

Illinois Environmental Protection Agency

Draft 2014 Integrated Report and Section 303(d) List Appendix F

Responsiveness Summary

Regarding

July 9, 2013 Public Hearing

Illinois Environmental Protection Agency
Office of Community Relations
March 24, 2014



**Bureau of Water
Impaired Waters of Illinois
Draft 2014 Integrated Report**

Responsiveness Summary

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Final March 24, 2014

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF:
Impaired Waters of Illinois
Draft 2014 Integrated Report

BACKGROUND INFORMATION

The Illinois Environmental Protection Agency (Illinois EPA or Agency) conducted a public hearing (Hearing) on Tuesday, July 9, 2013, in the Illinois EPA Sangamo Conference Room, located at 1021 North Grand Avenue East, Springfield, Illinois. The purpose of this hearing was to provide an opportunity for the public to comment on the Bureau of Water (BOW) draft 2014 Integrated Report.

The Illinois EPA is required under Sections 303(d), 305(b) and 314 of the federal Clean Water Act (CWA) 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 on the Integrated Report.

Waters identified in the Integrated Report in accordance with Section 303(d) are deemed impaired for specific chemical constituents and consequently additional loadings (i.e., discharges) of those constituents may be restricted. In addition to possible restrictions on future loadings to these listed waterbodies, 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.

PRE-HEARING OUTREACH

Pursuant to the federal regulations for public participation in 40 CFR 25, the Hearing was announced in State publications including:

- the Taylorville *Breeze Courier* (State newspaper) on May 28, June 4 and 11, 2013.

The public hearing notice (Notice) was sent to all Illinois EPA Regional Office and via first class mail and/or by email to persons and groups on lists provided by:

- Bureau of Water, Division of Water Pollution Control
- Agency Hearing Officer

The hearing notice was posted on the Illinois EPA website on May 21, 2013. All Illinois EPA regional offices posted the Notice in a public area.

PUBLIC HEARING AND HEARING RECORD

Approximately 7 non-Agency persons attended at the July 9, 2013 hearing. Hearing Officer Dean Studer opened the hearing at 10:30 a.m. Amy Walkenbach, Manager, Watershed Management Section, described the Draft 2014 Integrated Report. Agency staff responded to questions. Hearing Officer Dean Studer closed the Hearing at 11:08 a.m. Agency staff were available to meet with the public before and after the hearing. The transcript of the Hearing was posted on the Agency website on July 17, 2013.

The hearing record (Record) remained open for written comments postmarked through August 8, 2013.

This Responsiveness Summary provides the Agency response to questions from the Hearing and written comments and questions received while the Record was open.

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

Agency Responses to Questions, Concerns and Comments

1. Is fish consumption a specified designated use in Illinois' regulations? And, if so, where is the Administrative Code citing for that? If you could address and answer for each specific use classification in Illinois, such as general use and secondary contact and indigenous aquatic life.

Response:

The specific uses protected under Illinois' General Use Standards can be found in the statement of purpose (35 Ill. Adm. Code 302.202) which reads as follows: "*The General Use standards will protect the State's water for aquatic life (except as provided in Section 302.213), wildlife, agricultural use, secondary contact use and most industrial uses and ensure the aesthetic quality of the State's aquatic environment. Primary contact uses are protected for all General Use waters whose physical configuration permits such use.*" Although fish consumption is not specifically mentioned in this section, the clear intent of General Use Standards Section 302.210 is the protection of human health related to the consumption of aquatic organisms. For the purpose of listing waters under CWA Section 303(d), Illinois EPA has translated this clear intent of the standards into a use labeled "Fish Consumption Use."

The water quality standard found at 35 Ill. Adm. Code 302.540 protects the same uses as above in the waters of Lake Michigan and the Lake Michigan Basin.

The water quality standards found at 35 Ill. Adm. Code 302, Subpart D do not contain criteria intended to protect human health through fish consumption but rather are currently limited to the protection of indigenous aquatic life and secondary contact uses. However, regulations patterned on 303.210 that give protection to human health including that through fish consumption have been proposed to the Illinois Pollution Control Board. The pertinent part of the rulemaking to this issue is Part 302.410 and may be found in Board Docket R08-09D.

2. I believe the criterion for fish contamination is 0.06 milligrams (correction made by speaker) per kilogram concentration in the fish flesh. Is that total mercury or methylmercury?

Response:

The criterion of 0.06 milligrams per kilogram is for methyl mercury. Illinois EPA, Division of Laboratory's (DOL) analytical procedure is for total mercury. Based on work conducted by the Great Lakes Fish Advisory Task Force, at least 95 percent of the total mercury is estimated to be in the methyl mercury form. Therefore, Illinois EPA assumes that a result from DOL represents 100 percent methyl mercury in the fish flesh.

3. How does the 0.06 fish tissue concentration relate to water quality criterion? I believe 12 nanograms per liter is the water column chemistry standard. What's the relationship between the water quality standard and the value you're using to designate fish? The fish contamination criteria -- I guess my follow-up question is -- that cited in the state's administrative regulations? And, if so, what's the citing?

Response:

The 0.06 mg/kg fish tissue concentration used by the Fish Contaminant Monitoring Program as the starting point for issuing a 1 meal/week advisory has no relation to the 12 ng/l water column chemistry standard. The 0.06 mg/kg concentration has been derived by the Great Lakes Fish Advisory Task Force and has been accepted by the Great Lakes states for use in their sport fish advisory programs. This is a risk-based advisory concentration developed from an extensive database of studies of the health effects of methyl mercury. There is no citation in state rules and regulations. The Illinois human health water quality standard for mercury of 12 ng/L comes from USEPA's National Criteria for mercury. The USEPA criterion was intended to protect human health by limiting mercury bioaccumulation in fish flesh. This is the reason that this value was adopted as the state human health standard. Beyond the purpose behind the standard, there is no link between the standard and the fish flesh consumption value. No studies have been done to demonstrate that achieving the water quality standard in bodies of water leads to compliance with the fish flesh concentration, or vice versa.

