Ohio Environmental Protection Agency

Hearing Summary

Rule Package:	Credible Data Program Wave 2
Original filing date:	September 1, 2020
Public comment start date:	September 1, 2020
Public comment end date:	October 8, 2020
Public hearing date:	October 8, 2020
List of Rules:	3745-4-02, 3745-4-03, 3745-4-04, 3745-4-05, 3745-4-06

Were there any participants in this public hearing beyond Ohio EPA staff or JCARR staff?

☒ Yes ☐ No

Were there comments received during the public comment period outside of those presented at this hearing?

☒ Yes ☐ No

This hearing summary has been compiled to meet the requirements of Section 119.03 of the Revised Code.

This hearing summary includes this cover sheet and the following attachments:

1. **Attachment A -** A copy of the public notice for this hearing,
2. **Attachment B -** A copy of the sign-in sheet for this hearing, and
3. **Attachment C -** A copy of the script read into the record to begin and end the hearing.
4. **Attachment D -** A copy of the response to comments.

Ohio EPA did not receive any comments throughout the comment period nor at the public hearing, therefore, no response to comments document is included in this hearing summary.

Ohio EPA digitally records all public hearings for rules. The digital recordings are available upon request in a WAVE (.wav) file format. These recordings may be sent out for transcription if necessary.

BEFORE THE
OHIO ENVIRONMENTAL PROTECTION AGENCY

Public Notice
Proposed Rulemaking Governing
Credible Data Program

Notice is hereby given that the Director of Environmental Protection, under the authority of Sections 6111.51 and 6111.53 of the Ohio Revised Code and in accordance with Chapter 119, proposes to amend the following rules of the Ohio Administrative Code (OAC):

Rule Number	Rule Title
3745-4-02	Definitions.
3745-4-03	Qualified data collectors.
3745-4-04	Level 1 data requirements and reporting.
3745-4-05	Level 2 data requirements and reporting.
3745-4-06	Level 3 data requirements and reporting.

OAC Chapter 3745-4 contains the Credible Data program regulations. This rulemaking includes the review and update of five rules in the chapter. The Agency is considering a number of revisions to improve the quality of data and administrative aspects of the program, including the addition of state universities to the definition of "state environmental agency," the extension of timeframes for submission of data, changes in the requirements for qualified data collectors (QDCs) and trainers of QDCs, updates to references, and reversion of nomenclature pertaining to primary headwater streams in response to interested party comments.

The Agency invites all interested parties to comment on this rule. The public comment period will run until **October 8, 2020**. A public hearing on this proposed rulemaking will be held to consider public comments in accordance with Section 119.03 of the Ohio Revised Code.

Ohio EPA will be holding a virtual public hearing on the rules at **10:30 a.m.** on **October 8, 2020**. The meeting will be hold exclusively online. During the virtual hearing the public can submit written comments that will be read into the record by the hearing host.

The virtual hearing may be accessed through Ohio EPA's website at: **http://epa.ohio.gov/virtual**

Written comments may be submitted during the virtual public hearing. In addition, written testimony can be emailed to the attention of Jennie Pugliese, Division of Surface Water at ***dsw_rulecomments@epa.ohio.gov*.** All comments received at the virtual hearing or via email by close of business on **October 8, 2020** will be considered by Ohio EPA prior to final action on this rulemaking proposal. Written comments submitted after this date may be considered as time and circumstances permit.

At this time, the proposed rules are only accessible on the DSW webpage at www.epa.ohio.gov/dsw/dswrules.aspx. A fact sheet explaining the rule revisions is posted on the website as well. Questions regarding this rule package should be directed to Jared Burson at the Division of Surface Water, at (614) 721-8697.

Please note: Comments for this hearing will only be accepted electronically as Ohio EPA is unable to access physical mail at this time.

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DSW Credible Data Rules

October 8, 2020

TURN ON PRESENTER RIGHTS UP TOP AND TO THE RIGHT

START RECORDING

Hello and welcome to Ohio EPA's virtual public hearing regarding Division of Surface Water proposed rules. My name is Mary McCarron and I'm hosting today's public hearing. With me online from Ohio EPA are Jennie Pugliese and Mandi Payton. I'd like to note that we are recording this hearing. We will save all comments submitted during the hearing.

Before I start, I have a couple of tips about the technical end of today's hearing:

1) You should see a floating control panel on your screen in the WebEx app. During the event, the sound may fade in and out due to your internet connection. If you experience problems with the sound during the hearing, either wait a moment or two to see if it is restored or, using the icon on the floating control panel, close or disconnect from the audio portion of the presentation, then reconnect to restore the audio.

2) Please use the chat feature to report or receive assistance with technical issues.

3) Please also use the chat feature to submit comments during the hearing.

PUBLIC HEARING SPEECH

Thank you for taking time to attend this hearing before Ohio EPA. The purpose of the hearing today is to obtain comments from any interested person regarding Ohio EPA's proposed rules.

Ohio EPA Division of Surface Water is proposing to amend the following rules of the Ohio Administrative Code 3745-4-02 through 3745-4-06. OAC Chapter 3745*4

contains the credible data program regulations. This rulemaking includes the review and update of five rules in the chapter. The Agency is considering a number of revisions to improve the quality of data and administrative aspects of the program, including the addition of state universities to the definition of "state environmental agency," the extension of timeframes for submission of data, changes in the requirements for qualified data collectors (QDCs) and trainers of QDCs, updates to references, and reversion of nomenclature pertaining to primary headwater streams in response to interested party comments.

These rules have been filed with the Joint Committee on Agency Rule Review. Copies of the rules are available for public review on our website.

All interested persons are entitled to attend or be represented, and to present written comments concerning the proposed rules. All written comments received as part of the official record will be considered by the director of Ohio EPA.

To be included in the official record, written comments must be received by Ohio EPA by the close of business, today, Oct. 8, 2020. These comments may be typed into the chat today or emailed to dsw_rulecomments@epa.ohio.gov. All emailed comments submitted for the record receive the same consideration as typed testimony given today.

Written statements submitted after today may be considered as time and circumstances permit but will not be part of the official record of the hearing.

This hearing affords citizens an opportunity to provide input. Therefore, we will not be able to answer questions today.

YOU MAY NOW SUBMIT COMMENTS IN WRITING. I will read aloud any comments we receive in the hearing chat. I will keep the chat open until 11 a.m. to provide time for participants to type in comments.

CLOSING

We will close the hearing. After the hearing closes, we will accept written comments through 5:00 p.m. today. You can send those comments to the email address on the screen.

Thank you for your comments, cooperation and participation in Ohio EPA's decision-making process. The time is now_____ and this hearing is concluded.

CAPTURE CHATS AND Q&A

Public Hearing Q&A Online Chat Capture

from Andrew Huffman to host (privately): 10:34 AM

Thank you for hosting today's meeting. I was just hoping to confirm that your office received the comments from Mike Cope of the Ohio Coal Association?

from Kristin Watt to host & presenter: 10:34 AM

Would you please provide some background as to why there is consideration to add state universities to the rule and what the reasoning behind this is?

from Andrew Huffman to all panelists: 10:34 AM

Thank you for hosting today's meeting. I was just hoping to confirm that your office received the comments from Mike Cope of the Ohio Coal Association?

from Kristin Watt to all panelists: 10:35 AM

Would you please provide some background as to why there is consideration to add state universities to the rule and what the reasoning behind this is?

from Mary McCarron to all panelists: 10:35 AM

from Andrew Huffman to host (privately): 10:34 AM

Thank you for hosting today's meeting. I was just hoping to confirm that your office received the comments from Mike Cope of the Ohio Coal Association?

from Anthony Sasson to all panelists: 10:36 AM

The Midwest Biodiversity Institute will provide written comments later today.

Ohio Environmental Protection Agency

Division of Surface Water
Response to Comments

Rules: Water Quality Standards Credible Data Program Rules, OAC Chapter 3745-4:
OAC 3745-4-02: Definitions.
OAC 3745-4-03: Qualified data collectors.
OAC 3745-4-04: Level 1 data requirements and reporting.
OAC 3745-4-05: Level 2 data requirements and reporting.
OAC 3745-4-06: Level 3 data requirements and reporting.

Agency Contact for this Package:

Division Contact: Audrey Rush
Division of Surface Water
614-644-2035
audrey.rush@epa.ohio.gov

Ohio EPA held a public comment period from September 1, 2020 to October 8, 2020 with a public hearing held on October 8, 2020 regarding the five Credible Data Program rules. This document summarizes the comments and questions received during the associated comment period.

Ohio EPA reviewed and considered all the comments received during the public comment period. By law, Ohio EPA has authority to consider specific issues related to protection of the environment and public health.

In an effort to help you review this document, the questions are grouped by topic and organized in a consistent format. The name of the commenter follows the comment in parentheses.

Addition of "State Universities" to the definition of "state environmental agency"

Comment: API Ohio does not support Ohio EPA's proposed addition of "state universities" to the definition of "state environmental agency" found within OAC 3745-1-02. API Ohio requests that this proposed amendment be removed, for the following reasons.

From a practical perspective, state universities function very differently from other state agencies, and in particular the other state agencies listed within OAC 3745-4-02(Q). State universities are large institutions focused on a wide range of disciplines. While the other state environmental agencies listed within subsections (Q)(1) through (Q)(6) of OAC 3745-4-02 are in fact all agencies "whose primary functions includes protection, management, study or assessment of the environment, natural resources or ecological systems," as the definition within subsection (Q) indicates, this is not true of state universities. Consequently, the definition as written within subsection (Q) itself does not make sense when applied specifically to proposed subsection (Q)(7). Nor is the definition of "state universities" within (Q)(7) limited in any way to those portions of state universities that deal with the sciences.

Significantly, another way in which state universities differ from other state agencies such as Ohio EPA, the Ohio Department of Natural Resources, and those other agencies listed within OAC 3745-4-02(Q) is with the employees of those agencies. In stark contrast to most state employees working at state agencies such as Ohio EPA, state universities employ tenured professors who may enjoy wide latitude in determining how to complete their job duties, an with regard to data collection specifically, often rely heavily on students rather than employees with specific training.

These differences highlight several questions: is any state university professor permitted to submit data and have it deemed credible? Is this true, regardless of the particular discipline of that professor, or that professor's level of experience and training, or the training or experience of the individuals who actually collected the data? Would such professor or individuals be required to have training or experience in the areas detailed within OAC 3745-4-03? What is Ohio EPA's process for evaluating these questions when evaluating the data submitted by state universities which are proposed to be defined as a "state environmental agency?" The rules as drafted provides no clarity in this regard.

Furthermore, must data submitted by state universities (that would automatically be deemed credible pursuant to OAC 3745-4-01(D)) further meet the requirements set forth in OAC 3745-4-04 through -06 to qualify as level 1, level 2, or level 3 credible data? While OAC 3745-4-01(D) specifies that data submitted by state environmental agencies "shall be deemed credible at the appropriate level according to the specifications set forth in this chapter," this is not in concert with the language of other rules within the chapter. For example: (1) based on the language of OAC 3745-4-04 through -06, the level 1, 2, and 3 requirements and reporting detailed within appear to apply only to data submitted by qualified data collectors, and (2) OAC 3745-4-01(C) and (D) refer to specifications, yet balance of OAC Chapter 3745-4 does not identify as specifications the criterion that will be used to deem data credible at the appropriate level. Moreover, OAC 3745-4-01(D)(1) does not contain any sort of discretionary language, such as that found in (D)(2), giving the director discretion to identify reasons why the data are not credible.

