

Ohio EPA Response to Comments
Draft Biological and Water Quality Report – Symmes Creek, Indian Guyan Creek, and Direct Ohio River
Tributaries Watershed
2016

The Draft Symmes Creek, Indian Guyan Creek, and Direct Ohio River Tributaries Watersheds Biological and Water Quality Report was made available for stakeholder review and comment from March 10, 2020 to April 9, 2020. The Agency received comments from Midwest Biodiversity Institute, Inc. (MBI).

Overall/General Comments

Comment 1: The Fact Sheet provided along with the draft report was informative and concise, but we will repeat a previously made comment about the need to explicitly state the three principal objectives of this type of assessment in each and every fact sheet:

1. Establish the attainable aquatic life use as codified in the Ohio WQS;
2. Determine the status of individual river and stream sampling locations in terms of attainment and non-attainment of the Ohio WQS; and,
3. Document any changes through time including a time series of changes in study areas with multiple years of assessment.

Doing this reminds less informed readers that getting number 1 correct affects the accuracy of number 2. It also shows that the agency is still committed to properly executing the salient provisions of the Ohio WQS and communicating the effectiveness of their CWA programs that have positively affected the status of aquatic life uses over the past 40 years. Providing a summary of the beneficial use designation recommendations would be a helpful addition to the fact sheet although we recognize that this has also been done at the time use changes are recommended. It would not hurt to include it in both given the time difference between a TSD and the rulemaking proposal.

Response 1: Ohio EPA appreciates the constructive criticism on the Fact Sheet and will evaluate restructuring future Fact Sheets.

Comment 2: We recommend that Table 24 showing the accounting of stream use verifications and revisions in the same format as that which appears in the Ohio WQS appear at the beginning of the report immediately after the attainment table and status summary. As is the recommendations are at opposite ends of the report and a less informed reader might miss the WQS format altogether. This is perhaps the most critical part of a TSD for the reasons stated in our transmittal letter. The highlighting of the streams with use verifications and revisions is noteworthy, but if color is not an issue in report production, we would suggest using different color shading to highlight a default use verification vs. a use revision. We also believe it is important to highlight streams that were not assessed and which, as a result, will retain their default WWH designation. This would allow both the agency management programs and stakeholders to be more aware of unassessed streams that are in *close proximity to assessed streams that received use upgrades to EWH, CWH, or both*. The implication is that such

unassessed streams should be prioritized to have the “right types” of data made available in the event a regulatory issue arises in the future. This would ensure an equitable approach to the management of unassessed streams relative to assessed streams. The same applies equally to unnamed streams - based on an examination of Table 24 it appears there are 12 unnamed tributaries that were assessed, but there is no way to determine how many other unnamed tributaries were overlooked by the 2016 assessment and are hence *vulnerable to not having the correct WQS applied to a future regulatory issue*. We are well aware of the agency’s efforts regarding undesignated streams so there is no need to repeat that back in a comment reply. We have already expressed our comments and concerns about those initiatives

Response 2: The executive summary portion of the technical support document contains a summary of proposed listings and recommended changes to stream beneficial uses. These recommendations are conclusions that are formed based on the information gathered from an integrated watershed survey. Ohio EPA can add information directing the reader to the beneficial use table and summary of recommended changes.

The intent of the highlights in Table 24 were to identify items that changed based on findings and recommendations from the current survey. We can change the highlighted portions of Table 24 to reflect streams that were evaluated during the current survey and change the highlighting to grey scale. By highlighting the assessed streams, unassessed streams are also emphasized. Ohio EPA also thinks it is important to highlight unassessed streams within a study area and progressively work to reduce the number of unverified and unassessed streams. Each successive watershed survey reduces the amount of unverified or unassessed streams.

A specific objective of an integrated survey is to systematically sample and assess the principal drainages of an area. With this said, Ohio EPA does employ a very rigorous study planning process. Numerous study team members with many different professional backgrounds contribute to a project draft site list. The site selection also employs standard GIS spatial analysis tools to help identify unassessed streams and many are considered for inclusion in the draft site list. The site selection process often includes a complete longitudinal review of mainstem stream segments and all receiving tributaries. Regardless of a stream’s named status, most all sizable streams are considered for inclusion during the study planning process.

