Initial EPA Comments Submitted to IDEM on 12/05/07:

1. With regard to the section "Changes in Segmentation and their Effect on Indiana's 303(d) list", I have the following questions:
   a. Since Table 1 includes waterbody segments from the entire Integrated Report (IR), not only Category 5, that have been resegmented, please provide the following information:
      - Category to which the retired and resegmented Assessment Units (AUs) belong to.
      - Newly created AUs IDs in which the previously original AUs were split into.
      - Category to which the newly created AUs belong to.

      IDEM Response: Retiring an AU means that the AUID will no longer be used for tracking purposes. The original AU no longer exists because it has been split into two or more smaller AUs. Therefore, it cannot be assigned to any category. The original AU is replaced in IDEM's ADB with the resulting, smaller AUs. These AUs are then placed into one/more categories of the State's Consolidated list depending on the results of the reassessment that is completed whenever an AU is split. This information has been incorporated into Indiana's consolidated List, which is submitted as part of the 2008 Integrated Report (Appendix B).

2. With regard to the section "Waterbody Impairments Proposed to Be Removed from Category 5A as a Result of TMDL Development", I have the following questions:
   a. Table 2 includes waterbody segments / impairments proposed to be moved from Category 5 to Category 4A based on TMDL completion.
      - As clearly mention in the narrative, some of these waterbody segments / impairments included in this table (waters in TMDLs I, K, N and O) are pending for Category 4A move approval based on Final TMDL approval before the April 1, 2008 List deadline. In addition to this, the table below shows three waterbody segments / impairments included in Table 2 that were not found to be included in the TMDL approval. Please clarify.

BASIN	14-DIGIT HUC	COUNTY	ASSESSMENT UNIT ID	ASSESSMENT UNIT NAME	CAUSE OF IMPAIRMENT	TMDL
UPPER WABASH	05120101050050	JAY CO	INB0155_T1013	EAST PRONG (HEADWATER)-UNNAMED TRIBUTARY	IMPAIRED BIOTIC COMMUNITIES	L
UPPER WABASH	05120101050060	JAY CO	INB0156_T1001	LIMBERLOST CREEK-UNNAMED TRIBUTARY	IMPAIRED BIOTIC COMMUNITIES	L
UPPER WABASH	05120101050060	JAY CO	INB0156_T1006	OAKLEY DITCH	IMPAIRED BIOTIC COMMUNITIES	L

IDEM Response: These AUs are indexed at high resolution after the TMDL for impaired biotic communities in the Limberlost Watershed was completed. IDEM has submitted a letter to USEPA Region V requesting that the TMDLs for these waters be approved based on the information contained in the Limberlost TMDL, which is applicable to these impairments. These impairments have been added back to Category 5A pending their approval of as part of the Limberlost TMDL.

- Waterbody segments / impairments mention in the table above and the segments in TMDLs I, K, N and O are subject to remain in Category 5A if requirements for Category 4A move are not met.

  IDEM Response: Since the draft list was published, IDEM has received U.S. EPA approval for the Flatrock-Haw Creek TMDL (O). IDEM has not yet received formal approval for the other West Fork Whitewater River TMDL (I), the TMDL for Duck, Pipe, Killbuck and Stony Creeks (K), or the Busseron Creek TMDL (N) and has added these impairments back to Category 5A of Indiana's 303(d) List of Impaired Waters.

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- The following waterbody segment / impairment has been double entered in Table 2. Please correct.

BASIN	14-DIGIT HUC	COUNTY	ASSESSMENT UNIT ID	ASSESSMENT UNIT NAME	CAUSE OF IMPAIRMENT	TMDL
UPPER WABASH	05120101040010	JAY CO	INB0141_T1023	WABASH RIVER	E. COLI	G

IDEM Response: This error has been corrected in IDEM's finalized 303(d) list submission.

b. Table 3 includes waterbody segments / impairments proposed to be moved from Category 2 or 3 to Category 4A based on TMDL completion.

- The table below shows waterbody segments / impairments included in Table 3 that were previously listed in Category 5 and therefore should have been included in Table 2. Please clarify.