API Ohio requests clarification regarding Ohio EPA's intent for how these rules will be applied as to state universities whose data is automatically deemed credible pursuant to OAC 3745-4-01(D)(1). If Ohio EPA declines to remove proposed language from OAC 3745-4-02(Q)(7), API requests further proposed amendments to the rule language so that there is no ambiguity in this regard. (American Petroleum Institute Ohio)

Response: Ohio EPA has agreed to remove the provision of state universities as a state environmental agency from the proposed rules.

Comment: OAC 3745-2-02(Q)(7) adds State universities as a State environmental agency. This addition is highly concerning in that it starts the process of turning State universities into environmental regulatory agencies. This initial step will foster the expansion of State universities into the role of a regulator, which will become enticing to many. The unintended consequences far outweigh any benefit. We highly recommend this addition be removed. (B&N Coal, Inc.)

Response: Ohio EPA has agreed to remove the provision of state universities as a state environmental agency from the proposed rules.

Comment: ***Proposed OAC 3745-4-02(Q)(2) through (7)***

In 3745-4-02(Q)(2) through (7) State agencies are listed that presumably already qualify as Level 3 entities thus bypassing the need for training and certification. While this may be acceptable and even necessary for some of the non-biological specialties, we object to this provision in general and specifically the addition of State Universities for the Level 3 biological and habitat specialties. While none or only a few of these entities may ever collect biological data for Level 3 purposes, State Universities have a much higher likelihood of doing this. We believe that some level of training and demonstration of skill and performance is needed before granting default acceptance of their data. We have had too many experiences with academia not respecting Ohio EPA Level 3 methods and even having it show up in the peer reviewed literature. The recent experiences with the U.S. Army Corps SWiVM approach where they substituted a generic Rapid Bioassessment Protocol over Ohio EPA methods for what is essentially a regulatory purposes is another example. Even the tacit suggestion that these alternate institutions and methods are acceptable is not only confusing, but invites malpractice. We suggest that each agency be accompanied by the specialties that are absolutely needed for their respective missions and that none be permitted to perform as Level 3 for any of the biological or habitat specialties with undergoing training and testing. (Midwest Biodiversity Institute, MBI)

Response: Ohio EPA has agreed to remove the provision of state universities as a state environmental agency from the proposed rules.

Comment: One last Credible Data – Wave 2 proposed rule concern is the addition of State universities being included as a State environmental agency (OAC 3745-4-02(Q)). State universities are supported by the public and research needs. It is of great concern that State universities are being placed on the 'slippery slope' of environmental regulation. The OCA strongly urges that the OEPA remove State universities from this rule. (Ohio Coal Association, OCA)

Response: Ohio EPA has agreed to remove the provision of state universities as a state environmental agency from the proposed rules.

Comment: What happens if data collected by different professors and/or universities is inconsistent? (Ohio Home Builders Association, OHBA)

Response: Ohio EPA has agreed to remove the provision of state universities as a state environmental agency from the proposed rules.

Comment: How will universities be funded to study and provide credible data to OEPA? (OHBA)

Response: Ohio EPA has agreed to remove the provision of state universities as a state environmental agency from the proposed rules.

Comment: Why not include private universities located in Ohio? Additionally, researchers at private universities often collaborate with scientist from state universities so it seems odd to me to

not include them in this proposed rule change. Here are a couple examples of world class researchers that work at private universities in Ohio:

a. Dr. Hoggarth of Otterbein University is an internationally renowned malacologist
b. Dr. David Baker (emeritus) and the National Center for Water Quality Research based at Heidelberg University (in Tiffin, OH). Dr. Baker is a world renowned educator and researcher in the field of water quality. (OHBA)

Response: Ohio EPA has agreed to remove the provision of state universities as a state environmental agency from the proposed rules.

Comment: What if universities outside of Ohio collaborate with universities located in Ohio, how would the OEPA oversea work completed at universities located outside of Ohio? I know that Florida Gulf Coast, Notre Dame and Purdue for example are already working with universities in Ohio on algal bloom issues facing western Lake Erie. Another example is the Ohio River Basin Consortium for Research and Education that includes universities from Ohio, Kentucky, West Virginia, Virginia, Indiana, and Pennsylvania. (OHBA)

Response: Ohio EPA has agreed to remove the provision of state universities as a state environmental agency from the proposed rules.

Comment: The OMA is opposed to Ohio EPA's proposed addition as currently drafted of "state universities" to the definition of "state environmental agency" found within OAC 3745-4-02(Q). The other state environmental agencies listed within OAC 3745-4-02(Q) appear to be consistent with the definition of "state environmental agency," having the primary function of "protection, management, study, or assessment of the environment, natural resources or ecological systems." OAC 3745-4-02(Q). State universities, on the other hand, have a much broader focus, and do not fit within this definition. The proposed addition of "state universities" to OAC 3745-4-02(Q) does not limit the term in any way, nor does the incorporated definition of "state universities" within R.C. 3345.011. The rule as drafted appears to allow for any state university employee to submit data and have it be deemed credible pursuant to the rule, regardless of that employee's area of discipline, training, and experience.

Notably, the rule as drafted provides that data submitted by state universities shall be automatically deemed credible pursuant to OAC 3745-4-01(D)(1). And unlike OAC 3745-4 01(D)(2), subsection (D)(1) does not contain a provision authorizing the Director to exercise discretion in identifying reasons why the data submitted are not credible.

The OMA respectfully requests that Ohio EPA please remove this provision or at least provide further clarity in regards to this proposed addition to OAC 3745-4-02(Q). (Ohio Manufacturer's Association, OMA)

Response: Ohio EPA has agreed to remove the provision of state universities as a state environmental agency from the proposed rules.

Comment: OOGA does not support the proposed addition of "state universities" to the definition of "state environmental agency" found within OAC 3745-4-02 and requests that this proposed amendment be removed for the following reasons.

As a general matter, the proposal lacks basis. Ohio EPA does not offer any explanation or reasoning of why this change is being proposed. How will the addition of state universities "improve the quality of data and administrative aspect of the program" as stated in the public notice?

While Ohio is privileged to have some fine state universities, we are concerned the functions and quality of the programing at each of these institutions may not be equal. On the other hand, the "state governmental agencies" currently listed within OAC 3745-4-02(Q) have as their "primary function" the "protection, management, study or assessment of the environment, natural resources or ecological systems". This is not the primary function of state universities. State universities function very differently and focus on a broad array of disciplines-only some of which may focus on the environment, natural resources, or ecological systems. We are concerned that the proposed change would make data submitted from any professor or teaching assistant automatically deemed credible no matter the level of their education and no matter the type of degree or status of degree they hold.

Moreover, unlike the state agencies listed within OAC 3745-4-2(Q), where state employees owe their allegiance to the state, state university professors, graduate students, teaching assistants and the like have extremely wide latitude within in their jobs or as may be dictated by independent third-party industry or other organizations that provide study funding. Indeed, institutions of higher learning and their staff can have strong biases that can very likely tarnish data collection and its credibility. Given these concerns we ask how Ohio EPA will qualify the data received from state universities set forth in OAC 3745-4-04 through 06?

Lastly, there is an existing mechanism where a state university and/or its staff can obtain qualified data collector status. This allows the checks and balances necessary for these fiercely independent institutions and their professors and students. The rulemaking proposal does not offer any credible support for proposing an end around the safeguards of the existing mechanism. (Ohio Oil and Gas Association, OOGA)

Response: Ohio EPA has agreed to remove the provision of state universities as a state environmental agency from the proposed rules.

Comment: Ohio EPA has proposed to revise the definition "state environmental agency" to include "state universities as defined in section 3345.011 of the Revised Code." The definition of "state environmental agency" already includes: (1) Ohio EPA; (2) Ohio Department of Natural Resources; (3) bureau of environmental health in the Ohio Department of Health; (4) the livestock environmental permitting program in the Ohio Department of Agriculture; (5) the bureau of underground storage regulations in the state fire marshal division of the Ohio Department of Commerce; and (6) the office of environmental services in the Ohio Department of Transportation.

R.C. 3345.011 defines state universities as: "a public institution of higher education which is a body politic and corporate. Each of the following institutions of higher education shall be recognized as a state university: university of Akron, Bowling Green state university, Central state university, university of Cincinnati, Cleveland state university, Kent state university, Miami university, Ohio university, Ohio state university, Shawnee state university, university of Toledo, Wright state university, and Youngstown state university."

Under Ohio Adm.Code 3745-4-01(D), Ohio EPA has qualified certain data credible by rule: "The data originating from studies conducted and samples collected by Ohio EPA, Ohio EPA's contractors, federal environmental agencies including the United States environmental protection agency, and other state environmental agencies shall be deemed credible at the appropriate level according to the specifications set forth in this chapter" (emphasis added). Thus, under the proposed revisions, data collected by state universities would be credible by rule and exempt from the training required for other data collectors.

Ohio Adm.Code 3745-4-01(A) states: "Except as provided in paragraph (D) of this rule, persons collecting and submitting data to Ohio EPA for consideration as credible data must have status as a qualified data collector (QDC) as provided in rule 3745-4-03 of the Administrative Code." The exemption is reiterated in the Ohio Adm.Code 3745-4-04(A) (Level 1 data requirements and reporting), Ohio Adm.Code 3745-4-05(A) (Level 2 data requirements and reporting), and Ohio Adm.Code 3745-4-06(A) (Level 3 data requirements and reporting): "Except as provided by paragraph (D) of rule 3745-4-01 of the Administrative Code, all data submitted to the director for consideration as [insert level] credible data shall be collected and submitted by [insert level] qualified data collectors (QDCs) approved by the director pursuant to … the Administrative Code."

Ohio's tiered system for designating data credibility ensures that data collected and submitted to Ohio EPA are scientifically sound and appropriately weighted. Exemptions to any established system tend to undermine the integrity of that system. In this case, however, integrity is maintained because the state agencies that are afforded an exemption conduct their operations according to procedures and recognized best practices that are well established as providing reliable results. This premise is thus reflected in the QDC training requirements exemption.

OUG is concerned that arbitrarily and uniformly adding state universities to the definition of "state environmental agency" will nullify the basis for the training exemption for such agencies and data credibility will suffer. State universities are dissimilar to currently defined state environmental agencies, which are led by cabinet directors appointed by the governor. As components of state government, these agencies operate with a high degree of public scrutiny and accountability to which state universities are not subjected. Yet, if these institutions are considered state environmental agencies, they too would be exempted from the QDC training requirements. This would defeat the purpose of the regulations that impose requirements on data collectors to ensure that data are reliable. OUG understands that Ohio EPA occasionally uses data collected by universities. However, allowing all university data collectors to be exempt from the QDC requirements is not scientifically or technically

defensible. When university data are utilized, Ohio EPA has the ability itself to weigh how much reliance to afford the data, as do others affected by its use. Put another way, many students collect data as part of assignments or projects. In such a case, it would be difficult for all those affected by reliance upon the data to confirm that the data were appropriately collected and mined such to afford it unimpeachable credibility. This is where the current QDC requirements for state universities provide necessary support and rationale for using the university collected data.

Finally, what are the tangential ramifications of including state universities in the definition of "state environmental agency"? Will such institutions be afforded additional influence on the creation of water quality standards or TMDLs? Will they be held to the same standards as other state agencies identified in the rule? Will a presumption of credibility be extrapolated to other non-environmental areas of policy?