Ohio EPA also gives the public ample opportunity to comment on our proposed sampling lists and at multiple points during the ensuing TMDL process. We encourage active participation and implore that the public help Ohio EPA identify higher quality streams that have not yet been assessed during the study planning process.

Comment 3: **There were 17 sites with bonafide EWH IBI scores accompanied by only Good (or worse) narrative macroinvertebrate assessments. If nonsignificant departure scores are included, this total rises to 30 or nearly 30% of the sites sampled. In contrast there were only two sites where a Very Good macroinvertebrate narrative was accompanied by a less than EWH fish IBI score.**

Regarding the use designations we would ask the agency to consider an EWH recommendation for the following:

1. Symmes Creek at Vega and C-H-D Rd. where the ICI was ns for EWH.
2. Black Fk. Symmes Creek at RM 0.10 met EWH and next site ust. met for fish – consider at least the downstream segment for EWH.
3. Dirtyface Creek where the ust. site is EWH (ns for bugs) – consider the ust. segment as EWH.

We agree with the remaining use recommendations. We would also hope that the streams and sites with bonafide EWH IBI scores be factored into any management applications via antidegradation. We think it outstanding to have 85 out of 101 sites in full attainment of verified and revised use biocriteria. It would be interesting to know how this ranks against other similarly sized watersheds across the state as it would provide a simple way to rank and highlight high quality watersheds that might otherwise get overlooked.

Response 3: The sampling reach in Symmes Creek at Vega and C-H-D Rd. was not representative of the conditions present through the upper Symmes Creek mainstem. The habitat score here (QHEI=81.0) was much higher than the other sampling locations in upper Symmes Creek and its unnamed tributary (59.75 & 38.75). Artificial riffles consisting of slag glass placed in Symmes Creek through this reach created artificial habitat features (course and unembedded riffles, good development, varying flow types) not otherwise found in the upper mainstem; wetland conditions were noted in the vicinity of biological sampling location and were pervasive in this portion of the watershed. As habitat here does not represent the overall habitat condition in upper Symmes Creek, Ohio EPA still thinks it is most appropriate for the entirety of Symmes Creek upstream from Coal Branch retain the WWH use designation.

Despite not having both organism groups fully consistent with EWH criteria, Ohio EPA will consider the EWH aquatic life use for Dirtyface Creek from its headwaters to C-H-D Road (RM 4.7) and for the lowermost reach of Black Fork, from its confluence with Dirtyface Creek (0.93) to the mouth.

Comment 4: Follow-up sampling was conducted in 2017 at six sites, five for macroinvertebrates and one for fish. All six are recommended for EWH and with data from two years. While we do not necessarily disagree with these recommendations, past practice has been to base use attainment and use designation (especially) on a full set of data within the same year. We could not find any explanation about why this was done. We suggest that a clear rationale be added to the TSD as other stakeholders may question or object to this practice.

Response 4: There were nine total locations that were selected for additional biological sampling efforts in 2017. This was a very large survey encompassing many small streams. Most streams (of all sizes) lacked any historical information and almost all had aquatic life uses that were unverified, while some were undesignated. The areas that were resampled in 2017 had biological assemblages that stood out for one reason or another. Ohio EPA felt it was necessary to collect additional information from these select

locations to help determine appropriate aquatic life uses or to help identify appropriate causes/sources of biological impairment. In choosing these locations, Ohio EPA tried to balance the desire for additional information from certain survey areas and the practical realities of resource constraints among survey areas statewide in a given field year. Each 2017 biological sample is discussed more below. Not including this information in the report was an oversight. The reasons are provided below for the public record.

Fish “follow-up” sampling occurred at one location in upper Huntingcamp Creek upstream from the Oakhill WWTP (RM 1.71, W02S06). This was not a true “follow-up” sample in that a fish sample was not collected from this upstream location in 2016. The need for fish information to help determine the appropriate aquatic life use and causes/sources of impairment throughout Huntingcamp Creek necessitated collecting fish information from this upper reach in 2017.

