May 24, 2023

To: Illinois Environmental Protection Agency
Water Pollution Control
Compliance Assurance Section #19
P.O. Box 19276
Springfield, IL 62794-9276

RE: Village of Romeoville (REL # 14-770.RV)
NPDES Permit MS4 Annual Report
Reporting Cycle 2022-2023
Permit No. ILR40-0436

Dear Sir/Madam:

On behalf of the Village of Romeoville, please find enclosed the Annual Report regarding the Village's NPDES Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4).

This report is being emailed to epa.ms4annualinsp@illinois.gov. If you have questions, please email me at dwest@reltd.com or call me at (815) 412-2702.

Very truly yours,

Dana E. West

Dana E. West, PE, CFM, CPESC
Senior Project Manager

Encl.

xc: Eric Bjork, Capital Projects Engineer – Village of Romeoville
Jay Patel – IEPA, Des Plaines office

NPDES Phase II Small MS4 General Permit

Annual Report

May 24, 2022

Municipality/Organization: Village of Romeoville

NPDES Permit Number: ILR40 0436

Permit Effective Date: TBD

Permit Expiration Date: TBD

Annual Report Period: March 2022-March 2023

Contact Information:

Village of Romeoville:

Eric Bjork
Capital Projects Engineer
815-886-1870
ebjork@romeoville.org
1050 W. Romeo Road
Romeoville, IL 60446

Robinson Engineering, Ltd:

Dana E. West, PE, CFM, CPESC
Senior Project Manager
815-412-2702
dwest@reltd.com
10045 W. Lincoln Highway
Frankfort, IL 60423

Illinois Environmental Protection Agency

Bureau of Water • 1021 N. Grand Avenue E. • P.O. Box 19276 • Springfield • Illinois • 62794-9276

Division of Water Pollution Control
ANNUAL FACILITY INSPECTION REPORT
for NPDES Permit for Storm Water Discharges from Separate Storm Sewer Systems (MS4)

This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to the Compliance Assurance Section at the above address. Complete each section of this report.

Report Period: From March, 2022 To March, 2023

Permit No. ILR40 0436

MS4 OPERATOR INFORMATION: (As it appears on the current permit)

Name: Village of Romeoville Mailing Address 1: 1050 W. Romeo Road

Mailing Address 2: County: Will

City: Romeoville State: IL Zip: 60446 Telephone: 815-886-1870

Contact Person: Eric Bjork Email Address: ebjork@romeoville.org
(Person responsible for Annual Report)

Name(s) of governmental entity(ies) in which MS4 is located: (As it appears on the current permit)

Village of Romeoville Will county

THE FOLLOWING ITEMS MUST BE ADDRESSED.

A. Changes to best management practices (check appropriate BMP change(s) and attach information regarding change(s) to BMP and measurable goals.)

1. Public Education and Outreach ☐
2. Public Participation/Involvement ☐
3. Illicit Discharge Detection & Elimination ☐
4. Construction Site Runoff Control ☐
5. Post-Construction Runoff Control ☐
6. Pollution Prevention/Good Housekeeping ☐

B. Attach the status of compliance with permit conditions, an assessment of the appropriateness of your identified best management practices and progress towards achieving the statutory goal of reducing the discharge of pollutants to the MEP, and your identified measurable goals for each of the minimum control measures.

C. Attach results of information collected and analyzed, including monitoring data, if any during the reporting period.

D. Attach a summary of the storm water activities you plan to undertake during the next reporting cycle (including an implementation schedule.)

E. Attach notice that you are relying on another government entity to satisfy some of your permit obligations (if applicable).

F. Attach a list of construction projects that your entity has paid for during the reporting period.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

E. Bjork 5/4/23

Owner Signature: Date:

Eric Bjork Capital Projects Engineer

Printed Name: Title:

EMAIL COMPLETED FORM TO: epa.ms4annualinsp@illinois.gov

or Mail to: ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL
COMPLIANCE ASSURANCE SECTION #19
1021 NORTH GRAND AVENUE EAST
POST OFFICE BOX 19276
SPRINGFIELD, ILLINOIS 62794-9276

NPDES Phase II Small MS4 General Permit

Supplemental Information to Annual Facility Inspection Report

May 24, 2023

A. **Changes to BMPs:**
There have been no significant changes regarding the Village BMP's during the current reporting cycle.

B. **Status of Compliance with Permit Conditions:**
A summary of the Village's minimum control measures indicating measurable goals and status of compliance with the permit conditions are included on the following pages of this report. The BMPs have been evaluated and appear to be the most appropriate measures for achieving the requirements and meeting the intent of the program. This conclusion appears to continue to be supported by the data obtained from in-stream sampling.

C. **Monitoring Data:**
Monitoring data has been collected; results are included in this report.

The Village has continued to utilize the monitoring and assessment program for evaluating the effectiveness of the BMPs that was developed and implemented previously. The Village collects in-stream samples and evaluates chemical components, consistent with sampling performed by workgroups in the area, so that the results can supplement and assist in the validation of results and conclusions.

D. **Stormwater Activities Planned in Next Reporting Cycle:**
A summary of the Village's planned activities is included on the following pages of this report (combined with Item B: Compliance with Permit Conditions).

E. **Permit Obligations by Another Entity:** Not applicable.

Permit Assistance through Another Entity:
The Village of Romeoville is currently a member of the Lower DuPage River Watershed Coalition, the Lower DesPlaines River Watershed Workgroup and Lower DesPlaines River Chlorides Workgroup. These memberships fulfill the requirements of Section III.D of the current General NPDES ILR40 permit (regarding chloride concentration reductions in receiving streams). Information obtained from these groups such as assessment of the impacts of stormwater discharges, effectiveness of any BMPs, and public outreach campaigns, is used to supplement the Village's NPDES Program and activities. These organizations are well underway with collaborative watershed-scale monitoring to assess water quality of the water bodies and sources of pollutants. Information is included as part of this report.

F. **Village Construction Projects:**

The Village let and began construction on the following project during this reporting period:

Romeo Crossing Community Park – Phases I & II

Below is a list of other NOIs submitted for during the last reporting period:

NPDES #	Facility Name	Owner Name
ILR10ZBR2	Mercedes-Benz Car Dealership Romeoville	Mercedes Benz Orland Park
ILR10ZCGJ	O'Hare Drive Romeoville	RE O'Hare LLC
ILR10ZCBX	Taco Bell Romeoville	Black River Bells, LLC

Village of Romeoville - NPDES Program Plan
Summary of Minimum Control Measures

5/25/2023

1. Public Education and Outreach (relating to the impacts of stormwater discharges on water bodies, steps to reduce pollutants in runoff, information about green infrastructure, and effective pollution prevention measures (referenced in Section Bai of general permit).

BMP ID No.	BMP Description	Responsible Dept./Person	Measurable Goal(s)	Progress on Goal(s)- Permit Year 6 (2021-2022)	Copy or Other Documentation	Planned Activities- Permit Year 7 (2022-2023)
A.1	Distributed **Paper Material**	Robinson to select from available materials; Dept of PW to delegate execution	Distribution of pamphlet, flyer or brochure.	Educational outreach is a portion of the watershed planning effort associated with the Lower DuPage River Watershed Coalition and the Lower Des Paines River Watershed Workgroup. Outreach materials are available through the Conservation Foundation. The Village will continue to utilize these resources moving forward.	Brochure about threatened dragonfly species; for collection at the front window at Village Hall (approximately 25).	Select, print and distribute brochures at Village Hall Kiosk and at the Recreation Center. Translate dragonfly into spanish.
A.1	Other Public Education	Robinson to select from available materials; Dept of PW to delegate execution	Include **articles** in newsletters annually.	The Village's newsletter, Community Focus, is distributed to all residential postal addresses in the Village, reaching approximately 40,000 residents and property owners twice a year. Stormwater-related articles include information on the minimum topics required per NOI: Spring Clean-Up Week; Yard Waste & Branch Pick-Up; Help Keep Our Waterways Clean. How to Maintain Your Lawn to Protect Rivers and Streams. The Effects of Leaves on Storm Drains. Electronic and Paint Clean Up.	Copy of Spring & Fall 2022 Newsletters; Spring 2023 Newsletter	Continue including articles in newsletters which contain information per NOI requirements (about disposal of oil and paint, car washing, lawn care chemicals, deicing materials storage or other MS4 related topics).
A.6-added	Other Public Education	Robinson to confirm permit requirements are met; Dept of PW to delegate execution	Village **Website** includes the most current NOI, Annual Report (5 years) and Plan; also information about the NPDES Program and keeping pollutants out of stormwater runoff. There is also information about the Illegal Discharge Reporting Hotline.	Website still has items posted as required. The last five years of Annual Reports are linked. Most current NOI is posted. Link is http://www.romeoville.org/233/Stormwater-Reports	Screenshots of current website: Stormwater Reports; Storm Sewer Program;	Maintain links and content on website; update with 2022-2023 Annual Report when available.
A.6-added	Other Public Education	Dept of PW & other Village Departments	Facilitate **rain barrel** program.	Promote the use and explain the benefits of rain barrels; provide links to the Conservation Foundation for purchasing a rain barrel.	Facebook messages about rain barrels	Facilitate rain barrel program for Village residents. Evaluate options through the Conservation Foundation.
A.6-added	Other Public Education	Dept of PW to work with Legion Post 52	Install **storm drains** and distribute door hangers with information on the effects of pollutants entering the storm system.	This project was postponed due to COVID-19 Pandemic; still on hold.	N/A	Discuss future participation with the Legion.
A.6-added	Other Public Education	Dept of PW	Emails sent to communicate various Village initiatives.	Emails were sent regarding the Spring Clean Up, Tree Replacements and Tree City USA. The email distribution list currently goes to approximately 2,000 subscribers.	Website announcements	Continue to email residents and business owners regarding initiatives that promote stormwater quality.
A.6-added	Other Public Education	Dept of PW	Conduct annual spring clean up, including branch collection from property owners.	Branch collection is now offered weekly with trash pickup. Chipper service is offered during clean up weeks.	Email.	Conduct annual spring clean up, including brach collection from individual property owners.
A.6-added	Other Public Education	Dept of PW to work with other Departments	Distribution of salt cups and informational bookmark to residents.	Distribute salt cups to residents with accompanying literature to assist residents to not to oversalt sidewalks in the winter.	Photo of cups and bookmarks at Village Hall and Recr Center; Copy of Bookmark	Continue to distribute cups and bookmarks in Fall 2023.
A.6-added	Other Public Education	Dept of PW	Display of truck magnets on Village plows.	Village plow trucks display the magnet with a message about salting. These trucks drive throughout the Village during winter months.	Photo of truck	Continue use of magnets on Village plows during winter months.

Village of Romeoville - NPDES Program Plan
Summary of Minimum Control Measures

5/25/2023

A.6-added	Other Public Education	Village	Post stormwater related items on Village Facebook Page.	The Village posted a few items on the Facebook page relating to the O'Hara Woods Volunteer Workdays, Special Waste Pick Up, Yard Waste Collection, Clean Up after storms, lawn maintenance, rain barrels and stormwater runoff.	Screenshots of most recent posts.	Continue to use Facebook as another means to communicate about stormwater.

Village of Romeoville - NPDES Program Plan
Summary of Minimum Control Measures

5/25/2023

2. Public Participation/Involvement

BMP ID No.	BMP Description	Responsible Dept./Person	Measurable Goal(s)	Progress on Goal(s)- Permit Year 6 (2021-2022)	Copy or Other Documentation	Planned Activities- Permit Year 7 (2022-2023)
B.4	Public Meeting (minimum of one per year)	Robinson to prepare; Dept of PW to select date, secure place on agenda	Conduct Public Hearing, Forum or Workshop.	Public meeting at Village Board meeting was held on 3/15/22.	Agenda, Minutes, Slides will soon be available.	Public meeting at Village Board meeting to be held in March. 10-15 slides will be used for presentation and handout at meeting.
B.4	Public Meeting	Dept of Public Works/ Robinson Engineering	Conduct Public Hearing, Forum or Workshop.	Lower DuPage River Watershed Coalition meetings were held regularly.	Agendas/Packets & Minutes saved to folder.	Participation in meetings will continue.
B.4	Public Meeting	Dept of Public Works/ Robinson Engineering	Conduct Public Hearing, Forum or Workshop.	Lower DesPlaines Watershed Group meetings were held. Village Staff Engineering Staff were in attendance.	Agendas/Packets & Minutes saved to folder.	Participation in meetings will continue.
B.6-Added	Program Involvement	Dept of Public Works	Spring Clean Up	Spring Clean Ups were held on May 9-13, 2022. Fall Clean Up was held on September 12-16, 2022.	Email	Discuss plans for Spring 2023.
B.7-Added	Other Public Involvement (Public Event)	Village/Conservation Foundation	Host a Public Event at O'Hara Woods.	A grant was received, effective November 2021-September 2023 to facilitate Community Workdays when volunteers will be able to pick up trash, cut brush, pull weeds and collect seeds from native plants at O'Hara Woods.	N/A	Continue to team up with similar organizations to provide more events to the residents.
B.7-Added	Other Public Involvement (Volunteer Project)	Village Staff	Install **storm drains** and distribute door hangers with information on the effects of pollutants entering the storm system.	This project was postponed due to COVID-19 Pandemic; still on hold.	N/A	Discuss future participation with the Legion.
B.7 - Added	Other Public Involvement (Waste and Recycle Collection)	Department of Public Works / Waste Management	Provide collection service of waste and recyclables	Village provides weekly collection of waste and recyclables.	Website Document, outlining policies and procedures	Continue contract with waste collector to provide services to residents.
B.7 - Added	Other Public Involvement (Additional Collection Services)	Department of Public Works / Waste Management	Provide collection service of hazardous waste	Village provides a service (At Your Door Program) through Waste Management to provide pick up of hazardous waste at residents' homes.	Website Document, outlining policies and procedures	Continue contract with waste collector to provide service to residents.
B.7 Added	Other Public Involvement (Additional Collection Services)	Department of Public Works / Waste Management	Provide collection service for branches	Village and Waste Management provide collection various times throughout the year (seasonally).	Website Document	Continue contract with waste collector to provide service to residents. Village to collect branches in Fall and Spring during clean up weeks.
B.7 Added	Other Public Involvement (Additional Collection Services)	Police Department	Provide prescription drug collection program	Police Department provides drop off location for prescription drugs.	Website Document, outlining policies and procedures	Village continues to work with law enforcement to provide service to residents
B.7 Added	Other Public Involvement	Beautification Commission	Include activities to assist keeping waterways clean; bring awareness to children.	The Beautification Commission held a clean up week, chipper program and poster contest for school children.	Website Document, outlining services	Village to continue supporting this group in provide services to residents
B.7 Added	Other Public Involvement	Conservation and Sustainability Committee	Engage in outreach to residents and local business.	A new Conservation and Sustainability Committee established during reporting year to support existing clean-up programs, as well as engage in outreach to promote new conservation measures and sustainable practices to residents and local businesses.	Agendas, promotional documentation	New conservation committee established

Village of Romeoville - NPDES Program Plan
Summary of Minimum Control Measures

B.7-Added (additional permit requirement)	Environmental Justice	Robinson Engineering/Dept of Public Works	Review online sources, prepare summary. Amend public education/outreach and participation/involvement activities accordingly.	Evaluation of online sources was complete; one-page summary prepared. Most notable item is 33% of the Village population is Hispanic or Latino (compared to 17% in state).	One-page report. Syria already completed.	Implement multi-lingual outreach materials.

