth water education
 - Curriculum used
 - Education standards
-
- Excitement about youth water education
 - Barriers to providing youth water education
 - Missing pieces
 - Examples of positive impacts



Tier 1 : 230 Extension professionals, 9 states

Percent of Participation by University





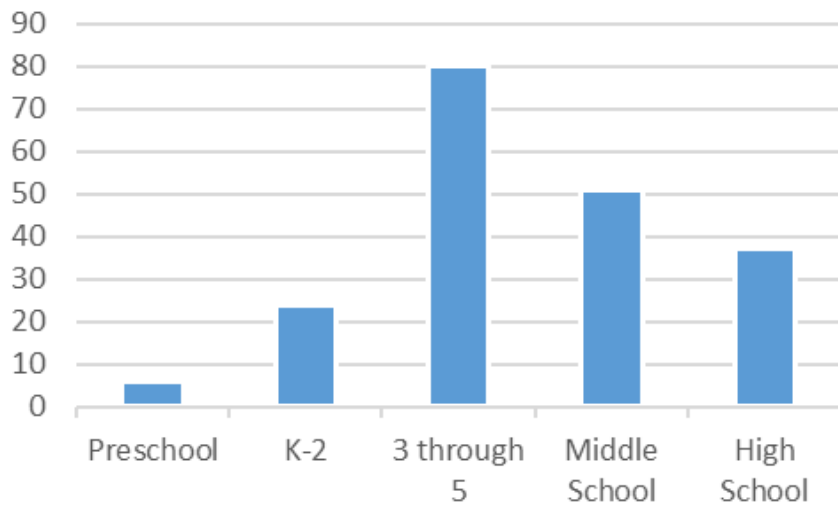
Tier 2: 60 organizations, 8 states

- Half of respondents from Ohio
- Other states included Illinois, Michigan, Minnesota, Missouri, Nebraska, South Dakota, and Wisconsin
- Approximately half (52.4%) of Extension respondents and 95% of community respondents indicated they provide youth water education



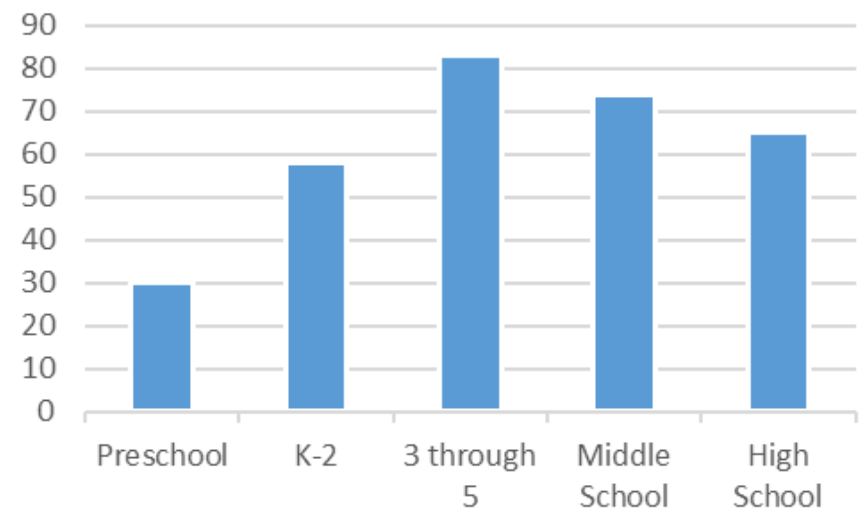
Ages/Grades Served

Grades served by Extension professionals



■ Percent of educators that responded they served that age (participants could select more than one)

Grades served by community partners



■ Percent of educators that responded they served that age (participants could select more than one)



Settings for Youth Water Education

4-H programs

Afterschool programs

Formal classroom education

Water festivals

Community events

Camps

Field trips and field days

Junior Master Gardener and

Naturalist programs

Science festivals

School conservation days

Library programs

Estuary and wetland programs

Scouting programs

Farmers markets

Envirothon preparation

Fertilizer application certification classes

Several community organizations reported they had water-themed internship positions available for high school students.



