APPENDIX C-5

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

BUREAU OF WATER

WATERSHED MANAGEMENT SECTION

NEW LONG-TERM VISION FOR ASSESSMENT, RESTORATION, AND PROTECTION UNDER THE CWA SECTION 303(d) PROGRAM (2022-2032) -VISION (Vision 2.0)

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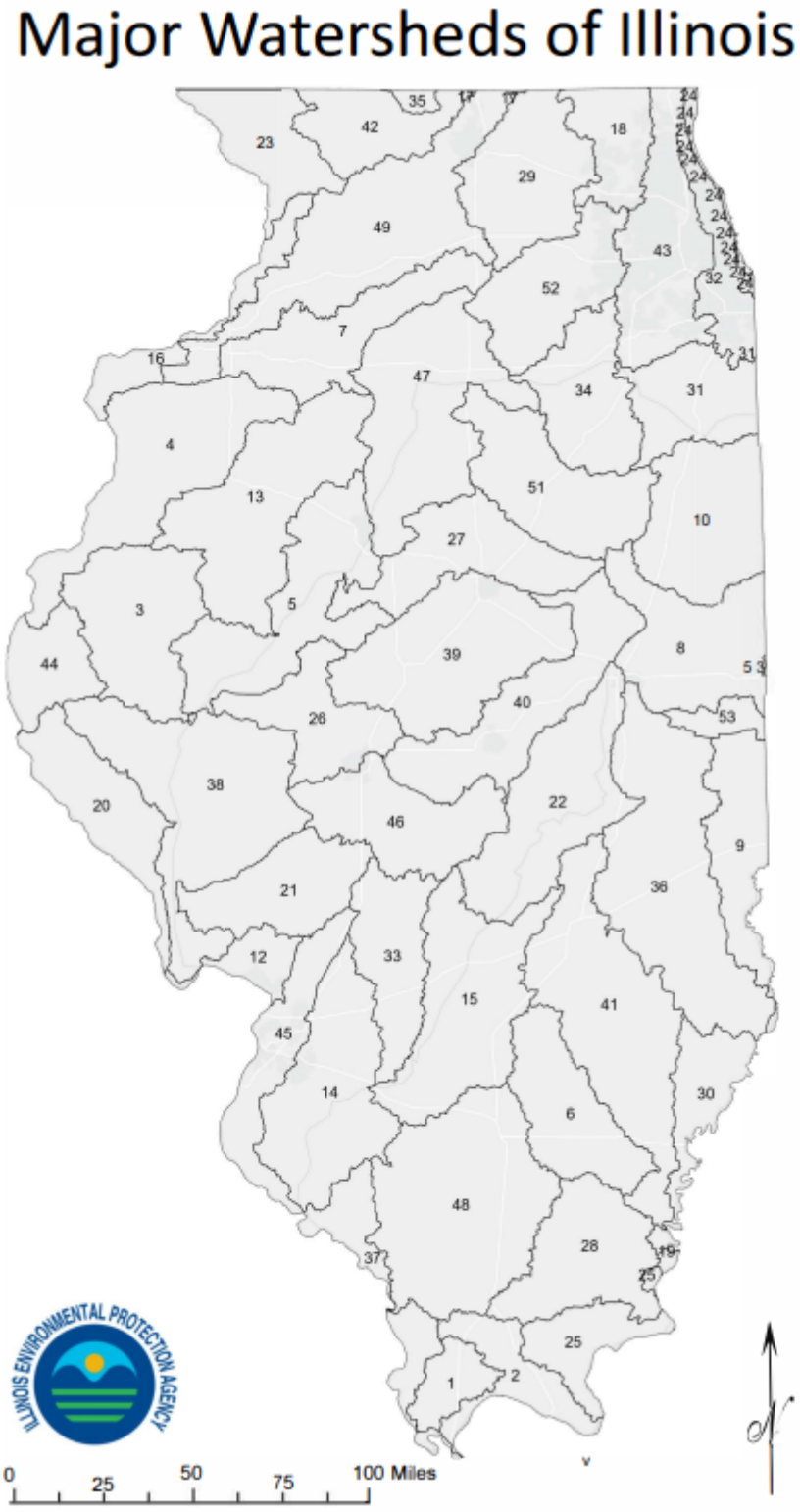
Acronyms and Abbreviations

ACWA	Association of Clean Water Administrators
ARP	Alternative Restoration Plan
CWA	Clean Water Act
DO	dissolved oxygen
ELI	Environmental Law Institute
FRSG	Fox River Study Group
HUC	hydrologic unit code
IEPA	Illinois Environmental Protection Agency
LA	load allocation
LRS	load reduction strategy
MOS	margin of safety
NLRS	Nutrient Loss Reduction Strategy
NPDES	National Pollutant Discharge Elimination System
PWS	Public and Food Processing Water Supply
RC	reserve capacity
STP	sewage treatment plant
TMDL	total maximum daily load
TP	total phosphorus
USEPA	United States Environmental Protection Agency
WBP	watershed based plan
WLA	waste load allocation
WRC	water reclamation center
WRP	water reclamation plant

Units of Measure

MGD	million gallons per day
m/L	milligram per liter

Figure 1. Major Watersheds of Illinois



Number	Name
1	Cache
2	Lower Ohio
3	La Moine
4	Flint-Henderson
5	Lower Illinois-Lake Chautauqua
6	Skillet
7	Green
8	Vermilion
9	Middle Wabash-Busseron
10	Iroquois
11	Pike-Root
12	Peruque-Piasa
13	Spoon
14	Lower Kaskaskia
15	Middle Kaskaskia
16	Copperas-Duck
17	Middle Rock
18	Upper Fox
19	Highland-Pigeon
20	The Sny
21	Macoupin
22	Upper Kaskaskia
23	Apple-Plum
24	Lake Michigan
25	Lower Ohio-Bay
26	Lower Sangamon
27	Mackinaw
28	Saline
29	Kishwaukee
30	Lower Wabash
31	Kankakee
32	Chicago
33	Shoal
34	Upper Illinois
35	Sugar
36	Embarras
37	Upper Mississippi-Cape Girardeau
38	Lower Illinois
39	Salt
40	Upper Sangamon
41	Little Wabash
42	Pecatonica
43	Des Plaines
44	Bear-Wyaconda
45	Cahokia-Joachim
46	South Fork Sangamon
47	Lower Illinois-Senachwine Lake
48	Big Muddy
49	Lower Rock
50	Little Calumet-Galien
51	Vermilion
52	Lower Fox
53	Middle Wabash-Little Vermilion

Executive Summary

The 2022-2032 Vision for the Clean Water Act Section 303(d) Program ("2022 Vision") is a continuation of Vison 2013-2022 (Vision 1.0) *the Long-Term Vision for Assessment, Restoration, and Protection under the CWA Section 303(d) Program* framework developed by United States Environmental Protection Agency's (USEPA) Office of Water in cooperation with the Association of Clean Water Administrators (ACWA), and the Environmental Law Institute (ELI) in 2013.

As part of Vision 1.0, the Illinois Environmental Protection Agency (Illinois EPA), with support from USEPA Region 5 (R5), developed the Short-Term and Long-Term Goals to address impaired waters under the Clean Water Act (CWA) Section 303(d) program. Total Maximum Daily Loads (TMDLs) and Implementation Plans for meeting water quality standards and their designated uses were developed (refer to Attachment-1). Illinois EPA is responsible for carrying out the mandates of the CWA for the state of Illinois.

Illinois EPA met its commitments made in Vision 1.0 and nearly 95% of the projects identified for TMDL development or other Alternative Approaches have been completed. However, to complete the remaining projects identified in Vision 1.0, per USEPA's guidance States and Territories have a two year (2022-2024) transitional period - Bridge Metric to complete the projects. In addition to working on Vision 1.0 projects, Illinois EPA also started developing eight TMDL watershed projects from the 2016 Integrated Water Quality Report (IR) Cycle. The 2016 IR Cycle TMDL Watershed Projects (Bridge Metric Projects): four TMDLs and four Watershed Protection Plans have been completed.