BASIN	14-DIGIT HUC	COUNTY	ASSESSMENT UNIT ID	ASSESSMENT UNIT NAME	CAUSE OF IMPAIRMENT	TMDL
GREAT LAKES	04100004040030	ADAMS CO	INA0443_T1008	HABEGGER DITCH	IMPAIRED BIOTIC COMMUNITIES	D
GREAT LAKES	04100004040050	ADAMS CO	INA0445_T1006	BLUE CREEK	IMPAIRED BIOTIC COMMUNITIES	D
GREAT LAKES	04100004040070	ADAMS CO	INA0447_00	YELLOW CREEK	IMPAIRED BIOTIC COMMUNITIES	D
GREAT LAKES	04100004050040	ALLEN CO	INA0454_T1012	ST. MARYS RIVER TRIB	IMPAIRED BIOTIC COMMUNITIES	D
UPPER WABASH	05120101060010	ADAMS CO	INB0161_T1025	WABASH RIVER	IMPAIRED BIOTIC COMMUNITIES	G
LOWER WABASH	05120108010030	TIPPECANOE CO	INB0813_M1001	WABASH RIVER	IMPAIRED BIOTIC COMMUNITIES	G
UPPER WABASH	05120101050050	JAY CO	INB0155_00	LIMBERLOST CREEK (FLOWING INTO OH)	IMPAIRED BIOTIC COMMUNITIES	L
UPPER WABASH	05120101050060	ADAMS CO	INB0156_00	LIMBERLOST CREEK (UPSTREAM OF PERRY DITCH)	IMPAIRED BIOTIC COMMUNITIES	L
LOWER WABASH	05120111160040	SULLIVAN CO	INB11G4_T1024	SULPHER CREEK	IMPAIRED BIOTIC COMMUNITIES	N
LOWER WABASH	05120111160040	SULLIVAN CO	INB11G4_T1024	SULPHER CREEK	TOTAL DISSOLVED SOLIDS	N
LOWER WABASH	05120111160050	SULLIVAN CO	INB11G5_T1034	BIG BRANCH TRIBUTARY - GILMOUR	TOTAL DISSOLVED SOLIDS	N
LOWER WABASH	05120111160060	SULLIVAN CO	INB11G6_00	BIG BRANCH-MUD CREEK	TOTAL DISSOLVED SOLIDS	N
LOWER WABASH	05120111160070	SULLIVAN CO	INB11G7_T1035	BUSSERON CREEK - HYMERA	TOTAL DISSOLVED SOLIDS	N
LOWER WABASH	05120111160080	SULLIVAN CO	INB11G8_T1036	BUSSERON CREEK	TOTAL DISSOLVED SOLIDS	N
LOWER WABASH	05120111160090	SULLIVAN CO	INB11G9_00	BUTTERMILK CREEK	TOTAL DISSOLVED SOLIDS	N
LOWER WABASH	05120111160110	SULLIVAN CO	INB11GB_T1037	BUSSERON CREEK - PAXTON	TOTAL DISSOLVED SOLIDS	N
LOWER WABASH	05120111160130	SULLIVAN CO	INB11GD_00	BUSSERON CREEK-TANYARD BRANCH	TOTAL DISSOLVED SOLIDS	N

IDEM Response: IDEM concurs that all of the impairments shown in the table above were in Category 5A of Indiana's 2006 303(d) list. They were placed in Table 3 of IDEM's Notice of Comment Period for the draft 2008 303(d) list in error. With the exception of those assessment units (AUs) keyed to the Busseron Creek TMDL (N), all of these previously listed impairments were moved to Appendix A, Table A2 of IDEM's finalized 2008 303(d) list submission packet. Because the TMDL for Busseron Creek (N) was not approved at the time of Indiana's 2008 303(d) List was submitted to USEPA, these AUs were moved to Appendix A, Table A13 (Category 5A) of IDEM's finalized 2008 303(d) list submission packet.

- In addition, the table below shows waterbody segments / impairments included in Table 3 that were previously listed in Category 4A because there were addressed in a previously approved TMDL dated 7/21/05. These waterbody segments / impairments should not be included in Table 3. Please clarify.

BASIN	14-DIGIT HUC	COUNTY	ASSESSMENT UNIT ID	ASSESSMENT UNIT NAME	CAUSE OF IMPAIRMENT	TMDL
WEST FORK WHITE	05120202020030	OWEN CO	INW0223_T1018	MCCORMICKS CREEK	E. COLI	J
WEST FORK WHITE	05120202020050	OWEN CO	INW0225_00	RATTLESNAKE CREEK	E. COLI	J

WEST FORK WHITE	05120202020070	OWEN CO	INW0227_00	RACCOON CREEK-LITTLE RACCOON CREEK	E. COLI	J
WEST FORK WHITE	05120202020080	OWEN CO	INW0228_00	RACCOON CREEK-LICK CREEK	E. COLI	J
WEST FORK WHITE	05120202020100	OWEN CO	INW022A_00	EAST FORK FISH CREEK	E. COLI	J
WEST FORK WHITE	05120202020100	OWEN CO	INW022A_T1025	EAST FORK FISH CREEK	E. COLI	J
WEST FORK WHITE	05120202020120	OWEN CO	INW022C_00	FISH CREEK	E. COLI	J
WEST FORK WHITE	05120202020130	OWEN CO	INW022D_00	FISH CREEK	E. COLI	J
WEST FORK WHITE	05120202020140	OWEN CO	INW022E_00	FISH CREEK	E. COLI	J

IDEM Response: IDEM concurs that all of the impairments shown in the table above were in Category 4A of Indiana's 2006 Consolidated List. These Impairments were incorrectly associated with the TMDL for West Fork White River Owen County Tributary Watershed in Table 3 of IDEM's Notice of Comment Period for the draft 2008 303(d). Having been addressed in the TMDL for the Middle West Fork White River in 2005, they were already in Category 4A. Therefore, they have been removed from Table 3 and now appear in Appendix B of IDEM's finalized 2008 303(d) list submission packet, which identifies all Category 4A impairments approved by USEPA as of April 1, 2008.

