DRSCW ILR40 Activities
March 2022– March 2023

PART I. COVERAGE UNDER GENERAL PERMITS ILR40

Not applicable to the work of the DRSCW.

PART II. NOTICE OF INTENT (NOI) REQUIREMENTS

Not applicable to the work of the DRSCW.

PART III. SPECIAL CONDITIONS

Not applicable to the work of the DRSCW.

PART IV. STORM WATER MANAGEMENT PROGRAMS

A. Requirements

Not applicable to the work of the DRSCW.

B. Minimum Control Measure

1. Public Education and Outreach on Stormwater Impacts

DRSCW outreach activities for the reporting year ending March 31, 2023 included:

- The DRSCW website was updated and maintained during the reporting period and periodically updated with presentations and material (www.drscw.org).
- A searchable database with information on local aquatic biodiversity (IBIs), habitat (QHEI), and sediment and water column chemistry were maintained and periodically updated.
- Public information available on the website includes:
  - Chloride Fact Sheets aimed at mayors and managers, public works staff, commercial operators, and homeowners.
  - Model Salt Storage and Handling Ordinances and Policies.
  - Model Facilities Plan for Snow and Ice Control.
  - A fact sheet summarizing alternative deicing products.
  - Information of effective operating parameters for commonly used anti icing compounds.
  - Parking lots chloride application rate guidance example sheet and aide memoire.
  - A brochure on coal tar sealants as a source of Polycyclic Aromatic Hydrocarbons (PAHs) aimed at homeowners (produced by the University of New Hampshire Stormwater Center).

- Detailed reports on the biological and chemical conditions of area waterways.

Technical Presentations

Workgroup meetings: The Workgroup hosts bimonthly meetings where technical presentations are made on a variety of water quality topics and surface water management subjects. The audience consists of mainly stormwater and wastewater professionals but the public is welcome to attend. Presentations made during the period March 1, 2022 to March 31, 2023 are listed below. Selected presentations are made available on the DRSCW website and upon request. Technical presentations have also been approved by the IEPA as CEUs for the Wastewater Operator and Drinking Water Operator Certifications.

April 27, 2022 – Model Development and Management Scenario Application for Total Phosphorus in Salt Creek, East Branch, West Branch, and Lower DuPage Rivers. Presenter: Hillary Yonce, Professional Hydrologist, Lead Modeler, Tetra Tech.

April 27, 2022 -- 2020-2022 Integrated Water Quality Report and Section 303(d) List. Presenter: Deanna Doohaluk, Watershed Project Manager, The Conservation Foundation.

June 27, 2022 – Kimberly North Stormwater Study. Presenter: Gregory R. Ulreich, P.E., CFM Civil/Stormwater Engineer, Dept. of Engineering Services, Carol Stream.

June 27, 2022 – The Microplastic Monster. Presenter: Christine Wood, Donohue & Associates, Inc., Water/Wastewater Engineer.

August 31, 2022 – Lags and Gaps: streambank erosion as a blind spot in the Illinois NLRS. Presenter: Andrew Margenot, Assistant Professor, University of Illinois Urbana-Champaign.

October 26, 2022 – Reducing Inflow and Infiltration: City of Naperville's' Experience. Presenter: Tony Conn Sr., Water Distribution and Collection Manager. Department of Public Utilities-Water, City of Naperville.

December 7, 2022 – 2020 West Branch DuPage River Bioassessment. Presenter: Chris Yoder, Research Director, Midwest Biodiversity Institute.

Other Water Quality Presentations or Workshops by the DRSCW

April 25-27, 2022 – NARP Updates, IWEA Annual Conference. Panel Members: Stephen McCracken, The Conservation Foundation and Adam Gronski, DRSCW Board Member, Metropolitan Water Reclamation District of Greater Chicago.

April 26, 2022 – Derivation of a Local Chloride Threshold for Wadeable Streams, Emerging Contaminants in the Environment Conference (virtual). Presenter: Deanna Doohaluk, The Conservation Foundation.

June 15-17, 2022 – Constructing an effective watershed Approach, International Water and Waste Management Conference, Bangkok, Thailand. Presenter: Stephen McCracken, The Conservation Foundation.

July 19, 2022 – Administration and Funding Structures for the DRSCW, LDPWC and LDPWG, Illinois River Watershed Study Group, Starved Rock Convention Center. Presenter: Stephen McCracken, The Conservation Foundation.

September 9, 2022—DRSCW Program Update, USEPA and IEPA. Presenter: Deanna Doohaluk, The Conservation Foundation and Stephen McCracken, The Conservation Foundation.

September 26, 2022 – Masterplan for Salt Creek at Fullersburg Woods, Board of Directors of The Conservation Foundation. Presenter: Deanna Doohaluk, The Conservation Foundation.

November 16, 2022—DRSCW Program Update, DuPage Mayors and Managers Regulatory Affairs Committee, Stephen McCracken, The Conservation Foundation.

February 2, 2023 – Deriving an ambient Total Phosphorous threshold for the DuPage River and Salt Creek, IEPA, Presenter: Stephen McCracken, The Conservation Foundation and Deanna Doohaluk, The Conservation Foundation.

February 28, 2023 – Deriving and Implementing an Ambient Total Phosphorous Threshold for the DuPage River and Salt Creek. IAWA Mini Conference, Springfield, IL. Presenters: Amy Underwood, DRSCW Board Member, Downers Grove Sanitary District and Stephen McCracken, The Conservation Foundation.

February 22-24, 2023 – Expanding beyond Permit Limits to Achieve Water Quality Goals, WWM5, Bhubaneswar, India. Presenter: Deanna Doohaluk, The Conservation Foundation.

March 7, 2023 – Deriving an ambient Total Phosphorous threshold for the DuPage River and Salt Creek. Environmental Partners. Presenter: Stephen McCracken, The Conservation Foundation and Deanna Doohaluk, The Conservation Foundation.

2. Public Involvement and Participation **–** No Activities

3. Illicit Discharge Detection and Elimination – No Activities

4. Construction Site Storm Water Runoff Control - No Activities

5. Post-Construction Storm Water Management in New Development and Redevelopment - No Activities

6. Pollution Prevention/Good Housekeeping for Municipal Operations – No Activities

Chloride Questionnaires

The DRSCW has attempted to track adoption of sensible salting BMPs in the program area since 2007. This is done as ambient chloride concentration monitoring; and while the ultimate indicator of success, it has proven an imperfect metric for tracking efficiency trends in winter salt use. Tracking target BMP adoption in the program area allows the DRSCW to evaluate the success of the chloride management workshops. Historically the public roads and parking lots/sidewalks workshops have covered the following practices:

- Winter Weather tracking and planning
- Behavior of commonly used deicing compounds
- Product and chemical alternatives
- Equipment calibration training
- Application Rates
- Equipment and salt application advancements
- Salt usage, storage and deicing best management practices
- Example salt use policies and management plans

The questionnaires also help identify topics for future workshops, and form suppositions about salt use per unit of service expended inside the program area relative to 2006 levels. Questionnaires were distributed in 2007, 2010, 2012, 2014, 2016, and 2018. They were sent to approximately 80 municipal highway operations and public works agencies. A new questionnaire was due to be distributed in 2022 but was not completed due to a need to rework elements of the questionnaire. It is now due to be issued in 2023.

Chloride Reduction Workshops

During the reporting period March 1, 2022 to March 31, 2023, six (6) chloride reduction workshops were held. The workshops were held in a webinar format allowing the groups to collaborate and host the workshops jointly. The workgroup staff for the DRSCW, LDRWC, Lower Des Plains Watershed Group (LDWG) and Chicago Area Waterways Chloride Workgroup (CAWCW) collaborated with staff from Lake County DOT and Health Dept. to coordinate the workshops. Registration was made available to agencies over a wide area of northeastern Illinois resulting in staff attending from Boone, Cook, DuPage, Kane, Lake, Will, and Winnebago

counties, as well as Milwaukee, WI. A list of attendees of the Public Roads Deicing Workshop (by County) is included in Attachment 1 and attendees of the Parking Lots & Sidewalks Deicing Workshop (by County) is included in Attachment 2.

Public Roads Deicing Workshops were held on September 27, October 5, October 6, and October 12, 2022. Staff from Bolton-Menk, Inc. (formerly at Fortin Consulting, Inc.) from Minnesota were engaged to present the material. A registration fee was required per agency in order to view the webinar. The links were shareable within an agency. A survey was provided at the end of each webinar to those who had signed in asking for the number of attendees from each agency and for an evaluation of the workshop. The survey results indicated that a minimum of 644 persons attended the four Public Roads workshops. Certificates of attendance were provided to those who requested them. A link to the *Minnesota Snow and Ice Control: Field Book for Snowplow Operators* was provided to each registrant.

The Parking Lot and Sidewalk Deicing Workshop webinars were held on September 29 and October 11, 2022 with Bolton-Menk, Inc. presenting. The survey results indicated that there was a minimum of 262 persons who viewed the webinars. Certificates of attendance were provided to those who requested them. The surveys provided an opportunity to provide an evaluation on the webinars. A link was sent to each registrant for the *Minnesota Pollution Control Agency Winter Parking Lot & Sidewalk Maintenance Manual.*

Ambient Impact Monitoring

DRSCW's Chloride Education and Reduction Program has performed an in depth analysis to detect trends in chloride loading within the water quality data collected since the beginning of program efforts.

The goal of the analysis is to gauge the impact, if any, of the chloride education program on chloride loadings and concentrations generated from DRSCW water quality data collected from 2009 to present. Such an analysis is challenging due to the influences of other variables that dictate the magnitude of chloride impact on water quality data, principally winter weather (see PLOTS). The analysis is needed to account for this inherent variability to as great a degree as possible. To help accomplish this the DRSCW purchased 10 years of weather data (snow and ice precipitation data for numerous locations) from Weather Command / Murray and Trettel, Inc. The analysis steps for each site where winter chloride concentration data was available was:

- Calculation of estimated chloride concentration from winter conductivity data
- Calculation of a warm weather regression value from summer concentration data and summer conductivity measures

- Calculation of estimated chloride summer concentrations
- Creation of loading data (in pounds per day) from the estimated concentration data using USGS flow data
- Identification of ice events from the weather command data and "replacement" of such events with loadings observed mean concentrations (to control for the high variability caused by ice).
- Graphing of loading and concentration data for each site

This analysis has been completed and phase one results have been produced. The report is being finalized and will be complete by April 2023.

Continuous Chloride Monitoring

When chlorides are present in elevated concentrations in rivers, they harm aquatic invertebrates, fish, and aquatic and terrestrial plants. High chloride concentrations also corrode structures like bridges, increasing maintenance costs; and chlorides are very difficult to remove from water through treatment. In the DRSCW watersheds, the main source of elevated chlorides in the rivers is from winter deicing applications. In an effort to understand and track chloride levels in the watershed, year-round conductivity monitoring is carried out.

Ambient monitoring of conductivity is carried out at six (6) locations. All conductivity sites were originally installed to collect continuous DO and are situated for that rather than chlorides. DRSCW chloride sites are positioned in the upper and lower sections of each watershed.

The upstream Salt Creek chloride site (Busse Woods) is at the upstream most point of the Lower Salt Creek watershed (this site isn't placed further upstream as it was selected to measure DO upstream of the watersheds POTWs). MWRD did not conduct ambient winter conductivity monitoring at the Salt Creek at Busse Woods site in 2021. The site was taken over by DRSCW for conductivity monitoring during the winter of 2022.

Conductivity concentrations are used to calculate chloride concentrations based on a linear relationship established by the DRSCW. Calculated Annual chloride concentrations for the winter months from 2007-2021 for six (6) sites are depicted in Figure 1 to Figure 6, The Daily Max represents the highest chloride daily value calculated from that year's winter season. The Winter Average is the average of all measurements from the winter season. The Four-Day Average is the maximum value of the year's four-day averages. Also shown are seasonal totals for winter snow and ice data. This data is generated from data supplied by a contract with Weather Command/ Murray and Trettel, Inc. The data is specific to the areas proximate to the

relative conductivity monitoring site. The weather data for the Naperville site on the southern West Branch has not yet been extracted and will be on the future graphics.

