Illinois Environmental Protection Agency

Draft 2016 Integrated Report and Section 303(d) List
Appendix G

Responsiveness Summary

Regarding

February 11, 2016 – March 11, 2016 Public Notice

Illinois Environmental Protection Agency
Office of Community Relations
July 11, 2016

Bureau of Water
Impaired Waters of Illinois
Draft 2016 Integrated Report

Responsiveness Summary

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ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF:
Impaired Waters of Illinois
Draft 2016 Integrated Report

BACKGROUND INFORMATION

The Illinois Environmental Protection Agency (Illinois EPA or Agency) issued notice on February 11, 2016, for public comments on the Bureau of Water draft 2016 Integrated Water Quality Report and List of Impaired Waters. The draft report was posted on the Agency's website on February 10, 2016, with a public comment period starting on February 11, 2016, and running through March 11, 2016.

The Illinois EPA is required under Sections 303(d), 305(b), and 314 of the federal Clean Water Act to assess waters of the State and evaluate compliance with applicable water quality standards and designated uses. Waters that are assessed as not achieving those standards are identified in the Integrated Report.

Waters identified in the Integrated Report in accordance with Section 303(d) are deemed impaired for specific chemical constituents. Waters identified in the Section 303(d) list are subject to the development of Total Maximum Daily Loads (TMDLs). TMDLs in Illinois may take the form of a watershed study in which the chemical constituent causing impairment to that water body is evaluated. A TMDL is the sum of the allowable amount of single pollutant that a waterbody can receive from all contributing sources and still meet water quality standards of designated uses.

PUBLIC NOTICE RECORD

The Illinois EPA received several comments via electronic correspondence and one hard copy letter.

This Responsiveness Summary provides the Illinois EPA responses to questions and issues raised during public comment period.

Questions, concerns, and comments are in regular type
Agency responses are in bold type

Agency Responses to Questions, Concerns, and Comments

1. In Appendix A-7, Page 10, the last entry in the Illinois River table should be removed. Tri-County Regional Planning Commission completed the ravine stabilization project in 2013; there is no work still ongoing in the watershed.

   Response:

   Appendix A-7 has been updated to address this comment.

2. There is a concern with the reference to chemigation in the report. If the focus is on nitrate, the reference should be on fertigation, not chemigation.

   Response:

   Regarding this concern, please see Section C–4 of Volume II of the Draft 2016 Integrated Report as submitted to the United States Environmental Protection Agency (USEPA).

3. Looking at the Cl^- [sic] vs. NO3-N] plot, there appears to be two trends (other than the road salt and fertilizer trends). One that is probably septic and/or manure and another that is probably road salt and fertilizer/septic affected. You might try plotting Cl/Br vs. Nitrate-N and see what that looks like.

   With regard to the treated waste water box, that was in the Chicago area and the upper data within it probably mixed with road salt that got into the system. So...Leaf River, Davis, Hennepin and Cordova appear to be affected by fertilizer and maybe a touch of road salt. Byron appears to be affected by septic and/or manure. East Dubuque and North Park PWD appear to be affected by road salt and a bit of fertilizer/septic. Plano is affected by road salt and maybe a touch of fertilizer.

   Response:

   The comments and graph of the data provided during the public comment period were used to revise Volume II: Groundwater (pages 22, 32, 33, 34, 35, 36 and 37) of the Draft 2016 Integrated Report as submitted to USEPA.

4. Phosphorus should be consistently identified as a potential cause of impairment to aquatic life. It appears that Illinois EPA does recognize that phosphorus pollution can impair aquatic life but is not consistently listing impairments. For the reasons that were detailed in comments by the Sierra Club and other organizations on the 2014 Illinois EPA 303(d)

list, it is clear that phosphorus pollution has severe effects on aquatic life. That science is hereby resubmitted. Further, the effects of phosphorus pollution are discussed in the "Evaluation of Phosphorus Pollution from M[etropolitan]W[ater]R[eclamation]D[istrict of Greater Chicago]'s Three Largest Water Reclamation Plants" by Professor JoAnn M. Burkholder.

Response:

Illinois EPA recognizes that phosphorus can contribute to negative effects on aquatic life under some circumstances. Illinois EPA is currently in the process of developing numeric standards for nutrients in streams which, when approved, will be used in the assessment and listing process.

5. Total Nitrogen should be identified as a potential cause of impairment to aquatic life. However, as with other Illinois EPA draft lists since 2006, not a single water body on the 2016 list has been identified as potentially impaired by total nitrogen (TN). U.S. EPA has disapproved the attempted de-listings of waters that were listed as impaired by nitrogen, noting that Illinois EPA previously and appropriately identified TN as a pollutant, and that Illinois EPA has no evidence to show that TN is ***not*** connected to biological impairment of Illinois waters.

   In their comments on the 2014 Illinois EPA 303(d) list, the Sierra Club and other organizations presented science regarding the effect of nitrogen pollution on aquatic life. That science is hereby resubmitted along with the last comment letter.