4. How much data and what kind of data do we have in the State of Illinois that is actually mercury concentrations of the water chemistry for comparison to the 12-nanogram per liter standard? If you could elaborate a little on what your routine sampling is, sample frequency, detection levels, things of that nature. How do you sample for mercury in the water column?

Response:

The USEPA low level laboratory method for mercury has a detection limit of 0.5 ng/L, which is far lower than other methods and is the only method that allows comparison of water quality with the human health water quality standard of 12 ng/L. This laboratory method requires clean room technique and specialized equipment. Therefore, most laboratories, including the Illinois EPA laboratory, are unable to run this test. Low level monitoring for mercury in Illinois waters is not conducted during routine sampling. A few special studies have been conducted by Illinois EPA and some sampling has been done by dischargers in their receiving streams. Past mercury monitoring conducted by Illinois EPA used an older mercury laboratory analysis that had a much higher detection level (usually 200 ng/L) and was prone to erratic results. For these reasons, Illinois EPA no longer uses the old method and has no mercury results from its routine monitoring program.

5. Somewhere in the report you are relying on fish tissue data that may be as old as 1985. What's the rationale for -- in evaluating fish consumption criteria and your basis for making advice to the general public on fish consumption? What's the policy or the attitude about relevancy and currency of data that you use to make those decisions?

Response:

The rationale for using existing data (since 1985) for fish consumption advisories and assessments is that without newer data showing that the level of contaminants in fish has declined to safe levels, we have no basis to change the advisories or assessments. This is a more conservative approach intended to err on the side of public safety.

6. Are there many stations or locations or segments in Illinois where you have sufficient data to determine whether or not there are increasing or declining trends in fish contamination over time?

Response:

In order to have a reasonable chance of detecting a trend in tissue concentrations it is necessary to have regularly-spaced samples over time from a station, samples of the same species over time, and roughly equal sizes of the species in all samples over time. Very few, if any, lake or stream stations have sufficient data to determine trends in fish would meet these requirements.

7. I'm a landowner in Montgomery County. Shoal Creek is listed as impaired water on your list of impaired water, as I understand it. It just mentions a couple miles that they tested that is impaired. Sierra Club has said that Shoal Creek is a biologically significant stream that is protected by law, and that has me wondering if it's now listed as impaired, and why is it impaired?

Response:

Shoal Creek has no special designation under state law as a biologically significant stream. Aquatic Life in Shoal Creek is protected under Illinois's General Use Water Quality Standards.

For assessment purposes, Shoal Creek is divided into five segments and assessed as follows:

The upper portion of Shoal Creek (segment IL_OI-09) from West Fork Shoal Creek to East Fork Shoal Creek is impaired for Primary Contact Recreation due to fecal coliform bacteria. Sources are unknown. Aquatic Life is fully supported.

Shoal Creek segment IL_OI-15 from East Fork Shoal Creek to Locust Fork is monitored and Aquatic Life is fully supported.

Shoal Creek segment IL_OI-13 from Locust Fork to Cattle Creek is impaired for aquatic life use, but causes and sources of impairment are unknown.

Shoal Creek segment IL_OI-08 from Cattle Creek to Beaver Creek is impaired for aquatic life use, Public and Food Processing Water Supply and Primary Contact Recreation. Potential causes of aquatic life impairment are identified as low dissolved oxygen, total phosphorus, terbufos, and total suspended solids. Potential sources of aquatic life impairment are identified as agricultural crop production. Atrazine from unidentified sources is considered a potential cause of Public and Food Processing Water Supply Use. Primary Contact Recreation is impaired due to fecal coliform bacteria. Sources are unknown

Shoal Creek segment IL_OI-05 from Beaver Creek to the Kaskaskia River is monitored and Aquatic Life is fully supported.

8. With limited exceptions, the Draft 2014 Integrated Report does not appear to revise the list of impaired water to delist waters which no longer exceed the state's manganese water quality standards. The Draft Integrated Report continues to list thousands of stream miles as impaired for manganese. During the rulemaking hearings at the Illinois Pollution Control Board (IPCB) for Case No. R2011-18, it was understood from the Agency staff testimony that few, if any, water bodies would be continued to be listed as impaired for manganese. IAWA requests that the Agency modify the 2014 Integrated Report to reflect these changes to state water quality standards and to delist waters listed as impaired which do not exceed the revised water quality standards. American Bottoms Regional Wastewater Treatment Facility particularly requests delisting of impairment for manganese for the Mississippi River segment to which we discharge. We have consulted Illinois EPA's water quality mapping tool and the corresponding information on the USGS site and we are not able to determine whether this segment is properly referred to as IL_J or IL_J_02; we request the Agency's assistance in clarifying this point.

Response:

The Illinois EPA has reevaluated and updated all Public and Food Processing Water Supply Assessments using the most current applicable water quality standard for manganese. Based on this reassessment, manganese has been removed as a cause of impairment for Public and Food Processing Water Supply use for both segments IL_J and IL_J-02, and both segments are now assessed as fully supporting Public and Food Processing Water Supply use. The American Bottoms Regional Wastewater Treatment Facility discharges to segment IL_J.

9. The Illinois Association of Waste Water 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 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 regulations more clearly define standards for these parameters. While the listing methodology appears to be described properly, the list continues to include improperly listed streams based on invalid legacy guidelines. The IAWA does not support maintaining previous listings which were generated by the use of an 85th percentile threshold to determine impairment if there is no scientific evidence that these constituents are negatively impacting aquatic life use in a given stream segment.