A follow-up macroinvertebrate sample occurred in Symmes Creek at RM 47.1 (200753). Sampling in 2016 from this reach was conducted in a very deep and sluggish reach of Symmes Creek that, except for some woody constrictions, lacked riffle habitats. This location yielded an ICI (36) lower than the surrounding locations, but EPT diversity noted during qualitative sampling was more consistent with EWH expectations. This reach of Symmes Creek was re-sampled in 2017 with an emphasis toward encompassing better riffle habitat. Follow-up sampling yielded a somewhat higher ICI (42) that marginally met EWH criterion. The fish assemblage was consistent with EWH expectations, despite the lack of riffle habitat; no additional fish samples were collected here in 2017.

A full suite of follow-up samples (fish, macroinvertebrate, chemistry) were conducted in upper Buffalo Creek (RM 5.0, 200752) in 2017. Puzzling declines in fish IBI scores had occurred here and chemistry data was not originally collected because of the challenging access requirements for this location – this site is in Wayne National Forest and unimproved roads precluded travel for certain vehicles. More sediment/sand and a shallower overall stream reach was apparent when comparing historical and contemporary fish/habitat data.

Macroinvertebrate assemblage quality from Indian Guyan Creek RM 21.7 (303539) and Little Indian Guyan Creek RM 2.7 (303652) were somewhat lower than adjacent locations on these streams and were possibly influenced by either mining stressors or late season low flows. Additional follow-up sampling was conducted in these two streams to verify the 2016 results and help ensure the appropriate ALU for these stream segments (WWH or EWH). Fish assemblages were consistent with EWH expectations at both locations and no additional fish sampling was conducted in 2017.

Macroinvertebrate assemblages in the tributary to Drake Fork (0.55) were not sampled in 2016, but this location supported fish assemblages consistent with EWH expectations. Macroinvertebrate sampling was conducted in 2017 to help identify an appropriate ALU.

Macroinvertebrate sampling in the remaining three tributaries (Little Buffalo Creek, Miller Creek, Georges Creek) all occurred later during the 2016 sampling season. All these samples were conducted under low flow conditions and all these locations

supported several coldwater macroinvertebrate taxa. Macroinvertebrate sampling was conducted earlier during the year in 2017 in these tributaries to evaluate for possible loss of taxa through natural emergence that may have occurred in 2016 because of the low flow and interstitial conditions observed later during the season of a relatively dry summer.

Though results from only one year are typically used to make ALU or impairment determinations, the data from both 2016 and 2017 was evaluated in order to help determine the appropriateness of the CWH designation for three small streams. The notably dry summer coupled with late-season macroinvertebrate sampling may have underrepresented the number of coldwater species that might otherwise be present during a typical flow year. This was the first comprehensive survey of these streams in 35 years and Ohio EPA wanted to ensure the 2016 results from all re-sampled streams reflected the stream condition during a more normal flow year. For all other streams detailed here, only the most recent year of biological sampling data was used to determine ALU attainment if two years of sampling had occurred.

Also, the attainment table does not currently reflect that macroinvertebrate sampling is from 2017. It will be changed to reflect this.

Comment 5: There are four CWH recommendations with which we agree, but we have observed CWH to be applied inconsistently in previously assessed watersheds in Eastern and SE Ohio. Two examples are numerous CWH recommendations and subsequent rule adoption in the Lower Muskingum River watershed (2012-14) and numerous recommendations with no rule adoption in the Central Ohio River Tributaries in 2016. The apparent inconsistency is troubling and MBI provided comments to that effect on the latter rulemaking. We are also aware of the ongoing work to refine the application of CWH to small streams and the recently revised internal methodology but keeping up with what is practiced vs. what might be adopted in the future has been difficult. Above all this should be a biologically based process informed by the sound application of thermal biology.

Response 5: Ohio EPA agrees that the biological signature of the fauna residing within a stream represents the best information relative to the recommendation to assign the CWH designation to a stream. This is consistent with Ohio EPA's use of biological criteria per Chapter 3745-1 of the Ohio Administrative Code. Physicochemical parameters collected as part the survey play an important supportive role, especially in helping to explain the biological community that is observed.