   Response:

   Illinois EPA identifies ammonia nitrogen as a cause of aquatic life use impairment when levels of ammonia exceed water quality standards. However, other than ammonia nitrogen, Illinois EPA currently has no standard for nitrogen related to aquatic life. The guidelines Illinois EPA used in the 2004 and 2006 Integrated Reports to identify total nitrogen as a potential cause of aquatic life impairment (7.8 milligrams per liter (mg/L) nitrate/nitrite nitrogen) were not based on any scientific study which showed such values to be related to aquatic life impairment. Illinois EPA attempted to remove these listings of total nitrogen in 2008 because (1) they were not based on violations of any Illinois Pollution Control Board's water quality standard, and (2) a lack of evidence linking these specific levels of nitrate/nitrite to aquatic life impairment. Because of the reasons stated above, Illinois EPA does not list total nitrogen as the cause of impairment.

6. We point out that nitrate can interfere with steroid hormone synthesis, affect sperm motility and viability, affect fecundity, and can be toxic to embryos (Edwards et al. 2004). It can also decrease immune response, act as an endocrine disruptor, and induce hematological and biochemical changes in aquatic life (Guillette and Edwards 2005, Edwards 2005). Nitrate may also adversely affect many metabolic processes by acting as an endocrine disruptor in fishes and reptiles (Hrubec et al. 2002, Guillette and Edwards

2005, Edwards 2005). Within body fluids, nitrate can be converted to nitrite, or can accumulate via hepatic detoxification of nitrite (Edwards et al. 2004). Certain aquatic invertebrate and fish species have been found to be especially sensitive to nitrate toxicity.

As examples, chronic nitrate toxicity for freshwater invertebrates can occur at values as low as 0.23 mg NO_3-N/L; lowest chronic toxicity levels for adult freshwater invertebrates were 2.8-4.4 mg/L for two species of amphipods (Camargo et al. 2005). Early instar caddisfly larvae sustained adverse effects from chronic toxicity at 1.4-2.4 mg NO_3-N/L (Camargo and Ward 1995). Kincheloe et al. (1979) examined nitrate toxicity to young stages of salmonid fish using NO_3-N concentrations of 0-4.5 mg/L, and found statistically significant increases in egg mortality at a threshold concentration of 1.1 mg NO_3-N/L. Similarly, 1.6 mg NO_3-N/L caused sublethal effects such as delayed hatching and development, and reduced weight in larval lake trout (*Salvelinus namaycush*) (McGurk et al. 2006).

Response:

Currently, Illinois has a nitrate water quality standard that applies only to public water supply intakes on surface waters. Derived water quality criteria for nitrate may be determined under the narrative toxics control water quality standard at 35 Ill. Adm. Code 302.210. However, when this was recently attempted, the existing aquatic life toxicity database was found to be inadequate. USEPA indicated that they would sponsor additional toxicity testing to increase the number of species tested and improve the validity of the criteria derivations. USEPA has not yet released any new test data on nitrates. At such time when the data becomes available, Illinois EPA will derive water quality criteria for nitrate.

7. It is stated that 35 Ill. Adm. Code 302.203, 302.403 and 302.515 "apply only to the protection of aesthetic quality" allegedly due to decisions in the 1990s of the Illinois Pollution Control Board (p.16). We are unable to find any decision of the Board that supports this conclusion and the language of these provisions focuses on factors that in some cases do not have any apparent relation to aesthetic quality. "Sludge" and "bottom deposits" controlled by the provision are often not even visible and have their primary effect on aquatic life. R88-21 and R97-25 created new provisions to control toxic pollutants and changed the title of two provisions from the inaccurate title of "unnatural sludge" to the vague title "offensive conditions," but there is no indication of which we are aware that this change was to have any change on the meaning of the narrative criteria. Obviously one can be offended by loss of aquatic life and by unpleasant swimming or fishing conditions impeded by algal or plant growth. The natural reading of the provisions is that they control sludge, bottom deposits, etc. generally and that any use that is harmed by such effects could be impaired by violation of the criterion.

   Accordingly, Illinois EPA should interpret the provisions more broadly. Certainly, conditions that interfere with pleasurable swimming or fishing should be considered as impairments of recreation uses. Invasive species that are the result of pollution, like other types of plant or algal growth of other than natural origin, should be considered as a form

of impairment caused by pollution. Pollution has clearly had this effect in Illinois waters. See Burkholder Report, p. 68-69.

It does not appear that benthic or sestonic chlorophyll data are regularly collected by Illinois EPA for streams or that, even if available, these data are used for assessments. Illinois EPA should, however, in addition to waters clogged with plant or benthic growth, identify waters with high levels of sestonic chlorophyll *a* as impaired for aquatic life, recreational and aesthetic uses. The U.S. EPA ecoregion criteria for Illinois for sestonic chlorophyll *a* are under 8 µg/L. Certainly, at a minimum, Illinois EPA should recognize waters as impaired that greatly exceed this level.

The importance of considering invasive species and chlorophyll are discussed in the Burkholder Report passim.

Response:

Illinois EPA acknowledges that opinions differ regarding how to interpret or apply the narrative standard at 35 Ill. Adm. Code 302.203. Although Illinois EPA does not use specific numeric thresholds of chlorophyll *a* to apply the standard, Illinois EPA does consider both benthic and sestonic algal growth when applying it. Although Illinois EPA does not typically inventory the specific types of plants or algae as part of the monitoring program, when applying the narrative standard, Illinois EPA does consider when overall plant or algal growth is from other than natural origin. Consequently, any such growth attributable to "*invasive*" plants or algae is addressed.