Village of Romeoville - NPDES Program Plan
Summary of Minimum Control Measures

5/25/2023

3. Illicit Discharge Detection and Elimination

BMP ID No.	BMP Description	Responsible Dept./Person	Measurable Goal(s)	Progress on Goal(s)- Permit Year 6 (2021-2022)	Copy or Other Documentation	Planned Activities- Permit Year 7 (2022-2023)
C.1	Storm Sewer Map Preparation	Village GIS Staff/ Robinson Engineering	Review and update GIS and outfall map annually.	GIS was updated as needed and during closeout of new development projects; a new outfall map was generated. ArcGIS is available online; tablets in the field assist efficiency and accuracy of data entry.	Outfall map in folder.	Review and update GIS and outfall map annually.
C.2	Regulatory Control Program	Dept of Public Works/ Robinson Engineering	Review of sewer use ordinance for effectiveness annually and enforcement of ordinance as necessary.	Sewer use ordinance in place. No updates needed.	Ordinances 52.10 Use of Public Sewers Required & 52.99 Penalties	Review and revision of ordinance and enforcement of ordinance as necessary.
C.3	Detection/Elimination Prioritization Plan	Dept of Public Works/ Robinson Engineering	Establish written procedure for locating priority areas, and review of the procedure.	Written procedure in place. No priority locations have been identified to date. CWP Manual was added to Village's resources for future use (if needed): Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments.	Written Prioritization Plan	Review written procedure and revise if necessary.
C.4	Illicit Discharge Tracing Procedures	Dept of Public Works/ Robinson Engineering	Establish written procedure for the tracing of the source of pollutants that may be detected at outfalls, and review of procedure.	Written procedure in place. No priority locations have been identified to date. CWP Manual was added to Village's resources for future use (if needed): Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments.	Written Procedure for Tracing	Review written procedure and revise if necessary.
C.5	Illicit Source Removal Procedures	Dept of Public Works/ Robinson Engineering	Establish written procedure for the removal of sources of detected illicit discharges, and review of procedure.	Written procedure in place. No priority locations have been identified to date. CWP Manual was added to Village's resources for future use (if needed): Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments.	Written Procedure for Removal	Review written procedure and revise if necessary.
C.7	Visual Dry Weather Screening	Robinson Engineering (Joel)	Inspections of a minimum of 1/5 of outfalls and any outfalls identified as priority outfalls and enforcement of ordinance upon detection of violations.	63 outfalls were inspected under dry weather conditions in 2020. No illicit discharges were identified. Inspections are planned for Spring 2022 (weather dependent).	Samples included from March 2021.	Continue field inspections at dry weather conditions. Enforcement of ordinance upon detection of any violations.
C.8	Pollutant Field Testing	Dept of Public Works/ Robinson Engineering	Establish written procedure for testing of pollutants, and review of procedure. Utilize procedure during monitoring program and for testing warranted through inspection program.	Reviewed written procedure. Samples taken at creeks, laboratory testing completed in May, August, December and March. Spreadsheet was updated/compiled.	Written Procedure for Testing; Written Monitoring Plan; Monitoring Results	Review written procedure and revise if necessary. Continue with monitoring.
C.10-added	Other (Illicit Discharge Hotline / Phone Log)	Department of Public Works	The Public Works Department is available for property owners to call regarding illicit discharges and other stormwater related items.	The Public Works Department remains open to calls regarding illicit discharges and other stormwater related items.	There were 4 illicit discharge investigations this year. Documents attached.	The Public Works Department will continue to be the point of contact for calls regarding illicit discharges and other stormwater related items.

Village of Romeoville - NPDES Program Plan
Summary of Minimum Control Measures

5/25/2023

4. Construction Site Runoff Control

BMP ID No.	BMP Description	Responsible Dept./Person	Measurable Goal(s)	Progress on Goal(s)- Permit Year 6 (2021-2022)	Copy or Other Documentation	Planned Activities- Permit Year 7 (2022-2023)
D.1	Regulatory Control Program - Erosion & Sediment Control Ordinances (for properties less than and greater than 1 acre)	Robinson Engineering	Review applicable Sections of Stormwater of Stormwater Management Ordinance for effectiveness annually.	Applicable Sections of Stormwater Management Ordinance reviewed. No action necessary.	Ordinances 160.055-160.068 for Sediment and Erosion Control; 160.150-160.154 Enforcement and Penalties	Review applicable sections of Ordinance and implement revisions if deemed necessary.
D.2	Erosion and Sediment Control BMPs (for properties less than and greater than 1 acre)	Robinson Engineering	Review of required BMPs annually, including incorporation of green infrastructure where appropriate and practicable.	Required BMPs during design and installation/construction, and ensure maintenance to control velocity, minimize erosion, minimize exposed soil, buffer natural areas, etc. to minimize sediment discharges from the site. Continue to review requirements for effectiveness.	Checklists for Phase II requirements/erosion and sediment control BMPs.	Review required BMPs and modify requirements as necessary.
D.3	Other Waste Control Program	Robinson Engineering	Requirements to control wastes such as building materials, concrete truck washout, chemicals, litter, sanitary waste, and any wastewater generated by clean up activities.	Note regarding control of waste is required to be included on plans.	Checklist of Notes for Erosion and Sediment Control Plans including Waste Control	Pre-Construction plan review for inclusion of waste control requirements, periodic inspections of sites for control of wastes.
D.4	Site Plan Review Procedures (for properties less than and greater than 1 acre)	Robinson Engineering	Pre-Construction review of runoff control in development plans.	Stormwater pollution prevention measures were reviewed in plan review phase for new developments. Green infrastructure techniques/BMPs are part of reviews. Development Review Committee (DRC) meetings are held early in the development process; stormwater and green infrastructure items are discussed when appropriate.	Ordinance 160.061 Sediment and Erosion Control Plan Requirements; Plan Review Letters	Review stormwater pollution prevention measures in plan review phase.
			Require preparation of SWPPP and submittal of NOI and NOT for construction sites over 1 acre.	Three projects were required Notices of Intent to be submitted, a list is contained in the beginning of the Annual Report. Notices of Intent were submitted when/if appropriate.	Lists of active projects; please also refer to beginning of Annual Report.	Continue to enforce NOIs and NOTs based on ILR10 requirements.
D.6	Site Inspection/ Enforcement Procedures (for properties less than and greater than 1 acre)	Village Staff; Robinson provide overview of plans	Periodic inspections of construction sites and enforcement of ordinance.	Periodic inspections of construction sites were performed. Graduated enforcement steps including Stop Work Orders were available for enforcement of Ordinance if necessary. Inspections of sites also reviewed control of wastes.	Plans, SWPPPs, Inspection Reports. Back Side	Continue inspections of construction sites and enforcement of ordinance.

Village of Romeoville - NPDES Program Plan
Summary of Minimum Control Measures

5/25/2023

5. Post-Construction Runoff Control

BMP ID No.	BMP Description	Responsible Dept./Person	Measurable Goal(s)	Progress on Goal(s)- Permit Year 6 (2021-2022)	Copy or Other Documentation	Planned Activities- Permit Year 7 (2022-2023)
E.2	Regulatory Control Program	Robinson Engineering	Review Applicable Sections of Stormwater of Stormwater Management Ordinance for effectiveness annually.	Applicable Sections of Stormwater Management Ordinance reviewed. No action necessary.	Ordinances 160.135-160.140 Long Term Maintenance; 160.150-154 Enforcement and Penalties	Review applicable sections of Stormwater Management Ordinance and implement revisions as necessary.
E.3	Long Term O&M Procedures	Department of Public Works	Enforcement of Ordinance. Attention to minimize volume and pollutants and protect water quality.	Facilities observed during outfall inspections. Ordinance enacted 2/19/14 for establishment of pond annual self-inspection program.	Ordinances 160.135-160.140 Long Term Maintenance; 160.150-154 Enforcement and Penalties	Enforcement of Ordinances as necessary, including annual reporting requirement of pond self-inspection program. Village will prepare letters to remind Associations about pond maintenance and include an educational piece this year.
E.4	Pre-Construction Review of BMP Designs	Robinson Engineering	Pre-Construction review of BMP designs in development plans, including operation and maintenance plans and strategies that incorporate infiltration, reuse and reduction in volume and velocity. Public surfaces to be included in reviews.	Reviews of BMP designs in all development plans were performed.	Checklist of submittal items and requirements (Ordinance Sections 160.110-160.126)	Continue review of BMP designs development plans were performed.
E.5	Site Inspections During Construction	Robinson Engineering	Periodic inspections of construction sites and enforcement of ordinance. As well as proper control of wasted (Item D3).	Inspections of post-construction BMPs and waste control were performed and punch lists of deficiencies were provided. Projects accepted only after correction of deficiencies.	Inspection Forms (also see Item D.6)	Continue inspection of post-construction structural BMPs during construction.
E.6	Post-Construction Inspections	Department of Public Works/ Robinson Engineering	Inspect structural BMPs/drainage facilities at time of acceptance and one year after acceptance.	Inspections of drainage facilities performed post-construction and one year after completion of construction.	Sample punchlists; resolutions for project closeouts.	Continue post-construction inspections.
E.7	Other Post-Construction Runoff Controls	Department of Public Works/ Robinson Engineering	Assess water quality impacts of any flood management projects.	No proposed flood control projects.	Statement regarding future flood management projects and assessment of water quality impacts.	Assess as any flood control projects may be proposed in future.

Village of Romeoville - NPDES Program Plan
Summary of Minimum Control Measures

5/25/2023

6. Pollution Prevention/ Good Housekeeping

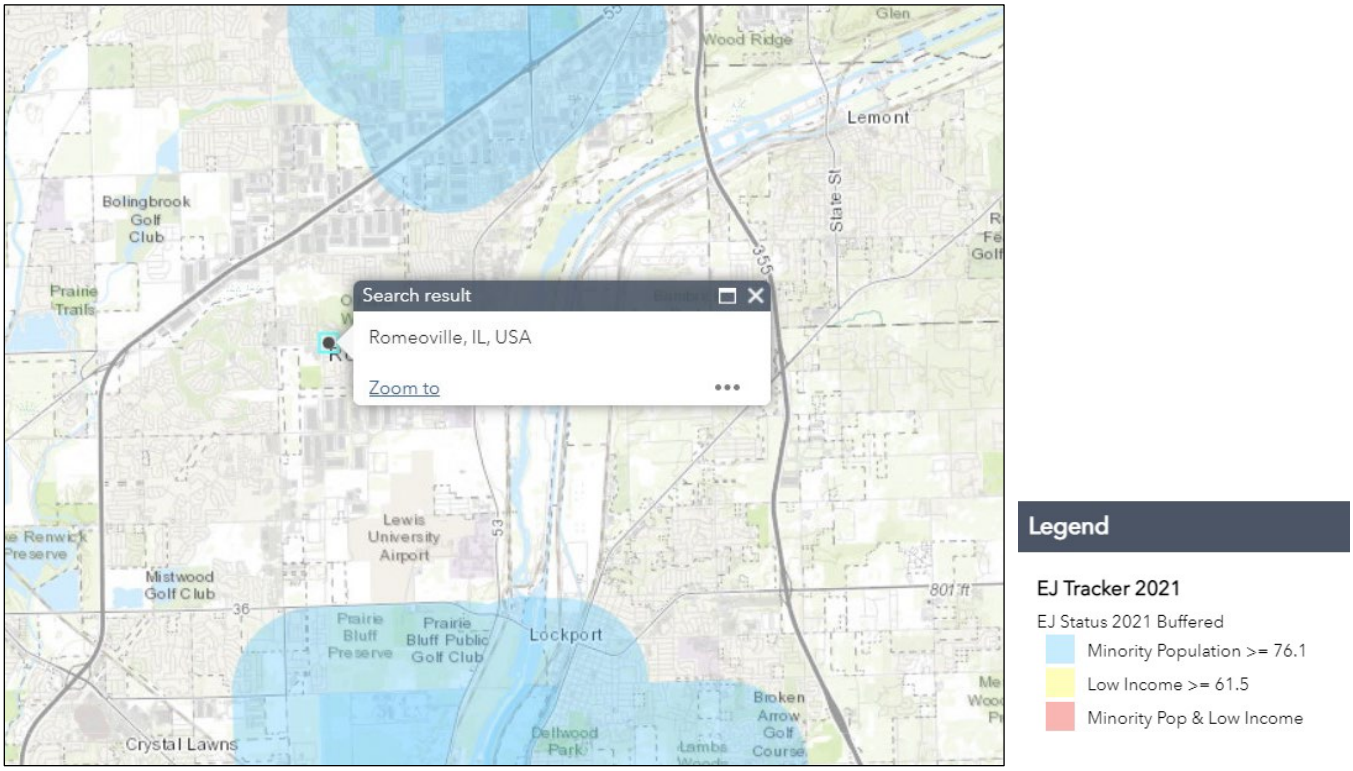
BMP ID No.	BMP Description	Responsible Dept./Person	Measurable Goal(s)	Progress on Goal(s)- Permit Year 6 (2021-2022)	Copy or Other Documentation	Planned Activities- Permit Year 7 (2022-2023)
F.1	Employee Training Program - Annual	Department of Public Works/ Robinson Engineering	Provide training materials to implement operational BMPs and other topics listed in permit.	Appropriate employees provided with training and materials. Pubic Works training in house on 5/15/23 (53 attendees).	Sign in Sheets	Provide appropriate employees with training and materials.
				Employees and consultants meet to plan and implement various program items.	Documentation form from 430/21, 12/16/21, 1/14/22, 2/24/22	Continue to meet periodically to ensure program compliance.
				County-wide salt-use seminar attended by Village personnel.	Sign in Sheets & Certificates	Continue to train staff on appropriate use of salt.
F.2	Inspection & Maintenance Program	Robinson Engineering / Dept of Public Works	Inspection and maintenance of Village structural BMPs.	Inspections are planned for Summer 2022.	Inspection report for three sample locations; map with notes; list of ponds/owners/ inspection notes.	Inspections of ponds will be completed each Spring or Summer.
F.2	Inspection & Maintenance Program	Department of Public Works	Effective pollution prevention measures, as well as inspection measures, were implemented for municipal properties and BMPs.	Ongoing program for inspection, repair and cleaning of various structural BMPs continued village-wide (vehicle washing, spill procedures, minimize leaks, inspection of BMPS, minimize exposure of construction waste, landscape materials, fertilizers, pesticides, chemicals, dicing materials, detergents, etc.)	Printouts	Maintenance of Village structural BMPs as needed and as warranted by inspections/surveillance. Evaluate additional documentation for street sweeping and catch basin cleaning.
F.2	Inspection & Maintenance Program	Spill Prevention Control & Countermeasure Plan (SPCC)	Finalize most recent updates.	Completed for the main Public Works Site (Anderson Drive) and the Public Works Site (Budler Road).	Copy of Two SPCCs	
F.3	Municipal Operations Program for Stormwater Control	Department of Public Works	Review municipal operations program for stormwater control/storm sewer system. Revise BMPs or implement BMPs as necessary, and audit program for compliance.	BMP program reviewed. Deicing materials were stored properly in salt domes and in brine tanks. Loading/unloading area kept clean. Prewetting and electronic equipment controls resulted in less salt used and thus resulted in corporate fund savings, robust street sweeping program resulted in cost savings through less labor intensive catch basin and sewer cleaning.	List of Municipal Operations BMPs. Photo of salt storage and surrounding area. Photo of bioswale at public works site.	Continue use of BMPs and annual review of BMP program. Deicing material will continue to be stored in permanent storage structures.
F.4	Municipal Operations Waste Control	Department of Public Works	Review municipal operations program for Village-wide waste control. Revise BMPs or implement BMPs as necessary, and audit program for compliance.	Various waste services are available to property owners.	Refer to B7 items regarding waste collection services.	Continue use of BMPs and annual review of BMP program. Continue contract with waste collector to provide services to residents.
F.5	Flood Management/Assess Guidelines	Robinson Engineering	Review ordinances and policies annually to ensure compliance with FEMA regulations. Review development plans for compliance with ordinances and policies.	Ordinances and policies utilized and reviewed during development reviews to ensure compliance with FEMA regulations. Developers provide obtain LOMRs where required. Amended Stormwater Ordinance adopting updated LOMR maps as required by FEMA was approved 1/16/19.	Ordinance Chapter 160. Plan Review Checklist - Floodplain & Floodway portion.	Continue with pre-construction review of development plans for compliance with current FEMA regulations.