Building on experience gained from Vision 1.0, Illinois EPA will continue the prioritization framework for Vision 2.0 according to the 303(d)-list ranking (High, Medium, and Low) of impaired waterbodies and for targeting TMDL development. The Short-Term Goal is comprised of Bridge Metric projects that are currently placed in The Assessment and Total Maximum Daily Load Tracking and Implementation System (*ATTAINS*). The Long-Term Goal projects have been identified as, "High Priority", for TMDL development in the 2020/2022 Illinois Integrated Water Quality Report. The Vision will be updated every two years during IR Cycles to show progress of TMDL development or alternative approaches.

The Vision 2.0 Prioritization Framework has been issued for public notice as part of the Draft 2024 IR for review and comments. Once public comments are addressed, Vision 2.0 will be submitted to USEPA as part of the Draft 2024 IR.

Vision 2.0

The purpose of this document is to share the success of Vision 1.0-New Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program, focus on completing Vision 1.0 commitments, and move unfinished projects to the Bridge Metric to be completed by September 30, 2024. The next step is developing the Vision 2.0 prioritization framework as outlined in USEPA's guidelines document: the 2022 - 2032 Vision for the Clean Water Act Section 303(d) Program. The framework details are discussed below.

1. Vision Statement

The Clean Water Act Section 303(d) program strives to strategically plan and prioritize activities, engage partners, and analyze and utilize data to develop water quality assessments, plans, and implementation approaches to restore and protect the nation's aquatic resources.

a. Planning and Prioritization Goal

States, territories, and tribes develop a holistic strategy for implementation of Vision Goals, systematically prioritize waters or watersheds for TMDL and other plan development (restoration and/or protection), and report on the progress towards development of plans for priority waters.

b. Restoration Goal

States, territories, and tribes design TMDLs and other restoration plans to attain and maintain water quality standards, facilitate effective implementation, and drive restoration of impaired waters.

c. Protection Goal

In addition to recognizing the protection benefits that TMDLs and other restoration plans can provide, states, territories, and tribes may develop protection plans to prevent impairments and improve water quality, as part of a holistic watershed approach.

d. Data and Analysis Goal

The CWA Section 303(d) program coordinates with other government and non-governmental stakeholders to facilitate data production and sharing, while effectively analyzing data and information necessary to fulfill its multiple functions.

e. Partnerships Goal

The CWA Section 303(d) program meaningfully communicates and collaborates with other government programs and non-governmental stakeholders to restore and protect water quality effectively and sustainably.

f. Focus Areas

Provide four cross-cutting themes of national, regional, and local importance, consistent with national EPA priorities to consider in CWA Section 303(d) program implementation:

- *Environment Justice*
- *Climate Change*
- *Tribal Water Quality and Program Development*
- *Program Capacity Building*

The TMDL Development Process in Illinois

Developing TMDLs in a watershed begins with the collection of data including water quality, point source discharge, precipitation, soils, geology, topography, and land use (construction, agriculture, mining, etc.) within that specific watershed. All impaired waterbody segments within the watershed are identified, along with the potential pollutants causing the impairments.

Illinois EPA will continue prioritization of waterbodies for TMDL development based on the current ranking as outlined below. In consultation with USEPA, the Illinois EPA has identified priority watersheds from the 2020/2022 Illinois Water Quality Integrated Report. The Vision will be updated every two years to show progress of TMDL development or Alternative Restoration Plans (ARPS) that have been developed as part of Short-Term and Long-Term Vision goals. The current impairment prioritization is based on the "Designated Uses" and Water Quality Standards as outlined in the 2022 Illinois Integrated Water Quality Report and Section 303(d) List.

Impairments for Public and Food Processing Water Supply are ranked as High priority for TMDL development, followed by Primary Contact as Medium priority. All other watersheds are ranked by number of impairments within a 10-Digit Hydrologic Unit Code (HUC) watershed. The Medium priority watersheds are ranked from highest to lowest using the number of impairments having a numeric water quality standard for TMDL development. The designated use for Fish Consumption is ranked as the lowest priority and the Illinois EPA plans to develop statewide mercury and polychlorinated biphenyl's (PCBs) TMDLs at some point in the future. In summary, the TMDL development process is as follows:

- Watersheds are ranked High, Medium, and Low priority
- High priority watersheds are scheduled for early TMDL development
- Public and Food Processing Water Supply Use is ranked as High priority
- Impairments related to Primary Contact Use are Medium priority
- Total number of impaired water bodies per watershed

Illinois EPA considers the interest level of watershed groups and stakeholders in selected watersheds to schedule TMDL development for impaired waterbodies.

The TMDL development process determines the maximum amount of a given pollutant that a waterbody can receive without violating water quality standards. Illinois EPA's Watershed Management Section and the Surface Water Section work together to develop the Integrated Water Quality Report, that has been the basis for the 303(d)-list and TMDL development in Illinois. TMDL projects set pollution reduction goals necessary to improve and ultimately meet water quality standards and ensure attainment of designated uses.
Illinois EPA typically uses a three-stage approach to TMDL development for a watershed. The stages are:

- Stage 1 – Watershed Characterization, Data Analysis, Methodology Selection
- Stage 2 – Data Collection (optional)
- Stage 3 – Model Calibration, TMDL Scenarios, Implementation Plan

A watershed approach is used to determine the pollutant load that can be allowed in a waterbody (lake, stream, or river). The TMDL considers all potential sources of pollutants, both from point and nonpoint sources within the watershed. The TMDL also takes into account a margin of safety, which reflects scientific uncertainty and a reserve capacity for future growth. The effects of seasonal variation are also included in the study.

The TMDL is a load capacity calculation using the following equation:

TMDL = WLA + LA + MOS + [RC]

Where: WLA= Waste Load Allocation (point sources)
LA= Load Allocation (nonpoint sources)
MOS= Margin of Safety
RC = Reserve Capacity

a. **TMDL Implementation Plan**

Once a TMDL is approved by USEPA, Illinois EPA's Permit and the Watershed Management Section (Nonpoint Source Program) start working on TMDL Implementation Plans to address the impairments as follows:

- Waste Load Allocation: the point source perspective is addressed through the National Pollutant Discharge Elimination System (NPDES) Permit Program
- Load Allocation: the nonpoint source contribution is addressed by the Section 319 Nonpoint Source Program through meeting the nine-minimum elements of a Watershed Based Plan (WBP)

Watershed based planning has increased stakeholder participation due to local efforts and site-specific implementation planning that occurs through the watershed planning process. The WBP will be used as an "Alternative to TMDL", as planning efforts increase the likelihood of implementation activities of best management practices. This approach is encouraged to remove waters from the 303(d) list prior to TMDLs being developed, thus reducing the cost associated with TMDL development.

The Vision 2.0 Goals are as follows:

1. TMDL Development - Short-Term Vision Goals - Bridge Metrics (2022-2024)
2. Alternative Restoration Plans (ARPs)
3. TMDL Development – Long-Term Vision Goals (2024-2032)

b. Short-Term Vision Goals - Bridge Metrics (2022 - 2024)

The TMDL development prioritization framework (priority ranking) was based on the designated uses to address impaired waterbody segments presented below:

1. Public and Food Processing Water Supply (PWS)
2. Primary Contact Recreation (swimming)
3. All other uses prioritized by number of impairments

As part of the Short-Term Vision Goal (Bridge Metrics), Illinois EPA is developing TMDL watershed projects identified in Table 1. These projects are based on the 2016 and 2018 cycles of the Illinois Integrated Report.

Table 1. Short-Term Vision Goals – Bridge Metrics (2022 – 2024) – TMDL Watersheds

2016 Cycle TMDL Watersheds	***2018 Cycle TMDL Watersheds***
Upper Kaskaskia River/Lake Fork	Kickapoo Creek
Middle Kaskaskia River/Carlyle Lake	Big Creek
La Moine River-East Fork (II)	Big Ditch
East Fork Kaskaskia River/Farina Lake	Saline Branch
Crooked Creek/Lost Creek	Little Wabash River/Green Creek
Shoal Creek –II	Salt Creek
Lower Kaskaskia River/Doza Creek	Rock River/Pierce Lake
Mackinaw River	Kyte River

Bridge Metrics projects have addressed the impairments for Atrazine, Simazine, Terbufos, Chloride, Dissolved Oxygen (DO), Fecal Coliform, pH, Nitrogen Nitrate, Total Phosphorus (in lakes), and metals (Iron and Manganese) to meet applicable water quality standards and attainment of designated uses in watersheds (presented in Figure 2 and Figure 3, listed in Table 2).

