EPA comments on Indiana's Public Noticed 2022 303(d) list and Listing Methodology dated February 28, 2022.

Comments on the Notice of Comment Period (NOC) and Consolidated Listing Methodology (CaLM)

1. Region 5 (R5) applauds IDEM for continuing to look at metals data which is new to this CALM document. EPA disagrees with the non-listing of dissolved metals waters that are not meeting standards based on a calculation used to determine the dissolved portion of the sample. IDEM has placed these waters on a monitor list for collecting data and plans to only list if the samples collected are not meeting standards. This is discussed on page 21 of the NOC.

   EPA believes these waters should be listed until dissolved metals data are collected and demonstrate meeting the criteria. EPA is requesting that these waters be added for the 2022 listing cycle.

   IDEM Response: *IDEM Office of Water Quality is currently developing a monitoring plan to address the assessment of Dissolved metals in Indiana. This plan will include sampling for total metal concentrations for Arsenic, Chromium, Copper, Lead, Nickel and Zinc and then applying a conversion formula (derived from previous IDEM OWQ sampling data) to obtain estimated Dissolved concentrations. For those locations where a potential Water Quality Standard impairment is indicated, follow-up sampling of Dissolved metals is conducted to verify that a violation has occurred. IDEM remains open to discussion with EPA as they continue to consider this issue.*

2. R5 appreciates Indiana's continued efforts to assess and protect all drinking water sources, including efforts to: (1) continue identifying public water supply systems (both community water systems and possibly non-transient, non-community water systems) under the direct influence of surface water; (2) assess for cyanobacterial toxins based on EPA's drinking water 10-day health advisories, as well as for bacteria; (3) develop a monitoring strategy to provide enough data to enable public water supply use assessments; and (4) collaborate with drinking water systems to support assessments. There are currently 14 assessment units (lakes) impaired for the public water supply use by algae and/or taste.

   IDEM Response: *IDEM will continue to assess and protect drinking water sources and hopes to develop our methodology to include those aspects described in the comment.*

3. R5 encourages Indiana to broaden its assessment of all surface water sources which are used for the public water supply use to assess for the drinking water use. EPA would also like to make sure IDEM is aware of the workshops funded by EPA Headquarters to support source water protection (e.g., by providing contractor facilitation). Previous workshops in Minnesota and Wisconsin brought together state and EPA CWA/SDWA programs to address how to improve drinking water designated use assessments, which may be helpful in Indiana, too—for example, to focus on developing a monitoring strategy to allow for additional public water supply use assessments.

   IDEM Response: *IDEM is committed to continuing and broadening the assessment of surface waters used for the Public Water Supply Use and looks forward to any support provided by U.S. EPA.*

4. On page 7 the paragraph related to the section identified as *Impairments Removed from Category 5 Based on New or Revised Assessments Indicating that Applicable WQS Are Being Met* should the last sentence refer to the 2022 cycle and not the 2020 cycle? Same question in the following paragraph and the section *Summary of Changes to Indiana's 303(d) List for the 2020 Cycle*, should this be changed to 2022?

   IDEM Response: *This is a typographical error that has been corrected in the CALM submitted with IDEM's 2022 Integrated Report (Appendix G).*

5. On page 21 IDEM explains how they apply the new *Total Metals Conversion Factors in Aquatic Life Use Assessments*. IDEM explains that if any of the approximated values exceed the water quality criteria for the dissolved metal in question, the site from which the sample was collected is prioritized for follow-up monitoring at which time samples will be collected and filtered to allow for more accurate measurement of dissolved metals concentrations. IDEM needs to list those waters calculated as not meeting the dissolved metals concentrations until they have collected dissolved data. If the collected dissolved metals data demonstrate a water is meeting the standard the impairment may be delisted in future listing cycles. Note: EPA is reviewing data and may identify waters that should be added based on the dissolved calculation. EPA is also looking at IDEM's derived criteria and may identify waters that should be included in Category 5 of the 2022 list.

   IDEM Response: *This comment was addressed under the reply to Comment 1.*

Comments on segments and ATTAINS issues

6. Indiana removed 115 iron and 3 lead Category 5 impairments from the 2020 final IR (see *2022OPCvs2020EFA-Removed* Tab in the attached excel file). These impairments were not identified as a delisting, but simply removed from the database. These need to be included in ATTAINS or given a delisting rationale and identify where they have moved to in the system

   Please keep in mind that when you delist a parameter you must demonstrate a good cause rationale.