To date, there has been no foundation laid that demonstrates need for the proposed definition change. The change will create serious credibility questions if state universities are exempted from current QDC training requirements. And, the change may lead to unintended consequences that have not yet been explored. For these reasons, OUG asks that Ohio EPA withdraw this proposed change to the definition of state environmental agency and continue to require that state universities be held to the same standards as other QDCs. If, however, Ohio EPA rejects OUG's request, before moving forward, the Agency should at a minimum engage with OUG and other stakeholders to discuss the need and potential ramifications of the proposed change. (Ohio Utilities and Generators, OUG)

Response: Ohio EPA has agreed to remove the provision of state universities as a state environmental agency from the proposed rules.

Comment: The OMA is opposed to Ohio EPA's proposed addition as currently drafted of "state universities" to the definition of "state environmental agency" found within OAC 3745-4-02(Q). The other state environmental agencies listed within OAC 3745-4-02(Q) appear to be consistent with the definition of "state environmental agency," having the primary function of "protection, management, study, or assessment of the environment, natural resources or ecological systems." OAC 3745-4-02(Q). State universities, on the other hand, have a much broader focus, and do not fit within this definition. The proposed addition of "state universities" to OAC 3745-4-02(Q) does not limit the term in any way, nor does the incorporated definition of "state universities" within R.C. 3345.011. The rule as drafted appears to allow for any state university employee to submit data and have it be deemed credible pursuant to the rule, regardless of that employee's area of discipline, training, and experience.

Notably, the rule as drafted provides that data submitted by state universities shall be automatically deemed credible pursuant to OAC 3745-4-01(D)(1). And unlike OAC 3745-4 01(D)(2), subsection (D)(1) does not contain a provision authorizing the Director to exercise discretion in identifying reasons why the data submitted are not credible.

The OMA respectfully requests that Ohio EPA please remove this provision or at least provide further clarity in regards to this proposed addition to OAC 3745-4-02(Q). (Ohio Manufacturer's Association, OMA)

Response: Ohio EPA has agreed to remove the provision of state universities as a state environmental agency from the proposed rules.

Comment: OOGA does not support the proposed addition of "state universities" to the definition of "state environmental agency" found within OAC 3745-4-02 and requests that this proposed amendment be removed for the following reasons.

As a general matter, the proposal lacks basis. Ohio EPA does not offer any explanation or reasoning of why this change is being proposed. How will the addition of state universities "improve the quality of data and administrative aspect of the program" as stated in the public notice?

While Ohio is privileged to have some fine state universities, we are concerned the functions and quality of the programing at each of these institutions may not be equal. On the other hand, the "state governmental agencies" currently listed within OAC 3745-4-02(Q) have as their "primary function" the "protection, management, study or assessment of the environment, natural resources or ecological systems". This is not the primary function of state universities. State universities function very differently and focus on a broad array of disciplines-only some of which may focus on the environment, natural resources, or ecological systems. We are concerned that the proposed change would make data submitted from any professor or teaching assistant automatically deemed credible no matter the level of their education and no matter the type of degree or status of degree they hold.

Moreover, unlike the state agencies listed within OAC 3745-4-2(Q), where state employees owe their allegiance to the state, state university professors, graduate students, teaching assistants and the like have extremely wide latitude within in their jobs or as may be dictated by independent third-party industry or other organizations that provide study funding. Indeed, institutions of higher learning and their staff can have strong biases that can very likely tarnish data collection and its credibility. Given these concerns we ask how Ohio EPA will qualify the data received from state universities set forth in OAC 3745-4-04 through 06?

Lastly, there is an existing mechanism where a state university and/or its staff can obtain qualified data collector status. This allows the checks and balances necessary for these fiercely independent institutions and their professors and students. The rulemaking proposal does not offer any credible support for proposing an end around the safeguards of the existing mechanism. (Ohio Oil and Gas Association, OOGA)

Response: Ohio EPA has agreed to remove the provision of state universities as a state environmental agency from the proposed rules.

Comment: Ohio EPA has proposed to revise the definition "state environmental agency" to include "state universities as defined in section 3345.011 of the Revised Code." The definition of "state environmental agency" already includes: (1) Ohio EPA; (2) Ohio Department of Natural

Resources; (3) bureau of environmental health in the Ohio Department of Health; (4) the livestock environmental permitting program in the Ohio Department of Agriculture; (5) the bureau of underground storage regulations in the state fire marshal division of the Ohio Department of Commerce; and (6) the office of environmental services in the Ohio Department of Transportation.

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Under Ohio Adm.Code 3745-4-01(D), Ohio EPA has qualified certain data credible by rule: "The data originating from studies conducted and samples collected by Ohio EPA, Ohio EPA's contractors, federal environmental agencies including the United States environmental protection agency, and other state environmental agencies shall be deemed credible at the appropriate level according to the specifications set forth in this chapter" (emphasis added). Thus, under the proposed revisions, data collected by state universities would be credible by rule and exempt from the training required for other data collectors.

Ohio Adm.Code 3745-4-01(A) states: "Except as provided in paragraph (D) of this rule, persons collecting and submitting data to Ohio EPA for consideration as credible data must have status as a qualified data collector (QDC) as provided in rule 3745-4-03 of the Administrative Code." The exemption is reiterated in the Ohio Adm.Code 3745-4-04(A) (Level 1 data requirements and reporting), Ohio Adm.Code 3745-4-05(A) (Level 2 data requirements and reporting), and Ohio Adm.Code 3745-4-06(A) (Level 3 data requirements and reporting): "Except as provided by paragraph (D) of rule 3745-4-01 of the Administrative Code, all data submitted to the director for consideration as [insert level] credible data shall be collected and submitted by [insert level] qualified data collectors (QDCs) approved by the director pursuant to … the Administrative Code."

Ohio's tiered system for designating data credibility ensures that data collected and submitted to Ohio EPA are scientifically sound and appropriately weighted. Exemptions to any established system tend to undermine the integrity of that system. In this case, however, integrity is maintained because the state agencies that are afforded an exemption conduct their operations according to procedures and recognized best practices that are well established as providing reliable results. This premise is thus reflected in the QDC training requirements exemption.

OUG is concerned that arbitrarily and uniformly adding state universities to the definition of "state environmental agency" will nullify the basis for the training exemption for such agencies and data credibility will suffer. State universities are dissimilar to currently defined state environmental agencies, which are led by cabinet directors appointed by the governor. As components of state government, these agencies operate with a high degree of public

scrutiny and accountability to which state universities are not subjected. Yet, if these institutions are considered state environmental agencies, they too would be exempted from the QDC training requirements. This would defeat the purpose of the regulations that impose requirements on data collectors to ensure that data are reliable. OUG understands that Ohio EPA occasionally uses data collected by universities. However, allowing all university data collectors to be exempt from the QDC requirements is not scientifically or technically defensible. When university data are utilized, Ohio EPA has the ability itself to weigh how much reliance to afford the data, as do others affected by its use. Put another way, many students collect data as part of assignments or projects. In such a case, it would be difficult for all those affected by reliance upon the data to confirm that the data were appropriately collected and mined such to afford it unimpeachable credibility. This is where the current QDC requirements for state universities provide necessary support and rationale for using the university collected data.

Finally, what are the tangential ramifications of including state universities in the definition of "state environmental agency"? Will such institutions be afforded additional influence on the creation of water quality standards or TMDLs? Will they be held to the same standards as other state agencies identified in the rule? Will a presumption of credibility be extrapolated to other non-environmental areas of policy?

To date, there has been no foundation laid that demonstrates need for the proposed definition change. The change will create serious credibility questions if state universities are exempted from current QDC training requirements. And, the change may lead to unintended consequences that have not yet been explored. For these reasons, OUG asks that Ohio EPA withdraw this proposed change to the definition of state environmental agency and continue to require that state universities be held to the same standards as other QDCs. If, however, Ohio EPA rejects OUG's request, before moving forward, the Agency should at a minimum engage with OUG and other stakeholders to discuss the need and potential ramifications of the proposed change. (Ohio Utilities and Generators, OUG)

Response: Ohio EPA has agreed to remove the provision of state universities as a state environmental agency from the proposed rules.

Comment: OAIMA Ohio does not support Ohio EPA's proposed addition of "state universities" to the definition of "state environmental agency" found within OAC 3745-4-02. OAIMA requests that this proposed amendment be removed, for the following reasons.

As an initial matter, OAIMA requests an explanation for why Ohio EPA added "state universities" to the definition of "state environmental agency" within OAC 3745-4-02(Q). Ohio EPA's public notice generally states that the rule amendments were made "to improve the quality of data and administrative aspects of the program." How does this addition further either of these stated goals?

From a practical perspective, state universities function very differently from other state agencies, in particular the other state agencies listed within OAC 3745-4-02(Q). State universities are large institutions focused on a wide range of disciplines. While the other state

environmental agencies listed within subsections (Q)(1) through (Q)(6) of OAC 3745-4-02 are in fact all agencies "whose primary function includes protection, management, study or assessment of the environment, natural resources or ecological systems," as the definition within subsection (Q) indicates, this is not true of state universities. Consequently, the definition as written within subsection (Q) itself does not make sense when applied specifically to proposed subsection (Q)(7). Nor is the definition of "state universities" within (Q)(7) limited in any way to those portions of state universities that deal with the sciences.

Significantly, another way in which state universities differ from other state agencies such as Ohio EPA, the Ohio Department of Natural Resources, and those other agencies listed within OAC 3745-4-02(Q) is with the employees of those agencies. In stark contrast to most state employees working at state agencies such as Ohio EPA, state universities employ tenured professors who may enjoy wide latitude in determining how to complete their job duties.

These differences highlight several questions: is any state university professor permitted to submit data and have it be deemed credible? Is this true, regardless of the particular discipline of that professor, or that professor's level of experience and training? Would such professor be required to have training or experience in the areas detailed within OAC 3745-4-03? What is Ohio EPA's process for evaluating these questions when evaluating the data submitted by state universities? The rule as drafted provides no clarity in this regard.

Furthermore, must data submitted by state universities (that would automatically be deemed credible pursuant to OAC 3745-4-01(D)) further meet the requirements set forth in OAC 3745-4-04 through -06 to qualify as level 1, level 2, or level 3 credible data? While OAC 3745-4-01(D) specifies that data submitted by state environmental agencies "shall be deemed credible at the appropriate level," this is not in concert with the language of other rules within the chapter. For example, based on the language of OAC 3745-4-04 through -06, the level 1, 2, and 3 requirements and reporting detailed within appear to apply only to data submitted by qualified data collectors. Moreover, OAC 3745-4-01(D)(1) does not contain any sort of discretionary language, such as that found in (D)(2), giving the director discretion to identify reasons why the data are not credible.

OAIMA requests clarification regarding Ohio EPA's intent for how these rules will be applied as to state universities whose data is automatically deemed credible pursuant to OAC 3745-4-01(D)(1). If Ohio EPA declines to remove the proposed language from OAC 3745-4-02(Q)(7), OAIMA requests further proposed amendments to the rule language so that there is no ambiguity in this regard. (Ohio Aggregates & Industrial Minerals Association)

Response: Ohio EPA has agreed to remove the provision of state universities as a state environmental agency from the proposed rules.

Headwater Habitat Evaluation Index (HHEI) and Primary Headwater Manual Updates

Comment: *Headwater habitat evaluation index* or *HHEI* (OAC 3745-4-02(I)) is defined to mean an assessment methodology of the principal physical and riparian stream habitat features in

headwater streams. This definition does not address the primary factors and their interaction that actually produces the physical habitat and thus misleading.

a. The principal physical habitat features are formed as a result of the interaction between hydrology and stream geomorphology (refer Figure 1 below), and the geomorphology is modified by vegetation (i.e., grasses, trees, shrubs, invasive plants, etc.).
b. The HHEI fails to address hydrologic and stream morphologic conditions that both directly impact stream morphology (e.g., degree of incision, width-to-depth ration, entrenchment ration, etc.).