Figure 1. *Calculated Chloride Concentrations - Winter Months (2007-2022) for Salt Creek at Busse Woods Main Dam. Data was not collected in 2021.*

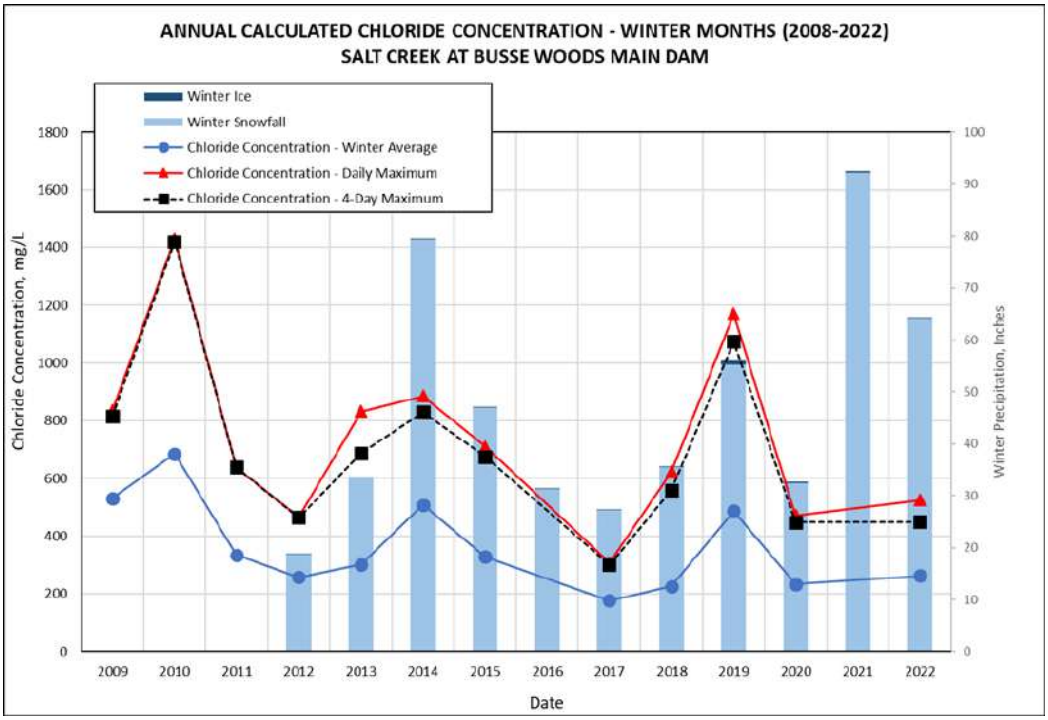


Figure 2. *Calculated Chloride Concentrations - Winter Months (2007-2022) for Salt Creek at Wolf Road*

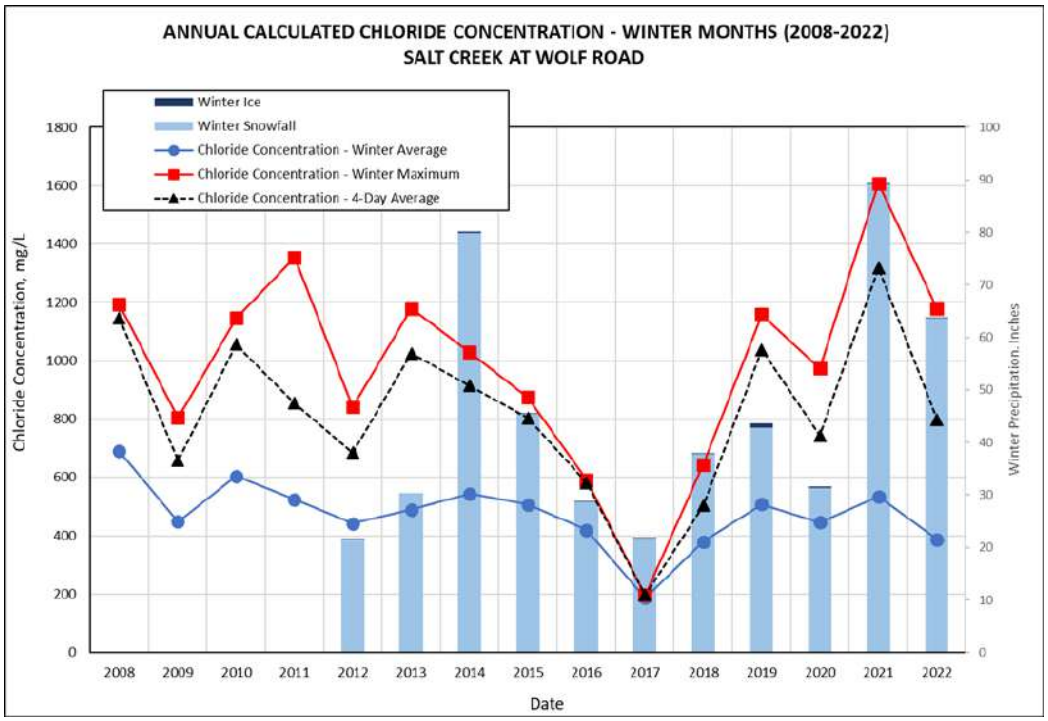


Figure 3. *Calculated Chloride Concentrations - Winter Months (2007-2022) for the East Branch DuPage River at Army Trail Road*

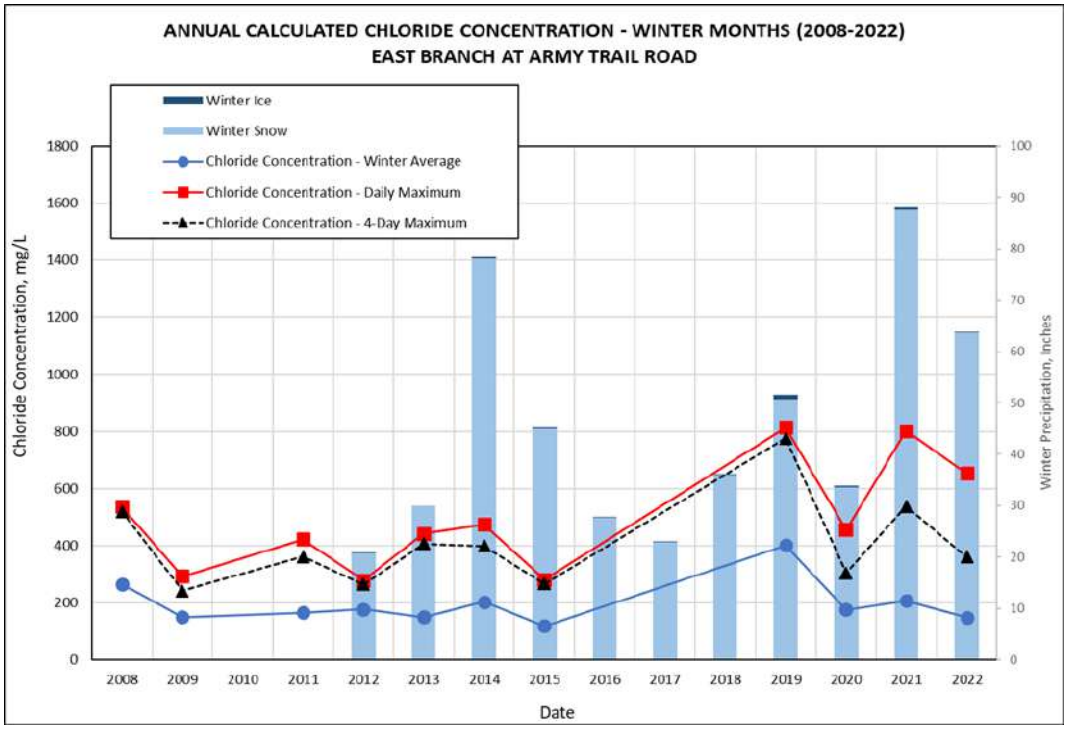


Figure 4. *Calculated Chloride Concentrations - Winter Months (2008-2022) for the East Branch DuPage River at Hobson Road*

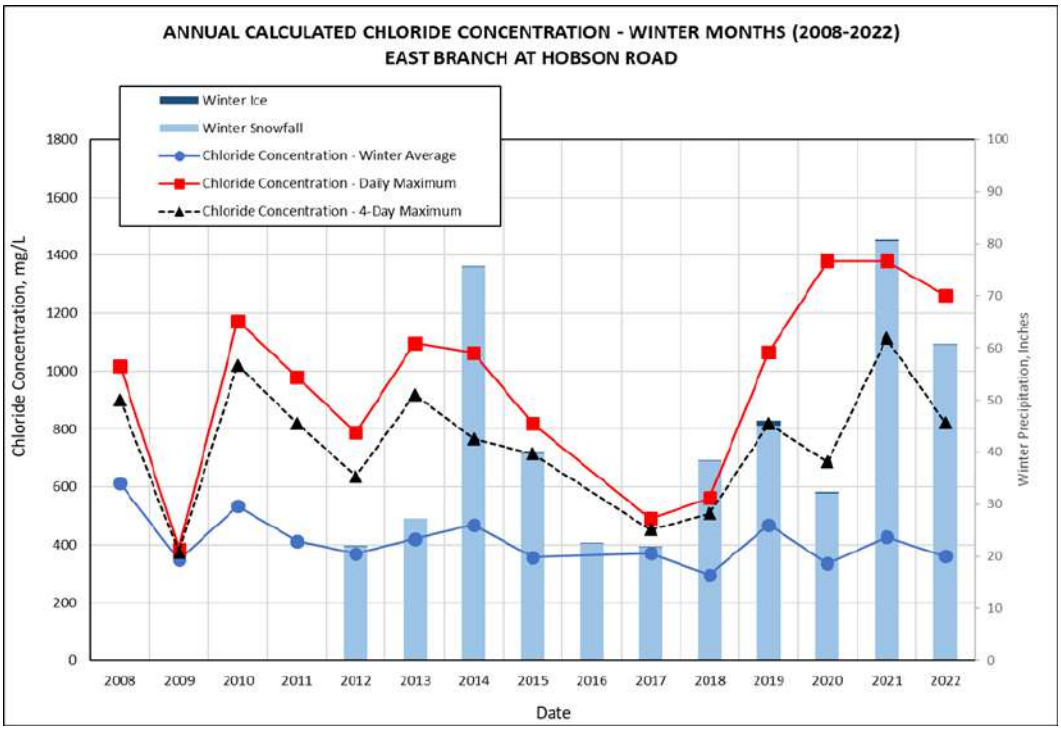


Figure 5. *Calculated Chloride Concentrations - Winter Months (2007-2022) for the West Branch DuPage River at Arlington Drive*

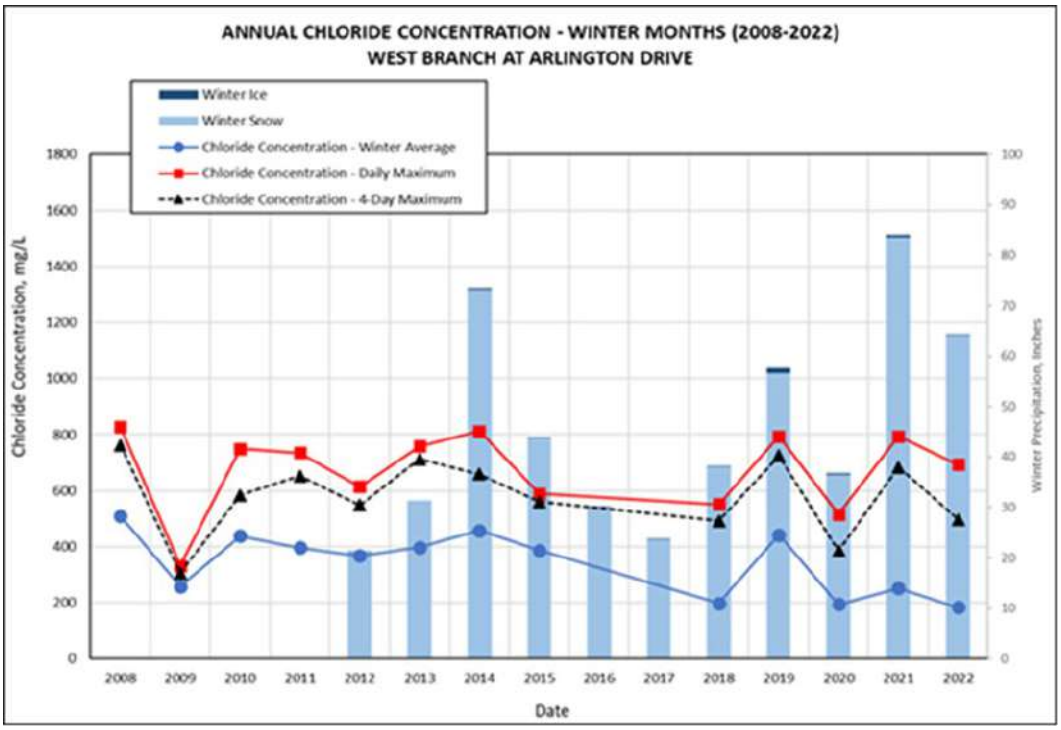
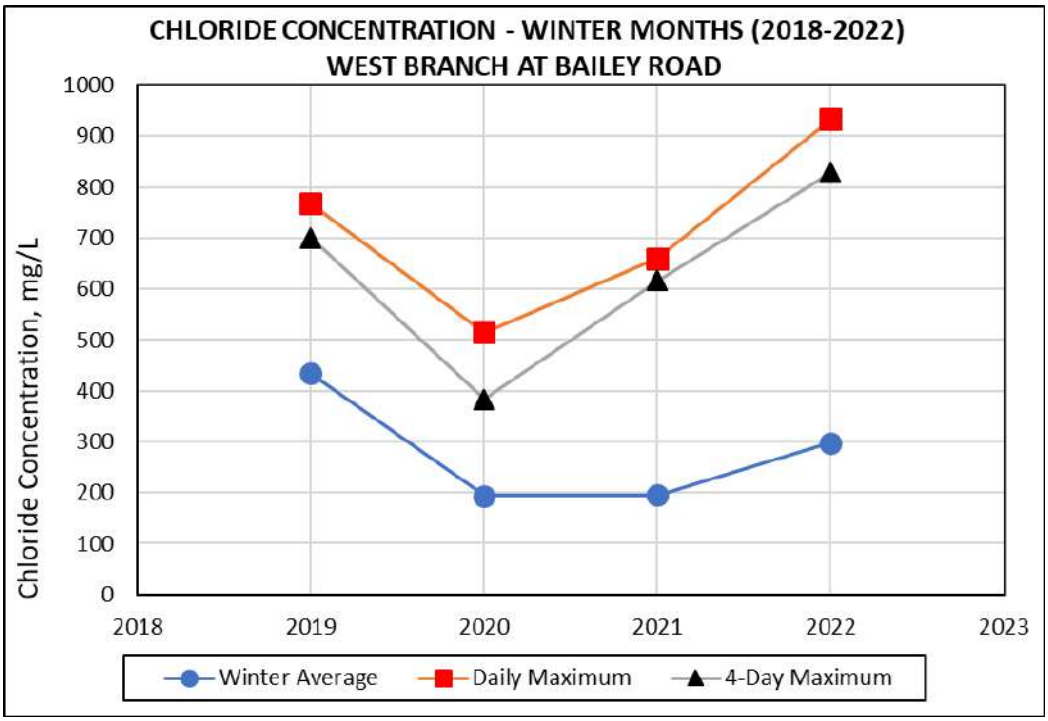


Figure 6. *Calculated Chloride Concentrations - Winter Months (2018-2022) for the West Branch DuPage River at Bailey Road*



C. Qualifying State, Country or Local Program

Not applicable to the work of the DRSCW.