Figure 2. Total Maximum Daily Load (TMDL) Vision 2.0: 2016 IR Cycle Watersheds & Impaired Streams/Lakes

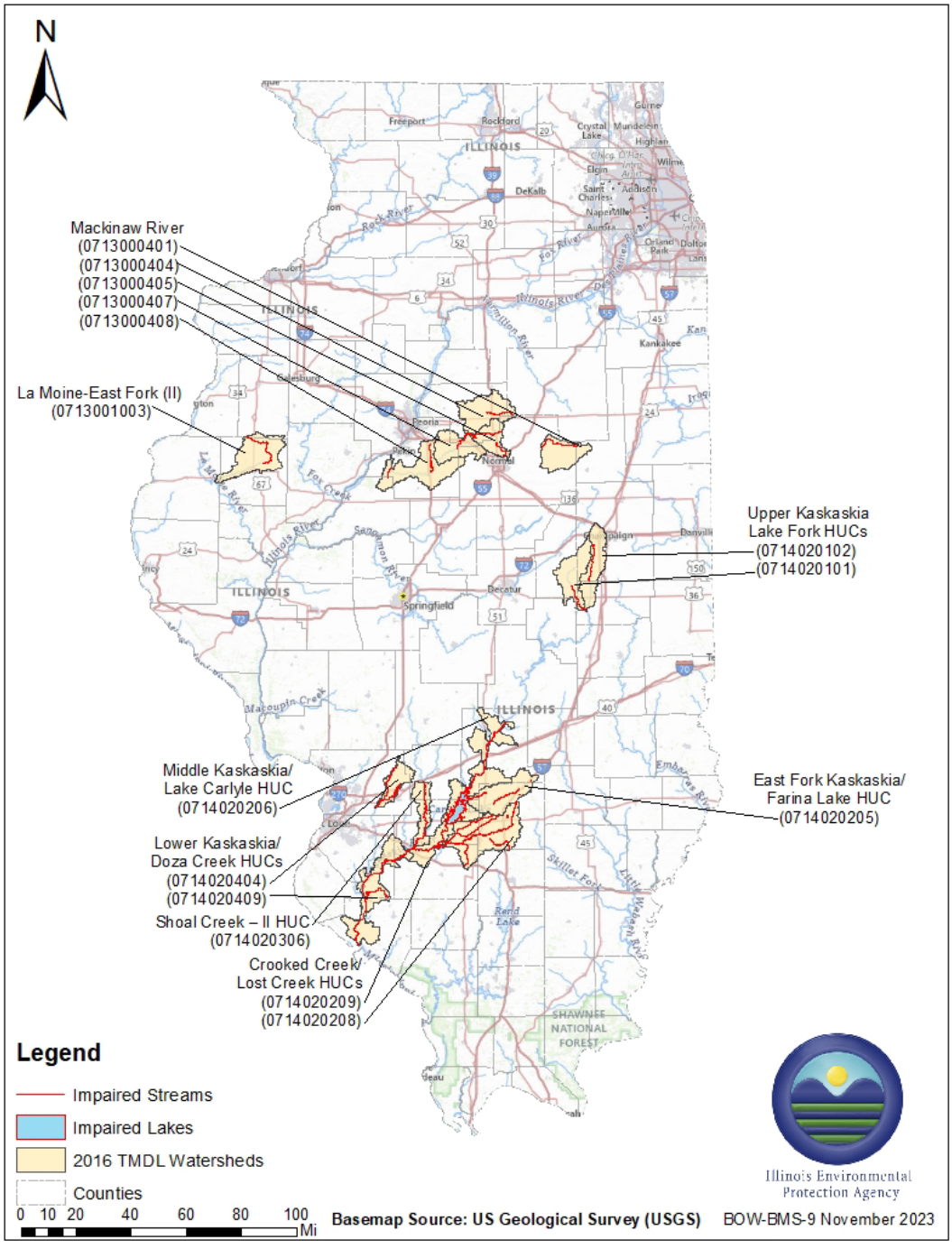


Figure 3. Total Maximum Daily Load (TMDL) Vision 2.0: 2018 IR Cycle Watersheds & Impaired Streams/Lakes

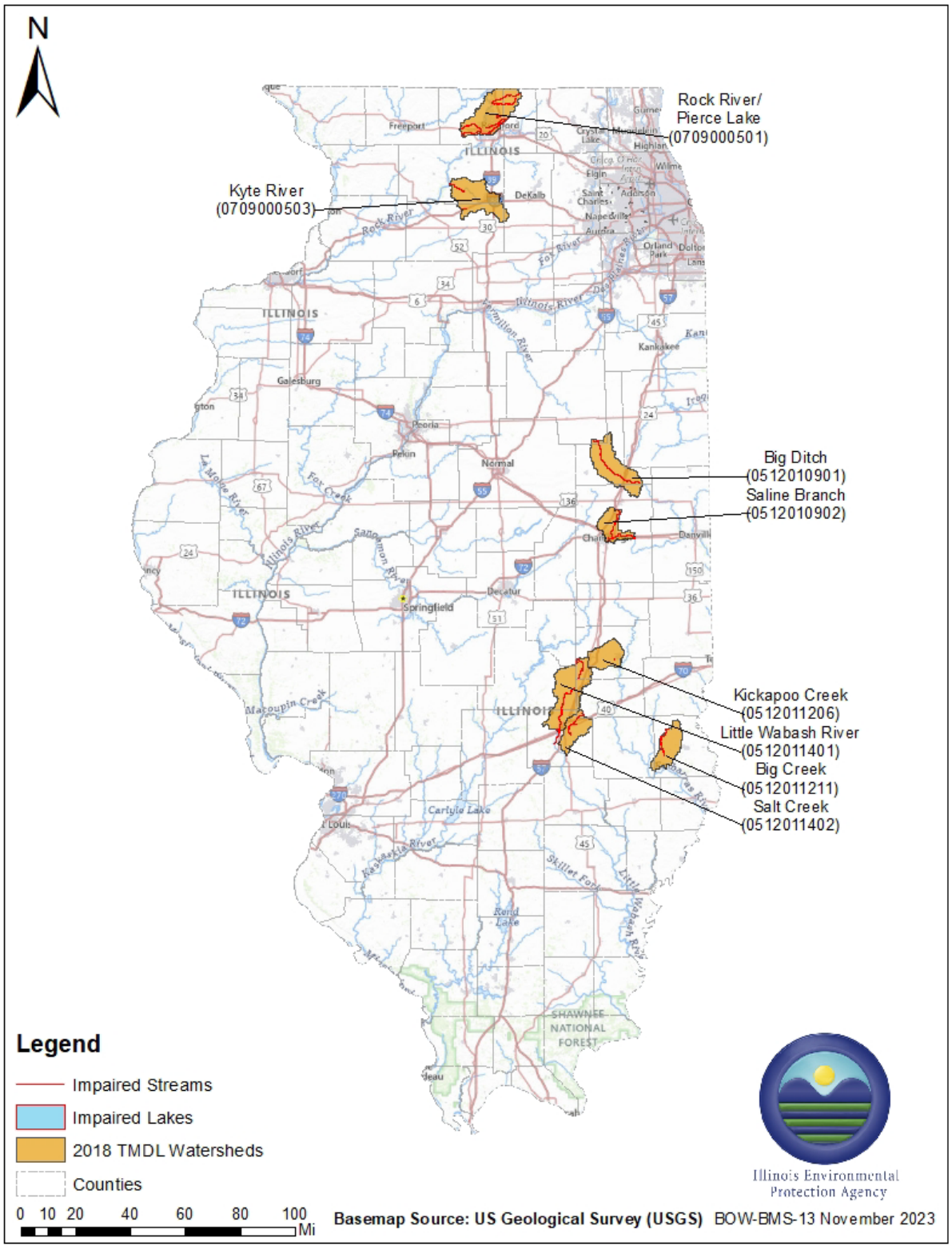


Table 2. Vision 2.0 Bridge Metrics TMDL Watersheds and Parameters (September 2024)

