ILLINOIS NUTRIENT LOSS REDUCTION STRATEGY

2025

PARTNER PROGRAM AND PROJECT UPDATES

Point Sources and Watershed Groups

Illinois Department of Agriculture

Illinois Environmental Protection Agency

Illinois Extension
University of Illinois Urbana-Champaign

Des Plaines River Watershed Workgroup

The Des Plaines River Watershed Workgroup, DRWW, formed in 2015 with a primary goal of improving water quality in the Des Plaines River basin in Lake County through a collaborative, locally led process. Membership in the group consists of 40 municipal and county government agencies, publicly owned treatment works, park districts, consulting firms, and environmental nonprofits.

Nutrient Assessment Reduction Plan

The DRWW submitted a Nutrient Assessment Reduction Plan, NARP, to the Illinois EPA on Dec. 29, 2023. As of 2025, the DRWW awaited feedback from Illinois EPA.

In 2025, the DRWW reviewed its NARP implementation plan with membership and began moving forward cautiously as the group awaits Illinois EPA feedback. Throughout 2025, the DRWW engaged with the Wisconsin Department of Natural Resources on its ongoing Total Maximum Daily Load, TMDL, study within the Wisconsin portion of the Des Plaines River watershed. The DRWW also met with the U.S. Geological Survey about adding one of its super gages near the state line to gather real-time monitoring of nutrients and other parameters as Wisconsin progresses through its TMDL implementation in the watershed.

The DRWW continued its education and outreach program on nutrient pollution. The DRWW circulated educational materials and surveys for public agencies and homeowners on nutrient runoff and reduction and developed a Phosphorus Education Library on its website. On May 21, 2025, the DRWW sponsored the MS4 Pollution Prevention Workshop.

Monitoring Program

In 2025, the DRWW continued to conduct water quality and bioassessment monitoring at 73 monitoring sites throughout the watershed. Discrete sampling was conducted five times throughout the year in February, May, July, August, and September. Parameters being monitored include total suspended solids, ammonia, total nitrates, total kjeldahl nitrogen, conductivity, pH, Water Temperature, Total Phosphorus, dissolved reactive phosphorus, chloride, sulfate, total hardness, E. coli, and chlorophyll.

The data from this monitoring is submitted to the Illinois EPA annually and is also utilized by individual members to prioritize and implement water quality improvement projects. The Monitoring Committee meets frequently with stakeholders to update and adapt the monitoring plan as needed.

Lakes Committee

The DRWW Lakes Committee continued to monitor the lakes within the watershed and coordinated outreach and education opportunities targeting topics including lake management plans, invasive species, routine monitoring of lake and stormwater inlets, nutrient reduction, and project implementation. The DRWW continued to monitor the water quality of project lakes and continued carp removal efforts.

The DRWW Lakes Committee has also been reviewing the NARP Implementation Plan. The Committee reviewed actions to provide benefits to the watershed and are working to review practices in relation to street sweeping and leaf litter pickup and are designing a survey to distribute to the DRWW Membership to assess those practices. The leaf collection survey was distributed at the 2025 February Annual Meeting.

Deicing Workshops

The DRWW continues to sponsor and support the Northeastern Illinois Regional Deicing Workshops. The deicing workshops, now up to nine events, focus training efforts on ways to keep public and private sector professionals up to date on best management practices for winter maintenance that safely reduces road salt use. The 2025 workshops trained over 1,200 individuals in winter deicing BMPs for both public roads and parking lots and sidewalks.

On Nov. 4, 2025, the DRWW also supported a Deicing Calibration Day, which was the collaborative effort of several Lake County departments: Stormwater Management Commission, Health Department and Community Health Center, and Division of Transportation, LCDOT. This event focused on sharing hands-on experience to calibrate winter maintenance vehicles before the winter season hits Illinois. Transportation staff demonstrated calibrating a vehicle for all participants, so they can practice responsible road salt use for their own vehicles. The participants also toured LCDOT's in-house liquid blending systems and operations to show the salt brine and beet juice winter maintenance alternatives.