On page 2 of the draft *Field Methods for Evaluating Primary Headwater Streams in Ohio*, May 2020, Version 4.1 manual herein referred to as the 2020 PHWH Manual state that the objective of the Clean Water Act is to restore and maintain the chemical, physical and biological integrity of the Nation's waters. A habitat or physical habitat assessment does not address the physical of a stream.

a. A physical integrity assessment requires that the hydrologic and stream geomorphologic conditions be assessed and evaluated. Specifically, the HHEI has no ability to determine whether a Natural Channel is geomorphically stable, unstable or in some degree of instability. The 2020 PHWH Manual refers to stream channel modification categories (p. 30) as None/Natural, Recovered, Recovering, Recent or No Recovery. All stream modifications/changes are described to be the result of direct man-made impacts (e.g., channelization), but indirect impacts to natural streams are extremely common in Ohio resulting in geomorphically unstable, degraded streams. The HHEI does not address these unstable natural conditions, which are nearly always the results of changes in hydrologic and stream morphologic condition (i.e.., channel evolution processes) and are described in Items 4 and 5 below.
b. The HHEI Flow Chart shown in Figure 18 of the 2020 PHWH Manual (page 46) needs to be corrected to address geomorphically unstable streams as described in Figure 2 below with the appropriate biological and geomorphic data collected to properly assess the geomorphically unstable streams conditions that are currently ignored by the HHEI.

Changes in hydrology (e.g., logging, cattle grazing, crop production, etc.) over time (both recent and historical) will have an impact on the flow duration curve (Figure 3), which, in turn, will affects hydrology and stream morphology. These changes most often result in erosion gullies (most current ephemeral streams) and erode (incise) otherwise geomorphically stable streams downstream via increased shear stresses and resultant head-cutting (i.e., channel evolution processes).

Channel Evolution sequences (Figure 4) occur due to imbalances in the sediment transport created by hydrologic and/or geomorphic condition changes, which leads to changes in the channel bed elevation (degrade or aggrade).

On page 2 of the 2020 PHWH Manual it states: "Degradation of the physical, hydrological, chemical or biological conditions present in headwater streams not only can have direct and substantial negative consequences to the headwater stream itself, but can cumulatively have

substantial negative consequences on downstream waters….” Looking back at the 2009 PHWH Manual on page 2 it states: “…the relationship between hydrology, geomorphology, and biotic potential is not completely understood.”

a. Given the degradation of physical (i.e., stream morphologic) and hydrological conditions can have direct and substantial negative consequences to headwater streams and downstream waters, one would expect that hydrological and stream geomorphic conditions would be rationally assessed as part of the HHEI procedures, but they are not. The HHEI fails to determine whether a stream is geomorphically stable, unstable or in some degree of instability, and also does not address the changes to the hydrologic condition.
b. Additionally, given that the relationship between hydrology, geomorphology and biotic potential is not completely understood one would expect that the hydrologic and stream morphologic conditions would be important factors to be assessed as part of any HHEI procedure rather to better understand these relationships rather than ignored.
c. On February 25, 2019 at a meeting on stream mitigation held at the OEPA Columbus HQ, Paul Anderson, Retired OEPA and one of the original authors of the PHWH Manual, discussed that there were only three (3) geomorphically unstable stream assessed back in 1999 and 2000 to be used in the database when developing the HHEI procedures.
d. In reviewing the Ohio EPA Primary Headwater Habitat Initiative Data Compendium, 1999-2000 Habitat, Chemistry and Stream Morphology Data, September 2002 there were 214 headwater streams assessed for the development of the HHEI. In Appendix Table III of this document, only 10 out of the 214 streams were successfully assessed geomorphically to obtain a Rosgen geomorphic stream classification, which describes whether a stream is in a stable or unstable geomorphic form, and only 3 of these 10 streams were classified as geomorphically unstable just as Paul Anderson had discussed. How can a paucity of data, that is, only three (3) geomorphically unstable streams be sufficient to explain the relationship between biology and unstable stream geomorphology? Further, there is no mention in this manual of hydrologic conditions being directly assessed (e.g., current vs past or historical).
e. What is even more damning to the assessment effort than the paucity of stream geomorphic data collected is that on page 16 of this manual it states: “An attempt to relate Rosgen Stream Classification terminology (i.e., B3, B4, C3, C4, etc.) with PHWH stream class was not productive, most likely because the Rosgen system was not calibrated to the small watershed size (<1.0 mi^2) of the PHWH streams.” The Rosgen geomorphic stream classification system is scalable to any size stream anywhere on planet earth and likely the moon as well. In other word; stream geomorphic conditions, especially geomorphically unstable streams, were ignored in the development of the HHEI and this is <u>wrong</u>.
f. The paucity of geomorphic data collected in the development of the HHEI to correlate biology to unstable geomorphic stream conditions is clearly insufficient and further the discussion on page 16 of this manual demonstrates that there was no effort to correlate biology to geomorphically unstable streams. Thus, this work must be completed to

properly update the HHEI procedures with the Flow Chart corrected as shown in Figure 2 above.

g. A Stream Channel Assessment and Classification Worksheet following Rosgen (1996) is provided in Attachment 1.

The Coal Association (OCA) in its Credible Data-Wave 2 Early Stakeholder Outreach (ESO) comments that were submitted to the OEPA described how the HHEI's failure to properly assess a stream's geomorphic condition (i.e., is it stable, unstable or in some degree of instability) will results in erroneous outcomes. These OCA ESO comments were not addressed and are repeated blow.

a. The HHEI evaluates only three stream attributes to develop an assessment score. These three attributes are substrate, bankfull width and maximum pool depth. These attributes are then given scores to develop HHEI metric points, which are then totaled. For comparison, a greater total metric score indicates a 'higher quality' stream. However, when you look at the individual attributes or metrics, the scoring is quickly suspect if one does not know whether a stream is geomorphically stable or unstable.
b. First, the substrate score is greater for boulders (16 points) than cobbles (12 points), and cobbles score greater than gravel (9 points). If a stream is geomorphically unstable, then the gravels and cobbles may have been eroded or washed away downstream and only the larger boulders remain. This boulder substrate condition scores high (16 points), but in reality, a geomorphically stable stream would only be gravel substrate (9 points). Therefore, understanding whether a stream is geomorphically stable or unstable is imperative to know whether a substrate size is proper in order to establish a metric score or weight it rationally. Thus, in this case, the gravel substrate should have the highest score and not the boulder or cobble. The HHEI does not consider geomorphic condition nor use sediment transport equations to validate proper stable stream substrate sizes, and thus, arbitrarily incentivizes the use of substrate larger than would naturally exist. Given that most of Ohio's streams are unstable, this is a serious flaw.
c. Second, bankfull channel width (Wbkf) is proportional (□) to drainage area (DA) as shown by hydraulic geometry (e.g., DA □ Wbkf0.5, in general terms). That is, as the drainage area increases so does the bankfull channel width at a proportional rate. Therefore, specifying the bankfull width, in general, is merely restating the drainage area. A bankfull channel width measurement must be made at a riffle or step section for a consistent measure, and then compared to measurements of known stable channel reference conditions to obtain a sense or assessment weighting (higher of lower score) as to whether the bankfull channel width is associated with a stable or unstable channel condition. The HHEI does not specify the correct location where the bankfull width is to be measured (i.e., for riffle-pool or step-pool streams). The Ohio USGS published the Bankfull Characteristics of Ohio Streams and Their Relation to Peak Streamflows in 2005, which provides reference estimates of bankfull channel dimensions (i.e., bankfull width, mean bankfull depth and bankfull cross-sectional area) measured on stable streams at riffle or step sections for various drainage areas across Ohio. Obtaining bankfull channel width measurements at arbitrary locations along a stream reach rather than at riffle sections, and not having these

measurements connected to some reference condition is merely information and has no rating value whatsoever except to provide a crude estimate of drainage area.

d. Thirdly, maximum pool depth is related to the channel width-to-depth (W/D) ratio measured at the bankfull stage. In general, the lower W/D ratio, the deeper the pools. However, unstable streams (e.g., gullies) have low W/D ratios and can have deep pools. Yet, the HHEI does not evaluate the W/D ratio nor stream stability; thus, a maximum pool depth measurement is made without knowing its context within the stream (i.e., is the stream geomorphically stable or unstable).
e. As the OEPA discusses in its draft 2020 PHWH Manual or the current 2009 PHWH Manual and mentioned in Item 6 above, "Degradation of the physical, hydrological, chemical or biological conditions present in headwater streams not only can have direct and substantial negative consequences to the headwater stream itself, but can cumulatively have substantial negative consequences on downstream waters….", and "…the relationship between hydrology, geomorphology, and biotic potential is not completely understood." Yet, the PHWH Manual/HHEI process fails to address hydrologic and stream geomorphologic (physical) conditions. Thus, the PHWH and the HHEI process is incomplete, produces arbitrary outcomes that bias streams to be characterized as having better quality than actually exists especially for geomorphically unstable streams, and needs to be corrected as overviewed in Item 3 above.
f. Substrate sizes in streams are determined by the shear stresses produced by flowing turbulent waters draining from the watershed (i.e., hydrologic condition). However, the HHEI implies that biology determines substrate sizes, which is obviously not true, and again needs to be corrected.

The HHEI stream assessment reach is fixed at 200 feet. The assessment reach should be scalable to the bankfull width of the channel (Wbkf) (e.g., 10 times the Wbkf).

a. A fixed 200-foot stream assessment reach will result in over-assessment of streams with smaller drainage areas (e.g., 0.1 sq. mi) and will result in under-assessment of streams with larger drainage areas (e.g., 0.9 sq. mi.).
b. Stream assessment reaches should be determined based upon ratios of bankfull width (Wbkf) so that stream reach assessment lengths are proportional to drainage area and equally assessed.

The 2020 PHWH Manual addresses Pebble Counts in Attachment 4 of this manual. The attachment requires the Zig-Zag Pebble Count be used. The Zig-Zag Pebble Count is not statistically repeatable and should not be used. A modified Wolman Pebble Count has been developed by Rosgen (1993) as described in the USEPA Watershed Academy Web under Channel Materials (refer to Attachment 2) and described below by Rosgen (Figure 5).

The Pebble Count procedure does not provide nor describe any process to assess substrate size in Step-Pool stream systems (i.e., streams with gradients greater than 4%), which is a dominate stream type in smaller headwater drainage areas (Figure 6). This needs to be addressed in the 2020 PHWH Manual and included with the HHEI procedures.