ENVIRONMENTAL JUSTICE SUMMARY

Name of Person filling out for: Robinson Engineering, Ltd.

Position: Village Engineer

Date: 2/24/2023



Evaluation: *(Municipality vs. State of Illinois)*

Date of Census: July 1st, 2022		
	Illinois	**Romeoville**
Minority Population		
Black or African American alone (%)	14.7	11.3
American Indian and Alaska Native alone (%)	0.6	0.8
Asian alone (%)	6.1	6.2
Native Hawaiian and Other Pacific Islander alone (%)	0.1	0.0
Two or More Races (%)	2.2	11.2
Hispanic or Latino (%)	18	33.8
Income & Poverty		
Median Household Income (in 2021 dollars), 2017-2021	$72,563	$88,205
Persons in poverty (%)	12.1	6.6

IEPA ILR40 requires each MS4 to evaluate the IEPA Environmental Justice Tracker information and US Census Bureau data. Communities are required to provide equal opportunity to their entire population to participate in meaningful involvement of development, implementation and enforcement of environmental laws, regulations, and policies.

Map information was found at the Illinois EPA EJ Start Website: http://illinois-epa.maps.arcgis.com/apps/webappviewer/index.html?id=f154845da68a4a3f837cd3b880b0233c

Population information was obtained from the United States Census Bureau QuickFacts: (https://www.census.gov/quickfacts/fact/table/US/PST045218):

Village of Romeoville

Stream Monitoring Data / Pollutant Field Testing
2022-2023 Monitoring Results

Des Plaines River

Upstream (135th)

	2/23/2022	5/4/2022	8/30/2022	10/26/2022	2/23/2023
Total Suspended Solids (mg/L)	13	5312	7	13	28
Total Nitrogen (mg/L)	1.2	0.78	1.0	0.61	4.7
Phosphorus (mg/L)	0.723	0.52	0.632	0.237	0.179
Oil & Grease (mg/L)	5	5	6	6	6
Chloride (mg/L)	508	425	293	420	470
Fecal Coliform (CFU/100ml)	5,300	700	300	5,100	8,900
Mercury (mg/L)	0.0002	0.0002	0.0002	0.0002	0.0002
PCB (mg/L)	ND	ND	ND	ND	ND
pH (S.U.)	7.88	8.13	7.68	7.3	9.13
Dissolved Oxygen (mg/L)	9.91	10.85	5.83	11.23	11.64
Temp (°C)	10.7	21.5	24.9	10.3	4.8

Downstream (Material Service Property)

	2/23/2022	5/4/2022	8/30/2022	10/26/2022	2/23/2023
Total Suspended Solids (mg/L)	19	14	9	9	32
Total Nitrogen (mg/L)	4.3	1.6	4.6	4.8	3.5
Phosphorus (mg/L)	0.307	0.741	0.482	0.308	0.194
Oil & Grease (mg/L)	6	5	6	6	6
Chloride (mg/L)	362	353	181	190	402
Fecal Coliform (CFU/100ml)	600	2,700	600	100	3,500
Mercury (mg/L)	0.0002	0.0002	0.0002	0.0002	0.0002
PCB (mg/L)	ND	ND	ND	ND	ND
pH (S.U.)	7.84	8.25	8.01	7.87	8.51
Dissolved Oxygen (mg/L)	10.03	10.41	5.03	10.5	10.85
Temp (°C)	11.7	22.2	25.7	2.5	4.8

Village of Romeoville

Stream Monitoring Data / Pollutant Field Testing
2021-2022 Monitoring Results

Lily Cache Slough / Creek

Upstream (Normantown)

	3/21/2021	6/20/2021	8/11/2021	12/21/2021	2/23/2022
Total Suspended Solids (mg/L)	Dry	22	Dry	Dry	18
Total Nitrogen (mg/L)	Dry	1	Dry	Dry	1.4
Phosphorus (mg/L)	Dry	0.381	Dry	Dry	0.1
Oil & Grease (mg/L)	Dry	5	Dry	Dry	5
Chloride (mg/L)	Dry	1,180	Dry	Dry	764
Fecal Coliform (CFU/100ml)	Dry	10,000	Dry	Dry	100
pH (S.U.)	Dry	7.72	Dry	Dry	7.86
Dissolved Oxygen (mg/L)	Dry	7.44	Dry	Dry	11.74
Temp (°C)	Dry	20.6	Dry	Dry	1.9

Downstream (Budler)

	3/21/2021	6/20/2021	8/11/2021	12/21/2021	2/23/2022
Total Suspended Solids (mg/L)	11	14	17	40	13
Total Nitrogen (mg/L)	1	1.4	1.3	1.3	1.1
Phosphorus (mg/L)	0.134	0.245	0.22	0.1	0.1
Oil & Grease (mg/L)	5	5	6	6	5
Chloride (mg/L)	498	362	259		275
Fecal Coliform (CFU/100ml)	100	10,000	400	100	100
pH (S.U.)	7.22	7.74	7.20	7.2	7.75
Dissolved Oxygen (mg/L)	6.12	6.5	2.5	9.87	11.74
Temp (°C)	11.4 C	20.3	24.4	0.1	0.2

Village of Romeoville

Stream Monitoring Data / Pollutant Field Testing
2021-2022 Monitoring Results

Mink Creek

Upstream (Weber Rd)

	3/21/2021	6/20/2021	8/11/2021	12/21/2021	2/23/2022
Total Suspended Solids (mg/L)	11	11	11	6	13
Total Nitrogen (mg/L)	0.1	1	1	0.8	1.2
Phosphorus (mg/L)	0.1	0.1	0.1	0.1	0.114
Oil & Grease (mg/L)	5	5	6	6	5
Chloride (mg/L)	489	496	306	204	268
Fecal Coliform (CFU/100ml)	100	100	100	100	100
pH (S.U.)	7.8	7.88	7.76	7.29	6.27
Dissolved Oxygen (mg/L)	10.14	4.91	4.28	11.92	11.68
Temp (°C)	10	23.2	26.1	3.5	1.9

Midstream (Airport Rd)

	3/21/2021	6/20/2021	8/11/2021	12/21/2021	2/23/2022
Total Suspended Solids (mg/L)	31	27	8	8	37
Total Nitrogen (mg/L)	1	1	1	0.98	0.99
Phosphorus (mg/L)	0.1	0.111	0.1	0.1	0.16
Oil & Grease (mg/L)	6	5	6	6	5
Chloride (mg/L)	491	370	216	256	247
Fecal Coliform (CFU/100ml)	100	8,200	3,000	100	100
pH (S.U.)	7.45	7.5	7.37	7.45	7.6
Dissolved Oxygen (mg/L)	5.69	1.15	0.65	10.99	10.98
Temp (°C)	7.5	21.3	24.6	1.9	2.1

Downstream (Renwick Rd)

	3/21/2021	6/20/2021	8/11/2021	12/21/2021	2/23/2022
Total Suspended Solids (mg/L)	15	19	7	8	32
Total Nitrogen (mg/L)	1 .0	1	1	0.83	1.3
Phosphorus (mg/L)	0.1	0.121	0.1	0.1	0.159
Oil & Grease (mg/L)	6	5	6	6	6
Chloride (mg/L)	275	297	188	179	162
Fecal Coliform (CFU/100ml)	100	10,000	1,500	100	100
pH (S.U.)	7.68	7.81	7.72	8.51	6.23
Dissolved Oxygen (mg/L)	8.72	5.78	4.99	11.75	11.51
Temp (°C)	10.2	21.5	23.7	2.9	1.2

Lower DuPage River Watershed Coalition ILR40 Activities
March 2022 – February 2023

PART I. COVERAGE UNDER GENRAL PERMITS ILR40

Not applicable to the work of the LDRWC.

PART II. NOTICE OF INTENT (NOI) REQUIREMENTS

Not applicable to the work of the LDRWC.

PART III. SPECIAL CONDITIONS

Not applicable to the work of the LDRWC.

PART IV. STORM WATER MANAGEMENT PROGRAMS

A. Requirements

Not applicable to the work of the LDRWC.

B. Minimum Control Measure

1. Public Education and Outreach on Stormwater Impacts

LDRWC outreach activities for 2021-2022 included:

- The joint website for the LDRWC and Lower Des Plaines Watershed Group has been maintained with updated information for the general public on local water quality issues and what they can do to help, as well as more information on the monitoring program, outreach program, NARP and Chloride TLWQS. The new URL is www.LDPWatersheds.org
- Watershed Outreach materials were developed and shared with member throughout the year. The "Outreach Materials" page on the website includes all past and present watershed outreach materials for download. Materials are organized by topic to make it easier to see what is available. Materials for each topic include text for websites, newsletters, posters, blogs and social media posts. The website also has a blog page with blogs for all of the topics that members can link to. The blog page also provides a place for site visitors to find information. Examples of materials created are attached at end of report. For the winter season www.SaltSmart.org website is also used as a clearinghouse of winter BMPs for residents, public agencies and private deicing companies. This website has provided a wider reach beyond the Lower DuPage River watershed, LDRWC is an active partner in the Salt Smart Collaborative.

  Watershed outreach topics:

  - Spring – Pollinator Friendly Lawn Care, Proper Paint Disposal, and Vehicle Fluid Leaks and Maintenance, Garden Refresh Garden Designs
  - Summer – At-home car washing, Green Infrastructure Overview, Rain barrels, River Responsible, Pet Waste

- Fall – Proper leaf collection/disposal, Green Infrastructure: Bioswales, Fish in our local streams
- Winter – Using Brine at Home, Water Softener Tips, Tools for Snow Removal

LDRWC also maintains a Facebook page and posts all materials developed so that communities can just share the posts if that is easier. https://www.facebook.com/lowerdupageriverwc

2. Public Involvement and Participation **–** LDRWC worked with members to provide resources on setting up rain barrel sales program and materials to encourage residents to install rain barrels and rain gardens to help minimize stormwater runoff from residential properties.

The LDRWC and Lower Des Plaines Watershed Group worked with The Conservation Foundation on promoting being "River Responsible" and worked with the Forest Preserve District of Will County and several park districts to create new signs to be installed at canoe launches.

Figure 1. River Responsible Launch Signs

3. Illicit Discharge Detection and Elimination – no activities

4. Construction Site Storm Water Runoff Control - no activities

5. Post-Construction Stormwater Management in New Development and Redevelopment - no activities

6. Pollution Prevention/Good Housekeeping for Municipal Operations

Chloride Reduction Workshops

In 2022 the LDWG partnered with Lower DuPage River Watershed Coalition, Chicago Area Waterways Chloride Workgroup, DRSCW, The Conservation Foundation and Lake County Stormwater/Health Department to jointly offer six Winter Deicing Workshops, four on Public Roads and two on Parking Lots and Sidewalks. Registration was widely advertised throughout northeastern Illinois. Accordingly, the webinars were attended by staff in DuPage, Will, Kane, Lake, McHenry, Boone, Cook and Winnebago counties as well as Milwaukee, WI.

Public Roads Deicing Workshops were held on September 27, October 5, October 6 and October 12, 2022. Fortin Consulting, Inc. from Minnesota was engaged to present the material. A registration fee was required per agency in order to participate in the training. The links were sharable so the webinars could be viewed individually or in groups. Based on polling results, a minimum of 644 people participated in the four workshops. The Parking Lots and Sidewalks Deicing Workshop were held on September 29 and October 11 with Fortin Consulting, Inc. presenting. Based on polling results a minimum of 262 people participated in the two workshops. Certificates of attendance were provided to those who requested them. Evaluation surveys were sent to the persons who logging in to the webinars. A link to the *Minnesota Pollution Control Agency Winter Parking Lot & Sidewalk Maintenance Manual* was provided to each registrant. Questions from participants were entered into the chat and answered by Fortin Consulting staff, Workgroup staff as well as others participating in the training.

Figure 3. Welcome & Introduction to Parking Lots & Sidewalks Presentation, 2021.

<u>Qualifying State, Country or Local Program</u>

Not applicable to the work of the LDRWC.

C. Sharing Responsibility

This report outlines the activities conducted by the LDRWC 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.

D. Reviewing and Updating Stormwater Management Programs

Not applicable to the work of the LDRWC.

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 LDRWC 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.)

BIOASSESSMENT

Overview and Sampling Plan

A biological and water quality survey, 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 LDRWC bioassessment is the latter. The LDRWC bioassessment program began in 2012 with sampling 26 stations in the Lower DuPage River watershed. In 2015 an additional 15 stations were added for a total of 41 stations monitored. Forty-one stations were sampled in the summer of 2018 and 2021. The bioassessment program functions under a quality assurance plan agreed on with the Illinois Environmental Protection Agency.

The LDRWC 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 watershed to track and understand changes through time in response to abatement actions or other influences.

The data collects 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 LDRWC at https://ldpwatersheds.org/about-us/lower-dupage-river-watershed-coalition/our-work/reports-resources/ 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 by the DuPage River Salt Creek Workgroup to help determine and prioritize remedial projects and is now being updated to incorporate Lower DuPage River watershed data. A final draft of the IPS model update was completed in 2020 and is being utilized to identify and design restoration projects aimed at improving aquatic life scores.

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 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 1 and illustrated in Figure 5.

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.

Figure 4. Lower DuPage River Watershed bioassessment monitoring sites for 2015, 2018 and 2021

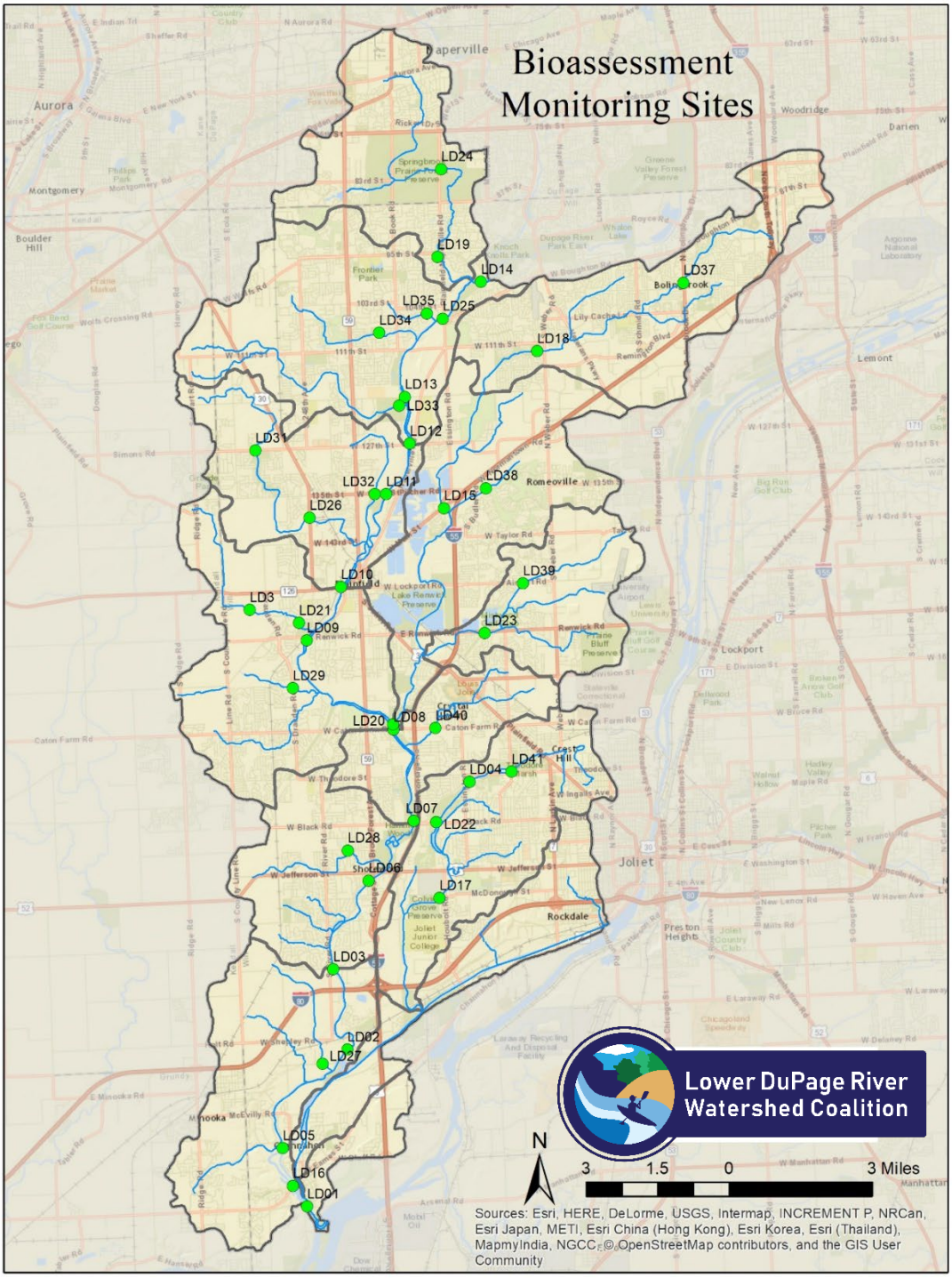


Table 1. Number of sampling sites in the LDRWC project area.