D. Sharing Responsibility

This report outlines the activities conducted by the DRSCW on behalf of its' members related to the implementation of the ILR40 permit. It is the responsibility of the individual ILR40 permit holders to utilize this information to fulfill the reporting requirements outlined in Part V.C. of the permit.

E. Reviewing and Updating Stormwater Management Programs

Not applicable to the work of the DRSCW.

PART V. MONITORING, RECORDKEEPING, AND REPORTING

A. Monitoring

The ILR40 permit states that permit holders "must develop and implement a monitoring and assessment program to evaluate the effectiveness of the BMPs being implemented to reduce pollutant loadings and water quality impacts". The DRSCW monitoring program meets the following monitoring objectives and requirements outlined in the permit:

- Measuring pollutants over time (Part V. A. 2. b. ii)
- Sediment monitoring (Part V. A. 2. b. iii)
- Assessing physical and habitat characteristics such as stream bank erosion caused by storm water discharges ((Part V. A. 2. b. vi)
- Collaborative watershed-scape monitoring (Part V. A. 2. b. x)
- Ambient monitoring of total suspended solids, total nitrogen, total phosphorus, fecal coliform, chlorides, and oil and grease (Part V. A. 2. c.)

The DRSCW water quality monitoring program is made up of four components: 1) Bioassessment; 2) Continuous DO monitoring; 3) Expanded DO monitoring, and 3) Continuous Chloride Monitoring. Components 1-3 are discussed below and component 4 was discussed in the previous section of this report.

BIOASSESSMENT

Overview and Sampling Plan

A biological and water quality survey, or "biosurvey", is an interdisciplinary monitoring effort coordinated on a waterbody specific or watershed scale. This may involve a relatively simple setting focusing on one or two small streams, one or two principal stressors, and a handful of sampling sites or a much more complex effort including entire drainage basins, multiple and overlapping stressors, and tens of sites. The DRSCW bioassessment is the latter. The DRSCW bioassessment program began in 2007 with sampling in the West Branch DuPage River, East Branch DuPage River and Salt Creek watersheds. From 2009-2016, each watershed was sampled on a 3-year rotation beginning with the West Branch DuPage River watershed in 2006. Between 2017 and 2021, the watersheds were sampled on a 4 -year rotation. Starting in 2023, the watersheds will be sampled on a 5-year rotation. The sampling frequency will ensure that each watershed will be sampled during the effective period of the ILR40 permit. The bioassessment program functions under a quality assurance plan agreed on with the Illinois Environmental Protection Agency (http://drscw.org/wp/bioassessment/). Table 1 details the bioassessment sampling dates for each DRSCW watershed.

Table 1. *Bioassessment sampling dates for the DRSCW watershed*

Watershed	Sampling Completed (year)	Sampling Scheduled (year)
East Branch DuPage River	2007, 2011, 2014, 2019	2023
West Branch DuPage River	2007, 2009, 2012, 2015, 2020	2025
Salt Creek	2007, 2010, 2013, 2016, 2021	2027

The DRSCW bioassessment program utilizes standardized biological, chemical, and physical monitoring and assessment techniques employed to meet three major objectives:

1) determine the extent to which biological assemblages are impaired (using IEPA guidelines);
2) determine the categorical stressors and sources that are associated with those impairments; and,
3) add to the broader databases for the DuPage River and Salt Creek watersheds to track and understand changes through time in response to abatement actions or other influences.

The data collected as part of the bioassessment is processed, evaluated, and synthesized as a biological and water quality assessment of aquatic life use status. The assessments are directly comparable to previously conducted bioassessments such that trends in status can be examined and causes and sources of impairment can be confirmed, amended, or removed. A final report containing a summary of major findings and recommendations for future monitoring, follow-up investigations, and any immediate actions that are needed to resolve readily diagnosed impairments is prepared following each bioassessment. The bioassessment reports are posted on the DRSCW website at http://drscw.org/wp/bioassessment/. It is not the role of the bioassessments to identify specific remedial actions on a site specific or watershed basis. However, the baseline data provided by the bioassessments contributes to the Integrated Priority System that was developed to help determine and prioritize remedial projects (http://drscw.org/wp/project-identification-and-prioritization-system/).

Sampling sites for the bioassessment were determined systematically using a geometric design supplemented by the bracketing of features likely to exude an influence over stream resource quality, such as CSOs, dams and wastewater outfalls. The geometric site selection process starts at the downstream terminus or “pour point” of the watershed (Level 1 site), then continues by deriving each subsequent “panel” at descending intervals of one-half the drainage area (D.A.) of the preceding level. Thus, the drainage area of each successive level decreases geometrically. This results in seven drainage area levels in each of the three watersheds, starting at the largest (150 sq. mi) and continuing through successive panels of 75, 38, 19, 9, 5 and 2 sq. mi. Targeted sites are then added to fill gaps left by the geometric design and assure complete spatial coverage in order to capture all significant pollution gradients including reaches that are impacted by wastewater treatment plants (WWTPs), major stormwater sources, combined sewer overflows

(CSOs) and dams. The number of sampling sites by method/protocol and watershed are listed in Table 2.

Table 2. *Number of sampling sites in the DRSCW project area*

Method/Protocol	West Branch DuPage River (2020)	East Branch DuPage River (2019)	Salt Creek (2021)	Reference Sites (2006-2021)	Total Sites
Biological sampling					
Fish	42	41	65*	13	155
Macroinvertebrates	42	41	65*	13	155
QHEI	42	41	65*	13	155
Water Column Chemical/Physical Sampling					
Nutrients**	42	38	57	6	143
Water Quality Metals	30	38	34	6	108
Water Quality Organics	18	11	17	6	52
Sediment Sampling	23	15	27	6	71

*Includes eight (8) sites that were being monitored as part of pre-project monitoring at Fullersburg Woods and post-project monitoring at the Preserve at Oak Meadows.

**Also included indicators or organic enrichment and ionic strength, total suspended solids (TSS), DO, pH and temperature. Also, in 2019, 2020 and 2021, chlorophyll A was included as a nutrient parameter.

Representativeness – Reference Sites

Data is collected from selected regional reference sites in northeastern Illinois preferably to include existing Illinois EPA and Illinois DNR reference sites, potentially being supplemented with other sites that meet the Illinois EPA criteria for reference conditions. One purpose of this data will be to index the biological methods used in this study that are different from Illinois EPA and/or DNR to the reference condition and biological index calibration as defined by Illinois EPA. In addition, the current Illinois EPA reference network does not yet include smaller headwater streams, hence reference data is needed to accomplish an assessment of that data. Presently thirteen (13) reference sites have been established.

The bioassessment sampling includes four (4) sampling methods/protocols: biological sampling, Qualitative Habitat Evaluation Index (QHEI), water column chemical/physical parameter sampling and sediment chemistry. The biological sampling includes two assemblages: fish and macroinvertebrates.

As no sampling was conducted in Summer 2022, the 2022 MS4 Activities Report does not contain updated Fish, Habitat and Water Chemistry. However, as the macroinvertebrate sampling results for Salt Creek (sampled in 2021) was not available at the time of the 2021 MS4 Activities report, this data is included in this report. A map of the 2021 Salt Creek sampling sites can be found in

Map 2. A list of the sites sampled as part of the 2021 Salt Creek bioassessment is included in Table 3. Table 3 includes the site name, site location, and the type and frequency of each sampling method.

Detailed analysis of all results for the East Branch DuPage River, the West Branch DuPage River and Salt Creek and their tributaries and can be found at http://drscw.org/wp/bioassessment/. Additionally, summaries of the findings for the Fish, Macroinvertebrates, Habitat and Water Chemistry for the mainstem East Branch DuPage River and West Branch DuPage River and summaries for Fish, Habitat and Water Chemistry Salt Creek can be found in the 2019, 2020, and 2021 DRSCW MS4 Activities Report.

The fish and macroinvertebrate results are presented as Index of Biotic Integrity (IBI) scores. IBI is an evaluation of a waterbody's biological community in a manner that allows the identification, classification and ranking of water pollution and other stressors. IBIs allow the statistical association of various anthropogenic influences on a water body with the observed biological activity in said water body and in turn the evaluation of management interventions in a process of adaptive management. Chemical testing of water samples produces only a snapshot of chemical concentrations while an IBI allows an evaluation of the net impact of chemical, physical and flow variables on a biological community structure. Dr. James Karr formulated the IBI concept in 1981.

MACROINVERTEBRATES

Methodology

The macroinvertebrate assemblage is sampled using the Illinois EPA (IEPA) multi-habitat method (IEPA 2005). Laboratory procedures followed the IEPA (2005) methodology for processing multi-habitat samples by producing a 300-organism subsample with a scan and pre-pick of large and/or rare taxa from a gridded tray. Taxonomic resolution is performed to the lowest practicable resolution for the common macroinvertebrate assemblage groups such as mayflies, stoneflies, caddisflies, midges, and crustaceans, which goes beyond the genus level requirement of IEPA (2005). However, calculation of the macroinvertebrate IBI followed IEPA methods in using genera as the lowest level of taxonomy for mIBI calculation and scoring.

2021 Salt Creek Results

Macroinvertebrate communities sampled from the mainstem of Salt Creek revealed no clear longitudinal pattern (Figure 7) and mainly fall in the fair to poor ranges. There are four sites on the mainstem of Lower Salt Creek with mIBI scores in the good range: two (2) sites located immediately downstream of the Fullersburg Woods dam and two (2) sites within the Preserve at Oak Meadows restoration site. With the exception of one (1) site located on West Branch Salt Creek #5 (located within the Upper Salt Creek watershed) where a mIBI of 45.20 (good), scores in tributaries throughout the watershed in 2021 were in the poor to fair range.

Table 3. *2021 Salt Creek Bioassessment Sampling Sites and Frequency of Sampling*

				Frequency of Samling during the 2021 Bioassessment							
Site ID	RIVER	Latitude	Longitude	Biological Sampling	QHEI	Demand/ Nutrient	Metals	Water Organics	Sediment	Sulfate	Oil and Grease
SC01	Tributary to Salt Creek	42.143664	-88.078158	1	1	2					
SC02	Tributary to Salt Creek	42.11327	-88.082431	1	1	2					
SC03	Salt Creek	42.108005	-88.083462	1	1	2					
SC04	Salt Creek	42.110637	-88.062385	1	1	4					
SC05	Tributary to Salt Creek	42.12518	-88.039411	1	1	2					
SC06	Tributary to Salt Creek	42.116387	-88.012306	1	1	2					
SC07	Salt Creek	42.077084	-88.053031	1	1	4	4				
SC08	Triburary to Salt Creek	42.067958	-88.019216	1	1	4					
SC11	Tributary to Salt Creek	42.028369	-88.055516	1	1	4					
SC12	Tributary to Salt Creek	42.025566	-88.063601	1	1	2					
SC13	Tributary to Salt Creek	42.015691	-88.054162	1	1	2					
SC14	Tributary to Salt Creek	42.017338	-88.045095	1	1	4	4				
SC15	Salt Creek	42.051095	-88.008992	1	1	6	4		1	1	1
SC16	Spring Brook	41.971781	-87.998034	1	1	6	4		1	1	1
SC17	Spring Brook	41.967116	-88.046834	1	1	4					
SC18	Spring Brook	41.958246	-88.06508	1	1	4					
SC19	Meacham Creek	41.995347	-88.051359	1	1						
SC20	Tributary to Meacham Creek	41.988298	-88.054429	1	1	2					
SC21	Spring Brook	41.97324	-88.079282	1	1	2	2	1	1		
SC22	Westwood Creek	41.93982	-87.992964	1	1	4		1	1		
SC23	Salt Creek	41.936938	-87.984234	1	1	9	6	1	1		
SC24	Addison Creek	41.946217	-87.926124	1	1	2					
SC25	Tributary to Addison Creek	41.937825	-87.939885	1	1	2					
SC26	Addison Creek	41.928711	-87.910687	1	1	4					
SC27	Addison Creek	41.898963	-87.883344	1	1	4	4				
SC28	Addison Creek	41.861162	-87.867743	1	1	6	4		1	1	1
SC29	Salt Creek	41.818297	-87.833708	1	1	12	6	1	1	1	1
SC30	Ginger Creek	41.837873	-87.970817	1	1	2					
SC31	Ginger Creek	41.839376	-87.953247	1	1	4					
SC32	Oakbrook Creek	41.85377	-87.948831	1	1	2					
SC33	Sugar Creek	41.872959	-87.959728	1	1	4					
SC34	Salt Creek	41.951765	-87.986441	1	1	9	6	1	1		
SC35	Salt Creek	41.944091	-87.981079	1	1	9	6	1	1		
SC35A	Salt Creek	41.9425	-87.9821	1	1						
SC35B	Salt Creek	41.94112	-87.983	1	1						
SC36	Oak Brook	41.850896	-87.958463	1	1	2					
SC37	Salt Creek	41.885162	-87.959927	1	1	9	3	1	1		
SC38	Salt Creek	41.890375	-87.964024	1	1	9	6	1	1		
SC39	Salt Creek	41.919985	-87.972745	1	1	9	6	1	1		
SC40	Salt Creek	41.962745	-87.98439	1	1	9	6	1	1		
SC41	Salt Creek	41.970302	-87.988175	1	1	9	6	1	1		
SC42	Salt Creek	41.991326	-87.994485	1	1	6	4		1		
SC43	Salt Creek	42.011973	-88.00092	1	1	6	4	1	1	1	1
SC44	Salt Creek	42.01602	-88.000508	1	1	6	4	1	1		
SC45	Tributary to Salt Creek	42.084211	-88.019856	1	1	4	4	1	1		
SC46	Spring Brook	41.966727	-88.077424	1	1	2	2	1	1		
SC47	Spring Brook	41.963342	-88.031508	1	1	6	4	1	1		
SC48	Addison Creek	41.872732	-87.868775	1	1	6	4		1		
SC49	Salt Creek	41.825756	-87.900036	1	1	9	6	1	1	1	1
SC50	Salt Creek	42.021262	-88.004911	1	1	6	4		1		
SC51	Salt Creek	41.875767	-87.95799	1	1	9	6		1	1	1
SC52	Salt Creek	41.820328	-87.926117	1	1	9	6		1		
SC53	Salt Creek	41.825544	-87.931557	1	1	9	6		1		
SC53A*	Salt Creek	41.82112	-87.9286	1	1						
SC54	Salt Creek	41.845607	-87.851945	1	1	12	6		1		
SC55	Salt Creek	41.84763	-87.936374	1	1	6	6				
SC56	Salt Creek	41.832606	-87.941979	1	1	6	6				
SC56A*	Salt Creek	41.8306	-87.940435	1	1						
SC56B*	Salt Creek	41.830287	-87.931866	1	1						
SC56C*	Salt Creek	41.82849	-87.93059	1	1						
SC57	Salt Creek	41.873713	-87.95526	1	1	9	6				
SC59	Salt Creek	41.82608	-87.91459	1	1	12	6				
SC60	Salt Creek	41.82595	-87.88617	1	1	12	6				
SCBR	Salt Creek					6					

Table 4 and Table 5 include the key to dams and Wastewater Treatment Plants (WWTP) discharges denoted on the mIBI figure (Figure 7) for Salt Creek.

