225th Technical Committee Meeting

Commissioner Bruno Pigott, Chairman
Presiding
February 9-10, 2021

The meeting will begin shortly at 1:00 P.M. Below are a few tips to effectively navigate the meeting:

- ***Confirm that your first and last name is entered correctly in the GoToMeeting software.***
- ***Mute your microphone at all times unless speaking.***
- ***Disable your camera unless you are a Technical Committee member.***
- ***The presenter will prompt participants for verbal questions, or use the Chat feature.***
- ***Detailed GoToMeeting instructions and important information can be found in the previously emailed document, "ORSANCO Virtual Technical Committee and Commission Meeting Instructions."***
- ***If you need assistance during the meeting, please call our office at 513-231-7719 ext. 100.***

Chairman's Welcome & Roll Call

Commissioner Bruno Pigott

Chairman, Technical Committee

TEC Members Roll Call

- IL – Scott Twait *
- IN – Eileen Hack *
- KY – Katie McKone *
- NY – Jeff Konsella *
- OH – Audrey Rush *
- PA – Kevin Halloran *
- VA – Melanie Davenport*
- WV – Scott Mandirola *
- USACE – Erich Emery*
- USCG – Eric Roy/Josh Miller *
- USEPA – David Pfeifer *
- USGS – Mike Griffin (Jeff Frey) *
- CIAC – Vacant
- PIAC – Cheri Budzynski
- PIACO – Betsy Mallison
- POTW – Alex Novak
- WOAC – Angie Rosser
- WUAC – Bruce Whitteberry
- Chairman – Commissioner Pigott *
- Executive Director – Richard Harrison *

* Voting member

Agenda for the 225th Meeting of the Technical Committee

CHAIRMAN'S WELCOME AND ROLL CALL (1:00 P.M.)

ACTION ITEMS AND REPORTS

1. Action on Minutes of 224th Technical Committee Meeting*
2. Chief Engineer's Report
3. Support for Partnerships Between Water Utilities and Agriculture Producers to Utilize Farm Bill Funds for Source Water Protection – Tracy Mehan, AWWA *
4. Status of ORSANCO's Monitoring Programs (Current and Future) Resulting from COV 19 Shutdown
5. Biological Programs Update
6. Source Water Protection and Emergency Response Programs Update
7. Review and Approval of Harmful Algal Blooms Monitoring, Response and Communications Plan*
8. Report on Ohio River Water Quality Conditions

Adjourn by 5:00 p.m./Reconvene Wednesday at 9:00 a.m.

9. Technical Committee Member Reports
10. Review of ORSANCO's Bimonthly/Clean Metals Monitoring Programs*
11. PFAS Project Update
12. Status of Abatement for Ohio River CSO Systems

OTHER BUSINESS

- Comments by Guests
- Announcement of Upcoming Meetings
- Adjourn by Noon

Agenda Item 1:

Request for action on minutes of the 224th Technical Committee Meeting

Chairman Pigott

The minutes were emailed with the agenda package on January 28, 2021

Agenda Item 2:
Chief Engineer's Report

Executive Director Harrison

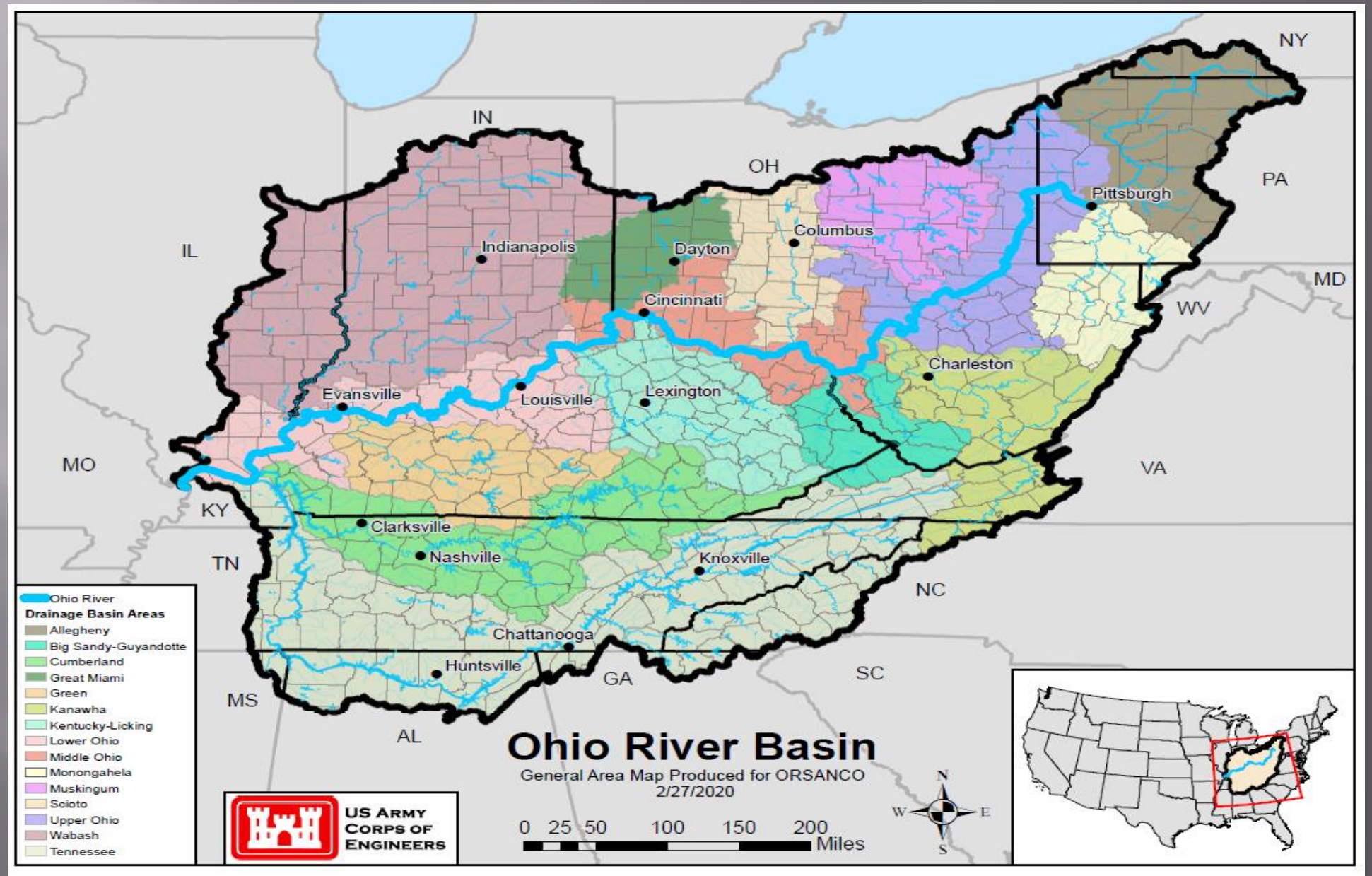
OHIO RIVER VALLEY WATER SANITATION COMMISSION

Plan for the Ohio River Basin Highlights

ORSANCO TEC Meeting

February 9, 2021

Ohio River Basin



H2Ohio Goals Setting Meeting
Plan for Ohio River Basin
Agenda Item Overview

1) Who is ORSANCO?
2) Who is ORBA?
3) ORSANCO's Relationship with ORBA
4) The Plan for the Ohio River Basin
5) Plan Goals
6) Abundant Clean Water Goal Objectives
7) ORSANCO Source Water Protection Infrastructure Priority for Plan
8) Questions

Who is ORSANCO?

- Formed in 1948 by signing of Compact by Governors of 8 states and was approved by the US Congress.
- IL, IN, KY, NY, OH, PA, VA, WV, Federal Govt.
- 3 Commissioners from each state and 3 federal Commissioners form ORSANCO's "Board of Directors". These are the decision-makers.
- The "Compact" provides ORSANCO's mission and authorities.
  - Control of future pollution and the abatement of existing pollution.
  - Accomplished through the cooperation of the States situated therein.

Who is ORBA?

- ORBA is the Ohio River Basin Alliance.
- ORBA is a Collaborative Group to Coordinate Ohio River Basin Wide Planning Centered around Water Resource Related Areas.
- These areas are being addressed through the Plan for the Ohio River Basin.
- ORBA is the Group Convening Stakeholders to Implement the Plan for the Ohio River Basin.

ORSANCO's Relationship with ORBA

- ORSANCO is the Fiscal Sponsor for ORBA.
- ORSANCO is the lead agency developing the Water Quality and Water Resources aspects of ORBA's Work.
- ORSANCO is Facilitating the Development of the Plan for the Ohio River Basin's Abundant Clean Water Working Group.
- ORSANCO's Foundation Executive Director Heather Mayfield is Chairing the Knowledge and Education Goal Work Group

The Plan for the Ohio River Basin

- The Plan was developed through collaboration with ORBA, ORSANCO and the US Army Corp. of Engineers (USACE).
- The Plan incorporates several Goals to address Ohio River Basin Water Resource Challenges and Opportunities for the Ohio River Basin.
- The Plan was developed through the use of the USACE's Planning Assistance to States Program (PAS).
- The PAS amount for the project is $400,000.
- This includes $150,000 in grant funding from the Kentucky Division of Water, $200,000 in USACE PAS funding and $50,000 in ORSANCO Work-Kind funding.

Why Do We Need A Basin Wide Plan?

- Integrated approaches to challenges on a Watershed basis are effective and efficient.
- This Plan provides an unique opportunity to convene numerous stakeholders to address significant Basin Wide challenges.
- Funding on par with other USEPA Geographic Program Areas have not been provided to Ohio River Basin States to address Basin challenges.
- This should be an efficient mechanism to secure Congressional Funding for the Basin.

Where is the Ohio River Basin?

DEPARTMENT OF THE INTERIOR, ENVIRONMENT, AND RELATED AGENCIES APPROPRIATIONS BILL, 2020
USEPA Geographic Program Funding Levels:

Great Lakes Restoration Initiative	- $320 M
Chesapeake Bay	- $ 85 M
Puget Sound	- $ 33 M
Long Island Sound	- $ 21 M
Gulf of Mexico	- $ 17.55 M
Lake Champlain	- $ 13.39 M
Southern New England Estuaries	- $ 5.4 M
San Francisco Bay	- $ 5.019 M
South Florida	- $ 3.504 M
Columbia River Basin	- $ 1.1 M

Plan Goals

- Abundant Clean Water
- Healthy and Productive Ecosystems
- Knowledge and Education to Inform Decisions
- Nation's Most Valuable River Transportation and Commerce Corridor
- Reliable Flood Control and Risk Reduction
- World-class Nature-based Recreation Opportunities

Abundant Clean Water Goal Objectives

1) Clean Water Act Designated Use Attainment.
2) Source Water Protection Enhancement.
3) Reduction of Harmful Algal Bloom Occurrence.
4) Enhanced Water Quantity Management.
5) Address Drinking Water and Waste Water Infrastructure Challenges.

QUESTIONS?

Agenda Item 3:

Support for Partnerships Between Water Utilities and Agriculture Producers to Utilize Farm Bill Funds for Source Water Protection

Tracy Mehan, Adam Carpenter

AWWA

American Water Works Association

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Farm Bill Brings Major Source Water Opportunities

Adam Carpenter

Manager of Energy and Environmental Policy, AWWA

Prepared for the Ohio River Valley Sanitation Commission

February 2021

(Photos and much of the material courtesy of Dave White and Kira Jacobs)


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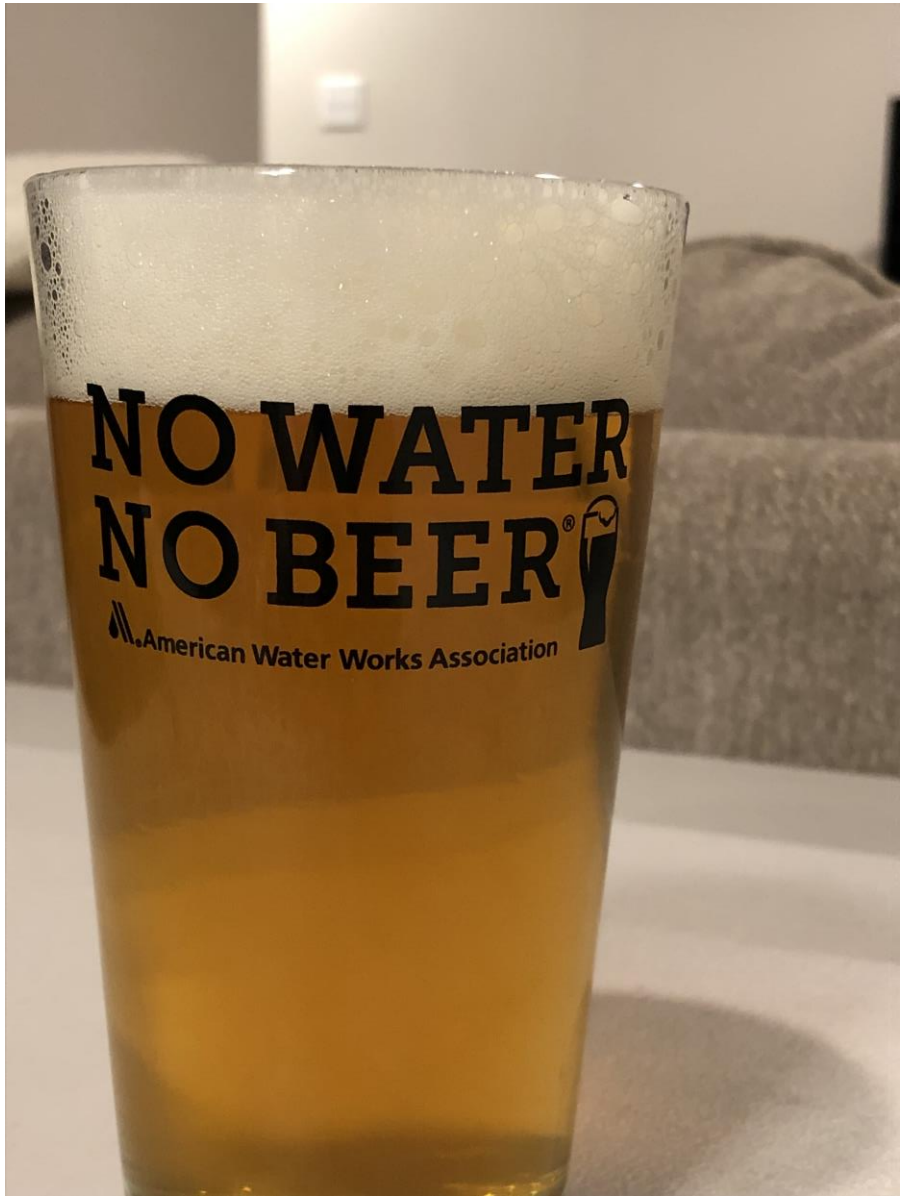
PHOTO BY: JIM RICHARDSON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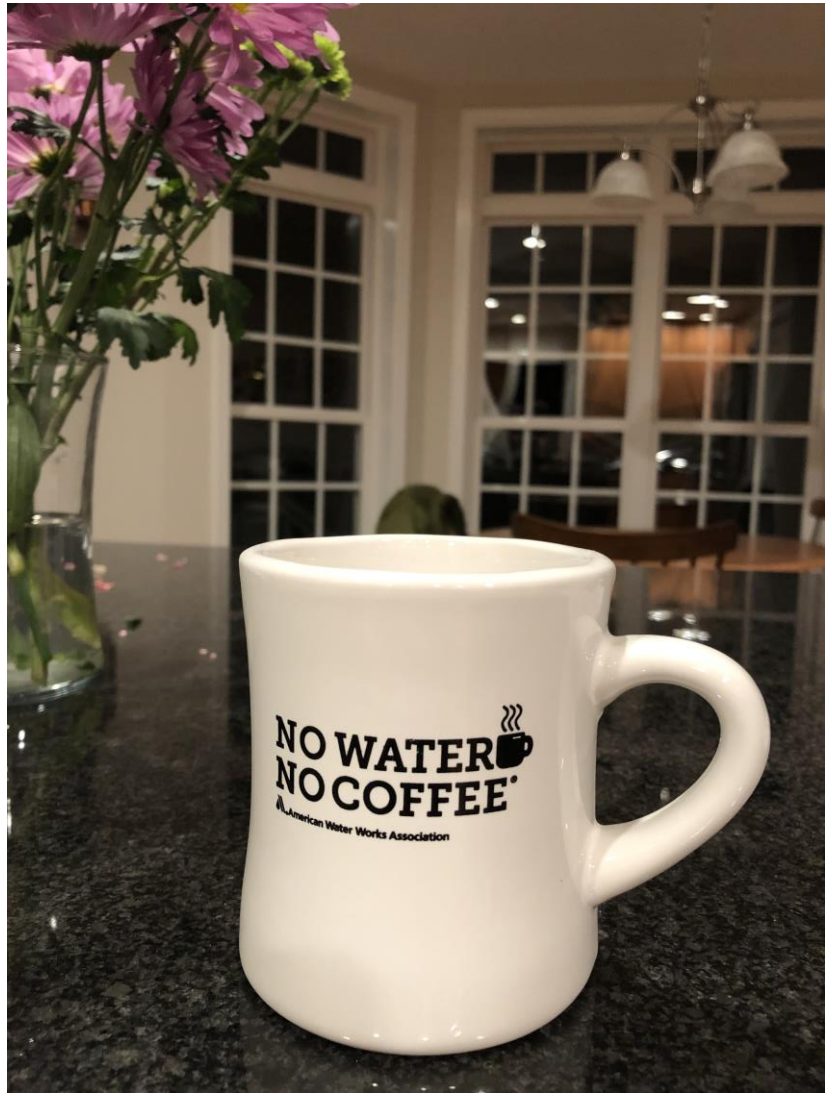
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Spoiler Alert:

- The key takeaway from this presentation is to…

- Establish relations with the Natural Resources Conservation Service and Agricultural interests in your area

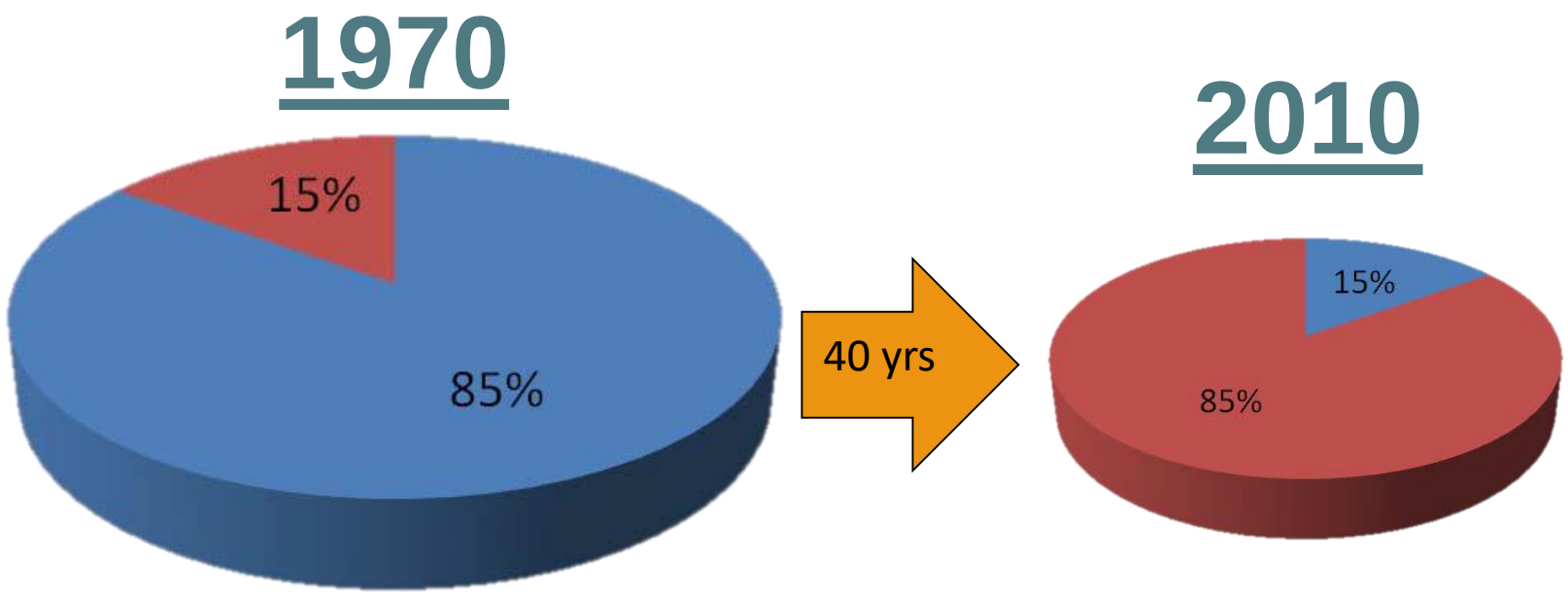
Extent and Value of Private Lands

- 70 percent of the land in the lower 48 states is owned by private landowners.

- 88 percent of all surface water falls on private land before reaching lakes, streams, and groundwater aquifers.

- The quality of our environment depends on the millions of individual decisions private landowners make every day.

Rise of Nonpoint & Urban Stormwater Runoff



Point Source vs. Nonpoint Source

Water Quality Impairments

Source: William Ruckelshaus, *A New Shade of Green*, The Wall Street Journal, April 17, 2010


Before


After!


Before


After!

Before


After!

Before


After!


Before


After!

Goals of AWWA Strategy for Farm Bill

Engage Capitol Hill during the reauthorization of the Farm Bill (2018 and into the future) to advocate for more attention, resources, and funding to protect the source waters for millions of Americans

Farm Bill Titles

Title I: Commodity
Title II: Conservation
Title III: Trade
Title IV: Nutrition
Title V: Credit
Title VI: Rural Development
Title VII: Research and Extension
Title VIII: Forestry
Title IX: Energy
Title X: Horticulture
Title XI: Crop Insurance
Title XII: Miscellaneous

What AWWA Wanted in the Conservation Title

1. Making source water protection a goal of the conservation programs
2. Ensure utilities could participate on state and local committees that inform the programs
3. Increasing cost share of practices that help to protect source waters
4. Spending at least 10% of conservation funding on source water protection

What AWWA Got in the Conservation Title

1. Makes Source Water Protection an explicit goal of the conservation programs
2. Requires NRCS to work with utilities in identifying source water protection areas and consult with them on program policy
3. Increases federal cost share for practices that help protect source waters to up to 90%
4. Requires that at least 10% of conservation funding be spent on SWP (except Conservation Reserve Program)

Key Agency: NRCS

- Agency is Technical
- Focused on Agriculture
- Highly Decentralized
- 10,000 employees
- 3,000 offices
- Works closely with local soil and water conservation districts

How Does it Work for Utilities?