Curriculum Used

Educators from both groups indicated that they use a variety of curricula in their programs with youth.

Most commonly mentioned were Project Wet and Project Wet-Aquatics, followed by Water Rocks, Sea Grant, and Water Riches.



Discover Nature Schools
Earth Partnership
Edible Aquifer
Enviroscape
Flint River GREEN
GLOBE
Great Lakes in My World
Great Lakes Literacy Principles
Great Lakes Stewardship Initiative
Groundwater Jeopardy
Healthy Water, Healthy People
Illinois River Watch
Michigan Environmental Education Curriculum
Support
Minnesota Department of Natural Resources
MinnAqua Educators Guide
Observational Technology Skills kits
Project Learning Tree
Project Wet
Project Wild-Aquatics
Rain to Drain, Slow the Flow
Ranger Rick's Nature Scope
Sand Tank Ground Water Model

Sea Grant Network
Storm Water Sleuth
Stormwater Challenge
There's No New Water!
University of Extension Digital
Water Conservation/Pollution
Water Molecule/Water Cycle
Water Riches
Water Rocks
Water Stones and Fossil Bones
Watershed Game Classroom Version
Wonderwise - Women in Science
WOW - Wonders of Wetlands



Zuzana Bohrerova



Dr. Zuzana Bohrerova, MPH, serves as a Research Specialist in the Department of Civil, Environmental and Geodetic Engineering and as the Associate Director of the Ohio Water Resources Center (WRC). Within the department, she works with students and colleagues on research projects related to water disinfection and serves as an instructor in graduate and undergraduate courses.

As Associate Director of the Ohio WRC, she performs a variety of tasks such as planning the Center's activities and overseeing its day-to-day operations, managing research projects, developing outreach and educational programs, and collecting and compiling relevant data and deliverables in order to compose and publish related reports. She interacts with the public, industry professionals, representatives from government agencies and other stakeholders to collaborate on important water issues in the state of Ohio.





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Results from a Regional Youth Education Water Assessment

Part III: Open Ended Questions

Dr. Zuzana Bohrerova, MPH, Ohio WRC, OSU





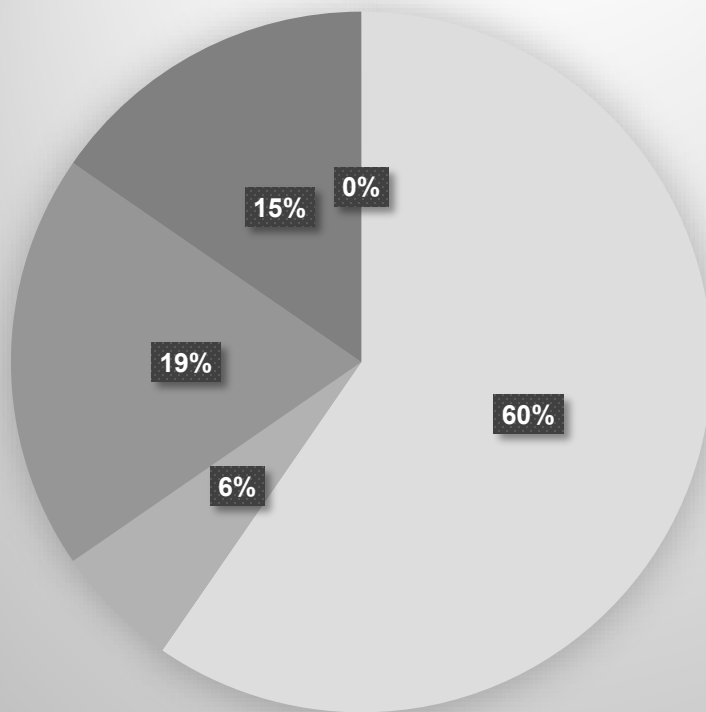
Is there a particular part of your program that makes youth excited about water education?