Figure 7. *Macroinvertebrate IBI scores in Salt Creek, 1983, 2007, 2010, 2013, 2016, and 2021 in relation to municipal WWTP dischargers and dams.*

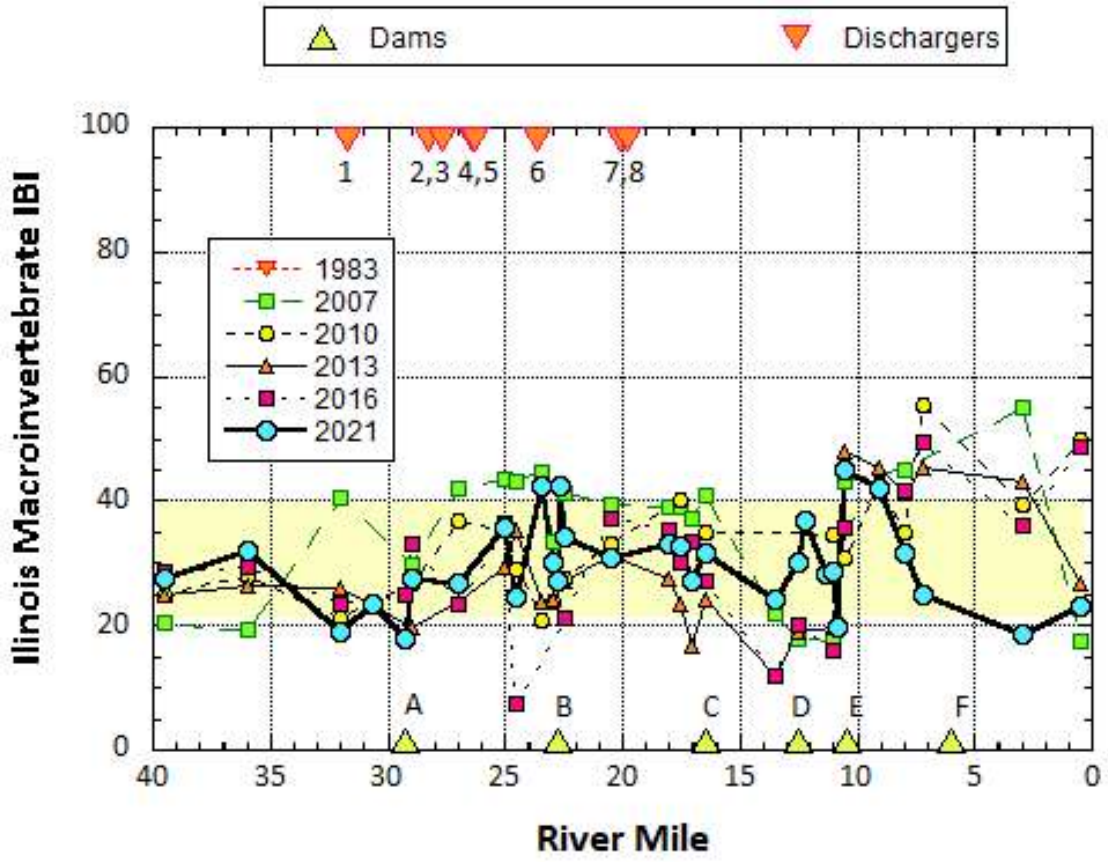


Table 4. *Key to dams on the dam included on the Salt Creek IBI, QHEI, and water chemistry figures*

Figure Reference	Name of Dam
A	Busse Woods Dam
B	Oak Meadows Dam (removed in 2016)
C	Graham Center Dam
D	Old Oak Brook Dam
E	Fullersburg Woods (Graue Mill) Dam
F	Possum Hollow Woods Dam

Table 5. *Key to POTW dischargers on the Salt Creek IBI, QHEI, and water chemistry figures*

Figure Reference	WWTP Discharge
1	MWRDGC Egan WRP
2	Itasca STP
3	Wood Dale North STP
4	Wood Dale South STP
5	Addison North STP
6	Addison South - Larocca STP
7	Salt Creek Sanitary District
8	Elmhurst WWTP

DISSOLVED OXYGEN (DO) MONITORING

Background and Methodology

The Illinois Environmental Protection Agency (IEPA) report, Illinois 2004 Section 303(d) List, listed dissolved oxygen (DO) as a potential impairment in Salt Creek, and the East and West Branches of the DuPage River. The report suggested that the DO levels in selected reaches of these waterways might periodically fall to levels below those required by healthy aquatic communities.

All rivers and creeks in DuPage County are classified as General Use Waters. The present water quality standards for dissolved oxygen in General Use Waters is:

1. During the period of March through July
    a. 5.0 mg/L at any time; and
    b. 6.0 mg/L as a daily mean averaged over 7 days.

2. During the period of August through February,
    a. 3.5 mg/L at any time;
    b. 4.0 mg/L as a daily minimum averaged over 7 days; and
    c. 5.5 mg/L as a daily mean averaged over 30 days.

Following listing on the 303 (d) list two (2) DO TMDLs were prepared by the IEPA for Salt Creek and the East Branch of the DuPage River in 2004 and two (2) DO TMDLs were prepared for the West Branch DuPage River and Spring Brook #1 in 2019. In response to the TMDLs, the DRSCW committed to develop and manage a continuous long-term DO monitoring plan for the project area in order to assess the nature and extent of the DO impairment and to allow the design of remedial projects. The continuous DO data is also used to assess the impact of DO improvement projects such as the Churchill Woods and Oak Meadow dam removals.

In 2022, the DRSCW in collaboration with DuPage County Stormwater Management gathered continuous DO data via water quality sondes at four (4) sites on Salt Creek (SCBW, SCOM, SCBR SCFW), five (5) sites on the East Branch DuPage River (EBAR, EBCB, EBHL, EBHR, EBWL), and five (5) sites on the West Branch DuPage River (WBAD, WBBR, WBWD, WBMG, WBNPV) that will be utilized in the calibration and verification of the updated QUAL2Kw models. The Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) also typically monitors one (1) additional location on Salt Creek. All sondes are deployed from May through October and collected DO, temperature, conductivity, and pH on an hourly basis. The continuous DO monitoring program functions under a quality assurance plan agreed on with the IEPA (http://drscw.org/wp/dissolved-oxygen/). Details on the site location are included in Table 6 and site locations for 2022 are included on Map 3.

Results

Results of the continuous DO monitoring conducted in the summer of 2022 is included in Figure 8 to Figure 22.

Table 6. *2022 Continuous DO monitoring locations in the DRSCW watersheds in 2021.*

Site ID	Stream Name	River Mile	Latitude	Longitude	Location
WBAD	W. Br. DuPage River	29.9	41.9750	-88.1386	Arlington Drive
WBBR	W. Br. DuPage River	11.7	41.825268	-88.179456	Butterfield Road
WBWD	W. Br. DuPage River	11.1	41.82027	-88.17212	Downstream of former Warrenville Grove Dam
WBMG	W. Br. DuPage River	8.6	41.795928	-88.187263	Upstream of former McDowell Grove Dam
WBNPV	W. Br. DuPage River	3.0	41.74029	-88.126879	Downstream Bailey Road
EBAR	E. Br. DuPage River	23.0	41.935171	-88.05843	Army Trail Road
EBCB	E. Br. DuPage River	18.8	41.88510	-88.04110	Crescent Boulevard
EBHL	E. Br. DuPage River	14.0	41.82570	-88.05316	Hidden Lake Preserve
EBHR	E. Br. DuPage River	8.5	41.76800	-88.07160	Hobson Road
EBWL	E. Br. DuPage River	3.8	41.712315	-88.094842	Whalon Lake
SCBW	Salt Creek	29.4	42.01630	-88.00061	Downstream of Busse Woods Dam (MWRDGC)
SCOM	Salt Creek	23.0	41.941279	-87.983363	Upstream of former Oak Meadows Dam
SCBR	Salt Creek	16.1	41.864686	-87.95073	Butterfield Road
SCFW	Salt Creek	11.1	41.825493	-87.93158	Fullersburg Woods impoundment
SCWR	Salt Creek	8.1	41.82576	-87.90045	Wolf Road (MWRDGC)

Figure 8. *2022 Dissolved Oxygen plot for the West Branch DuPage River at Arlington Drive (WBAD)*

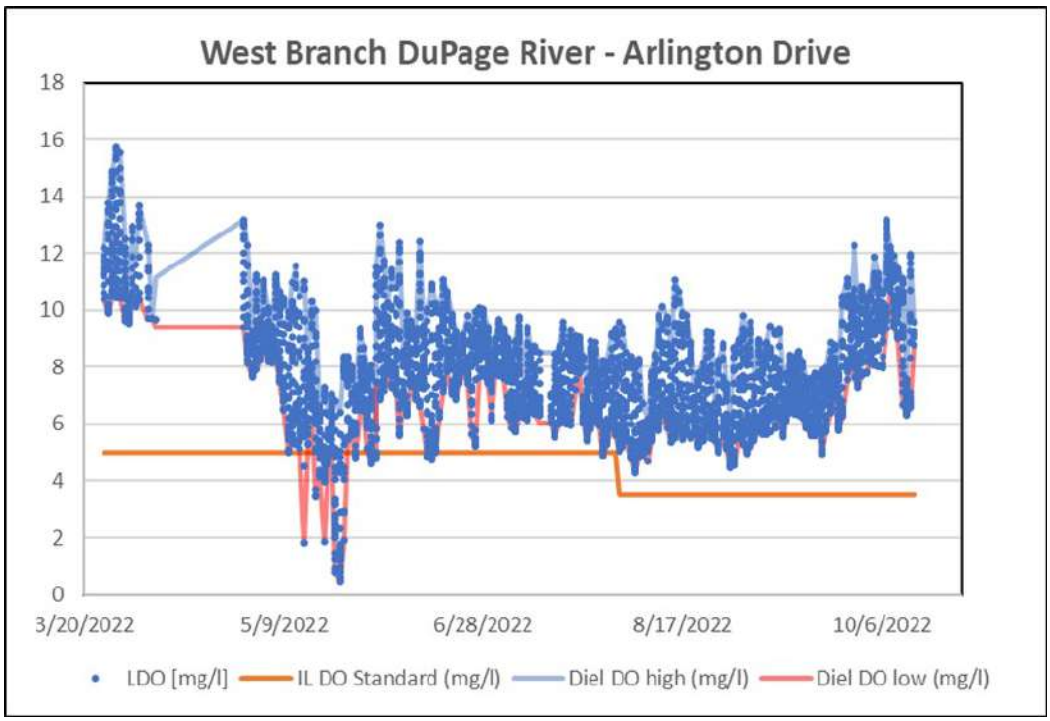


Figure 9. *2022 Dissolved Oxygen plot for the West Branch DuPage River at Butterfield Road (WBBR)*

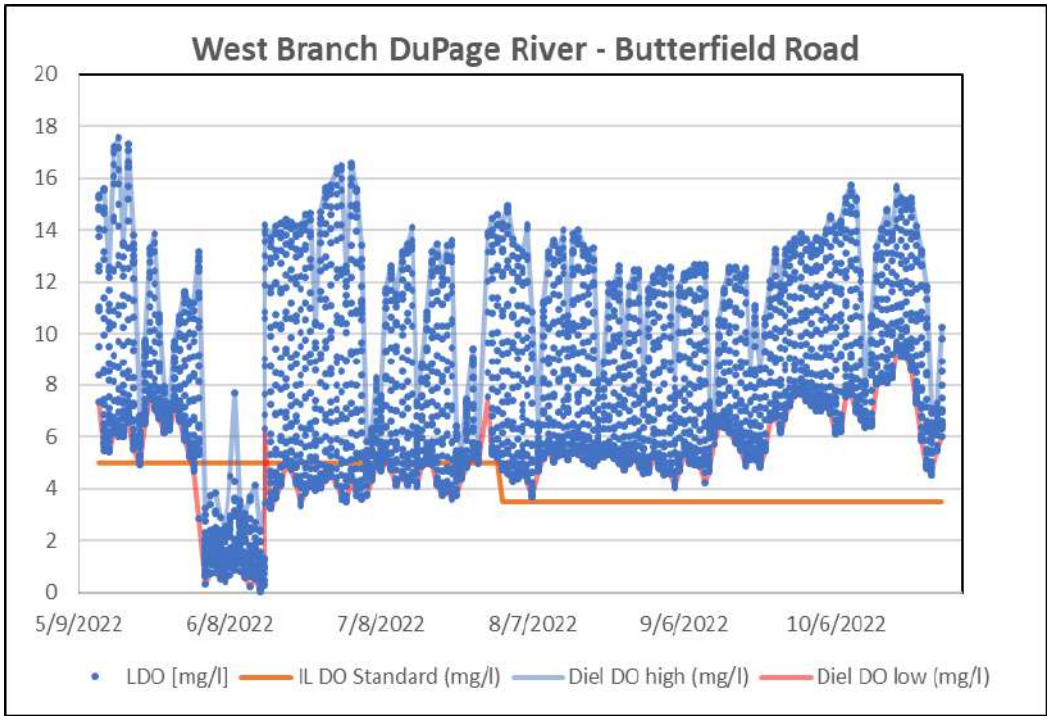


Figure 10. *2022 Dissolved Oxygen plot for the West Branch DuPage River downstream of former Warrenville Grove Dam (WBWD)*