3. With regard to the section "Waterbody Impairments Proposed to Be Removed from Category 5A on the Basis of IDEM's Rotating Basin Monitoring and Assessment Strategy", I have the following question:

a. Please provide the category to which the waterbody segments / impairments mention in Table 4 are moving to.

IDEM Response: This information has been incorporated into Indiana's consolidated List, which is submitted as part of the 2008 Integrated Report (Appendix B).

4. With regard to the section "Waterbody Impairments Proposed to Be Removed from Category 5A due to Resegmentation", I have the following questions:

a. Table 5 includes waterbody segments / impairments proposed to be moved from Category 5 based on segmentation changes. Resegmentation on its own can't be use a legitimate delisting reason. As clearly stated in the narrative, the original assessments for AUs that were split were also reevaluated. The resulting reassessments were applied to the newly created AUs and when appropriate some were added back to the list in Table 9 associated with new AU IDs. Given this fact, please provide the following info:

- Newly created AUs IDs in which the previously original AUs were split into.

IDEM Response: This information has been incorporated into Appendix A, Table A1 of IDEM's finalized 2008 303(d) list submission packet.

- Category to which the newly created AUs belong to.

IDEM Response: This information has been incorporated into Indiana's consolidated List, which is submitted as part of the 2008 Integrated Report (Appendix B). If the newly created AUs are not moving into Category 5, provide true delisting reasons based on the resulting reevaluations.

IDEM Response: IDEM has clarified the information that now appears in Appendix A, Table A5 by removing the delisting explanations. No impairments were removed from the 303(d) list purely as a result of segmentation changes. Rather, all impairments on AUs that were split for assessment purposes were reevaluated and applied as appropriate to the resulting new AUs. These changes can be tracked using the tables provided in Appendix A:

- *Table A1 is the primary table for tracking. This table shows all impairments on waters split for assessment purposes and the new AU to which the previous impairment applies.*
- *Table A5 shows the same impairments in Table A1 as delistings associated with resegmentation.*
- *Table A9 shows the previously listed impairments from Table A5 applied to one/more of the new AUs.*

5. With regard to the section "Waterbody Impairments Proposed to Be Removed from Category 5A on the Basis of Information Received Since the 2006 303(d) List Was Developed", I have the following questions:

a. Table 6 includes waterbody segments / impairments proposed to be moved from Category 5 to Category 2 or 3 based on information received since the 2006 303(d) List was developed. Please provide specifically to which of the two Categories (2 or 3) these waterbody segments / impairments are moving to.

IDEM Response: Indiana's Consolidated List shows all categories for each waterbody tracked in IDEM's ADB. Please refer to IDEM's 2008 Integrated Report, Appendix B for the category or categories to which these waters belong.

b. According to the delisting explanations given in Table 6, it seems that most of these waters with the exception of the waters listed below should be considered as moving to Category 2.

IDEM Response: Indiana's Consolidated List shows all categories for each waterbody tracked in IDEM's ADB. Please refer to IDEM's 2008 Integrated Report, Appendix B for the category or categories to which these waters belong.

c. The following waterbody segments / impairments in Table 6 should be considered as moving to Category 3.

BASIN	14-DIGIT HUC	COUNTY	ASSESSMENT UNIT ID	ASSESSMENT UNIT NAME	CAUSE OF IMPAIRMENT
UPPER WABASH	5120107010040	TIPTON CO	INB0714_T1001	ROSS DITCH	IMPAIRED BIOTIC COMMUNITIES
UPPER WABASH	5120107010040	TIPTON CO	INB0714_T1002	NORTH CREEK	IMPAIRED BIOTIC COMMUNITIES
UPPER WABASH	5120107010040	TIPTON CO	INB0714_T1003	OFF DITCH	IMPAIRED BIOTIC COMMUNITIES

IDEM Response: Indiana's Consolidated List shows all categories for each waterbody tracked in IDEM's ADB. Please refer to IDEM's 2008 Integrated Report, Appendix B for the category or categories to which these waters belong.

d. According to the delisting explanation given in Table 6, it seems that the following waterbody segment / impairment listing was a result of segmentation and AU ID confusion, and therefore not considered for a true Category move. As stated in the delisting explanation this is not a true segment but an artifact, and for tracking purposes its AU ID should be retire. Since it looks like this segment / impairment is tied to AU ID INB06P1033_00. Why doesn't segment INB06P1033_00 appear listed for E. coli in Table 17?