8. Illinois EPA apparently is only listing waters as impaired by mercury if there are fish tissue data to support such a listing (Integrated Report, p. 43) yet fish tissue data is available for only 3.5% of Illinois stream miles (Integrated Report, p. 2), 12.8% of the Lake Michigan open waters (p.5) and 29.2% of other Illinois lake acres (p.3). The fact that the entire Lake Michigan Shoreline is reported to have been accessed and that all of the acres have been found to be impaired (p.5) is not comforting as to unassessed waters.

   Mercury should be listed as impairment for every water body and segment where the human health criteria of 0.0012[sic]µg/L is exceeded.

   Response:

   Fish Consumption Use is assessed for all water bodies using water body-specific fish-tissue data and fish-consumption advisories issued by the Illinois Fish Contaminant Monitoring Program. As noted by the commenter, the entire Lake Michigan shoreline is impaired for Fish Consumption Use because of the various meal-frequency consumption advisories issued on an array of fish species and sizes. Please note that these advisories are based on PCB levels in these fish tissue, not mercury.

The *General Use* human health standard for mercury is 0.012 micrograms per liter. Assessing attainment of the standard requires the calculation of an annual average of at least eight samples collected in a manner representative of the sampling period. The *Lake Michigan Basin* human health standard for mercury is 0.0031 micrograms per liter. Assessing attainment of the standard requires the calculation of an arithmetic average of at least four consecutive samples collected over a period of at least four days in a manner representative of the sampling period. Low level mercury monitoring in Illinois waters is not conducted during routine sampling. Consequently, Illinois EPA believes that the most efficient way to monitor mercury in regard to human health is to conduct fish tissue collection and analysis.

9. We recognize that there are limits on the amount of data that can be collected. However, high levels of total organic carbon (TOC) intake in source water have been shown to relate directly to high levels of disinfection byproducts. A program should be designed to collect data on TOC.

   Illinois EPA properly measures atrazine levels in source water but it should also consider glyphosate in view of recent studies showing that it is probably carcinogenic.

   Response:

   Total organic carbon collection is currently a routine component of most of Illinois EPA's surface water monitoring programs, including Ambient Water Quality Monitoring and Intensive Basin Survey monitoring in streams, and Ambient Lake Monitoring at public water supply lakes.

   As of May 1, 2016, glyphosate has been added as a component of pesticide monitoring wherever pesticide monitoring is conducted in surface waters. This includes Ambient Lake Monitoring Program stations on public water supply lakes, and Ambient Water Quality Monitoring Network stations in streams located near public water supply intakes or those that are long-term trend monitoring stations.

10. Currently, the only pollutant parameters considered with regard to recreation are fecal coliform and E. coli. Obviously, however, people do not like to swim in waters with high levels of algal or plant growth. (Hoyer, Brown and Canfield, Ex.E). Swimming in cyano-bacteria, of course, can be very dangerous as well as unpleasant. (IEPA-IDPH 9-2015, Ex. F). A complete report on impairments of recreational uses should attempt to gauge such factors.

    Response:

    Illinois EPA does not assess Recreation Use, per se. Illinois EPA does assess Primary Contact Use, and impairment decisions are based on pathogen indicators (e.g., fecal coliform or *E. coli* data). Illinois EPA does assess Aesthetic Quality Use, and impairment decisions are based on violations of Offensive Conditions narrative standards and observations (e.g., aquatic plants, aquatic algae, sludge, odor) or

violations of total phosphorus standards (for lakes). Lacking a water quality standard, microcystin data collected by Illinois EPA are not currently used to make Primary Contact or Aesthetic Use impairment decisions; however, when microcystin values are found in a waterbody at or above 20 micrograms per liter, Illinois EPA notifies the management entity and suggests that recreation-related uses be curtailed.

11. In this list, the North Channel Segment HCCA-02, which receives pollution from the O'Brien plant, is properly listed as impaired by algal growth with a cause and source listed as phosphorus and municipal point sources. HCCA-04 should also be listed as impaired due to unnatural plant and algal growth between O'Brien Water Reclamation Plant (WRP) and the confluence with the North Branch of the Chicago River.

    The Lower Des Plaines River and the Illinois River should be on the 2016 303(d) list of impaired waters. The Lower Des Plaines River between the I-55 bridge and the confluence with the Kankakee River (ILG-24 and ILG-12) is impaired by plant and algal growth of other than natural origin causing extreme swings in dissolved oxygen levels.

    Metropolitan Water Reclamation District of Greater Chicago (MWRD) data show that portions of the Illinois River had extremely high levels of chlorophyll *a* when they were last measured. See, MWRD Report 12-35 (Ex. G) pp. AIV-9, AV-1, AV-4, AV-6, AVI-1, AVI-4, AVI-7, AVI-9, AVI-11, AVI-14, AVII-1, AVII-3, AVII-4, AVII-7. See also, Burkholder Report pp.53-56.