Page 2 of the 2020 PHWH Manual discusses that that small streams are a natural and vital part of the stream continuum. The stream continuum or more commonly known as the River Continuum Concept (RCC) is described in Vannote et al., 1980. A perceived fundamental tenet of the RCC is that single-thread streams must exist from headwaters to the mouth of streams, which is a falsehood. This false RCC tenet used by the OEPA has enormous dire consequences for the future of watersheds and streams. Historically, that is, pre-settlement, Ohio's watersheds were filled with beavers and their impoundments that stored water, reduced peak flows and flooding, and provided refuge for the enormous bounty of wildlife and fish discovered by frontiersmen and early settlers entering the Ohio Country (refer to Figure 7 below).

a. The single largest present-day need for our watersheds and streams is the return of this lost storage historically provided by beavers and their impoundments in order to improve water quality, reduce stream degradation and flooding by reducing peak flows, and restoring historic habitat for wildlife, fish, amphibians, reptiles, insects, bird, bats, as well as, restoring significant groundwater recharge sources.
b. The consequences of the RCC (i.e., no in-stream impoundments or stream and wetland complexes) is that our watersheds are being drained so severely that Ben Goldfarb (2018), who is a writer for the Sierra Club, refers to this massive RCC drainage problem as the equivalent of creating the 'aquatic dust bowl'. He states that the watershed goal is retainage, not drainage. In short, if the water is drained from our watersheds, then the wildlife, fish, birds, bats, amphibians, reptiles, insects and others will have to go elsewhere or perish. Goldfarb, in his book Eager, The Surprising Life of Beavers and Why They Matter (2018) on page 6, states:

> "Close your eyes. Picture, if you will, a healthy stream. What comes to mind? Perhaps you've conjured a crystalline, fast-moving creek, bounding merrily over rocks, its course narrow and shallow enough that you could leap or wade across the channel. If, like me, you are a fly fisherman, you might add a cheerful, knee-deep angler, casting for trout in a limpid stream.
> It's a lovely picture, fit for an Orvis catalog. It's all wrong. Let's try again. This time, I want you to perform a more difficult imaginative feat. Instead of envisioning a present-day stream, I want you to reach into the past – before the mountain men, before the Pilgrims, before Hudson and Champlain and the other horsemen of the furpocalypse, all the way back to the 1500s. I want you to imagine the streams that existed before global capitalism purged the continent of its dam-building, water storing, wetland-creating engineers. I want you to imagine a landscape with its full complement of beavers.
> What do you see this time? No longer is our stream a pellucid, narrow racing trickle. Instead it's a sluggish, murky swamp, backed up several acres by a messy concatenation of woody dams. Gnawed stumps ring the marsh like punji sticks; dead and dying trees aslant in the chest-deep pond. When you step into the water, you feel not rocks underfoot but sludge. The musty stink of decomposition wafts into your nostrils. If there's a fisherman here, he's thrashing angrily in the willows, his fly caught in a tree."

On pages 35-36, Goldfarb goes on to state:

> "In 1980, for instance, the field of aquatic ecology came to be dominated by "the river continuum," the notion that waterways transition along their course, seamlessly and predictably, from steep, forested headwaters to open valley bottoms. Three decades later, however, an engineer named Denise Burchsted proffered a different model: the river discontinuum, which held that pre-colonization streams were disrupted along their length by glacially scoured holes, downed trees, and, most of all, beaver dams. Rather than free-flowing chutes, Burchsted wrote, historical creeks were patchy networks of ponds, meadows, and braided channels – only fitfully connected upstream and down, but inseparable from the floodplains that bracketed their banks."
>
> In other words, stream restoration/mitigation in our headwaters when using a watershed approach needs to focus on restoring this lost historic storage by creating in-stream beaver pond analogs, similar functioning structures and stream & wetland complexes that will evolve into multi-thread channels rather than replacing and/or extending single-thread channels from headwaters to mouth as the RCC is perceived to imply in the various PHWH Manuals. This PHWH Manuals could not be more incorrect.

c. It is recommended that the draft 2020 PHWH Manual be revised to either remove any reference to the RCC (stream continuum) as well as the Figure 1 of the RCC, or clarify that this is only a concept and should in no way imply that single-thread streams are the only appropriate mitigation option as implied and that storage needs must to be addressed. Decisions on mitigation are to be made using a watershed approach that address watershed needs, which for nearly all watersheds in Ohio the need is for more storage (refer to the Federal Stream Compensatory Mitigation Rules, Federal Register April 10, 2008 and contained in 33 CFR Part 332). Thus, Figure 8 below would be representative of historically correct headwater streams and beyond (e.g., upwards of 5th order streams associated with drainage areas as large as 500 mi2 per peer reviewed journal articles).

Given that Ohio's watersheds have historically been filled with stream and wetland complexes and the regulatory agencies are extremely unaware of the massive importance of this fact to Ohio's watersheds, we strongly recommend that the regulatory agencies work to convene a significant training session (e.g., 5-day conference) for agency regulatory staff and stakeholders that brings professionals from around the United States and beyond, if necessary, to Ohio to provide training and education about this major issue that the regulatory agencies have failed to understand, let alone address. This is a critical first step and should be timely implemented, because if the foundation is not right then everything else that is built upon a faulty foundation is suspect.

Some initial thoughts for potential training speakers include: Denise Burchsted, University of Connecticut; Eric Jay Dolan, author of Fur, Fortune and Empire (beaver trade); Ben Goldfarb, author Eager, Beavers and Why They Matter; Ellen Wohl, Colorado State University; Joe Wheaton, Utah State University; Mark Beardsley, Ecometrics, Colorado; Michael M. Pollock, N.O.A.A.; Art Parola, University of Louisville; Gregory Hood, Skagit Climate Science Consortium, Washington; Frances Backhouse, author Once They Were Hats, In Search of the Mighty Beaver; Robert Hawley, Sustainable Streams, LLC; among others.

OAC 3745-4-06(C)(4), References for stream habitat measurement methods, under Item (e) should not change from the current 2009 PHWH Manual until such time that a revised PHWH Manual contains HHEI procedures that are updated to link hydrologic and geomorphic conditions of streams including unstable streams to biology. Further, it is recommended that the OEPA cease using any PHWH Manual for any additional purpose other than for QDC until such time that HHEI procedures are updated to address the hydrologic and geomorphic condition of streams including unstable streams. In conclusion, how can the OEPA have credible data when the foundation that the data is obtained from is not credible (i.e., no assessment of hydrologic or stream morphologic condition)? (B&N Coal, Inc.)

Response: An over-arching theme in the letter contends that the HHEI is flawed because it does not include all of the measurements necessary to determine the geomorphic stability of a stream. A number of figures are included in the comment letter that appear to be intended as instructional materials on how to complete a stream geomorphological assessment. The letter also includes a worksheet composed of twelve different physical characteristics needed to determine stream type using a specific classification system developed by Dave Rosgen that relies on geomorphic characteristics. There are many methods that have been developed to classify, group, or organize streams, including the Rosgen stream classification system for which the commenter appears to be an advocate. Every classification system, including Rosgen's, has its strengths and weaknesses, advocates and detractors, and intended uses.

The commenter states that the "Rosgen geomorphic stream classification system is scalable to any size stream anywhere on planet earth and likely the moon as well". The HHEI and other methods within the PWH were developed using data collected on small headwater streams in Ohio. In other words, it is specifically calibrated for Ohio, not other states, countries, or even celestial bodies. While the universal applicability of the Rosgen approach is debatable, the methods contained within the PHW manual are calibrated for a very specific subset of streams applicable to our state. Furthermore, the Rosgen approach is a physical classification method whereas the primary headwater classifications are biologically based.

Ohio EPA developed the methods contained in the PHW manual based on the collection and analysis of data in the late 1990s and early 2000s primarily from sites randomly selected around Ohio within all of Ohio's five ecoregions. The methods were developed for use specifically for the smallest streams in Ohio because existing tools at the time were not developed or calibrated for these small streams.

The PHW methods were modeled and developed based on the successes of other assessment methods built and employed by Ohio EPA for other aquatic systems such as those for larger streams and for wetlands. These standardized methods have been instrumental tools effectively used by the Agency to improve Ohio's waters and to document that success over time. These successes are well-documented by the Agency in the form of its Integrated Reports and other technical reports. So, it was logical to build the PHW methodology modeling these existing tools.

All of the methods mentioned, whether for streams or wetlands, are essentially biologically-based or are intended to be used with biological assessments to help explain and/or help predict the biological condition. The Agency has principally relied on the biology as an ultimate measure because biological integrity is rooted into the goals of the CWA, at least as it pertains to aquatic life. In other words, we use a system that, simply stated, relies on the biology to tell the story since the biology is the ultimate receptor of any stressors present within the system.

The PHW methodology was constructed based on an analysis of data collected in Ohio's small streams, for which it was specifically intended to be applied, following some of the same conceptual frameworks from other existing Agency assessment methods. Data collected in Ohio EPA's 1999-2000 study included fifteen different physical attributes, standard water quality parameters, and aquatic biology including fish, amphibians, and benthic macroinvertebrates. Another important factor in developing the PHW manual was input from staff, stakeholders and other interested parties to consider flexibility, cost-effectiveness, and the amount of equipment and expertise necessary to implement the assessment. This flexibility is reflected in concepts such as the various assessment levels within the manual itself, some of which require less time, expense, and expertise to carry out and others which require more. The PHW manual also provides users with considerable latitude concerning when assessments may be conducted within certain reasonable and commonsense constraints. Therefore, the methods in the PHW manual are designed to balance the type and amount of data needed and the time, expense and expertise required to collect, analyze, and interpret the data.

The HHEI is one of the methods contained in the PHW manual. It is intended to be an efficient way to differentiate between the three fundamental types of primary headwaters observed in Ohio's landscape. These stream types are differentiated by the aquatic biology present within them. The HHEI is a tool provided within the PHW manual used to predict that biological community without actually doing a complete biological assessment. The biological communities associated with the three types of PHW streams are thoroughly described within the PHW manual.

The HHEI score has been found to be a highly effective and accurate way of predicting the biological stream type when properly used in conjunction with the HHEI flow chart and proper training. Ohio EPA, consultants, and others have successfully used the methods within the PHW manual for many years now. That is not to infer that the PHW manual is perfect, for few if any methods are, especially when considering all the variations found in nature. However, again, the HHEI attempts to strike a balance between the time, cost, equipment and expertise necessary to perform an evaluation against the accuracy of the result which was an important consideration communicated to the developers.

As previously stated, the methods within the PHWH manual are founded in the data collected in Ohio streams. The HHEI is one of those methods and is based on three physical measurements of the stream. These three physical metrics were found to be the most inciteful of the original fifteen metrics measured during Ohio EPA's study in predicting the biological

condition, particularly for predicting the presence of class 3 biological indicators such as specific species of salamanders.

Regarding the comment about the river continuum concept (RCC), the commenter asserts that the RCC is false, flawed or otherwise inappropriate. While we will leave it to academics to debate this, we note that the RCC is only referenced once in the PHW manual. We also note that it plays no role in the HHEI score and that the PHW manual itself is not a mitigation methodology. However, Ohio EPA's collective experience is that the vast majority of streams in Ohio are small, single channel streams that become larger as one proceeds downstream. The reference to the RCC in the PHW manual is mostly to call out the fact that stream size changes as drainage area changes and so does the biological community. These are not controversial points but rather facts recognizable by even casual observers. So, the PHW manual describes methods for these smallest streams, which are very common in Ohio's landscape, that are specifically calibrated for use to this subset of Ohio's streams.

Comments pertaining to mitigation are beyond the scope of the PHW manual. This includes multiple comments made about beavers and beaver ponds and the extensive attempt to describe the potential condition of North American streams in the 1500s. The commenter provides figure 8 as a conception of how streams may have been configured in pre-settlement times. Again, these comments are provided as a contrast to the RCC and is presented by the commenter as a "target condition for stream and wetland restoration in current times". However, the PHW manual is not intended to serve as a stream mitigation manual. It provides methods to assess primary headwaters and those assessment methods allow the user to identify the stream as belonging to one of three basic types as defined by the aquatic fauna.