THEMES	Description	Responses #
Experiential	A general opportunity for youth to engage in hands-on activities during the program.	46
Experiential with water access	Participants learn through hands-on activities or research in or at a local waterway.	19
Place-based	Concepts and ideas are taught and applied to a specific location.	13
Application	Participants can connect the implications of what they are using to the larger world (ex: environmental stewardship, careers, understanding of ecology).	17
Competition	Participants are incentivized to encourage participation.	2

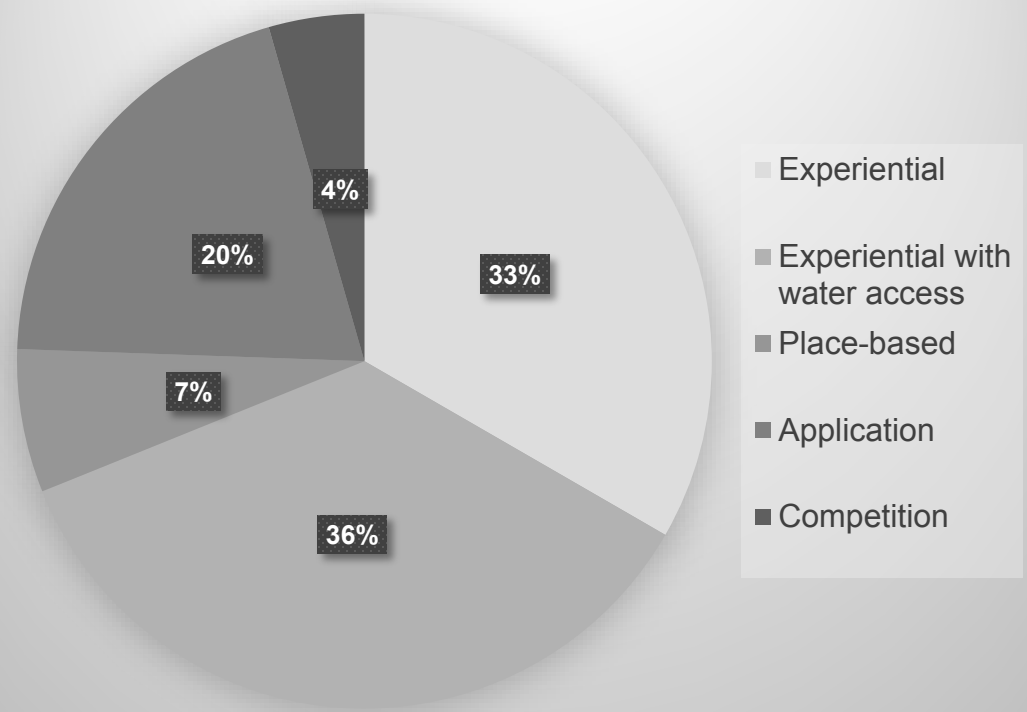


Is there a particular part of your program that makes youth excited about water education?