Response:

Illinois EPA agrees that some past-identified causes that remain associated with Illinois 303(d)-list water bodies are based on guidelines (e.g., 85th percentiles) and not Illinois Pollution Control Board (IPCB) promulgated water quality standards. Illinois EPA provided to USEPA its basis for removing waters or potential causes based on certain non-IPCB based guidelines in the 2008 and 2010 Integrated Reports. However, as long as the segments are considered impaired, Illinois EPA does not intend to dissociate these past causes from the 2012 303(d) list because we believe that USEPA will not accept such actions as approval of previous Integrated Reports are still pending. Once Region 5 makes their listing decisions and subsequently discusses them with Illinois EPA, the list will be modified as necessary.

10. As Illinois EPA is aware, numerous studies conducted in Illinois 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 this wealth of scientific information. Continuing this incorrect listing miss-informs the public and can lead to irretrievable and damaging regulatory decisions. IAWA does not agree with the universal identification of phosphorus as a default contributing cause to any algae or aquatic plant aesthetic use impairment without supporting stream chemistry data corroborating the presence of phosphorus. Furthermore, IAWA believes the application of aesthetic use impairment identification for algae or plant growth should 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 might actually address such impairments.

Response:

In all cases where Illinois EPA has listed phosphorus as a cause contributing to the impairment of aesthetic quality in streams by aquatic plants or algae, we do have water chemistry data corroborating the presence of phosphorus, although we do not consider water chemistry data necessary for such listing.

Phosphorus is a nutrient required for the growth of plants and algae. Offensive growths of plants or algae cannot exist without it. It is also a pollutant discharged into Illinois waters by human actions. We are required by federal regulation to identify the pollutants causing violations of Illinois Water Quality Standards and to develop TMDLs for those pollutants.

We do 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 which 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.

11. The report and list are not user-friendly. With two separate volumes, over 150 pages of technical discussion and 15 lengthy appendices, the Report and List are complicated and not user-friendly. It is cumbersome for the general public to utilize the information contained in the Report and List in order to identify the condition of waters in which they may be interested. It is difficult to have local involvement and understanding with regard to the Total Maximum Daily Load (TMDL) process when local people cannot use the document that lists which waters are impaired.

Response:

We regret 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 CWA. These CWA sections have somewhat complicated legal requirements and cover all waters in the state. It is therefore necessarily lengthy and somewhat complicated. We would consider specific suggestions for improving the readability of the report.

12. Illinois Farm Bureau (IFB) encourages Illinois EPA to continue to help develop voluntary, incentive-based programs to implement phases of the TMDL plans. Voluntary, incentive based programs work for agriculture to address nonpoint source issues. They are a logical approach to improve water quality.

Response:

Illinois EPA is committed to supporting voluntary, incentive-based programs to implement TMDL plans where the law allows a voluntary approach. However, the Integrated Report is a report used to assess state waters and “list” those deemed impaired. The list does not develop a methodology for developing or implementing TMDLs.

13. A main concern IFB has consistently raised regarding the List focuses on the data used to rank nonpoint source waters. Data used to place water segments on the List should be taken from various sections of a water segment and at multiple times of the year in order to have a robust data set that accurately reflects current stream conditions. It is preferable for the State to spend its resources ensuring that the data collected for the List accurately reflects the current condition of the stream, rather than to base plans on inaccurate or incomplete information. Plans developed on inaccurate and incomplete information will not achieve desired water quality improvements. While IFB understands that scientific reports will naturally involve some element of data lag, the most current data on which the Report is based is from 2011, which not only is data that precedes the 2014 Report date by three years, but also only updates the 2012 report with one year of new data. Such data does not provide an accurate picture of the current stream conditions.

Response:

Illinois EPA makes every attempt to ensure that the water data it uses for assessments accurately reflect current stream conditions. However, the amount of data collected for any given water body is limited by available time, personnel and other available resources. Also, because data processing, making assessments, conducting public hearings, responding to public comments and final report writing take a great deal of time, we have had to use an earlier data cut-off date in order to be able to complete the Integrated Report by the USEPA mandated deadline of April 1, 2014.

14. Another needed change in the process is that Illinois EPA should develop a method to easily share the specific field data used to list water segments with local people. Local people should be able to quickly get the field data Illinois EPA collected and used to list their water. If local people do not know specifically why their stream is listed, how can they be expected to help address their water quality issues? The listing of waters on the List and the development of TMDLs are complicated issues. IFB encourages Illinois EPA to do everything possible so that local watersheds can easily determine whether they have impaired stream segments.

Response:

Getting water data and impaired water's listings to the public quickly is a laudable goal and one Illinois EPA shares. Realize that it takes a great deal of time for laboratory analyses, data entry, data proofing, and other QA/QC procedures before data or impaired waters determinations can be made publicly available. The public is welcome at any time to make such requests from Illinois EPA, Surface Water Section or Groundwater Section. Within our resource capabilities, we strive to do everything possible to provide the requested information as expeditiously and completely as possible.

15. To help ensure correct data, IFB recommends that Illinois EPA and the contractors share information they have about a specific watershed with local agencies – such as the Soil and Water Conservation Districts, NRCS and University of Illinois Extension Service offices. Local agencies know the watershed and they should be able to review and comment on the data Illinois EPA has on watersheds to ensure accuracy. Illinois EPA should then address comments from local agencies on the data prior to issuance of the draft TMDL.

Response:

We understand that public knowledge, acceptance, and follow through are necessary to implement a plan to meet recommended TMDLs. It is important to involve the public in the process as early as possible to achieve maximum cooperation and counter concerns as to the purpose of the process and the regulatory authority to implement any recommendations. The Agency provides this opportunity by holding public meetings within the watershed during the early stages of the TMDL development process (Stage 1) and the final draft report (Stage 3) before submitting the report to USEPA for approval. We will continue to engage the Soil and Water Conservation Districts, NRCS, Illinois Department of Agriculture, Illinois Department of Natural Resources, University of Illinois Extension Service offices, USGS, other Federal, State, and local agencies in future TMDL development process. However, the Integrated Report does not address TMDL development methodologies, only impaired waters listing methodologies.