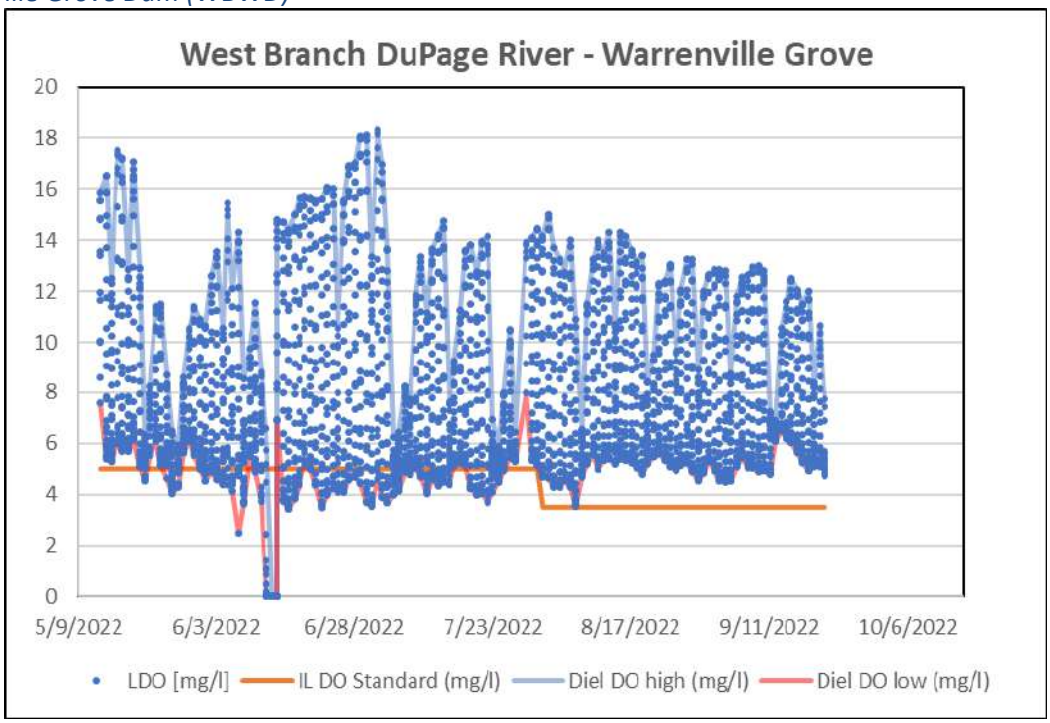


Figure 11. *2022 Dissolved Oxygen plot for the West Branch DuPage River upstream of former McDowell Grove Dam (WBMG)*

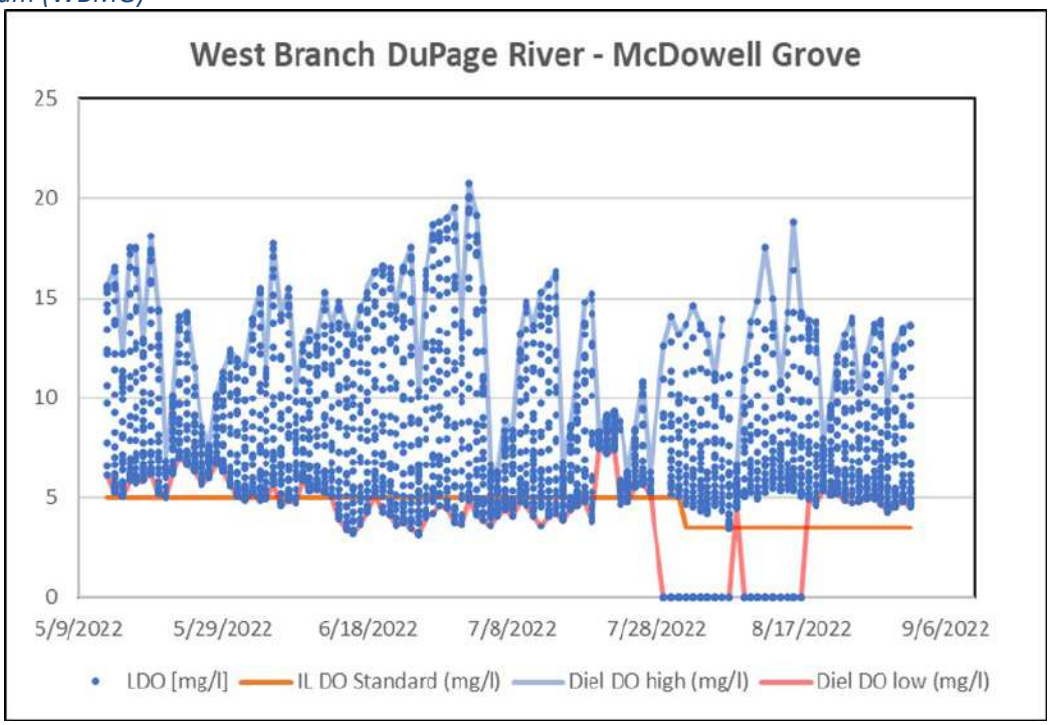


Figure 12. *2022 Dissolved Oxygen plot for the West Branch DuPage River at Bailey Road (WBNPV)*

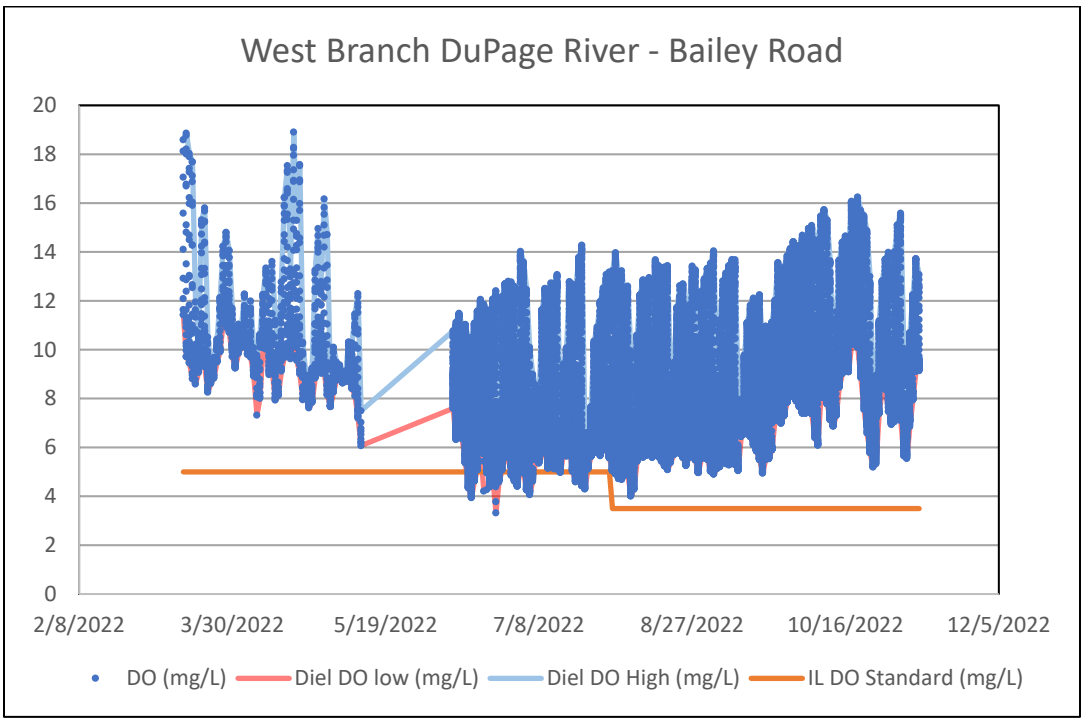


Figure 13. *2022 Dissolved Oxygen plot for the East Branch DuPage River at Army Trail Road (WBAR)*

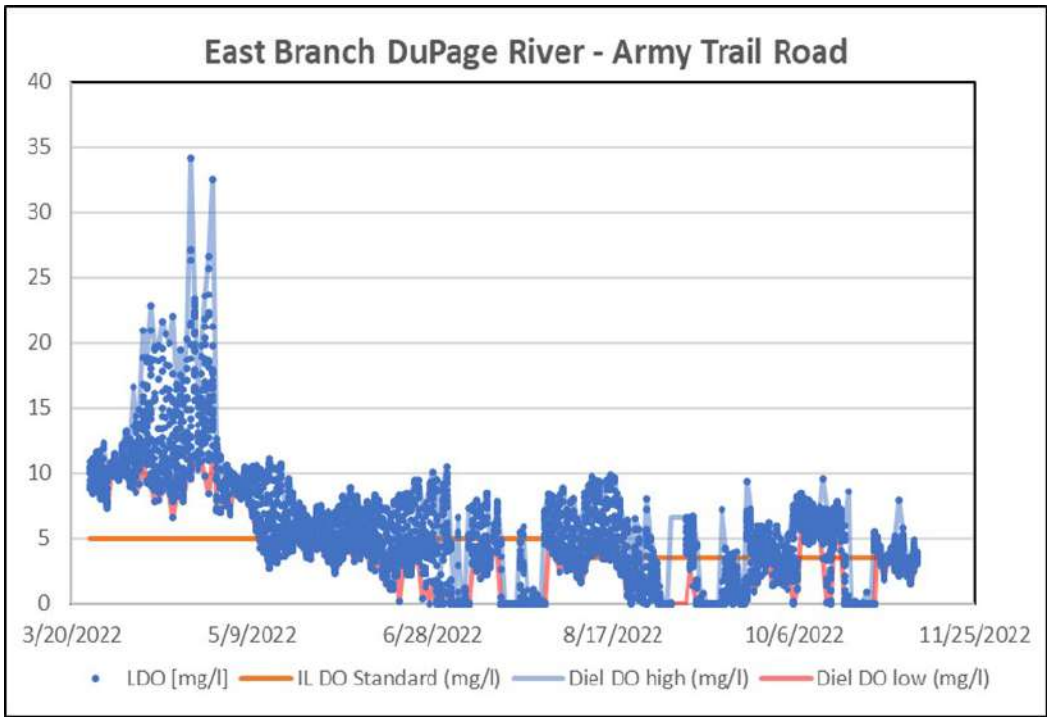


Figure 14. *2022 Dissolved Oxygen plot for the East Branch DuPage River at Crescent Boulevard (EBCB)*

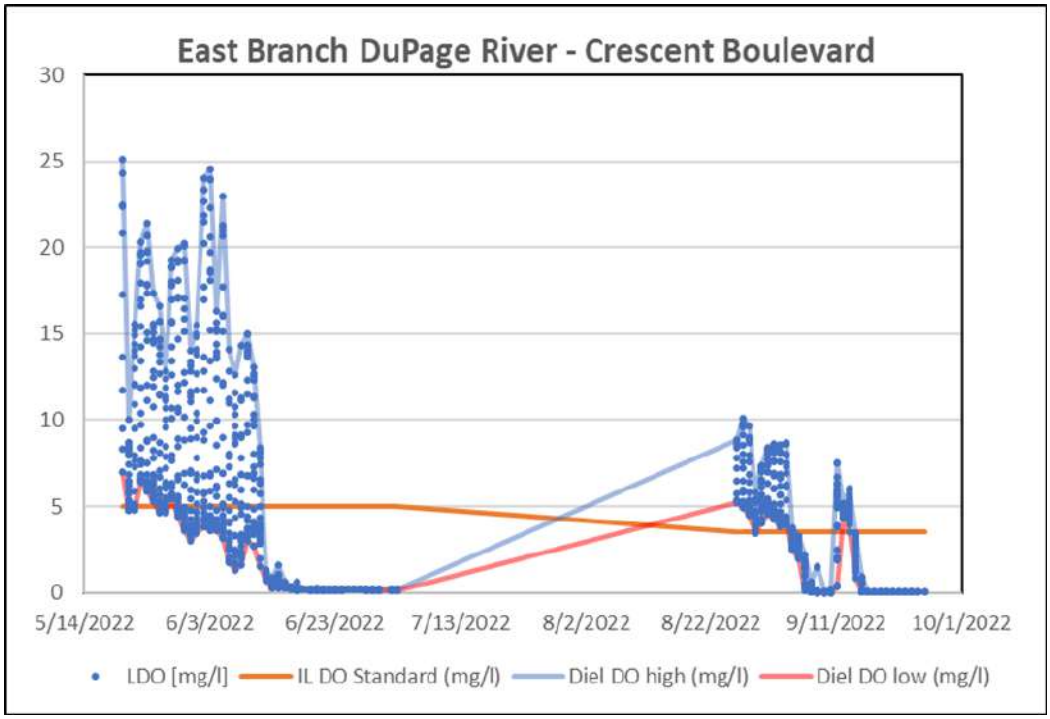


Figure 15. *2022 Dissolved Oxygen plot for the East Branch DuPage River at Hidden Lake Preserve (EBCB)*