    Further, the report should recognize that HA-05 is impaired by discharges from municipal point sources (#85). Because the Little Calumet River often exhibits bi-directional flow, the Calumet WRP adds phosphorus loading to portions of the Little Calumet River to the east of the Calumet WRP discharge.

    The record in [Illinois Pollution Control Board] IPCB R08-9 clarifies that Little Calumet River segment HA-05 directly receives effluent from the Calumet WRP. Indeed, the Board accepted the position of MWRD and stated in its decision in R08-09 (C) of November 21, 2013 that portions of the Chicago Area Waterways System were subject to flow reversals. The Board heard testimony of Dr. Charles Melching who testified as an expert on behalf of MWRD. *See* PCB R08-09, Subdocket C, Proposed Rule, Second Notice, November 21, 2013, pp. 27, 32, 50. Specifically, Dr. Melching testified that effluent from the Calumet plant, like effluent from the O'Brien plant, flows in both directions from the outfalls. (Prefiled Testimony of Adrienne D. Nemura and Charles Melching, August 8, 2008, PCB R08-09, Document # 62134, pdf p. 98). (R08-9 Document #63376 Tr. 70-71), See also, CWS Integrated Report (Ex.H) p. 77.

    Response:

    Regarding the report submitted by the Commenter, Illinois EPA interprets that photographs are insufficient evidence to conclude that a waterbody is not attaining Aesthetic Quality use. Applying the narrative standard at 35 Ill. Adm. Code 302.203

is necessarily subjective; however, Illinois EPA is considering ways to apply this standard more objectively, while still recognizing the reasonableness of maintaining such farsighted narrative protection. For example, with the help of various stakeholders, Illinois EPA has been evaluating a potential revision to 35 Ill. Adm. Code 302.203 that specifies dissolved-oxygen conditions that reflect the narrative standard not being met due to unnatural growth of algae or plants. In addition, although Illinois EPA does not use specific numeric thresholds of chlorophyll *a* to apply the standard, Illinois EPA does consider both benthic and sestonic algal growth when applying it.

Regarding segments of lower Des Plaines River that the Commenter mentions, Illinois EPA's data do not evidence impaired conditions. Illinois EPA continuous-monitoring data from 2013 indicate no exceedances of water-quality standards for dissolved oxygen or pH in segments IL_G-12 (I -55 bridge to Brandon Road Lock and Dam) and IL_G-24 (confluence with Kankakee River to the I-55 bridge). Field notes indicate no offensive conditions due to algae or macrophytes at each of these locations.

Illinois EPA has four water-quality-monitoring sites on the upper Illinois River at Marseilles, Hennepin, Lacon, and Peoria. These sites are sampled nine times per year. Since 2012, this sampling has evidenced no offensive conditions at any of these locations through December 2014.

Regarding segment IL_HA-05, Illinois EPA acknowledges that backflows from the Calumet WRP in the Little Calumet River are possible. Phosphorus is currently listed as a cause of impairment for segment IL_HA-05 with sources given as CSOs, sediment resuspension, and urban runoff/storm sewers. Municipal Point Source Discharge will be added as a source of phosphorus for this segment. Backflows are already accounted for under the existing cause, "Other flow regime alterations," and existing sources, "Channelization" and "Impacts from hydrostructure flow regulation/modification."

12. A more thorough economic consideration of compliance and other economic factors is required by Section 305b of the Clean Water Act.

    The Integrated Report sets forth what is required to comply with 305b (p.6) but makes at best a half-hearted effort to supply the information required. (p.16-17). Particularly, with regard to the "economic and social costs necessary to achieve" the objectives of the Clean Water Act in Illinois, a more complete analysis would be useful.

    Response:

    Illinois EPA acknowledges that a more complete analysis of the economic and social costs necessary to achieve the objectives of the federal Clean Water Act in Illinois could be useful. The text and table on pages 16-17 of the draft 2016 Integrated

Report have been updated from the previous 2014 Integrated Report, and in each prior biennial report. Illinois EPA remains open to considering improvements.

13. Review of the document is not straightforward. This is due, in part, to the inherent complexity of the material, but also because the raw data used to construct the report is invisible to the reviewer. As a result, reviewers are not able to make substantive comments based on a review of the data used to make the determinations. Reviewers need access to data collection information, i.e. number of samples, magnitude and number of exceedances. It is impossible to know with any accuracy when and where samples were collected or surveys carried out, or to identify whether our locally collected data would further enhance the report.

    In terms of identifying where the surveys were carried out, the mean length of assessment units in the DRSCW area is 4.8 miles and the longest is 12 miles; identifying sites is impossible. For stressors such as nuisance algae or dissolved oxygen, which can be products of highly localized conditions, such information is essential to formulate a management response. For example, algae thriving in an impoundment behind a dam or in an area exposed to high levels of sunlight would solicit a different management response than a three mile segment filled with macrophytes.

    It is increasingly important that this data become available; the IR increasingly serves as the source of mandates for regulated agencies. Such data need not be included in the report but should be made available or download from the Agency's website.

    Data beyond that used for the list of non-performing streams should be also made available. Most organizations do not have a budget to collect data from reference reaches. Detailed data on water quality, habitat and aquatic communities would be an enormous service to regulated agencies and watershed groups, who are working in partnership with the Agency to improve stream resource quality.