   IDEM Response: *With regards to the Warm Water Aquatic Life Use, outside of Lake Michigan, Indiana does not have an adopted numeric criterion for Iron and does not believe that impairments can be made without applicable state criteria. IDEM remains open to discussion with EPA as they continue to consider this issue.*

Delisting issues

7. **IDEM Action Needed**. The *DuplicateDelistings* worksheet identifies AUIDs and associated parameters flagged as delistings in the 2022 cycle that were previously delisted in the 2020 cycle. Please correct these duplicated delistings.

   IDEM Response: *These AUIDs were erroneously reported as having been delisted in the 2022 IR, a duplication of their 2020 IR status. The 2022 Delisted status of these AUIDs has been removed.*

8. There are two delistings that were identified as having the rationale of "Not Specified" for the delisting reason. The two delistings are **INK02D1_T1006, Hanger Creek, and INB11I1_01, Maria Creek.** Both parameters flagged as delistings in 2022 are identified as causes, not meeting criteria for WWAL use, the same parameter status and parameter attainment that was identified in the 2020 cycle. In 2020 WWAL use attainment was Not Supporting but in 2022, WWAL use attainment is insufficient information. There does not appear to be sufficient information in the 2022 cycle to explain why the parameters are still identified as causes, not meeting criteria for WWAL use, but are flagged as delistings which result in changing WWAL use attainment. Please review the information and update as appropriate.

   IDEM Response: *INK02D1_T1006, Hanger Creek was listed as Not Supporting for Warm Water Aquatic Life use based on a Category 5 impairment for Nutrients which was Delisted in the 2022 Draft 303(d) submission with a "Not Specified" delisting reason. The Nutrients Parameter Status of "Cause" was changed to "Insufficient Information" to reflect that the initial Nutrients sampling on this AUID in 2017 did not meet the 3 required samples in order to assess for this Parameter. Agriculture was also removed as a Source of the previous Nutrients impairment.*

   INB11I1_01, Maria Creek was listed as Not Supporting for Warm Water Aquatic Life use based on a Category 5 impairment for Biological Integrity which was Delisted in the 2022 Draft 303(d) submission with a "Not Specified" delisting reason. The Biological Integrity Parameter Status of "Cause" was changed to "Fully Supporting" to reflect that the biological communities sampled at three locations in this AUID in 2021 were assessed as Fully Supporting, either through metric scores that met criteria or through staff Best Professional Judgement.

9. The 2022-OPC delistings worksheet identifies 2022 AU/parameters that IDEM has assigned a Delisted Reason, but the AU/parameters were not included in the 2020 cycle. Please review and correct the listings.
   a. I**NB11F5_T1003, Sulphur Creek,** did include copper and nickel in the 2020 cycle but the dissolved form was not included. No changes were made to the copper and nickel listings, both are still identified as causes, not meeting criteria for WWAL use. INB11F5_T1003, Sulphur Creek, identifies dissolved copper and dissolved nickel as delistings with a delisting reason of "Not Specified". However, dissolved copper or dissolved nickel were included in the final 2020 cycle, therefore, should not be identified as delistings in the 2022 cycle.

      IDEM Response: *INB11F5_T1003, Sulphur Creek, was listed as Not Supporting for Warm Water Aquatic Life (WWAL) Use based on impairments for Biological Integrity, Dissolved Cadmium, Copper, Nickel, Nutrients, pH, Zinc and Dissolved Zinc. Dissolved Copper and Dissolved Nickel were listed as "Delisted" despite not having been listed in the 2020 IR. "Delisted" status removed for Dissolved Nickel and Dissolved Copper. Review of chemistry data in AIMS indicates that the Dissolved Nickel assessment was incorrect, and that this parameter is Impaired at this location; Dissolved Nickel status changed to Category 5.*

   b. **INW0186_03, Foster Branch**, WWAL use in 2020 was fully supporting with no associated parameters. In 2022, WWAL use is still fully supporting but many

parameters were added, all meeting criteria, including nutrients. Nutrients is the only new parameter with a Delisted Reason. INW0186_03, Foster Branch, identifies nutrients as a delisting with a delisting reason of "Applicable WQS attained, based on new data". However, nutrients was not included in the final 2020 cycle, therefore, should not be identified as a delisting in the 2022 cycle.