- Identify source water protection issues with agricultural connection
- Work with NRCS on ways to focus conservation programs to address issues
- Work with Soil & Water Conservation Districts and other established partners
- Apply for relevant programs

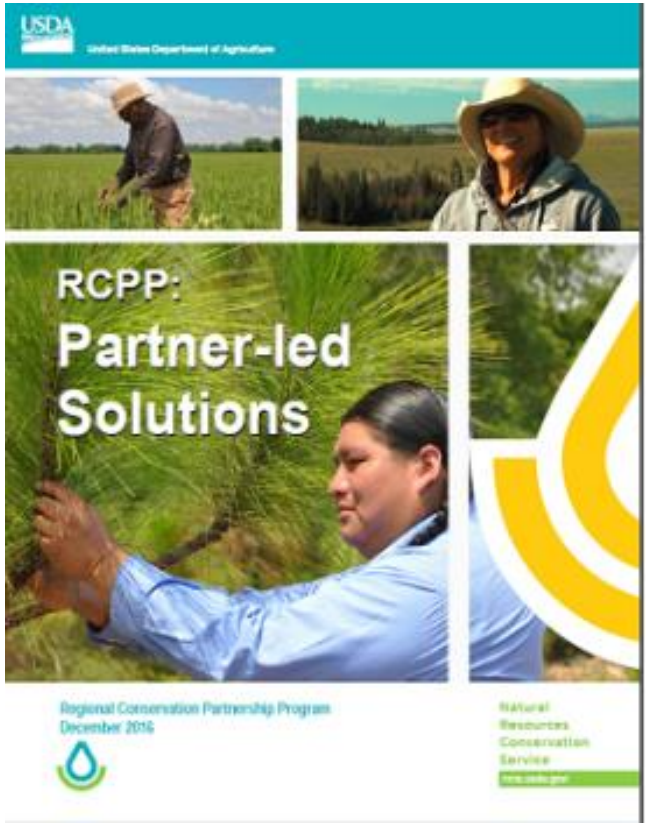
Photo of Lake Massabesic courtesy of John O'Neil, Manchester Water Works

Key NRCS Programs

- Conservation Stewardship Program
- Environmental Quality Incentives Program
- Agricultural Conservation Easement Program
- **Regional Conservation Partnership Program**

Regional Conservation Partnership Program

- $300 million per year
- Focuses on locally identified resource issues
- Uses an annual RFP process (most recent just closed)
- Requires match – both in-kind and cash
- Priority given to projects with 50% match or greater
- NRCS caps its funding for a single project at $10 million



https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/rcpp/

National Water Quality Initiative

- NRCS-EPA Initiative to increase funding in high priority watersheds

- NRCS directs additional funding to NWQI watersheds

- States have the opportunity to select watersheds annually. Stakeholders have opportunity to help choose watersheds

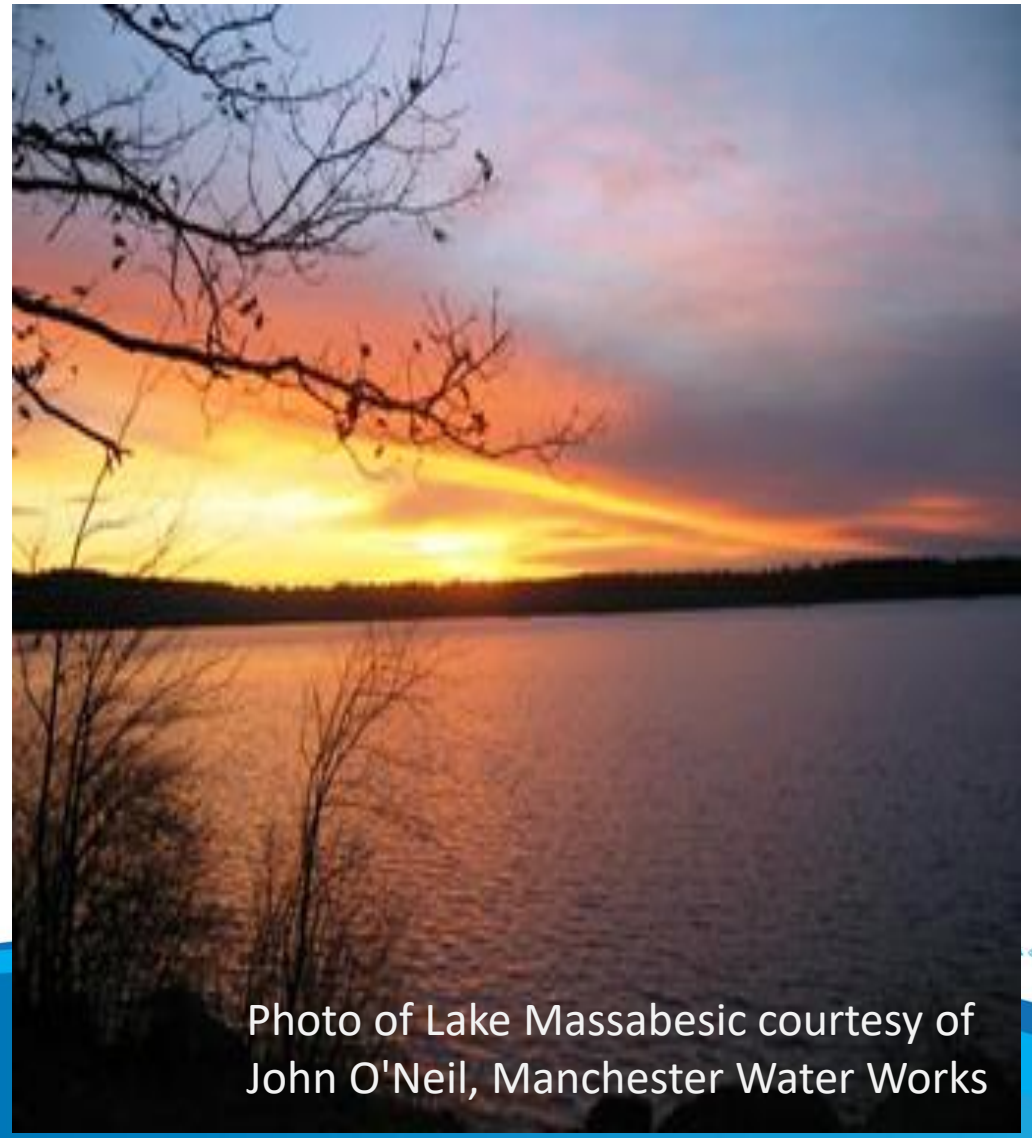


Photo of Lake Massabesic courtesy of John O'Neil, Manchester Water Works

Source Water Protection Areas

- The 2018 Farm Bill required NRCS to identify high priority areas for drinking water protection working with State Technical Advisory Committees, public water utilities, and state agencies.
- Usually at HUC 12 level
- This was done in 2019 and updated in September 2020
- There will be annual revisions and updates to these areas

Recap: Recent & Ongoing Opportunities

- RCPP funding ($360 million) announcement recently closed on November 30th
- Another RCPP AFA and RCPP Classic expected this year
- NWQI watersheds will be selected annually
- Annual review of Source Water Priority Areas

How can you get involved?

- Identify source water protection challenges with agricultural or private forest connection
- Establish relationship with NRCS, join state technical committee and source water protection subcommittees
- Connect with state source water program
- Participate, participate, participate!
- Apply for relevant programs

NRCS Contacts

- To find your State Conservationist, click on:
- https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/contact/states/

- The States are listed alphabetically and provide key names and numbers

- To find your local NRCS office start with the Service Center Locator:
- https://offices.sc.egov.usda.gov/locator/app
  - Click on your State and then your County

First Contact

- Best bet: pick up the phone and call state conservationist and local NRCS offices
- Let them know who you are and who you represent
- Mention the Farm Bill and the emphasis on source water protection
- Offer to schedule with them to discuss further

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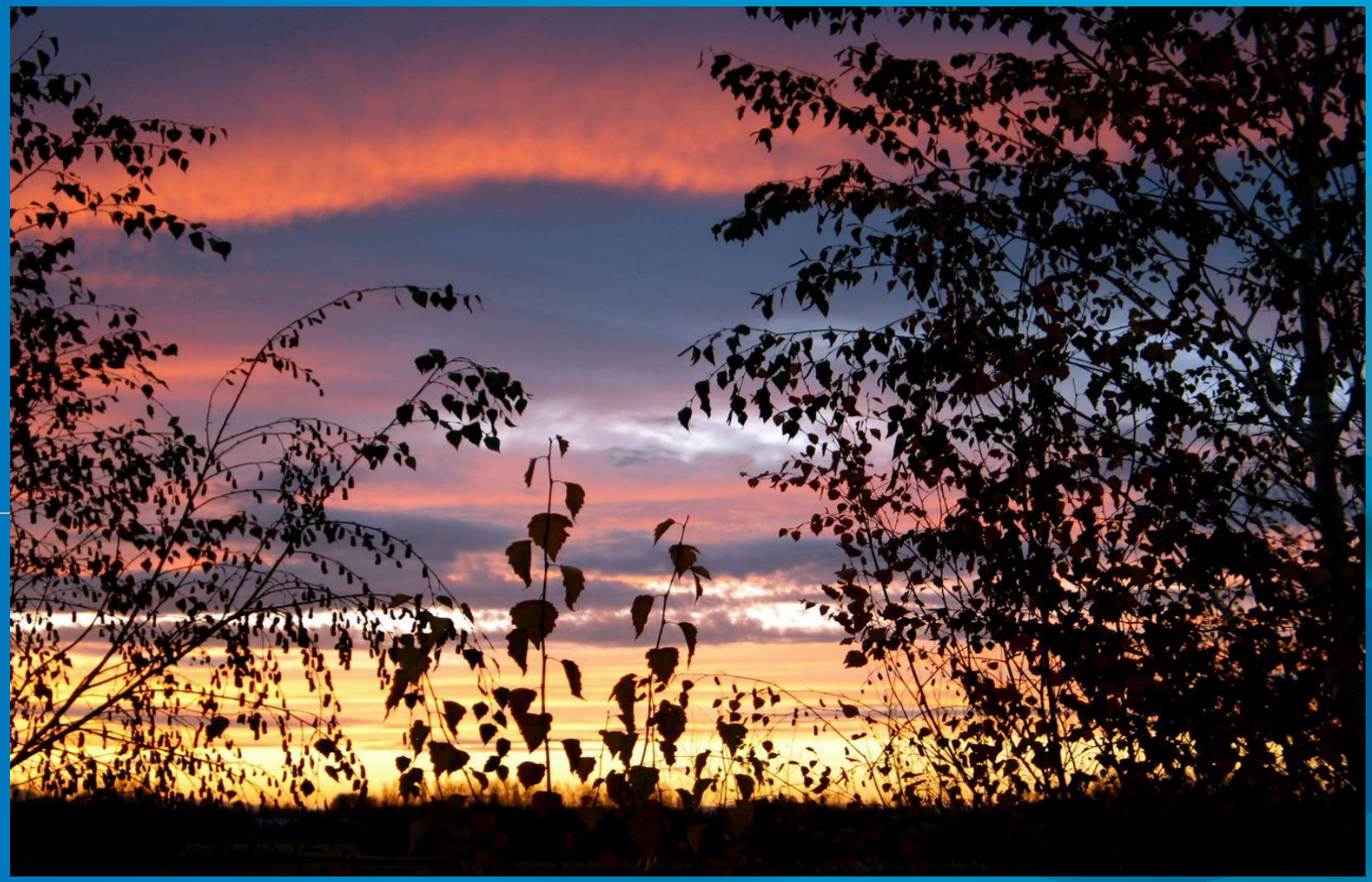
QUESTIONS?



Agenda Item 4:

Status of ORSANCO's Monitoring Programs Resulting from COVID-19 Shutdown

Ryan Argo

Informational Item

ORSANCO Field Activity Protocols

- **Restrictions maintained from Mid-March – Early July**
  - Only single person day-trips were allowed

- **Additional permitted activities beginning July 14th**
  - Multi-person Field Work
    - One person per vehicle
    - Face coverings whilst indoors, or outdoors when 6' distancing can't be maintained
  - Overnight Travel
    - Permitted on case-by-case basis, guidance provided on how to mitigate exposure/transmission
  - Boat-based
    - Conducted with minimal staff required to complete task
    - Activities requiring staff to operate within 6' for ***prolonged*** periods are prohibited
    - Face coverings worn during ***intermittent*** periods when 6' distancing cannot be maintained

- **Effective November 23, 2020 – No overnight travel and limit 7 staff (1/3) at office**

- **Restrictions would not apply to emergency response field activities if a significant spill occurred**

Emergency Response

Program Details

- ORSANCO provides a number of services when spills occur including:
  - 24/7 Notifications
  - Field sampling
  - Time-of-travel modeling
  - Analytical support

Impacts to Program

- Spill response deemed an essential function.
- No change to services provided during COVID response.
- No major spills requiring field response occurred since restrictions were initiated

Continuous WQ Monitoring Stations

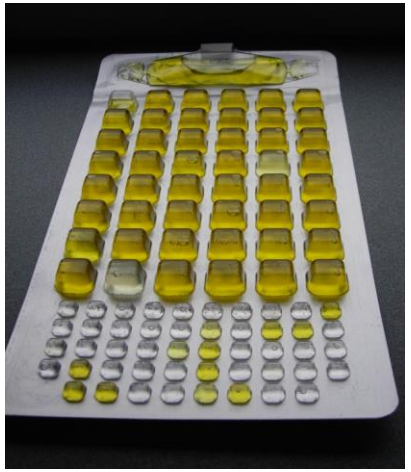
Program Details

- ORSANCO maintains 4 continuous water quality monitoring stations.
  - D.O, pH, conductivity, temperature, chlrophyll, phycocyanin
- Pike Island and Meldahl are deployed from June thru October
- Markland and Newburgh stations are maintained year-round as part of IN HAB grant project.
- Sites serviced twice per month

Impacts to Program

- One site visit was postponed for Markland & Newburgh stations in March.
- Site visits to Markland & Newburgh resumed in April.
- Pike Island & Meldahl deployed in July as normally scheduled.
- All sampling up-to-date.

Bacteria Monitoring



Program Details

- Bacteria samples collected weekly in the six largest CSO communities from April thru October.
- Data used to assess impairment and to inform the public regarding suitability of the river for recreational activities.

Impacts to Program

	APR	MAY	JUN	JUL	AUG	SEP	OCT
Pittsburgh	10	10	10	10	10	10	10
Wheeling	10	10	10	10	10	10	10
Huntington	10	10	10	10	10	10	10
Cincinnati	15	15	15	15	15	15	15
Louisville	10	10	10	10	10	10	10
Evansville	10	10	10	10	10	10	10

GRAY denotes bacteria samples not collected (135).

GREEN indicates samples collected as scheduled (320).

70%

Organics Detection System

Program Details

- ORSANCO maintains a network of gas chromatographs at 17 stations as early warning spill detection system.
- Units are owned and maintained by ORSANCO.
- Stations operated by host facilities (water utilities and industries)

Impacts to Program

- Repair visits maintained through out COVID response for sites that could be serviced as a day-trip by single crew member
  - Some sites prohibited visitors
  - Overnight repairs allowed (Sept-Nov)
- Preventative maintenance visits suspended for March and April.
- Training visits resumed in September

Bimonthly and Clean Metals

Background
Used for 305(b) assessments
Mix of day-trip and overnight travel
Can require 2 person boat crews
30 sites sampled in January, March, May, July, Sep., & Nov.

- May & July No overnight travel, single person sampling
  - 11 day-trip stations on main stem
  - 3 stations in Pittsburgh area via contract sampler
  - 3 tributaries near Cincinnati (G. Miami, L. Miami, Licking rivers)
  - Added additional tributaries as resources allowed

- Sept. – November (prior to overnight restriction)
  - Returned to full suite of stations as overnight travel allowed

- January 2021 – Forward
  - Return to day-trip subset of sites until overnight travel allowed

Biological Activity Requirements

Activity	Index Period	Crew Size	Overnight Travel
Electrofishing	July - Oct	3 person minimum	Required
Macros	Aug - Oct	2-4 person	Required
Paired Collections	July - Oct	2-4 person	Required
Fish Tissue	April - Nov	2 person	Optional

BWQSC agreed to postpone 2020 probabilistic surveys,
Focus efforts on fish tissue collections

Key Dates for 2021 Biological Activities

Sampling Windows

Probabilistic Index Period: July 1st – October 31st

Fixed Station Sampling: August 2nd-20th

Latest Start Dates Allowing for Task Completion*

August 9th: All 18 Fixed Stations (Fish & Macros)

August 23rd: Full Probabilistic Surveys of all 4 pools (Fish & Macros)

October 4th: Partial Probabilistic Surveys of all pools (Fish only)

*assumes staff vaccination & acquisition of four seasonal biologists

Agenda Item 5:

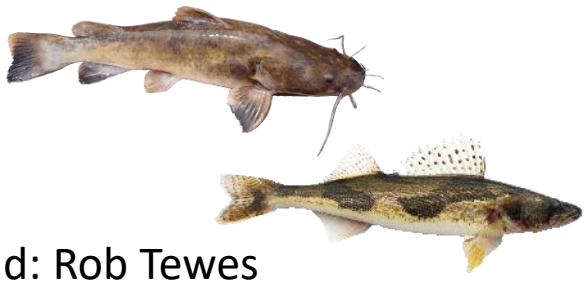
Biological Programs Update

Summary of the Biological Water Quality Subcommittee (BWQSC) Annual Meeting - Jan. 19th & 20th, 2021

Reported by: Ryan Argo

2020 Shifted Focus - Fish Tissue Collections

- Used for consumption advisories and 305(b)MeHg assessments
- 2022 Biennial 305(b) report
  - Covers years 2016 – 2020
  - Minimum Requirement - 2 composite samples of different species from Trophic Levels 3 & 4
  - 2018/19 NRSA and fewer pool surveys = fewer samples
    - Exacerbated pre-existing gaps
- Requested assistance of local state & federal partners in far reaches of Ohio R.
- Refocused available resources to FT day trips (overnight travel as necessary)



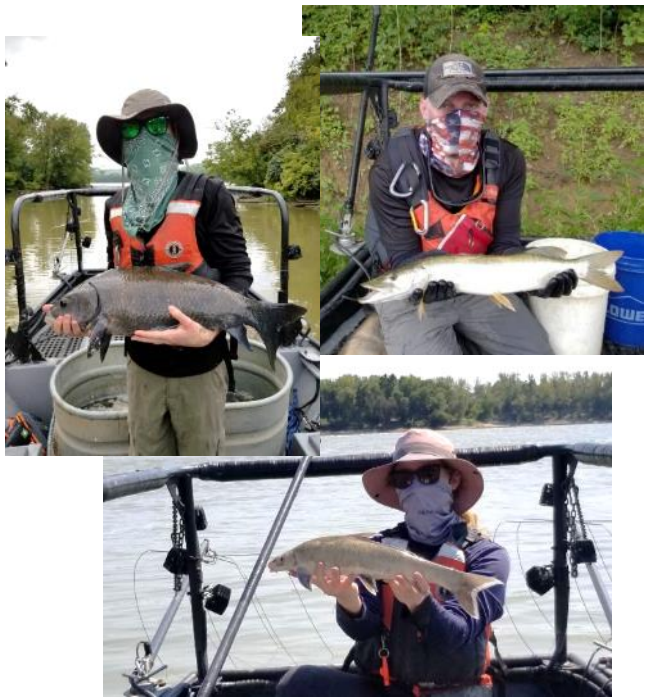
$$C_{avg} = \frac{8.0 * C_3 + 5.7 * C_4}{(8.0 + 5.7)}$$

Where:

C_3 = average mercury concentration for trophic level 3
C_4 = average mercury concentration for trophic level 4

Staff Lead: Rob Tewes

Goal: 36 Composites



ORSANCO Day Trips

ORSANCO Overnight

Pool	TL3	TL4
Emsworth	2	1
Dashields	0	0
Montgomery	0	4
New Cumberland	3	3
Pike Island	0	1
Hannibal	0	2
Willow Island	2	6
Belleville	0	0
Racine	0	0
R.C. Byrd	1	2
Greenup	2	5
Meldahl	0	6
Markland	0	8
McAlpine	0	4
Cannelton	0	0
Newburgh	1	6
J.T. Myers	2	4
Smithland	5	6
Olmsted	0	0
Open Water	2	2

Staff Lead: Rob Tewes

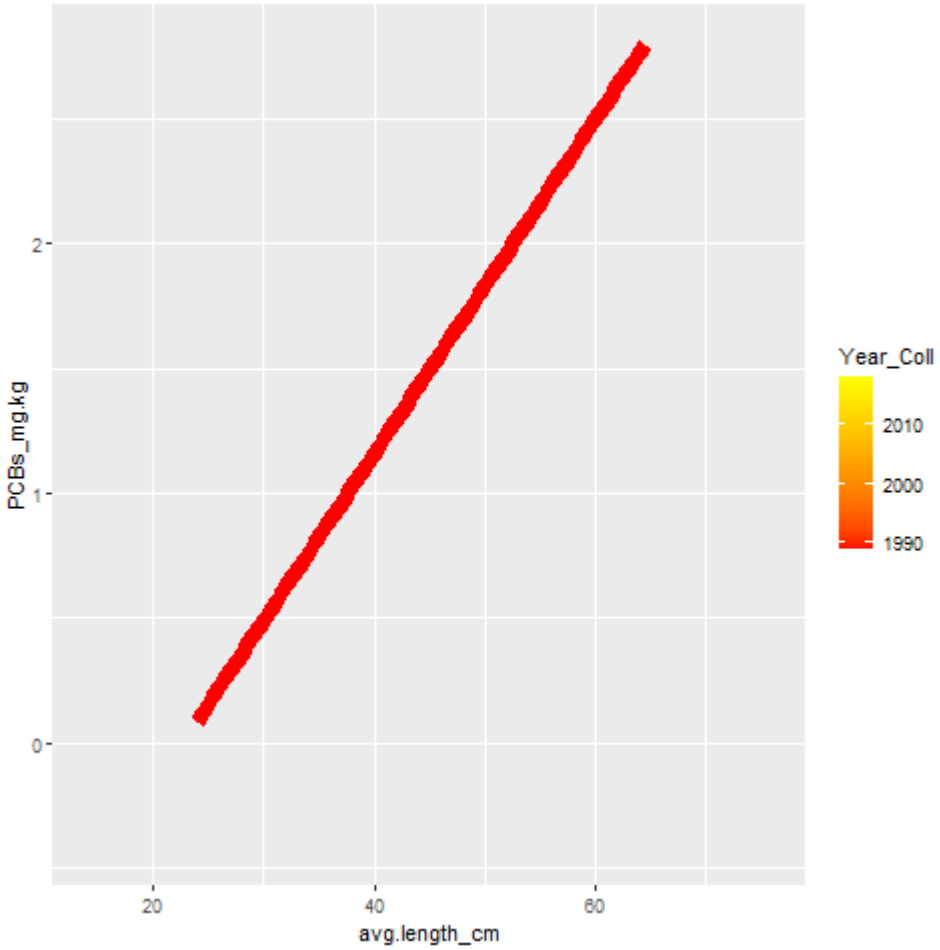
Actual: 91 Composites

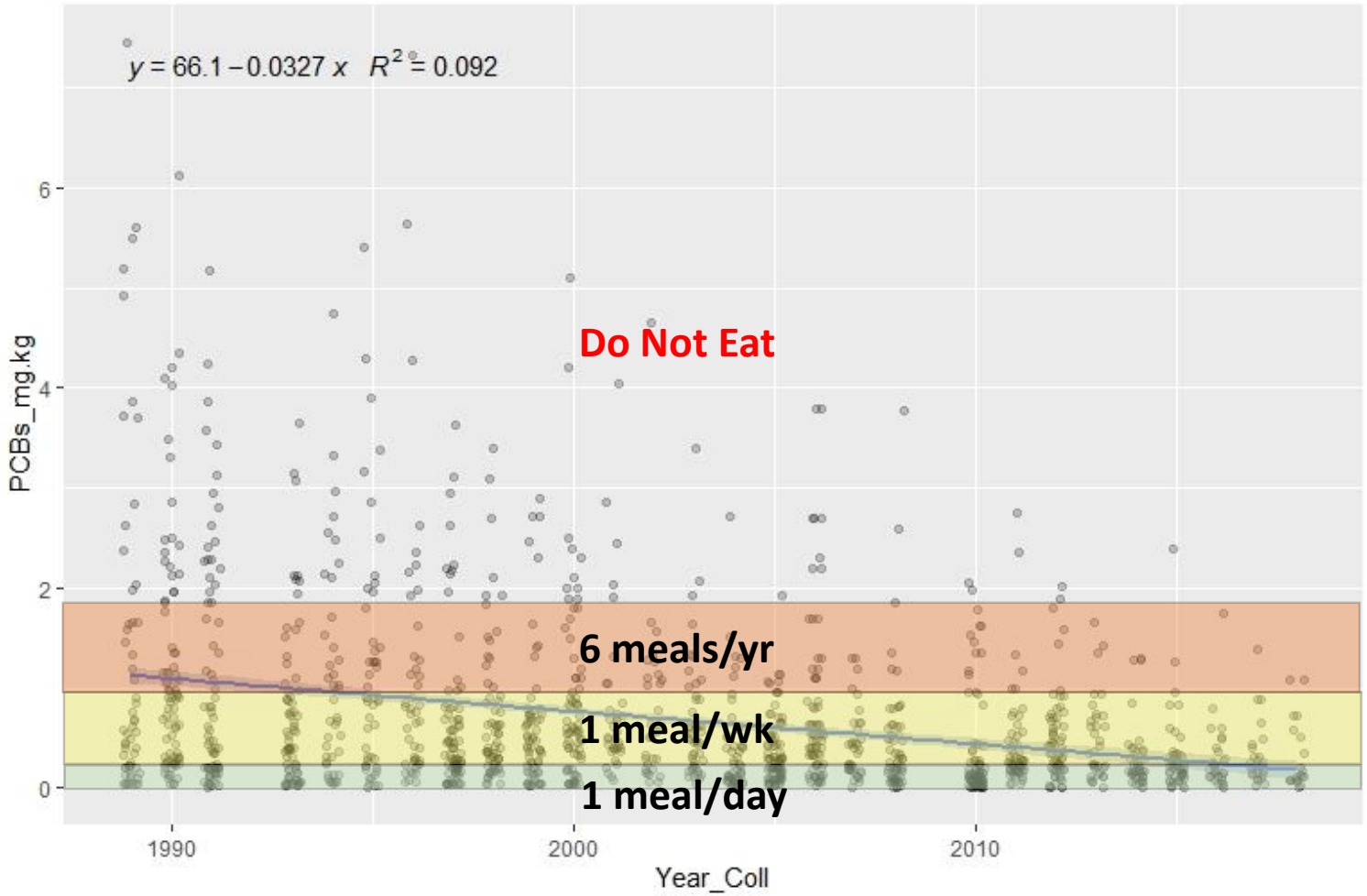
- Achieved minimum required data for 2022 Biennial report
  - Use some older data in Belleville
- Reallocated unused biological funds to cover increased analytical costs
  - All samples with contract lab
- Additional data useful to update fish consumption advisories and inform trend analyses