MAJOR BASIN	14-DIGIT HUC	COUNTY	ASSESSMENT UNIT ID	ASSESSMENT UNIT NAME	CAUSE OF IMPAIRMENT	EXPLANATION
UPPER WABASH	5120106100030	WHITE CO	INB06A3_P1031	LAKE SHAFER	E. COLI	Segment is an artificial path. Added back to 303(d) list as Assessment Unit ID INB06P1033_00

IDEM Response: This impairment now appears correctly in Table A13 as a Category 5A impairment.

e. The following waterbody segment was not found to be previously listed for TDS impairment under Category 5. Please clarify.

BASIN	14-DIGIT HUC	COUNTY	ASSESSMENT UNIT ID	ASSESSMENT UNIT NAME	CAUSE OF IMPAIRMENT
UPPER ILLINOIS	07120001140010	LAKE CO	INK01E1_T1108	BULL RUN BASIN	TOTAL DISSOLVED SOLIDS

IDEM Response: This waterbody was added to Table 6 in IDEM's Notice of Public Comment Period for the draft 2008 303(d) list in error. IDEM's Assessment Database does not show this waterbody as impaired for TDS, which is why it was not previously listed. This error has been corrected in the listing tables provided in Appendix A of Indiana's finalized submission packet.

f. The following waterbody segment / impairment has been double entered in Table 6. Please correct.

BASIN	14-DIGIT HUC	COUNTY	ASSESSMENT UNIT ID	ASSESSMENT UNIT NAME	CAUSE OF IMPAIRMENT
OHIO TRIBUTARIES	5140202040100	VANDERBURGH CO	INE024A_T1003	PIGEON CREEK-KLEYMEYER PARK	SULFATES

IDEM Response: This duplication has been corrected. This impairment now appears in Appendix A, Table A13 of Indiana's finalized 303(d) list submission packet.

6. With regard to the section "Waterbody Impairments Proposed to Be Removed from Category 5A on the Basis of change in IDEM's assessment criteria for biological data", I have the following question:

a. Please provide specifically to which of the two Categories (2 or 3) the waterbody segments / impairments mention in Table 7 are moving to. According to the delisting explanations given in Table 7, it seems that all of these waters should be considered as moving to Category 2.

IDEM Response: Indiana's Consolidated List shows all categories for each waterbody tracked in IDEM's ADB. Please refer to IDEM's 2008 Integrated Report, Appendix B for the category or categories to which these waters belong.

7. With regard to the section "Waterbody Impairments Proposed to Be Removed from Category 5B on the Basis of change in IDEM's assessment criteria for fish consumption", I have the following questions:

a. Please provide to which category the waterbody segments / impairments mention in Table 8 are moving to. Included below is a breakdown of the suggested "move to" categories according to the delisting explanations given for Table 8:

DELISTING REASON KEY	SUGGESTED "MOVE TO" CATEGORY
1) were found to fully supporting of fish consumption in accordance with the revised methodology	CATEGORY 2
2) have insufficient information to support an assessment of impairment	CATEGORY 3
3) the data used in the original assessment was collected on a different waterbody	CATEGORY 3

IDEM Response: Indiana's Consolidated List shows all categories for each waterbody tracked in IDEM's ADB. Please refer to IDEM's 2008 Integrated Report, Appendix B for the category or categories to which these waters belong.

b. What does insufficient data (delisting reason key 2) stands for? Is this solely related to having at least one sample concentration value above the detection limit? Or are there any other considerations such as the amount of samples required and/or the availability of data that is 5 years old or less? Please clarify.

IDEM Response: "Insufficient data" specifically means that while IDEM has some fish tissue data for the waterbody in question, the concentration value(s) was less than the analytical method detection limit. No other meaning should be inferred.

c. Is delisting reason key 3 in Table 8 related to the fact that the original assessments for listing these FCA-based impairments were based on probabilistic data sampling? Does this means that the new FC methodology requires FCA listing assessments to be based solely on site specific data?

IDEM Response: The delisting reasons are not related to the sampling approach used to collect the data (e.g. probabilistic, targeted, etc.). Rather, they are based in part on the differences in how results from a given site are applied. Prior to developing this method, IDEM relied on the fish consumption advisories to makeassessments for fishable use. The geographical extent over which results from a given site are applied for the purposes of developing a public health advisory tends to be much broader than what is appropriate for the purposes of identifying impairment for CWA purposes. As a result, previous impairments based on the FCA were often based on broad extrapolations rather than site-specific data. When fish tissue data are applied within the context of the CWA, extrapolations are based on a different set of decision rules aimed at identifying specifically where impairment exists. For the purposes of making CWA assessments, fish tissue

data are applied to the stream or stream reach upon which they were collected and will extrapolate over generally smaller distances than the FCA does for the purposes of issuing a public health advisory.

8. With regard to the section "Waterbody Impairments Proposed to Be Added to Category 5A on the Basis of new assessments", I have the following question:

- The following waterbody segment / impairment was included in Table 9 but was not included in Table 17. Please clarify/correct.