16. The goals developed for a TMDL should be achievable. When the goals for a TMDL are unrealistic, then the whole TMDL is discredited by those who know the watershed and by those who know how natural systems respond to certain practices. There should be recognition that human uses of land have impacts. We need to continue to improve water quality; however, there needs to be some realism in the process because we cannot, no matter what practices are implemented, go back to pre-settlement conditions. This realism needs to be taken into account in the development of plans and goals to address natural resource issues.

Response:

The goal of a TMDL is to achieve water quality standards based on applicable Federal and State laws and regulations to enhance water quality and protect public health and welfare. The TMDL specifies the amount of pollutant that needs to be reduced to meet water quality standards, allocate pollutant control or management responsibilities among sources in a watershed, and provide a scientific and policy basis for taking actions needed to restore a water body. The TMDL applies a combination of point source controls and implementation of best management practices (BMPs) for nonpoint source as a control measure to reduce pollutants from reaching the waterbodies and minimize stream impairments. We appreciate your comments and encourage you to participate in future TMDL public meetings.

17. How reliable are Illinois EPA's Use-Attainment Assessments? What are Illinois EPA's current QA/QC requirements? Is it concerning to Illinois EPA that it does not have any "excellent" levels of assessments? Does Illinois EPA plan to develop comprehensive guidelines for judging the reliability of assessments?

Response:

The Illinois EPA has full confidence that the 303(d) listing decisions made are reliable. Earlier versions of USEPA's Assessment Database (ADB) required Illinois EPA to enter a "confidence level" for each water resource assessment made. Since Illinois EPA had no guidelines for judging confidence in its assessments, yet a judgment was required for entry into the ADB, we simply called virtually all assessments "good." Illinois EPA has no plans at this time to develop more comprehensive guidelines for judging the reliability of assessments, and likely will remove any discussion of them in future Integrated Reports.

18. What information was utilized by Illinois EPA to identify potential sources of use impairment regarding agriculture-related activities? Volume I of the Report includes guidelines for identifying potential sources of use impairment in Illinois streams, freshwater lakes and Lake Michigan-Basin waters. See Report at Vol. I, p. 68-70, Table C-33. Specifically, potential agriculture-related sources can be based upon satellite land use, actual observations and/or other existing data. What information was used by Illinois EPA to determine potential sources of impairment related to agriculture, animal feeding operations (NPS), aquaculture, channelization, crop production, drainage/filling/loss of wetlands, irrigated crop production, livestock operations, pesticide application, specialty crop production and upstream impoundments?

Response:

To determine potential agriculture related sources of impairment, Illinois EPA uses satellite and other sources of land use data, actual observations, and other existing data such as Facility-Related Stream Survey data, ambient-monitoring data, effluent-monitoring data, facility discharge monitoring reports, review of National Pollutant Discharge Elimination System permits and compliance records, and documented site-specific knowledge.

19. What type of data was utilized by Illinois EPA to identify the most prevalent sources of groundwater contamination? Volume II of the Report includes a summary of the “most prevalent sources of ground water contamination.” In particular, it includes information regarding the following agriculture activities: agricultural chemical facilities, animal feedlots, drainage wells, fertilizer applications, irrigation practices and pesticide applications. See Report at Vol. II, p. 26, Table C-2. Footnote 7 to Table C-2 states: “The basis for the analysis provided in this table is a combination of existing monitoring data and potential source of groundwater contamination 5 data from the completed [community water supply (CWS)] well site survey reports which Illinois EPA has conducted over the past 20 years.” What is the most current data from the past 20 years on which Illinois EPA relied? Additionally, Footnote 8 to Table C-2 states: “Occurrences are based solely on the Illinois EPA Groundwater Section’s existing databases. This is only an estimate and should not be used as anything more than an approximation of potential sources of contamination to CWS wells in Illinois.” What information is contained in those existing databases? What is the most current information included therein? How does Illinois EPA utilize the estimate?

Response:

The Illinois EPA utilized several different “potential source” databases and facility file searches prior to conducting Well Site Survey Reports, Hazard Reviews, Groundwater Protection Needs Assessments, and Source Water Assessments for Community Water Supply (CWS) systems in the state. These sites are considered “potential” sources of contamination due to the nature of the activity, the availability of data in electronic databases, and their geographic proximity to the source water protection area. The Illinois EPA databases include different types of permitted or remediation sites that can be generally classified as:

- Cleanup (sites that are actively doing cleanups);
- Landfills (sites that have permitted landfills);
- NPDES = National Pollutant Discharge Elimination System discharge point;
- RCRA = Resource Conservation and Recovery Act site;
- Leaking Underground Storage Tank (sites with leaking underground storage tanks that have not received a No Further Remediation letter); and
- TRI = Toxic Release Inventory site (a site that has had a toxic release to a receiving stream or publicly owned treatment works).

Further, Illinois EPA staff makes use of information from the Illinois State Fire Marshal registry of underground petroleum storage tanks, Illinois Department of Agriculture’s listing of agricultural chemical facilities, and available well log records from the Illinois State Geological Survey. Ultimately, the information described above was used in conducting an on-site field survey of potential sources of groundwater contamination activities for all groundwater-dependent CWS in the state.