Pool	TL3	TL4
Emsworth	5	3
Dashields	3	3
Montgomery	2	4
New Cumberland	3	3
Pike Island	4	5
Hannibal	2	6
Willow Island	5	6
Belleville	1	3
Racine	7	6
R.C. Byrd	4	4
Greenup	2	6
Meldahl	6	7
Markland	5	8
McAlpine	3	7
Cannelton	4	3
Newburgh	2	8
J.T. Myers	4	4
Smithland	5	6
Olmsted	4	3
Open Water	2	2

Staff Lead: Rob Tewes

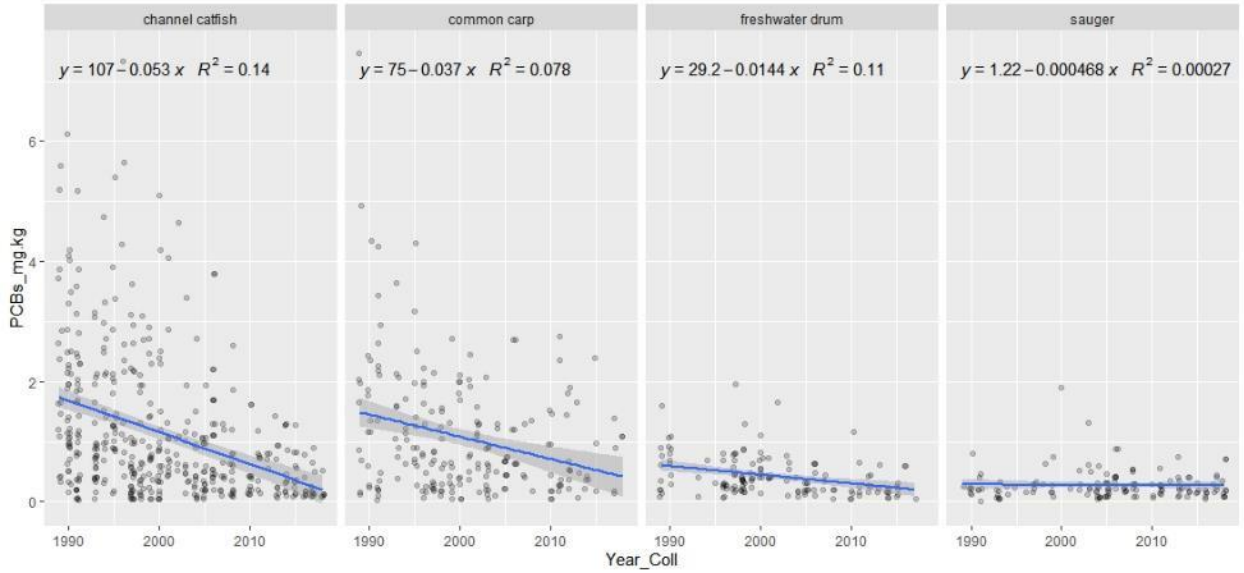
Continue FT Contaminants Trends Analyses - PCBs



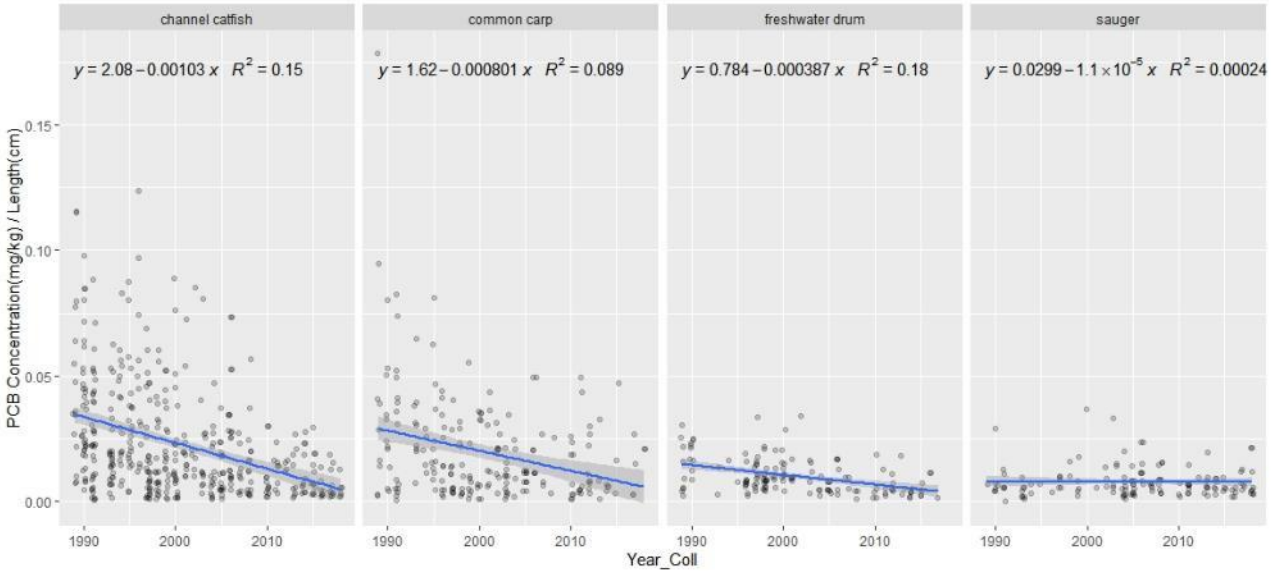


Staff Lead: Daniel Cleves

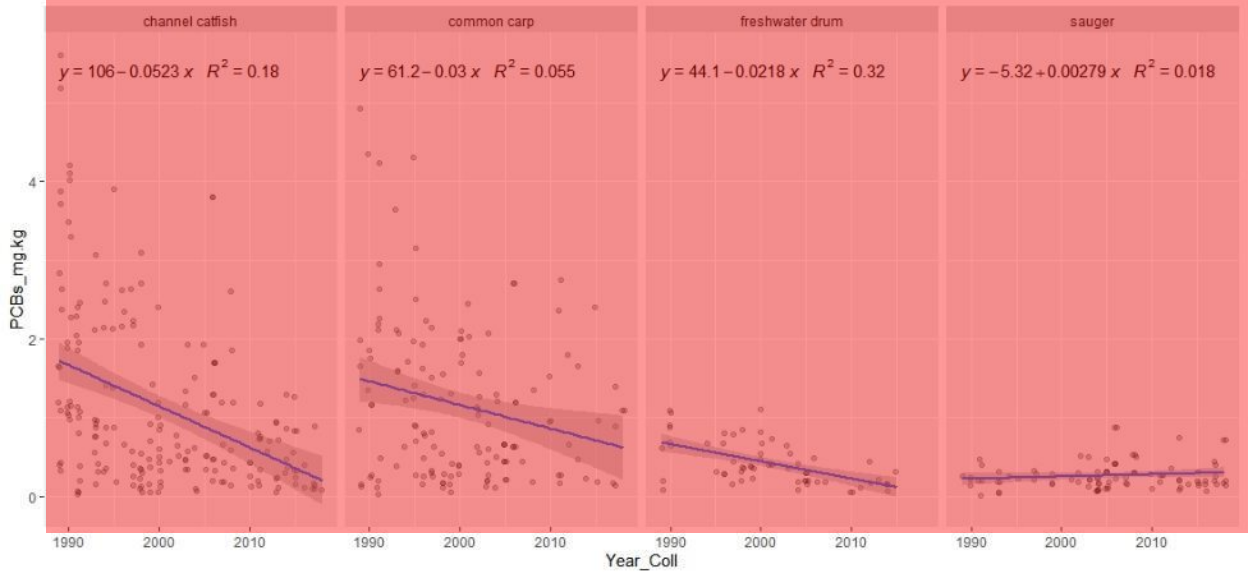
No Length Standardization: PCB concentration(mg/kg) plotted against year collected



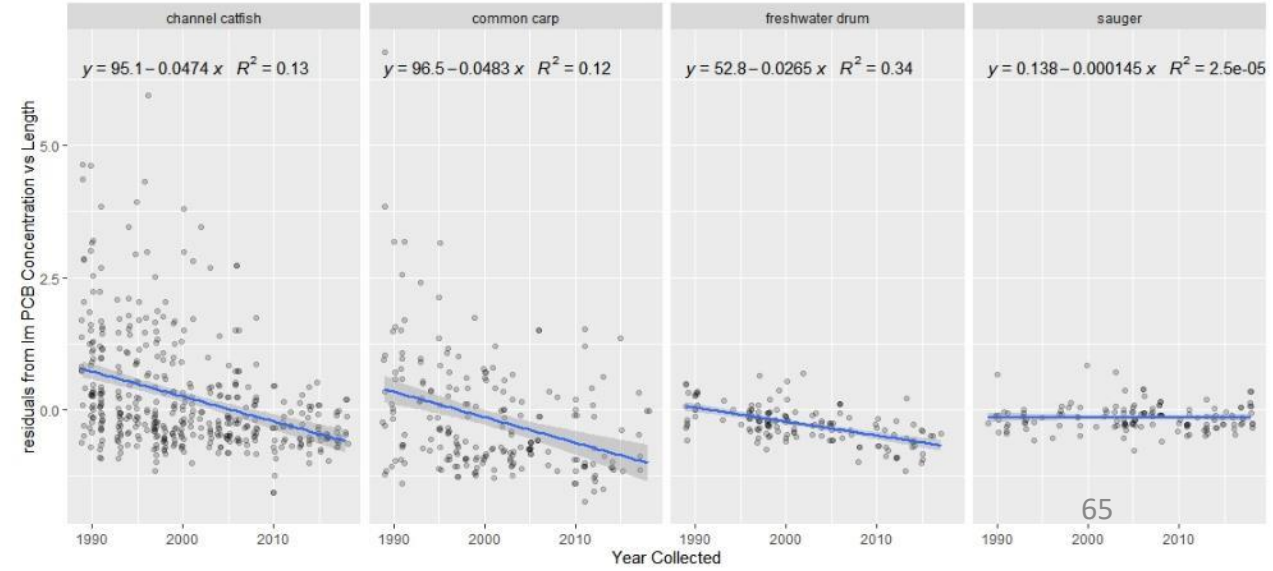
Length Standardization method 1: PCB concentration(mg/kg) divided by average length of composite (cm) plotted against year collected



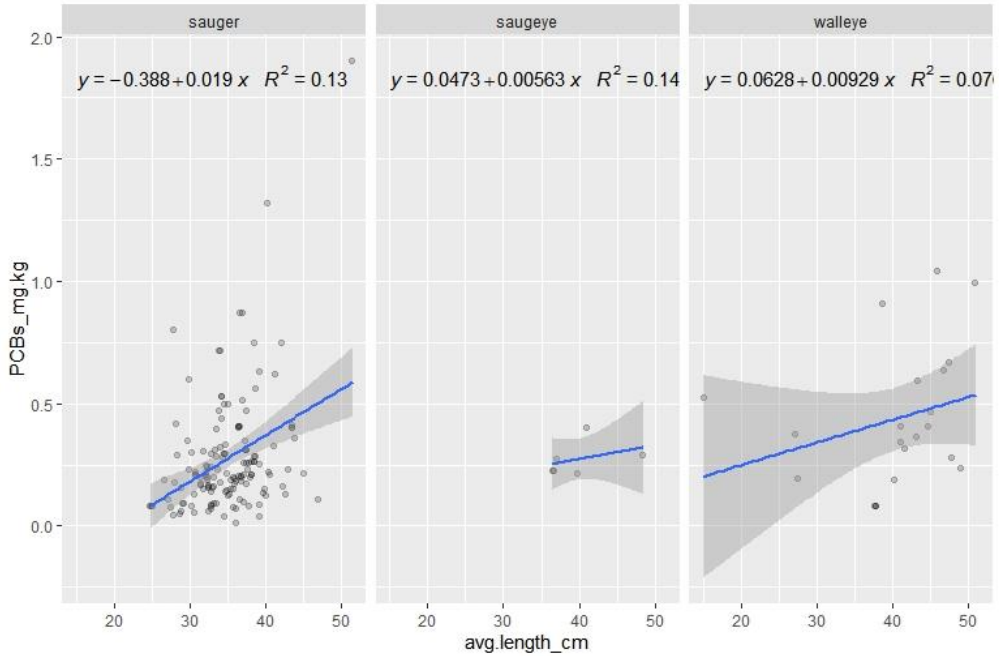
Length Standardization Method 2: data set restricted to samples that are +/- 10% of average length of composite(cm). Concentration(mg/kg) plotted against year collected



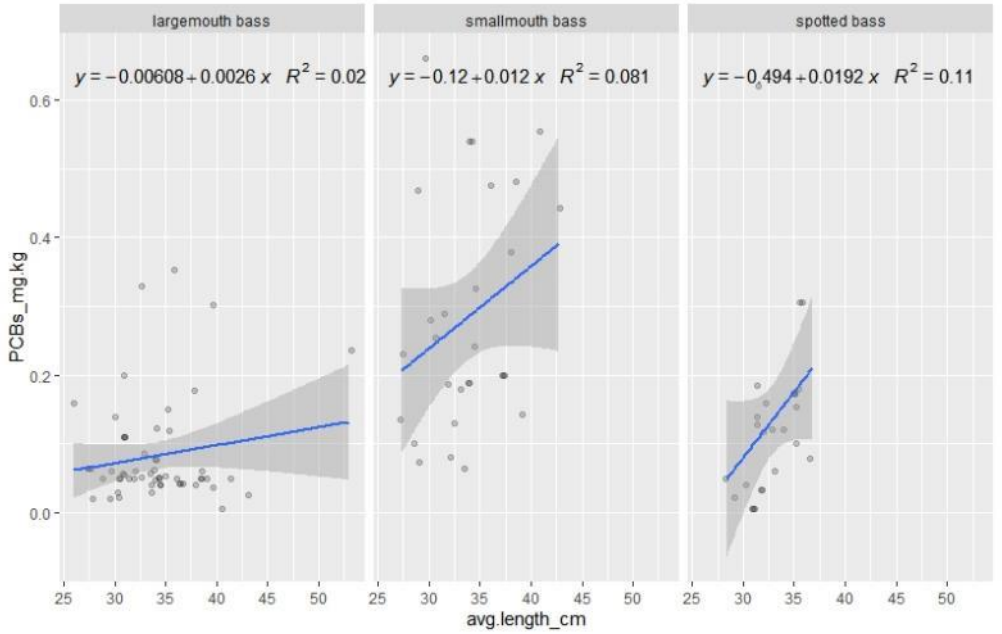
Length Standardization Method 3: residuals from the linear model PCB mg/kg x length(cm) plotted against year collected



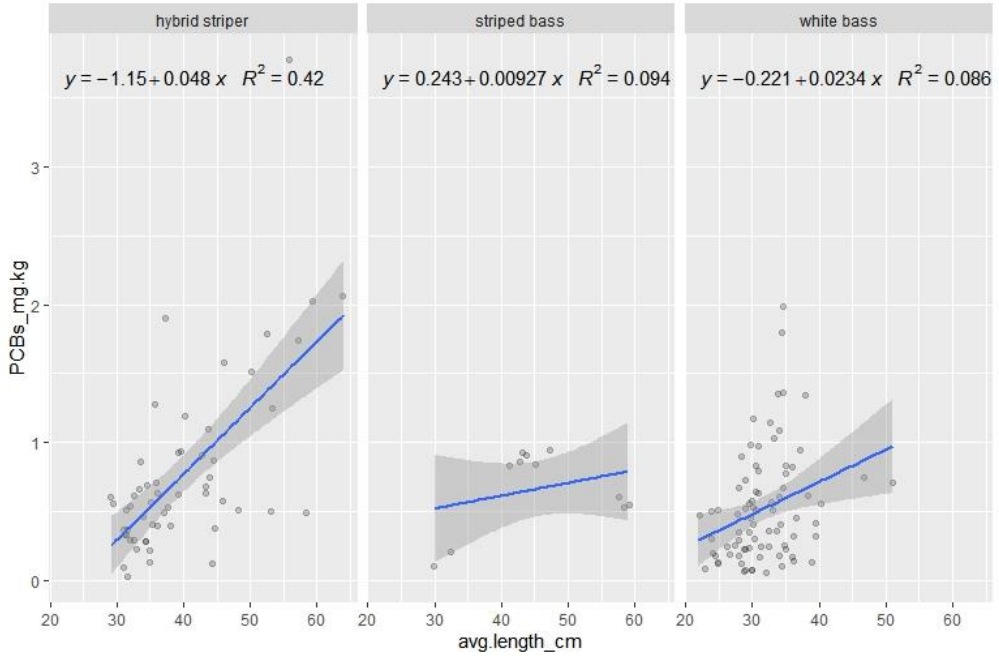
Sander



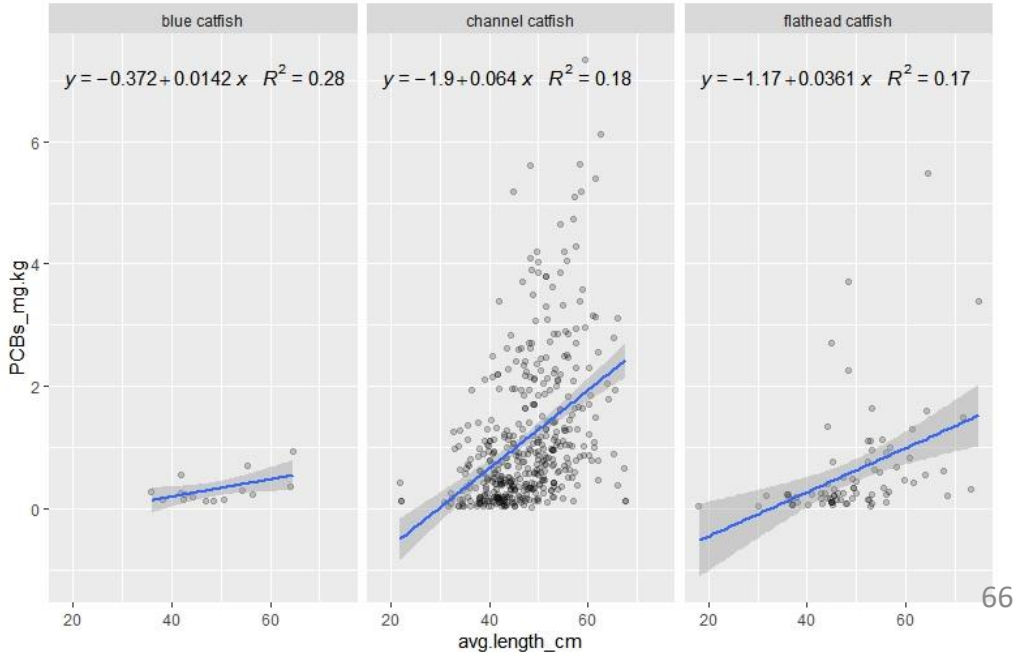
Micropterus



Morone

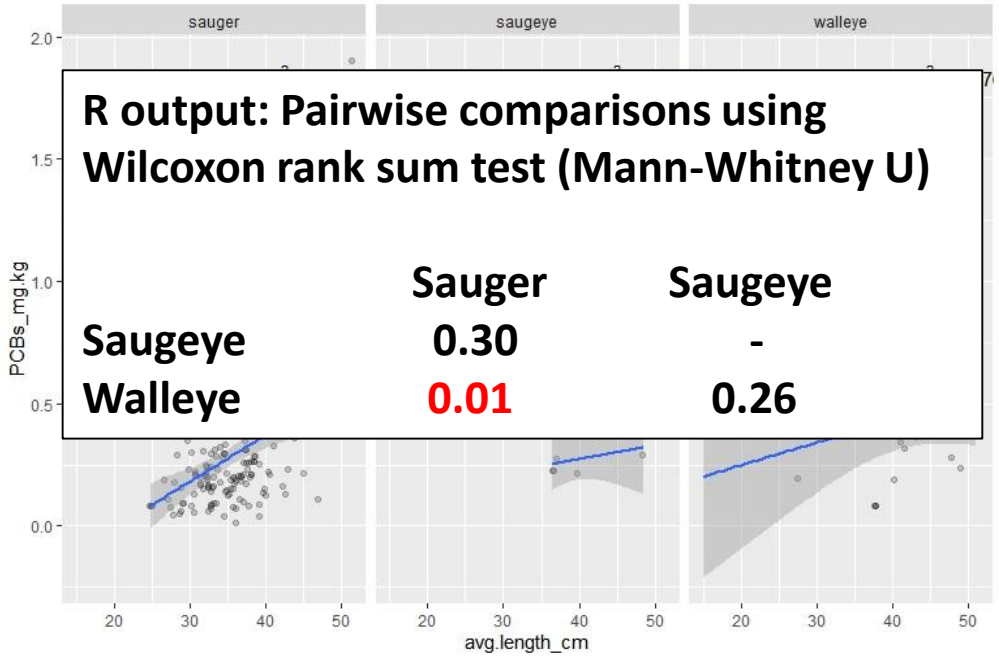


Ictaluridae



Sander

p-value = 0.008734

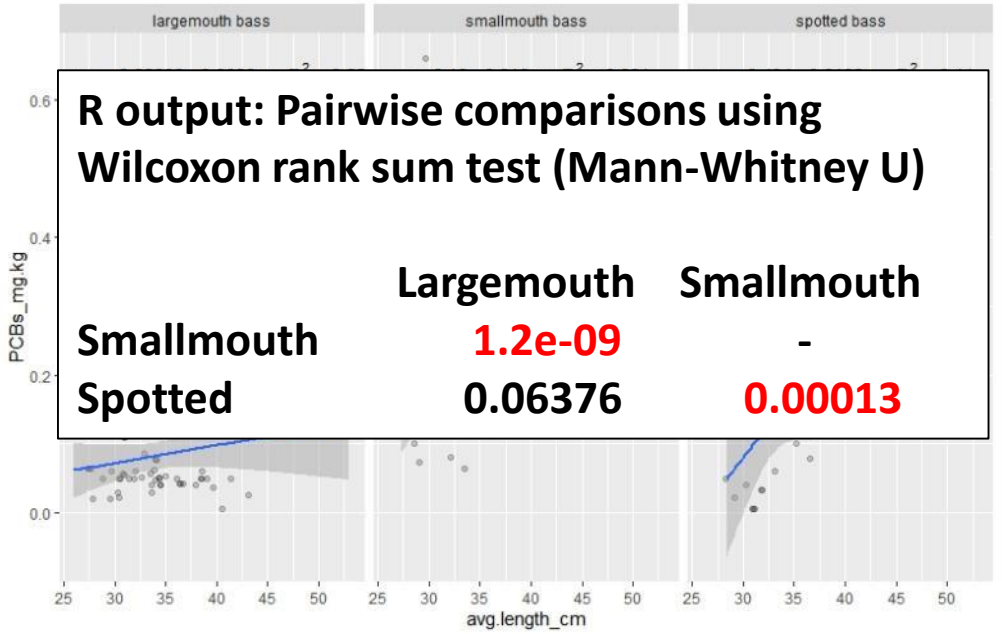


R output: Pairwise comparisons using Wilcoxon rank sum test (Mann-Whitney U)