Method/Protocol	Lower DuPage River (2012)	Lower DuPage River (2015, 18 & 21)
Biological sampling	26	41
Fish	26	41
Macroinvertebrates	26	41
QHEI	26	41
Water Column Chemical/Physical Sampling		
Nutrients*	26	41
Water Quality Metals	26	41
Water Quality Organics	8	0
Sediment Sampling	7	7

*Also included indicators of organic enrichment and ionic strength, total suspended solids (TSS), DO, pH and temperature. Chlorophyll a sampling was added in 2021.

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.

FISH

Methodology

Methods for the collection of fish at wadeable sites was performed using a tow-barge or longline pulsed D.C. electrofishing apparatus (MBI 2006b). A Wisconsin DNR battery powered backpack electrofishing unit was used as an alternative to the long line in the smallest streams (Ohio EPA 1989). A three-person crew carried out the sampling protocol for each type of wading equipment sampling in an upstream direction. Sampling effort was indexed to lineal distance and ranged from 150-200 meters in length. Non-wadeable sites were sampled with a raft-mounted pulsed D.C. electrofishing device in a downstream direction (MBI 2007). Sampling effort was indexed to lineal distance over 0.5 km. Sampling was conducted during a June 15-October 15 seasonal index period.

Samples from each site were processed by enumerating and recording weights by species and by life stage (y-o-y, juvenile, and adult). All captured fish were immediately placed in a live well, bucket, or live net for processing. Water was replaced and/or aerated regularly to maintain adequate D.O. levels in the water and to minimize mortality. Fish not retained for voucher or other purposes were released back into the water after they had been identified to species, examined for external anomalies, and weighed either individually or in batches. While the majority of captured fish were identified to species in the field, any uncertainty about the field identification required their preservation for later laboratory identification. Identification was made to the species level at a minimum and to the sub-specific level if necessary. Vouchers were deposited and verified at The Ohio State University Museum of Biodiversity (OSUMB) in Columbus, OH.

Results

The fish sampling results presented in this report summarize the findings for the mainstem reaches of the DuPage River from the 2018 Bioassessment. Information on the tributaries and detailed analysis of all results can be found at https://ldpwatersheds.org/about-us/lower-dupage-river-watershed-coalition/our-work/reports-resources/ Results from the 2021 bioassessment will be available later in 2023.

The fish and macroinvertebrate results are presented as Index of Biotic Integrity (IBI) scores. IBI is an evaluation of a waterbodies 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.

DuPage River

As in previous studies, fish assemblages in the lower DuPage River watershed ranged from poor to good in 2015 (Figure 6), but in 2018 three sites in the mainstem fully attained the Illinois general aquatic life thresholds (LD01, LD06 and LD14). The only site with consistently good quality assemblages during all surveys is found in the Channahon Dam tailwaters, a short reach wedged in between the dam and the Des Plains River. Mainstem fish communities at most sites have improved since 2012 and 2015, and no sites were in the poor range in 2018. In contrast to the mainstem, conditions in the tributaries tended to improve from mostly poor, to mostly fair quality between 2012 and 2015, but regressed somewhat in 2018 (see figure 7).

Figure 5. Fish Index of Biotic Integrity (fIBI) scores for the Lower DuPage River from 1976-2018, in relation to municipal WWTPs and existing low head dams (noted by bars adjoining the x-axis). The shaded region demarcates the "fair" narrative range.

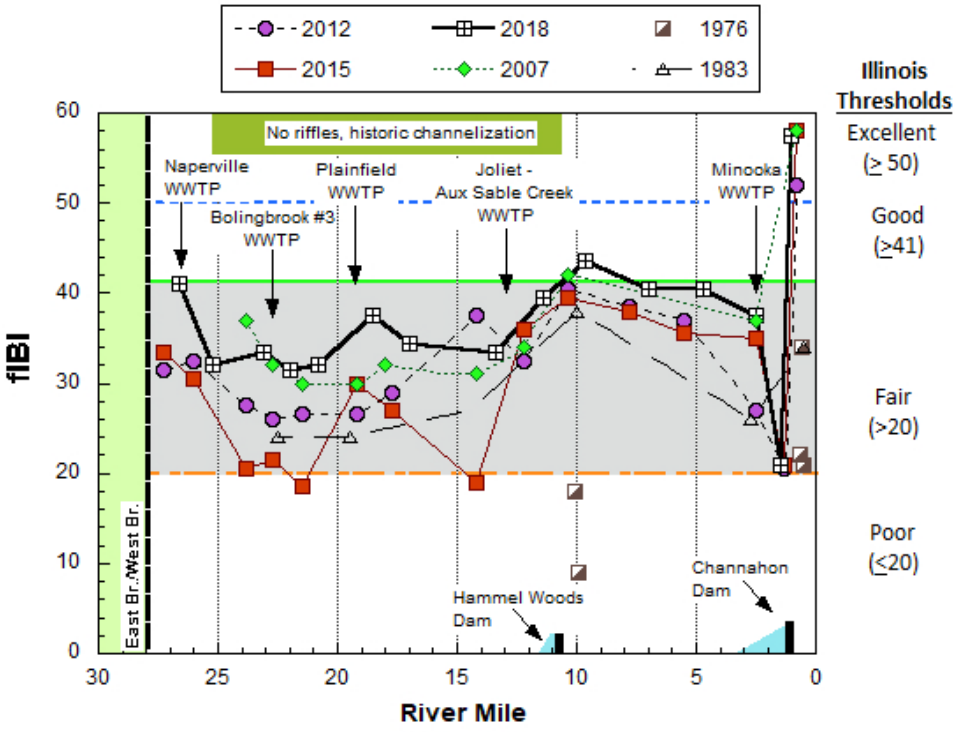
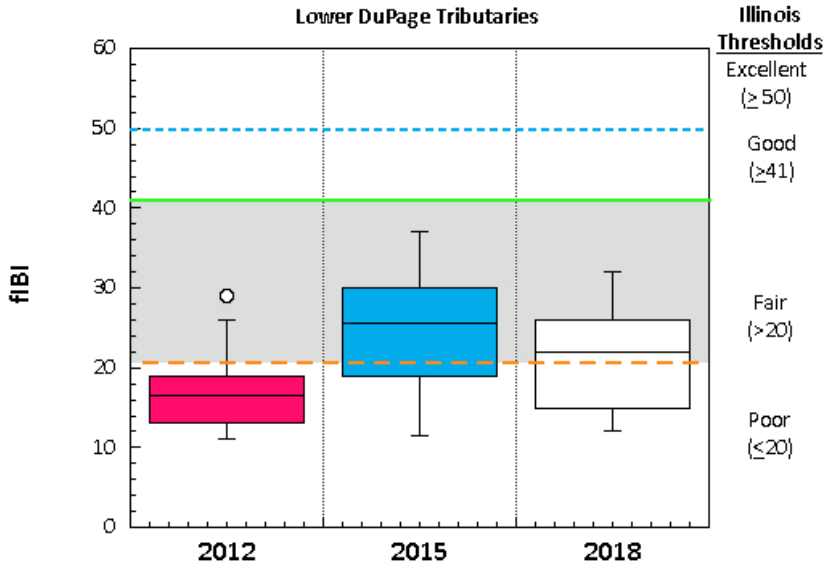


Figure 6. Box and whisker plot of fIBI scores from Lower DuPage River tributary sites in 2012, 2015, and 2018



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.

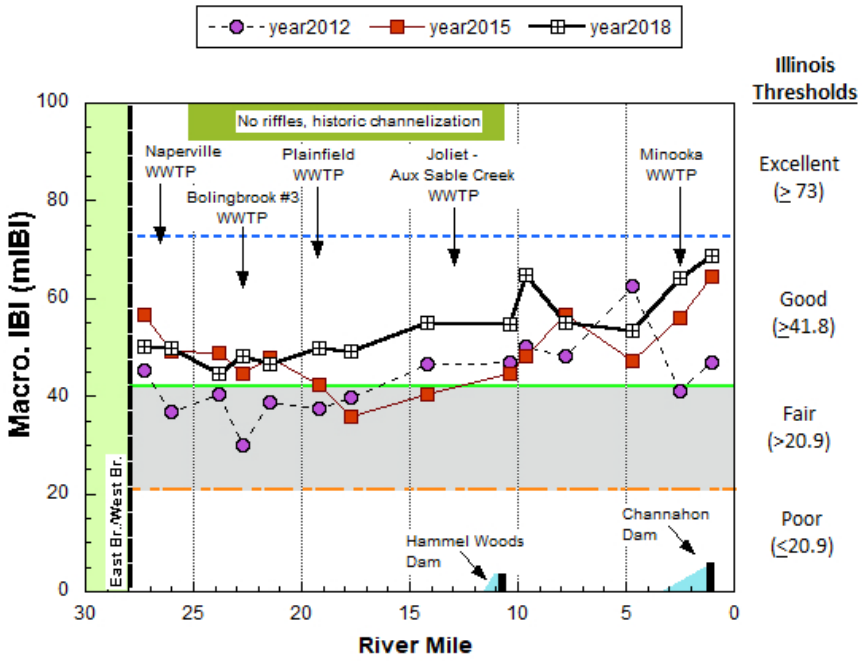
Results

The macroinvertebrate sampling results presented in this report summarize the findings for the mainstem reaches of the DuPage River. Information on the tributaries and detailed analysis of all results can be found at https://ldpwatersheds.org/about-us/lower-dupage-river-watershed-coalition/our-work/reports-resources/

DuPage River

Macroinvertebrate assemblage performance in the lower DuPage River watershed (mainstem and tributaries) were all in the good range in 2018 an improvement over 2012 and 2015 (see Figure 8); 7 sites were rated as fair in 2012 and 3 in 2015. Mainstem communities improved at almost all stations compared to 2012 and 2015. The lower scoring sites (still in the good range) were in the long sluggish, historically channelized reach between the Naperville WWTP and Hammel Woods dam. The reach consists of mostly pooled or slow-run habitats with fine substrates and an abundance of macrophytes.

Figure 7. Macroinvertebrate Index of Biotic Integrity (mIBI) scores for the Lower DuPage River in 2012, 2015, and 2018 in relation to municipal WWTPs and existing low head dams (noted by bars adjoining the x-axis). The shaded region demarcates the "fair" narrative range.



HABITAT

Methodology

Physical habitat was evaluated using the Qualitative Habitat Evaluation Index (QHEI) developed by the Ohio EPA for streams and rivers in Ohio (Rankin 1989, 1995; Ohio EPA 2006b) and as modified by MBI for specific attributes. Attributes of habitat are scored based on the overall importance of each to the maintenance of viable, diverse, and functional aquatic faunas. The type(s) and quality of substrates, amount and quality of instream cover, channel morphology, extent and quality of riparian vegetation, pool, run, and riffle development and quality, and gradient used to determine the QHEI score which generally ranges from 20 to less than 100. QHEI scores and physical habitat attribute were recorded in conjunction with fish collections.

Results

The QHEI data presented in this report summarize the findings for the mainstem reaches of the Lower DuPage River. Information on the tributaries and detailed analysis of all results can be found at https://ldpwatersheds.org/about-us/lower-dupage-river-watershed-coalition/our-work/reports-resources/

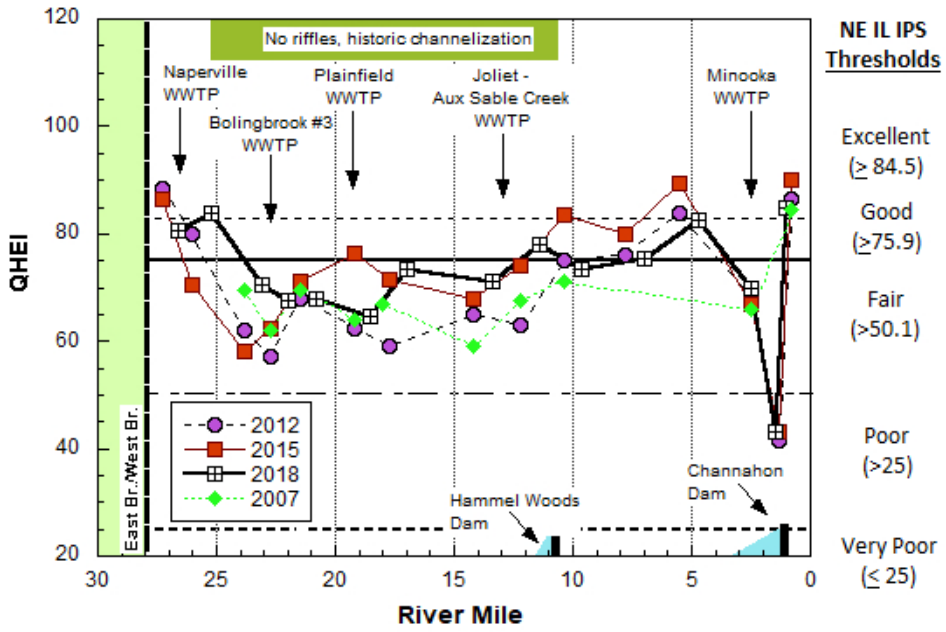
The physical habitat of a stream is a primary determinant of biological quality. Streams in the glaciated Midwest, left in their natural state, typically possess riffle-pool-run sequences, high

sinuosity, and well-developed channels with deep pools, heterogeneous substrates and cover in the form of woody debris, glacial tills, and aquatic macrophytes. The QHEI categorically scores the basic components of stream habitat into ranks according to the degree to which those components are found in a natural state, or conversely, in an altered or modified state.

DuPage River

As in previous surveys, 2018 DuPage River habitat quality varied by location but was more than adequate to support warm water communities throughout most of its 27.8-mile length (see figure 4). Extreme upper mainstem habitats remained clearly exceptional, but continued to decline to the lower good range in the sluggish, historically channelized reach between the Naperville WWTP and the Hammel Woods low-head dam (~ RMs 25-10.6). Two projects have been identified to improve habitat and dissolved oxygen levels within this reach. The first project was completed in 2021 to remove the Hammel Woods dam. The second project location will be located between Lockport Street and Renwick Road in Plainfield. A design, engineering and permitting contract was signed in February of 2022. Site survey work was completed in the summer of 2022 and conceptual plans and associated modeling are being reviewed. Final design, engineering, permitting and bid package will be completed in spring/summer of 2023. Construction of stream restoration project is anticipated to begin by the end of 2023 or spring of 2024.