The DRWW's website can be found at www.drww.org.

DuPage River Salt Creek Workgroup

The DuPage River Salt Creek Workgroup, DRSCW, formed in 2005 in response to concerns about Total Maximum Daily Loads, TMDLs, developed for the east and west branches of the DuPage River and Salt Creek located in portions of Cook, DuPage, and Will counties in northeastern Illinois. The DRSCW seeks to implement targeted watershed activities that resolve priority waterway problems cost-effectively.

In 2015 and 2020, a Special Condition to DRSCW NPDES permits was added that substantially increased financial commitments to restoration efforts focused on improving aquatic life. The Special Condition includes 10 stream restoration projects, two studies, and the development of a Nutrient Implementation Plan.

For more information, see drscw.org.

Physical Projects

Spring Brook Phase 2

In 2025, Year 5 of a planned five-year post-project monitoring was conducted at the Phase 2, Stream Restoration Project at the Blackwell Forest Preserve in Wheaton, DuPage County. This stream restoration project included the removal of the Arrow Road dam. The channel was realigned into the adjacent floodplain in order to increase sinuosity and mimic natural geomorphology, and to

create22.8 acres of wetlands. After five years of post-project monitoring, Spring Brook Phase 2 has met its post-project targets for habitat, Qualitative Habitat Evaluation Index, QHEI, and Fish Index of Biotic Integrity, fIBI, both within the project footprint and at sites monitored as part of the post-project impact evaluation. Post- project Macroinvertebrate Biotic Index, MIBI, targets have not been met but it is expected that mIBI scores will continue to increase at the site as the restoration matures.

Klein Creek Streambank Stabilization Project

The DuPage River Salt Creek Workgroup entered a Memorandum of Understanding with the Village of Carol Stream to fund the river resource improvement elements of the Klein Creek Section I Stream Bank Stabilization Project, which was completed in 2022. This project re-meandered a section of the channel and increased its length by approximately 200 feet. As the longitudinal slope was too flat for riffle structures, two rock substrate areas were added to provide riffle-type benefits. Streambanks were stabilized with vegetated rock toes or with rootwads embedded at outside bends, as well as with rock vanes, or stream barbs, at strategic locations. The top of the streambank was lowered adjacent to approximately 1.4 acres of newly created wetlands.

Activities in 2025 at the Klein Creek Section I Stream Bank Stabilization Project focused on vegetation maintenance and monitoring, M&M, activities and on post-project monitoring. The naturalized areas included in the M&M activities include 16.76 acres of upland prairie/economy prairie, 3.74 acres of open riparian area, 1.44 acres of sedge meadow, and 0.93 acres of shallow emergent area. Based on the results of the 2025 vegetation monitoring, the Klein Creek Streambank Stabilization - Section I project has exceeded expectations for its third year of restoration. Planted species and native species from the seed soil bank are highly abundant and will continue to increase coverage in future years. The In-Stream Structures, Upland Restoration Zones, and Wetland Restoration Zones have all met the designated third year performance standards for 2025.

The second year of biological and habitat 5-year post-project monitoring at the site took place in 2025. Post-project mIBI, fIBI, and QHEI have all improved since the pre-project monitoring and are expected to continue to increase as the restoration matures.

Fullersburg Woods Dam Removal and Stream Restoration

In November of 2023, the DuPage River Salt Creek Workgroup in cooperation with the Forest Preserve District of DuPage County, FPDDC, began construction on the Fullersburg Woods Dam Removal and Stream Restoration Project in the Fullersburg Woods Forest Preserve, Village of Oak Brook, DuPage County, Illinois. The Project was designed and permitted with assistance from Water Quality Hey and Associates, constructed by V3 Companies with construction management services provided by the Metropolitan Water Reclamation District of Greater Chicago, MWRDGC. The project objectives were to establish fish passage on Salt Creek by the removal of the Graue Mill Dam, to improve dissolved oxygen, and to raise QHEI, fIBI and mIBI scores in Salt Creek.