The Illinois Groundwater Protection Act required the Illinois EPA to complete “Well Site Survey Reports” for all groundwater-dependent CWSs in the state. This effort took many years to complete. More recently, the Safe Drinking Water Act Amendments of 1996 required states to complete Source Water Assessments (SWA) for all Public Water Supply systems under their authority. The Illinois EPA ultimately received U.S. EPA approval for the SWA program application in June 1999, and was allowed the full 3.5 years (plus an 18 month extension) to complete these assessments. In Illinois, both the Illinois EPA and the Illinois Dept. of Public Health (IDPH) regulate certain types of water supply systems serving the public. Though the numbers vary over time, there were approximately 5,600 such supplies in Illinois, of which the Illinois EPA was responsible for nearly 1,800 of these systems. The rest fell under the jurisdiction of IDPH. Illinois EPA is currently in the process of revisiting and updating the SWA for CWS, and IDPH continues to complete these assessments for newer systems under their purview.

Therefore, “*the most current data from the past 20 years on which Illinois EPA relied*” would be those SWA that have been completed and continue to be updated by both the Illinois EPA and the IDPH.

The information contained within those existing databases is described in the answers to the previous question(s). The most current information included therein is also addressed in the previous response. The Illinois EPA utilizes the potential contaminate source information contained in Table C-2 as an estimate because it is a combination of existing monitoring data and potential source inventories completed over the past twenty years. Identified potential sources, as well as CWS wells and groundwater monitoring programs are not static. The Illinois EPA presents the information contained in Table C-2 as an approximation of potential sources of contamination to CWS wells due to the dynamic nature of the subject matter.

20. The Alliance for Great Lakes asks that the Illinois EPA provide a more detailed evaluation of floating debris which includes onshore litter. The negative impact of litter on the aesthetics of the Lake Michigan shoreline is indisputable. Nearshore waters and beaches strewn with dirty cigarette butts, plastic bags, bottles, cans, condoms, and the like, are not an inviting foreground for the natural beauty of Lake Michigan. Given that is it not natural in origin; litter in the water is categorized as floating debris and is a potential cause for non-attainment. However, what is not clear from Illinois’ methodology is how attainment or non-attainment is determined based on the presence of litter/floating debris. Illinois’ assessment methodology states that trained biologists will evaluate whether the standard has been violated by comparing the current condition of the bay, harbor or beach to the “natural conditions and expectations for these Lake Michigan waters.”

Response:

Illinois EPA recognizes and appreciates the Alliance’s concern for litter on and near Lake Michigan beaches. Illinois EPA assesses aesthetic quality in Lake Michigan waters by interpreting and applying the narrative Lake Michigan standards, while recognizing the lack of specificity inherent in the standard. Illinois EPA staff use their best judgment in assessing attainment of the standard, including assessments that may be based partly on litter in the water. Currently, no Aesthetic Quality Use assessments for Lake Michigan shoreline segments have been made due to a lack of Illinois EPA resources for data collection. We are open to examining how to improve this assessment method. We invite the opportunity to discuss this issue further with the Alliance.

21. Illinois EPA must develop methods for determining support of recreational use and aesthetics at its Great Lakes beaches and nearshore areas, including excess algae. While algae is a natural component of Lake Michigan waters, excess algae may cause Illinois' beaches and nearshore waters to violate the "Offensive Conditions" narrative standard in 35 Ill. Adm. Code 302.515. Unfortunately, while Illinois applies a phosphorus water quality standard of 0.007 mg/L to evaluate Lake Michigan open waters, Illinois EPA has not initiated or developed a clear recreational use impairment listing protocol for nuisance algae at Great Lakes shorelines. The 2014 draft report includes a form for evaluating Offensive Conditions, but no explanation for how this form is used to assess Lake Michigan beaches and nearshore areas.

Response:

In order to meet the requirements of section 303(d) of the CWA, 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 Lake Michigan waters. Because algae is a natural component of Lake Michigan waters, the presence of algae itself does not necessarily indicate that the standard is not attained. Illinois EPA will review Beach Sanitary Survey information when submitted to determine when/if such data can assist our staff's assessments of aesthetic quality. The Offensive Conditions Evaluation form is filled out by Illinois EPA biologists while in the field. Since the Offensive Conditions standard lacks any strict numerical thresholds, best professional judgment is used to determine whether the narrative standard is being met or violated.

22. Illinois EPA should incorporate the recent 2012 EPA Recreational Water Quality Criteria ("RWQC") for the assessment and listing of Great Lakes beaches and make use of sanitary surveys for evaluating recreational use impairments. Illinois EPA should now incorporate the 2012 RWQC for the assessment and impaired listing of Great Lakes for recreational use into the 2014 Integrated Report. In the 2012 RWQC, EPA recommends that states adopt the geometric mean ("GM") along with the statistical threshold value ("STV"), intended to supplement the geometric mean with a frequency of exceedance component, into their Water Quality Standards ("WQS") for all primary contact recreation waters. Using both a GM and an STV together provides a more accurate picture of the overall health of the water body. Previous RWQC utilized the concept of "use intensity" as a basis for recommending multiple Single Sample Maximum ("SSM") criteria in conjunction with the long term (monthly) GM. Illinois must update its water quality standards to reflect these new EPA criteria and we are glad that Illinois EPA has already held one public meeting to start a dialogue on this process. The Alliance would be happy to continue to participate in the Illinois EPA's process for updating these standards.

Response:

Illinois EPA is obligated to use current water quality standards in its assessments. Bacteria standards are under Triennial Review and the recently published USEPA National Recreational Criteria in some form will be eventually proposed to the Illinois Pollution Control Board as water quality standards for all Illinois waters. Until that process is finalized, the existing bacteria standards will be used in assessments. Illinois EPA appreciates the participation of the Great Lakes Alliance in the rulemaking process.