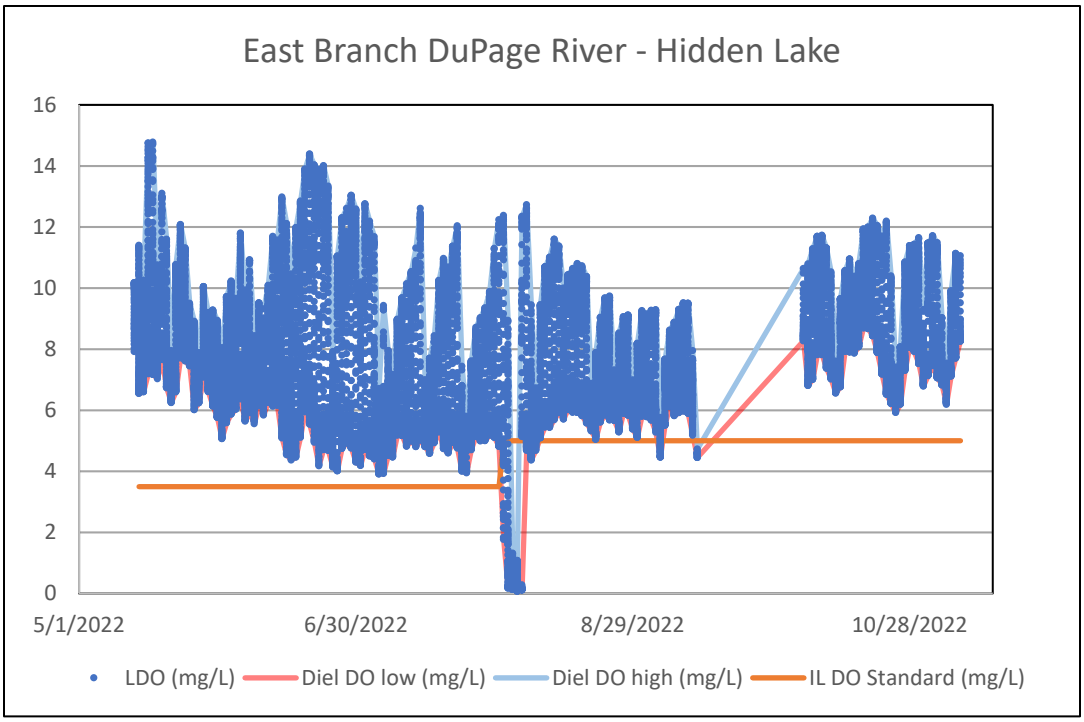


Figure 16. *2022 Dissolved Oxygen plot for the East Branch DuPage River at Hobson Road (EBHR)*

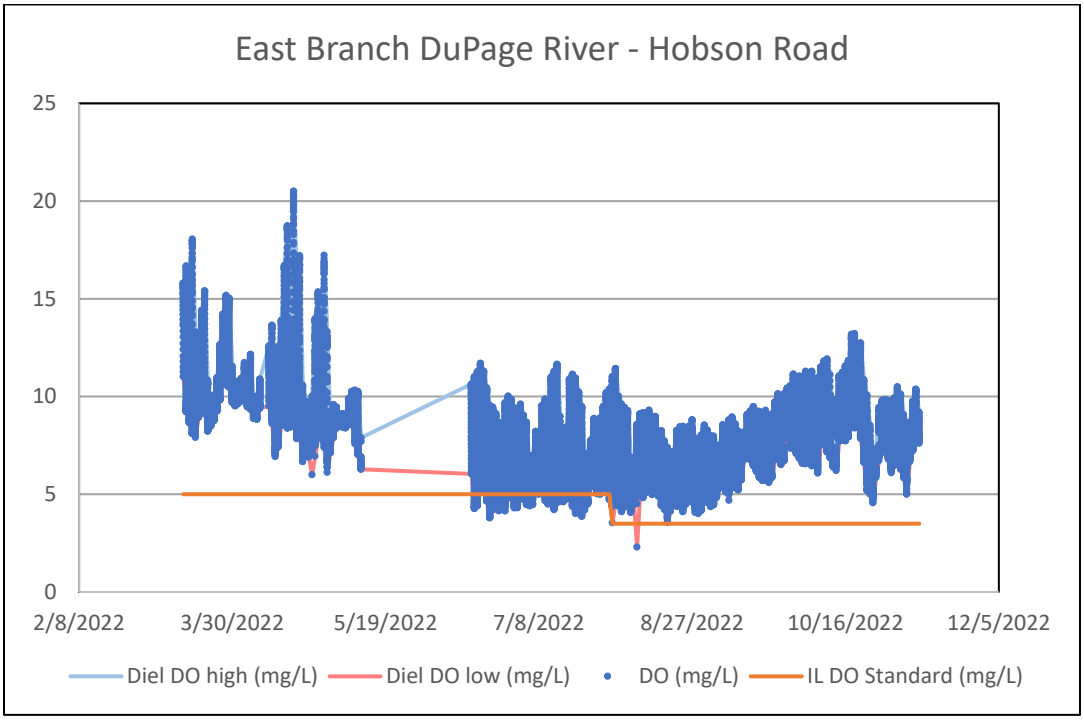


Figure 17. *2022 Dissolved Oxygen plot for the East Branch DuPage River at Whalon Lake (EBWL)*

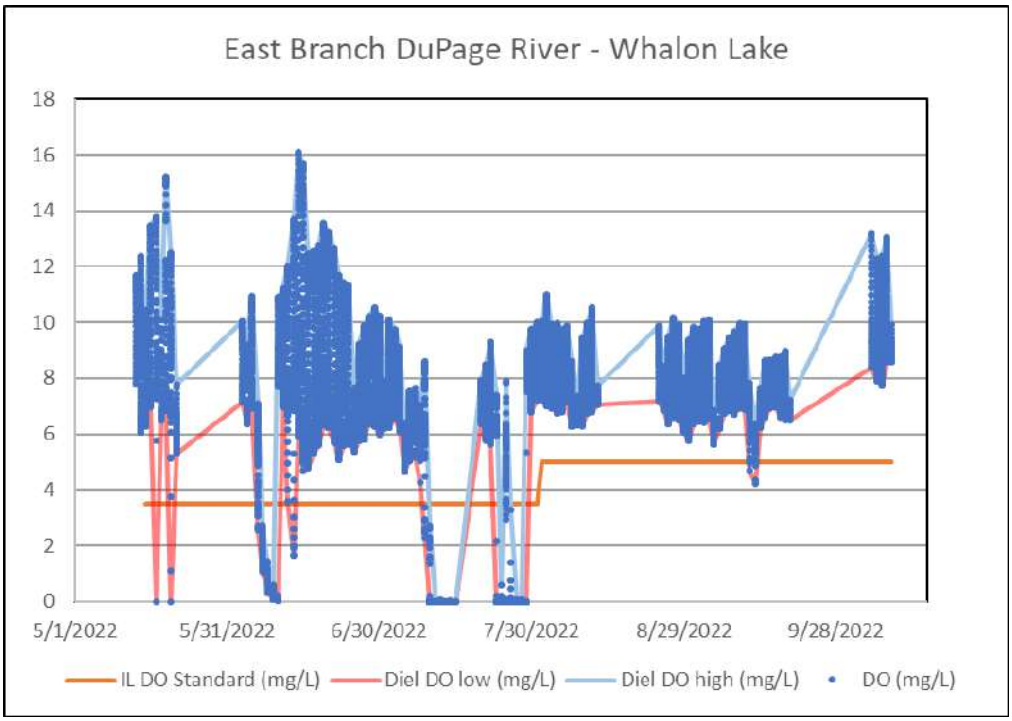


Figure 18. *2022 Dissolved Oxygen plot for Salt Creek downstream of Busse Woods Dam (SCBW)*

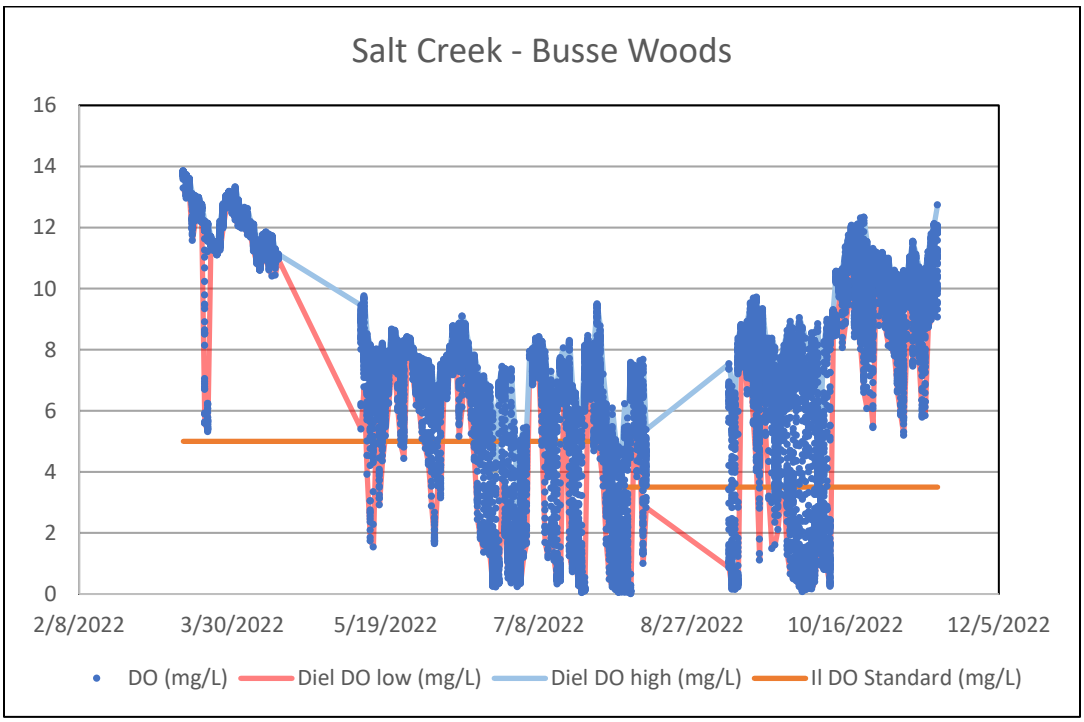


Figure 19. *2022 Dissolved Oxygen plot for Salt Creek upstream of former Oak Meadows Dam (SCOM)*

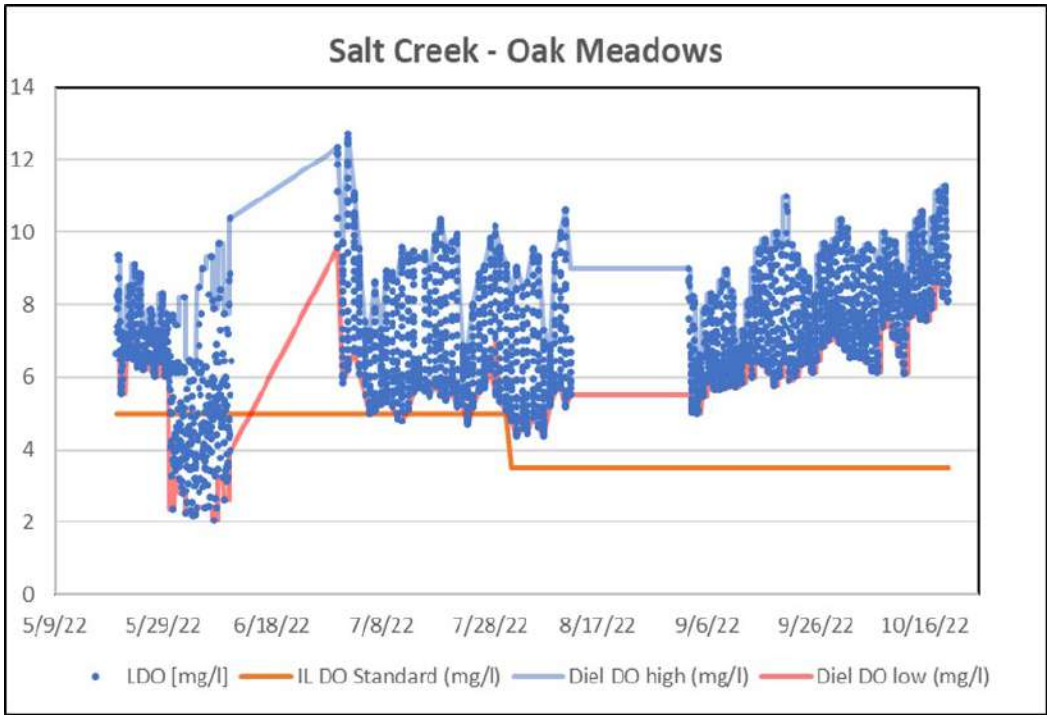


Figure 20. *2022 Dissolved Oxygen plot for Salt Creek at Butterfield Road (SCBR)*

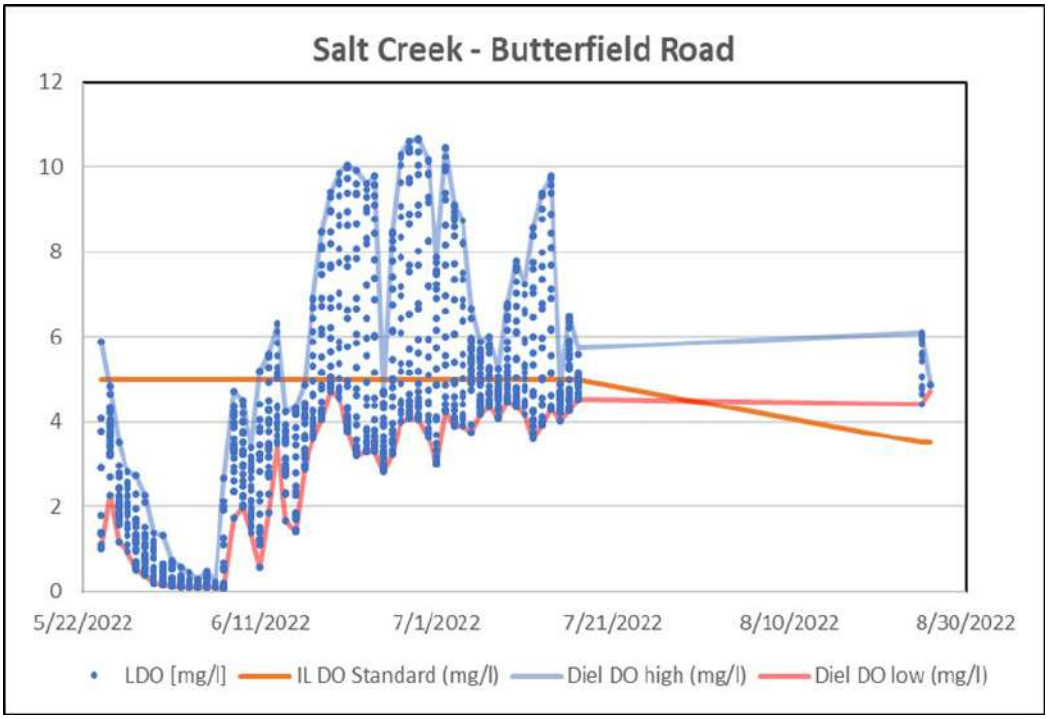


Figure 21. *2022 Dissolved Oxygen plot for Salt Creek in the Fullersburg Woods impoundment (SCFW)*