Construction of the project was completed between November 2023 and December 2024. Construction included stream restoration practices such as the removal of the Graue Mill dam, the installation of nine rock riffles, the digging of two pools, and the placement of 1,000 linear feet of stream bank restoration. In addition to the stream restoration practices, all of the amenities included in the Master Plan for Salt Creek at Fullersburg Woods were also installed in the summer and fall of 2024. Amenities near the Graue Mill included an ADA-accessible trail, a river overlook, a landscape

feature on the opposing bank, a re-designed mill raceway with water source and cascade, and a motor to turn the waterwheel. Work conducted by the Fullersburg Woods Nature Center included rehabilitation and waterproofing of the existing, but failing, floodwall.

Activities in 2025 at the Fullersburg Woods Dam Removal and Stream Restoration Project focused on vegetation maintenance and monitoring activities and post-project monitoring. Two of four vegetation performance standards applicable for 2025 (Year 1) have been met. The Upland Enhancement community had sparser cover due to higher than expected canopy cover and invasive garlic mustard (*Alliaria petiolata*) as a dominant species, which will continue to be addressed in 2026 using a more shade tolerant supplemental seed mix and continued weed control efforts. It should be noted, however, that an additional three performance standards not yet applicable were also met in 2025. These standards included being Native Mean Coefficient of Conservatism, value of 3.5 or greater and Native Floristic Quality Index of 20 or greater. Future management during 2026 include, a prescribed burn in early winter/early spring if conditions allow it, a supplemental seeding, continued weed control, 6-8-inch-high mowing, and installations of native plants, trees and shrubs. With these continued efforts, each native vegetation community within Fullersburg Woods is anticipated to become further established.

The project's objectives were to raise QHEI above its pre-project average of 47.45, raise fIBI at the sites upstream of the dam above its pre-project average score of 14.0, raise mIBI above its pre-project average score of 25.5 for approximately 1.25 river miles of Salt Creek. Within one year of the completion of the project's construction, the QHEI objective, 2025 QHEI score of 77-90.5, and the fIBI objective, 2025 fIBI scores of 26-33, were met at all sites within the project footprint. The mIBI objectives, scores of 34.3-43.2, were met at three of the four sites. It is expected that the mIBI at site SC56C will continue to improve as vegetation is established and will meet the objectives in future years of post-project sampling. It is important to note that all QHEI scores within the Project footprint are now classified as "good" and one site, SC56B, has a macroinvertebrate score of 43.2 meeting the Illinois General Use Attainment standard.

In addition to raising fIBI scores, the project has an objective to increase fish passage to the 20 miles of the Salt Creek mainstem and its tributaries located upstream of the removed Fullersburg Woods (Graue Mill) dam. Comparison of pre-project monitoring data identified 16 species of native fish that were historically blocked by the dam. Post-project assessments in 2025 identified eight species that have moved into Salt Creek above the former dam location. These species include the blackside darter, logperch, smallmouth bass, rosyface shiner, central stoneroller, emerald shiner, northern pike, and the horney head chub. It should also be noted that the other eight species previously confined below the dam were not identified anywhere in the Salt Creek watershed in 2025.

Lower East Branch Stream Restoration Project

In 2025, the DuPage River Salt Creek Workgroup signed an updated contract with inter-fluve to complete the final design, permitting, and preparation of the bid documents for reaches 2-4 of the Lower East Branch Stream Enhancement Project. Work completed includes the development of 1D and 2D hydraulic modes for the project area and preliminary work on the 75% design plans. It is expected that the final design plans, bid documents, and all required permits will be completed by March 2027.