    Response:

    Illinois EPA regrets that some users find the report difficult to use. The format of the report follows USEPA guidance for fulfilling the requirements of sections 303(d), 305(b), and 314 of the federal Clean Water Act. Illinois EPA currently has no system, database, or website where the public can access all of the data it collects or uses to make assessments. However, the public is welcome at any time to request specific data from Illinois EPA, Bureau of Water, Surface Water Section or Groundwater Section. Illinois EPA will provide the requested information as expeditiously and completely as possible.

14. In the DRSCW watersheds, impairments caused by phosphorus include 5 segments for Aesthetic Quality and 18 segments for Aquatic Life. These segments were previously listed due to concentrations of [total] phosphorus (TP) that fell above the 85th percentile of the State's TP dataset. This was performed due to the absence of a

water quality standard for TP in river systems. This methodology is no longer described in the report text, however the historic listings are still included in the 2016 report tables. These listings have consequences for permit holders that discharge to waterways sampled in the period during which this method was in force. The situation was arbitrary, unscientific and will be made further obsolete by the new tools Illinois EPA is developing to identify stream segments stressed by TP. We suggest these legacy listings for TP (and other parameters where a similar method was used such as TSS and sedimentation) be removed from the report system until Illinois EPA develops its method for assessing streams for a TP impairment.

Response:

Illinois EPA acknowledges that some past-identified causes that remain associated with Illinois 303(d)-listed water bodies are not directly related to Illinois water-quality standards. In the 2008 and 2012 Integrated Reports, Illinois EPA provided to USEPA its basis for removing waters or potential causes based on guidelines that were not directly related to Illinois water-quality standards. Illinois EPA does not intend to consider dissociating these past causes from all waters until USEPA acts on pending 303(d) listings. However, Illinois EPA will remove these causes when aquatic life use is assessed as fully supporting.

15. On behalf of the Bloomington and Normal Water Reclamation District (the "District"), we are hereby submitting these comments on the Draft 2016 Integrated Water Quality Report prepared by Illinois EPA. Our comments concern the designation of Sugar Creek (EID-C1) as impaired for phosphorus. As you know, the District has submitted to Illinois EPA a report, dated December 2015, entitled "Results of Benthic Macroinvertebrate Sampling & Stream Designed Use Determinations — Sugar Creek near Bloomington-Normal, Illinois." That report and an attached cover letter from the company that conducted the study (Ramboll Environ) were submitted to you on January 12, 2016. We believe that the information presented in that report justifies removal of the listing of Sugar Creek as impaired for phosphorus. Based on our conversations with you, we understand that the Ramboll Environ study will be considered as a comment submitted by the District concerning the Draft 2016 Integrated Water Quality Report, and it will be included in the compilation of submitted comments that are considered by Illinois EPA as it finalizes that Report. Therefore, we are not submitting another copy of the Ramboll Environ report at this time. If you would like us to submit the report again, or if you have any further questions or would like any additional information concerning the issues addressed in the Ramboll Environ report, please let us know.

Response:

Please refer to response to comment #14.

16. The current method to list waterways as impaired for nuisance algae is based on visual field observation of floating algae or fixed macrophytes, which is subjective

and open to operator bias. Developing a more objective system for listing waterways for nuisance algae is recommended, particularly due to regulatory policy to impose specific permit limits based on this determination. As the DRSCW is now charged with developing implementation plans to address these specific stressors, access is needed to all documentation supporting the specific determinations in our watersheds and the protocols governing how the determination was made. The DRSCW would be willing to work with the Illinois EPA to develop a more objective mechanism for future evaluations.

Response:

In order to meet the requirements of section 303(d) of the federal Clean Water Act, states must determine if waters are attaining water quality standards. Illinois EPA believes that in order to responsibly address the assessments that are based primarily on the "Offensive Conditions" narrative standard in 35 Ill. Adm. Code 302.515, the standard must be interpreted by Illinois EPA staff with knowledge of the natural expectations for lakes and streams. The presence of algae itself does not necessarily indicate that the standard is not attained. Since the Offensive Conditions standard lacks any strict numerical thresholds at this time, best professional judgment must be used to determine whether the narrative standard is being met or violated.

Regarding the comment about access to information, Illinois EPA currently has no system, database, or website where the public can access all of the data it collects or uses to make assessments. However, the public is welcome at any time to request specific data from Illinois EPA, Bureau of Water, Surface Water Section or Groundwater Section. Illinois EPA will provide the requested information as expeditiously and completely as possible.

17. Methoxychlor is listed as a cause of the impairment for Aquatic Life on several segments in the DRSCW area. This pollutant is not listed in table C-5 (Guidelines for Identifying Potential Causes of Impairment of Aquatic Life Use in Illinois Streams). It is found in table C-22 (Guidelines for Identifying Potential Causes of Impairment of Public and Food Processing Water Supply). It is also listed in the State water quality standards under public and food processing water supply standards.

    The DRSCW has tested for Methoxychlor in the water column and in rivers sediment at multiple locations and has not detected this compound at concentrations that indicate it is a stressor to aquatic life. We request clarification for how it is being applied to aquatic life.