Watershed No.	TMDL Watershed	Hydrologic Unit Code (HUC)	Watershed Area (Acres)	AUID 305B/303(d) List	Water Segment Name	TMDL Parameter	Designated Use
1	Upper Kaskaskia River/ Lake Fork	0714020101	109,489	IL_OW-01	Lake Fork	**Chloride,** Dissolved Oxygen	Aquatic Life Use
1	Upper Kaskaskia River/ Lake Fork	0714020101	109,489	IL_OW-02	Lake Fork	**Chloride,** Dissolved Oxygen	Aquatic Life Use
1	Upper Kaskaskia River/ Lake Fork	0714020102	103,431	IL_O-35	Kaskaskia River	Dissolved Oxygen, pH	Aquatic Life Use
2	Middle Kaskaskia River/ Carlyle Lake	0714020206	227,325	IL_ROA	Carlyle Lake	**Phosphorus (Total)**	Aesthetic Quality
2	Middle Kaskaskia/ Carlyle Lake	0714020206	227,325	IL_O-08	Kaskaskia River	Atrazine	Public and Food Processing Water Supply
2	Middle Kaskaskia/ Carlyle Lake	0714020206	227,325	IL_O-08	Kaskaskia River	**Fecal Coliform**	Primary Contact Recreation
2	Middle Kaskaskia/ Carlyle Lake	0714020206	227,325	IL_O-33	Kaskaskia River	Dissolved Oxygen,	Aquatic Life Use
2	Middle Kaskaskia/ Carlyle Lake	0714020206	227,325	IL_O-38	Kaskaskia River	**Fecal Coliform**	Primary Contact Recreation
3	La Moine River-East Fork (II)	0713001003	143,180	IL_DGL-05	East Fork La Moine River	Dissolved Oxygen	Aquatic Life Use
3	La Moine River-East Fork (II)	0713001003	143,180	IL_DGL-08	East Fork La Moine River	Dissolved Oxygen	Aquatic Life Use

4	East Fork Kaskaskia River/ Farina Lake	0714020205	132,447	IL_OK-02	East Fork Kaskaskia River	Dissolved Oxygen	Aquatic Life Use
4	East Fork Kaskaskia River/ Farina Lake	0714020205	132,447	IL_SOB	Farina Lake	Terbufos, Copper, Dissolved Oxygen, pH	Aquatic Life Use
4	East Fork Kaskaskia River/ Farina Lake	0714020205	132,447	IL_ROZY	Kinmundy Old Lake	Phosphorus (Total)	Aesthetic Quality
4	East Fork Kaskaskia River/ Farina Lake	0714020205	132,447	IL_OKA-01	North Fork Kaskaskia River	Terbufos, Atrazine	Public and Food Processing Water Supply
5	Crooked Creek/ Lost Creek	0714020208	224,660	IL_OJ-07	Crooked Creek	Dissolved Oxygen	Aquatic Life Use
5	Crooked Creek/ Lost Creek	0714020208	224,660	IL_OJ-08	Crooked Creek	Iron	Aquatic Life Use
5	Crooked Creek/ Lost Creek	0714020208	224,660	IL_OJ-11	Crooked Creek	Dissolved Oxygen	Aquatic Life Use
5	Crooked Creek/ Lost Creek	0714020208	224,660	IL_OJC-01	Grand Point Creek	Dissolved Oxygen	Aquatic Life Use
5	Crooked Creek/ Lost Creek	0714020208	224,660	IL_OJB-04	Lost Creek	Dissolved Oxygen	Aquatic Life Use
5	Crooked Creek/ Lost Creek	0714020208	224,660	IL_OJBA	Prairie Creek	Dissolved Oxygen	Aquatic Life Use
5	Crooked Creek/ Lost Creek	0714020208	224,660	IL_OJF	Raccoon Creek	Dissolved Oxygen	Aquatic Life Use
5	Crooked Creek/ Lost Creek	0714020208	224,660	IL_ROR	Salem Lake	pH	Aquatic Life Use

5	Crooked Creek/ Lost Creek	0714020209	63915	IL_O-07	Kaskaskia River	Oxygen, Dissolved	Aquatic Life Use
5	Crooked Creek/ Lost Creek	0714020209	63,915	IL_O-25	Kaskaskia River	Dissolved Oxygen, Simazine	Aquatic Life Use
6	Shoal Creek–II	0714020306	70,640	IL_OI-05	Shoal Creek	Dissolved Oxygen	Aquatic Life Use
6	Shoal Creek–II	0714020306	70,640	IL_OI-08	Shoal Creek	Iron	Public and Food Processing Water Supply
6	Shoal Creek–II	0714020306	70,640	IL_OI-13	Shoal Creek	Dissolved Oxygen	Aquatic Life Use
6	Shoal Creek–II	0714020306	70,640	IL_OI-15	Shoal Creek	Dissolved Oxygen	Aquatic Life Use
7	Lower Kaskaskia River/ Doza Creek	0714020404	62,922	IL_ODL-02	East Fork Silver Creek	Dissolved Oxygen	Aquatic Life Use
7	Lower Kaskaskia River/ Doza Creek	0714020404	62,922	IL_ROZA	Highland Silver Lake	pH	Aquatic Life Use
7	Lower Kaskaskia River/ Doza Creek	0714020404	62,922	IL_ODLA- 01	Sugar Fork	Manganese, Dissolved Oxygen	Aquatic Life Use
7	Lower Kaskaskia River/ Doza Creek	0714020409	187,768	IL_OZD	Doza Creek	Manganese, Dissolved Oxygen	Aquatic Life Use
7	Lower Kaskaskia River/ Doza Creek	0714020409	187,768	IL_O-03	Kaskaskia River	Dissolved Oxygen,	Aquatic Life Use
7	Lower Kaskaskia River/ Doza Creek	0714020409	187,768	IL_O-20	Kaskaskia River	Iron	Public and Food Processing Water Supply

7	Lower Kaskaskia River/ Doza Creek	0714020409	187,768	IL_O-30	Kaskaskia River	Iron	Public and Food Processing Water Supply
7	Lower Kaskaskia River/ Doza Creek	0714020409	187,768	IL_O-97	Kaskaskia River	Dissolved Oxygen	Aquatic Life Use
8	Mackinaw River	0713000405	735,360	IL_DK-17	Mackinaw River	**Nitrogen, Nitrate**	Public and Food Processing Water Supply
8	Mackinaw River	0713000405	735,360	IL_DK-13	Mackinaw River	**Fecal Coliform**	Primary Contact Recreation
9	Kickapoo Creek	0512011206	65,500	IL_BENA-01	Riley Creek	Dissolved Oxygen	Aquatic Life Use
10	Big Creek	0512011401	72,100	IL_BEDB-01	Dogwood Creek	Dissolved Oxygen, Manganese	Aquatic Life Use
11	Big Ditch	0512010901	128,000	IL_BPKP-01	Big Four Ditch	Dissolved Oxygen, Manganese	Aquatic Life Use
12	Saline Branch	0512010902	57,064	IL_BPJCA	Boneyard Creek	Copper	Aquatic Life Use
13	Little Wabash River/ Green Creek	0512011401	153,734	IL_C-24	Little Wabash River	Dissolved Oxygen	Aquatic Life Use
13	Little Wabash River/ Green Creek	0512011401	153,734	IL_RCG	Paradise (Coles)	Dissolved Oxygen	Aquatic Life Use
14	Salt Creek II	0512011402	60,900	IL_CPD-01	Second Salt Creek	Manganese	Aquatic Life Use
15	Rock River/ Pierce Lake	0709000501	149,313	IL_PR-01	Keith Creek	**Fecal Coliform**	Primary Contact Recreation

15	Rock River/ Pierce Lake	0709000501	149,313	IL_PR-99	Keith Creek	**Fecal Coliform**	Aquatic Life, Primary Contact Recreation
15	Rock River/ Pierce Lake	0709000501	149,313	IL_PSA	South Fork Kent Creek	**Fecal Coliform**	Primary Contact Recreation
15	Rock River/ Pierce Lake	0709000501	149,313	IL_PSB-01	North Fork Kent Creek	**Fecal Coliform**	Primary Contact Recreation
15	Rock River/ Pierce Lake	0709000501	149,313	IL_PT	South Kinnikinnick Creek	**Fecal Coliform**	Primary Contact Recreation
15	Rock River/ Pierce Lake	0709000501	149,313	IL_PU	North Kinnikinnick Creek	**Fecal Coliform**	Primary Contact Recreation
15	Rock River/ Pierce Lake	0709000501	149,313	IL_PZZG	Spring Creek-North	**Fecal Coliform**	Primary Contact Recreation
15	Rock River/ Pierce Lake	0709000501	149,313	IL_RPC	Pierce Lake	**Phosphorus (Total)**	Aesthetic Quality
16	Kyte River	0709000503	125,649	IL_PL-03	Kyte River	**Fecal Coliform**	Primary Contact Recreation
16	Kyte River	0709000503	125,649	IL_PLB-C1	Beach Creek	Dissolved Oxygen	Aquatic Life

A TMDL has been developed or is in progress for **bold** parameters.