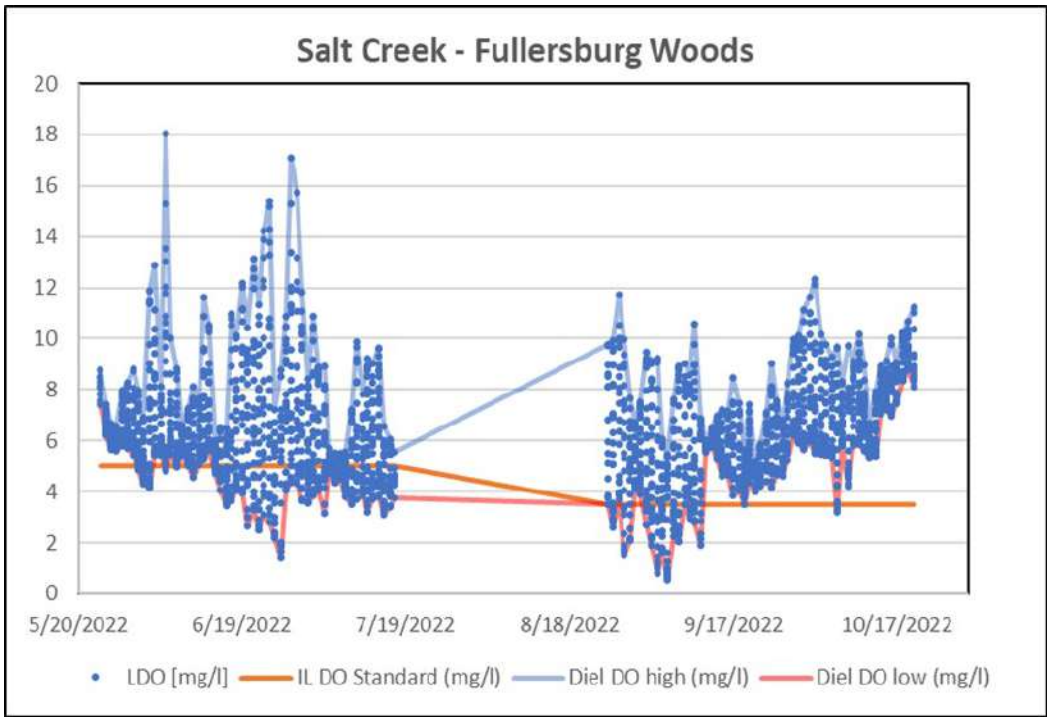
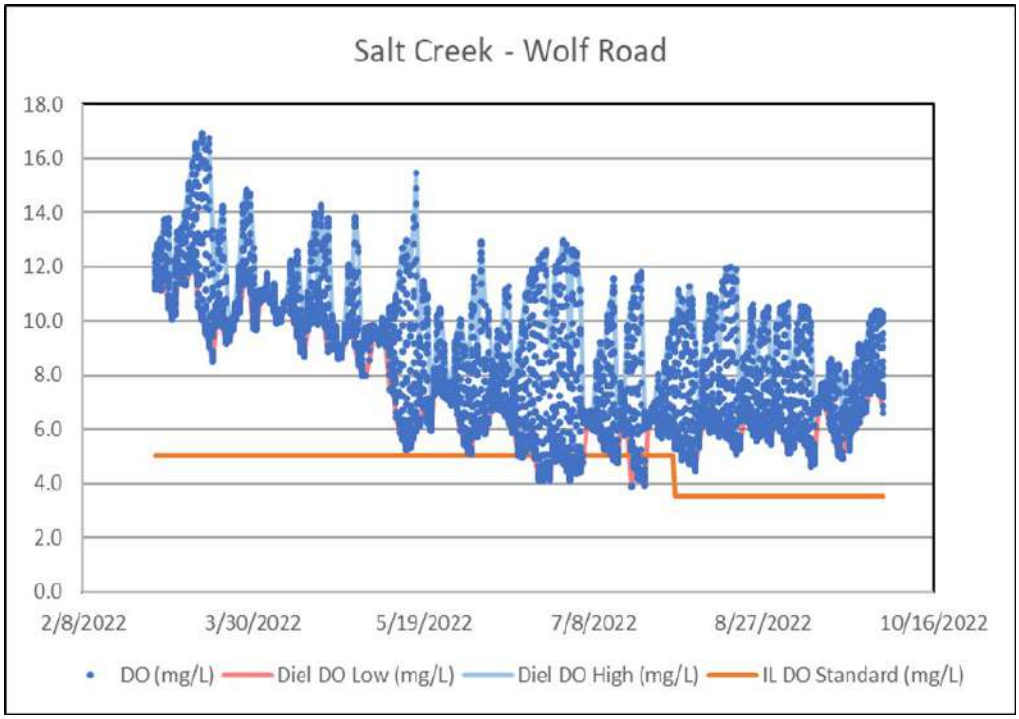


Figure 22. *2022 Dissolved Oxygen plot for Salt Creek at Wolf Road (SCWR)*

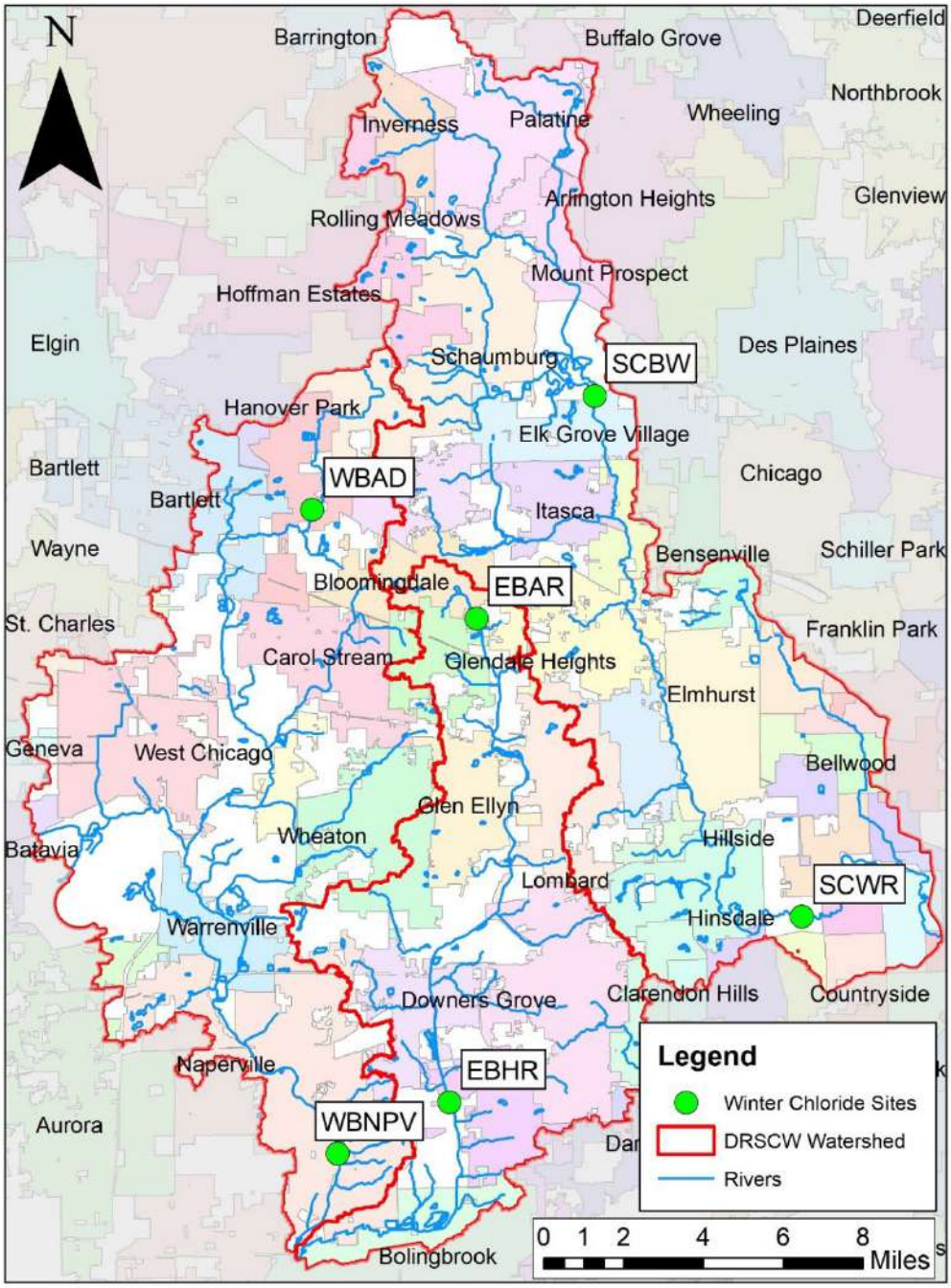


EXPANDED DO MONITORING

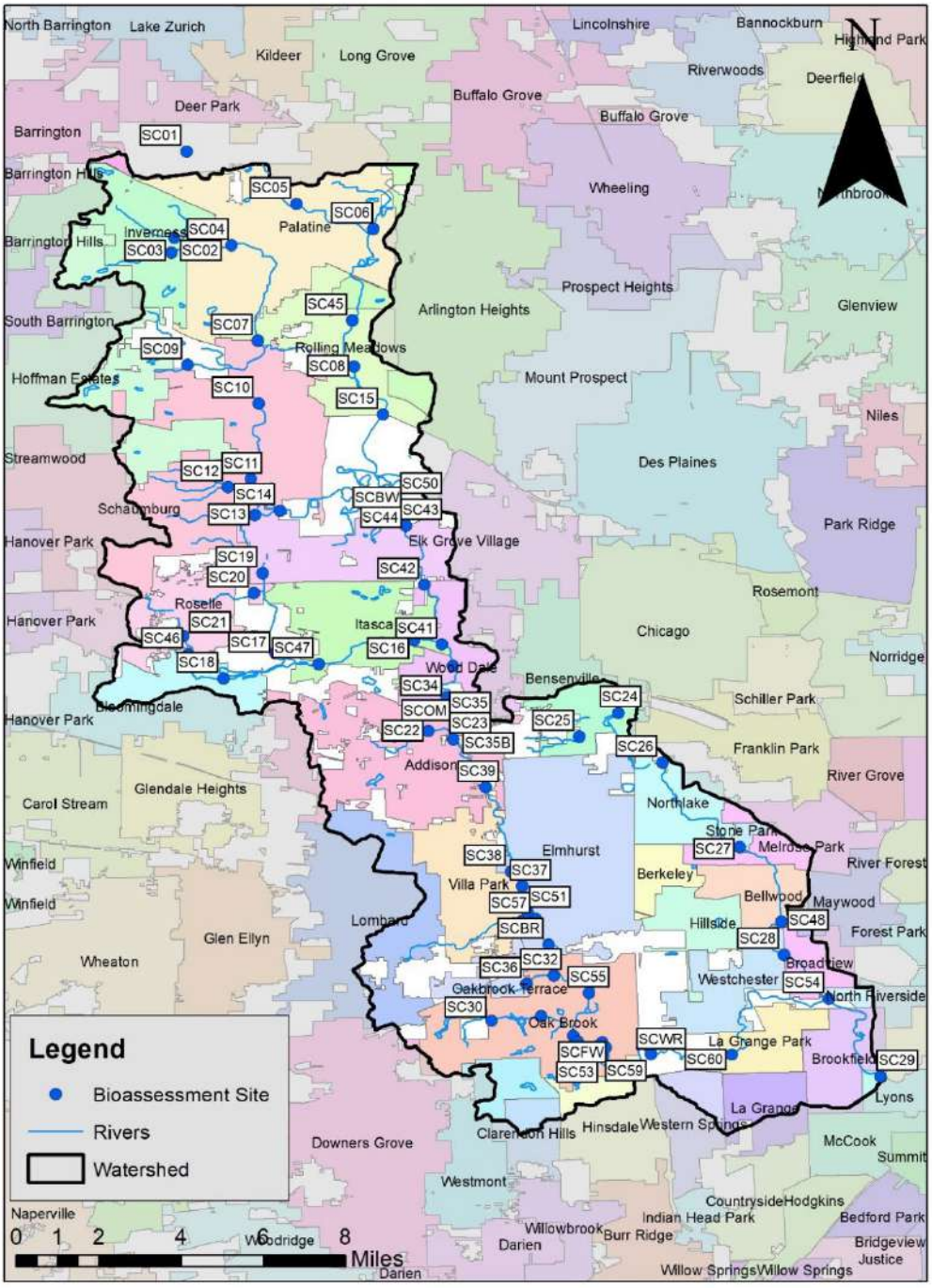
In 2019, the DRSCW began their expanded DO Monitoring Program as a means to collect additional data to support the calibration/validation of the QUAL2Kw models and to support the development of the Nutrient Implementation Plan (NIP). This program is coordinated with the Bioassessment Program (see Table 7 for schedule). No expanded DO sampling was conducted in 2022.