IDEM Response: *Assessment notes for INW0186_03, Foster Branch were reviewed and determined that Biological Integrity and Nutrients were not meeting criteria and had been mislabeled as Category 2. The Delisting status for Nutrients was removed and Nutrients and Biological Integrity were both listed as a Cause Parameter with a Category 5 status.*

c. **INW0253_04, First Creek; INW0264_05, Black Creek; and INW0359_02, Mill Creek**, all include "Not Specified" as the Delisted Reason for Biological Integrity. Biological Integrity was not included in 2020 cycle. In the 2022 cycle, biological integrity is identified as a cause, not meeting criteria for WWAL use for all three of this AUs, but WWAL use attainment is identified as insufficient information. The insufficient information use attainment could be related to ongoing issues regarding dissolved metals since all three include a comment suggesting there is insufficient dissolved metals data for assessment in the WWAL use attainment section (see Comment #10 below). But this does not resolve the following questions regarding biological integrity:

   i. If biological integrity is a cause and not meeting criteria for WWAL use, then why is the WWAL use attainment insufficient information? Would not supporting be a more appropriate attainment status for WWAL use?
   ii. Why is biological integrity identified as a delisting when it was not included in the 2020 cycle?

IDEM Response: *Assessment notes for INW0253_04, First Creek; INW0264_05, Black Creek; and INW0359_02, Mill Creek indicate that Biological Integrity at all three sites was not meeting criteria. The WWAL use at all three sites was changed from Fully Supporting to Not Supporting. Biological Integrity was listed as a Cause with a Not Supporting Use Attainment.*

Action items issues in ATTAINS

10. Similar to comment #9 above, IDEM added parameters to the following AUs in the 2022 cycle and many of these parameters are meeting criteria for WWAL use, while the WWAL use attainment status is Insufficient Information which appears to be related to an issue with dissolved metals based on the use attainment comment. However, AUs identified below have a parameter that is a cause and not meeting criteria for WWAL. If a parameter has been identified as not meeting criteria for WWAL use the use attainment status should be Not Supporting regardless of any issues related to dissolved metals. Please consider reviewing the following further to confirm that WWAL use attainment should be insufficient information given the parameters assessed. I have included the WWAL use attainment comment from the 2022 cycle, as well as some additional information from the 2020 cycle for each AU below.

a. I**NB0725_01, Wildcat Creek, Middle Fork**: 2020 cycle: WWAL use attainment Not Supporting. Parameter causes include Iron and Lead, both not meeting criteria for WWAL use. 2022 cycle: WWAL use attainment Insufficient Information. Nutrients is parameter cause not meeting criteria for WWAL use. Use attainment comment states, "*20200924/JMA: Statewide dissolved metals assessment notes. Assessment data came from the following program(s): Fixed Station. Reviewed all dissolved metals data from 9/23/1997 to 7/28/2020. WAW030-0022. Middle Fork Wildcat Creek. Sampled 1x for dissolved metals. Data are insufficient for assessment purposes (data minimums unmet).*" Iron and Lead removed (see comment #6 above).

IDEM Response: *Assessment notes for INB0725_01, Wildcat Creek, Middle Fork indicate that the Nutrients Parameter at this site was not Meeting Criteria. The WWAL Use was changed to Not Supporting and Nutrients was listed as a Cause. Iron and Lead delistings are discussed under the response to Comment 6.*

b. **INB0738_07, Wildcat Creek, South Fork:** 2020 cycle: WWAL use attainment Not Supporting. Parameter cause is Iron, not meeting criteria for WWAL use. 2022 cycle: WWAL use attainment Insufficient Information. Nutrients is parameter cause not meeting criteria for WWAL use. Use attainment comment states, "*20200924/JMA: Statewide dissolved metals assessment notes. Assessment data came from the following program(s): Fixed Station. Reviewed all dissolved metals data from 9/23/1997 to 7/2*8/2020. WAW040-0001. South Fork Wildcat Creek. Sampled 1x for dissolved metals. Data are insufficient for assessment purposes (data minimums unmet)." Iron removed (see comment #6 above).