MAJOR BASIN	14-DIGIT HUC	COUNTY	ASSESSMENT UNIT ID	ASSESSMENT UNIT NAME	CAUSE OF IMPAIRMENT	KEY
UPPER ILLINOIS	07120001140010	LAKE CO	INK01E1_T1108	BULL RUN BASIN	TOTAL DISSOLVED SOLIDS	1

IDEM Response: IDEM's response to comment 5e applies.

9. With regard to the section "Waterbody Impairments Proposed to Be Added to Category 5A on the Basis of information received since the 2006 303(d) list was developed", I have the following question:

- The following waterbody segment / impairment was included in Table 10 but was not included in Table 17. Please clarify/correct.

MAJOR BASIN	14-DIGIT HUC	COUNTY	ASSESSMENT UNIT ID	ASSESSMENT UNIT NAME	CAUSE OF IMPAIRMENT
UPPER WABASH	05120106120110	WHITE CO	INB06P1033_00	LAKE SHAFER	E. COLI

IDEM Response: This impairment now appears as a Category 5A impairment in Appendix A, Table A13 of Indiana's finalized 303(d) list submission packet.

10. With regard to the section "Waterbody Impairments Proposed to Be Added to Category 5A based on IDEM's new assessment methodology for recreational use of lakes (aesthetics)", I have the following question:

a. The following waterbody segment / impairment has been double entered in Table 11. Please correct.

BASIN	14-DIGIT HUC	COUNTY	ASSESSMENT UNIT ID	ASSESSMENT UNIT NAME	CAUSE OF IMPAIRMENT
UPPER WABASH	05120106050050	FULTON CO	INB06P1086_00	SOUTH MUD LAKE	PHOSPHORUS

IDEM Response: The duplication of this impairment, which appears in Appendix A, Tables A11 and A13 of Indiana's finalized 303(d) list submission packet.

11. With regard to the section "Waterbody Impairments Proposed to Be Added to Category 5B based on IDEM's new assessment methodology for fish consumption", I have the following questions:

a. Table 12 includes waterbody segments / impairments proposed to be added to Category 5B based on the new assessment methodology for fish consumption.

- The following waterbody segment / impairment was previously listed under Category 5 for FCA-mercury impairment. This is only a change in terminology that doesn't count as a new listing. Please correct.

BASIN	14-DIGIT HUC	COUNTY	ASSESSMENT UNIT ID	ASSESSMENT UNIT NAME	CAUSE OF IMPAIRMENT
GREAT LAKES	04050001170030	LAGRANGE CO	INJ01P1026_00	OLIN LAKE	MERCURY IN FISH TISSUE

IDEM Response: This has been corrected in Appendix A, Table A12 of Indiana's finalized 303(d) list submission packet.

- The following waterbody segments / impairments were resegmented and split into new AU IDs, but they still appear listed under the original old AU ID in Table 12 and Table 18. Please clarify/correct

BASIN	14-DIGIT HUC	COUNTY	ASSESSMENT UNIT ID	ASSESSMENT UNIT NAME	CAUSE OF IMPAIRMENT
UPPER ILLINOIS	07120001020050	ST JOSEPH CO	INK0125_00	POTATO CREEK-KARTOFFEL CREEK	PCBS IN FISH TISSUE
UPPER ILLINOIS	07120001060100	STARKE CO	INK016A_00	YELLOW RIVER-KNOX	PCBS IN FISH TISSUE
UPPER ILLINOIS	07120002020060	JASPER CO	INK0226_T1004	IROQUOIS RIVER	MERCURY IN FISH TISSUE
UPPER ILLINOIS	07120002070020	BENTON CO	INK0272_00	SUGAR CREEK-EARL PARK	PCBS IN FISH TISSUE

IDEM Response: IDEM has verified that all of these impairments have been properly applied to the resulting AUs and are listed in Appendix A, Table A14 of Indiana's finalized submission packet as Category 5B impairments.

12. 40 CFR section 130.7(b)(5) requires that "Each State shall assemble and evaluate all existing and readily available water quality related data and information to develop the list." As part of this requirement, States should be soliciting data and information not only from internal but also from outside sources.

a. Given this, what does IDEMs solicitation process encompass?

- Does IDEM solicit data from outside sources through a separate notice published in the *State Register* and/or through sending formal solicitation letters to individual stakeholders and other interested parties? Or does it rely mainly on the list public notice itself?

IDEM Response: IDEM's most recent solicitation is described in detail in the State's 2008 Integrated Report. In 2007, IDEM conducted a broad solicitation by email or letter to approximately 670 individual organizations that fall into one or more of the following categories:

- *Relevant programs at every college and university in the state*
- *Environmental groups and interested citizens identified through various sources*
- *Hoosier Riverwatch (via coordinator), Indiana's statewide volunteer monitoring program*
- *Drinking water utilities*
- *County Health Departments and the Indiana State Department of Health*
- *County Soil and Water Conservation Districts (via Indiana Association of Soil and Water Conservation Districts)*
- *MS4 entities and CSO communities*
- *Federal agencies (USGS, USFS, etc.)*
- *State professional organizations (Indiana Water Resources Assn., Indiana Association of Cities and Towns, etc.)*

The solicitation was also published on several agency websites to reach the largest audience possible.