	Sauger	Saugeye
Saugeye	0.30	-
Walleye	0.01	0.26

Micropterus

p-value = 1.709e-09

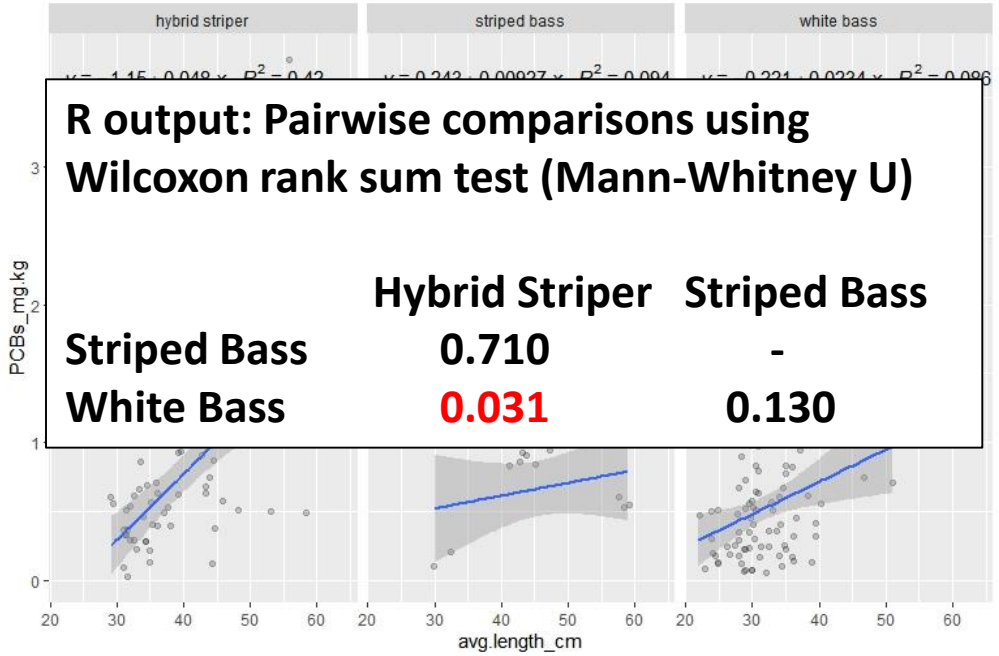


R output: Pairwise comparisons using Wilcoxon rank sum test (Mann-Whitney U)

	Largemouth	Smallmouth
Smallmouth	1.2e-09	-
Spotted	0.06376	0.00013

Morone

p-value = 0.01821

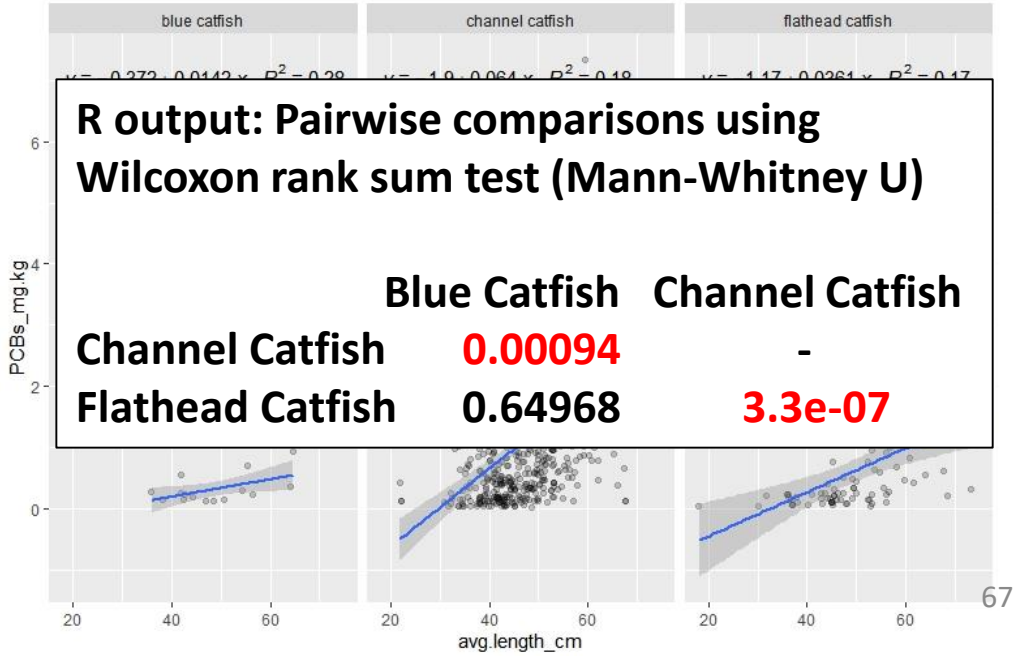


R output: Pairwise comparisons using Wilcoxon rank sum test (Mann-Whitney U)

	Hybrid Striper	Striped Bass
Striped Bass	0.710	-
White Bass	0.031	0.130

Ictaluridae

p-value = 7.654e-09



R output: Pairwise comparisons using Wilcoxon rank sum test (Mann-Whitney U)

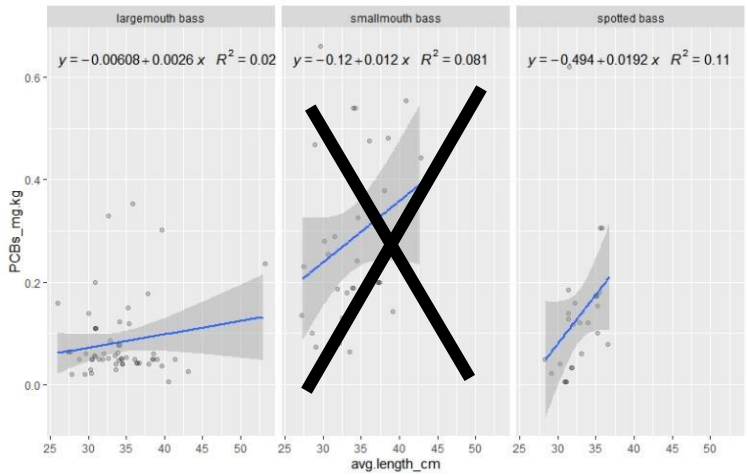
	Blue Catfish	Channel Catfish
Channel Catfish	0.00094	-
Flathead Catfish	0.64968	3.3e-07

Continue FT Contaminants Trends Analyses - PCBs

- Preliminary analyses highlighted need to
  - Adjust for observed correlations (e.g. length, rivermile)
  - Exercise caution when applying length standardization methods
  - Test validity of aggregating data at higher taxonomic levels

- Use findings to inform future trends analyses
  - Incorporate 2019 & 2020 data
  - Produce repeatable approach

Micropterus



Staff Lead: Daniel Cleves

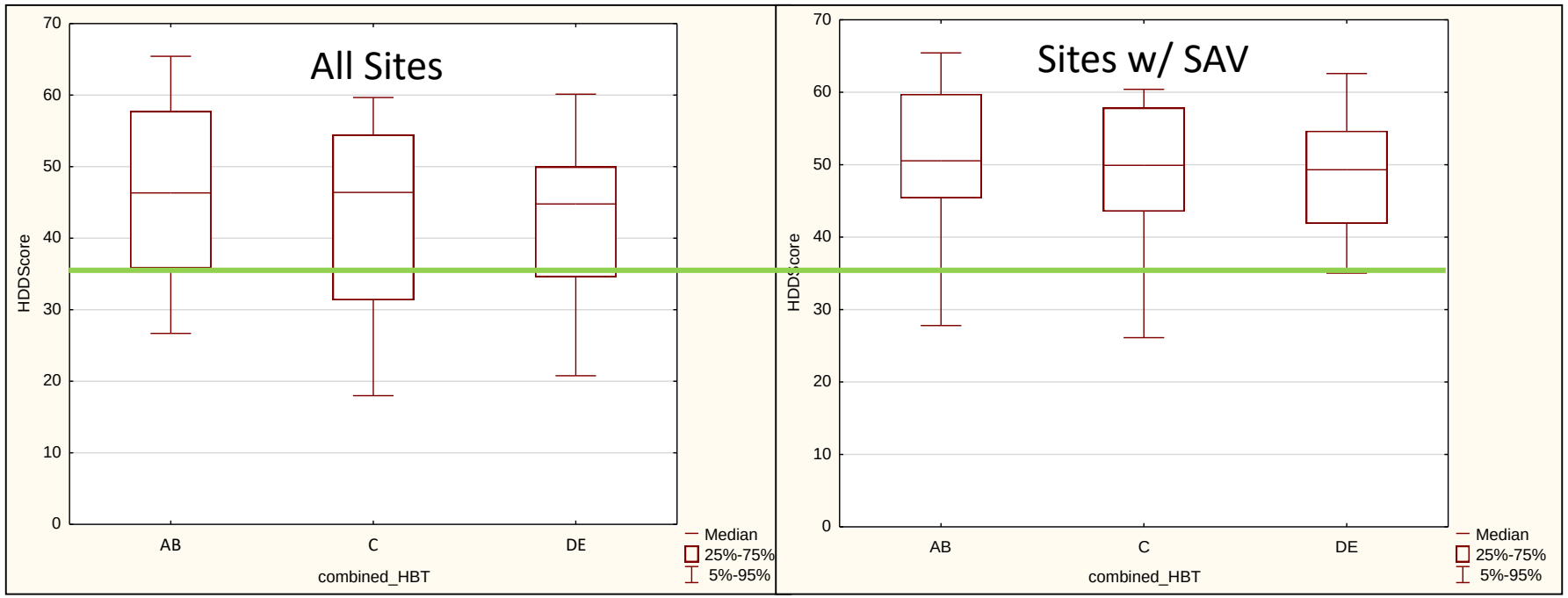
Review 2019 Smithland Macro Data w/ BWQSC

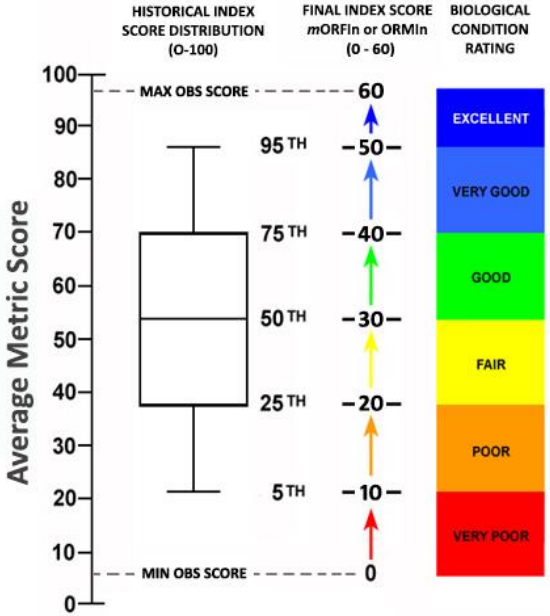
- Initial data return was delayed due to pandemic-related issues at contract lab
- Data returned in late 2020 lacked necessary taxonomic resolution
  - damaged specimens or insufficient SOP specifications?
- Samples were sent to a second laboratory for identification/enumeration confirmation
- Data returned late January, will review with BWQSC at later date

Staff Lead: Bridget Borrowdale

Continue Macro Investigations

- More paired submerged aquatic vegetation (SAV) and macro data are required to further refine both indices
  - 5 of 18 pools remain to be surveyed for SAV

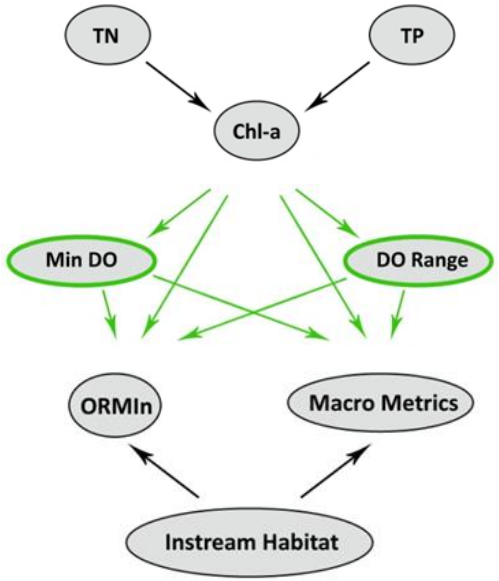


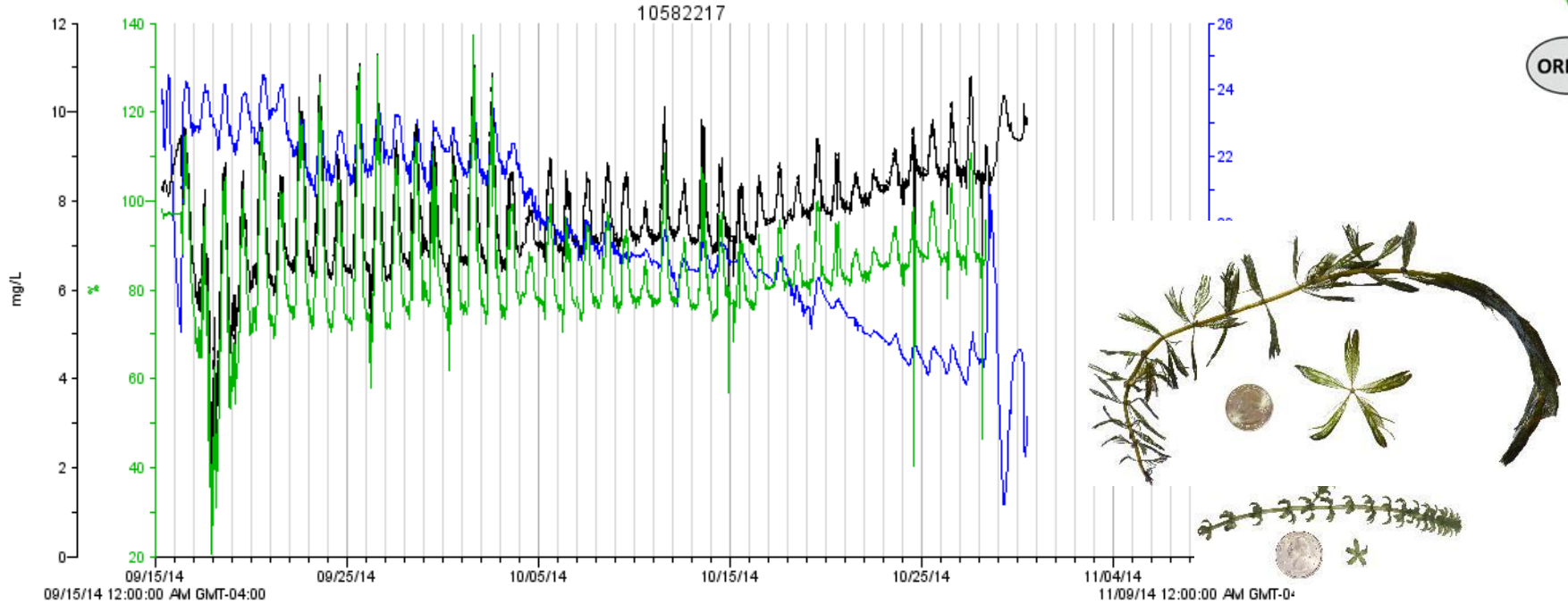


Staff Lead: Bridget Borrowdale

Continue Macro Investigations

- More paired submerged aquatic vegetation (SAV) and macro data are required to further refine both indices
  - 5 of 18 pools remain to be surveyed for SAV
  - Nutrient criteria data





Staff Lead: Bridget Borrowdale

Continue Macro Investigations

- More paired submerged aquatic vegetation (SAV) and macro data are required to further refine both indices
  - 5 of 18 pools remain to be surveyed for SAV
  - Nutrient criteria data
- Incorporate lessons learned from first assessment cycle applying the ORMIn (macro index)
  - Effects of SAV and flow, Taxonomic Resolution
  - Adjust/refine index and protocols accordingly

Staff Lead: Bridget Borrowdale

Approve Adjusted Pool Survey Schedule

Factors Considered

- Concluding 3rd Cycle
  - Paired SAV & DO
- 4 pool potential
- IDEM FT Project
- NRSA Anticipation

Pool	Times Assessed	Yrs Since last Assmnt	Cycle 3								Cycle 4					
			2015	2016	2017	2018	2019	2020	IDEM 2021	IDEM 2022	IDEM NRSA 2023	IDEM NRSA 2024	2025	2026	2027	2028
Emsworth	3	2				X		Assessments Postponed - COVID						X		
Dashields	2	7							X						X	
Montgomery	3	5	X							X*						
New Cumberland	3	3			X								X			
Pike Island	3	2				X								X		
Hannibal	2	7							X						X	
Willow Island	3	4		X									X			
Belleville	2	6								X						X
Racine	3	5	X								X					
RC Byrd	2	1					X							X		
Greenup	3	4		X								X				
Meldahl	3	3			X								X			
Markland	3	6							X						X	
McAlpine	2	6							X							X
Cannelton	3	4		X							X					
Newburgh	3	2			X							X				
JT Myers	3	5	X							X*						
Smithland	3	1					X							X		
Olmsted	2	6								X						X
Open Water		6						-		X						X

Indiana pools highlighted

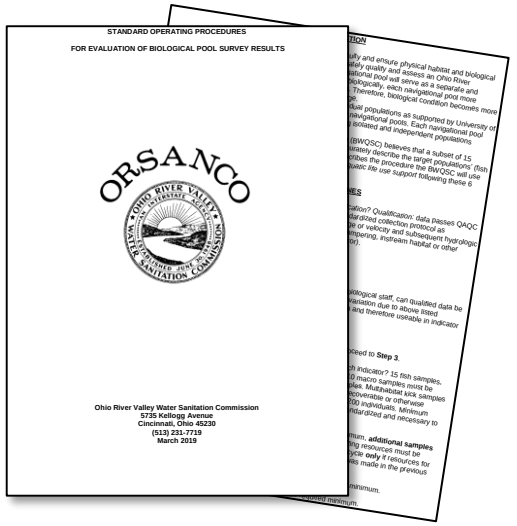
Everything past the double yellow line is hypothetical

*first pools in 4th Assessment

Approve New SOP - *Evaluation of Biological Survey Results*

- Decision tree for evaluation of probabilistic survey data
  - In development since 2019, multiple BWQSC reviews/discussions
  - Formalizes typical BQWSC evaluation approach to maintain continuity across years

- Pertinent Decision Nodes
  - Are the data qualified?
  - Can the qualified data be statistically adjusted?
  - Were the minimum data requirements met for index application?
  - Was the indicator assessed in the prior cycle?
  - Do the indicator statistic error bars straddle the criterion?


STANDARD OPERATING PROCEDURES

FOR EVALUATION OF BIOLOGICAL POOL SURVEY RESULTS

ORSANCO

Ohio River Valley Water Sanitation Commission
5735 Kellogg Avenue
Cincinnati, Ohio 45230
(513) 231-7719
March 2019

- Document available upon request

Summary of BWQSC Recommendations

1. Continue refinement of fish tissue trends and macro index adjustments as additional data become available.
2. Review the 2019 Smithland macro data with the BWQSC once final results are available
3. Approve adjusted pool schedule and a temporary return to four annual pool surveys
4. Approve the *Evaluation of Biological Pool Survey Results* guideline document for use by the BWQSC
5. In 2021, prioritize probabilistic surveys over all other biological field activities
   - Dashields, Hannibal, Markland, and McAlpine
   - May proceed with a single indicator per assessment unit
6. As resources allow during 2021 field season
   - Sample the 18 fixed station
   - Incorporated paired abiotic sampling
   - Accommodate additional state and federal agency sampling requests

Additional Informative Item: 305b Workgroup

- Will reconvene earlier than in prior cycles
  - Full review of assessment methodologies for each use
  - Development of **Harmful Algal Bloom (HAB)** methodology
    - What constitutes a HAB assessment for the Ohio R.?

- Allow staff more time to receive and review data after methodologies are approved
  - Have experienced some pandemic related delays in both data collection and contract lab analyses

ORSANCO biological staff and BWQSC members would like to recognize

John Wirts of WVDEP

outgoing subcommittee chair

for his many years of service as both member and chair of the BWQSC. We will miss your thoughtful contributions and guidance.

Thanks John!

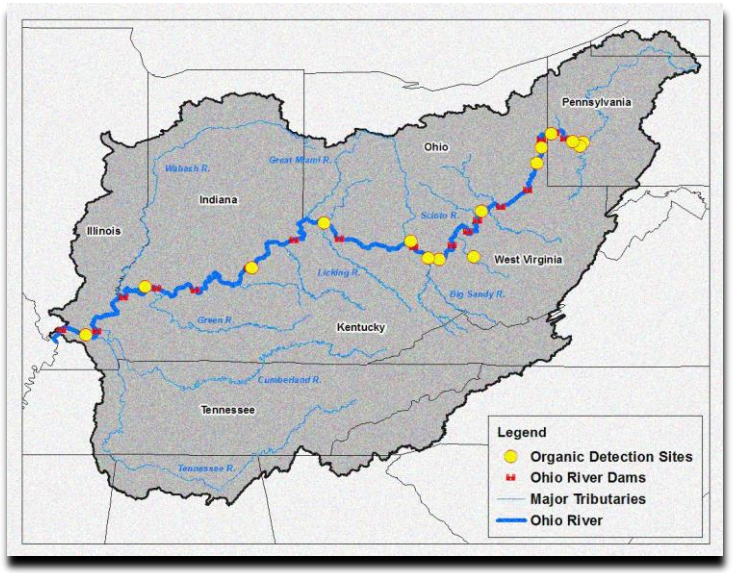
Agenda Item 6:

Source Water Protection Programs Update

Sam Dinkins

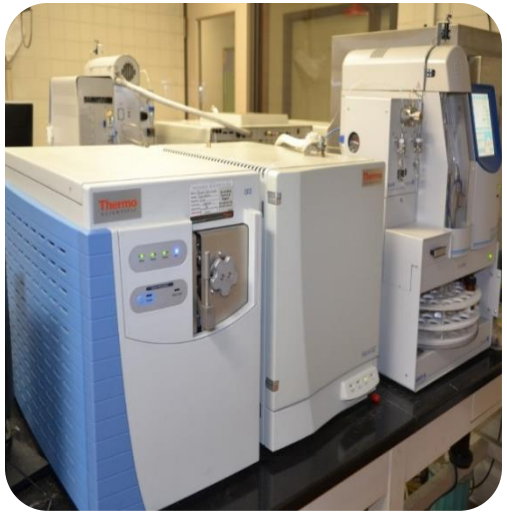
Organics Detection System Update

- 17 ODS stations, 15 are operational.
  - Inoperable
    - St. Albans (Kanawha) – COVID
    - Chemours (Parkersburg, WV) – COVID
  - Operable with Limited Data
    - Hays Mine (Monongahela) – COVID
    - West View (Pittsburgh, PA) – COVID



Instrument/Software Upgrades

- GCMS Software Upgrades
  - Chromeleon 7
    - Software upgrades on schedule
    - Louisville and Evansville software installed and training completed
    - Huntington & Wheeling upgrades planned for 2nd half FY21
    - Will evaluate budget at end of FY21 to determine if additional sites can be upgraded now
  - Windows 10/PC Upgrades
    - On-going; will update PCs at locations before Chrom 7 install



ODS Instrument Replacement

- ODS Equipment Replacement Account
  - $178K allocated for equipment purchases in FY21
- FY21 Plan
  - Purchase two Inficon CMS 5000 units ($50K each)
  - Will reduce downtime while units are repaired
  - First unit received in October – Currently testing
  - Purchase of second unit later in FY21
- Purge & Trap Replacement
  - Replace ORSANCO purge & trap unit ($45K)
  - Chronic performance issues
  - Inhibiting progress on VOC analyte list evaluation
  - Could be used to swap out when other sites experience problems with P&T

Emergency Response

- Louisville Sub-Area Team
  - Developing sub-area plan like Cincy
  - Summer field recon efforts postponed due to COVID
  - Oct – Held field demonstration of spill response field data collection GIS apps
    - Survey 123 app
    - Collector app
  - Allows for multiple agencies to share a common GIS platform for spill planning and response data collection

Emergency Response (cont.)

- Have maintained full readiness during pandemic

- Emergency Response Directory
  - December 2020 update now available
- Compiling Industrial Intake Directory

- Spill Response Activity
  - Several noteworthy spills since last meeting, though none required a field response by ORSANCO staff

Spill Incidents

- Jan 7 – 1,000 gal of hexane
  - Reported at ORM 227.1; Actual ORM 754.0
- Jan 6 – 3,000–5,000 gal Ecoat rinse water
  - Hite Creek, Louisville, KY
- Dec 9 – Chemical plant explosion
  - Belle, WV – Kanawha River
  - CBD63, methanol, firefighting runoff
  - No foam used

Spill Incidents (cont)

- Nov 11 – I-75 Bridge Truck Fire
  - ORM 470 (Cincinnati)
  - 3:30 am
  - Potassium hydroxide 685 lbs →110 lbs released
  - Diesel – 400 gal; 100 gal recovered
  - Firefighting foam – 125 to 200 gal used
  - Nearest intake 130 miles downstream (Louisville)

Questions or Comments?