It contains a suite of methods to evaluate PHW streams, the different types of which are defined by the characteristic aquatic fauna within them which is derived primarily by the hydrological condition of the stream. We disagree with the assertion by the commenter that the PHW manuals "fails to address hydrologic and stream morphologic conditions that both directly impact stream morphology". In fact, stream hydrology is an important characteristic and is included within the HHEI flow chart, the HHEI field form, and is embodied by the three metrics that compose the HHEI, not to mention the actual biological condition itself, which is a reflection of the stream hydrology. Stream hydrology is fundamental to the different types of classes of PHW streams and this is described in multiple places within the manual and conceptually featured in Figure 4 of the May 2020 version. The most reliable physical measurements from Ohio EPAs 1999-2000 study found to be predictive of the biological condition were substrate composition, bankfull width and maximum pools depth. These metrics are related to stream hydrology, geology and energy of streams that exist in today's time as opposed to what streams may have looked like in the 1500s. This is what the actual data told us. Years of practice and field application by the Agency and countless others has since provided a lot of evidence that these tools work well in most instances.

The PHW manual was not designed or intended to measure the geomorphical stability of a stream but rather, to categorize the stream based on its aquatic fauna. The commenter contends that the HHEI does not specifically measure geomorphic stability, presumably

following a Rosgen approach. The commenter also contends that failing to do so will result in "erroneous outcomes" but does specify the nature of the errors. The commenter does not provide any biological and habitat data or analysis to support contentions made. Furthermore, the commenter states that "indirect impacts to natural streams are extremely common in Ohio resulting in geomorphically unstable, degraded streams". If that is the case, it is reasonable to conclude that a certain portion of the hundreds of streams in Ohio EPA's original study would have been geomorphically unstable, as the commenter defines it, even if not specifically documented. As such, those types of streams would have been part of the data set that was used to develop the methods described in the manual and thus the data from these streams were actually baked into the HHEI metrics.

Finally, regarding the addition of state universities as a state environmental agency, Ohio EPA has agreed to remove this provision from the proposed rules.

Comment: Level 3 Credible Data is uniquely positioned by the Credible Data Law for "developing, reviewing, and revising use designations in water quality standards" (ORC 6111.52) in addition to other specified uses. In fact it is the only data that the Director "shall use" for this purpose. Furthermore the Credible Data rules are clear about the specifications for the types of data and methodologies that can be used. As a result we have commented several times about the determination of the appropriate and attainable aquatic life use being a data driven process free from the a priori application of rules-of-thumb that only serve to steer the eventual outcome in potentially erroneous directions. (Midwest Biodiversity Institute, MBI)

Response: In the event that Ohio EPA were to use Level 3 credible data to update aquatic life use designations within the water quality standards, it would use the data reviewed and approved from both biological communities along with corresponding habitat data. A use attainability analysis would be conducted with all associated data. The process of utilizing approved Level 3 credible data to update water quality standards is data driven.

General Comments

Comment: **Appropriate Integration of PHWH Training**

The attempted "integration" of key aspects of the Primary Headwater Habitat (PHWH) suite of methodologies and training with the baseline biological and habitat assessment methodologies (from which the PHWH emanates) that is fostered by the proposed rules is a step in the right direction primarily because it provides an opportunity to better merge PHWH into the more encompassing WWH/EWH/CWH suite of uses and training. Unfortunately, the agency has yet to take the needed steps to revise the WQS nor in these proposed rules to assure that the proper integration of what are now treated in these rules as two distinct concepts actually takes place. While the revised PHWH manual gets to what might prove to be better defined endpoints, it remains unclear how this fits within what is actually a continuum including WWH/EWH/CWH suite of uses. This will be especially confusing given the practical overlap between the existing and proposed Credible Data related specialties and the proposed Water Quality Certified Professional program given the currently incomplete

and seemingly contradictory elements of the latter. Of greatest concern is the reversion back to the old and misleading definition of a Primary Headwater Habitat Stream as:

> "(L) "Primary headwater habitat stream" means a surface water having a defined bed and bank, with either continuous or periodical flowing water, watershed area less than or equal to 1.0 square mile (two hundred fifty-nine hectare), and maximum depth of water pools equal to or less than forty centimeters."

While we note that Ohio TNC stated in prior comments made on March 17, 2017 that there needed to be some type of "equivalent replacement language" so that it is clear what methods, data, and most importantly what credentials are required to assess such streams, we clearly had a different definition than what was then proposed in mind. With the widely employed use of what we consider inaccurate and inappropriate "rules-of-thumb" to screen small streams for applicability under either site-specific or Nationwide 401 certifications, such practices raise real concerns that such streams will be improperly assessed, if at all. The proposed definition only reinforces what has become not only an inaccurate approach to assessing aquatic life use potential in small streams, it also conflicts with the definition of existing use in the Federal Water quality Regulations at 40CFR 131.2(e). States are required to comply with 40CFR Part 131.5(g) at a minimum by conducting a use attainability analysis and based on the "right types" of data. By re-invoking a definition with an already discredited rule-of-thumb of 1.0 square miles and a suspect depth criterion (>40 cm maximum depth2) coupled with this being constrained to only the PHWH suite of indicators, errors will be made in not only recognizing the correct existing use, but also in basing regulatory actions on erroneously derived uses. This seemingly goes against the very strong and long standing tradition of Ohio EPA practicing UAAs for aquatic life on a routine basis and relying on the showing of the potential to attain rather than simply showing it to attain the applicable biocriteria.

We only need to point to Ohio EPA assessments that have already designated numerous streams as WWH, EWH, and CWH that would fall under streams with catchment and maximum pool depths that are less than these currently proposed rules-of-thumb. While this may seem outside the scope of the Credible Data rules, it is relevant to the Level 3 certification and training requirements and what future QDCs and CWQPs will need to know and demonstrate prior to determining existing stream use designations. Once again we refer the agency to the following studies that refute the rote application of these rules-of-thumb:

"MBI Releases New Primary Headwater Data" https://midwestbiodiversityinst.org/publications/articles/mbi-releases-new-primary-headwater-data

"Analysis of the Probabilities of the Classification of Small Headwater Streams as Primary Headwater Habitat (PHWH) and Warmwater Habitat (WWH) in Southwest Ohio." http://www.midwestbiodiversityinst.org/post?post_id=21&type=articles

"Assessment of the Biological Assemblage Condition of Small Headwater Streams in Ohio Subject to the Proposed General Use Provisions of Ohio's Water Quality Standards"

https://midwestbiodiversityinst.org/publications/reports/assessment-of-the-biological-assemblage-condition-of-small-headwater-streams-in-ohio

"Eight (8) Biological and Water Quality Assessments conducted in watersheds of the MSDGC Service Area in compliance with NPDES CSO permit requirements and submitted to Ohio EPA under approved Level 3 Project Study Plans" http://www.msdgc.org/initiatives/water_quality/index.html

Since the release of the above we have conducted additional assessments on small headwater streams elsewhere in Ohio in the same manner and some of this has already been submitted as Level 3 data under approved Level 3 PSPs and as comments on the proposed Ephemeral Streams General Permit. We also note that the agency's own PHWH manual shows that 25% of streams within the catchment and pool depth rules-of-thumb have IBI scores that meet WWH or better. While we believe the proportion is actually higher in some parts of the state, showing WWH attainment biologically is irrefutable evidence of existing use. Furthermore, there are no WQS for the PHWH suite of classifications, thus the WWH/EWH suite of uses already being codified should take precedence whenever the properly collected data and analysis warrants.

The above MBI references and data are still relevant as they provide background and evidence of the problems that can arise related to the improper assessment and misclassification of streams. Specifically, these address the catchment area (i.e., 1.0 sq. miles), maximum depth, and the resulting risk of the misclassification of small headwater streams. The agency could resolve this issue by revising the PHWH definition to reflect the above and also by requiring that the "right types" of data be collected to accurately arrive at the appropriate and attainable aquatic life use. As it stands if PHWH remains "stove piped" from WWH then only a PHWH classification can result. In revising the definition the agency also needs to take into account that the outcome could be PHWH for catchments greater than 1.0 square miles, thus the recommended practice is to require the collection of fish, macroinvertebrate, salamanders, QHEI, and HHEI at sites draining <2.5 square miles thus assuring an accurate data driven outcome.

We previously voiced our concern about the agency offering a Level 3 QDC for QHEI alone because it only served to reinforce the erroneous notion that a habitat assessment alone can be used to conduct a use attainability analysis (UAA). MBI appreciates the agency removing it as a Level 3 specialty and reinforcing its original intent as part of the required training for Level 3 fish and macroinvertebrate QDCs which emphasizes its role as a support tool for assessing impairments and supporting UAAs. However, this still leaves some important operational issues unaddressed. (MBI)

Response: The comments received pertaining updating the suite of uses to include primary headwater streams fall outside the realm of the credible data program and are not applicable to this rulemaking. These comments would be more relevant to Water Quality Standards rules (OAC Chapter 3745-1) and would need to be addressed when those rules become available for public input.

The manual infers level of professional judgment that a data collector should be familiar with the environmental circumstances to know where to deploy which methodology. There can be times when the use of PHW methods make more sense, even at drainages greater than a square mile. Again, the manual speaks to this, for example in Section 1.4: "It is sometimes appropriate to use the PHW methodologies for streams with drainage areas greater than 1.0 mi2 based upon the watershed characteristics. Conversely, some streams having drainage areas within the PHW range that are capable of supporting well-balanced fish communities may be best described using aquatic life designations such as WWH or EWH. This manual provides guidance to identify situations where these exceptions exist and to adjust the assessment methodology to provide the most accurate analysis."

Comment: ***Incorporating Better Training in UAA Concepts and Conduct***

Attempting to conduct a UAA without biological data is prone to inaccurate outcomes and potentially leads to the abrogation of the existing use clause in the Federal Water Quality Regulations (40CFR Part 131.2(e)). Such practice clearly exceeds the original intent of the QHEI which was designed primarily as a supporting tool for biological assessment and for screening the aquatic life use potential of biologically impaired sites – it should apply equally to HHEI. We do acknowledge that there are certain obvious cases involving heavily altered streams where a QHEI alone has been used by the agency, but it was never done outside of the context of a firm understanding of the limitations of the QHEI and as done by informed and experienced biologists. Most non-agency Level 3 fish or macroinvertebrate biologists simply lack the institutional context and breadth of experience to reliably reproduce such assessments, thus we should not expect the same level of understanding as an agency biologist that has performed numerous UAAs in the course of their career. Many QDCs perform work for regulated entities thus the incentives to conduct a proper UAA are simply not the same and in fact are frequently the reverse. The determination of the appropriate and attainable aquatic life use is inherently a biologically-centered process therefore only a Level 3 biologist that has been trained in the conduct of a UAA (as is provided in Level 3 training) producing Level 3 Credible Data should be permitted to make such a determination. Unlike the proposed WQCP program, the agency is required to review all data submittals and vet the accuracy of any use recommendations prior to considering using it to support a use designation rulemaking or any of the other uses specified by ORC 6111.5. This we are recommending that the agency provide an enhancement to the current UAA training content to assure accurate outcomes.

All of the above once again raises our concern with what Level 2 QHEI ODCs are being permitted to do in the way of addressing requirements for various regulatory programs such as 401 Certifications and Stormwater. As Level 2 and 3 trainers we have interacted with enough Level 2 trainees and applicants to gain a sense of how Level 2 QHEI assessments are actually being used in Ohio. It seems clear to us that Level 2 assessments are being used to make important decisions about 401 Certifications and Stormwater permitting at a minimum. At present, the two-day QHEI training alone is simply insufficient to assure consistently

accurate outcomes in terms of stream assessment and especially so for tacit use designation decisions. Certainly Level 2 QHEI trainees cannot overcome the inherent deficiency of not having the requisite biological training and experience to provide these services in an accurate or legal manner. What we are instead suggesting is to offer supplemental training for Level 2 QDCs that would include a new module about how to conduct a UAA and most importantly how to recognize when Level 3 data is essential to making an accurate stream assessment and a determination of the appropriate and attainable use so as to safeguard against making unnecessary errors. We have commented many times that a QHEI (or HHEI) alone is insufficient to conduct a valid assignment of a designated aquatic life use or determine an existing use for undesignated streams. Much of that is based on the comparatively weak training and testing regimen for Level 2, but more on the fact that the "right types" of biological data are needed to make accurate use determinations especially in small headwater streams even for the new Level 3 PHWH specialties.