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Outside Partners



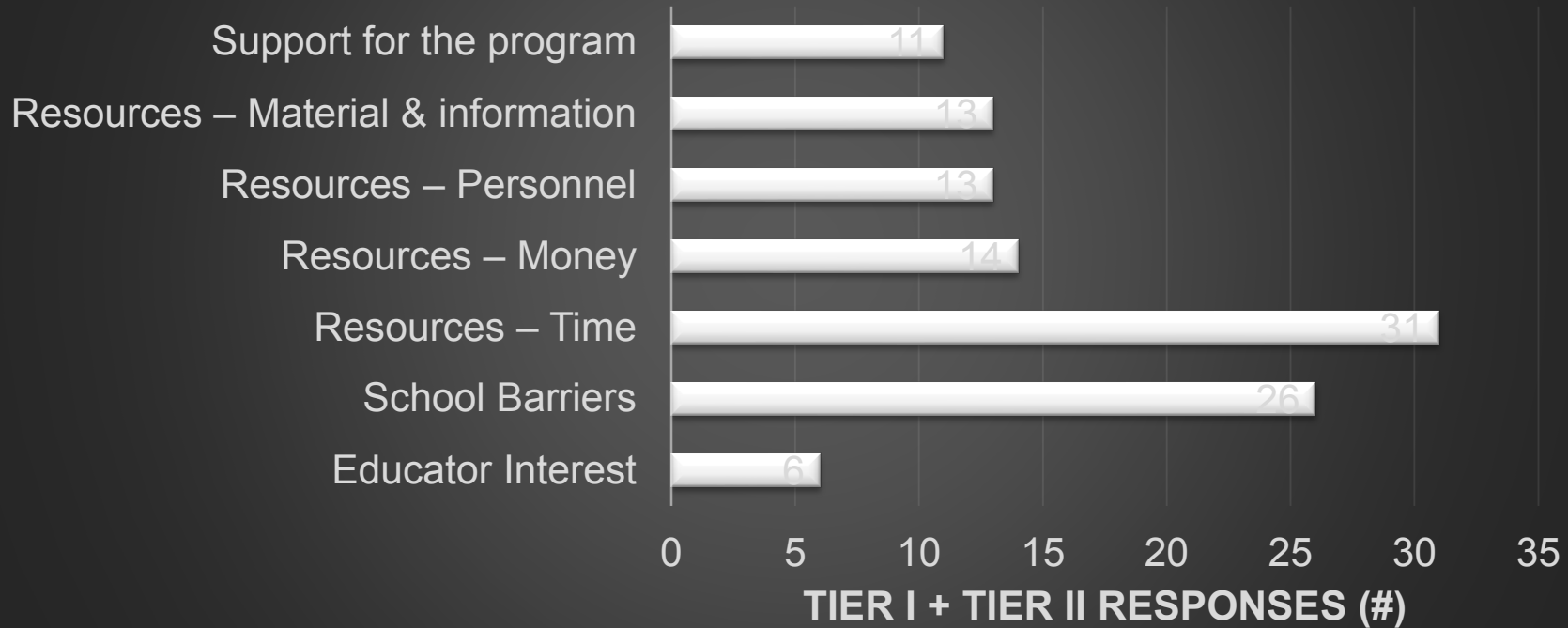
- Experiential
- Experiential with water access
- Place-based
- Application
- Competition

Outside partners surveyed tended to do more “out of classroom setting” water education



“My time and our staff time are our biggest limitation.”
“Money for buses”
“Enough volunteers”

What are the barriers to conducting youth water education?



“Fear from staff related to students around water.”

“Lack of resources that are hands on. The youth don't understand the concepts” 33