Agenda Item 7:

Harmful Algae Blooms
Review and Consideration for Approval of Monitoring, Response, and Communication Plan

Greg Youngstrom

Action Item: Would the Technical Committee like to endorse the plan or is further review and comment needed?

Revision to HAB Monitoring Response and Communication Plan

- First full update since 2016
- Changes to state and federal drinking water and recreational advisory levels for algal toxins
- Responded to a second large HAB event
- This draft reflects comments from federal and state partners
- There were changes to the WV contacts that were received after the plan was sent to the Technical Committee
- Will be asking for approval of the plan

Document Review Process

- Presented to Tech at the October meeting
- Members requested more time to review
- Sent out in October with comments requested by November 20
- Received comments from PA, WV, OH, IN, KY, Army COE, USEPA

Summary of Comments

- Changes to Advisory Levels for drinking water and contact recreation
- Clarification of algal toxin effects
- Don't use the word Standards
- Changes to websites and contacts

Comments not Incorporated

- USEPA Comment for page 6 Goals B. Consider the use of the word safe here, as some drinking water treatment plants treat water to routinely and effectively manage for HABs.
- Response: "Safe" is part of the designated use as defined in ORSANCOs compact.

- Pennsylvania comment: Monitoring, Satellite Imagery, Page 10. Use of EPA's Cyanobacteria Assessment Network Mobile Application (CyAN app) would be useful here and should be added.
- Response: USEPA's CyANapp is designed for use with lakes and reservoirs. Currently the resolution available does not lend itself to use on a river. If in the future the app is changed to incorporate satellites with greater resolution it will be a useful tool for the Ohio River.

ORSANCO Roles and Responsibilities

- Advisories
  - ORSANCO does not issue advisories for drinking water or recreation
- Monitoring
  - ORSANCO works with State and Federal partners as well as drinking water utilities to quickly identify all reported blooms

ORSANCO Roles and Responsibilities

- Response
  - ORSANCO coordinates with States/Federal partners to ensure adequate coverage of ongoing HABs
  - ORSANCO serves as a repository for data and updates the data weekly
- Communications
  - ORSANCO communicates all identified HABs to WUAC and general Spills list
  - ORSANCO convenes weekly calls during HAB response

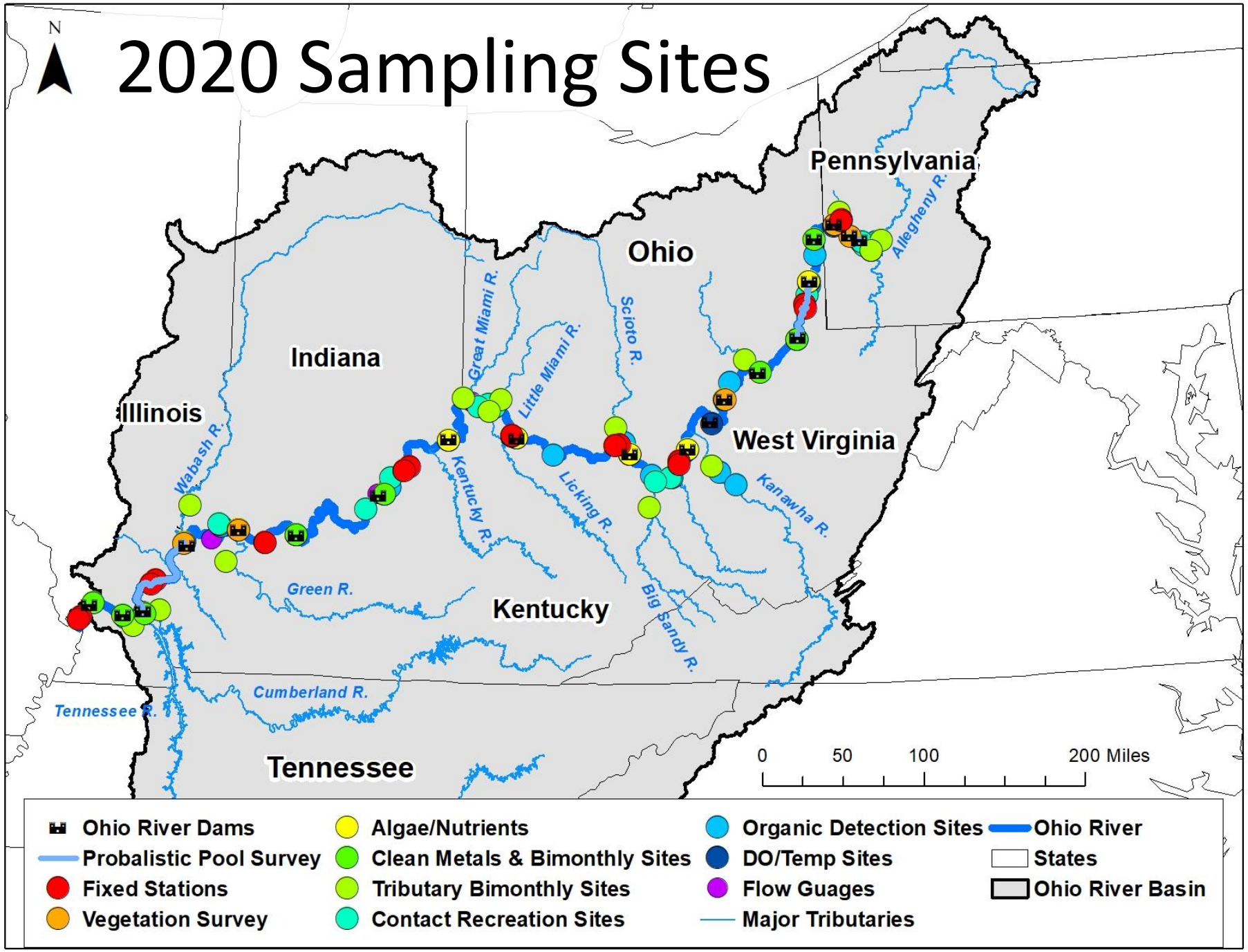
Questions

- Requesting approval of the Plan

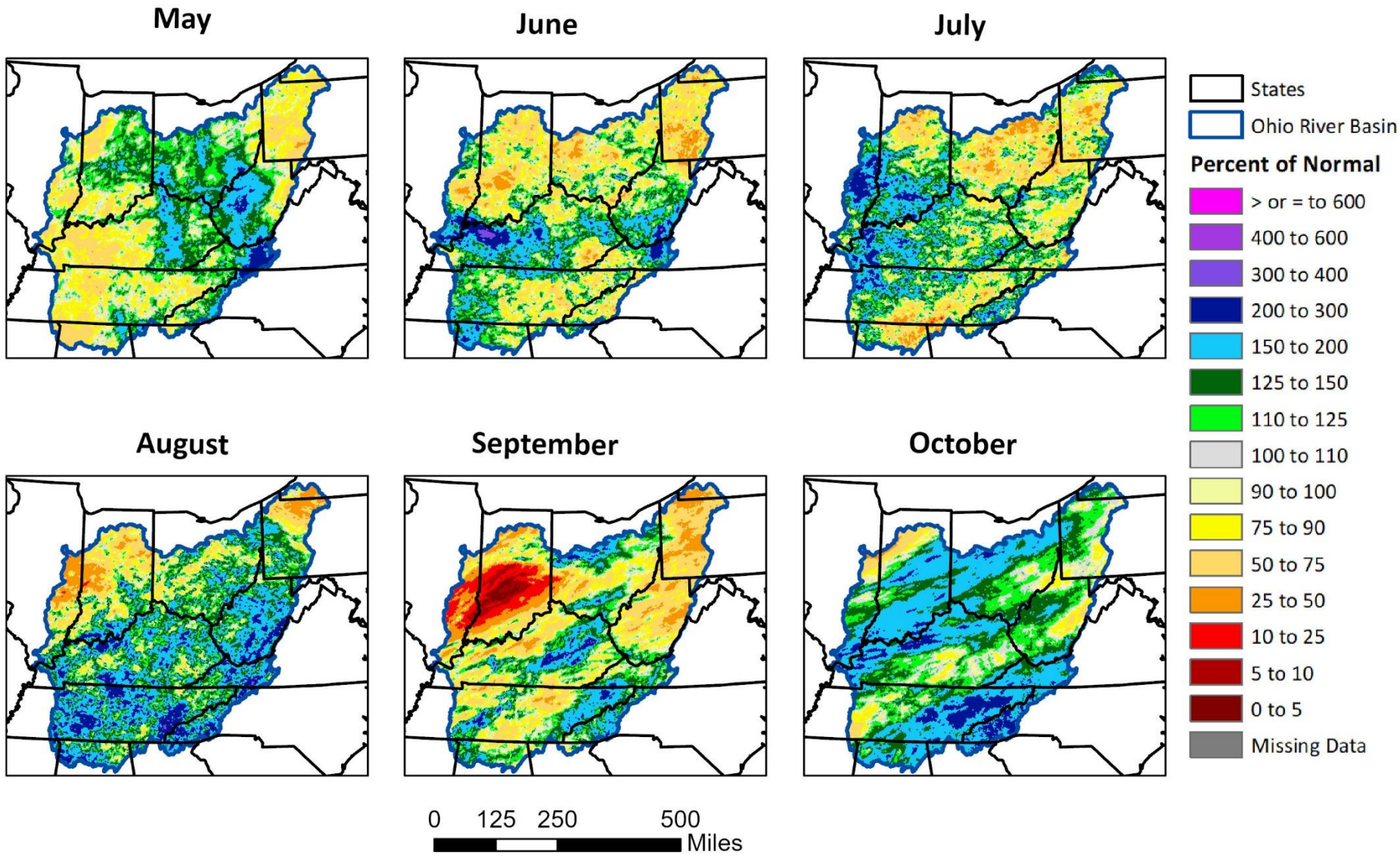
Agenda Item 8:
2020 Monitoring Activities: Summer Water Quality Conditions

Greg Youngstrom, Ryan Argo, Sam Dinkins

Informational Item

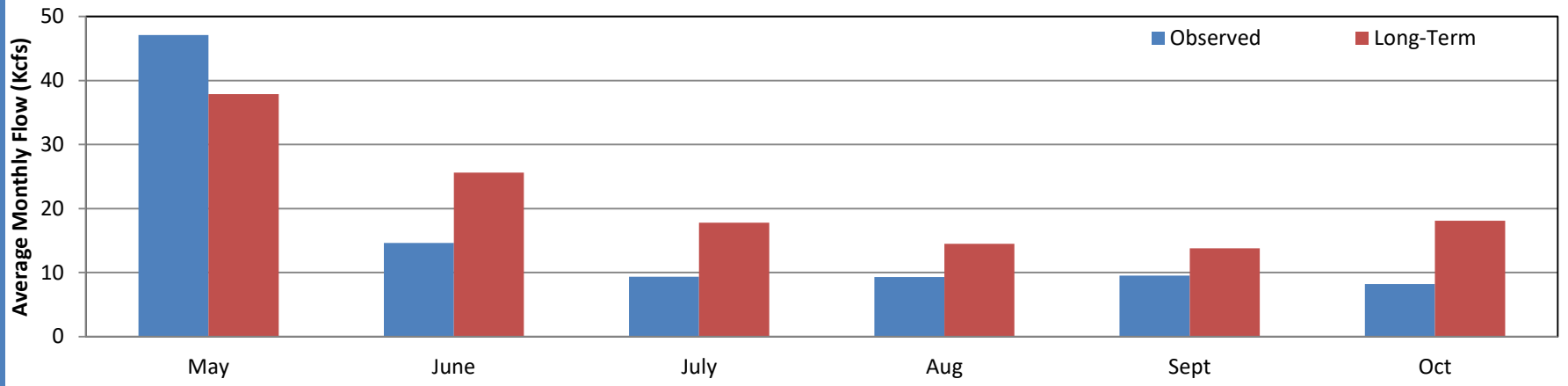

2020 Sampling Sites
N
Pennsylvania
Ohio
Indiana
Illinois
West Virginia
Kentucky
Tennessee
Allegheny R.
Great Miami R.
Little Miami R.
Scioto R.
Wabash R.
Kentucky R.
Licking R.
Kanawha R.
Green R.
Big Sandy R.
Cumberland R.
Tennessee R.
0 50 100 200 Miles
Ohio River Dams
Probalistic Pool Survey
Fixed Stations
Vegetation Survey
Algae/Nutrients
Clean Metals & Bimonthly Sites
Tributary Bimonthly Sites
Contact Recreation Sites
Organic Detection Sites
DO/Temp Sites
Flow Guages
Major Tributaries
Ohio River
States
Ohio River Basin

2020 Precipitation

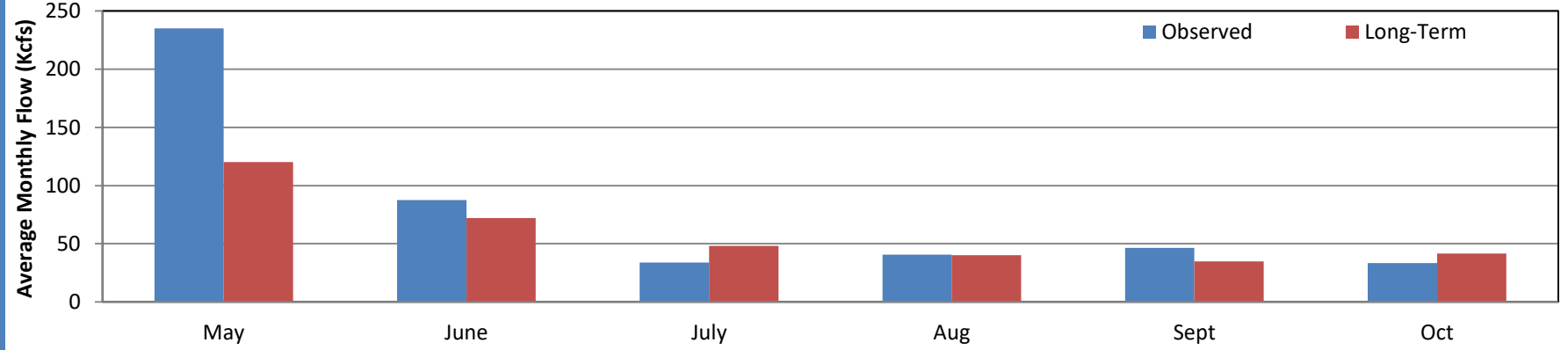


Average Monthly Streamflow May – October 2020

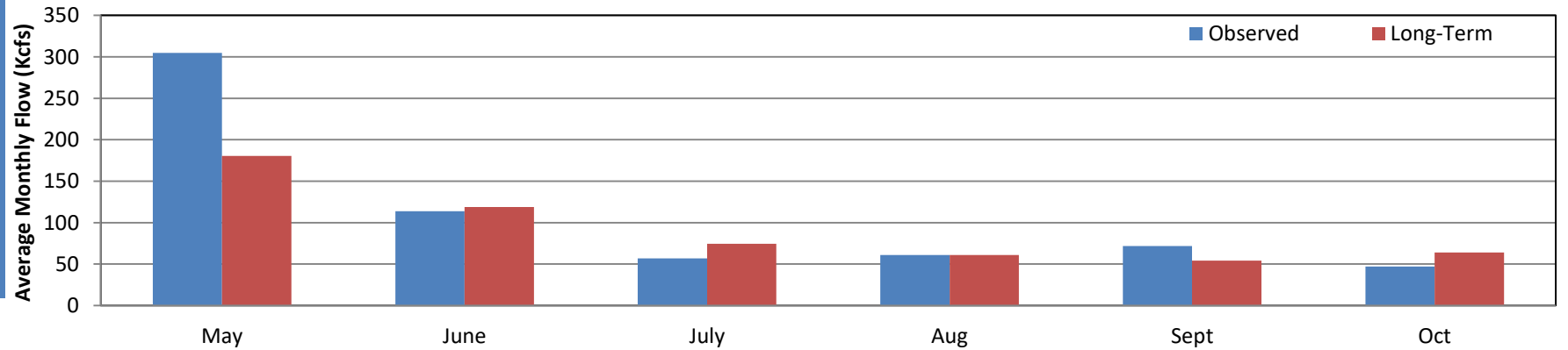
Pittsburgh (ORM 13)



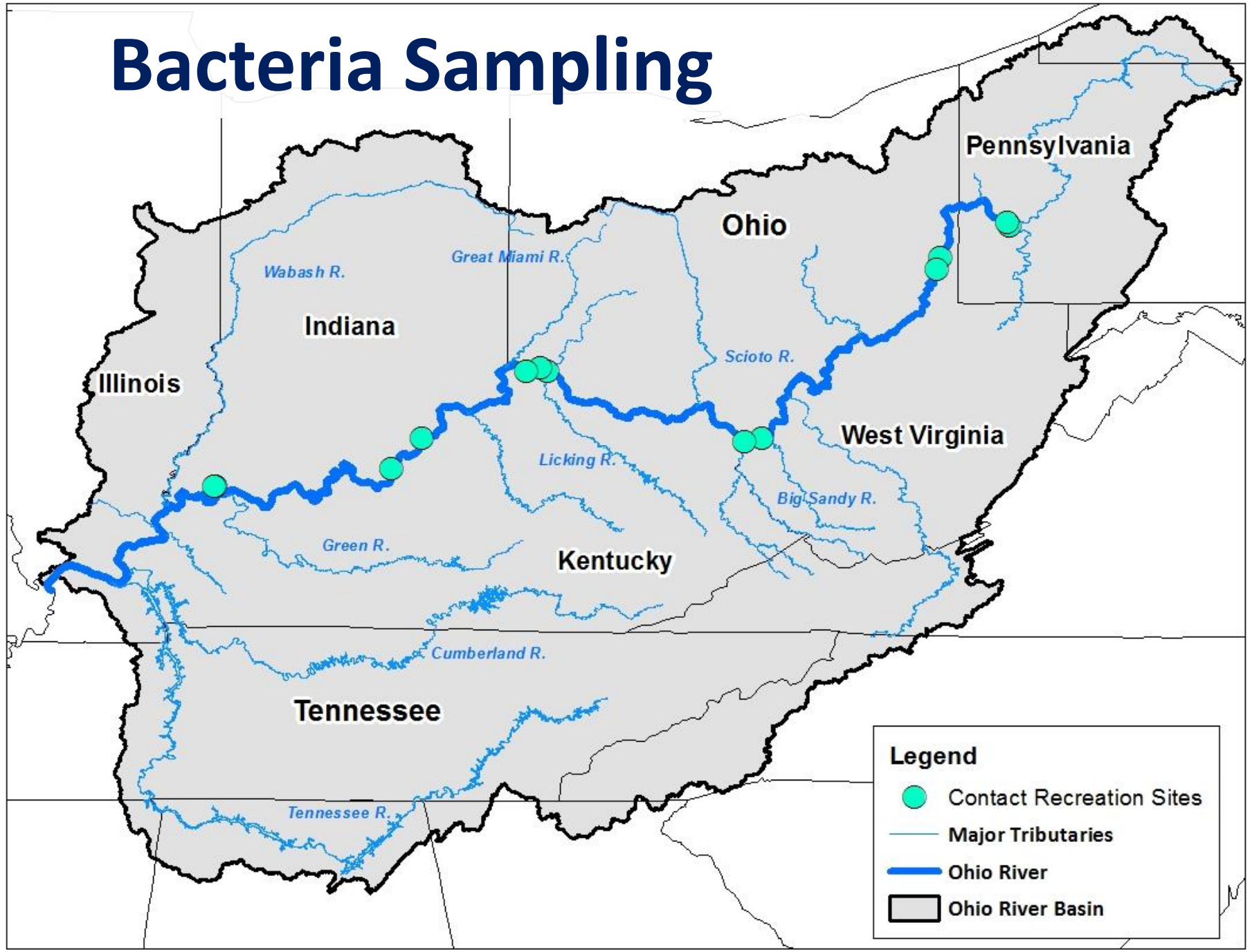
Cincinnati (ORM 471)



Evansville (ORM 791)



Bacteria Sampling

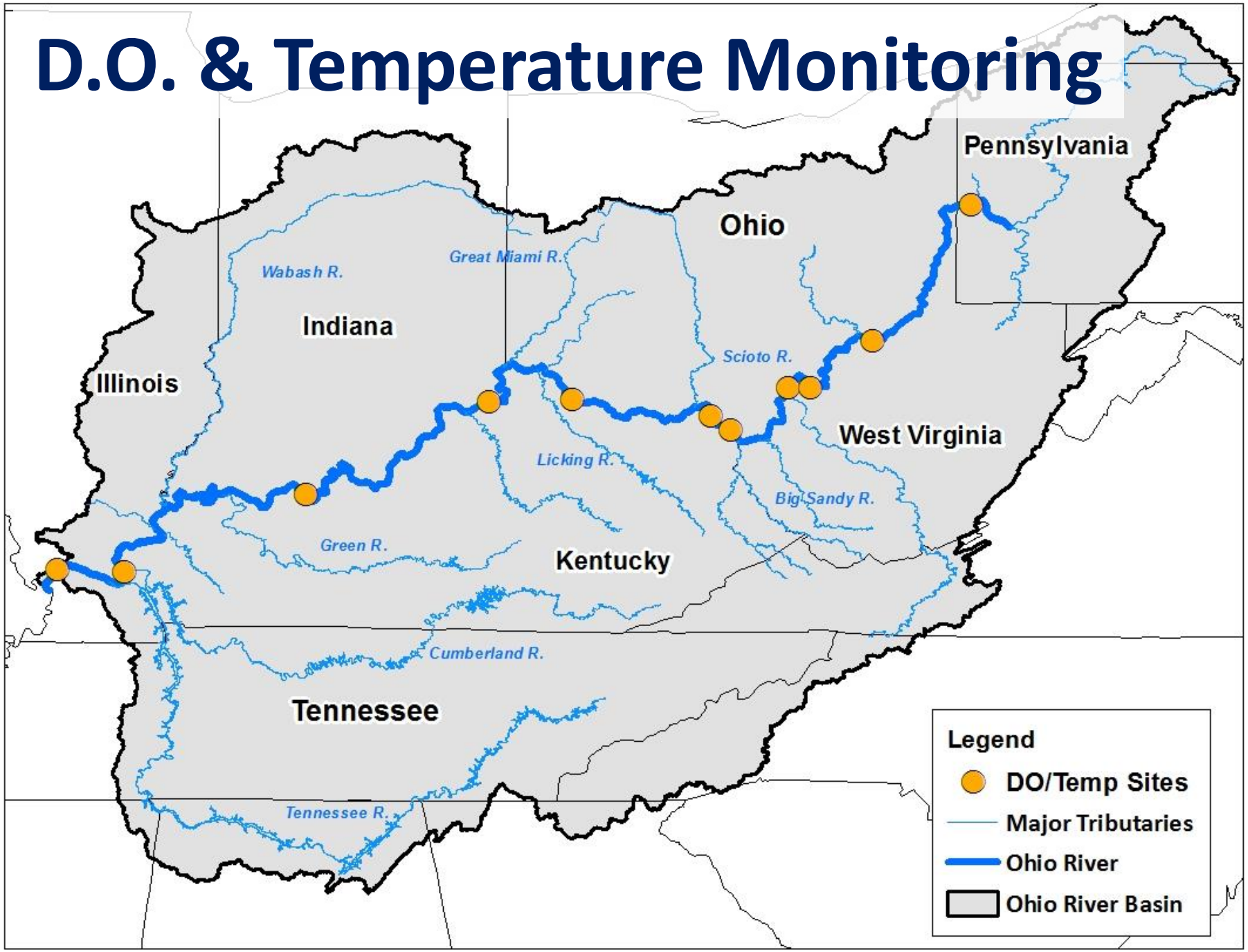


Bacteria Monitoring

- **May thru October**
  - **No samples were collected in April due to Covid-19**
  - **No samples were collected at Pittsburgh**
  - **Samples were collected starting in June at Wheeling**
- **5 rounds monthly**
- **Analyzed for *E. coli***
- **Criteria:**
  - **GeoMean: 130 CFU/100mL**
  - **Single Sample: 240 CFU/100mL**

Percent Exceeded May-September 2020	Pittsburgh	Wheeling	Huntington	Cincinnati	Louisville	Evansville
Monthly Geometric Mean	NA	40%	67%	33%	17%	33%
Single Sample	NA	28%	47%	33%	17%	27%

D.O. & Temperature Monitoring



Dissolved Oxygen and Temperature Monitoring

Dissolved Oxygen

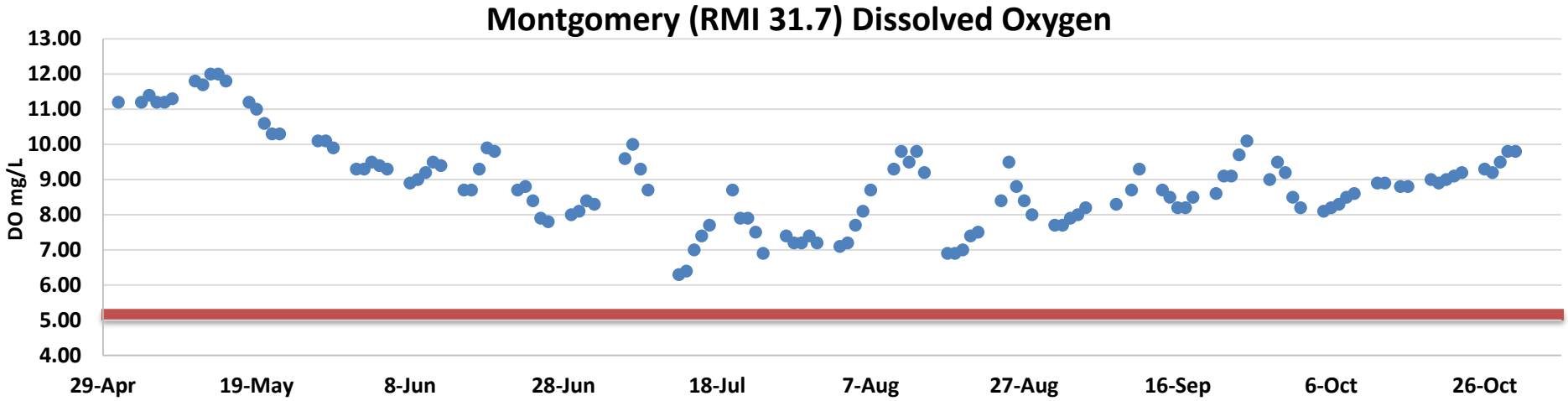
• Monitored by the Army Corp of Engineers, United States Geological Survey, and electric utility/hydropower agencies for the assessment of aquatic life use.