Nutrient Implementation Plan

In December 2023, the DuPage River Salt Creek Workgroup in cooperation with the Lower DuPage River Watershed Coalition, LDRWC, submitted the Nutrient Implementation Plan, NIP, for the East Branch DuPage River, West Branch DuPage River, Lower DuPage River, and Salt Creek of the Illinois River to the Illinois EPA. A crucial step in developing this NIP was establishing a watershed threshold concentration for total phosphorus, TP, that is protective of aquatic life in the NIP area. A relationship between TP concentrations, fish species, and macroinvertebrate taxa and their indices of biotic integrity was established using a multivariate analysis published in 2023 by the watershed groups. The analysis, which drew on paired biological, chemical, and physical data from 640 sites in northeast Illinois, found fish species and the Fish Index of Biotic Integrity, fIBI, were more sensitive to TP concentration variation than the macroinvertebrate taxa and the Macroinvertebrate Index of Biotic Integrity. The 75th percentile of sites in the fIBI range of 41 and 49, meeting and exceeding the General Use standard for aquatic life, was found to correspond to an upper TP threshold concentration of 0.277 milligrams per liter (mg/L). The NIP adopted this as the upper threshold of the watershed TP target.

Analysis of the mean TP concentrations at sites monitored by the watershed groups' rolling bioassessments under various flow regimes show a clear differentiation between sites. Annual mean concentrations at sites downstream of wastewater treatment plants, a product of both wastewater and non-wastewater (stormwater and background sources, summarized as urban), ranged from 0.70 mg/L to 2.12 mg/L; concentrations at urban-only sites (upstream of any wastewater treatment plant influence) had total phosphorus concentrations ranging nearly an order of magnitude lower, 0.03–0.53 mg/L. Instream flow was an important factor, with TP concentrations falling at both wastewater-influenced and urban sites as flow increased. Mean annual concentrations at all urban sites were beneath the watershed threshold (0.277 mg/L) in all years sampled when flows were above the 25th percentile. Sites downstream of wastewater treatment plant outfalls had a TP concentration significantly above the watershed threshold in all years. Aggregation of the flows and water quality data to allow for reduction scenarios modeling showed that while wastewater treatment plants contributed 13% to 28% of annual flow, they contributed more than 80% of annual ambient instream TP.

Modeling was conducted using the QUAL2Kw platform to identify potential management scenarios that would decrease ambient instream TP concentrations below the identified TP watershed threshold. Receiving water models were developed for each basin and included the connectivity of the East and West Branches of the DuPage River model outputs to inform the headwater conditions of the Lower DuPage River. Notably, the headwater condition includes the assumption, as recommended by the NIP, that all upstream wastewater treatment plants will be operating with a 0.35 mg/L TP limit. Following model calibration efforts, channel geometry and hydraulics were modified for the Lower DuPage River and Salt Creek to reflect the imminent removals of dams on these waterways; both dams have since been removed. Ultimately, the suite of scenarios modeled demonstrated that an effluent permit limit of 0.35 mg/L (for an effective effluent concentration of 0.28 mg/L) for wastewater treatment plants along Salt Creek and the West and East Branches of the DuPage River would be sufficient to achieve the watershed threshold value satisfactorily.

The modeled reductions of effluent TP concentrations did not show meaningful improvements in predicted minimum and mean dissolved oxygen concentrations due in part to localized persistence of low gradients or flow restrictions which also factor into existing dissolved oxygen impairments.

The NIP recommended targeted physical projects focused on eliminating dissolved oxygen sags and improving instream habitat be implemented. Recommendations include that wastewater treatment plants discharging to Salt Creek and the East and West Branches of the DuPage River adopt an effluent limit of 0.35 mg/L TP (leading to an effective mean effluent concentration of 0.28 mg/L, assuming a 20% margin of safety) seasonal geometric mean for warm weather months (May-October) as part of an annual 0.50 mg/L TP geometric mean.

Throughout 2025, the DRSCW coordinated with the Illinois EPA and environmental advocacy groups to develop language to include the NIP recommendation in future wastewater treatment plant NPDES permits. It is expected that NPDES permits including the NIP recommendation will be issued in 2026.