Figure 8. Qualitative Habitat Evaluation Index (QHEI) scores and narrative ranges in the Lower DuPage River in 2007, 2012, 2015 and 2018 in relation to municipal WWTPs and existing low head dams (noted by bars adjoining the x-axis). QHEI scores less than 45 are often typical of highly modified channels or dam pools. The IPS narrative ranges of QHEI scores from excellent to very poor are indicated by solid and dashed lines.



Water and Sediment Chemistry

Methodology

Water column and sediment samples are collected as part of the LDRWC bioassessment programs. The total number of sites sampled is detailed in Table 1. The number of samples collected at each site is largely a function of the sites drainage area with the frequency of sampling increasing as drainage size increases. Organics sampling is a single sample done at a subset of sites. Sediment sampling is done at a subset of 41 sites using the same procedures as IEPA.

The parameters sampled for are included in Table 2 and can be grouped into demand parameters, nutrients, demand, and metals. Locations of sample sites are shown on Figure 5. All sampling occurs between May and October of the sample year. The Standard Operating Procedure for water quality sampling can be found at https://ldpwatersheds.org/about-us/lower-dupage-river-watershed-coalition/our-work/reports-resources/

Table 2. Water Quality and sediment Parameters sampled as part of the LDRWC Bioassessment Program.

Water Quality Parameters	Sediment Parameters
Demand Parameters	**Sediment Metals**
5 Day BOD	Arsenic
Chloride	Barium
Conductivity	Cadmium
Dissolved Oxygen	Chromium
Chlorophyll a	Copper
pH	Iron
Temperature	Lead
Total Dissolved Solids	Manganese
Total Suspended Solids	Nickel
	Potassium
Nutrients	Silver
Ammonia	Zinc
Nitrogen/Nitrate	
Nitrogen – Total Kjeldahl	
Phosphorus, Total	**Sediment Organics**
	Organochlorine Pesticides
Metals	PCBS
Cadmium	Percent Moisture
Calcium	Semivolatile Organics
Copper	Volatile Organic Compounds
Iron	
Lead	
Magnesium	
Zinc	

Results

The discussion presented below focuses on the constituents listed in the MS4 permit: total suspended solids, total nitrogen, total phosphorus, and chlorides. Total nitrogen is presented as

ammonia, nitrate, and total kjeldahl nitrogen (TKN). Fecal coliform sampling was added to the 2021 bioassessment.

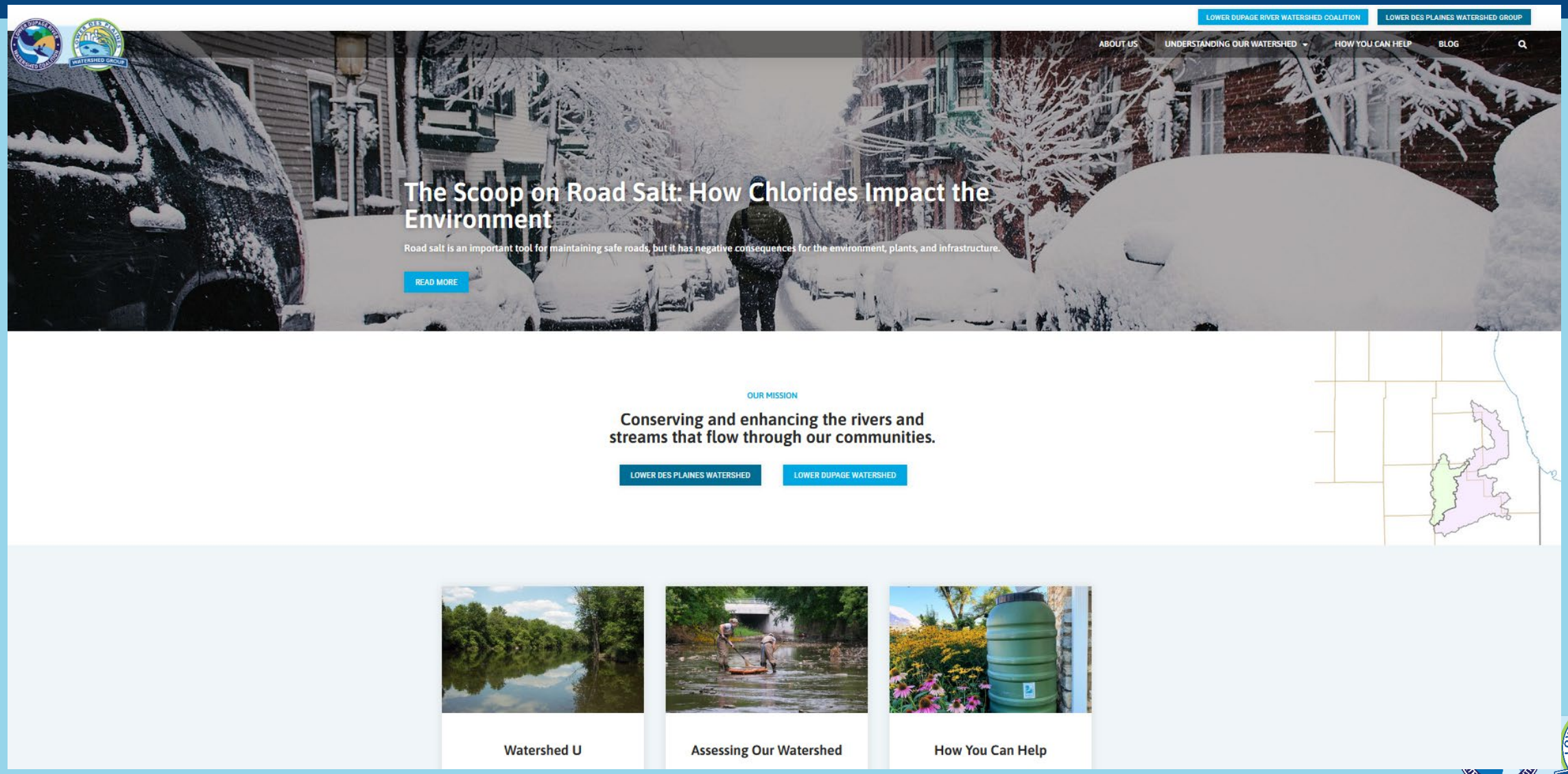
Lower DuPage River - Chemical Water Quality

As discussed in previous reports, nutrient levels in the Lower DuPage River mainstem are heavily influenced by WWTP inputs from its sources upstream, the East and West Branches. In each Lower DuPage survey, phosphorus and nitrate levels have ranged from highly elevated to slightly elevated (based on NE Illinois IPS Model thresholds), depending largely on flow conditions and contributions from upstream point sources. Concentrations have tended to be highest in the extreme upper mainstem, nearer to the confluence with the branches. Under very low-flows in 2012, nitrates routinely exceeded the 10 mg/l criterion in the upper reach and phosphorus was almost entirely above the recommended 1.0 mg/l effluent limit from headwaters to mouth. In both surveys, contributions from WWTPs along the Lower DuPage mainstem may have helped maintain nutrient levels but parameters experience minimal change downstream from the discharges. Both median and mean ammonia concentrations were near or below detection throughout the DuPage River mainstem in 2012 and 2015, but there was an increase in ammonia in 2018, albeit in the IPS fair range, but none were exceedances of water quality criteria that depend on temperature and pH**.** This likely originated in the upper part of the watershed. The full 2018 Bioassessment Report is available at https://ldpwatersheds.org/about-us/lower-dupage-river-watershed-coalition/our-work/reports-resources/

Results from the 2021 Bioassessment will be available in late 2023.

2022 Watershed Outreach Summary

2022 Outreach Materials



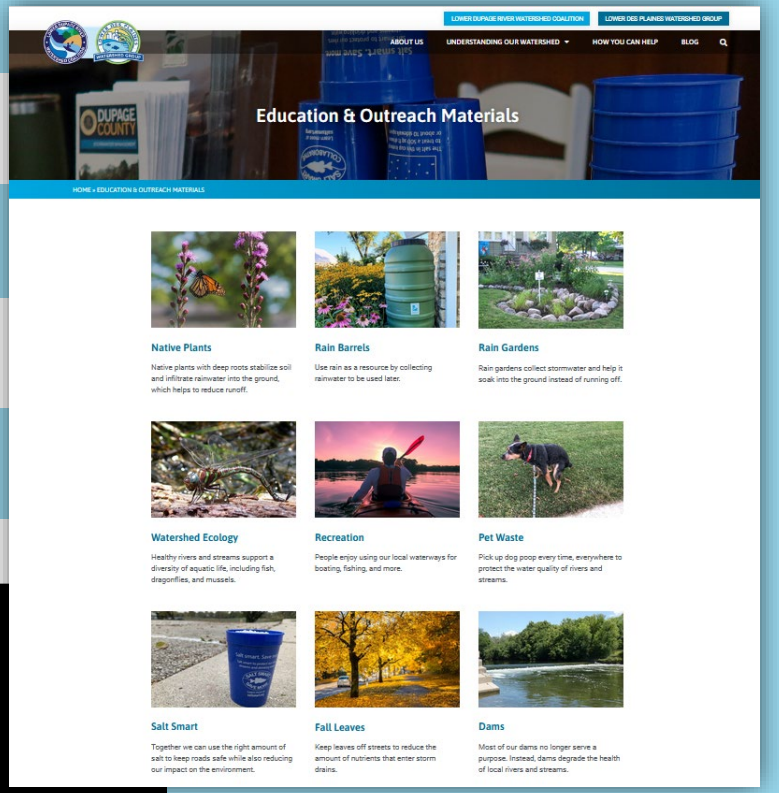
www.LDPWatersheds.org

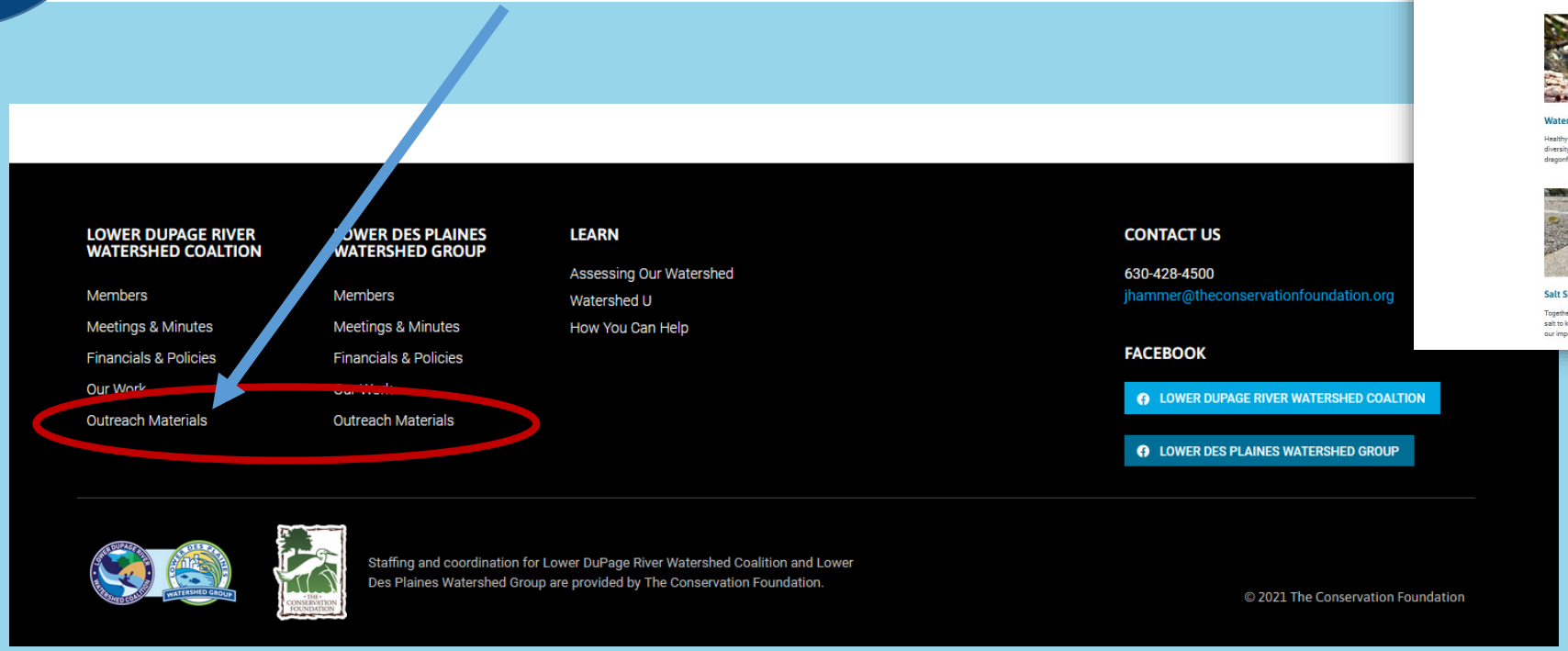
Outreach Materials

Where can I find outreach materials?

LDPwatersheds.org/**outreach**

Bottom of any page on the website





All chloride-related materials are also available on www.saltsmart.org

Spring 2022 Outreach

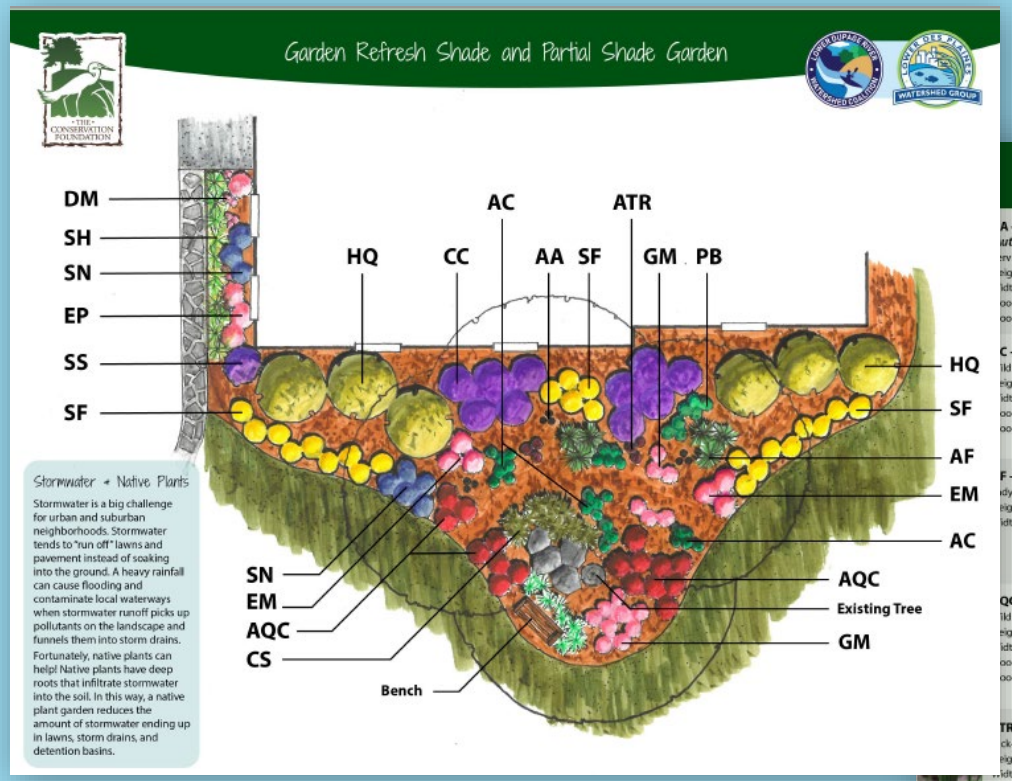
Spring Topics:

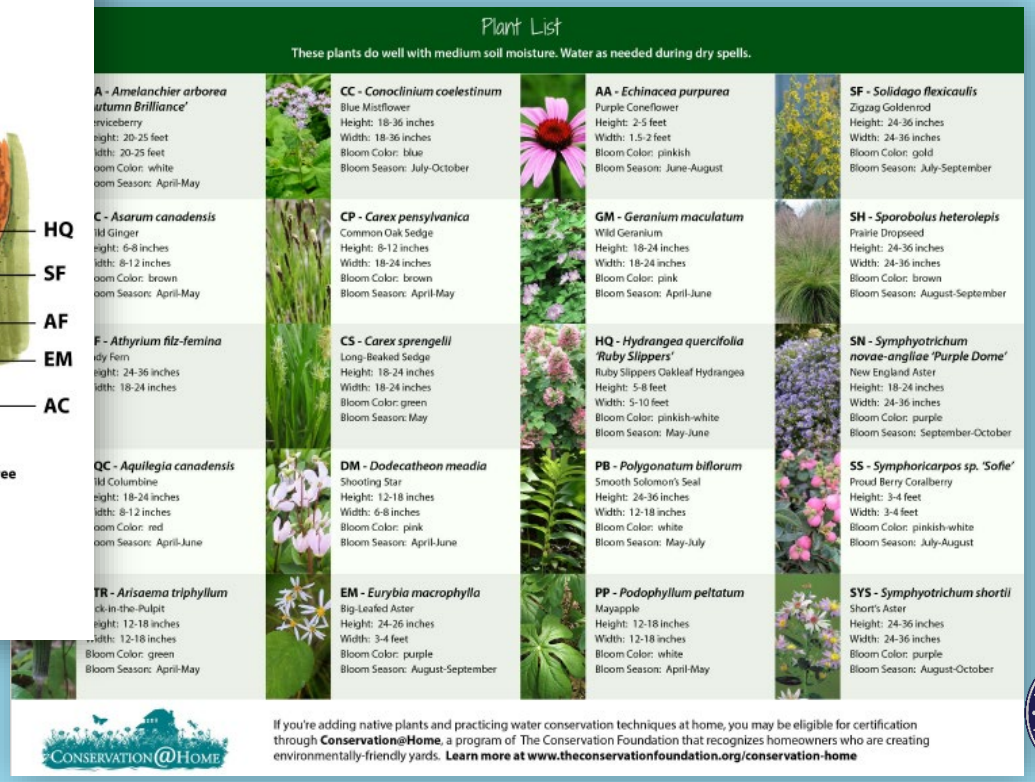
- Pollinator-friendly lawn care
- Proper paint disposal
- Vehicle fluids, leaks, and maintenance

Social Media Posts

Garden Refresh - 2022 Outreach

Garden Refresh Native Plant Garden Designs





Summer 2022 Outreach

River Launch Sign

Landowner Sign

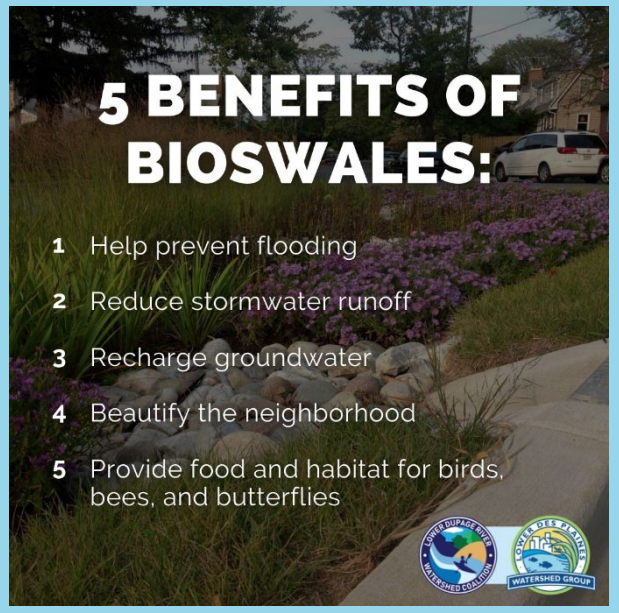
Continued Pet Waste Campaign

Remind residents to scoop the poop to protect water quality!

Fall 2022 Outreach

Fall Topics:

- Tips for clearing fall leaves
- Green infrastructure: bioswales
- Fish in our local rivers and streams



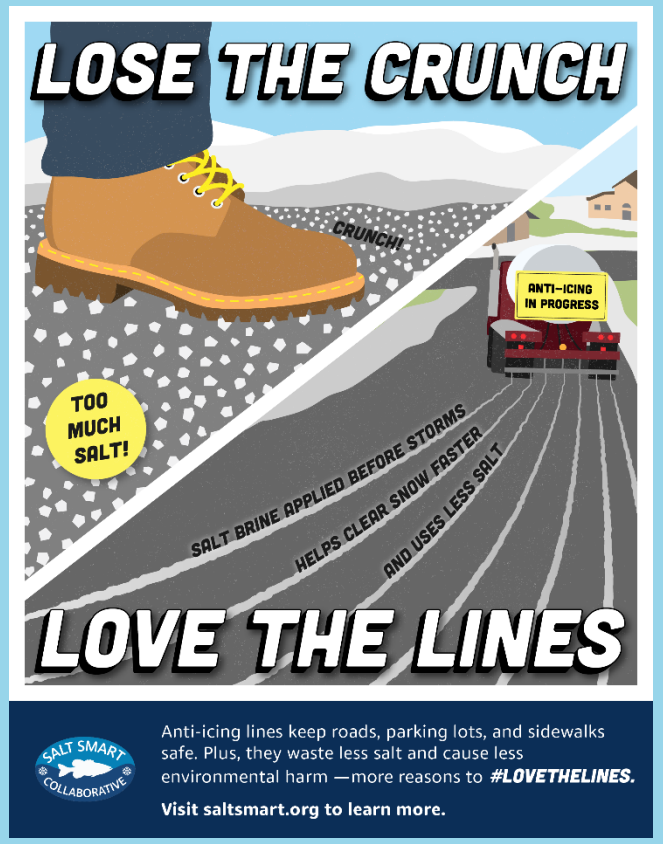
Winter 2022 Outreach

Social Media Posts

Winter 2022 Outreach

Posters

Keep Streets Clear poster



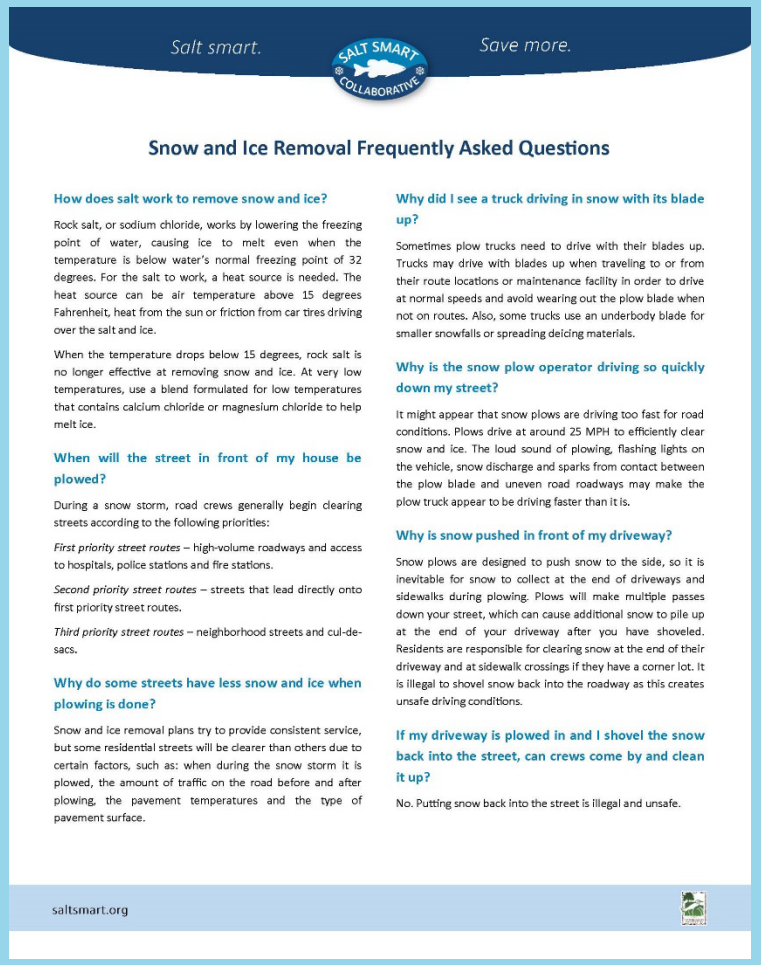
Anti-icing poster
#LoveTheLines

Where to Salt Graphic

Winter – Salt Smart

Safe Driving Poster/Graphic

Snow + Ice Removal FAQ



Salt smart. Save more.

Snow and Ice Removal Frequently Asked Questions

How does salt work to remove snow and ice?

Rock salt, or sodium chloride, works by lowering the freezing point of water, causing ice to melt even when the temperature is below water's normal freezing point of 32 degrees. For the salt to work, a heat source is needed. The heat source can be air temperature above 15 degrees Fahrenheit, heat from the sun or friction from car tires driving over the salt and ice.

When the temperature drops below 15 degrees, rock salt is no longer effective at removing snow and ice. At very low temperatures, use a blend formulated for low temperatures that contains calcium chloride or magnesium chloride to help melt ice.

When will the street in front of my house be plowed?

During a snow storm, road crews generally begin clearing streets according to the following priorities:

First priority street routes – high-volume roadways and access to hospitals, police stations and fire stations.

Second priority street routes – streets that lead directly onto first priority street routes.

Third priority street routes – neighborhood streets and cul-de-sacs.

Why do some streets have less snow and ice when plowing is done?

Snow and ice removal plans try to provide consistent service, but some residential streets will be clearer than others due to certain factors, such as: when during the snow storm it is plowed, the amount of traffic on the road before and after plowing, the pavement temperatures and the type of pavement surface.

Why did I see a truck driving in snow with its blade up?

Sometimes plow trucks need to drive with their blades up. Trucks may drive with blades up when traveling to or from their route locations or maintenance facility in order to drive at normal speeds and avoid wearing out the plow blade when not on routes. Also, some trucks use an underbody blade for smaller snowfalls or spreading deicing materials.

Why is the snow plow operator driving so quickly down my street?

It might appear that snow plows are driving too fast for road conditions. Plows drive at around 25 MPH to efficiently clear snow and ice. The loud sound of plowing, flashing lights on the vehicle, snow discharge and sparks from contact between the plow blade and uneven road roadways may make the plow truck appear to be driving faster than it is.

Why is snow pushed in front of my driveway?

Snow plows are designed to push snow to the side, so it is inevitable for snow to collect at the end of driveways and sidewalks during plowing. Plows will make multiple passes down your street, which can cause additional snow to pile up at the end of your driveway after you have shoveled. Residents are responsible for clearing snow at the end of their driveway and at sidewalk crossings if they have a corner lot. It is illegal to shovel snow back into the roadway as this creates unsafe driving conditions.

If my driveway is plowed in and I shovel the snow back into the street, can crews come by and clean it up?

No. Putting snow back into the street is illegal and unsafe.

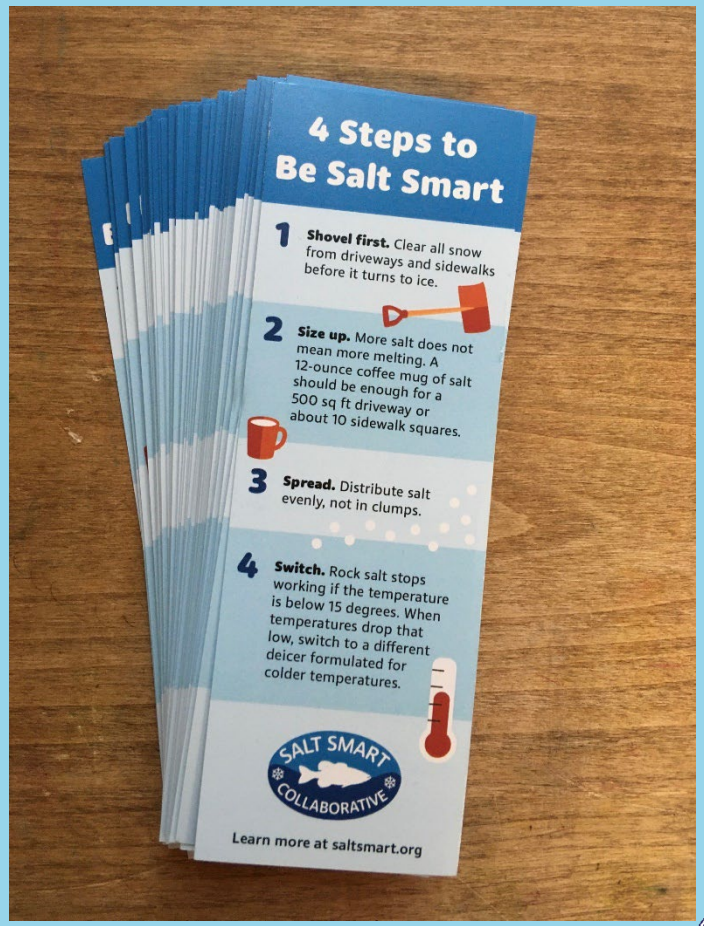
saltsmart.org

Bookmark

Winter – Salt Smart

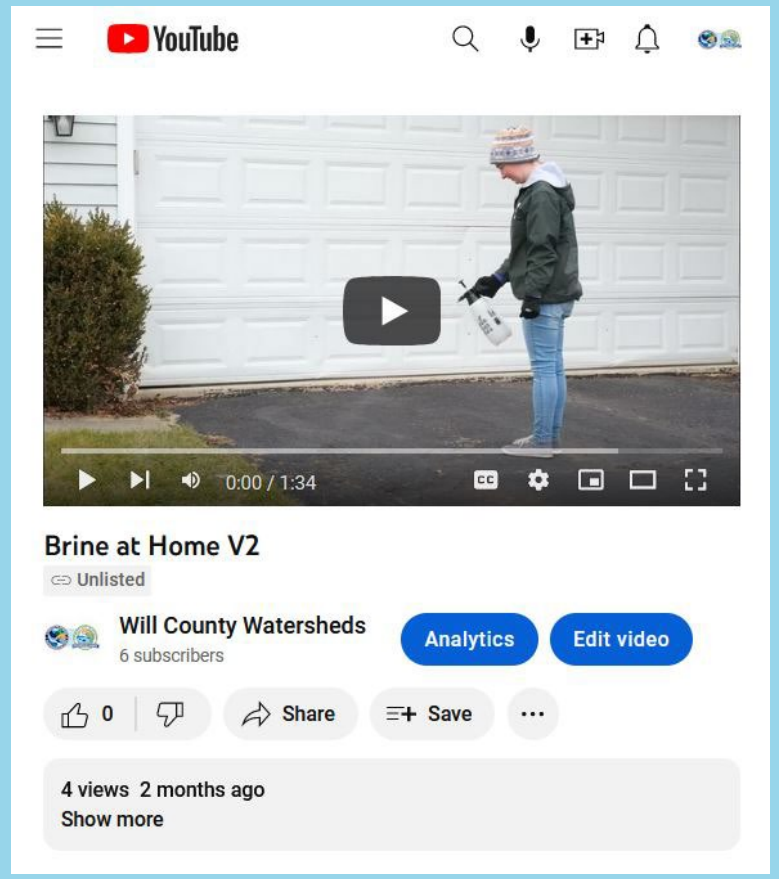
Cups and bookmarks are available now – contact Jennifer or Lea to put in your order