23. According to Illinois EPA, phosphorus is no longer listed on the state's 303(d) list as a potential cause of aquatic life impairment in streams, because the Agency has no water quality standard for phosphorus. We also understand that phosphorus will no longer be listed as a potential cause even in instances where it is clear that low dissolved oxygen levels are the result of photosynthetic activity in the affected water. (Integrated Report, p. 28). Both of these failings are contrary to well established science and cause for substantial concern and confusion given that Illinois EPA has identified phosphorus and low dissolved oxygen among the major causes of impairment to Illinois streams. (Integrated Report p. 1). Illinois EPA's refusal to promulgate a water quality standard for phosphorus should not allow the agency to avoid identifying phosphorus as a potential cause of use impairment. There is ample science identifying threshold concentrations for phosphorus. Illinois EPA could use any of the studies discussed below to set a threshold for listing purposes.

Response:

The commenter is correct that Illinois EPA is not making additional associations of phosphorus with aquatic life impairment for 303(d) listings in streams, because the agency has no water quality standard for phosphorus in streams. However, the agency is currently working on updating its narrative standard with language which may allow the association of phosphorus with low dissolved oxygen in future assessments.

24. It is our understanding that phosphorus continues to be listed as a potential cause of aesthetic use impairments in streams in some cases when an Illinois EPA biologist happens to be on site. We learned from staff, that the Agency provides no guidance or list of factors to be considered by the field biologists that are making these determinations. It is also admitted that only 5.6 % of Illinois stream miles have been assessed for aesthetic quality and we do not know if the waters that have been assessed were assessed during times of the year when algal blooms or other offensive conditions were likely to occur. It does not appear that benthic or sestonic chlorophyll data is

regularly collected for streams or that even if available, this data is used for assessments. We recommend the Agency develop guidelines for assessment of aesthetic use attainment. While we recognize the importance of best professional judgment, we believe a list of factors could be developed to guide aesthetic use assessments.

Response:

Illinois' Offensive Condition Standard (35 Ill. Adm. Code 302.203) is a narrative statement and provides no guidelines for assessing attainment, other than the specific language of the standard. In the absence of specific objective guidelines in this standard, Illinois EPA's trained biologists use their best professional judgment for assessing aesthetic use attainment. For more discussion, please see Response #30.

25. Not a single water body on the 2014 list has been identified as potentially impaired by total nitrogen (TN). Since 2008, Illinois EPA has been attempting to remove TN as a cause of aquatic life use impairment for all water bodies. The rationale given was that "Illinois EPA does not believe that a scientifically valid criterion currently exists for determining when nitrogen is causing an impairment of aquatic life use in this state", and that Illinois EPA does not have TN water quality standards. USEPA has disapproved the attempted de-listings, 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. TN should be considered as a cause of impairment of aquatic life use for the reasons discussed below. And as with phosphorus, there is ample scientific evidence in support of thresholds for Illinois waters.

Response:

Illinois 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 mg/L nitrate/nitrite nitrogen) were not based on any scientific study which showed such values were related to aquatic life impairment. Illinois attempted to remove these listings of total nitrogen in 2008 because they were not based on violations of any Illinois Pollution Control Board's water quality standard and the Agency has no direct or indirect evidence linking these specific levels of nitrate/nitrate to aquatic life impairment. In-house and other analyses of Illinois' data (Tetra Tech, Inc., 2008) could not find a consistent negative relationship between nitrate/nitrite or total nitrogen concentrations and the biological indices Illinois uses to assess aquatic life use. Because of the reasons stated above, the Agency does not list total nitrogen as the cause of impairment.

26. Secchi depth and chlorophyll *a* are established response variables for the levels of nutrients, especially total phosphorus (TP) and secondarily, total nitrogen (TN), present in lake waters, including lakes and reservoirs in agricultural areas of the Midwest. Increased nitrogen concentrations have resulted from human activities in Midwestern U.S. watersheds, as true for river systems throughout the world. These excessive nitrogen concentrations are of concern because of (i) the stimulation of lake and reservoir algal assemblages, and undesirable changes in their composition (for example, favoring cyanobacteria including potentially toxic taxa); (ii) the cascading effects of nutrients “up the food web” to adversely affect macroinvertebrates and fish as a result of changes in algal assemblages; (iii) the potential toxicity of high levels of nitrate, nitrite, and ammonia to macroinvertebrate, amphibian, and fish species; and (iv) transport to downstream waters that contributes significantly to hypoxia in the Gulf of Mexico. A highly respected Nutrient Science Advisory Panel evaluated numeric nutrient criteria to protect the designated uses of lakes and reservoirs in Iowa that are in the same Eco regions (Corn Belt and Western Great Plains) as lakes in much of Illinois. Based upon sound analysis of Iowa lake data and considerable other supporting information, the Panel reached consensus that during the summer recreation season, mean TN concentrations should not exceed 900 µg/L. Like Iowa lakes and reservoirs, many lakes and reservoirs in Illinois are impacted by nutrient pollution. USEPA (2000a, b) recommended that lakes in Eco regions #54 and #72, which include most of Illinois, should not exceed TN concentrations of 620 µg/L and 614 µg/L, respectively. There is ample support for using these numbers to identify where TN concentrations are a potential cause of impairment.

Response:

Total phosphorus is the primary nutrient of concern in Illinois inland lakes. The General Use Standard (35 Ill. Adm. Code 302.205) for total phosphorus is 0.05 mg/L. The 0.05 mg/L standard is used to list total phosphorus as a potential cause of impairment in lakes greater than 20 acres where *aquatic life* or *aesthetic quality* uses are impaired. We consider this protective of *aquatic life*, *aesthetic quality*, and *recreational* uses, and defensible since the standard is contained in Illinois rule.

Illinois does not have a numeric water quality standard for total nitrogen. However, we do list total ammonia nitrogen as a potential cause of *aquatic life* use impairment in Illinois inland lakes when the General Use Standard (35 Ill. Adm. Code 302.212) is exceeded. Nitrate Nitrogen is listed as a potential cause of *public and food processing water supply* use impairment in lakes that serve as a source of drinking water and where the Public and Food Processing Water Supply Standard (35 Ill. Adm. Code 302.304) is exceeded.