- What is the data cut-off date?

IDEM Response: The cut-off date for this solicitation was March 31, 2007.

- Do the data, obtained through the list public notice, get incorporated into the current listing cycle, or do it get utilize for the listing assessments of the next listing cycle?

IDEM Response: The 2007 solicitation was intended to serve two purposes. IDEM is presently developing a framework for the solicitation, review, and potential use of external data in some OWQ decision making processes, including 305(b) assessments and 303(d) listing decisions. This work is expected to be completed prior to the 2010 cycle. However, it was determined that a broad data solicitation prior to having the external data framework fully developed would provide a fuller understanding of the variety of organizations that are collecting water quality data in Indiana, the

types of data they are collecting and its relative data quality. It was originally IDEM's intent to review and incorporate any usable data received into assessments for the 2008 cycle. In response to this solicitation, IDEM received more than 100 water quality data packages and reports from 41 individual organizations. However, the amount of data received in response to this solicitation overwhelmed the staff resources available to review it in such a short timeframe. IDEM has completed its review of the biological data sets submitted and has determined that two are usable for 305(b)/303(d) decisions. We are presently in the process of reviewing the chemical data sets. All data from this solicitation that are determined to be usable for assessment purposes will be incorporated into the 2010 cycle.

- Are there any other outside source data considerations, besides the fact that the data must meet IDEM's quality assurance and quality control (QAQC) requirements as outlined in IDEM's surface water quality monitoring Quality Assurance Project Plan (QAPP)?

IDEM Response: Data must also be readily available, which is currently defined by IDEM as requiring little more than the necessary QAQC review to incorporate it into assessments. In other words, if the data set requires significant staff resources to get it into a format that is necessary for mapping the data and making assessments, it would not be considered by IDEM to be readily available. Having said this, IDEM recognizes that if we are to take full advantage of the wide variety of data that external organizations have demonstrated an interest in providing the Agency, we must in turn, make our requirements for submission (i.e. formatting, minimum information requirements, etc.) clear and easy to follow. This is one of the primary objectives of IDEM's external data framework project currently underway.

b. What data sources outside IDEM, if any, were used in this cycle listing assessments?

IDEM Response: As in previous cycles, IDEM has solicited cooperative agreements with the USGS to collect water quality data at the same sites sampled by IDEM which is used in 305(b) assessments and 303(d) listing decisions. IDEM also routinely uses data collected by the Clean Lakes Program through a contractual agreement with Indiana University School of Public and Environmental Affairs (SPEA) for its CWA 314 assessments. In 2008, IDEM used Clean Lakes Program data to make assessments using IDEM's new methodology for determining designated use support of Indiana lakes. The data used in these assessments were collected by both Clean Lakes program staff and trained volunteers and analyzed in the SPEA labs.

Additional EPA Comments to IDEM's Draft 303d list for the 2008 cycle Submitted to IDEM on 12/05/07:

1. Please clarify what defines sufficient data according to each listing parameter. Include information on minimal sample size required to assess a waterbody. Is the minimum sample requirement of three data points (Table 19 of draft list) apply to all assessments? If so, explain why Indiana established this minimum requirement of three data points to assess a waterbody.

IDEM Response: The minimum sample requirement does not apply to all assessments. The table below summarizes minimum requirements for the data and information IDEM uses to make assessments.

Parameter Type	*Minimum Information Required for Assessment*
Aquatic Life Use Support – Rivers and Streams	
Toxicants	*Minimum of three (3) measurements*
Conventional Inorganics	*Minimum of three (3) measurements*
Nutrient Parameters	*Minimum of three (3) measurements and two or more of parameters must have been exceeded on same date in order to classify a waterbody as impaired.*
Benthic aquatic macroinvertebrate Index of Biotic Integrity (mIBI)	*Minimum of one (1) measurement, preferably with corresponding qualitative habitat use evaluation (QHEI) score**
Fish community (IBI)	*Minimum of one (1) measurement, preferably with corresponding qualitative habitat use evaluation (QHEI) score**
**The Qualitative Habitat Evaluation Index (QHEI) is not required to determine aquatic life use support but is used, when available in conjunction with mIBI and/or IBI data to evaluate the role that habitat plays in waterbodies where impaired biotic communities (IBC) have been identified.*	
Aquatic Life Use Support – Lakes and Reservoirs	
Surveys of the status of sport fish communities in lakes	*No minimum sample requirement; Assessments are revised with most recent plans published by IDNR.*
Trout Stocking Plans	*No minimum sample requirement; Assessments are revised with most recent plans published by IDNR.*
IDNR information on pH levels in lakes and reservoirs	*No minimum sample requirement; Assessments based on narrative reports and communication from IDNR staff.*
Temperature	*No minimum sample requirement; Assessments for lake temperatures are not a regular part of IDEM's assessment process. All data are reviewed when readily available and adequacy of the data set as a whole is determined on a case-by-case basis.*
Fishable Use Support (Human Health)	
Mercury and PCBs in Fish Tissue	*One actual concentration value (including estimated values above the method detection limits)*
Recreational Use Support (Human Health) – All waters	
Bacteria (E. coli)	*Minimum of ten (10) grab samples or one (1) geometric mean result calculated from five (5) equally spaced samples over thirty (30) days.*
Drinking Water Use Support – Rivers	
Toxicants	*Minimum of three (3) measurements*
Conventional Inorganics	*Minimum of three (3) measurements*