There are two important initiatives that the agency needs to undertake to avoid the pitfalls mentioned above:

1. Unify the currently fragmented concepts and practice in primary headwater streams under the WWH/EWH and CWH suite of uses. This would entail, as we have suggested before, the development of new subcategories of aquatic life uses that are consistent with both CWA goal and less than CWA goal uses. This would in effect unify the PHWH framework under the WWH/EWH and CWH use concepts.
2. Specify that for any stream draining <2.5 mi.2 and with sufficient water to support aquatic life the data collection should include fish, macroinvertebrates, salamanders, OHEI, and HHEI. This allows the data to drive the determination of the appropriate and attainable aquatic life use.

MBI has conducted numerous assessments of small, headwater streams using this data driven approach since 2011 and we offer that experience in assisting the agency in making these necessary transitions. We will offer new analyses of that data at a future time. (MBI)

Response: There is a clear distinction between the fundamental aspects of the credible data program which oversees the voluntary collections of citizen science versus the requirements conducted under the scope of the 401 program. Participation within the credible data program requires training and testing to obtain collector certification.

The comments received pertaining updating the suite of uses to include primary headwater streams fall outside the realm of the credible data program and are not applicable to this rulemaking. These comments would be more relevant to Water Quality Standards rules (OAC Chapter 3745-1) and would need to be addressed when those rules become available for public input.

Comment: ***Comments on Merging QHEI and HHEI***

While we generally support the merging of training for QHEI and HHEI in the Stream Habitat Assessment specialty we have several questions. We are supportive because we have

advocated for a data driven approach to determining the appropriate and attainable aquatic life use including the use of both QHEI and HHEI. While this requires both types of habitat data, it also needs to include an awareness of Level 3 biological data to accurately determine the appropriate and attainable aquatic life use. We also see the need to clearly distinguish this more rigorous use of Level 3 Credible Data from Level 2 purposes where no aquatic life use determination is allowed by law. This would also apply to the proposed use of the HMFEI which as a family level based assessment that does not qualify as Level 3 data. This should apply to any UAA or "determination of the existing use" for any 401 certification or other purpose even though the agency has argued in the past that because a 401 is exempted by 6111.51(C) the data is deemed credible unless determined otherwise by the Director. However, if an incomplete assessment using only HMFEI and HHEI are allowed to pass as credible this presents a stark conflict with the lowest taxonomic level provisions of Level 3 Credible Data under 6111.51(B)(1) and the provisions of the proposed Credible Data rules and the references therein to the Ohio WQS. Even the new PHWH manual acknowledges that "25%" of stream draining less than 1.0 square miles can meet a WWH or better IBI and we think the proportion is actually higher than that in some parts of the state. (MBI)

Response: Both the QHEI and HHEI specialties will remain as separate certification specialties for Level 2. HHEI will be the single habitat-only specialty for Level 3. Level 3 certification for QHEI will now be paired with the Fish Community Assessment certification.

HMFEI is a Level 2 assessment, both in terms of the PHW manual and in relation to the specialty Level within the Credible Data rules and is directly related to its level of taxonomic resolution required. The HMFEI is not a Level 3 methodology. Any circumstances requiring a use attainability analysis to assign or determine an existing aquatic life use would require the collection of Level 3 macroinvertebrate data.

Comments related to permitting within the 401 program should be submitted to the agency when the 401 rules are available for public input.

Comment: ***Revise the Passing Score for Level 2 QHEI and Offering Remedial Intervention***

Based on our 8+ years of experience with Level 2 QHEI training we are recommending that the passing grade be raised from 80% to >90%. We have already provided an analysis of multiple Level 2 training classes dating to 2013 that show a significant departure in QHEI test scores from the instructor for trainees that have test grades of <90%. What is more interesting is that two distinct groups emerged – one group that overscored and the second that underscored the instructor QHEI. Both errors can cause problems with using the results even for Level 2 purposes, and they would be amplified if that data is used for a regulatory or programmatic purpose. What we are suggesting is that trainees with test scores <90% receive further instruction about their errors and be required to retest until they achieve a passing score. We believe this is a reasonable expectation for improving the quality of Level 2 data.

Response: The test scoring criteria are programmatic procedures that are not part of the rule revision process. The credible data program is always striving to maintain data integrity and ensure

those individuals obtaining certification are qualified and successfully capable of conducting assessments using OEPA methods. We will consider more stringent scoring criteria.

Comment: ***Requiring Training for Any Person Using the QHEI***

We have also become aware that there are persons using the QHEI without having received any sanctioned training either via the Credible Data Program or the agency itself. It has always been a fundamental tenet of the QHEI that all users receive training because of the need to have consistency between users (see Rankin 1995). We urge the agency to consider adding a provision that any formal use of the QHEI be done only by trained individuals. We urge the agency to consider adding a general provision to the Credible Data rules that addresses this concern. (MBI)

Response: The credible data program requires applicants to have successfully completed a QHEI training from a trainer certified by the program, and the participant must pass the associated testing. Training is always encouraged by the Division of Surface Water, but requiring such trainings for other water quality programs is outside the purview of to the Ohio credible data program.

Comment: ***Proposed OAC 3745-4-03(A)***

In 3745-4-03(A)(3)(b) Level 3 Fish community biology. There should be mention of the PHWH field fish sampling methods as a subspecialty, the same as it is mentioned in 3745-4-03(A)(3)(c)(i) for the Benthic macroinvertebrate biology subspecialty, and also in 3745-4-03(A)(3)(d)(i) for the Stream Salamander community assessment. In fact, given our prior recommendation to unify the collection of fish, macroinvertebrate, salamander, and QHEI/HHEI in a data driven approach, there should be no difference between the standard fish sampling protocol and that used in the PHWH methodology. Given that fish are usually the limiting assemblage in small WWH suite headwater streams, insofar as the appropriate and attainable use is concerned, there can be no uncertainty introduced by having two different fish collection and assessment protocols, especially if the more cursory PHWH method under-samples the fish assemblage.

In 3745-4-03 (A) (3) (c) (ii) Level 3 Benthic macroinvertebrate biology training. As in the Stream Habitat assessment 3745-4-03(A)(3)(a)(ii) and Fish Community biology 3745-4-03(A)(3)(b)(ii) training, the phrase "and biocriteria" should be added to the Level 3 Benthic macroinvertebrate biology specialty. This will assure that all Level 2 trainees at least receive an orientation to fundamentals of aquatic ecology, adequate monitoring and assessment, the Ohio WQS, the tiered aquatic life uses, and the biocriteria.

In 3745-4-03(A)(3)(c)(iv) Level 3 Benthic macroinvertebrate biology. The following additions (in red) should be added to clarify the testing requirements. The applicant shall have knowledge of and the ability to accurately use macroinvertebrate taxonomic references and dichotomous keys to identify Midwestern aquatic macroinvertebrates to the level of taxonomy used by Ohio EPA for the Level 3 macroinvertebrate identification specialty or to family level for the Level 3 sampling and data analyses only specialty. (MBI)

Response: Ohio EPA doesn't think there is a need to add an additional fish subspecialty for primary headwater assessments. The education and experience prerequisites listed within rule, along with the test and training requirements needed for certification in Level 3 fish community biology, are adequate to cover primary headwater sampling.

Ohio EPA does not see the need incorporate the phrase "and biocriteria" when listing the training requirements within Level 3 macroinvertebrate certification requirements in 3745-4-03 (A)(3)(c)(ii). Overview of Ohio Water Quality Standards and biological criteria is already a required component of Level 3 training. As stated as a comment for the Level 2 macroinvertebrate certification: training in biological criteria is strongly encouraged.

The program does not see the need to incorporate the suggested additions regarding specifying the difference between identification skills required between the individuals seeking certifications for Level 3 identification and those just seeking certification in Collection and Data Evaluation only. These requirements are described within the training and testing protocols of the program.

Comment: ***Proposed OAC 3745-4-06(4)***

Under References for stream habitat measurement methods the 2006 QHEI manual is still cited as:

(b) "Midwest Biodiversity Institute (for Ohio EPA, Division of Surface Water). 2006." Methods for assessing habitat in flowing waters using the qualitative habitat evaluation index (QHEI). 26 pp.

We feel that this is an Ohio EPA document and have been citing it as:

Ohio Environmental Protection Agency (Ohio EPA). 2006. Methods for assessing habitat in flowing waters: using the qualitative habitat evaluation index (QHEI). Division of Surface Water, Ecological Assessment Section, Columbus, OH. 23 pp.

We believe that a more appropriate citation should grant authorship to Ohio EPA so we request that this change be made. We would be amenable to adding a reference to MBI after the title, but primary authorship should be to Ohio EPA. This would avoid any potential ownership issues or potential conflicts in the future. Please use the following modification:

Ohio Environmental Protection Agency (Ohio EPA). 2006. Methods for assessing habitat in flowing waters: using the qualitative habitat evaluation index (QHEI). Prepared by the Midwest Biodiversity Institute for the Division of Surface Water, Ecological Assessment Section, Columbus, OH. 23 pp. (MBI)

Response: The reference citation in OAC 3745-4-06 to the 2006 QHEI manual will be updated to reflect the changes suggested.

Comment: I contact you today to express the concerns of the Ohio Coal Association (OAC) regarding the proposed revisions in the "Field Methods for Evaluating Primary Headwater Streams in Ohio, Version 4.1 dated May 2020" (PHW Manual), which is being incorporated by reference in the

proposed Credible Data Program Rules – Wave 2 (OAC 3745-4-06). While we do appreciate the Ohio EPA's willingness to meet with members representing OCA, we fear that there are fundamental problems with the proposed PHW Manual and Headwater Habitat Evaluation Index. (HHEI). These problems, if not addressed, will misrepresent the quality of headwater streams both biologically and geomorphically (i.e., hydrology and stream morphology). For example, the HHEI does not provide any link between biology and geomorphically degraded streams, and the OEPA's data demonstrates this deficiency. Furthermore, during stakeholder outreach conducted by the Ohio EPA, an older version of the manual (Version 4.0 dated October 2018) was referenced. It was not until after the public comment period closed that the Ohio EPA updated the manual to Version 4.1, which is currently referenced in the bill. These revisions to the PHW Manual were made without stakeholder outreach or input.

OCA provided comments during the Early Stakeholder Outreach (ESO) opportunity on the proposed Credible Data Program Rules – Wave 2 in May 2018. At that time, the October 2018 proposed PHW Manual was not available for public comment. Further, when it was made available, the proposed October 2018 version of the PHW Manual was not marked as "draft" giving us the impression that it was finalized without the opportunity for the public to provide comments. Adding to our concerns, is that when the Credible Data Program – Wave 2 rules were filed with JCARR on September 1st, 2020, OAC 3745-4-06 referenced an entirely different version of the PHW Manual (Version 4.1), one that was not shared with stakeholders prior to the rule filing. (Ohio Coal Association, OCA)

We have expressed our concerns with the PHW Manual on multiple occasions. If the PHW Manual is not revised properly to evaluate stream conditions for geomorphically unstable streams, then numerous arbitrary and adverse outcomes will needlessly occur.