IDEM Response: *Assessment notes for INB0738_07, Wildcat Creek, South Fork indicate that the Nutrients Parameter at this site was not Meeting Criteria. The WWAL Use was changed to Not Supporting and Nutrients was listed as a Cause. Iron and Lead delistings are discussed under the response to Comment 6.*

c. **INB0739_02, Lauramie Creek:** 2020 cycle: WWAL use attainment Not Supporting. Parameter cause is Biological Integrity, not meeting criteria for WWAL with an associated TMDL Action, Action 35494[1]. 2022 cycle: WWAL use attainment Insufficient Information. Biological is parameter cause not meeting criteria for WWAL use and still associated with TMDL Action 35494. Use attainment comment states, '20200924/JMA: Statewide dissolved metals assessment notes. Assessment data came from the following program(s): 2004 IBC South Fork Wildcat Creek Study + Reference Sites. Reviewed all dissolved metals data from 9/23/1997 to 7/28/2020. WAW040-0087. Lauramie Creek.

[1] TMDL, Action 35494 SF-Wildcat Creek TMDLs, that addressed impairment of WWAL use due to biological integrity. EPA dec doc does not include INB0739_02 as impaired AU addressed by TMDL. However, EPA dec doc does include a TMDL that addresses impaired biotic community for Lauramie Creek (Clinton Co), INB074C_00, for pollutants NO2NO3, TP, TSS. INB074C_00 is a historic AU in ATTAINS that includes comment stating, "Segment split, renamed; See linked support documents for details, JMA7/19/05." INB0739_02 includes comment that this AU is from INB074C_00 and INB074C_01. Association with TMDL Action 35494 appears to be correct.

Sampled 2x for dissolved As, Cd, Cr (III), Cu, Pb, Ni, Ag, and Zn. Data are insufficient for assessment (data minimum unmet)."

IDEM Response: *Assessment notes for INB0739_02, Lauramie Creek indicate that Biological Integrity is still not Meeting Criteria. As this Parameter is still addressed by TMDL Action 35494, this segment should still be considered as Category 4A. The WWAL Use Attainment was changed from Insufficient Information to Not Supporting.*

d. **INB0361_02, Mississinewa River:** 2020 cycle: WWAL use attainment Not Supporting. Parameter cause is Iron, not meeting criteria for WWAL use. 2022 cycle: WWAL use attainment Insufficient Information. Nutrients is parameter cause not meeting criteria for WWAL use. Use attainment comment states, "*20200924/JMA: Statewide dissolved metals assessment notes. Assessment data came from the following program(s): Fixed Station. Reviewed all dissolved metals data from 9/23/1997 to 7/28/2020. WMI060-0004. Mississinewa River. Sampled 1x for dissolved metals. Data are insufficient for assessment purposes (data minimums unmet).*" Iron removed (see comment #6 above).

IDEM Response: *Assessment notes for INB0361_02, Mississinewa River indicate that the Nutrients Parameter at this site was not Meeting Criteria. The WWAL Use was changed to Not Supporting and Nutrients was listed as a Cause. Iron and Lead delistings are discussed under the response to Comment 6.*

e. **INB11I3_02, Marsh Creek:** 2020 cycle: WWAL use attainment Fully Supporting. No parameters included. 2022 cycle: WWAL use attainment Insufficient Information. Biological Integrity is parameter cause not meeting criteria for WWAL. Biological Integrity is associated with TMDL Action IN-2021-001.[2] Use attainment comment states, "*20200924/JMA: Statewide dissolved metals assessment notes. Assessment data came from the following program(s): Fish Tissue. Reviewed all dissolved metals data from 9/23/1997 to 7/28/2020. WBU-18-0021. Marsh Creek. Sampled 1x for dissolved As, Cd, Cr (III), Cu, Pb, Ni, Ag, and Zn. Data are insufficient for assessment (data minimum unmet)*."