2. Alternative Restoration Plans (ARPs)

a. The Fox River Study Group (FRSG)

The Fox River Study Group has selected an Alternative Restoration Plan (ARP) instead of developing a TMDL. The ARP known as, the Fox River Implementation Plan (FRIP) will address aquatic life and water quality impairments in the Fox River, particularly related to dissolved oxygen (DO), algae, and total phosphorus (TP) impairments in the Fox River Watershed. The first FRIP report was completed in December 2015 and submitted to USEPA for review in December 2016. USEPA recommended additional DO modeling. The second study was completed in December 2022. The FRIP stated all major wastewater dischargers in the watershed are meeting the 1.0 mg/L TP effluent limitation in their current NPDES permit. Future treatment plant upgrades to reduce TP and meet 0.5 mg/L is expected to be complete by 2030. The NPDES Permit(s) - FRIP Special Condition language for those major facilities (primarily publicly owned treatment works [(POTWs]) in the study area will be updated during the next NPDES permit reissuance process.

b. Watershed Protection Plan

For some waterbody segments, the data summaries compiled as part of the Stage 1 and Stage 2 TMDL development process indicated the waterbody segments are no longer impaired for atrazine, simazine, and metals (iron and manganese) and these waterbodies do not require TMDL development. In other cases, waterbody segments remain impaired due to low dissolved oxygen resulting due to low flow (non-pollutant), and in this case a TMDL could not be developed. Therefore, in these cases "Watershed Protection Plans" have been developed as part of finalizing the Stage 3 TMDL development process. These Plans guide implementation of recommended practices to protect waterbodies from future impairments, continue meeting their designated uses, and water quality standards.

Watershed protection plans include monitoring recommendations and an adaptive management approach to ensure that implemented practices remain effective during their design life. These practices include structural and non-structural best management practices (BMPs). The activities recommended in the protection plans not only help to protect waters from impairment but can also result in a cleaner, healthier watershed. For example, to maintain acceptable levels of DO in the watershed, several BMPs can be implemented. Maintaining and protecting current conditions is accomplished by prioritizing BMPs that reduce nutrient loss from the watershed to maintain and improve in-stream conditions that are supportive of healthy DO levels. Education and outreach activities complement BMPs by creating stewardship opportunities and ensuring stakeholder engagement in future watershed activities.

The waterbody segments that are identified in the Watershed Protection Plan will be recommended to USEPA for delisting or recategorization to Category 4C during the Draft 2024 IR cycle.

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c. Load Reduction Strategy (LRS)

TMDLs in Illinois are only developed for parameters that have numeric water quality standards. During Vision 1.0, Illinois EPA began developing Load Reduction Strategies (LRS) for pollutants such as Total Phosphorus, Sedimentation/Siltation, and Total Suspended Solids (TSS) based on target values established by Illinois EPA. LRS are not a substitute for TMDL development but are used as a planning tool by watershed groups until a TMDL is developed.
As with a TMDL, this involves determining the loading capacity and load reduction necessary for the waterbody to fully attain designated use support status.

The watersheds identified as part of the Bridge Metrics (2018 Cycle TMDL Watersheds) include LRS for total phosphorus. This approach was not well received by some stakeholders and watershed workgroups and LRS are no longer promoted as part of Vision 2.0. The Total Phosphorus and other nutrient impairment issues are currently addressed by the Illinois Nutrient Loss Reduction Strategy as noted in Part "d" below.

d. Illinois Nutrient Loss Reduction Strategy (NLRS)

The Illinois Nutrient Loss Reduction Strategy (NLRS) guides state efforts to improve water quality at home and downstream by reducing nitrogen and phosphorus levels in our lakes, streams, and rivers. The strategy lays out a comprehensive suite of best management practices for reducing nutrient loads from wastewater treatment plants and urban and agricultural runoff. Recommended activities target the state's most critical watersheds and are based on the latest science and best-available technology. It also calls for more collaboration between state and federal agencies, cities, non-profits, and technical experts on issues such as water quality monitoring, funding, and outreach.

The strategy was developed by a policy working group led by the Illinois Water Resource Center-Illinois Indiana Sea Grant, the Illinois Environmental Protection Agency, and the Illinois Department of Agriculture. Group members include representatives from state and federal agencies, agriculture, and non-profit organizations, as well as scientists and wastewater treatment professionals.

The strategy continues to be guided by Illinois EPA, Illinois Department of Agriculture, and University of Illinois Extension, with input and feedback from the Policy Working Group and several other stakeholder groups and councils. The overall objective of the strategy is to improve water quality in Illinois and downstream to reduce the hypoxic zone in the Gulf of Mexico. The strategy sets a long-term goal of reducing loads from Illinois for total phosphorus and total nitrogen by 45%, with interim reduction goals of 15% nitrate-nitrogen and 25% total phosphorus by 2025. The Illinois Nutrient Loss Reduction Strategy is available at the Agency's NLRS webpage: https://epa.illinois.gov/topics/water- quality/watershed-management/excess-nutrients/nutrient-loss-reduction-strategy.html.

3. Strategy Goals

The primary objectives of the NRLS are to reduce nutrient loads leaving the state by way of the Mississippi River and to improve local water quality for the benefit of Illinois residents. The strategy's goal is to achieve 45% loss reductions in both nitrate-nitrogen and total phosphorus with interim loss reduction goals of 15% nitrate-nitrogen and 25% total phosphorus by 2025 as outline in the Illinois Nutrient Loss Reduction Strategy.

Illinois is one of 12 states that have developed nutrient strategies as members of the Mississippi River/ Gulf of Mexico Watershed Nutrient Task Force, which is charged with addressing hypoxia, or the "dead zone," in the Gulf of Mexico. The 2008 Gulf Hypoxia Action Plan, revised in 2015, calls for a 45% reduction in phosphorus and nitrogen loads to the Gulf of Mexico with a goal reducing the hypoxic zone's annual average size to 5,000 square kilometers by 2035.

- **Impairment Status**

The Draft 2024 Illinois Integrated Water Quality Report identified 40 lakes which are non-supportive of aquatic life use. Of these 40 lakes, 39 are impaired due to total phosphorus and 10 are impaired due to algae. However, only 1 of the 40 lakes lists "municipal point source discharges" as a source. The Report also identified 324 lakes non-supportive of aesthetic use. Of these 324 lakes, 285 are impaired due to total phosphorus and 61 are impaired due to algae. And only 2 of the lakes lists "industrial point source discharges" and 2 lakes list "municipal point source discharges" as a source.

Additionally, forty-five (45) streams are listed as non-supportive of aesthetic quality. Of these 45 streams, 19 are impaired due to total phosphorus and 17 are impaired due to algae. Of the non-supportive streams for aesthetic quality, 1 stream lists "industrial point source discharge" and 3 streams lists "municipal point source discharge" as the source. As you can see nutrient impairments are primarily due to non-point sources and not point-sources.

- **Illinois NLRS Implementation Plan**

Within Illinois, there are approximately 1,759 permitted point-source facilities. Of the 1,759 facilities, 214 are major (facilities with a design average flow of 1.0 million gallons per a day or more) municipal sewage treatment facilities. These 214 major municipal facilities accounted for 85.7% of the total phosphorus point-source load, as of 2022. As major facilities account for 85.7% of the total phosphorus load, the Agency's nutrient reduction efforts focus primarily on major sewage treatment facilities.

The following nutrient point-source controls have been and continue to be implemented by the Agency.