Fox River Study Group

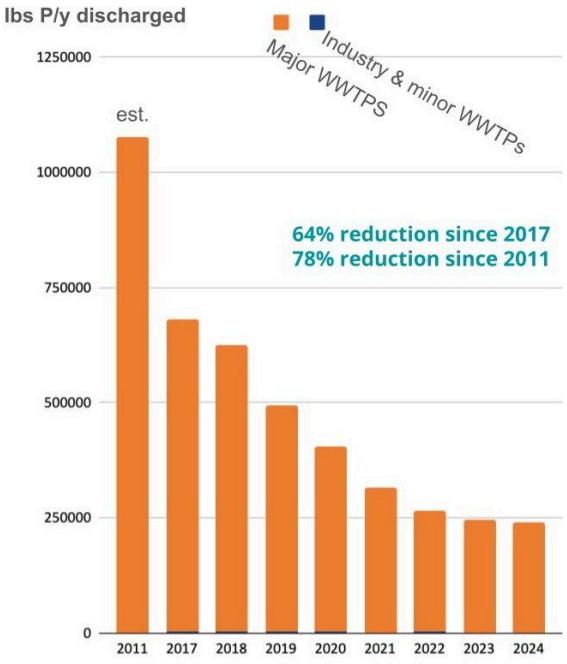
The Fox River Study Group, FRSG, is a diverse coalition of stakeholders who have been working since 2003 to improve the health of the Fox River for the benefit of the nearly 1 million people in the Fox River Valley and for over 300,000 people whose drinking water comes from the river. The study group is using research, data, and collaboration to guide the region toward a cleaner, safer, and more beautiful Fox River and to support sustainable policies and development across the Fox River watershed. The group's study area encompasses 1,405 square miles of the Fox River watershed from the Stratton Dam in McHenry County to the mouth of the river in LaSalle County. The watershed includes an additional 1,253 square miles upstream in the Chain O'Lakes region in Illinois and into Wisconsin to the river's source near Waukesha.

Since completing a 2022 update of their 2015 Fox River Implementation Plan, FRIP, the group has been working on plan implementation. The group worked with the U.S. Army Corps of Engineers on a feasibility study that looked at the benefits of removing dams on the river. FRSG has collected water quality data in the watershed for 23 years. The group also continues to contract work with the U.S. Geological Survey, Illinois State Water Survey, and the Illinois Natural History Survey to collect and analyze data on water quality and aquatic life in the Fox River watershed. The FRSG conducted a number of public outreach events during 2025 in addition to virtual monthly board meetings that are open to all.

Implementation of the 2022 Fox River Implementation Plan

The 2022 FRIP calls for the achievement of a 0.5 mg/L total phosphorus limit on effluent from major wastewater treatment plants by 2030.

The chart shows the reductions wastewater treatment plants have achieved. A compilation of the 2025 data is expected to be obtainable from the Illinois EPA around mid-year 2026.



2025 Update
Wastewater Total Phosphorus Reductions in the Fox River Watershed, Illinois

- Supporting of removal of dams along the Fox mainstem as identified in the Corps study and taking the lead in monitoring the water quality impacts of removed dams
- Encouragement of state-of-the-art watershed management practices that can mitigate the impact of projected population growth
- Statewide cooperation to leverage support for evaluation of streambank erosion and quantification of its impact on phosphorus loads in the watershed
- Expansion of partnerships to reduce nutrients entering the FRIP study area, especially with the agricultural community in the most southern portion of the study area and with entities upstream in the Chain O'Lakes region of Illinois and Wisconsin
- Collaboration with other agencies and organizations on goals to eliminate impairments in the river due to pollutants besides nutrients and on goals to remove the river from the Illinois EPA list of impaired waters

Activities related to other action items conducted in 2025 are described below. The 2022 FRIP, an executive summary, and all appendices can be found at tinyurl.com/2022FRIPFolder.