Table 7. *Schedule for Expanded DO Monitoring*

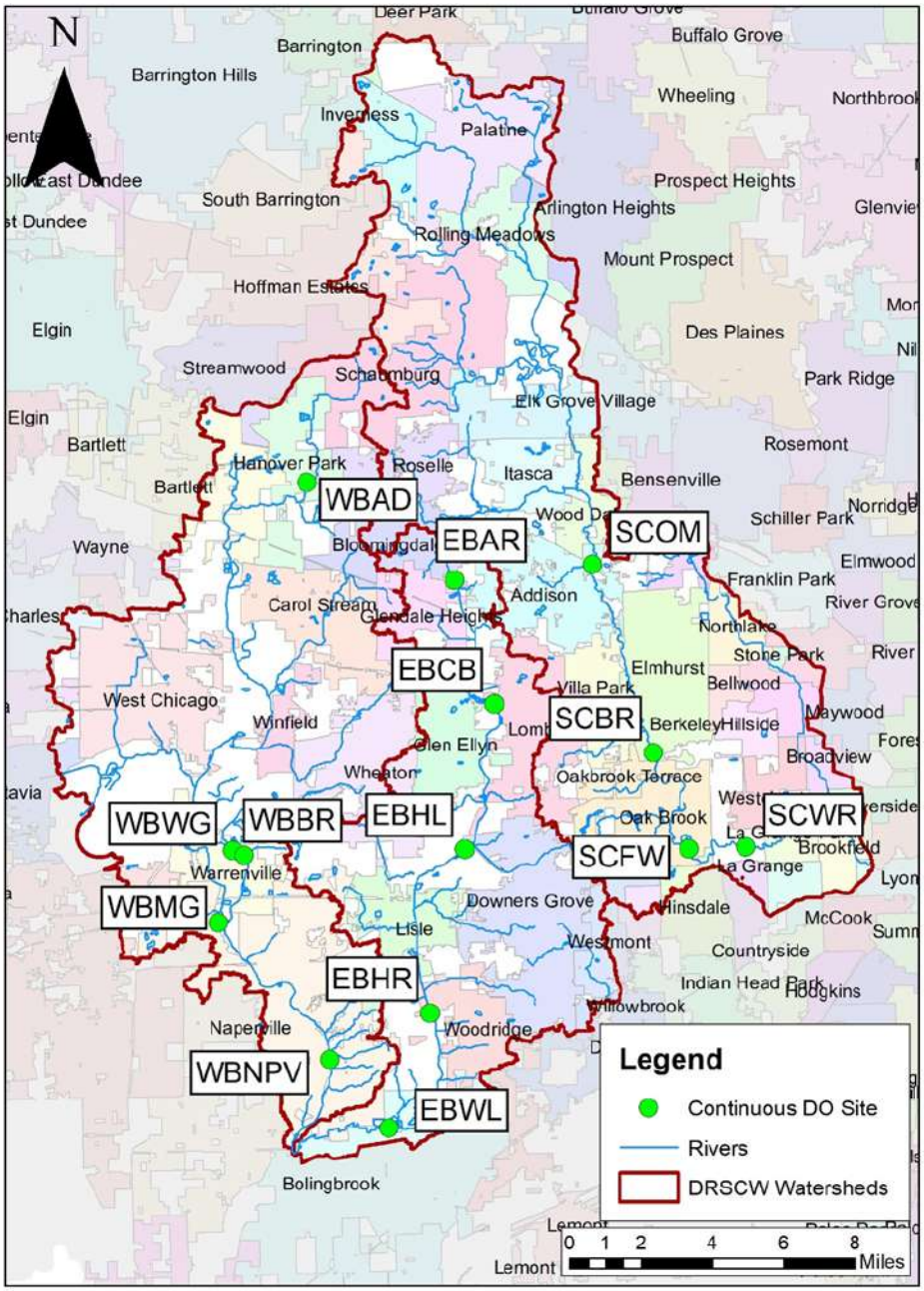
Basin	Year of Expanded DO Monitoring Completed	Year of Expanded DO Monitoring Scheduled
East Branch DuPage River	2019	2023
West Branch DuPage River	2020	2025
Salt Creek	2021	2027



Map 1. *Ambient chloride monitoring sites in the DRSCW watershed (2022)*



Map 2. *Bioassessment sites in the Salt Creek watershed (2021)*



Map 3. *Continuous DO monitoring sites in the DRSCW watersheds (2022)*

DuPage River Salt Creek Workgroup

Attachment 1

2022 Public Roads Deicing Workshop
Attendees List

Attachment 1.

2022 Public Roads Deicing Workshop Attendees (organized by County)

Date	Workshop	Agency	County
October 6th, 2022	Public Roads Deicing Workshop	Village of Arlington Heights	Cook
September 27th, 2022	Public Roads Deicing Workshop	DGO Premium Services Co.	Cook
October 6th, 2022	Public Roads Deicing Workshop	Village of Homewood	Cook
October 5th, 2022	Public Roads Deicing Workshop	Village of Lemont	Cook
September 27th, 2022	Public Roads Deicing Workshop	Village of Lemont Public Works	Cook
October 5th, 2022	Public Roads Deicing Workshop	Village of Midlothian Public Works	Cook
September 27th, 2022	Public Roads Deicing Workshop	Village of Midlothian Public Works	Cook
October 5th, 2022	Public Roads Deicing Workshop	Morton Grove Public Works	Cook
October 5th, 2022	Public Roads Deicing Workshop	Village of Streamwood Public Works	Cook
October 5th, 2022	Public Roads Deicing Workshop	Morton Grove Public Works	Cook
October 5th, 2022	Public Roads Deicing Workshop	Metropolitan Water Reclamation District	Cook
September 27th, 2022	Public Roads Deicing Workshop	Metropolitan Water Reclamation District	Cook
October 5th, 2022	Public Roads Deicing Workshop	Palatine Township Road District	Cook
October 5th, 2022	Public Roads Deicing Workshop	Village of Park Forest	Cook
October 5th, 2022	Public Roads Deicing Workshop	Richton Park	Cook
September 27th, 2022	Public Roads Deicing Workshop	Village of Skokie	Cook
September 27th, 2022	Public Roads Deicing Workshop	Village of South Holland Public Works Dept.	Cook
September 27th, 2022	Public Roads Deicing Workshop	Village of Wilmette	Cook
October 5th, 2022	Public Roads Deicing Workshop	Illinois Tollway	DeKalb
October 5th, 2022	Public Roads Deicing Workshop	Illinois Tollway	DeKalb
September 27th, 2022	Public Roads Deicing Workshop	Village of Addison	DuPage
October 5th, 2022	Public Roads Deicing Workshop	Village of Bartlett	DuPage
October 5th, 2022	Public Roads Deicing Workshop	Village of Bloomingdale	DuPage
October 5th, 2022	Public Roads Deicing Workshop	Village of Carol Stream	DuPage
October 5th, 2022	Public Roads Deicing Workshop	City of Darien	DuPage
September 27th, 2022	Public Roads Deicing Workshop	Forest Preserve District of Dupage County	DuPage
October 5th, 2022	Public Roads Deicing Workshop	Village of Glen Ellyn	DuPage
October 5th, 2022	Public Roads Deicing Workshop	Village of Glendale Heights	DuPage
October 6th, 2022	Public Roads Deicing Workshop	Village of Glendale Heights	DuPage
October 6th, 2022	Public Roads Deicing Workshop	Illinois Tollway Highway Authority	DuPage
October 5th, 2022	Public Roads Deicing Workshop	Illinois Tollway Highway Authority	DuPage
October 6th, 2022	Public Roads Deicing Workshop	Milton Township Highway Department	DuPage
October 5th, 2022	Public Roads Deicing Workshop	Village of Oak Brook Public Works	DuPage
September 27th, 2022	Public Roads Deicing Workshop	Village of Villa Park	DuPage
October 5th, 2022	Public Roads Deicing Workshop	City of West Chicago	DuPage
October 6th, 2022	Public Roads Deicing Workshop	City of West Chicago	DuPage
September 27th, 2022	Public Roads Deicing Workshop	York Township Highway Department	DuPage
October 5th, 2022	Public Roads Deicing Workshop	Kane County Division of Transportation	Kane county
September 27th, 2022	Public Roads Deicing Workshop	Antioch Township Highway Department	Lake
October 5th, 2022	Public Roads Deicing Workshop	Avon Township highway	Lake
September 27th, 2022	Public Roads Deicing Workshop	Village of Fox Lake	Lake
October 5th, 2022	Public Roads Deicing Workshop	Fox Lake Public Works Streets Dept.	Lake
September 27th, 2022	Public Roads Deicing Workshop	Village of Gurnee Public Works	Lake
October 6th, 2022	Public Roads Deicing Workshop	Illinois Tollway Highway Authority	Lake
October 5th, 2022	Public Roads Deicing Workshop	Illinois State Toll Highway Authority	Lake
October 6th, 2022	Public Roads Deicing Workshop	Village of Lake Zurich	Lake
October 5th, 2022	Public Roads Deicing Workshop	Village of Lindenhurst	Lake
October 6th, 2022	Public Roads Deicing Workshop	Village of Lindenhurst	Lake
September 27th, 2022	Public Roads Deicing Workshop	Newport Township Highway Department	Lake
September 27th, 2022	Public Roads Deicing Workshop	Village of Round Lake	Lake
October 6th, 2022	Public Roads Deicing Workshop	Village of Bolingbrook	Will
October 5th, 2022	Public Roads Deicing Workshop	Village of Frankfort	Will
October 6th, 2022	Public Roads Deicing Workshop	Illinois Tollway Highway Authority	Will
October 5th, 2022	Public Roads Deicing Workshop	Village of Manhattan	Will
September 27th, 2022	Public Roads Deicing Workshop	Robinson Engineering, Ltd.	Will
September 27th, 2022	Public Roads Deicing Workshop	Wheatland Twp. Road District	Will
October 5th, 2022	Public Roads Deicing Workshop	Illinois Tollway Highway Authority	Winnabago/Boone

DuPage River Salt Creek Workgroup

Attachment 2

2022 Parking Lots & Sidewalks
Deicing Workshop Attendees List

Attachment 2.

2022 Parking Lots & Sidewalks Deicing Workshop Attendees (organized by County)

Date	Workshop	Agency	County
September 29th, 2022	Parking Lots & Sidewalks Deicing Workshop	Sebert Landscaping	Boone
September 29th, 2022	Parking Lots & Sidewalks Deicing Workshop	Beverly Snow and Ice	Cook
October 11th, 2022	Parking Lots & Sidewalks Deicing Workshop	Cook County Facilities Management	Cook
October 11th, 2022	Parking Lots & Sidewalks Deicing Workshop	Village of Crestwood	Cook
September 29th, 2022	Parking Lots & Sidewalks Deicing Workshop	Glenbrook High School Dist. 225	Cook
October 11th, 2022	Parking Lots & Sidewalks Deicing Workshop	Glencoe Park District	Cook
October 11th, 2022	Parking Lots & Sidewalks Deicing Workshop	Village of Lemont	Cook
September 29th, 2022	Parking Lots & Sidewalks Deicing Workshop	Village of Lemont Public Works	Cook
October 11th, 2022	Parking Lots & Sidewalks Deicing Workshop	Metropolitan Water Reclamation District	Cook
September 29th, 2022	Parking Lots & Sidewalks Deicing Workshop	Metropolitan Water Reclamation District	Cook
October 11th, 2022	Parking Lots & Sidewalks Deicing Workshop	Village of Park Forest	Cook
October 11th, 2022	Parking Lots & Sidewalks Deicing Workshop	Village of Riverside	Cook
September 29th, 2022	Parking Lots & Sidewalks Deicing Workshop	Sebert Landscaping	Cook
September 29th, 2022	Parking Lots & Sidewalks Deicing Workshop	Village of Skokie	Cook
October 11th, 2022	Parking Lots & Sidewalks Deicing Workshop	Village of Flossmoor	Cook
October 11th, 2022	Parking Lots & Sidewalks Deicing Workshop	Butterfield Park District	DuPage
September 29th, 2022	Parking Lots & Sidewalks Deicing Workshop	Forest Preserve District of DuPage County	DuPage
September 29th, 2022	Parking Lots & Sidewalks Deicing Workshop	Sebert Landscaping	DuPage
September 29th, 2022	Parking Lots & Sidewalks Deicing Workshop	DuPage County Stormwater	DuPage
October 11th, 2022	Parking Lots & Sidewalks Deicing Workshop	Cornerstone Partners Horticultural Services Co.	Kane
October 11th, 2022	Parking Lots & Sidewalks Deicing Workshop	Fox Valley Park District	Kane
October 11th, 2022	Parking Lots & Sidewalks Deicing Workshop	City of Kankakee Environmental Services Utility	Kankakee
October 11th, 2022	Parking Lots & Sidewalks Deicing Workshop	North Shore Water Reclamation District	Lake
September 29th, 2022	Parking Lots & Sidewalks Deicing Workshop	Village of Wauconda	Lake
October 11th, 2022	Parking Lots & Sidewalks Deicing Workshop	Crystal Lake School District #47	McHenry
October 11th, 2022	Parking Lots & Sidewalks Deicing Workshop	McHenry HS District 156	McHenry
September 29th, 2022	Parking Lots & Sidewalks Deicing Workshop	Sebert Landscaping	McHenry
September 29th, 2022	Parking Lots & Sidewalks Deicing Workshop	Woodstock School District	McHenry
September 29th, 2022	Parking Lots & Sidewalks Deicing Workshop	Sebert Landscaping	Milwaukee, WI
October 11th, 2022	Parking Lots & Sidewalks Deicing Workshop	Elwood School District	Will
September 29th, 2022	Parking Lots & Sidewalks Deicing Workshop	Joliet Junior College	Will
September 29th, 2022	Parking Lots & Sidewalks Deicing Workshop	Robinson Engineering, Ltd.	Will
September 29th, 2022	Parking Lots & Sidewalks Deicing Workshop	Sebert Landscaping	Will