IDEM Response: *Assessment notes for INB11I3, Marsh Creek indicate that Biological Integrity is not Meeting Criteria. As this Parameter is addressed by TMDL Action IN-2021-001, Biological Integrity should be considered as Category 4A. The WWAL Use Attainment was changed from Insufficient Information to Not Supporting.*

f. **INB11I3_04, Marsh Creek:** 2020 cycle: WWAL use attainment Fully Supporting. No parameters included. 2022 cycle: WWAL use attainment Insufficient Information. Biological Integrity is parameter cause not meeting criteria for WWAL. Biological Integrity is associated with TMDL Action IN-2021-001.[3] Use attainment comment states, "*20200924/JMA: Statewide dissolved metals assessment notes. Assessment data came from the following program(s): Fish Tissue. Reviewed all dissolved metals data from 9/23/1997 to 7/28/2020.*

[2] TSS TMDL addresses Index of Biological Integrity (IBI) for INB11I3_02 in TMDL Action IN-2021-001.
[3] TSS TMDL addresses Index of Biological Integrity (IBI) for INB11I3_04 in TMDL Action IN-2021-001.

WBU-18-0021. Marsh Creek. Sampled 1x for dissolved As, Cd, Cr (III), Cu, Pb, Ni, Ag, and Zn. Data are insufficient for assessment (data minimum unmet)".

IDEM Response: *Assessment notes for INB11I3_04, Marsh Creek indicate that Biological Integrity is not Meeting Criteria. As this Parameter is addressed by TMDL Action IN-2021-001, Biological Integrity should be considered as Category 4A. The WWAL Use Attainment was changed from Insufficient Information to Not Supporting.*

g. **INN0181_01, Miller Fork:** 2020 cycle: WWAL use attainment Fully Supporting. No parameters included. 2022 cycle: WWAL use attainment Insufficient Information. Biological Integrity is parameter cause not meeting criteria for WWAL. Use attainment comment states, "*20200924/JMA: Statewide dissolved metals assessment notes. Assessment data came from the following program(s): Corvallis. Reviewed all dissolved metals data from 9/23/1997 to 7/28/2020. OSK-08-0016. Miller Fork. Sampled 2x for dissolved As, Cd, Cr (III), Cu, Pb, Ni, Ag, and Zn. Data are insufficient for assessment (data minimum unmet).*"

IDEM Response: *Assessment notes for INB0181_01, Miller Fork indicate that Biological Integrity is not Meeting Criteria for macroinvertebrate community. The description for this sampling location indicates that natural habitat (bedrock substrate) may be a reason Biological Integrity is not Meeting Criteria; the Biological Integrity Parameter should be considered as Category 4C. The WWAL Use Attainment was changed from Insufficient Information to Not Supporting.*

h. **INV0343_T1004, Allen Branch:** 2020 cycle: WWAL use attainment Not Supporting. Biological Integrity and DO parameter causes, both not meeting criteria for WWAL. 2022 cycle: WWAL use attainment Insufficient Information. Biological Integrity and DO are still parameter cause, both not meeting criteria for WWAL. Use attainment comment states, "*20200924/JMA: Statewide dissolved metals assessment notes. Assessment data came from the following program(s): Corvallis. Reviewed all dissolved metals data from 9/23/1997 to 7/28/2020. OML-04-0007. Allen Branch. Sampled 2x for dissolved As, Cd, Cr (III), Cu, Pb, Ni, Ag, and Zn. Data are insufficient for assessment (data minimum unmet).*"

IDEM Response: *Assessment notes for INV0343_T1004, Allen Branch indicate that Biological Integrity is not Meeting Criteria for the fish community and should remain in Category 5. The WWAL Use Attainment was changed from Insufficient Information to Not Supporting.*

i. **INW0253_04, First Creek:** 2020 cycle: WWAL use Fully Supporting. No parameters included. 2022 cycle: WWAL use attainment Insufficient Information. Biological Integrity parameter cause not meeting criteria for WWAL use but also flagged as Delisted. WWAL use attainment comment states, "*20200924/JMA: Statewide dissolved metals assessment notes. Assessment data came from the following program(s): Corvallis. Reviewed all dissolved metals data from 9/23/1997 to 7/28/2020. WWL-05-0015. First Creek. Sampled 2x for dissolved As, Cd, Cr (III), Cu, Pb, Ni, Ag, and Zn. Data are insufficient for assessment (data minimum unmet).*"