27. Illinois EPA has listed just two rivers in Illinois (the Vermilion and the Salt Fork of the Vermilion) as impaired by nitrate and is assessing only for attainment of the public and food processing water supplies use. Nitrate and other forms of nitrogen do in fact cause impairment to aquatic life. The Agency should assess the impact of various forms of nitrogen on aquatic life uses in Illinois.

Response:

The commenter is correct that the Vermilion and Salt Fork of the Vermilion Rivers are impaired for public and food processing water supply use, with nitrate identified as a potential cause of impairment due to exceedence of the 10 mg/L nitrate public and food processing water supply standard. Nitrate concentrations are not used to identify potential cause of impairment to aquatic life use due to the reasons provided in response to comment #25.

28. Elevated levels of ammonia and nitrite are well known to be toxic to aquatic life, and ammonia is regarded as a preferred source of N for many algae. In recognition of the ammonia toxicity problem, USEPA has drafted an update of its aquatic life ambient water criteria for ammonia, mainly aimed at protecting sensitive freshwater mussels. Illinois EPA's water quality standard for general use sets a maximum concentration for total ammonia nitrogen at 15 mg/L. That level is ~100-fold higher than needed to promote nutrient over-enriched conditions and excessive algal blooms, and to cause toxicity to sensitive aquatic life. Illinois EPA should compile and analyze the available databases for both total ammonia and nitrite aquatic life toxicity. Illinois EPA should also further investigate the presence and levels of nitrite and total ammonia in Illinois waters, as well as currently available data on nitrite and ammonia toxicity. From this analysis, Illinois EPA should assess whether sufficient data are available for criteria derivation to prevent toxic impacts of these components of nitrogen. If not, additional data needs should be specified.

Response:

USEPA published the final version of its Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater in August 2013. Illinois EPA understands that it must address these criteria in our next Triennial Review of water quality standards. Once the Illinois Pollution Control Board adopts new water quality standards for ammonia, Illinois EPA will assess waters based on the updated standards. Until then, the existing water quality standards for ammonia must be used to evaluate Illinois waters. Ammonia has long been part of ambient water quality monitoring in Illinois. Therefore, an extensive database exists for concentrations of ammonia in Illinois. Nitrite is currently measured in Illinois

waters along with nitrate such that a combined result is given (nitrite plus nitrate as N). Nitrite is quickly converted to nitrate by bacteria in the water environment. Therefore, because the exact concentration of nitrite is not known and because nitrite does not persist in the environment, criteria have not been developed for nitrite at this time.

29. Mercury should be listed as a potential cause of impairment where the human health criterion is exceeded. Illinois EPA's consideration of mercury pollution appears to have been modified in ways that will result in waters not being listed that are in fact in violation of the Illinois human health standard (0.012 µg/L). We believe that Illinois EPA is only listing waters as impaired by mercury if there is fish tissue data to support such a listing (Integrated Report, p. 42) yet fish tissue data is available for only 3.5% of Illinois stream miles (Integrated Report, p. 2). Mercury should be listed as an impairment for every water body and segment where the human health criteria of 0.012 µg/L is exceeded as well as those waters where fish tissue data showing impairment are available. Further, Illinois EPA should require entities known to discharge mercury (e.g., coal-fired power plants, coal mines) to better monitor both their effluent and ambient mercury levels below their discharges.

Response:

The commenter is correct that Illinois EPA is only listing waters as impaired by mercury if there is fish tissue data to support such a listing. The small amounts of low level mercury data collected in special studies (and analyzed at contract laboratories) does not lend itself to assessing compliance to the human health water quality standard. This standard is evaluated based on an annual average of data consisting of a minimum of eight samples. There are few if any streams or lakes that have more than one low level mercury sample collected by Illinois EPA.

The Agency has been adding mercury monitoring requirement in all coal fired power plants and coal mine NPDES Permits upon permit renewals (since method 1631E was adopted). The monitoring requirement has been placed on all ash pond and coal pile runoff related outfalls. In addition, for coal mine permits the monitoring requirement is applied to outfalls which receive runoff from raw and clean coal stockpiles, fine or coarse coal refuse, coal combustion waste disposal areas and outfalls that receive pumpage from the surface mining pit or underground mining operations.

30. Many Illinois rivers and streams that are not currently listed as impaired by phosphorus or algae should be. The full extent of such missing listings is unclear but, with this letter, we request that the agency include at least the Lower Des Plaines River (from Brandon Road Lock and Dam to the confluence with the Kankakee), the North Shore Channel (above and below the Northside WWTP) and the Illinois River on the 2014 303(d) list of impaired waters. We have evidence that the Lower Des Plaines River between the Brandon Road Lock and Dam and the confluence with the Kankakee River (ILG-24 and ILG-12) is impaired for aesthetic use due to algal growth of other than natural origin. Please see the photographs of the segment taken in July 2011 and on August 6, 2013. In addition, the entire North Shore Channel's aesthetic use is impaired due to algal growth of other than natural origin between the MWRD Northside Sewage Treatment Plant outfall and the confluence with the North Branch of the Chicago River (IL HCCA-04). Please see the attached photographs of the stream taken on August 7, 2013. Finally, we have evidence that the Illinois River (IL D-10) is also impaired for aesthetic use due to unnatural algal blooms. Traci Barkley, PRN Water Resources Scientist, has seen algal blooms in this segment of the Illinois River. Gary Mechanic of Aurora, Illinois has seen quite a bit of algae and other vegetative material while paddling on the Illinois River near Morris. Dr. Cindy Skrukud of the Sierra Club has observed algal blooms and mats of green vegetation in the Illinois River above the Dresden Island Dam.