- Technology-based total phosphorus effluent limit of 1.0 mg/L (2006)
- Interim total phosphorus effluent limit of 1.0 mg/L
- Nutrient Assessment Reduction Plans (2019)
- Technology-based total phosphorus effluent limit of 0.5 mg/L (2019)
- Total phosphorus feasibility/optimization plans (2015)

- **Technology-Based Total Phosphorus Effluent Limit of 1.0 mg/L (2006)**

A total phosphorus technology-based effluent standard was adopted on February 2, 2006. The standard applies to all new or expanded major sewage treatment facilities and has been included in all applicable permits since this time.

- **Total Phosphorus Effluent Limit of 1.0 mg/L**

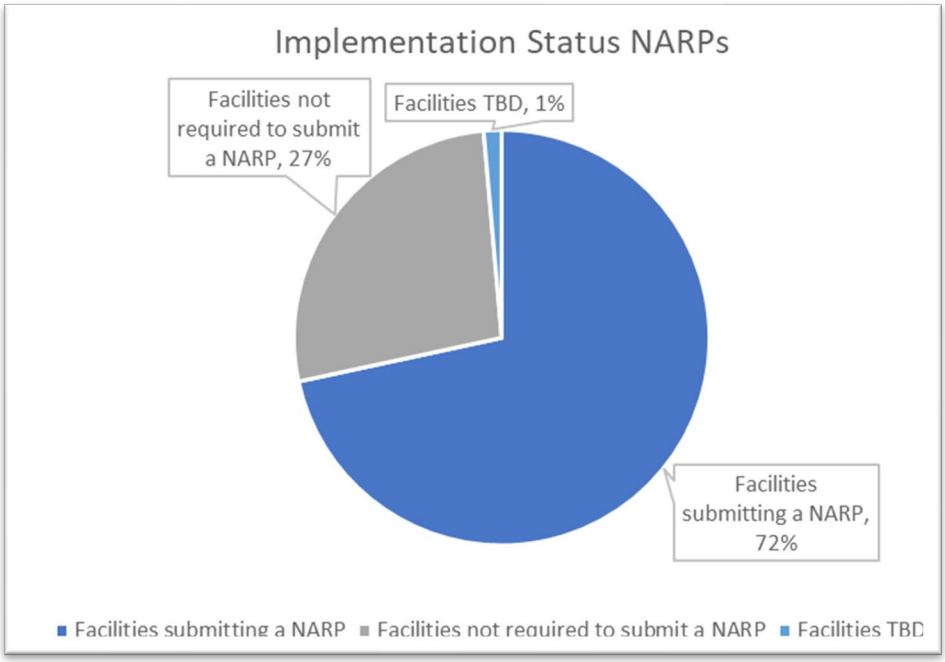
The Agency requires all major municipal facilities shall meet a total phosphorus effluent limit of 1.0 mg/l if the receiving has an impairment indicative of excessive nutrients. The limit of 1.0 mg/L shall be met upon final completion of a compliance schedule.

Nutrient Assessment Reduction Plans (2019)

Since 2019, the Agency has required major municipal facilities which discharge to a receiving waterbody that has been determined to be impaired or at risk of eutrophication, to develop a Nutrient Assessment Reduction Plan (NARP) through the NPDES program. The purpose of the NARP is to identify phosphorus input reductions and other measures that can be implemented by a major municipal facility or group of major municipal facilities via a watershed workgroup, to ensure that dissolved oxygen and offensive aquatic algae and aquatic plant criteria are met throughout a watershed.

Currently, 154 of the 214 major municipal facilities are developing a NARP, either individually or as a group. It has been determined that 58 of the 214 major facilities do not meet the criteria to develop an NARP, while that requirement is yet to be determined for another 3 facilities.

Figure 4. Implementation Status NARPs



The importance of a NARP is to identify and assess non-point and point source reductions throughout the watershed. The assessment will be used to develop site-specific total phosphorus permit effluent limits that are akin to water quality standards.

- **Technology-Based Total Phosphorus Effluent Limit of 0.5 mg/L (2019)**

In addition to the NARP requirements and total phosphorus permit limits of 1.0 mg/L as described above, Illinois EPA's approach to implement a more stringent total phosphorus technology-based standard is to include a future total phosphorus effluent limit in all major municipal NPDES permits. The requirement is based on an agreement between IAWA, Illinois EPA, and environmental groups.

A future total phosphorus effluent limit of 0.5 mg/L becomes effective as follows:

- 2025 if the facility chooses to install chemical removal
- 2030 if the facility chooses to install biological phosphorus removal
- 2035 if the facility chooses to install biological nutrient removal (both nitrogen and phosphorus)
- A limit of 1.0 mg/L would remain, if the facility had already installed chemical phosphorus removal by July 31, 2018, and had a 1 mg/L total phosphorus monthly average effluent limit in their permit

Future total phosphorus limits and timeline, as outlined above, will be incorporated in the next permit renewal cycle.
Note – There are some exceptions to the timeline due to economic and technical feasibility, and unique circumstances within watershed groups.

- **Nutrient Implementation Progress**

By the end of 2022, 101 NPDES permittees were meeting an annual average total phosphorus effluent concentration of 1.0 mg/L, representing approximately 47% of all major municipal facilities. Further, 17 facilities are on a compliance schedule to meet a future total phosphorus limit of 1.0 mg/L.

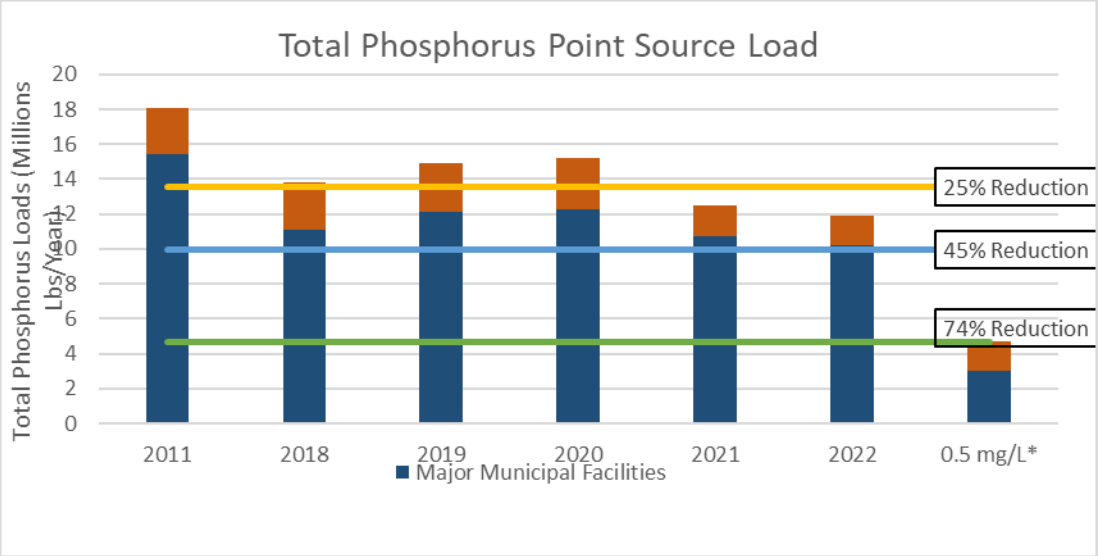
Note - These facilities (refer to Table 3) are also subject to the NARP, and 0.5 mg/L effluent limit as mentioned above. Additionally, Illinois EPA has issued 23 NPDES permits with a goal of total nitrogen removal and 3 NPDES permits with total nitrogen limit.

Table 3. 2022 Top Ten Major Municipal Facilities Total Phosphorus 1 mg/L Compliance Date

NPDES ID	Facility Name	TP 1 mg/L Compliance date
IL0028061	MWRDGC CALUMET WRP	1/1/2024
IL0028321	SANITARY DISTRICT OF DECATUR MAIN STP	10/1/2029
IL0028053	MWRDGC STICKNEY WRP	8/1/2021
IL0028088	MWRDGC TERRENCE J O'BRIEN WTR RECLAMATION PLANT	8/1/2027
IL0027201	FOUR RIVERS SANITATION AUTHORITY STP	TBD
IL0036340	MWRDGC-JOHN E. EGAN WRP	1/1/2031 or 1/1/2032
IL0027723	THORN CREEK BASIN SD STP	TBD
IL0034061	NAPERVILLE-SPRINGBROOK WRC	1/1/2029 or 1/1/2030
IL0027731	BLOOMINGTON NORMAL WRD -WEST STP	TBD
IL0028380	DOWNERS GROVE S.D. - WASTEWATER TREATMENT CENTER	8/1/2025 or 8/1/2026

The chart below (Figure 5) depicts the current progress of total phosphorus load reductions from Illinois point sources since 2011. The chart also projects the future point source load and associated percent reduction, due to ongoing efforts by the Agency to reduce Illinois's total phosphorus point-source load.