    The recently issued ILR 40 permit tasks the permit holder with sampling for pollutants listed on the most recent iteration of the State 303(d) List. We suggest that this not be applied to methoxychlor (and by the same logic hexachlorobenzene). Methoxychlor was banned from use nationally in 2003 and hexachlorobenzene was banned in 1966. It is not clear what further actions local government can take to abate these pollutants.

Response:

Illinois has no water quality standard for methoxychlor or hexachlorobenzene related to aquatic life. In previous cycles, these pollutants were listed based on guidelines of sediment concentrations. Illinois EPA discontinued the use of guidelines for listing causes of impairment because (1) they are not based on water quality standards, and (2) evidence is lacking linking specific sediment guidelines to aquatic life use impairment. Although Illinois EPA no longer uses these sediment guidelines, Illinois EPA does not intend to consider dissociating these past causes from all waters until USEPA acts on pending 303(d) listings. However, Illinois EPA will remove these causes when aquatic life use is assessed as fully supporting.

18. State water quality standards clearly identify sampling guidelines for determining compliance with the water quality standard:

> "Notwithstanding the provisions of Section 302.209, at no time shall the geometric mean, based on a minimum of five samples taken over not more than a 30 day period, of fecal coliform (STORET number 31616) exceed 200 per 100 ml, nor shall more than 10% of the samples during any 30 day period exceed 400 cfu per 100 ml in protected waters."

Previous work with State fecal coliform data found that this frequency and time standard is rarely met. Streams should not be listed as impaired when the State's sampling protocol does not establish non-compliance with the standard. We request clarification for whether a minimum of 5 samples in a 30 day period was completed for streams listed as impaired.

Response:

The specific methodology for assessing attainment of primary contact use can be found on page 48 of the 2016 Integrated Report. It is true that the vast majority of assessments are not based on five samples collected in a 30-day period. However, for waterbodies on the 303(d) List that have fecal coliform identified as an impairment and are at the beginning of TMDL development process, Illinois EPA will conduct additional monitoring (May – October) to collect at least five samples in 30 days to confirm the impairment for the waterbody in accordance with the "geometric mean" requirements of Section 302.209 of Illinois water quality regulations.

19. The Illinois Association of Wastewater Agencies (IAWA) continues to believe that including phosphorus, sedimentation/siltation, and sediment as causes of aquatic life use impairment in Illinois streams should not be made by Illinois EPA because the threshold values used are arbitrary and not scientifically correlated with stream health. These parameters should be removed from the listing until such time as the IPCB water pollution control regulations more clearly define standards for these parameters, or a vetted, published methodology is used to identify and establish cause and response stressor analysis using multiple lines of evidence. The IAWA does not support maintaining

previous listings which were generated by the use of simply taking an 85th percentile of data that existed over a decade ago, and using that value as a threshold to determine impairment causes. Illinois EPA should end the practice of this arbitrary misapplication which leads to unnecessary regulatory efforts such as the development of TMDLs that can't be conducted because of the lack of an appropriate regulatory goal.

There is no scientific validity to the assertion that these constituents at these levels are negatively impacting aquatic life use in streams in Illinois. Numerous studies conducted in Illinois for the Illinois EPA (various CFAR Studies of 2000s) and USEPA (Tetra Tech, Inc., 2008) for the purpose of determining defensible nutrient standards have failed to show any correlation between total phosphorus (TP) and algae, dissolved oxygen, or biota in Illinois streams. Continuing to define stream segments as impaired for TP is contrary to the best and only directly pertinent scientific information on the topic. Continuing this incorrect listing mis-informs the public and stakeholders, and can lead to irretrievable, expensive and damaging regulatory decisions. These listings are not based on any violations of any Illinois Pollution Control Board water quality standard, and the Agency has no direct or indirect evidence linking these specific levels to aquatic life impairment in streams.

Response:

Please see response to comment #14.

20. IAWA does not agree with the universal identification of phosphorus as a default contributing cause to any algae or aquatic plant aesthetic use impairment in Illinois streams. Illinois EPA has not produced any evidence supporting the assertion that water column phosphorus has any causative role in excessive macrophyte growth in Illinois streams. Any such characterization should be rigorously supported with a vetted, published methodology used to identify and establish cause and response stressor analysis using multiple lines of evidence. Scientifically valid threshold levels should be established before identifying any parameter as a causative agent, for either excessive macrophyte or algal growth.

    The report text states that any aesthetic use impairment identification for algae or plant growth results in listing TP as a contributing cause, which implies that supporting chemistry data is not needed for this characterization. Any such listing should, as a minimum, be accompanied by corroborating stream chemistry data before including phosphorus as a contributing cause.

    Since the preponderance of evidence suggests physical habitat drives primary productivity in Illinois streams, Illinois EPA should consider listing this as the cause of algae-related impairment rather than total phosphorus. Such a step might encourage resources to be spent on habitat improvements, which clearly have a better chance of addressing such impairments.

    Response:

Phosphorus is a nutrient required for the growth of plants and algae. Offensive growth of plants or algae cannot exist without it. It is also a pollutant discharged into Illinois waters by human actions. Illinois EPA is required by federal regulation to identify the pollutants causing violations of Illinois water quality standards and to develop TMDLs for those pollutants.