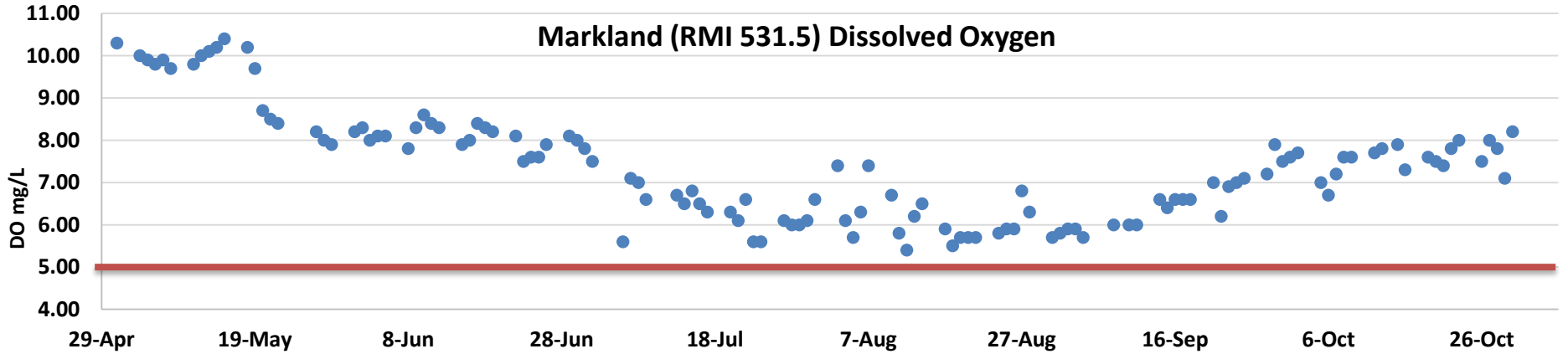
• All three stations maintained above the 5.0 mg/L criteria.

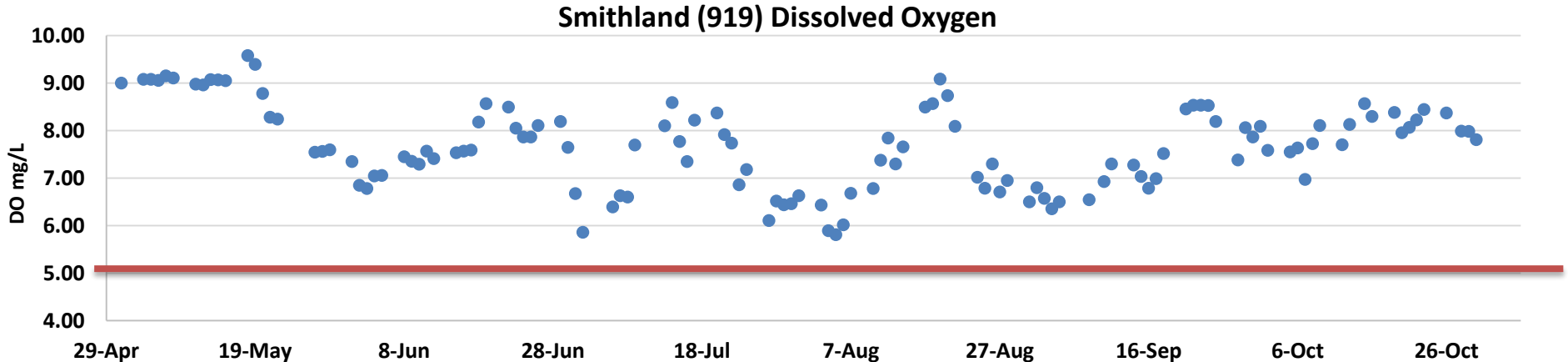
•Temperature

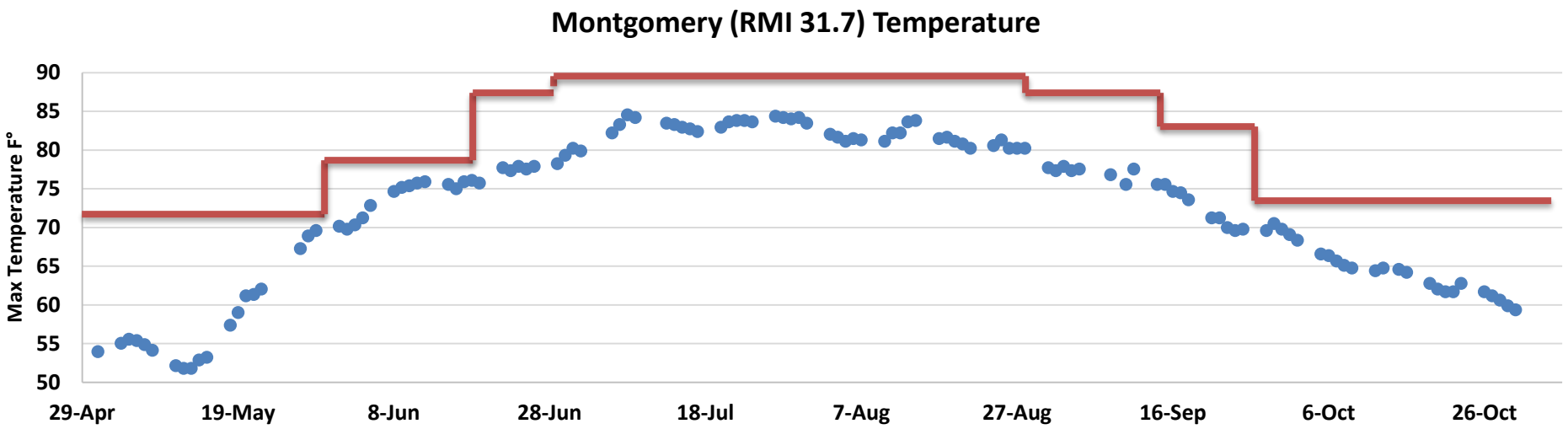
• The allowable temperature varies each month and ranges from 71°-89°F.

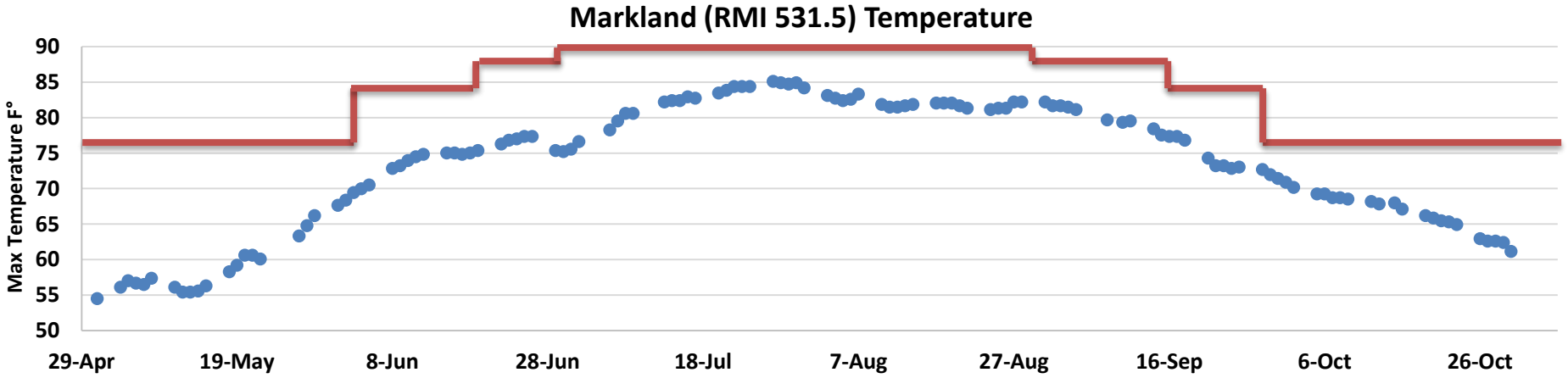
•Temperatures did not exceed the criteria at any of the three stations.

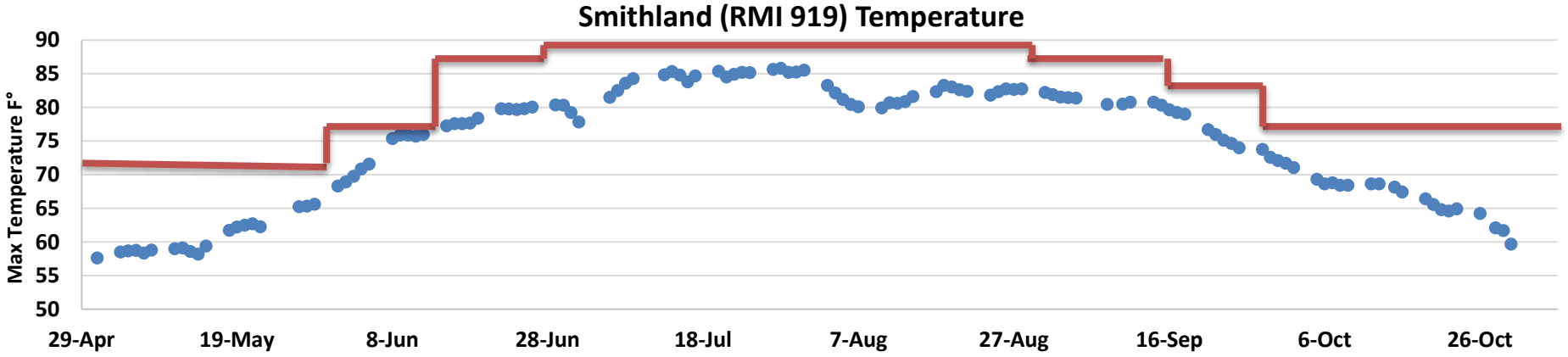

Montgomery (RMI 31.7) Dissolved Oxygen
DO mg/L
13.00
12.00
11.00
10.00
9.00
8.00
7.00
6.00
5.00
4.00
29-Apr
19-May
8-Jun
28-Jun
18-Jul
7-Aug
27-Aug
16-Sep
6-Oct
26-Oct


Markland (RMI 531.5) Dissolved Oxygen
DO mg/L
11.00
10.00
9.00
8.00
7.00
6.00
5.00
4.00
29-Apr
19-May
8-Jun
28-Jun
18-Jul
7-Aug
27-Aug
16-Sep
6-Oct
26-Oct


Smithland (919) Dissolved Oxygen
DO mg/L
10.00
9.00
8.00
7.00
6.00
5.00
4.00
29-Apr
19-May
8-Jun
28-Jun
18-Jul
7-Aug
27-Aug
16-Sep
6-Oct
26-Oct


Montgomery (RMI 31.7) Temperature
Max Temperature F°
90
85
80
75
70
65
60
55
50
29-Apr
19-May
8-Jun
28-Jun
18-Jul
7-Aug
27-Aug
16-Sep
6-Oct
26-Oct


Markland (RMI 531.5) Temperature
Max Temperature F°
90
85
80
75
70
65
60
55
50
29-Apr
19-May
8-Jun
28-Jun
18-Jul
7-Aug
27-Aug
16-Sep
6-Oct
26-Oct

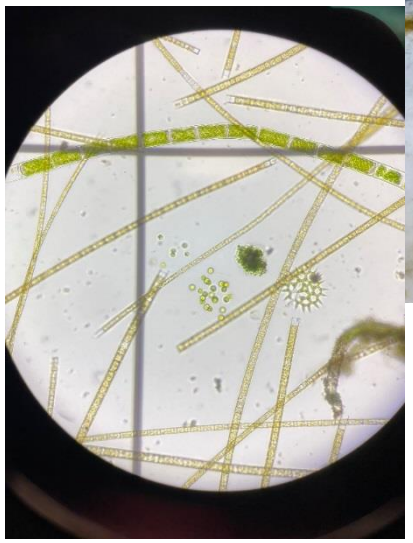

Smithland (RMI 919) Temperature
Max Temperature F°
90
85
80
75
70
65
60
55
50
29-Apr
19-May
8-Jun
28-Jun
18-Jul
7-Aug
27-Aug
16-Sep
6-Oct
26-Oct

HAB Monitoring

- HAB stations at Pike Island, Meldahl, Markland, Newburgh L&D’s
- HAB App prediction tool
- Satellite imagery
- Reports from L&D operators, drinking water utilities, citizens and ORSANCO field staff

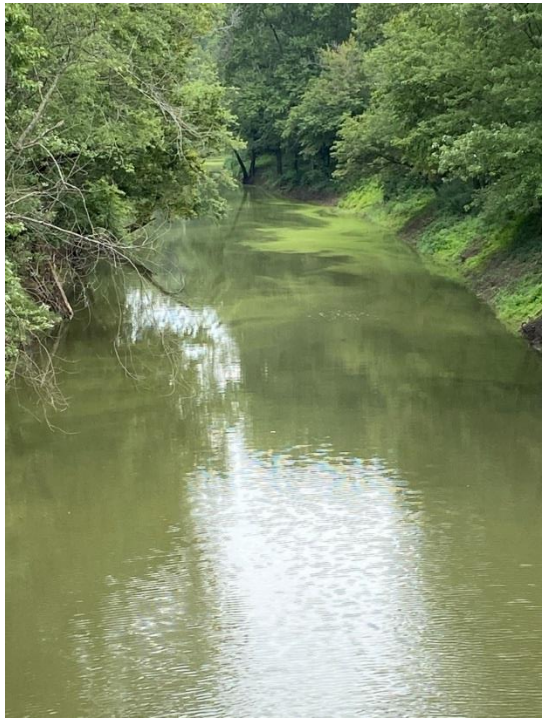
2020 HAB Response

- **No Ohio River HAB reports**
- **Filter clogging issues reported from Maysville-Louisville in late July/early August.**
- **Large amounts of filamentous diatom *Aulacoseira* present in samples**
- **HAB App showed a greater than 50% likelihood of an HAB at the time**

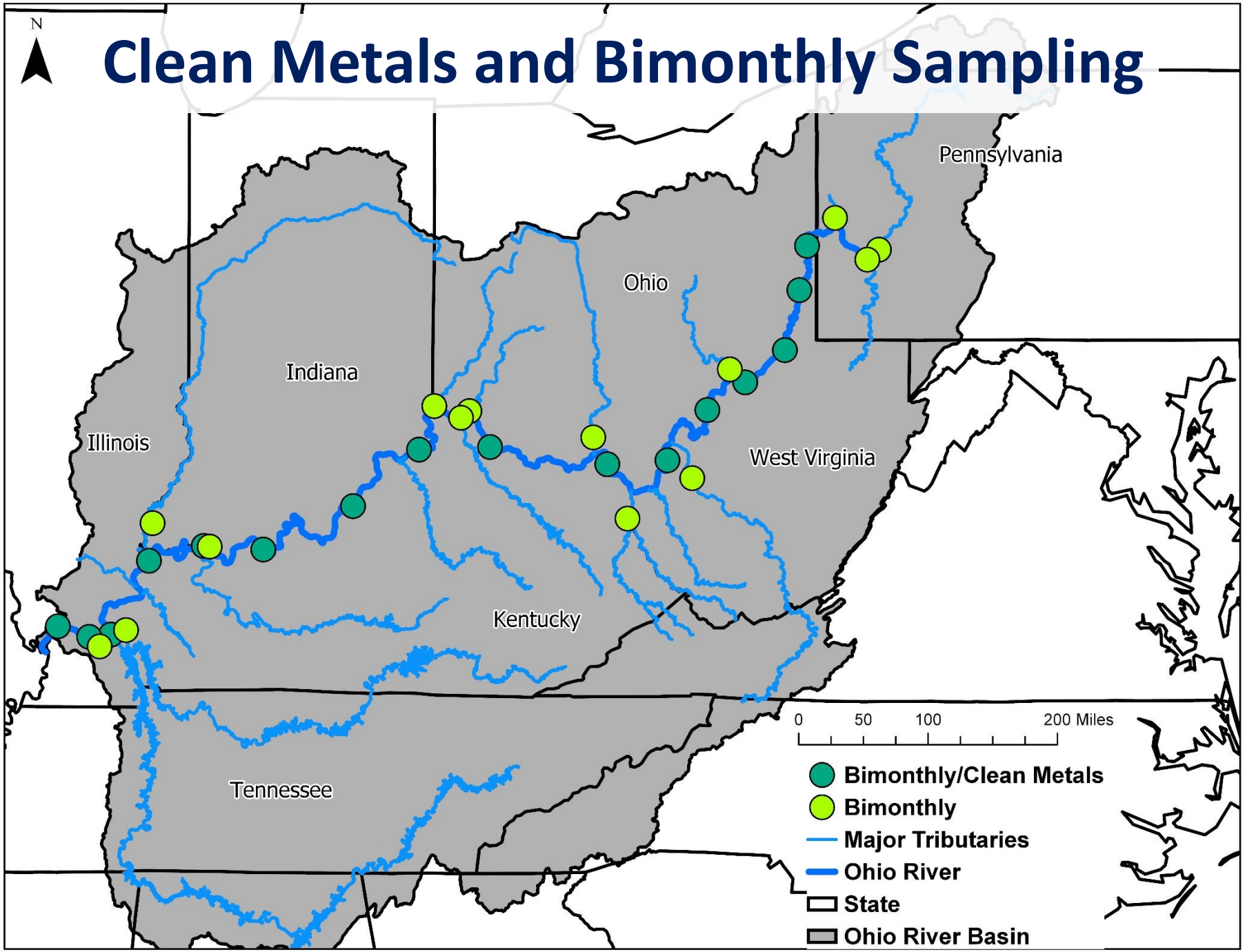


2020 HAB Response (cont.)

- **Big Indian Creek**
  - **Point Pleasant, OH**
- **Reported 8/31/20**
- **Disappeared by 9/1/20**
- **Samples looked like Ohio River algae (diatoms and greens)**



Clean Metals and Bimonthly Sampling



Metals and Bimonthly Parameters

Metals
Mercury
Aluminum
Chromium
Manganese
Nickel
Copper
Zinc
Arsenic
Selenium
Silver
Cadmium
Antimony
Thallium
Lead
Magnesium
Calcium
Iron
Barium

Nutrients, Major Ions
Ammonia Nitrogen
Bromide
Chloride
Hardness
Nitrate-Nitrite Nitrogen
Phenols
Sulfate
Total Dissolved Solids
Total Kjeldahl Nitrogen
Total Organic Carbon
Total Phosphorus
Total Suspended Solids
Cyanide

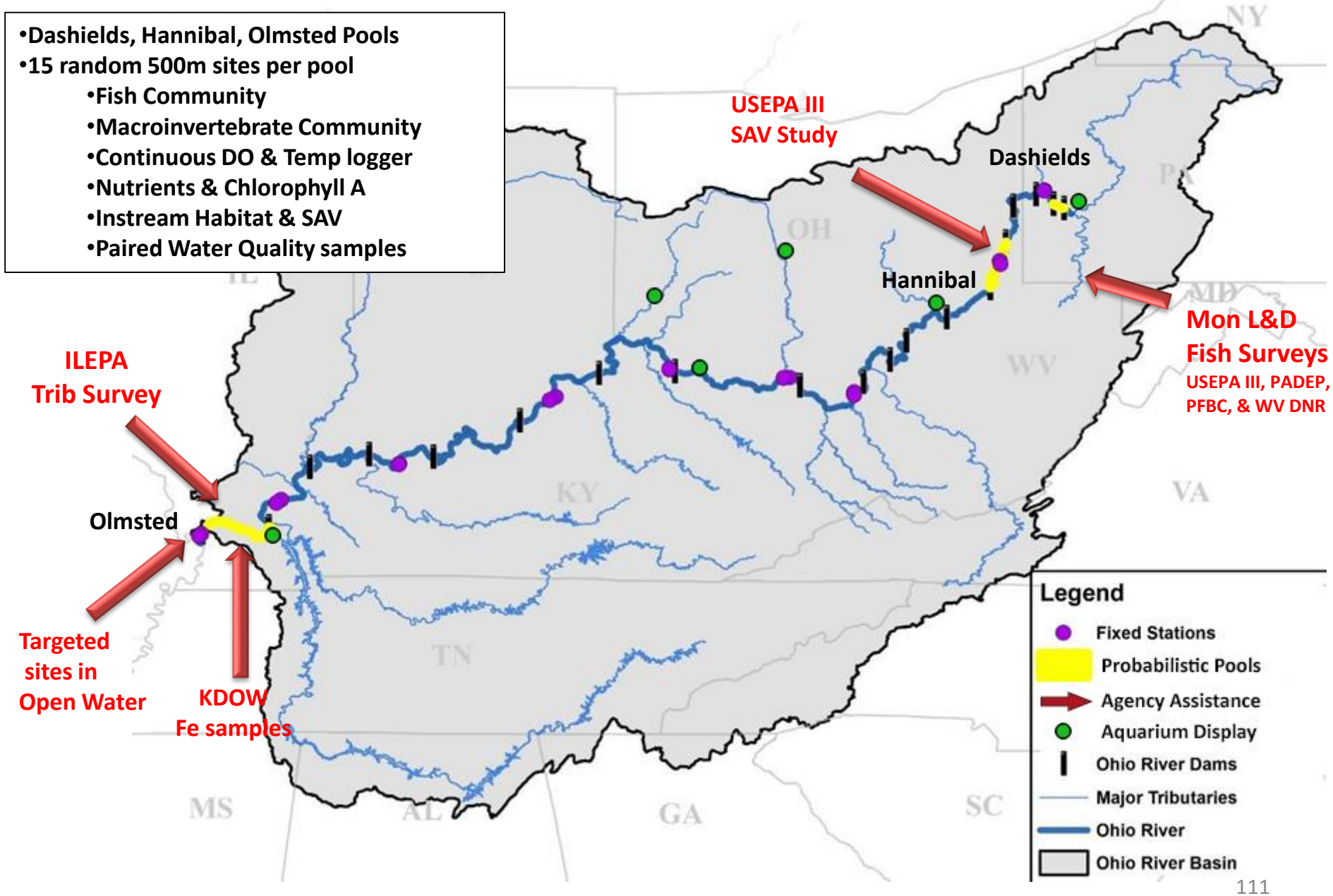
Clean Metals WQC Exceedances					
July 2019 - Sept 2020 (8 Sampling Months)					
Site	**River Mile**	**Fe Violations**	**Hg Violation**	**Sample Type**	**# of Months Sampled**
New Cumberland	54.4	0	0	Total	6
Pike Island	84.2	1	0	Total	8
Hannibal	126.4	1	0	Total	8
Willow Island	161.8	0	0	Total	8
Belleville	203.9	0	0	Total	7
R.C. Byrd	279.2	3	0	Total	8
Greenup	341	0	0	Total	7
Meldahl	436.2	0	0	Total	7
Markland	531.5	1	0	Total	8
McAlpine	606.8	1	0	Total	6
Cannelton	720.7	1	0	Total	8
Newburgh*	776	4	0	Total	8
J.T. Myers*	846	2	0	Total	6
Smithland*	918.5	2	0	Total	6
L&D 52	938.9	1	0	Total	1
Olmsted	964.4	0	1	Total	6