U.S. Army Corps of Engineers Fox River Connectivity and Habitat Study

FRSG continues to work with U.S. Army Corps of Engineers, USACE, and the Illinois Department of Natural Resources, IDNR, to complete the Fox River Habitat and Connectivity Study, which was restarted in June 2022. This study is evaluating the efficacy and cost-effectiveness of fish passage and riverine function restoration methods at 10 low head, run-of-the-river dams on the Fox River from Algonquin to Montgomery. The FRSG has a Joint Funding Agreement with the IDNR to cover the local cost share needed to complete the study. In 2023, the Corps released the draft Project Implementation Report and Environmental Assessment (PIR/EA) for the Fox River Connectivity & Habitat Study in Kane and McHenry counties that recommended removal of nine of the 10 dams under study. The Algonquin dam was not recommended for removal. Modeling predicts dam removal is necessary to resolve river dissolved oxygen impairments. Without removing the dams, further phosphorus reductions by upgraded wastewater treatment plants would have little effect on total algae populations and would not eliminate the dissolved oxygen impairments within the dam impoundments, despite the high costs involved. In December 2025, the FRSG learned the Corps' study paused while it underwent review by the Corps' senior Administration personnel.

Forest Preserve District of Kane County's Removal of Carpenter Dam

In October 2024, the Forest Preserve District of Kane County, in collaboration with IDNR, completed removal of one of the dams identified for removal in the Corp's draft report. The Carpenter Dam was located within the District's Fox River Shores Preserve on the Fox River in Carpentersville. Two projects documenting changes in water quality and mussel populations funded by the FRSG were completed in 2025 to document potential improvements to the Fox River from the Carpenter Dam removal.



Water Quality Hey and Associates, Hey, was contracted by FRSG to conduct water quality sampling at two locations to represent the sampling conducted in 2020 before the former Carpenter Dam was removed. Hey staff used water quality sondes to collect data at both locations from June 24to Oct. 30, 2025. Hey staff also collected discrete water samples 10 times during this period. On Sept. 8, 2025, two sediment oxygen demand (SOD) chambers equipped with a sonde were deployed in the former dam pool. SOD was calculated following the procedure outlined in the FRSG Quality Assurance Project Plan, QAPP. A final report documenting Hey's work will be available on the FRSG website in 2026.

Freshwater Mussels

The Illinois Natural History Survey provided freshwater mussel population data in the Fox River to the Fox River Study Group in connection with the removal of the Carpenter dam. Survey sites were established at the Carpenter dam, at the Algonquin dam, and at a reference free-flowing, unimpounded reach near West Dundee. At each site, transects and timed searches were conducted in 2021 to establish a baseline of species richness and mussel density. In 2025, the INHS, with help from FRSG volunteers, conducted a preliminary post-demolition survey at the same locations. Across all surveys, mussel richness and abundance were lower at both dam sites as compared to the reference site at West Dundee. A final report will be available on the FRSG website in 2026.

Water Data Collection and Analysis

FRSG member groups collect and analyze samples using an all-volunteer and in-kind effort monthly since 2002. Sampling sites are at seven mainstem locations and seven tributary locations along an 80-mile stretch of the Fox River from McHenry to Yorkville. FRSG continues to fund the U.S. Geological Survey to collect continuous water quality data on the Fox River at the Stratton Dam, USGS Station #05549501, during the growing season. In 2025, USGS staff observed one potential blue-green algae bloom during their July 15 visit, but they were not able to collect a sample for toxin analysis.

The Illinois State Water Survey maintains the FoxDB environmental database, where all data for the Fox River watershed are compiled and made publicly available at ilrdss.sws.uiuc.edu/fox. Acquired water quality data from FRSG for the 2023-25 period are being compiled for the next database update.

Communications and Outreach

In 2025, FRSG conducted a number of outreach activities, both in-person and virtual. The FRSG helped plan and publicize the bistate Fox River Summit, held in March in Burlington, Wis., with both in-person and virtual attendance options. Videos of the presentations can be found at the 2025 Fox River Summit YouTube Channel. In the fall of 2025, the group held its annual meeting at Batavia City Hall with 70 attendees. The presentation slides can be found at foxriverstudygroup.org. In addition, the group has hosted two Lunch & Learn webinars. These included a session on Watershed Scale Changes in Nitrate and Total Phosphorus in the Lower & Upper Fox River Watersheds presented by U.S. Geological Survey staff and one on the USDA NRCS Regional Conservation Partnership Program presented by coordinators from Illinois and Wisconsin. The Lunch & Learn sessions typically attract 20 to 30 attendees. For more information, see foxriverstudygroup.org and the FRSG videos folder.