The OEPA has justified its efforts to move forward with the rule package by stating that the Credible Data Program is voluntary. The program may be voluntary, but the PHW Manual referenced in the rule is subsequently used in other regulatory decisions that create significant bureaucracy and result in major financial consequences for businesses including coal companies and landowners. For example, the OEPA requires the HHEI to be used to determine potential eligibility of Nationwide Permits (NWPs). Appendix C of the 2017 NWP document on pages 38 to 41 require an HHEI score be determined for headwater streams (less than 1.0 square mile drainage area). Depending on the HHEI score, one may not even be permitted to use a NWP for a proposed activity and will incur major additional costs by having to obtain a consultant to prepare the subsequently individual Permit or Director's Authorization. This could add 10's of thousands of dollars to a small project such as installing a culvert that otherwise would have no permitting costs under a NWP.

A second example is that that the River Continuum Concept (a foundational theory with the PWH Manual) requires coal companies to remove in-stream stormwater ponds constructed in small headwater drainage areas under SMCRA permits. In most all cases, these stormwater ponds are desired to remain permanent by landowners and coal companies. In addition, to providing a potential water source for landowners, these stormwater ponds, if left permanent, provide the storage that watersheds need to reduce stormwater runoff peak

flows necessary to reduce or prevent downstream channel impacts (e.g., incision) and flooding. However, the OEPA requires that ese impoundments be removed and streams be reconstructed to arbitrarily create single-thread channels from headwaters to mouth, which leads to downstream degradation and flooding. These requirements result in needless bureaucracy, additional costs incurred by coal companies to remove these ponds, lost water storage potential for landowners, and detrimental consequences to downstream streams.

A third example is that the HHEI arbitrarily over-rates the quality of degraded headwater streams, which can directly lead to increased costs for stream impacts (debits) and reduced stream mitigation benefits (credits). This needlessly burdens business with excessive costs and discourages potential mitigation opportunities. Specifically, the PHW Manual and HHEI are used as part of the U.S. Army Corps of Engineers' Stream & Wetland Valuation Metric (SWVM) compensatory stream mitigation model. The over-rated stream quality conditions that the HHEI produces for geomorphically unstable (degraded) streams directly results in stream functions and services within SWVM to appear much better than what actually exists. The predicted costs of mitigation for stream impacts under the USACE SWVM Model have the potential to financially devastate businesses including coal companies and other landowners that interface with streams with forthcoming increases in mitigation costs of three to ten times what is currently being utilized today.

A fourth example is that the recently enacted General Permit for Impacts to Ephemeral Streams and Isolated Wetlands directly requires that the HHEI be used to assess stream impacts and evaluate stream restoration or mitigation of these ephemeral stream impacts. Again, this leads to needless bureaucracy and potential major addition costs for businesses including coal companies and landowners that impact ephemeral streams. Further, the OEPA's own rules indicate that the use of the HHEI for the assessment and evaluation of stream impacts and mitigation is not correct.

The OEPA's 401 Water Quality Certification rule in OAC. 3745-32-03(B)(2)(d) state that any application for a 401-certification shall include the following:

> "A specific and detailed mitigation plan prepared in accordance with the requirements in 33 CFR Part 332…"

33 CFR Part 332 contains the 2008 Federal Compensatory Stream Mitigation rules (Federal Register, April 10, 2008, Compensatory Mitigation Losses of Aquatic Resources). These rules require that stream functions and services be assess, a watershed approach be used, that a watershed's needs and a watershed's scale be addressed, and historical conditions be replaced along with other requirements. Neither the PHW Manual nor the HHEI address any of these Federal rule requirements. In other words, the PHW Manual and HHEI do not address the requirements of its own rules for mitigation.

Given these concerns, as well as the issues surrounding the references to the new Version 4.1 manual, we would ask for additional stakeholder outreach opportunities before the rules move through the JCARR process. We have strong concerns that stakeholder outreach in the development of the PHW Manual has been inadequate. We have shared feedback and

suggestions on previous versions of the PHW Manual, and those concerns have fallen on deaf ears. The Ohio EPA must improve its stakeholder outreach efforts when revision the PHW Manual BEFORE it is incorporated into a rule that is filed with JCARR. This outreach is critical because, as stated above, the provisions contained the PHW Manual can have far reaching impacts throughout the state. OCA fears that if the process is left unchanged, the Ohio EPA will continue to make changes to the PHW manual by simply referencing the latest version in an Administrative rule that they claim has no adverse impact on business because the Credible Data Program is voluntary. (Ohio Coal Association, OCA)

Response: The Ohio Coal Association (OCA) makes several claims regarding the opportunity to comment on the PHW manual that are incorrect and appear to perhaps be a misunderstanding of the process. Ohio EPA includes the partial rulemaking timeline as described below to summarize some of the rulemaking steps to this point.

The Interested Party Review (IPR) was made available to the public for review and comment for this rule revision (known as "wave 2") on January 11, 2019 and included a link to the Primary Headwater (PHW) manual (Version 4.0, October 2018) along with all of the other rulemaking materials. The fact sheet for the rulemaking stated toward the top of the first page under the heading "What changes are being considered?" stated:

"Updating the primary headwater habitat manual to reflect modernized terminology that is consistent with other program areas and to make clarifications as needed."

During the IPR comment period, which was extended an additional 15 days to allow for ample time for public involvement, Ohio EPA received some comments specifically on the content of the PHW manual as part of the draft credible data rules review. Version 4.1 of the PHW manual (September 2020) is a product of addressing the comments Ohio EPA received during the IPR comment period. It is very similar to Version 4.0 with the exception of some nomenclature changes, additional clarifications, and correction of transcription errors that were brought to our attention during the IPR comment period. There were no process or assessment methodology updates to the PHW manual and neither version 4.0 or 4.1 of the PHW manual included major technical updates. Again, the updates made in these two versions of the PHW manual make clarifications, corrections, and update references but is otherwise essentially the same as previous versions of the manual dating back to 2009.

We also point out that the primary headwater manual has been referenced within the credible data program (CDP) rules since 2011 and has been made available for public comment as part of several rule revisions from its initial incorporation up to the present rule revision effort. This rule revision is the second wave of recent rule revisions of the CDP. OAC 3745-4 was available for public input during the 2017 calendar year and that rulemaking became effective February 19, 2018 (known as "wave 1"). During the wave 1 revisions, the rule language and the manuals cited within 3745-4-06, which included the PHW manual, were also available for comment. Furthermore, Ohio EPA conducted a pre-early stakeholder outreach (ESO) public involvement effort prior to even commencing the Wave 2 rule revision process that included multiple meetings with specific stakeholders, including the OCA, and a

larger stakeholder meeting with multiple parties convened on April 20, 2017. Ohio EPA informed those present during that meeting of our intention to revise the PHW Manual. Members of the regulated community, including members of the Ohio Coal Association, environmental groups, consultants and other interested parties were present at that meeting.

The commenter asks for additional outreach opportunities and contends that insufficient opportunity has been made to provide input. There have been multiple opportunities for public input during this rulemaking and the previous rulemaking. OCA has provided input, and we have considered that input. The comment letter states toward its closing "We have shared feedback and suggestions on previous versions of the manual and those concerns have fallen on deaf ears". This statement is inconsistent with the premise in the letter that Ohio EPA has not provided adequate opportunity to provide input. The Agency does do its best to revise rules when compelling arguments are made, particularly when backed up by actual valid and robust data. To date, we have not received this from the OCA. While true that OCA has submitted similar comments during outreach involving other clean water programs, the specific comments were not germane to those water quality programs.

The comments also provide several examples of how the manual is used within other programs besides the credible data program, participation in which is entirely voluntary. The PHW manual itself was years in the making and is supported by the collection and analysis of substantial data including both physical and biological characteristics from hundreds of streams randomly selected throughout Ohio. The methods within the PHW manual are specifically calibrated from the data collected. We refer the commenter to our response to the October 7, 2020 comment letter from B&N Coal for further details. If OCA believes that improvements or modifications to the PHW manual would help improve its utility, then it would be helpful to provide evidence supported by sufficient data collected from unstable streams that illustrate the association between biological condition and geomorphic characteristics.

B&N Coal's letter, which contains some similar themes to your letter, contends that the HHEI fails to properly assess a stream's geomorphic condition and thus will result in undefined erroneous outcomes. Putting aside the fact that it isn't the specific goal of the PHW methodology to assess the geomorphological condition of a stream, the commenters fail to provide any data to support their hypothesis. B&N Coal states "indirect impacts to natural streams are extremely common in Ohio resulting in geomorphically unstable, degraded streams". That being the case then, it is logical that a significant proportion of the hundreds of streams evaluated by Ohio EPA would have been geomorphically unstable streams and thus been included in the original dataset that was used to derive the methods within the PHW manual that are alleged to be faulty. The B&N Coal letter actually makes a good point that three of the ten streams that were successfully assessed geomorphically to obtain a Rosgen geomorphic stream classification were geomorphically unstable, a rate of 30%. Thus, we do not even agree with the supposition that is made in the comment that geomorphically unstable streams were not accounted for in original dataset and subsequent PHW manual.

Finally, regarding OCA's concern about adding state universities as a state environmental agency, we have agreed to remove this provision from the proposed rules.

Comment: What data collection is currently covered by the OEPA credible data program and will the credible data program be expanded? (Ohio Home Builders Association, OHBA)

Response: Data collections within the credible data program are limited to the data specialties listed with OAC 3745-4-03. They include, Chemical Water Quality Assessment, Macroinvertebrate Community Biology, Fish Community Biology, Salamander Community Assessment and Stream Habitat Assessments (QHEI and HHEI). The program has expanded its certification specialties to include the biological specialties contained within Ohio EPA's PHW manual. At this time there are no further OEPA data specialties that could be incorporated, since these are data types that stem from Ohio EPA surface water methods. Further expansion of the program is not currently being discussed.

Comment: Which OEPA regulatory programs currently use the credible data collected by the agency? (OHBA)

Response: Per ORC Sec 6111.52: *"The director of environmental protection shall use only level three credible data to conduct any of the following activities:*

(A) Developing, reviewing, and revising use designations in water quality standards;

(B) Developing a statewide water quality inventory or other water assessment report;

(C) Identifying, listing, and delisting waters of the state for the purpose of section 303(d) of the Federal Water Pollution Control Act;

(D) Determining whether a water of the state is supporting its designated use or other classification;

(E) Establishing a total maximum daily load for a water of the state."

Comment: What is the framework for QA/QC that the OEPA will provide to ensure that universities will comply with the requirements of "credible data"? How many staff at OEPA will be dedicated to providing QA/QC? (OHBA)

Response: Ohio EPA has removed state universities from the State Environmental Agency definition. Any data that has been collected is reviewed by Ohio EPA to determine approval, which determines at what level the data is approved. Only Level 3 credible data can be used for any potential regulatory purpose.

Comment: Will the public have the opportunity to review credible data before it is incorporated into the OEPA regulatory programs? (OHBA)

Response: All data is public record and can be requested by the general public. The data itself can be requested but the general public does not have the authority to officially review the data.

Per OAC 3745-4-06 (B)(6): *"Data approval process. The director shall review data submissions to verify that the data submissions were submitted by a QDC, that appropriate test methods and quality control and quality assurance practices were used, and that the data reporting requirements are complete. The review shall ensure that all components of the plan for the collection of data were followed."*