Exceedances this year	17	1
Exceedances last year	21	5

Hg criteria: >12ng/L
WV Fe criteria: >1,500 µg/L
KY Fe criteria: >3,500 µg/L
*KY Fe criteria for impaired waterway: >1,000 µg/L

Biological Program Activities

- Dashields, Hannibal, Olmsted Pools
- 15 random 500m sites per pool
  - Fish Community
  - Macroinvertebrate Community
  - Continuous DO & Temp logger
  - Nutrients & Chlorophyll A
  - Instream Habitat & SAV
  - Paired Water Quality samples



Agenda Item 9:

TEC Members Reports

- IL – Scott Twait
- IN – Eileen Hack
- KY – Katie McKone
- NY – Jeff Konsella
- OH – Audrey Rush
- PA – Kevin Halloran
- VA – Melanie Davenport
- WV – Scott Mandirola
- USACE – Erich Emery
- USCG – Eric Roy/Josh Miller
- USEPA – David Pfeifer
- USGS – Jeff Frey
- CIAC – Vacant
- PIAC – Cheri Budzynski
- PIACO – Betsy Mallison
- POTW – Alex Novak
- WOAC – Angie Rosser
- WUAC – Bruce Whitteberry

Agenda Item 10:

Review of ORSANCO's Bimonthly and Clean Metals Monitoring Programs

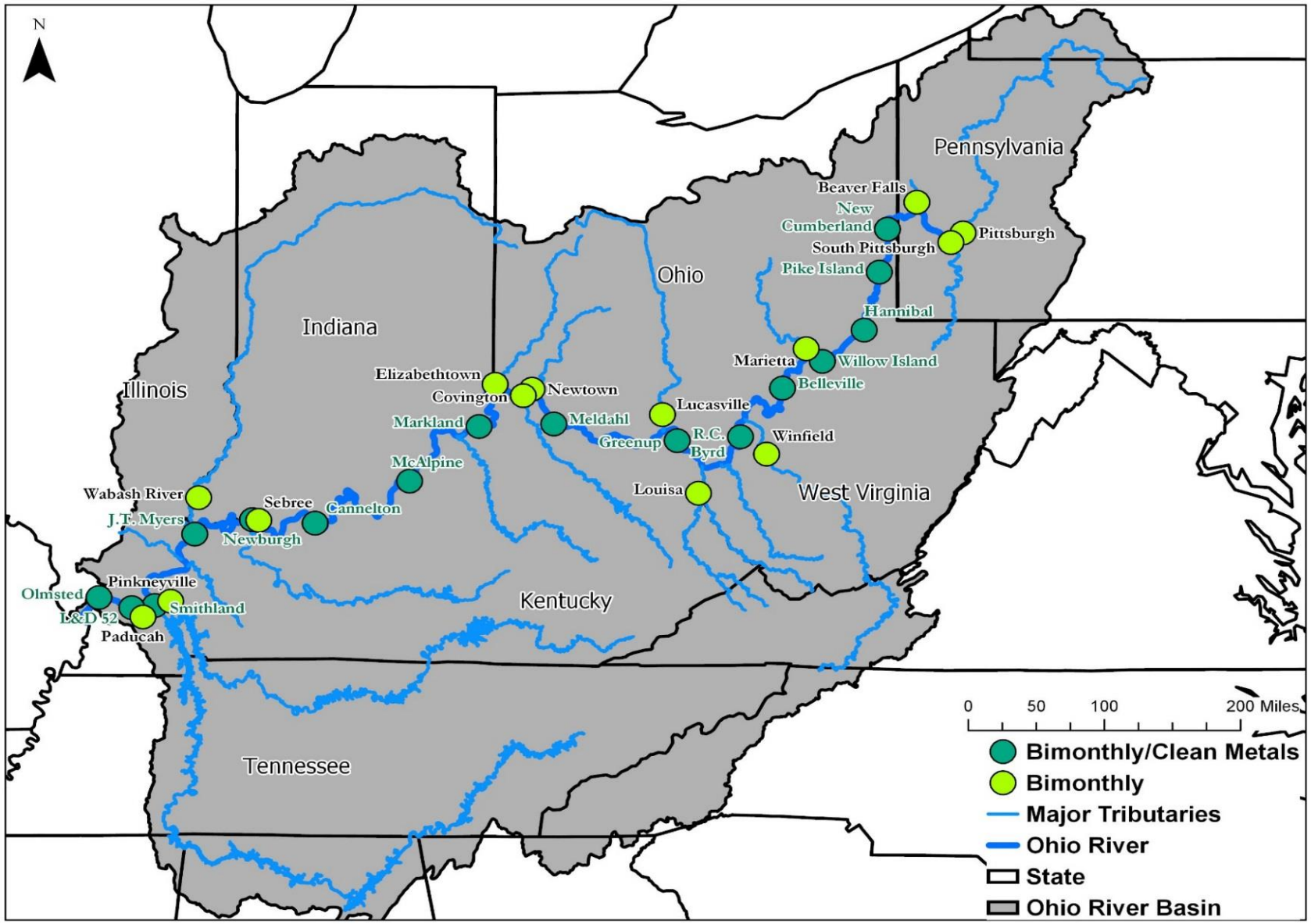
Jason Heath

Status Report

Background

- Initiated a review of ORSANCO's Bimonthly & Clean Metals monitoring programs following the June 2020 TEC meeting.
- Bimonthly monitoring began in 1975 (monthly at the time), and moved to bimonthly in the early 90's (budget constraints). Includes conventional water quality parameters and total metals.
- Clean Metals began in 1998 which includes total and dissolved metals.
- Prior to the Clean Metals program and dissolved metals criteria, there would often be total metals criteria exceedances for lead associated with high suspended solids concentrations and flow.
- We do not have criteria exceedances for dissolved metals.
- ORSANCO uses the data from these monitoring programs primarily for 305b use assessments and trends.
- Today, exceedances occur for Total Iron & Total Mercury.

Bimonthly & Clean Metals Sampling Sites



Bimonthly Parameter List

Stations	Nutrients, Major Ions	Symbol	Units	Method Number	Reporting Limit
16 Ohio River stations 14 major tributaries	Bromide	Br-	mg/L	EPA 300.0	0.05
	Chloride	Cl-	mg/L	SM 4500 Cl E	2.0
	Hardness	Hardness	mg/L	SM 2340 B	3.0
	Ammonia Nitrogen	NH3-N	mg/L	EPA 350.1	0.03
	Nitrate-Nitrite Nitrogen	NO2-NO3-N	mg/L	EPA 353.2	0.05
	pH	pH	Std. Units	Physical	N/A
	Sulfate	SO4	mg/L	ASTM D516-90	12.5
	Specific Conductivity	SpCond	us/cm	Physical	N/A
	Total Kjeldahl Nitrogen	TKN	mg/L	EPA 351.2	0.1
	Total Organic Carbon	TOC	mg/L	SM 5310 C	0.5
	Total Phosphorus	TP	mg/L	EPA 365.3	0.01
	Total Suspended Solids	TSS	mg/L	SM 2540 D	1.0
	Total Dissolved Solids	TDS	mg/L	SM 2540 C	5.0
	Total Nitrogen	TN	mg/L	TKN+(N+N) Calculation	0.5
	Phenols	Phenols	ug/L	EPA 420.4	0.01
	Dissolved Oxygen	DO	mg/L	Physical	N/A
	Temperature	Temp	Deg. C	Physical	N/A
	Turbidity	Turbidity	NTU	Physical	N/A
5 Upper Ohio Basin Winter months only (Nov, Jan, Mar)	Cyanide	CN	ug/L	EPA 335.4	5.0

Clean Metals Parameter List

Parameter	Reporting Units	Test Method	MDL	RDL
Silver (Diss. & Total)	Ag (µg/L)	EPA 1638/200.8	0.01	0.1
Aluminum (Diss. & Total)	Al (µg/L)	EPA 1638/200.8	0.3	1
Arsenic (Diss. & Total)	As (µg/L)	EPA 1638/200.8	0.1	1
Barium (Diss. & Total)	Ba (µg/L)	EPA 200.7	3	10
Beryllium (Diss. & Total)	Be (µg/L)	EPA 1638/200.8	0.1	1
Calcium (Diss. & Total)	Ca (mg/L)	EPA 200.7	0.02	0.1
Cadmium (Diss. & Total)	Cd (µg/L)	EPA 1638/200.8	0.1	1
Chromium (Diss. & Total)	Cr (µg/L)	EPA 1638/200.8	0.3	1
Copper (Diss. & Total)	Cu (µg/L)	EPA 1638/200.8	0.09	1
Iron (Diss. & Total)	Fe (µg/L)	EPA 200.7	6	50
Hardness (Diss. & Total)	Hardness (mg/L)	EPA 200.7	0.3	1
Mercury (Diss. & Total)	Hg (ng/L)	EPA 245.7	0.2	1.5
Potassium (Diss. & Total)	K (mg/L)	EPA 200.7	0.2	0.5
Magnesium (Diss. & Total)	Mg (mg/L)	EPA 200.7	0.04	0.1
Manganese (Diss. & Total)	Mn (µg/L)	EPA 1638/200.8	0.1	1
Sodium (Diss. & Total)	Na (mg/L)	EPA 200.7	0.06	0.5
Nickel (Diss. & Total)	Ni (µg/L)	EPA 1638/200.8	0.08	1
Lead (Diss. & Total)	Pb (µg/L)	EPA 1638/200.8	0.1	1
Antimony (Diss. & Total)	Sb (µg/L)	EPA 1638/200.8	0.01	0.1
Selenium (Diss. & Total)	Se (µg/L)	EPA 1638/200.8	0.4	1
Strontium (Diss. & Total)	Sr (µg/L)	EPA 200.7	0.2	1
Thallium (Diss. & Total)	Tl (µg/L)	EPA 1638/200.8	0.01	0.1
Zinc (Diss. & Total)	Zn (µg/L)	EPA 1638/200.8	0.4	1

Review Work Group

- Has met 3 times since June 2020.
  - IL – Scott Twait
  - IN – Eileen Hack
  - KY – Katie McKone
  - OH – Audrey Rush
  - PA – Kevin Halloran
  - WV – Scott Mandirola/John Wirts
- Reviewed monitoring networks.
- States developed individual recommendations.
- Staff assigned costs to each recommendation.
- States prioritized the recommendations.

Summary of Recommendations & Priorities

- Recommendations and priorities are included with agenda materials.

***Costs are annual , include analytical, travel, and shipping, and presume can be accomplished with existing staff for the purposes of this presentation. Implementing all site additions may necessitate additional staff. Addition of parameters would change costs. These are estimates dependent on many factors including how many recommendations would be implemented and are intended to give TEC a "sense" of costs.

  - Maintain existing networks and sampling frequency (every other month).
  - Add locations:
    - Mainstem in PA downstream of Beaver R. confluence (Bimonthly & Clean Metals) - $13,000.
    - Kentucky R., Salt R., and Green R. site further towards confluence w/Ohio R (Bimonthly) - $700 per site, $4K travel for all sites combined – Total $6,100 for all 3 locations.
    - White R. (flows into Wabash R.), Wabash R. upstream of White R. (Bimonthly) - $700 per site, $4000 travel – Total $5,500.
  - Add parameters to all sites (additional parameters could add up to $10,000 in shipping):
    - DOC - $ 6,400
    - BOD (or CBOD) - $ 6,000
    - Orthophosphate - $ 2,700
    - Continuous pH monitoring at all 30 sites (revised metals criteria pH dependent) – pH/temp loggers are $700 each, travel could be $6,000 or more, and this "could" necessitate additional staff – Total $ 27,000 excluding staff.
    - Add metals to tributary Bimonthly stations – Upwards of $30,000 for analytical, travel and shipping. Could necessitate additional staff.
    - Alkalinity ($4,000), MBAS ($19,000), and osmotic pressure ($22,500).

- There are multiple variations that could be considered for some of these recommendations.

Next Steps

- Additional recommendations and priorities from TEC Committee? Deadline for TEC comments?
- Refine and order priorities.
- Refine costs.
- Present to Program and Finance Committee.
- Potentially seek additional funding opportunities as necessary.
- FYI, we will also be proposing to Program & Finance Committee, repeat of a Broad Scan survey that was first completed ~10 years ago.
  - The Broad Scan survey included sampling for all constituents in ORSANCO's Pollution Control Standards that are not included in our regular monitoring programs. It included the EDI sampling method at 3 Ohio River locations (upper, middle, and lower river), and no exceedances were identified in that first study.
  - Intention is to repeat this on some regular frequency in the future.

Agenda Item 11:

PFAS Project Update

Heath, Dinkins

Ohio River PFAS Survey Development

1) Study Objectives
2) Site Selection
3) Sample Collection Methodology
4) Analytical Services
5) Schedule/QA samples
6) Pre-Survey QA Study
7) Review of QAPP, sampling plan, and SOP.

Study Objective

- Characterize ambient conditions relative to PFASs in the Ohio River at 20 locations, for 2 rounds of sampling under two separate seasons.
  - 1 higher flow & 1 lower flow event.
  - Probabilistic-systematic approach used for site selection.
  - Outside of any regulatory mixing zones.
- The survey is not intended to focus on drinking water.
- Survey will set a baseline for ambient conditions that may be repeated in the future to track changes in Ohio River conditions.
- Results may inform states, EPA, utilities & other interested parties on Ohio River ambient water quality conditions. The Commission is developing a communication plan.

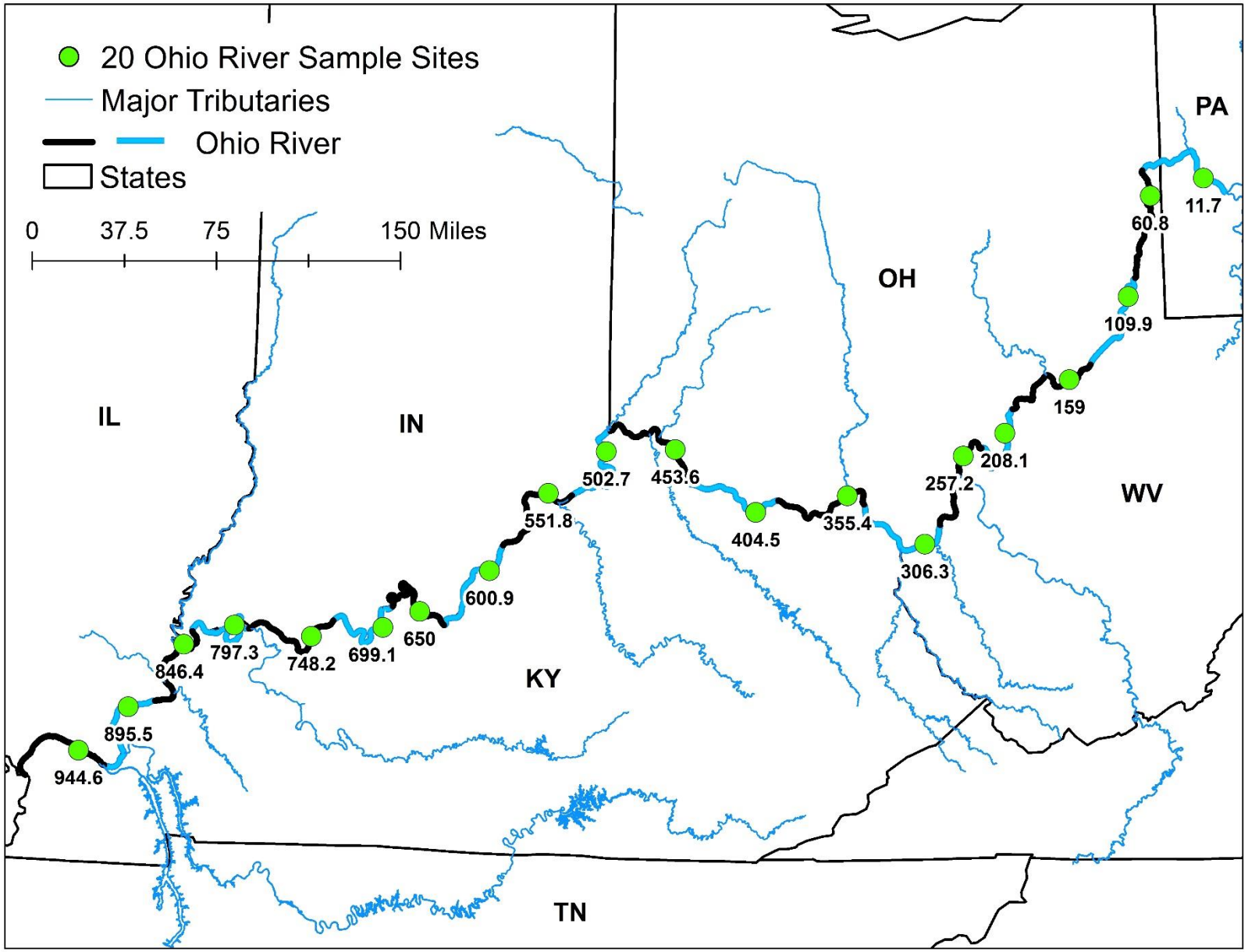
Site Selection

- 20 Ohio River sites.
  - Probabilistic-Systematic selection approach.
  - Sites not within regulatory mixing zones
  - States have previously approved final site selection.

- West Virginia Water Resources Institute/Three Rivers QUEST has asked us to collect 1 Allegheny River and 1 Monongahela River sample during first round with possible second round.

- Will defer to Three Rivers QUEST on exact locations for Allegheny & Mon, downstream near confluence with Ohio River but outside mixing with Ohio River.

Systematic-Probabilistic Approach



Original Probabilistic Sites

Final Sites

I.D.	Ohio River Mile Point	Left Descending Bank Y	Left Descending Bank X	Mid-Point Y	Mid-Point X	Right Descending Bank Y	Right Descending Bank X	Issue	Alt. I.D.	Ohio River Mile Point	Alt. Left Descending Bank Y	Alt. Left Descending Bank X	Alt.Mid Point Y	Alt. Mid Point X	Alt. Right Descending Bank Y	Alt. Right Descending Bank X
1	11.70	40.534042	-80.186169	40.532756	-80.187306	40.531569	-80.188344	ADCP flow measurement instrument during sample collection will not work if too close to large metal structures (the bridge)	Alt.1	11.76	40.533628	-80.185131	40.532275	-80.186281	40.530983	-80.187356
2	60.75	40.441808	-80.604633	40.442611	-80.607167	40.443372	-80.60965									
3	109.80	39.854978	-80.802628	39.856433	-80.803547	39.857931	-80.80445	designated barge fleeting area	Alt.3	111.32	39.844158	-80.822678	39.844819	-80.824314	39.845539	-80.826133
								discharges downstream of original. Move point upstream	Revised Alt. 3	109.60	39.856656	-80.799325	39.858006	-80.800511	39.859372	-80.801739
4	158.85	39.378058	-81.2717	39.380636	-81.274233	39.383108	-81.276708	Broadback Island in the middle	Alt.4	159.22	39.3757	-81.27855	39.377575	-81.280039	39.379392	-81.281467
5	207.90	39.075631	-81.780783	39.077333	-81.780783	39.078981	-81.780803									
6	256.95	38.951144	-82.100194	38.952019	-82.102031	38.952822	-82.103728	designated barge fleeting area	Alt.6	257.60	38.943867	-82.103581	38.944531	-82.106594	38.945133	-82.109614
7	306.00	38.435886	-82.404478	38.4382	-82.404522	38.440711	-82.404594									
8	355.05	38.724172	-82.988264	38.725794	-82.987878	38.727403	-82.987489									
9	404.10	38.628406	-83.686358	38.629953	-83.685606	38.631544	-83.684844	designated barge fleeting area	Alt.9	404.71	38.631997	-83.697056	38.633753	-83.695864	38.635556	-83.69465
10	453.15	38.993714	-84.305828	38.994547	-84.3027	38.995397	-84.299519									
11	502.20	38.993969	-84.835522	38.992347	-84.838211	38.990719	-84.840897	Laughery Island in the middle	Alt.11	502.25	38.993358	-84.835086	38.991792	-84.837647	38.99015	-84.840303
12	551.25	38.733742	-85.262956	38.736139	-85.261681	38.738528	-85.260425									
13	600.30	38.283217	-85.697536	38.285414	-85.6993	38.287631	-85.701094	manmade boating docs	Alt.13	600.48	38.281828	-85.700256	38.284083	-85.702078	38.286422	-85.703972
14	649.35	38.026233	-86.223811	38.028136	-86.221511	38.030067	-86.219183									
15	698.40	37.945508	-86.505769	37.944417	-86.508119	37.943331	-86.510464									
16	747.45	37.881214	-87.037739	37.880942	-87.040939	37.880661	-87.044167									
17	796.50	37.9304	-87.614083	37.932656	-87.618878	37.934892	-87.623686									
18	845.55	37.786097	-87.987147	37.789386	-87.98625	37.792667	-87.985344	moving away from dam for safety	Alt.18	845.31	37.785511	-87.983486	37.788361	-87.982083	37.791364	-87.980628
19	894.60	37.4087	-88.382033	37.409914	-88.380736	37.411328	-88.379225									
20	943.65	37.138442	-88.737292	37.141464	-88.735167	37.144553	-88.732992	designated barge fleeting area	Alt.20	944.23	37.142006	-88.746867	37.145586	-88.74435	37.149206	-88.741772
								move site upstream to avoid discharge at mile point 944.	Revised Alt. 20	943.9	37.139739	-88.741142	37.142917	-88.739022	37.14625	-88.736806

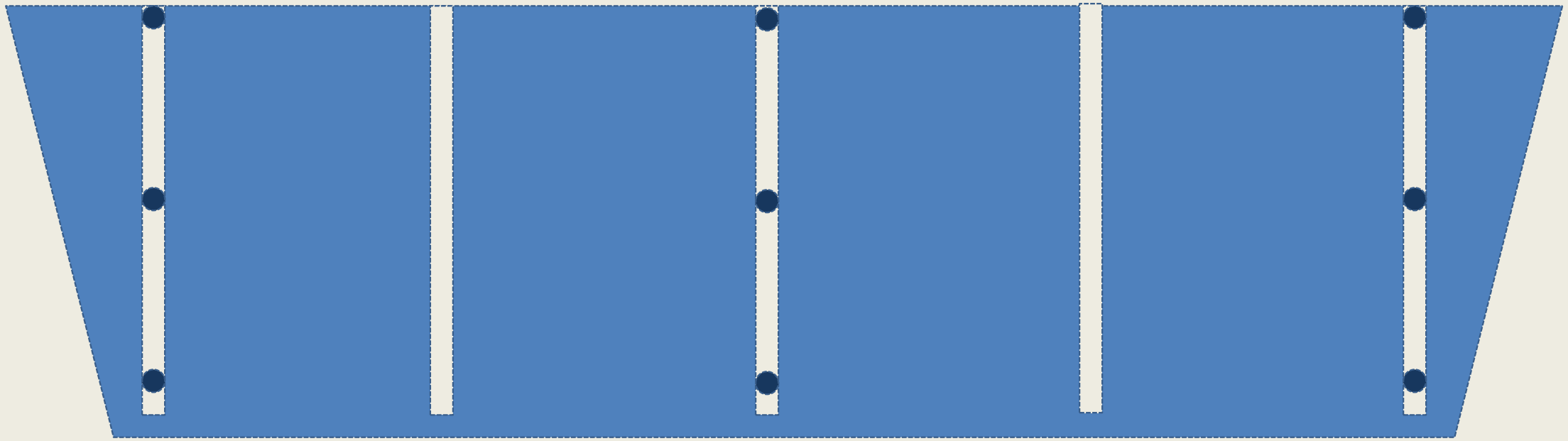
Sample Collection Methodology

- Proceeding with EDI-Equal Discharge Increment Method.
  - Allows for a larger portion of the water column to be sampled and composited to better represent an “average” flow-weighted cross-sectional concentration (transect composite).
  - Reduces the uncertainty associated with single point grabs within a very large cross-sectional area where the variability in concentration across the river is unknown.