IDEM Response: *This comment was addressed under the reply to Comment 9d.*

j. **INW0264_05, Black Creek:** 2020 cycle: WWAL use Fully Supporting. No parameters included. 2022 cycle: WWAL use attainment Insufficient Information. Biological Integrity parameter cause not meeting criteria for WWAL use but also flagged as Delisted. WWAL use attainment comment states, "*20200924/JMA: Statewide dissolved metals assessment notes. Assessment data came from the following program(s): Corvallis. Reviewed all dissolved metals data from 9/23/1997 to 7/28/2020. WWL-06-0124. Black Creek. Sampled 2x for dissolved As, Cd, Cr (III), Cu, Pb, Ni, Ag, and Zn. Data are insufficient for assessment (data minimum unmet).*"

IDEM Response: *This comment was addressed under the reply to Comment 9d.*

k. **INW0359_02, Mill Creek:** 2020 cycle: WWAL use Fully Supporting. No parameters included. 2022 cycle: WWAL use attainment Insufficient Information. Biological Integrity parameter cause not meeting criteria for WWAL use but also flagged as Delisted. WWAL use attainment comment states, "*20200924/JMA: Statewide dissolved metals assessment notes. Assessment data came from the following program(s): Corvallis. Reviewed all dissolved metals data from 9/23/1997 to 7/28/2020. WWE-05-0011. Mill Creek. Sampled 2x for dissolved As, Cd, Cr (III), Cu, Pb, Ni, Ag, and Zn. Data are insufficient for assessment (data minimum unmet).*"

IDEM Response: *This comment was addressed under the reply to Comment 9d.*

11. **INB11I1_T1004, Maria Creek**, Unnamed Trib, added DO and biological integrity as parameter causes not meeting criteria for WWAL use in 2022 cycle. Both are in cat4A due to association with TMDL Action IN-2021-001, Maria Creek Watershed TMDL. Review of EPA dec doc and TMDL report confirm that the TSS TMDL addresses biological integrity, therefore listing in cat4A is appropriate. However, review of EPA dec doc and TMDL report do not support listing DO in cat4A. See Table 39 in TMDL and discussion on pp. 101-103 of TMDL report. Also, see WWAL use attainment comment in Assessment. Comment states, "*2/1/2021/JMA: Tributary of Maria Creek. WBU-18-0014: IBI 20, QHEI 37, mIBI 32/34, QHEI 24/23. DO low 3/9 (1.65-3.09 mg/L) and moderately low 2/9 (4.2-4.18 mg/L). Impaired for DO. DO could be a flow issue. Stream gets very low, with corresponding low TSS values. DO a possible 4C. Biology may habitat drive. No habitat for bugs; no cover, substrate silt & muck, water was warm. The drainage area small and stream was not very wide; not much room for fish community. 4C candidate.*" IDEM Action needed: Please remove association with TMDL Action IN-2021-001 for DO in Assessment module.

IDEM Response: *INB11I1_T1004, Maria Creek was listed as Not Supporting for Warm Water Aquatic Life (WWAL) Use based on impairments for Dissolved Oxygen (DO) and Biological Integrity. These Parameters (along with E. coli) were subsequently listed as Category 4A due to the completion of TMDL Action IN-2021-001. However, as DO was not covered under TMDL Action IN-2021-001, this Action was removed from the DO Cause Parameter Associated Actions. The Category 4A status for DO was also*

changed to category 4C to reflect field observations of low flow which could lead to DO levels that do not meet criteria.

12. **INB11I1_T1005, Maria Creek Unnamed Trib**, added DO and Biological Integrity as parameter causes not meeting criteria for WWAL use in 2022 cycle. Both are in cat4A due to association with TMDL Action IN-2021-001, Maria Creek Watershed TMDL. Review of EPA dec doc and TMDL report confirm that the TSS TMDL addresses biological integrity, therefore listing in cat4A is appropriate. However, review of EPA dec doc and TMDL report do not support listing DO in cat4A. See Table 39 in TMDL and discussion on pp. 101-103 of TMDL report. Note, the Assessment for this AU does not include a WWAL use attainment comment about DO being a potential 4C candidate similar to the comment included in the Assessment for INB11I1_T1004 (see comment # 6 above). Please remove association with TMDL Action IN-2021-001 for DO in Assessment module.