Illinois EPA does not list habitat factors as contributing causes of algae-related impairment for the following reasons. While certain habitat conditions may retard the growth of plants or algae, the absence of these conditions cannot cause plant or algal growth unless sufficient nutrients are available. Where anthropogenic changes in habitat create conditions that allow nutrient-rich waters to generate offensive plant and algal growth, such anthropogenic changes are not required to be listed because they are not pollutants and are not subject to TMDL development. However, these anthropogenic changes, such as removal of riparian vegetation, are often identified as sources of the impairment.

21. USEPA continues to have concerns regarding Illinois EPA's use of the weight of evidence approach for making listing determinations, as described in Table C - l, page 24. As stated previously in other listing cycles EPA's policy regarding independent application is discussed in its *Consolidated Assessment and Listing Methodology (CALM)* guidance (2003), which states that "For Purposes of [water quality standard] WQS Attainment/Nonattainment Determinations: When evaluating multiple types of data (e.g., biological, chemical) and any one type of data indicates an element of a water quality standard (WQS) is not attained, the water should most likely be identified as impaired." *See CALM Guidance* at pages 3-10. Illinois EPA needs to consider each data type (biological, chemical, physical) and make an independent determination of impairment for each one of them. If any type of data is determined not to meet an element of a WQS, the presumption should be to list the water. The state, however, retains discretion to not list on a case by case basis if the data indicates conflicting outcomes and the state can justify its rationale to not list.

USEPA has specific concerns that the state may not follow EPA's guidance concerning independent applicability in certain situations. Cell D1 in Table C-l indicates that where there is one biological indicator showing no impairment and the other biological indicator is unavailable, water-chemistry data needs to indicate a potential for *severe* impairment before listing a water as impaired. Based on EPA's guidance, a water should be listed whenever there is an impairment based on water chemistry, regardless of the biological assessment, unless the state can justify not listing the water on a case by case basis.

Similarly, cells A2 and Bl in Table C-l appear to indicate that Illinois EPA is basing impairment determination on chemistry data rather than the biological data of impairment from one of the indicators. In this case, where one biological indicator indicates no impairment and the other indicator indicates a moderate impairment then there must be evidence of water chemistry impairment to list. The presumption should be that the water

is listed unless there is a case-specific reason to justify not relying on the biological data that indicates impairment.

Response:

Illinois EPA continues to believe that its weight of evidence approach provides the most accurate assessment of attainment of Aquatic Life Use. Illinois EPA assessments are based primarily on direct biological evidence, and Illinois EPA incorporates the use of water chemistry and habitat data as supporting evidence. For more related information, please see Illinois EPA's response to comment #16 in the 2012 Integrated Report and Section 303(d) List Responsiveness Summary.

22. Page 9 states that "Assessments of fish consumption use were not updated in this cycle because no new data were available." For the 2016 listing cycle it appears that Illinois EPA is reviewing data through 2013. Based on *Illinois Environmental Protection Agency 2012/2013 Performance Partnership Agreement/Performance Partnership Grant,* the Fish Contaminate Monitoring Program reports the number of samples processed by Illinois EPA and the number of stations sampled by Illinois DNR. According to the report, 585 samples were planned to be collected in Summer/Fall 2012 from 86 waterbody stations (representing 49 waterbodies). For a variety of reasons (e.g., lack of Illinois DNR staff), usually about 2/3 of planned collections actually get analyzed. Actual number of samples collected/analyzed is not available at this time. The 2013 report indicates 194 samples were collected in Summer/Fall 2013 from 55 waterbody stations (representing 33 waterbodies). Results from these samples should be considered by Illinois EPA in finalizing its 2016 list, or clarification provided as to why the results were not considered.

Response:

No fish-tissue data from collections in 2013 were considered for assessments of fish consumption use in cycle 2016 because these results were not yet readily available by a March 1, 2015, self-imposed Illinois EPA deadline of completing assessments for the 2016 cycle. When assessments are made for cycle 2018, Illinois EPA will consider all readily available and applicable fish tissue data.

23. Page 10 indicates the data sets and other information were received from three external organizations during Illinois EPA's solicitation of data. Please confirm that all the data was considered and used in the development of the list. If data was considered and not used, please indicate what data was not used and why.

Response:

As stated on Page 10 of the report, "All submitted data met Illinois EPA Quality Assurance/Quality Control requirements and were evaluated and considered for assessments in this report."

24. Spring Brook IL_GBK is delisted for copper based on a permit issue and a TMDL alternative (4B) as specified in Appendix A4. However on the 2014 list this segment is identified as IL_GBKA-01. Please confirm which segment identification is correct.

    Although the segment remains on the list, the impairment for copper is being identified as moving to 4B. More discussion is needed to add an impairment or segment to 4B. Please identify the permit related to this segment, including the permit limit for copper. Please indicate if the permittee is the only source of copper in the watershed. Page 7 of EPA's 2008 listing guidance dated October 12, 2006 lays out additional expectations of the types of information requested by EPA during their review of information placing a water/impairment into 4B. This information includes the following:

    1. Identification of segment and statement of problem causing the impairment;
    2. Description of pollution controls and how they will achieve water quality standards;
    3. An estimate or projection of the time when WQS will be met;
    4. Schedule for implementing pollution controls;
    5. Monitoring plan to track effectiveness of pollution controls; and
    6. Commitment to revise pollution controls, as necessary.