Figure 5. Total Phosphorus Point Source Loads



- **Total Phosphorus Feasibility/Optimization Plans (2015)**

Major municipal dischargers are required to submit and implement phosphorus discharge optimization plans, and feasibility studies to meet total phosphorus concentrations of 0.5 mg/L and 0.1 mg/L. 210 facilities have submitted optimization studies and feasibility studies through 2022. Feasibility studies identify the economic and technical feasibility of installing additional treatment processes to remove total phosphorus. Which allows permittees to make informed decisions on how they will meet future total phosphorus limits. Development and implementation of optimization studies will further reduce total phosphorus effluent load by optimizing existing treatment processes.

- **NARP Criteria [for Background Purposes Only]**

A phosphorus-related impairment means that the downstream waterbody or segment is listed by Illinois EPA as impaired due to low dissolved oxygen and/or offensive conditions (algae and/or aquatic plant growth) that is related to elevated phosphorus levels. Illinois EPA will determine if the permittee's treatment plant effluent is located upstream of a waterbody or stream segment that has been determined to have a phosphorus-related impairment. This determination is made upon reviewing available information concerning the characteristics of the relevant waterbody/segment and the relevant facility (e.g., quantity of discharge flow and nutrient load relative to the stream flow).

A waterbody or segment is at risk of eutrophication if there is plant, algal or cyanobacterial growth that may cause a violation of a water quality standard, or if there is pH and dissolved oxygen data that implies excessive plant growth. Illinois EPA will determine if the permittee's treatment plant effluent is located upstream of a waterbody or stream segment that has been determined to be at risk of eutrophication. This determination is made upon reviewing relevant information concerning the characteristics of the relevant waterbody/segment and the relevant facility (e.g., quantity of discharge flow and nutrient load relative to the stream flow).

Additionally, Illinois is among the very highest contributors of nutrients to the Gulf of Mexico, contributing to about 15% of the nitrogen (tied with Iowa) and 12% of the phosphorus (the single highest contributing state) driving Gulf hypoxia.

4. Background:

The Illinois Nutrient Loss Reduction Strategy is a statewide collaborative effort to reduce the amount of nutrients, particularly nitrogen and phosphorus, in Illinois' waterways. The strategy, released in 2015, is a framework for using science, technology, and industry experience to assess and reduce nutrient loss to protect and improve the water quality of streams, rivers, and lakes in Illinois and to reduce the state's contribution to the hypoxic zone in the Gulf of Mexico. Excess nutrients in waterways promote excessive algal growth, creating blooms that deplete oxygen when they decompose, posing a risk to aquatic life. Further, specific kinds of algal blooms may be harmful to the health of humans and animals. Excess nutrients can also contribute to degraded water quality for public water supply use. Strategy development and implementation is coordinated by Illinois Environmental Protection Agency, Illinois Department of Agriculture, University of Illinois Extension, and a multi-stakeholder Policy Working Group with representatives from federal and state agencies, agricultural organizations, wastewater treatment agencies, nongovernmental organizations, and industries.

5. Strategy Goals

The primary objective of the strategy is to reduce nutrient loads leaving the state by way of the Mississippi River and to improve local water quality for the benefit of Illinois residents. The strategy's ultimate goal is to achieve 45% loss reductions in both nitrate-nitrogen and total phosphorus with interim loss reduction goals of 15% nitrate-nitrogen and 25% total phosphorus by 2025.

Illinois is one of 12 states that have developed nutrient strategies as members of the Mississippi River/ Gulf of Mexico Watershed Nutrient Task Force, which is charged with addressing hypoxia, or the "dead zone," in the Gulf of Mexico. The 2008 Gulf Hypoxia Action Plan, revised in 2015, calls for a 45% reduction in phosphorus and nitrogen loads to the Gulf of Mexico with a goal of reducing the hypoxic zone's annual average size to 5,000 square kilometers by 2035.

6. Current Reductions Achieved

Based on available 2011 flow data and estimates for concentrations of total nitrogen and total phosphorus, the following point source reductions have been made through 2022:

- Point Source TP loads decreased 34% compared to baseline.
- Point Source TN loads decreased 11.6% compared to baseline.

Figure 6. Statewide Total Phosphorus Loads from the Point Source Sector 2021-2022

Point Source Sector	2022 Total Phosphorus Load (million lb./yr)
2011 Baseline	18.1
2022 Annual TP Load >Major Municipals >Minor Municipals >Major and Minor Industrials	11.9 10.2 1.3 0.4
Reductions from 2011 Baseline	6.2 (34%)

1. Long-Term Vision Goals (2024 - 2032) – TMDL Watersheds and Parameters

The Long-Term Vision Goals Watershed TMDL development process will be similar to the Short- Term Vision Goals discussed earlier in this report. Illinois EPA is in the process of issuing a new bidding document-Invitation for Bids (IFB), for the watersheds identified in Table 3, and the contract is expected to be in place by early fall of 2024. The location of the TMDL Watersheds is presented in Figure 8 below.

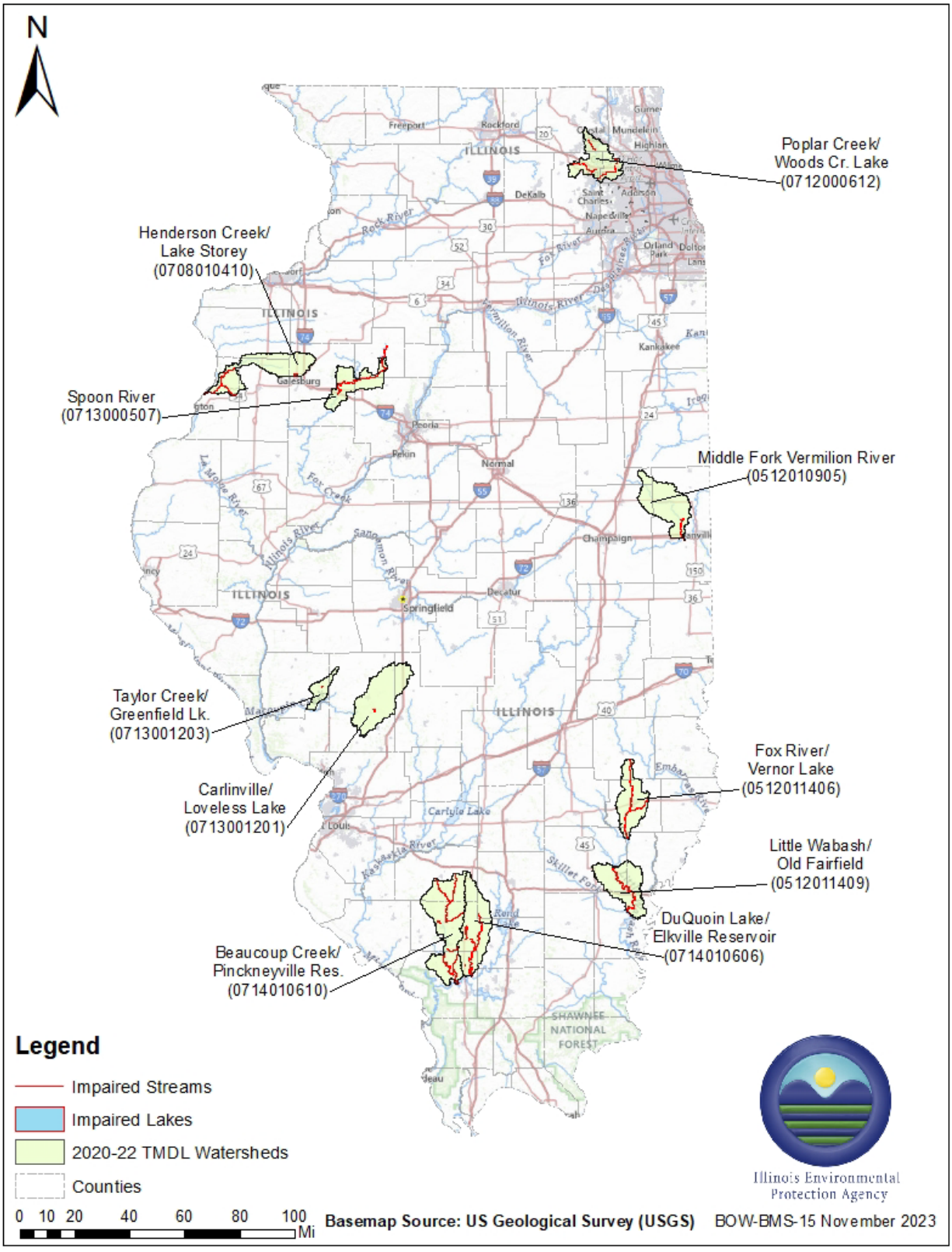
Table 4. Long-Term Vision Goals (2024 - 2032) – TMDL Watersheds and Parameters