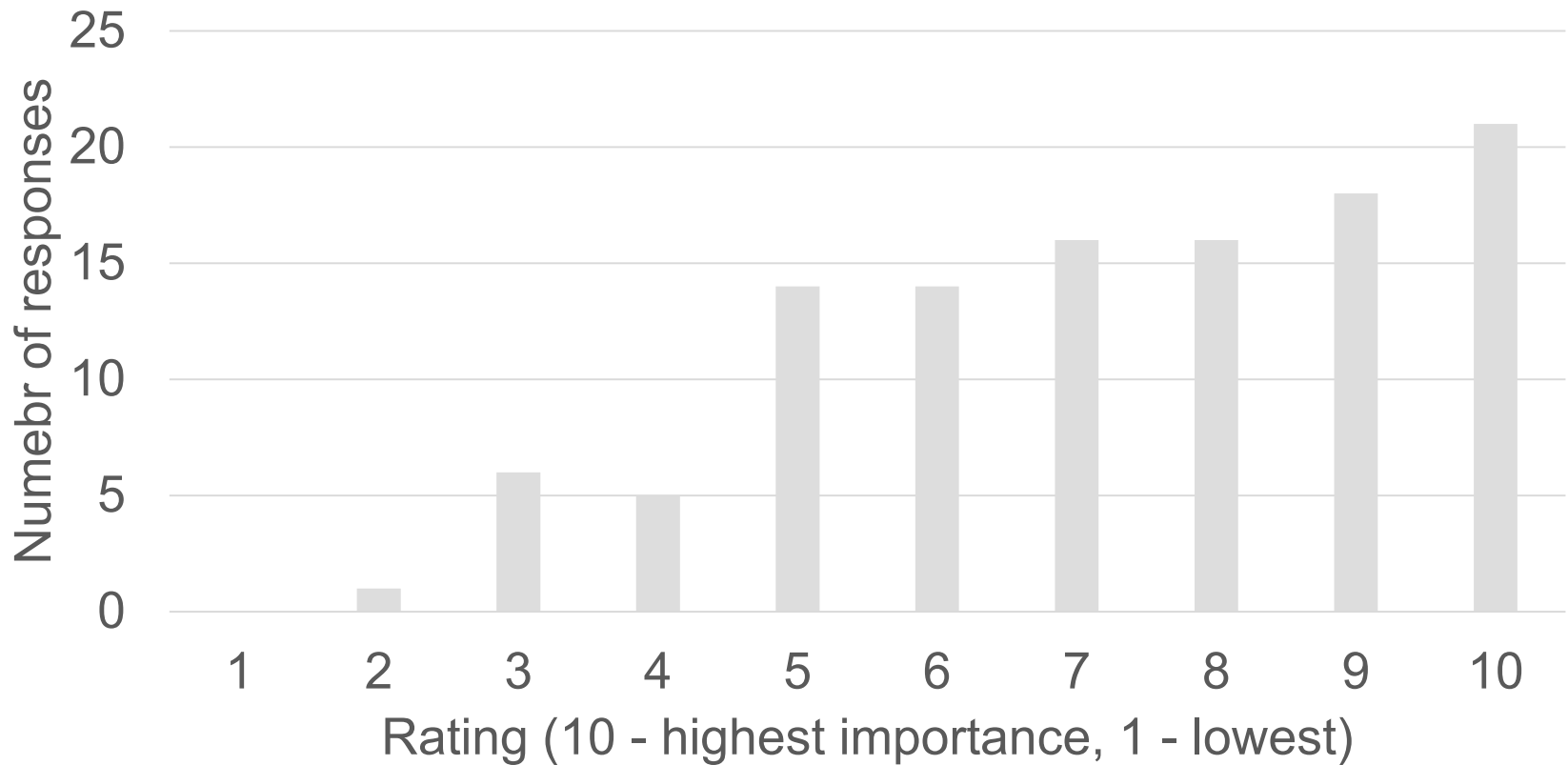


Looking at your youth water education program, what pieces are missing?

THEMES	Description	#
Program Elements	Specific curricula or program content is missing.	26
Comprehensiveness	Certain age group education is missing or program frequency and length is not sufficient.	18
Funding and Sustainability	School support is missing, the internal support of the educator is missing.	18
Collaboration and Partnership	External partners and collaborators for the program is missing.	13
Materials and Information	Support material, training, unbiased information, effectiveness evaluation is missing.	18



In your opinion, how important are education standards when offering programs in a classroom setting?