Scatter cups

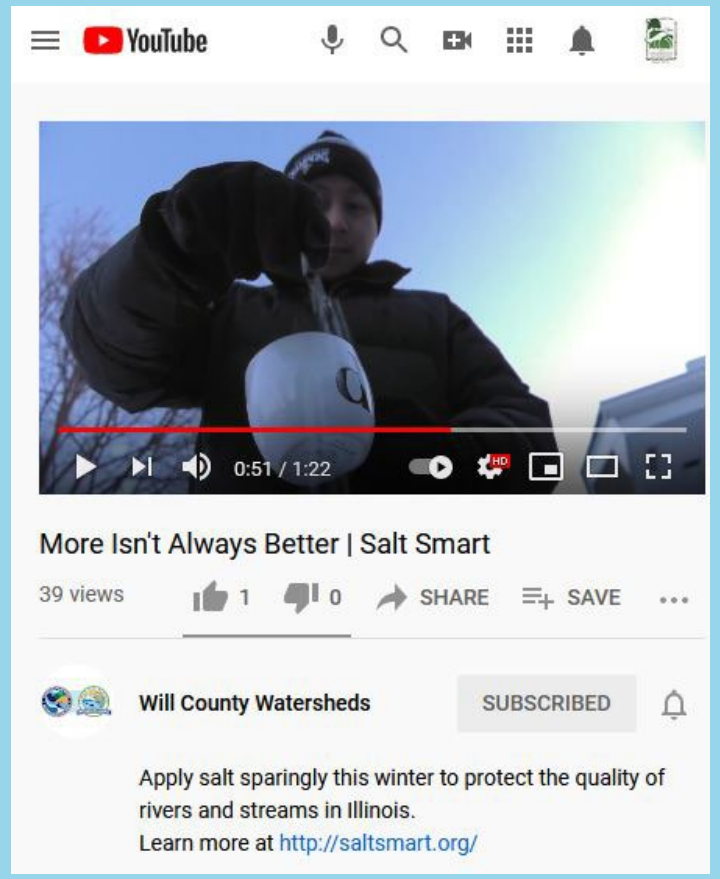


Bookmarks

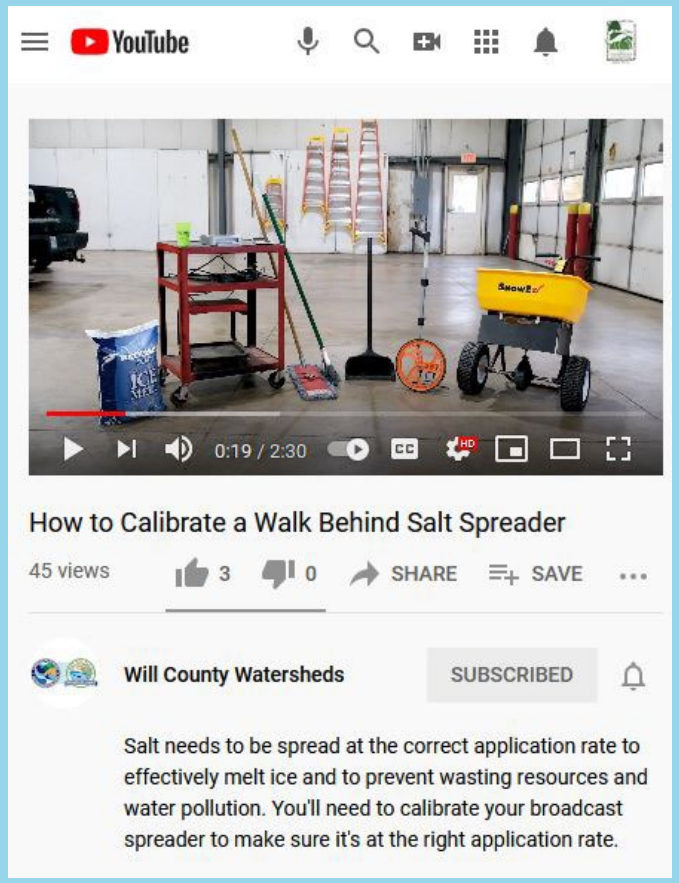
Winter – Salt Smart



Making Brine at Home

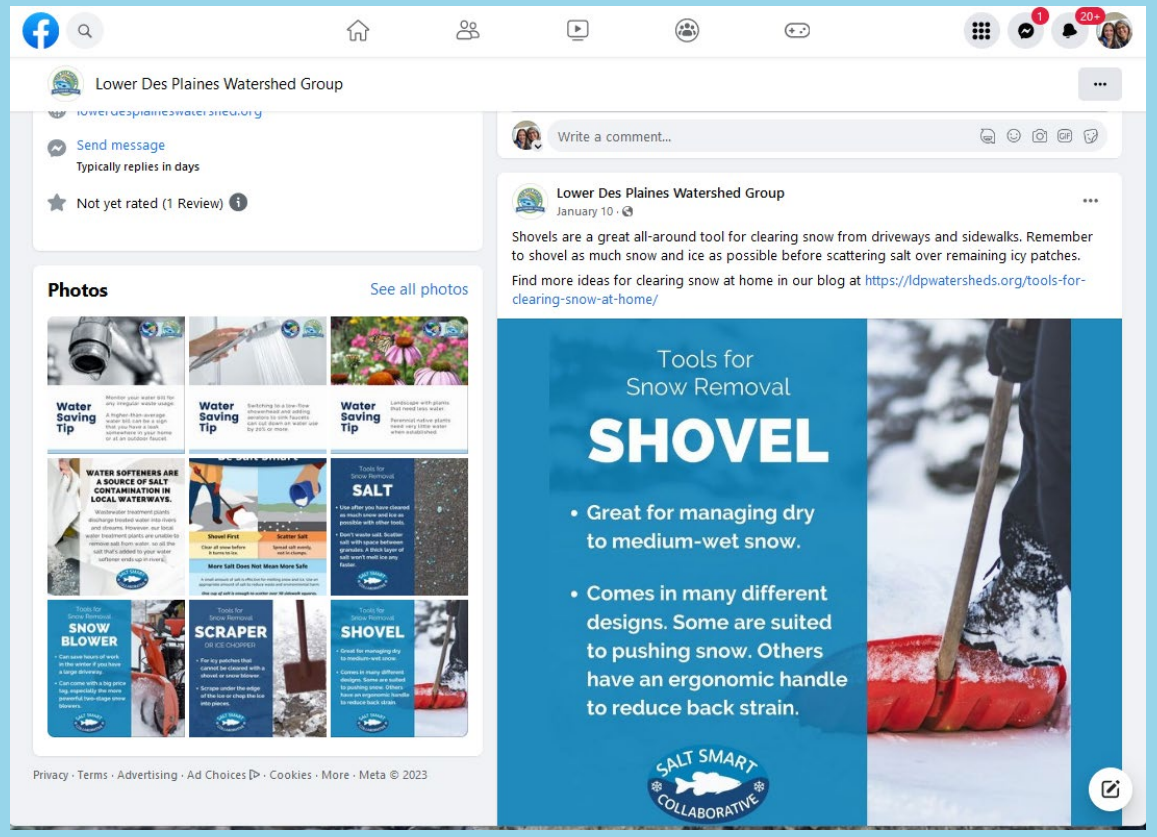


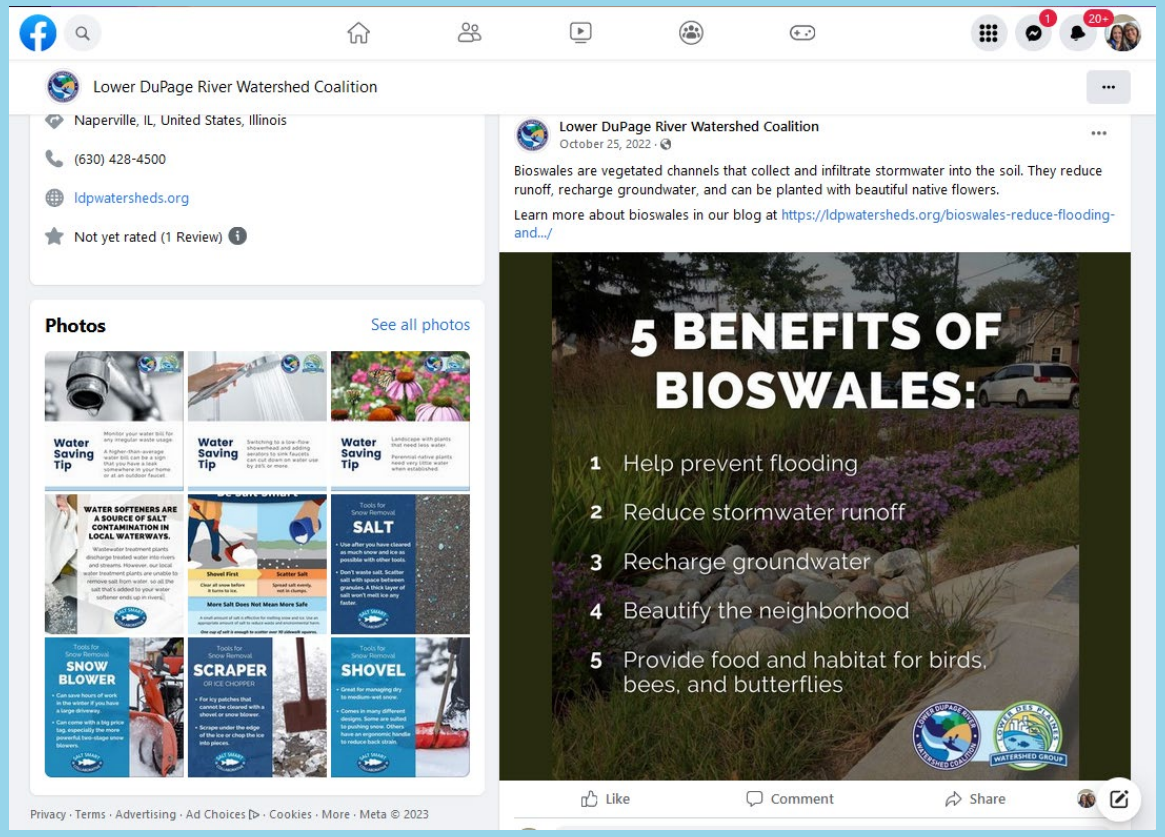
Fun PSA for Residents



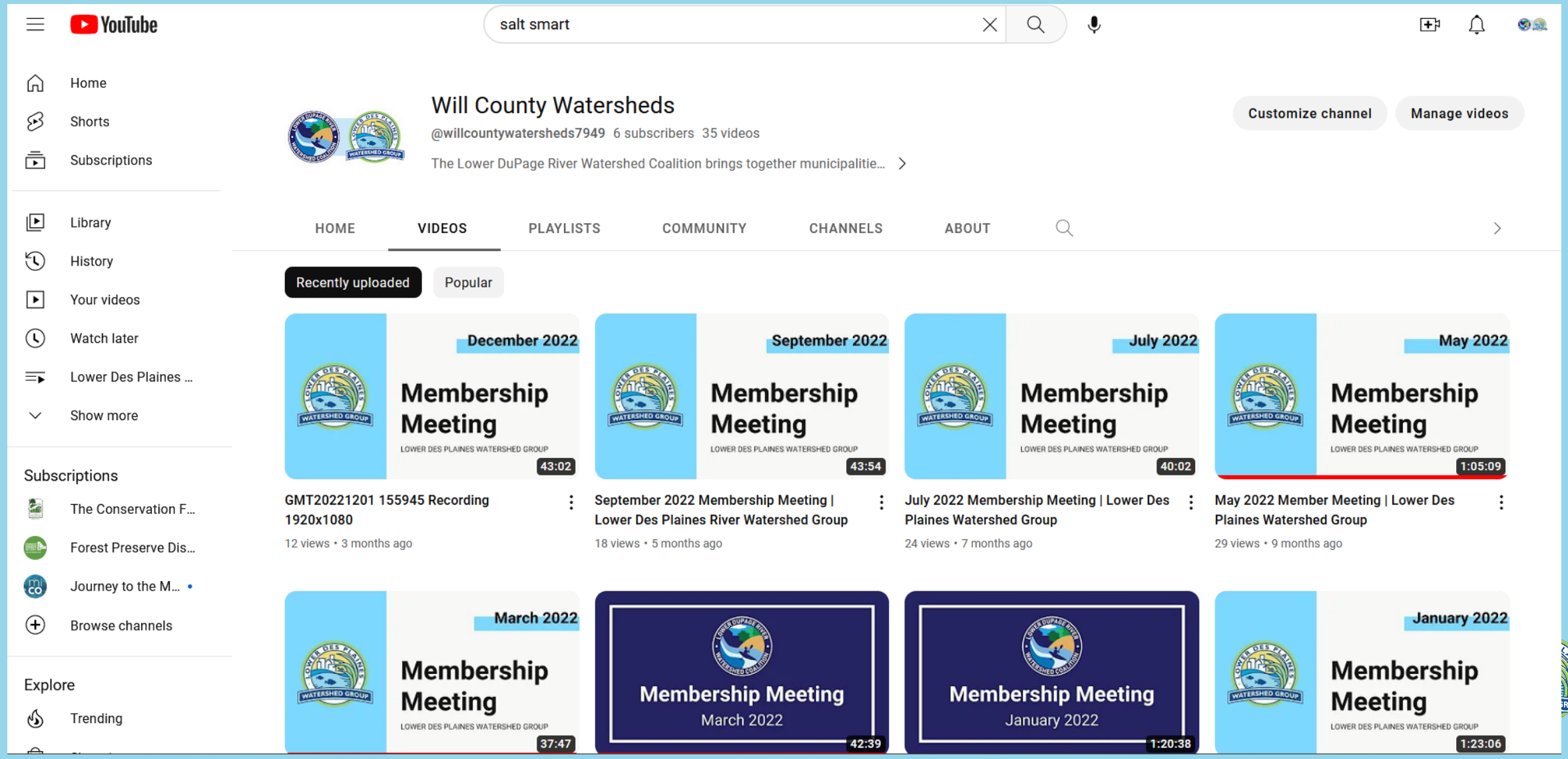
Salt Spreader Calibration Tutorial

Connect With Us on Facebook!





Will County Watershed YouTube Channel



Lower Des Plaines Watershed Group ILR40 Activities
March 2022 – February 2023

PART I. COVERAGE UNDER GENRAL PERMITS ILR40

Not applicable to the work of the LDWG.

PART II. NOTICE OF INTENT (NOI) REQUIREMENTS

Not applicable to the work of the LDWG.

PART III. SPECIAL CONDITIONS

Not applicable to the work of the LDWG.

PART IV. STORM WATER MANAGEMENT PROGRAMS

A. Requirements

Not applicable to the work of the LDWG.

B. Minimum Control Measure

1. Public Education and Outreach on Stormwater Impacts

LDWG outreach activities for 2022-2023 included:

- The joint website for the LDWG and Lower DuPage River Watershed Coalition has been maintained with updated information for the general public on local water quality issues and what they can do to help, as well as more information on the monitoring program, outreach program, NARP and Chloride TLWQS. The new URL is www.LDPWatersheds.org
- Watershed Outreach materials were developed and shared with member throughout the year. The "Outreach Materials" page on the website includes all past and present watershed outreach materials for download. Materials are organized by topic to make it easier to see what is available. Materials for each topic include text for websites, newsletters, posters, blogs and social media posts. The website also has a blog page with blogs for all of the topics that members can link to. The blog page also provides a place for site visitors to find information. Examples of materials created are attached at end of report. For the winter season www.SaltSmart.org website is also used as a clearinghouse of winter BMPs for residents, public agencies and private deicing companies. This website has provided a wider reach beyond the Lower Des Plaines watershed, LDWG is an active partner in the Salt Smart Collaborative.

  Watershed outreach topics:

  - Spring – Pollinator Friendly Lawn Care, Proper Paint Disposal, and Vehicle Fluid Leaks and Maintenance, Garden Refresh Garden Designs
  - Summer – At-home car washing, Green Infrastructure Overview, Rain barrels, River Responsible, Pet Waste

- Fall – Proper leaf collection/disposal, Green Infrastructure: Bioswales, Fish in our local streams
- Winter – Using Brine at Home, Water Softener Tips, Tools for Snow Removal

LDWG also maintains a Facebook page and posts all materials developed so that communities can just share the posts if that is easier.
https://www.facebook.com/lowerdesplaineswatershedgroup

2. Public Involvement and Participation **–** LDWG worked with members to provide resources on setting up rain barrel sales program and materials to encourage residents to install rain barrels and rain gardens to help minimize stormwater runoff from residential properties.