    IDEM Response: *INB11I1_T1005, Maria Creek Unnamed Trib, was listed as Not Supporting for Warm Water Aquatic Life (WWAL) Use based on impairments for Dissolved Oxygen (DO) and Biological Integrity. These Parameters (along with E. coli) were subsequently listed as Category 4A due to the completion of TMDL Action IN-2021-001. However, as DO was not covered under TMDL Action IN-2021-001, this Action was removed from the DO Cause Parameter Associated Actions. Further review of assessment notes indicates that the DO listing as Category 4A was made in error; DO has subsequently been relisted as Category 4C to reflect that this Parameter has been assessed as impaired but that the impairment was determined to be possibly due to low flow.*

13. **INB11I2_T1002, Maria Creek Unnamed Trib**, added E coli and DO as parameters causing impairments of full body contact use and WWAL use in 2022 cycle, respectively. Both are listed in cat4 due to association with TMDL Action IN-2021-001. Review of EPA dec doc and final TMDL report support listing E coli in Category 4A. However, review of EPA dec doc and final TMDL report do not support listing DO in cat4A. See pp. 90-91 and Table 37 in final TMDL report. Also, WWAL use attainment includes the following comment related to DO, "*2/1/2021/JMA: Tributary of Maria Creek. WBU-18-0011: IBI 44, QHEI33, mIBI 38, QHEI 34. DO low 2/11 (3.6-3.92 mg/L) and moderately low 2/11 (4.27-4.99 mg/L). Impaired for DO, probably driven by low flow. No nutrient issues or high percent saturation, and the dates that these values occurred are those during which you would expect low flows. Possible 4C.*" Please remove association with TMDL Action IN-2021-001 for DO in Assessment module.

    IDEM Response: *INB11I2_T1002, Maria Creek Unnamed Trib was listed as Not Supporting for WWAL Use based on impairments for DO. This Parameter (along with E. coli) was subsequently listed as Category 4A due to the completion of TMDL Action IN-2021-001. However, as DO was not covered under TMDL Action IN-2021-001, this Action was removed from the DO Cause Parameter Associated Actions. The Category 4A status for DO was also changed to category 4C to reflect field observations of low flow which could lead to DO levels that do not meet criteria.*

14. **INB11I3_02, Marsh Creek**, added Biological Integrity and DO as parameter causes not meeting criteria for WWAL use and added E coli as parameter cause not meeting criteria for full body contact use in 2022 cycle. All three parameters are listing in cat4A due to association with TMDL Action IN-2021-001, Marsh Creek Watershed TMDL. Review of EPA dec doc and final TMDL report support including biological integrity and E coli in cat4A but do not support including DO in cat4A. See pp. 95-96 and Table 38 in final TMDL report and Table 1 in EPA dec doc. Also see WWAL use attainment comment related to DO in Assessment, "*2/1/2021/JMA: Marsh Creek. WBU-18-0017: IBI 20, QHEI 33. No macro data; stream went dry. DO low 2/8 (2.17-2.2 mg/L). Impaired for DO and biological integrity. Only 18 individuals. Stream was about to go dry when sampled. DO was good the rest of the year. DO a candidate for Cat 4C. TSS values support the idea that low flow is driving DO.*" Please remove association with TMDL Action IN-2021-001 for DO in Assessment module.

    IDEM Response: *INB11I3_02, Marsh Creek was listed as Not Supporting for WWAL Use based on impairments for DO and Biological Integrity. These Parameters (along with E. coli) were subsequently listed as Category 4A due to the completion of TMDL Action IN-2021-001. However, as DO was not covered under TMDL Action IN-2021-001, this Action was removed from the DO Cause Parameter Associated Actions. The Category 4A status for DO was also changed to category 4C to reflect field observations of low flow which could lead to DO levels that do not meet criteria.*

15. **INB11I4_02, Maria Creek,** added DO as parameter cause not meeting criteria for WWAL use in 2022 cycle. DO is listed in cat4A due to association with TMDL Action In-2021-001. Review of TMDL report and EPA dec doc do not support associating DO with approved TMDL Action. See pp. 85-86 and Table 36 in TMDL report and Table 1 in EPA dec doc. Note, the Assessment for this AU does not include a WWAL use attainment comment about DO being a potential 4C candidate similar to the comment included in the Assessment for INB11I1_T1004 (see comments #11, 13 & 14 above). Please remove association with TMDL Action IN-2021-001 for DO in Assessment module.