- Discrete grab samples at 3 existing sampling sites comparing transect composite to discrete grab samples within the transect.
  - 9 single point grab samples at 3 depths and 3 widths (surface, middle & bottom grabs at left-bank, mid-stream & right-bank.
  - Decision Point: Which 3 existing transects should we conduct the discrete sampling events?

Discrete Sampling at 3 Transects

- Below diagram represents one transect from the 20 selected sites.
- 9 discrete samples will be collected with peristaltic pump and silicone tubing.
- The purpose is to investigate how PFASs are distributed in the water column.
- This will be done on the same day as the EDI composite sample.



Selection of 3 Sites to Conduct the Discrete Sampling Study

- Need to select 3 sites/transects from the 20 already selected Ohio River sites to conduct the discrete sampling study.
- This will allow for a look at the distribution of PFASs in the water column. Is it well mixed or does it tend to concentrate in a particular part of the water column (such as at the surface)?
- Work group met on December 15 and recommended the sites selected be at 3 of the 20 already selected sites.
- They should be at sites likely to produce detections or downstream of tributaries.
- Staff will look at available Ohio River data to select 2 sites that appear to be in higher concentration areas, and one sites downstream of the confluence of a major tributary.
- A recommendation will be made to the work group for consideration.

Analytical Services

- USEPA is securing analytical services with Battelle labs.
- Using DoD compliant method based on EPA 537.1.
- 28 PFAS compounds including GenX.
- Flow measurements at every site with ADCP (Acoustic Doppler Current Profiler) instrumentation considers full X-sectional flows.
- Suspended solids, physical parameters.
- Analytical QAPP requires some revisions.

PFAS Detection Limits for Surface Water Samples Aqueous Samples per Battelle SOPs based on EPA Method 537.1 and Compliant with DoD QSM Ver. 5.3

Analyte	CAS No.	MDL (ng/L)	LOD (ng/L)	LOQ (ng/L)	Analyte	CAS No.	MDL (ng/L)	LOD (ng/L)	LOQ (ng/L)
PFBA	375-22-4	0.45	1.0	5.0	*PFPeS*	2706-91-4	0.26	1.0	5.0
PFPeA	2706-90-3	0.26	1.0	5.0	*PFHxS*	355-46-4	0.11	0.4	5.0
PFHxA	307-24-4	0.53	1.5	5.0	*PFHpS*	375-92-8	0.85	2.0	5.0
PFHpA	375-85-9	0.26	1.0	5.0	*PFOS*	1763-23-1	0.44	1.0	5.0
PFOA	335-67-1	0.51	1.5	5.0	*PFNS*	68259-12-1	0.36	1.0	5.0
PFNA	375-95-1	0.31	1.0	5.0	*PFDS*	335-77-3	0.27	1.0	5.0
PFDA	335-76-2	0.14	0.5	5.0	*4:2FTS*	747124-72-4	0.50	1.0	5.0
PFUnA	2058-94-8	0.22	0.5	5.0	*6:2FTS*	27619-97-2	0.53	1.5	5.0
PFDoA	307-55-1	0.19	0.5	5.0	*8:2FTS*	39108-34-4	0.60	2.0	5.0
PFTrDA	72629-94-8		0.15	0.5	*HFPO-DA*	13252-13-6	0.25	0.5	5.0
PFTeDA	376-06-7	0.73	2.0	5.0	*Adona*	919005-14-4	0.27	1.0	5.0
NMeFOSAA	2355-31-9	0.35	1.0	5.0	*11Cl-PF3OUdS*	763051-92-9	0.23	0.5	5.0
NEtFOSAA	2991-50-6	0.50	1.0	5.0	*9Cl-PF3ONS*	756426-58-1	0.27	1.0	5.0
PFOSA	754-91-6	0.46	1.0	5.0					
PFBS	375-73-5	0.14	0.5	5.0					

Sampling Schedule with QA Samples

- Currently targeting late spring/early summer 2021 for initial round of sampling.
  - Dependent on COVID considerations with overnight travel & 3-sampler boat crew requirements.
  - Theoretically will be the higher flow event.
- Second round in fall, 2021. Timing to coincide with lower flow conditions.
- Sampling schedule also presents a schedule for QA samples
  - One equipment blank collected with every EDI sample.
  - One discrete sampling equipment blank collected on days with discrete sampling.
  - Equipment, field and trip blank procedures described in QAPP.
- Sampling schedule proposes to begin downstream and systematically move upstream.

Sampling & Quality Assurance Schedule

- Discrete sites have not yet been selected and are presented in red font for example purposes only.

ORSANCO Ohio River PFAS Study

River and QC Sample Collection Schedule
(Assumes One River Sample per Day)

	Date	Sample Location ORM	Primary Sample	Discrete Cross-section Samples	Field Replicate	Equipment Blank	Field Blank	Trip Blank	Total Samples
Week #1	TO BE DETERMINED	943.90	1	0	1	1	1	1	5
		894.60	1			1			2
		845.31	1			1			2
Week #2		796.50	1	9	0	1	1	1	13
		747.45	1			2			3
		698.40	1			1			2
		649.35	1			1			2
Week #3		600.48	1	0	1	1	1	1	5
		551.25	1			1			2
		502.25	1			1			2
		453.15	1			1			2
Week #4		404.71	1	9	0	1	1	1	13
		355.05	1			2			3
		306.00	1			1			2
		257.60	1			1			2
Week #5		207.90	1	0	1	1	1	1	5
		159.22	1			1			2
		109.60	1			1			2
		60.75	1			1			2
Week #6		11.76	1	9	0	1	1	1	13
		ALXX	1			2			3
		MOXX	1			1			2
Totals			22	27	3	25	6	6	89

Specific dates to be determined.

Specific milepoints not yet established for the Allegheny (ALXX) and Monongaha (MOXX) river samples.

Proposed Pre-Survey QA Study

- Collect 2 EDI equipment blanks, one before and one after the river sample, to evaluate nozzle and connections, bag, and churn splitter following collection of river sample and equipment decontamination procedures.
- Collect 2 discrete sampler equipment blanks, one before collecting the river sample and one after.
- Collect one river sample.
- Collect one field and one trip blank.
- Conduct the study on the Ohio River as COVID sampling restrictions allow and with enough time to have results before start of the regular survey.

USEPA Passive Sampler Project

- USEPA Passive Sampler Study of PFASs in the Ohio River to be conducted in conjunction with the ORSANCO surveys.
- Work group recommended that passive sampling sites be selected as a subset of the set of 20 already selected sites.
- Work group also recommended that passive sampling sites coincide with sites selected for discrete sampling.
- Work group recommended that passive samplers be placed during the same timeframe to coincide with ORSANCO's sampling schedule.
- USEPA is working on a QAPP for this study.

Documents Review

- PFAS work group met on Dec. 15, 2020 to review and comment on QAPP, Sampling Plan & EDI method SOP specific to PFASs.
- Staff received extensive comments by Jan. 15, 2021 from the PFAS work group and is working on them now.
- After revisions are completed the documents will go back to the work group.
- If anyone on TEC would like to review these documents, we would like to have comments turned around quickly.
- The USEPA has a QAPP for analytical services that isn't currently available for distribution. We are forwarding comments relating to analytical services to them.

QUESTIONS?

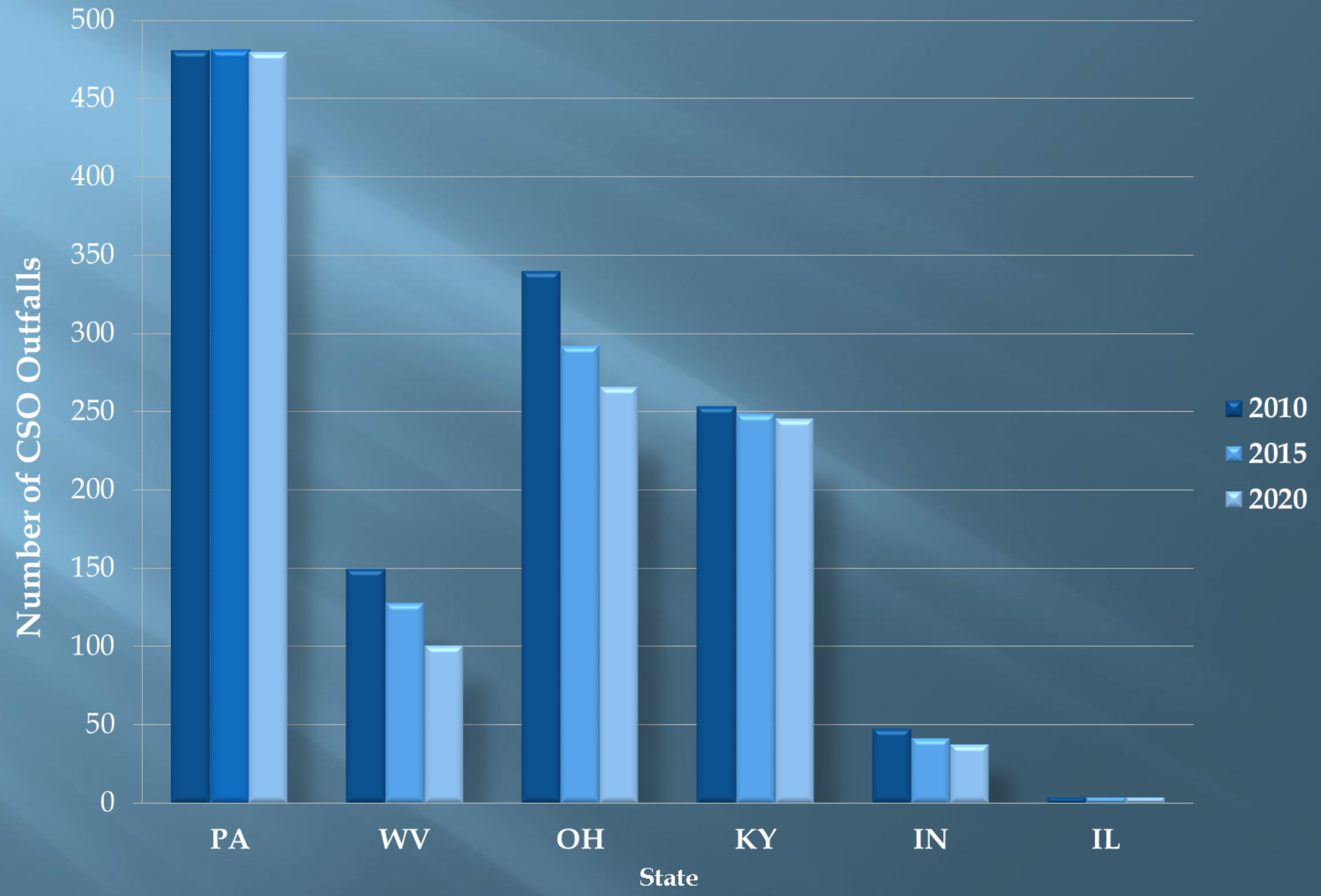
Agenda Item 12:

Status of Combined Sewer Overflow Abatement for Ohio River CSO Systems

Stacey Cochran

- Pennsylvania – 10 Communities
- West Virginia – 10 Communities
- Ohio – 10 Communities
- Kentucky – 9 Communities
- Indiana – 7 Communities
- Illinois – 2 Communities

CSO Outfalls in the Ohio River Communities

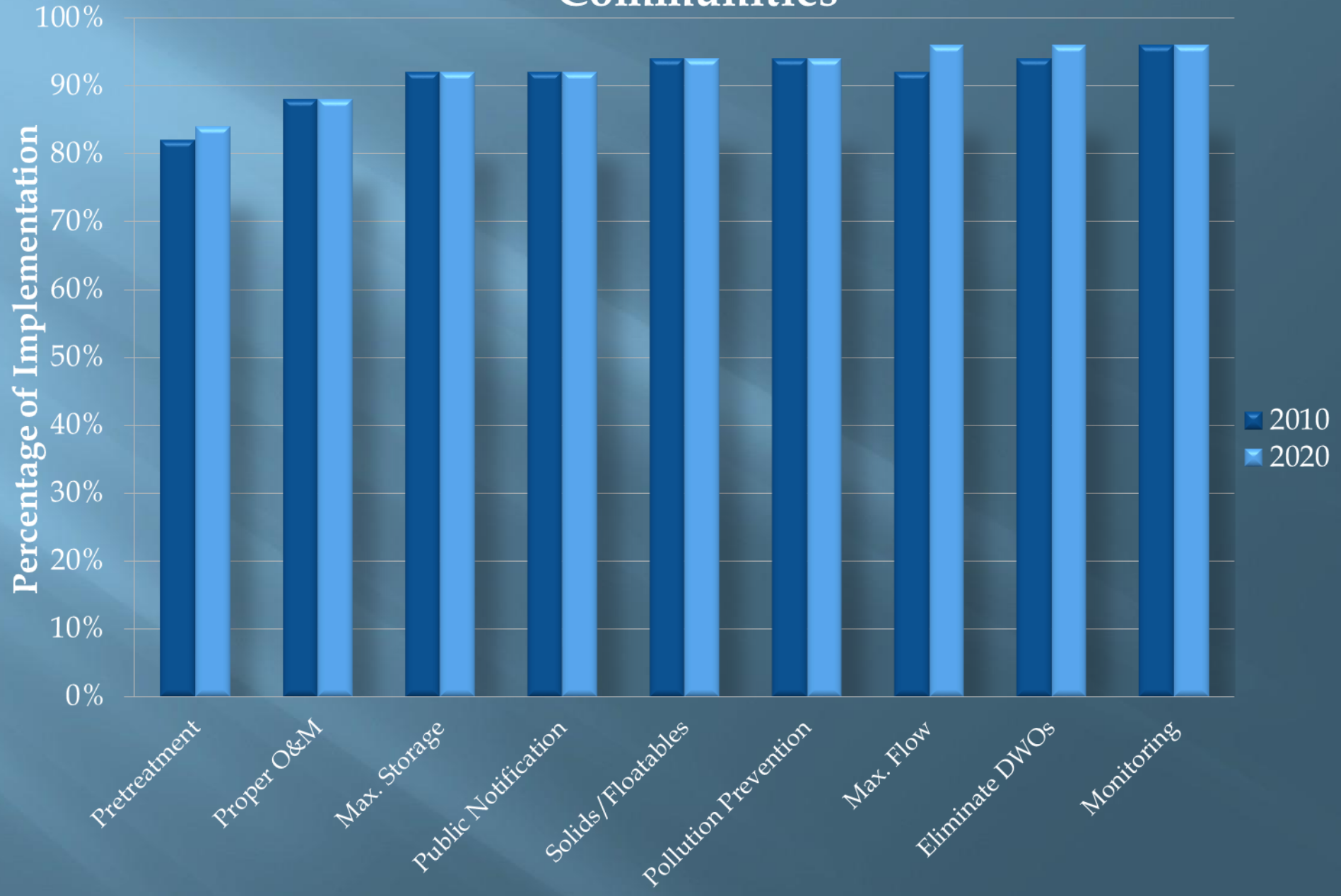


Nine Minimum Controls

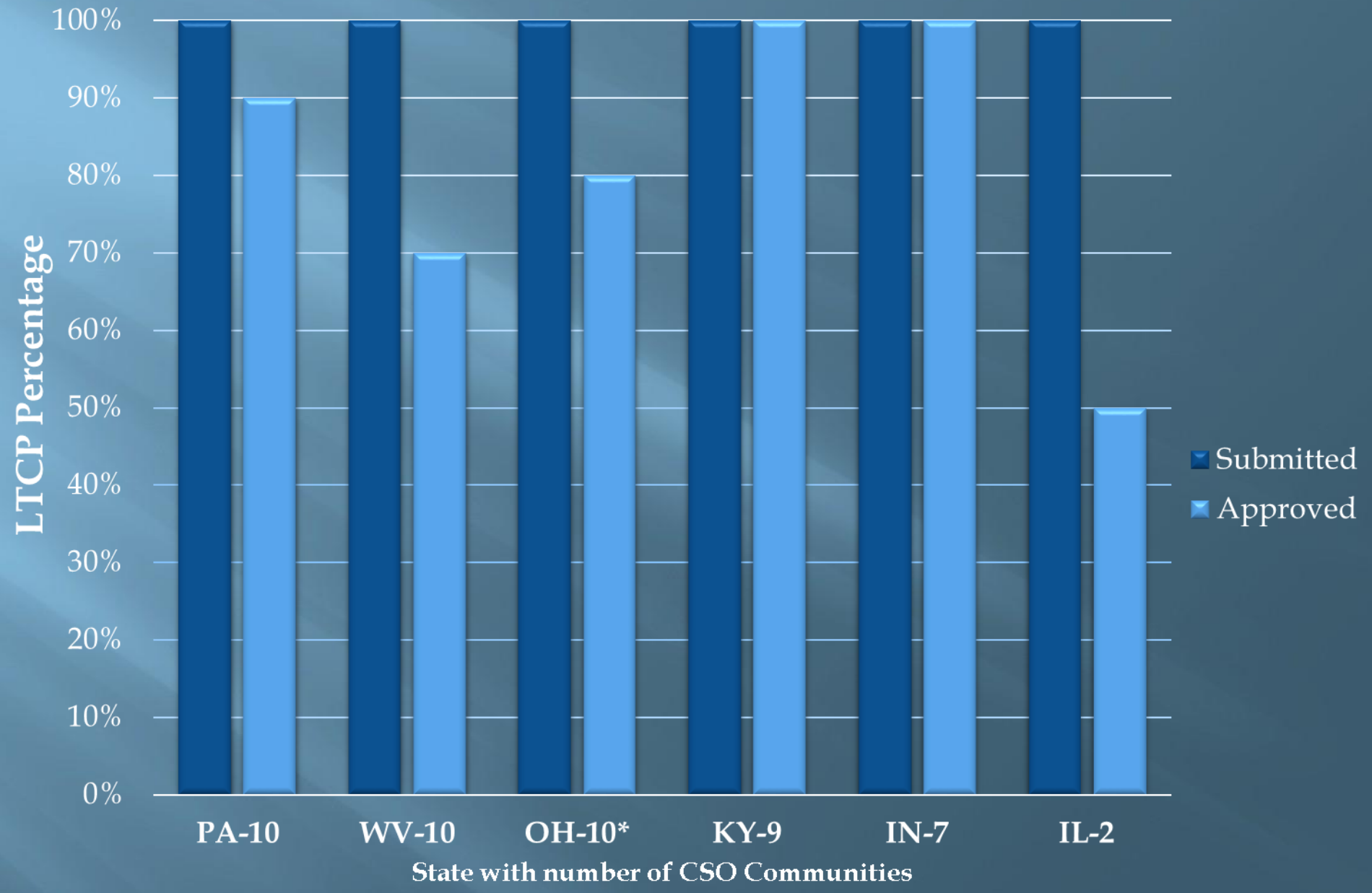
- Measures that can reduce CSOs and their effects on receiving water quality.

1. Proper Operation & Maintenance
2. Maximize Storage
3. Pretreatment
4. Maximize Flow for Treatment
5. Dry Weather CSO Prohibition
6. Control of Solids and Floatables
7. Pollution Prevention
8. Public Notification
9. Monitoring of CSO Impacts

NMC Percentage of Implementation for the 48 CSO Communities



Status of Ohio River Communities LTCP



*New Boston is not required to submit a LTCP.

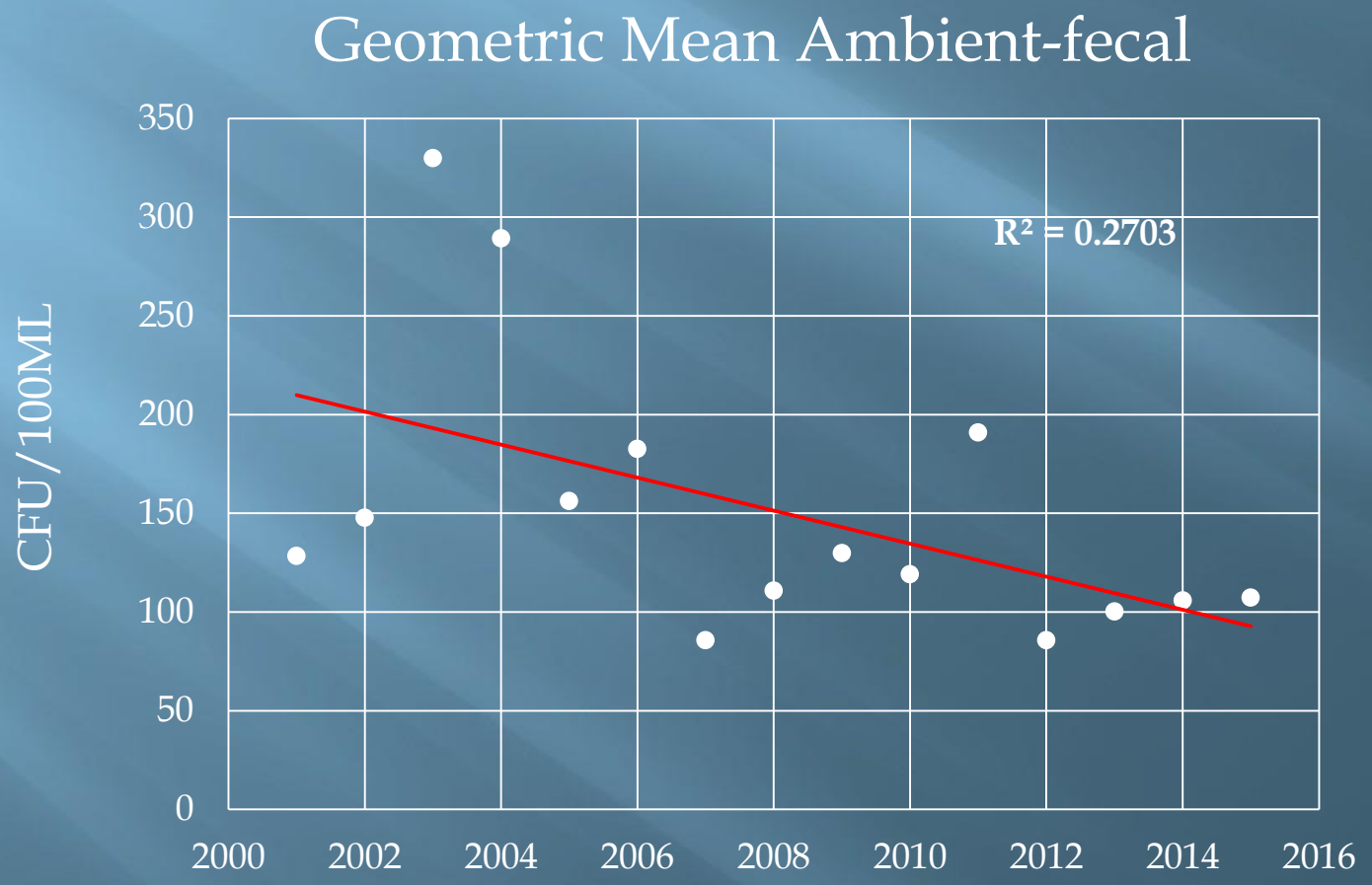
Status Highlights

- ALCOSAN
  - Modified Consent Decree approved
  - Reduce 7 billion gallons by 2036
  - Expand Northside plant from 250 MGD to 600 MGD by end of 2027

- Cincinnati MSD
  - All Phase 1 projects (100) were completed
  - Continued effort on the completion of Bridge projects (25) and early Phase 2A projects
  - Lick Run Greenway project to be completed by Spring 2021.

- Louisville MSD
  - Louisville MSD Waterway Protection Tunnel is projected for completion Spring 2021
  - Shawnee Park CSO Basin Project was named one of the twelve “Infrastructure Game Changers” by the ASCE

Ambient Fecal Bacteria Trend



Geo mean of all sites, river-wide, by year. p=0.047

-When all factors are considered, it appears to be a significant decrease in bacteria concentrations in the Ohio River between 2001-1015.

-Likely a combination of several management practices, including CSO/SSO reduction, better agriculture maintenance, septic upgrades, stormwater BMPs, etc


NOTICE: CSO 217
Combined Sewer Overflow
Untreated storm water and sewage may discharge during and after rainfall. May contain harmful bacteria.
CINCINNATI
513-352-4900
www.MSDGC.org
OEPA
Permit:
1PX00022

Questions?

Other Business:

- Comments by Guests
- Announcement of Upcoming Meetings
- Adjourn

Chairman Bruno Pigott