Parameter Type	*Minimum Information Required for Assessment*
Taste and odor producing substances	*No minimum sample requirement; Weight of evidence approach is used; typically requires numerous public complaints regarding taste and odor such that water utility must employ additional treatment to remedy the problem.*
Recreational Use Support (Aesthetics) – Lakes and Reservoirs	
Natural Lakes and Reservoirs	*Minimum of three (3) total phosphorus results with corresponding Chlorophyll a results collected over three years (consecutive or nonconsecutive).*
Drinking Water Use Support – Lakes and Reservoirs	
Applications for permits to apply algaecides	*One permit application*

2. Please include additional details on the biological thresholds used by Indiana in making attainment decisions. First, information on what the range of scores are for each fish IBI and mIBI category should be included (e.g range for excellent including the highest possible score, good, fair, poor, very poor). It is hard to put the cuts-off in context without the full range. Second, IDEM should describe how the thresholds were determined between supporting and not supporting. For example, why are the slightly impaired mIBI scores considered supporting rather than not supporting? This information should help EPA determine how far from reference the cut off point between supporting and not supporting is placed.

IDEM Response: Please see the table below for the requested information.

Biotic Index Score and Associated Assessment Decision	*Integrity Class*	*Corresponding Integrity Class Score*	*Attributes*
Macroinvertebrate data collected with artificial samplers			
mIBI ≥1.8 (artificial substrate sampler) indicates full support	*Excellent*	*6.0-8.0*	*NA*
	Good	*4.0-5.9*	*NA*
	Fair	*1.8-3.9*	*NA*
mIBI <1.8 (artificial substrate sampler) indicates impairment	*Poor*	*1.0-1.7*	*NA*
	Very Poor	*0-0.9*	*NA*
Macroinvertebrate data collected using KICK methods			
mIBI ≥2.2 (kick methods) indicates full support	*Excellent*	*6.0-8.0*	*NA*
	Good	*4.0-5.9*	*NA*
	Fair	*2.2-3.9*	*NA*
mIBI <2.2 (kick methods) indicates impairment	*Poor*	*1.0-2.1*	*NA*
	Very Poor	*0-0.9*	*NA*
Fish community data			
IBI ≥36 indicates full support	*Excellent*	*53-60*	Comparable to "least impacted" conditions, exceptional assemblage of species.
	Good	*45-52*	Decreased species richness (intolerant species in particular), sensitive species present.
	Fair	*36-44*	Intolerant and sensitive species absent, skewed trophic structure.

Biotic Index Score and Associated Assessment Decision	*Integrity Class*	*Corresponding Integrity Class Score*	*Attributes*
IBI <36 indicates impairment	*Poor*	*23-35*	Top carnivores and many expected species absent or rare, omnivores and tolerant species dominant.
	Very Poor	*12-22*	Few species and individuals present, tolerant species dominant, diseased fish frequent.
	No Fish	*<12*	No fish captured during sampling.

3. How does Indiana determine when temperatures in lakes are causing an adverse effect on aquatic life? How does this relate to the portion of IDEM's Water Quality Standards that state "The maximum temperature rise at any time or place above natural temperatures shall not exceed five (5) degrees Fahrenheit (two and eight-tenths (2.8) degrees Celsius) in streams and three (3) degrees Fahrenheit (one and seventenths (1.7) degrees Celsius) in lakes and reservoirs."

IDEM Response: IDEM's assessments of temperature in lakes are very limited in scope and are not a regular part of IDEM's assessment process. IDEM's past assessments for thermal impacts to lakes were based on temperature data submitted by permitted facilities as part of their permit requirements. These data were reviewed by IDEM biologists, and it was determined that, in some cases, the facility's discharge was having an adverse impact on aquatic life in the receiving water. These impairments appear in Category 4B of Indiana's Consolidated Listing and are discussed in greater detail in Appendix D of Indiana's finalized 2008 303(d) list submission materials.

4. In reviewing the nutrient thresholds proposed in the methodology, EPA understands that currently Indiana does not have numeric criteria to use in making these assessments but is actively developing them. We are pleased that IDEM continues to incorporate nutrient data for use in making assessments. EPA also understands that once completed, the nutrient criteria may differ from the values used for this report. We look forward to IDEM's adoption of nutrient criteria and implementing them for the 2010 IR report.