    IDEM Response: *INB11I4_02, Maria Creek was listed as Not Supporting for WWAL based on impairments for DO and Biological Integrity. These Parameters (along with E. coli) were subsequently listed as Category 4A due to the completion of TMDL Action IN-2021-001. However, as DO was not covered under TMDL Action IN-2021-001, this Action was removed from the DO Cause Parameter Associated Actions. Further review of assessment notes indicates that the DO impairment was made in error; DO has subsequently been relisted as Category 2 to reflect that this Parameter has been assessed and determined to be meeting criteria.*

16. **INB11I4_T1004, Cotton Branch**, added DO as parameter cause not meeting criteria for WWAL use in 2022 cycle. DO is listed in cat4A due to association with TMDL Action In-2021-001. Review of TMDL report and EPA dec doc do not support associating DO with approved TMDL Action. See pp. 85-86 and Table 36 in TMDL report and Table 1 in EPA dec doc. Note, the Assessment for this AU does not include a WWAL use

attainment comment about DO being a potential 4C candidate similar to the comment included in the Assessment for INB11I1_T1004 (see comments #11, 13, & 14 above). Please remove association with TMDL Action IN-2021-001 for DO in Assessment module.

IDEM Response: *INB11I4_T1004, Cotton Branch was listed as Not Supporting for WWAL based on impairments for DO and Biological Integrity. These Parameters (along with E. coli) were subsequently listed as Category 4A due to the completion of TMDL Action IN-2021-001. However, as DO was not covered under TMDL Action IN-2021-001, this Action was removed from the DO Cause Parameter Associated Actions. Further review of assessment notes indicates that the DO impairment was made in error; DO has subsequently been relisted as Category 2 to reflect that this Parameter has been assessed and determined to be meeting criteria.*

17. **INV0352_02, Little Laughery Creek**, added Nutrients as a parameter cause not meeting criteria for WWAL use in 2022 cycle. Nutrients were associated with TMDL Action IN-2020-002, Laughery Creek Watershed TMDL. Review of TMDL report and EPA dec doc do not support associating nutrients with approved TMDL Action. See pp. 93-94 and Table 35 in TMDL report and Table 1 in EPA dec doc. Please remove association with TMDL Action IN-2020-002 for Nutrients in Assessment module.

    IDEM Response: *INV0352_02, Little Laughery Creek was listed as Not Supporting for WWAL based on impairments for Nutrients. This Parameter (along with E. coli) was subsequently listed as Category 4A due to the completion of TMDL Action IN-2020-002. However, as Nutrients were not covered under TMDL Action IN-2022-002, this Action was removed from the Nutrients Cause Parameter Associated Actions. Further review of assessment notes indicates that the Nutrients impairment was correct; Nutrients has subsequently been relisted as Category 5 to reflect that this Parameter has been assessed and determined to not be meeting criteria.*

18. **INV0354_T1013, Ripley Creek – Unnamed Trib**, added DO as a parameter cause not meeting criteria for WWAL use in 2022 cycle. DO was associated with TMDL Action IN-2020-002, Laughery Creek Watershed TMDL and placed in cat4A. Review of TMDL report and EPA dec doc do not support associating DO with approved TMDL Action. See pp. 106-107 and Table 37 in TMDL report and Table 1 in EPA dec doc. Comment included in WWAL use attainment includes comment about DO, "*20200205/JMA: OML-05-0036 (TMDL Site ID: 19T-023): Site located on Tributary of Ripley Creek at County Road 950 N. IBI 38, QHEI 49. No mIBI data (site went dry). DO impaired (other chem OK). All low values occurred in the summer. DO is a flow-driven issue.*" Please remove association with TMDL Action IN-2020-002 for DO in Assessment module.

    IDEM Response: *INV0354_T1013, Ripley Creek – Unnamed Trib. was listed as Not Supporting for WWAL based on impairments for DO. This Parameter (along with E. coli) was subsequently listed as Category 4A due to the completion of TMDL Action IN-2020-002. However, as DO was not covered under TMDL Action IN-2022-002, this Action was removed from the DO Cause Parameter Associated Actions. Further review of assessment notes indicates that the DO impairment was correct; DO has*

subsequently been relisted as Category 5 to reflect that this Parameter has been assessed and determined to not be meeting criteria.