Response:

Illinois EPA interprets that the photographs and information alone are insufficient evidence to conclude that the streams mentioned are not attaining Aesthetic Quality use. Illinois EPA currently assesses attainment of this use in streams by applying the narrative standard at 35 Ill. Adm. Code 302.203. The assessment involves comparing the observed conditions in the stream to the language in the standard. This comparison is performed typically during Intensive Basin Surveys by Illinois EPA biologists who are experienced with the natural conditions and expectations for the streams in each basin. Illinois EPA believes that this approach is a reasonable application of the existing narrative standard. We are open to considering ways to make the application of this standard more definitive and less subjective, while still recognizing the reasonableness of maintaining such farsighted narrative protection. For example, with the help of various stakeholders, we have been evaluating a potential revision to 35 Ill. Adm. Code 302.203 that more objectively describes conditions under which the narrative standard is not met due to unnatural growth of algae or plants as reflected in dissolved-oxygen conditions within a 24-hour period.

31. On July 29, 2013, Illinois Environmental Regulatory Group (IERG) was present for the Agency's proposed water quality standards hearing *In the Matter of : Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and the Lower Des Plaines River: Proposed 35 Ill. Adm. Code Parts 301, 302, 303, 304, R00-9 (D) ("CAWS")*. IERG's understanding of Scott Twait's testimony, on behalf of the Agency, is that the Agency refers to the mercury water quality standard for permitting purposes, but looks at the fish tissue data it has available for a water segment to make impairment determinations. If a water body is deemed impaired, no mixing zone would be available for permitted discharges along that water segment regardless of whether the water body achieves the human health water quality standard for mercury. IERG is concerned that this conclusion may be contrary to the Illinois Pollution Control Board's rules at 35 Ill. Admin Code 302.102. Listing waters as impaired without ambient water quality data is inappropriate with the scheme for regulating water quality as set forth in the Board's regulations.

Response:

With mercury, there are two routes by which waters may be said to be impaired and both speak to the protection of human health through fish consumption. The water in the river or lake must not exceed the numeric human health water quality standard, and the fish in the river or lake must not exceed fish flesh advisory values. Site-specific factors dictate how much mercury entering the system partitions to fish flesh as opposed to other repositories such as sediment and water column. Therefore, the level of accumulation in fish is dictated to some degree by the specific nature of the water body. It may never be possible to set a water concentration that protects fish in all types of water body conditions, yet is not overprotective in other situations. However, water concentrations may certainly serve as a protective ceiling for what mercury may be present.

It is obvious that fish populations not meeting flesh contamination guidelines, and therefore deemed unsafe for humans to consume, represent an impaired use in the water body. Likewise, a water concentration thought to be the approximate threshold of causing unacceptable fish flesh contamination also represents an impaired use when exceeded. Illinois EPA is confident that both routes are valid expressions of use impairment. At present, the water concentration aspect is difficult for Illinois EPA to implement as we do not have the laboratory capability to measure low level mercury and sufficient budget does not exist to have the samples analyzed elsewhere. Measuring mercury fish body burden concentration is possible for the Illinois EPA and directly addresses the contamination problem.

Glossary – Abbreviations & Acronyms

Agency	Illinois Environmental Protection Agency
BOW	Bureau of Water in the Illinois EPA
CAWS	Chicago Area Waterway System
CWA	Clean Water Act
CWS	Community Water Supply
CFR	Code of Federal Regulations (U. S. EPA)
DO	Dissolved Oxygen
GM	Geometric Mean
Illinois EPA	Illinois Environmental Protection Agency
ILCS	Illinois Compiled Statutes
Ill. Adm. Code	Illinois Administrative Code (IAC)
IAWA	Illinois Association of Wastewater Agencies
IDPH	Illinois Department of Public Health
IERG	Illinois Environmental Regulatory Group
IFB	Illinois Farm Bureau
IPCB	Illinois Pollution Control Board
JCAR	Joint Committee on Administrative Rules
List	303(d) List of Impaired Waters
mg/kg	milligram per kilogram
mg/L	Milligrams per liter
MWRD	Metropolitan Water District of Greater Chicago
N	Nitrogen
NRCS	Natural Resource Conservation Service
NPS	Nonpoint Source Pollution
PRN	Prairie Rivers Network
Public Hearing Record	Period of time before, and after the public hearing for collection of written testimony including the hearing transcript.
QA/QC	Quality Assurance/Quality Control plan
Responsiveness Summary	A document prepared by the IEPA that responds to relevant comments, questions and issues received during the public hearing record.
Report	Integrated Report
RWQC	Recreational Water Quality Criteria
SSM	Single Sample Maximum
STV	Statistical Threshold Value
SWA	Source Water Assessment
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
TN	Total Nitrogen
TP	Total Phosphorus
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey

WQS	Water Quality Standard
WWTP	Waste Water Treatment Plant
µg/L	micrograms per Liter
303(d)	Section of federal Clean Water Act
305(b)	Section of federal Clean Water Act
314	Section of federal Clean Water Act

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 registered at the hearing, to all who sent in written comments, and to anyone who requested a copy. Additional copies of this responsiveness summary are available from Shirley Durr, IEPA, Watershed Section, e-mail Shirley.Durr@illinois.gov, phone 217-782-3362.

Bureau of Water Staff Who Can Answer Your Questions

Questions Concerning the 2014 Integrated Report..... Amy Walkenbach.....217-782-3362
Legal procedures..... Sara Terranova..... 217-782-5544
Hearing of July 9, 2013..... Dean Studer..... 217-558-8280

The public hearing notice, the hearing transcript and this responsiveness summary are available on the Illinois web site: <http://www.epa.state.il.us/public-notices/2013/general-notices.html#impaired-waters-report>.

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