With regard to recommendations made as part of other survey's mentioned in the comment, they remain on our list to process as we work through a backlog of updates to the use designation rules and plan to get to these and other backlogged designations in the coming months.

Comment 6: Table 13 is the QHEI matrix showing good and modified attributes as originally derived by Rankin (1989, 1995). We can find no salient discussion of the proportion of good: modified (high and moderate influence) attributes including how the number attributes and their ratios relate to degraded habitat and the potential to support

WWH at a minimum. This is how that analysis was intended to be used. While there is a detailed focus on the QHEI metrics in the TSD, it is not clear how these figured into the determination of WWH use attainability and especially where habitat is a precluding enough factor that it needs to be addressed directly to resolve an impairment or at least provide the potential to attain. Good: modified ratios of >2.00 are generally regarded as the point where modified attributes will need to be eliminated and/or offset by restoring good attributes and ratios of >4.00 and higher are clearly indicative of habitat being insufficient to support WWH without serious intervention. There are a few of these high ratios in Table 13 that require a closer examination (Lanes Branch has a ratio of 10.00!).

Response 6: While the ratios of modified habitat attributes were not directly examined for all stream sampling locations, habitat quality was examined relative to aquatic life attainment status (Figure 16 in report). Areas displaying habitat limitations and biological impairments were identified and habitat influences on impaired biological assemblages are discussed later in the document. With this being said, several sampling locations within the study area had elevated modified habitat attribute ratios (>2).

The sampling location in Lanes Branch had the highest modified habitat attribute ratio of all sampling locations. This location was accessed and sampled beginning at its confluence with Indian Guyan Creek. Only the lowermost reaches (< 50 meters) of this small stream (1.6 mi²) had water, while the rest of its upstream reaches lacked water. Channelization over much of this small stream's length has negatively impacted stream habitat. Despite the habitat limitations observed, fish assemblages marginally met the WWH criterion through the lower reaches that had water.

Elsewhere in the watershed, somewhat higher modified habitat attribute ratios were commonly associated with either lower gradient, wetland-type stream conditions (trib. to Symmes Creek (73.07), Huntingcamp Creek, Dicks Creek, Clear Fork), channelization and habitat modifications (Huntingcamp Creek, Dicks Creek, Wolf Run, segments of Sand Fork, Camp Creek, lower Swan Creek, Little Paddy Creek), or cattle access to streams (Peters Cave Creek). Several segments of Symmes Creek mainstem also had slightly elevated modified habitat attribute ratios associated with low gradient conditions or formerly modified segments. In most instances, habitat quality in these stream systems were sufficient to support WWH biological assemblages despite the presence of potentially limiting habitat features. The role of habitat quality was considered and discussed for all areas with biological impairment identified during the survey.

Comment 7: The sheer number of D.O. criteria exceedances raises the question about the need to possibly resolve the application of the D.O. criteria on a regional or classification basis or both. The analysis in the report are well done and expressed especially the attribution to low gradient conditions. We support the agency's approach to giving the biocriteria primacy in use attainment determinations, but some stakeholders who are more concerned about the "numbers" may need more convincing. This is also an opportunity to comment about the need to modernize and update the 1999 "Associations" document and values to included updated reference thresholds and also more "modern" biologically based thresholds using techniques that have recently

been developed and applied. Concepts such a Weighted Stressor Values and sensitive species and taxa driven derivations via quantile regression (as one example) for individual pollutant thresholds should be considered and on a regional/classification basis. We would be happy to work with the agency in such an effort and lend our experiences doing the same here in Ohio and elsewhere.

Response 7: Thank you for your support of our application of biocriteria over the use of chemical water quality criteria for ALU attainment. We strive to make clear in our documents the difference between a water quality exceedance and the stressor analysis done to develop causes and sources of impairment. While our dissolved oxygen (DO) criteria are applied by ALU designation, documentation of whether to list DO as a cause of impairment is handled by considering other regional factors. It is a standard inventory of findings to list “exceedances”, as compared to established water quality criteria.

Comment 8: On pp. 113 (Dicks Creek analysis) - last paragraph, 2nd sentence: change “fair” macro-invertebrates to “poor”.

Response 8: This was an error and has been corrected.

End of Response to Comments