Tier 1 and 2 responses combined, any type of standard



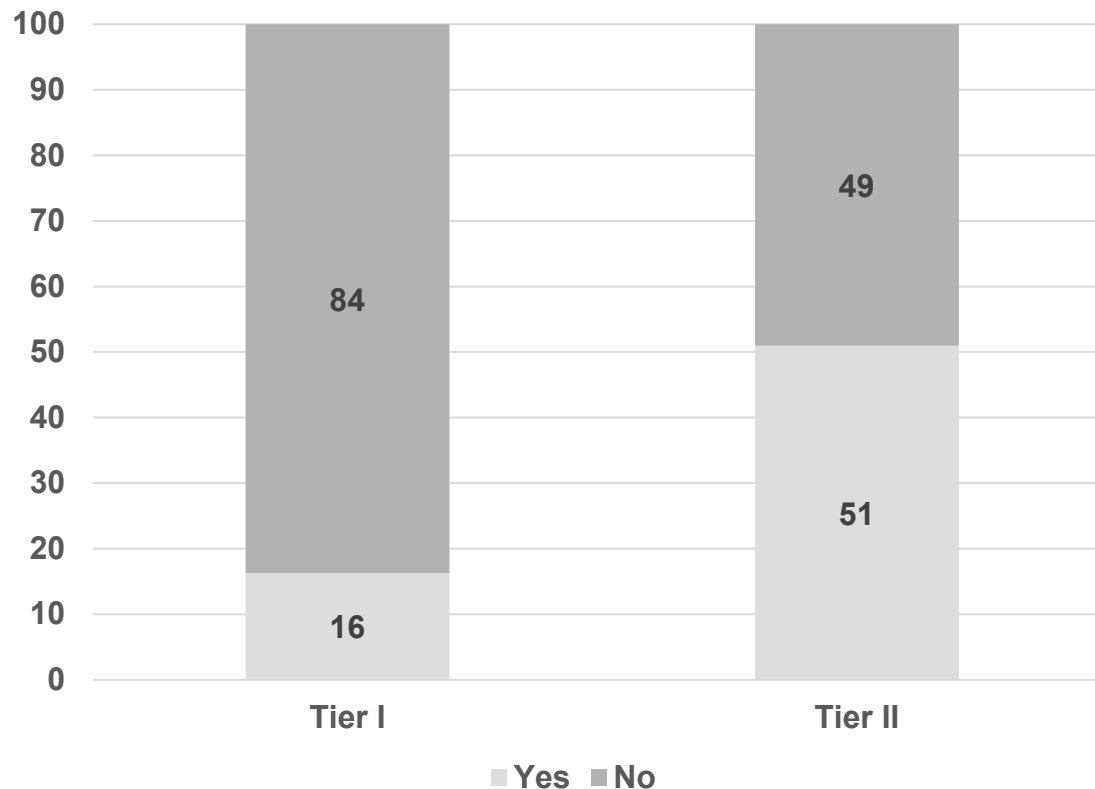
Please provide examples of youth being positively impacted from the water education program.

Category	Example Responses
Awareness / Knowledge Gained	<ul style="list-style-type: none">Youth have told us about practices they have implemented to conserve more water.Recognizing that they all live down stream from someone and up steam from others.
Evaluation	<ul style="list-style-type: none">From our three year evaluation, students who participated in our education program had significantly higher levels of academic engagement compared to control classrooms
Continued Exploration / Ripple Effects	<ul style="list-style-type: none">Internships, scholarships, career pathsKids will tell stories about non-point source pollution that they have seen and tried to correct behaviors by adults;
Youth Excitements	<ul style="list-style-type: none">Youth were excited to catch water bugs and learn about the insects in a "River Insect Safari" program at a local riverside park.
Community Service	<ul style="list-style-type: none">Youth adopting a stream for cleanup



Have you observed youth becoming involved in the community following your program?

Yes/No question, percent answers:



Conclusion

- Developing water literacy among youth is critical in preparing them to be future leaders, stewards, and innovators who will address water related challenges.
- Awareness and access to water education material is critical to this mission. In an effort to strengthen water education efforts, the North Central Region Water Network Youth Working Group has compiled a list of water programs and curriculum being utilized across the North Central region.
- Additionally, the group has identified various barriers such as time, funding, and comprehensive resources.



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Conclusion

- The data collected from the analysis will create awareness of programs available and can be utilized by educators to collaborate work to address challenges and fill gaps related to water literacy.
- Furthermore, by highlighting some of the needs among educators and agencies, partnerships could be formed to specifically target some of these barriers, thus increasing the overall scope of water education in the region .



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Question and Answer Session

We will draw initial questions and comments from those submitted via the chat box during the presentations.

Today's Speakers

Justin Hougham – justin.hougham@wisc.edu

Kristi Lekies – lekies.1@osu.edu

Zuzana Bohrerova – bohrerova.1@osu.edu





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Tune into our upcoming webinar hosted by our climate team:

Missouri River Basin Spring Flood Outlook

Monday February 24, 2020 at 1pm CT

<https://northcentralclimate.org/webinars/>

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