IDEM Response: IDEM is actively working on nutrient criteria development and will incorporate those criteria into its assessment processes when codified in the State's WQS and approved by U.S. EPA. Until that time, IDEM will continue to use the benchmark criteria stated in its Consolidated Assessment and Listing Methodology.

5. The following is just a reminder: As requested in the Integrated Report (IR) Guidance, listing information submitted via the assessment database (ADB) or compatible data management system should correspond and be consistent with Category 5 and other categories submitted to EPA Region 5 as final.

IDEM Response: IDEM recently upgraded its ADB to a more recent version that better accommodates US EPA's Integrated Reporting Format. However, the structure of the new ADB is very different than the structure of the ADB IDEM has used in previous cycles, requiring a significant amount of review to ensure that all assessment data were properly migrated. Although database maintenance is an ongoing task, it is anticipated that the review and corrections needed specifically as a result of IDEM's data migration and those needed to

ensure consistency between the information in the ADB and that which is submitted to U.S. EPA as Indiana's finalized 303(d) list, will be complete by the 2010 cycle.

6. The numbers provided in the Tables under the "Summery of Changes Section" (Table 13 -16), may be subject to change pending upon final list submittal. For example, the numbers of Aus and impairments proposed for Category 4A might change pending on the TMDL completion status.

IDEM Response: These numbers have been adjusted according to current TMDL approval status.

7. Please fix the following errors:
   a. 1st paragraph of "Waterbody impairments proposed to be added to Category 5A based in IDEM's new assessment methodology for recreational use of lakes" Section states the following: "In 2007, IDEM developed additional assessment criteria for recreational use support status, specifically [within] the context of aesthetics, of Indiana's natural lakes and reservoirs. . . ." Changed "withing" to "within".

   IDEM Response: This has been corrected.

   b. Eliminate double entries for records in the following Tables:
      - Table 2

BASIN	14-DIGIT HUC	COUNTY	ASSESSMENT UNIT ID	ASSESSMENT UNIT NAME	CAUSE OF IMPAIRMENT	TMDL
UPPER WABASH	05120101040010	JAY CO	INB0141_T1023	WABASH RIVER	E. COLI	G

      - Table 6

MAJOR BASIN	14-DIGIT HUC	COUNTY	ASSESSMENT UNIT ID	ASSESSMENT UNIT NAME	CAUSE OF IMPAIRMENT	EXPLANATION
OHIO TRIBUTARIES	5140202040100	VANDERBURGH CO	INE024A_T1003	PIGEON CREEK-KLEYMEYER PARK	SULFATES	Data indicates full support per Indiana's revised WQS

      - Table 11

MAJOR BASIN	14-DIGIT HUC	COUNTY	ASSESSMENT UNIT ID	ASSESSMENT UNIT NAME	CAUSE OF IMPAIRMENT
UPPER WABASH	05120106050050	FULTON CO	INB06P1086_00	South Mud Lake	PHOSPHORUS

   IDEM Response: These errors have been corrected.

   c. Fix the number of the Tables referenced in the following methodology subsections:
      - "Relationship of IDEM's WQS-Based Criteria to the FCA"
        - ✓ 1rst sentence in the paragraph below Table 26 states the following: "Table 21 illustrates that the levels of fish tissue contaminants that trigger a FCA have little relation to the levels of fish tissue contaminants on which the WQS criteria are based." Table 21 should be change to Table 26.

   IDEM Response: This has been corrected in Appendix B.

      - "Step 3: Apply WQS-based concentration thresholds to determine use support" for FCA
        - ✓ The following is stated: "The WQS-based assessment thresholds shown in Table 21 were applied to all lakes and streams for which sufficient fish tissue data were available. IDEM's methods for applying these criteria are summarized in Table 23." Table 21 should change to Table 25, and Table 23 should change to Table 28.

   IDEM Response: This has been corrected in Appendix B.

- "How to interpret impairments for fish consumption identified on Indiana's 303(d) List of Impaired Waters"
  - ✓ 3rd paragraph under this subsection states the following: "At present, adequate translators do not exist for applying concentrations of mercury or PCBs in fish tissue to concentrations in the water column. Toxicants may be present in fish at levels that have no ill effects on aquatic life but due to bioaccumulation may make them unsafe to eat. The concentrations shown in Table 21 apply only to fish tissue, not water." Table 21 should change to Table 28.

IDEM Response: This has been corrected in Appendix B.

- "Consolidated Listing Methodology"
  - ✓ Last sentence in the 2nd paragraph under this subsection states the following: ". . . All waterbody AU identified as "Not Supporting" in accordance with the criteria described in Table 18 were considered for 303(d) listing purposes." Table 18 should change to Table 19.

IDEM Response: This has been corrected in Appendix B.