Lower DuPage River Watershed Coalition

The Lower DuPage River Watershed Coalition, LDRWC, was formed in 2012 to identify and address priority water quality issues in the Lower DuPage River and its tributaries, located almost entirely in Will County. The coalition is comprised of municipalities and other public agencies, with participation from all six municipal wastewater dischargers. For more information, see www.lpdwatersheds.org.

Physical Projects

In 2024, the LDRWC began construction on its second restoration project – the DuPage River Stream Enhancement Project. The DuPage River Stream Enhancement Project is located on the mainstem of the DuPage River between Route 126 and Renwick Road, Village of Plainfield, Will County. The Project was designed and permitted with assistance from Hey and Associates, constructed by RES Environmental Operating Company, LLC, RES, with construction management services provided by the Village of Plainfield and Strand Associates, Inc. The objectives of the Project are to raise Qualitative Habitat Evaluation Index, QHEI, Fish Index of Biotic Integrity, fIBI, and Macroinvertebrate Biotic Index, mIBI, scores in Lower DuPage River.

Construction of the Lower DuPage Stream Enhance project began in October 2024 and continued to the middle of March 2025 when substantial completion was met. Work was divided into several major phases, including invasive brush and tree removal, northwest bank remediation, in-stream structure installation, swale construction, and seeding.

Activities in 2025 focused on maintenance and management activities including the planting of trees and perennial species, herbicide treatment of invasive/non-native herbaceous species and non-native woody species, and installing deer protection and goose deterrents.

Based on the results of the 2025 Monitoring and Management activities, supplemental seeding in the underperforming native seeding areas is scheduled for winter 2026. Additionally, invasive weed control is proposed through foliar herbicide application on perennial invasives such as reed canary

grass, lesser celandine, and non-native woody species throughout the 2026 growing season. Selective mowing throughout the entire site in 2026 is also proposed to control annual invasive species via brush cutters or walk behind mower. A hand wick herbicide application is recommended on any remaining phragmites in late summer 2026. Lastly, if the species matrix is suitable after the growing season, a controlled burn is recommended for the fall of 2026. Post-project biological and physical habitat sampling will begin 2026.

Nutrient Implementation Plan

In December 2023, the LDRWC in cooperation with the DuPage River Salt Creek Workgroup, DRSCW, submitted the Nutrient Implementation Plan, NIP, for the East Branch DuPage River, West Branch DuPage River, Lower DuPage River, and Salt Creek of the Illinois River to the Illinois EPA. A crucial step in developing this NIP was establishing a watershed threshold concentration for total phosphorus, TP, that is protective of aquatic life in the NIP area. A relationship between TP concentrations, fish species and macroinvertebrate taxa and their indices of biotic integrity was established using a multivariate analysis published in 2023 by the watershed groups. The analysis, which drew on paired biological, chemical, and physical data from 640 sites in northeast Illinois, found fish species and the Fish Index of Biotic Integrity, fIBI, were more sensitive to TP concentration variation than the macroinvertebrate taxa and the Macroinvertebrate Index of Biotic Integrity. The 75th percentile of sites in the fIBI range of 41 and 49 (meeting and exceeding the General Use standard for aquatic life) was found to correspond to an upper TP threshold concentration of 0.277 milligrams per liter, mg/L. The NIP adopted this as the upper threshold of the watershed TP target.