Watershed No.	TMDL Watershed	Hydrologic Unit Code (HUC)	Watershed Area (Acres)	AUID 305B/303(d) List	Water Segment Name	TMDL Parameter	Designated Use
1	Middle Fork Vermilion River	0512010905	159,721	IL_BPK-07	Middle Fork Vermilion River	Fecal Colifom	Primary Contact Recreation
1	Middle Fork Vermilion River	0512010905	159,721	IL_RBN	MINGO	Phosphorus (Total)	Aesthetic Quality
2	Fox River/Vernor Lake	0512011406	125,586	IL_CH-02	Fox River	Fecal Colifom	Primary Contact Recreation
2	Fox River/Vernor Lake	0512011406	125,586	IL_CH-03	Fox River	Iron	Public and Food Processing, Water Supplies
2	Fox River/Vernor Lake	0512011406	125,586	IL_CHEA-11	Big Creek	Dissolved Oxygen	Aquatic Life
2	Fox River/Vernor Lake	0512011406	125,586	IL_RCA	VERNOR	Phosphorus (Total)	Aesthetic Quality

3	Little Wabash River/Old Fairfield Reservoir	0512011409	146,426	IL_C-33	Little Wabash River	Iron (dissolved)	Public and Food Processing, Water Supplies
3	Little Wabash River/Old Fairfield Reservoir	0512011409	146,426	IL_RCZJ	FAIRFIELD	Phosphorus (Total), Atrazine, Total Dissolved Solids	Aesthetic Quality/ Aquatic Life, Public and Food Processing, Water Supplies
4	Henderson Creek/Lake Storey	0708010410	162,905	IL_LD-02	Henderson Creek	Fecal Coliform	Primary Contact Recreation
4	Henderson Creek/Lake Storey	0708010410	162,905	IL_LDBA	Jinks Hollow	Iron	Aquatic Life
4	Henderson Creek/Lake Storey	0708010410	162,905	IL_RLB	STOREY	Phosphorus (Total)	Aesthetic Quality
5	Poplar Creek/Woods Creek Lake	0712000612	119,090	IL_DTG-02	Poplar Creek	Fecal Coliform	Primary Contact Recreation
5	Poplar Creek/Woods Creek Lake	0712000612	119,090	IL_DTG-03	Poplar Creek	Dissolved Oxygen	Aquatic Life
5	Poplar Creek/Woods Creek Lake	0712000612	119,090	IL_DTZP-02	Tyler Creek	Fecal Coliform	Primary Contact Recreation
5	Poplar Creek/Woods Creek Lake	0712000612	119,090	IL_DTZR-01	Crystal Lake Outlet	Fecal Coliform	Primary Contact Recreation
5	Poplar Creek/Woods Creek Lake	0712000612	119,090	IL_RTZZ	WOODS CREEK	Phosphorus (Total)	Aesthetic Quality
6	Spoon River	0713000507	107,136	IL_DJ-02	Spoon River	Fecal Coliform	Primary Contact Recreation
6	Spoon River	713000507	107,136	IL_DJ-06	Spoon River	Fecal Coliform	Primary Contact Recreation
7	Loveless Lake (Carlinville Il)	0713001201	193,176	IL_WDW	LOVELESS (Carlinville II)	Phosphorus (Total), Simazine	Aesthetic Quality, Public and Food Processing, Water Supplies
8	Taylor Creek/ Greenfield Lake	0713001203	38,938	IL_RDZF	GREENFIELD	Phosphorus (Total), Simazine	Aesthetic Quality, Public and Food Processing Water Supplies

9	Du Quoin Lake/ Elkville Reservoir	0714010606	183,332	IL_NE-04	Little Muddy River	Dissolved Oxygen	Aquatic Life
9	Du Quoin Lake/ Elkville Reservoir	0714010606	183,332	IL_NE-05	Little Muddy River	Fecal Coliform	Primary Contact Recreation
9	Du Quoin Lake/ Elkville Reservoir	0714010606	183,332	IL_NEB-02	Reese Creek	Dissolved Oxygen	Aquatic Life
9	Du Quoin Lake/ Elkville Reservoir	0714010606	183,332	IL_NEBB-DQ-C1A	Phil Creek	Dissolved Oxygen	Aquatic Life
9	Du Quoin Lake/ Elkville Reservoir	0714010606	183,332	IL_NEB-DQ-A2	Reese Creek	Manganese	Aquatic Life
9	Du Quoin Lake/ Elkville Reservoir	0714010606	183,332	IL_RNG	DUQUOIN	Phosphorus (Total)	Aesthetic Quality
9	Du Quoin Lake/ Elkville Reservoir	0714010606	183,332	IL_RNT	ELKVILLE	Phosphorus (Total), Dissolved Oxygen, pH	Aesthetic Quality Aquatic Life
10	Beaucoup Creek/Pinckneyville Reservoir	0714010610	260,256	IL_NC-07	Beaucoup Creek	Fecal Coliform	Primary Contact Recreation
10	Beaucoup Creek/Pinckneyville Reservoir	0714010610	260,256	IL_NC-09	Beaucoup Creek	Dissolved Oxygen	Aquatic Life
10	Beaucoup Creek/Pinckneyville Reservoir	0714010610	260,256	IL_NCC-01	Walkers Creek	Dissolved Oxygen	Aquatic Life
10	Beaucoup Creek/Pinckneyville Reservoir	0714010610	260,256	IL_NCH	White Walnut Creek	Dissolved Oxygen	Aquatic Life
10	Beaucoup Creek/Pinckneyville Reservoir	0714010610	260,256	IL_NCN	Locust Creek	Dissolved Oxygen	Aquatic Life
10	Beaucoup Creek/Pinckneyville Reservoir	0714010610	260,256	IL_NCS	Glenn Creek	Dissolved Oxygen	Aquatic Life
10	Beaucoup Creek/Pinckneyville Reservoir	0714010610	260,256	IL_RNH	PINCKNEYVILLE	Phosphorus (Total)	Aesthetic Quality

Figure 7. Total Maximum Daily Load (TMDL) Vision 2.0 (2020/2022 Cycle Watersheds & Impaired Streams/Lakes



Illinois EPA's - Engagement with Watershed Workgroups and Stakeholders

- Des Planes River Watershed Workgroup (DRWW)
- DuPage River Salt Creek Workgroup (DRSCW)
- Fox River Ecosystem Partnership (FREP)
- Fox River Study Group (FRSG)
- Kaskaskia River Watershed Association (KWA)
- Lake County Stormwater Management Commission
- La Moine River Ecosystem Partnership
- Lake Springfield Watershed Resource Planning Committee
- Lower DuPage River Watershed Coalition (LDRWC)
- North Branch Chicago River Watershed Workgroup (NBWW)
- Others (such as):
    a. Soil & Water Conservation District (SWCD)
    b. Natural Resources Conservation Service (NRCS)
    c. Illinois Department of Natural Resources (IDNR)
    d. Unites States Geological Survey (USGS)
    e. United States Environmental Protection Agency (USEPA)
    f. Non-Governmental Organizations (NGOs)

ATTACHEMENT - 1

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
BUREAU OF WATER
WATERSHED MANAGEMENT SECTION

LONG-TERM VISION FOR ASSESSMENT,
RESTORATION, AND PROTECTION UNDER THE CWA
SECTION 303(d) PROGRAM (The Vision)

https://epa.illinois.gov/topics/water-quality/watershed-management/tmdls/303d-list.html