    Please provide additional information for Spring Brook, IL_GBKA-01 (or IL_GBK whichever is the correct segment ID) related to the delisting of copper and placing this water into category 4B.

    Response:

    The segment referenced above for Spring Brook was incorrectly identified in Appendix A-4 as IL_GBK-01. The correct segment code is IL_GBKA-01. Upon further review of the information concerning this segment the following was revealed. This segment was previously identified as being impaired by copper from the Wheaton Sanitary District, NPDES No. IL0031739. The NPDES permits issued for this facility in 1993 and 2005 included effluent limits for copper. However, a Reasonable Potential Analysis based on new data conducted prior to the reissuance of this permit in 2011 determined the discharge no longer presented a potential to violate the water quality standard for copper, and the permit was issued without effluent limitations for copper. The latest water quality data collected for this segment in 2012 showed no violations of the copper standard in the receiving stream. Therefore, based on a reevaluation of all current information, Illinois EPA will remove copper as a cause of aquatic life use impairment for IL_GBKA-01 and show this as a delisting in Appendix A-4 based on the following reason: "New data indicates applicable WQS attained; reason for recovery unspecified."

25. MWRD's Ambient Water Quality Monitoring data from 2012 and 2013 do not corroborate the following new impairment listings:

Waterway	IEPA Segment Code	Designated Use	Cause
Chicago Sanitary and Ship Canal	IL GI-02	Indigenous Aquatic Life	Oil and Grease
Chicago Sanitary and Ship Canal	IL GI-03	Indigenous Aquatic Life	Iron
Chicago Sanitary and Ship Canal	IL GI-06	Indigenous Aquatic Life	Iron
Des Plaines River	IL_G-39	General Use Aquatic Life	Dissolved Oxygen
West Branch Du Page River	IL GBK-09	General Use Aquatic Life	Dissolved Oxygen
West Branch Du Page River	IL GBK-09	General Use Aquatic Life	Water Temperature

The available water quality data indicate all samples were in compliance with the applicable water quality standards for the parameters listed above during 2012-2013. We request that these causes be removed from the 303(d) list if there are no other data showing water quality standard exceedances in the respective segments.

Response:

Typically three years of water quality data are used in making assessments and cause determinations. Data from 2011 (previously submitted by MWRD for the 2014 Integrated Report) were used with 2012 and 2013 data submitted for the 2016 Integrated Report. In addition, data collected by Illinois EPA during this same period were used. Below are specifics for each segment.

IL_GI-02: MWRD water quality data from 2011 through 2013 at Stephen Street (WW_48) indicated one exceedance (17 mg/L) of the Indigenous Aquatic Life Use oil and grease standard (15 mg/L) on 11/21/2011.

IL_GI-03: MWRD water quality data from 2011 through 2013 at Cicero Avenue (WW_75) indicated one exceedance (2.6 mg/L) of the Indigenous Aquatic Life Use total iron standard (2.0 mg/L) on 6/20/2011.

IL_GI-06: MWRD water quality data from 2011 through 2013 at Route 83 (WW_42) indicated one exceedance (2.9 mg/L) of the Indigenous Aquatic Life Use total iron standard (2.0 mg/L) and one exceedance (1.6 mg/L) of the dissolved iron standard (0.5 mg/L) on 12/19/2011.

IL_G-39: IEPA/ISWS continuous monitoring data from July 2013 at Willow Springs Road (G-18) indicated 104 exceedances of the dissolved oxygen standard (5.0 mg/L).

IL_GBK-09: MWRD water quality data from 2011 through 2013 at Arlington Drive (WW_111) indicated one exceedance (36 C on 8/1/2011) of the General Use water temperature standard.

26. As MWRD has stated in comments to previous Illinois EPA Integrated Water Quality Reports, we do not support maintaining former total phosphorus listings that were determined using an 85 percentile threshold without any scientific evidence that total phosphorus is negatively impacting the aquatic life in the stream segment. We urge the Illinois EPA to remove total phosphorus as a cause of impairment if it was listed based on nonscientific threshold values until such time as the regulations more clearly define standards for total phosphorus.

Response:

Please see response to comment #14.

Distribution of Responsiveness Summary

A letter announcing the completion of this responsiveness summary and its availability on the Agency website was mailed or emailed to all who submitted comments, and to anyone who requested a copy. Additional copies of this responsiveness summary are available from Shirley Durr, Illinois EPA, e-mail Shirley.Durr@illinois.gov, phone 217-782-3362.

Bureau of Water Staff Who Can Answer Your Questions

Questions Concerning the 2016 Integrated Report:

Questions about the 2016 Integrated Report……Amy Walkenbach…….. (217)782-3362

Legal Procedures ……..……Stephanie Flowers…….. (217)782-5544

The public notice and this responsiveness summary are available on the Illinois web site: http://www.epa.illinois.gov/topics/water-quality/watershed-management/tmdls/303d-list/index

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