Water downstream of wastewater treatment plants, WWTPs, is a product of both wastewater and non-wastewater, which is comprised of stormwater and background sources and summarized as urban. Mean TP concentrations at sites monitored by the watershed groups' rolling bioassessments under various flow regimes show a clear differentiation between sites. Annual mean concentrations at sites downstream of WWTPs ranged from 0.70 mg/L to 2.12 mg/L. Concentrations at urban-only sites, upstream of any WWTP influence, had TP concentrations ranging nearly an order of magnitude lower, 0.03–0.53 mg/L. Instream flow was an important factor, with concentrations falling at both wastewater-influenced and urban sites as flow increased. Mean annual concentrations at all urban sites were beneath the watershed threshold of 0.277 mg/L in all years sampled when flows were above the 25th percentile. Sites downstream of WWTPs outfalls had a TP concentration significantly above the watershed threshold in all years. Aggregation of the flows and water quality data to allow for reduction scenarios modeling showed that while WWTPs contributed 13%-28% of annual flow, they contributed more than 80% of annual ambient instream TP.

Modeling was conducted using the QUAL2Kw platform to identify potential management scenarios that would decrease ambient instream TP concentrations below the identified TP watershed threshold. Receiving water models were developed for each basin and included the connectivity of the East and West Branches of the DuPage River model outputs to inform the headwater conditions of the Lower DuPage River. Notably, the headwater condition includes the assumption, as recommended by the NIP, that all upstream WWTPs will be operating with a 0.35 mg/L TP limit. Following model calibration efforts, channel geometry and hydraulics were modified for the Lower DuPage River and Salt Creek to reflect the imminent removals of dams on these waterways, and both dams have since been removed. Ultimately, the suite of scenarios modeled demonstrated that an effluent TP permit

limit of 0.5 mg/L, for an effective effluent concentration of 0.4 mg/L, for WWTPs along the Lower DuPage River would be sufficient to achieve the local threshold value satisfactorily.

The modeled reductions of effluent TP concentrations did not show meaningful improvements in predicted minimum and mean dissolved oxygen, DO, concentrations due in part to localized persistence of low gradients or flow restrictions which also factor into existing DO impairments.

The NIP recommended implementation of targeted physical projects focused on eliminating DO sags and improving instream habitat. Recommendations include that WWTPs discharging to the mainstem of the Lower DuPage River adopt an effluent limit of 0.50 mg/L TP, leading to an effective mean effluent concentration of 0.4 mg/L. This assumes a 20% margin of safety for warm weather months as an annual geometric mean on a rolling 12-month basis. The Crest Hill Sewage Treatment Plant, which discharges to a tributary on the Lower DuPage River, is recommended to adopt the 0.35 mg/L TP limit.

Throughout 2025, the LDRWC coordinated with the Illinois EPA and environmental advocacy groups to develop language to include the NIP recommendation in future WWTP NPDES permits. It is expected that NPDES permits including the NIP recommendation will be issued in 2026.

Other Activities

Working with the Lower DuPage Watershed Group, LDWG, the LDRWC continues to expand and develop new materials to help members meet Municipal Separate Storm Sewer System outreach requirements. Campaigns focus on ways residents can reduce their negative impacts on water quality. Outreach materials include social media posts, articles for newsletters and websites, printable handouts, and posters. All materials are available on the website ldpwatersheds.org/outreach with additional winter-related materials at www.SaltSmart.org.

To further facilitate coordination of outreach and education activities, a joint website between LDWRC and the LDWG was maintained through 2025. The website can be found at www.LDPWatersheds.org and includes information about each group and joint information about water quality related topics, stream ecology, and involvement opportunities for residents.

The LDWRC, LDWG, DRSCW, and Chicago Area Waterways Chloride Workgroup, CAWCW, collaborated with staff from Lake County Department of Transportation and Health Department to host technical deicing workhops in 2025. Workshops included three in person Public Roads workshops (Sept. 16, Sept. 23 and Sept. 30), three virtual Public Road workshops (Sep. 25, Oct. 7, Nov. 12), and three Parking Lots & Sidewalks workshops (Oct. 2, Oct. 14, and Nov. 13). Estimated attendance at the workshops was 1,300. Additionally, the LDWRC, LDWG, DRSCW, and CAWCW, The Conservation Foundation, and the SaltSmart Collaborative held three Calibration Workshops for Force America equipment on Nov. 4 with Lake County), Nov. 5 with Cook County Department of Transportation and Highways , and Nov. 6 with DuPage Department of Transportation.