The LDWG and Lower DuPage River Watershed Coalition worked with The Conservation Foundation on promoting being "River Responsible" and worked with the Forest Preserve District of Will County and several park districts to create new signs to be installed at canoe launches.

Figure 1. River Responsible Launch Signs

3. Illicit Discharge Detection and Elimination – no activities

4. Construction Site Storm Water Runoff Control - no activities

5. Post-Construction Stormwater Management in New Development and Redevelopment - no activities

6. Pollution Prevention/Good Housekeeping for Municipal Operations

Chloride Reduction Workshops

In 2022 the LDWG partnered with Lower DuPage River Watershed Coalition, Chicago Area Waterways Chloride Workgroup, DRSCW, The Conservation Foundation and Lake County Stormwater/Health Department to jointly offer six Winter Deicing Workshops, four on Public Roads and two on Parking Lots and Sidewalks. Registration was widely advertised throughout northeastern Illinois. Accordingly, the webinars were attended by staff in DuPage, Will, Kane, Lake, McHenry, Boone, Cook and Winnebago counties as well as Milwaukee, WI.

Figure 2 Deicing Workshops

Public Roads Deicing Workshops were held on September 27, October 5, October 6 and October 12, 2022. Fortin Consulting, Inc. from Minnesota was engaged to present the material. A registration fee was required per agency in order to participate in the training. The links were sharable so the webinars could be viewed individually or in groups. Based on polling results, a minimum of 644 people participated in the four workshops. The Parking Lots and Sidewalks Deicing Workshop were held on September 29 and October 11 with Fortin Consulting, Inc. presenting. Based on polling results a minimum of 262 people participated in the two workshops. Certificates of attendance were provided to those who requested them. Evaluation surveys were sent to the persons who logging in to the webinars. A link to the *Minnesota Pollution Control Agency Winter Parking Lot & Sidewalk Maintenance Manual* was provided to each registrant. Questions from participants were entered into the chat and answered by Fortin Consulting staff, Workgroup staff as well as others participating in the training.

Figure 3. Welcome & Introduction to Parking Lots & Sidewalks Presentation, 2021.

<u>Qualifying State, Country or Local Program</u>

Not applicable to the work of the LDWG.

C. <u>Sharing Responsibility</u>

This report outlines the activities conducted by the LDWG 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.

D. Reviewing and Updating Stormwater Management Programs

Not applicable to the work of the LDRWC.

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 LDWG began a monitoring program in the summer of 2018 that meets the following monitoring objectives and requirements outlined in the permit:

- Measuring pollutants over time
- Sediment monitoring
- Assessing physical and habitat characteristics such as stream bank erosion caused by storm water discharges
- Collaborative watershed-scale monitoring
- Ambient monitoring of total suspended solids, total nitrogen, total phosphorus, fecal coliform, and chlorides

The first round of bioassessment monitoring was completed in 2018 at the twenty-nine (29) identified sites on the mainstem Des Plaines River from the confluence with the Kankakee River up to the I-355 bridge. The remaining thirty-three (33) mainstem sites were scheduled for sampling in 2019. As stated in the 2019 Annual Report, sampling was not completed in 2019 due to unsafe, high water conditions. A subset of fifteen (15) stations was resampled in 2020, all data collected on the mainstem (2018, 2019 and 2020) will be compiled in a report that will be available in mid-2022. In addition to the mainstem Des Plaines River sites, forty (40) sites were sampled across the Hickory Creek watershed. The Bioassessment Report for Hickory Creek is also expected in mid-2022. The remaining fourteen (14) tributaries were sampled in 2021 with a Bioassessment Report due in early 2023. Details of the bioassessment program are below.

Bioassessment

A biological and water quality survey, 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 LDWG bioassessment is the latter.

The LDWG bioassessment program continued in 2020 resampling a subset of the 2019 mainstem Des Plaines River stations. Based on remaining budget, fifteen (15) stations we chosen for the resampling effort. All of the data collected on the mainstem Des Plaines River in 2018, 2019 and 2020 will be analyzed together and compiled into a single report due in early 2023.
Also sampled in 2020 was the forty (40) stations in the Hickory Creek watershed. The number of stations was reduced from the originally planned fifty (50) sites after field reconnaissance determined some sites to be dry, impoundments, or inaccessible. See table below for complete sampling schedule. The Bioassessment includes fish, macroinvertebrate, QHEI – habitat and water chemistry at all sites and sediment sampling at a subset of sites.

Table 1 – Bioassessment Sampling Schedule

Watershed	Year Sampled	# of Stations
Lower mainstem Lower Des Plaines River	2018	29
Upper mainstem Lower Des Plaines River + northern tributaries	2019	33 – aborted due to high water
Upper mainstem Lower Des Plaines River resample subset	2020	15
Hickory Creek subwatershed	2020	40
Remaining Tributaries	2021	56
Off year for sampling	2022	0

The LDWG 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 Des Plaines River watershed 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 will be posted on the LDWG website. It is not the role of the bioassessments to identify specific remedial actions on a site specific or watershed basis.

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 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 1 and illustrated in Figure 1. Field reconnaissance will be needed to confirm suitability of sites prior to sampling season.

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.

Fish

Methodology

Methods for the collection of fish at wadeable sites was performed using a tow-barge or longline pulsed D.C. electrofishing apparatus (MBI 2006b). A Wisconsin DNR battery powered backpack

electrofishing unit was used as an alternative to the long line in the smallest streams (Ohio EPA 1989). A three-person crew carried out the sampling protocol for each type of wading equipment sampling in an upstream direction. Sampling effort was indexed to lineal distance and ranged from 150-200 meters in length. Non-wadeable sites were sampled with a raft-mounted pulsed D.C. electrofishing device in a downstream direction (MBI 2007). Sampling effort was indexed to lineal distance over 0.5 km. Sampling was conducted during a June 15-October 15 seasonal index period.

Samples from each site were processed by enumerating and recording weights by species and by life stage (y-o-y, juvenile, and adult). All captured fish were immediately placed in a live well, bucket, or live net for processing. Water was replaced and/or aerated regularly to maintain

adequate D.O. levels in the water and to minimize mortality. Fish not retained for voucher or other purposes were released back into the water after they had been identified to species, examined for external anomalies, and weighed either individually or in batches. While the majority of captured fish were identified to species in the field, any uncertainty about the field identification required their preservation for later laboratory identification. Identification was made to the species level at a minimum and to the sub-specific level if necessary. Vouchers were deposited and verified at The Ohio State University Museum of Biodiversity (OSUMB) in Columbus, OH.

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.

Habitat

Methodology

Physical habitat was evaluated using the Qualitative Habitat Evaluation Index (QHEI) developed by the Ohio EPA for streams and rivers in Ohio (Rankin 1989, 1995; Ohio EPA 2006b) and as modified by MBI for specific attributes. Attributes of habitat are scored based on the overall importance of each to the maintenance of viable, diverse, and functional aquatic faunas. The type(s) and quality of substrates, amount and quality of instream cover, channel morphology, extent and quality of riparian vegetation, pool, run, and riffle development and quality, and gradient used to determine the QHEI score which generally ranges from 20 to less than 100. QHEI scores and physical habitat attribute were recorded in conjunction with fish collections.

Chemistry

Methodology

Water column and sediment samples are collected as part of the LDWG bioassessment programs. The number of samples collected at each site is largely a function of the site's drainage area with the frequency of sampling increasing as drainage size increases. Grab sample is taken at center of flow. Temperature, dissolved oxygen, pH and conductivity are sampled in the field. Sediment sampling is done at a subset of 158 sites using the same procedures as IEPA.

The parameters sampled for are included in Table 2 and can be grouped into demand parameters, nutrients, demand, metals and organics. All sampling occurs between May and October of the sample year.

Figure 5. Lower Des Plaines River Bioassessment Stations. Year represents order of sampling within bioassessment 5-year cycle – 5th year no sampling.

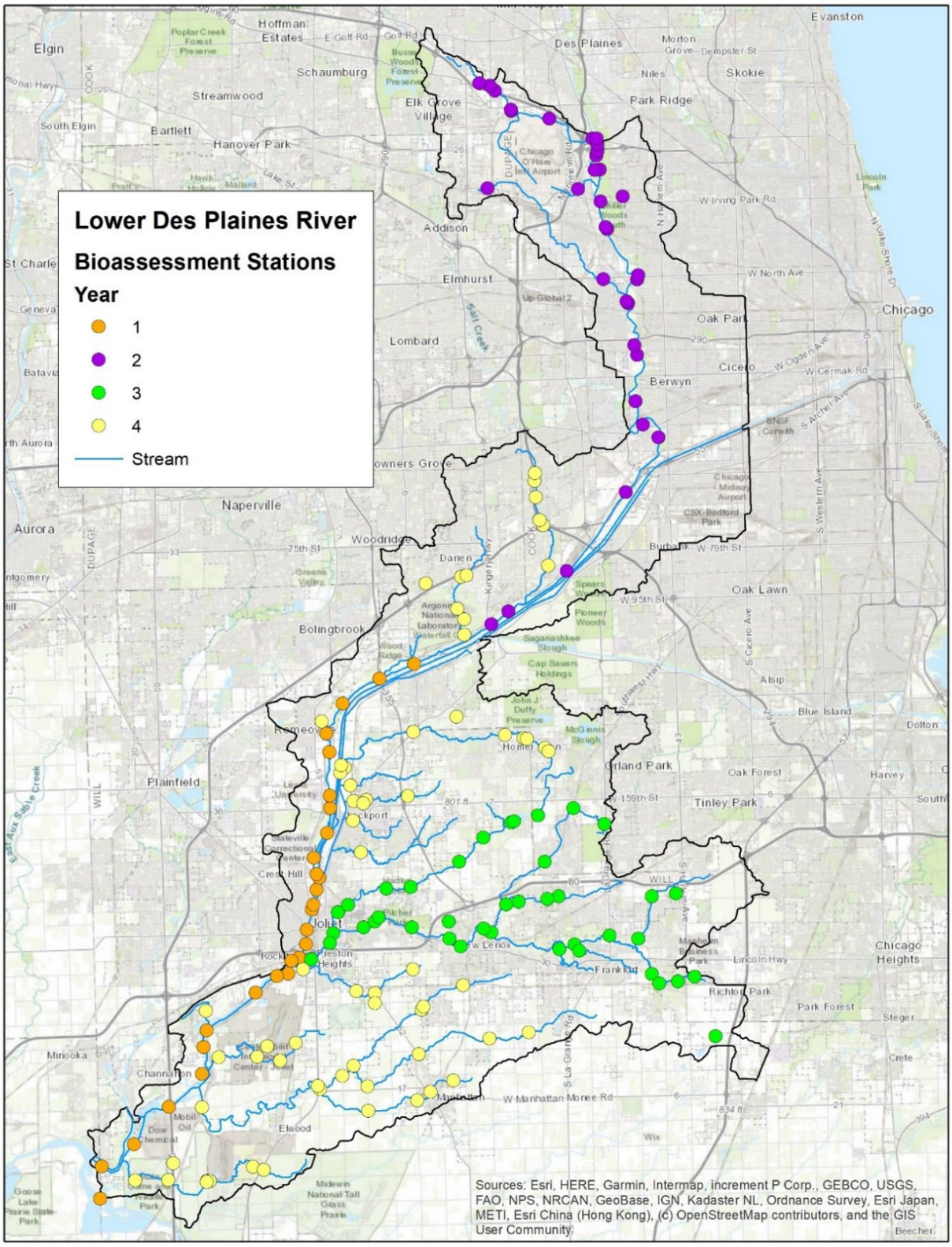
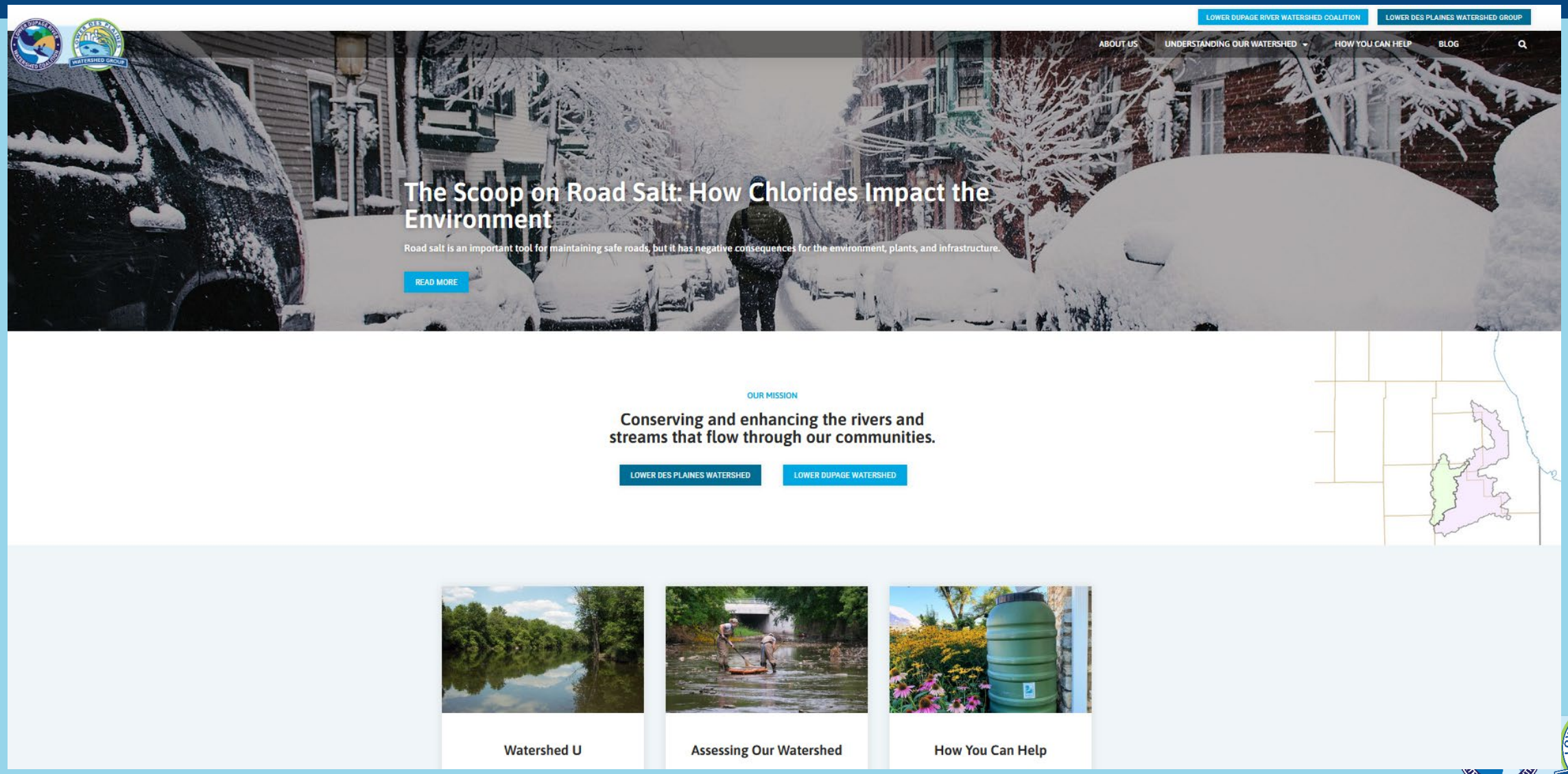


Table 2 Water Quality and sediment Parameters sampled as part of the LDWG Bioassessment Program.

Water Quality Parameters	Sediment Parameters
Demand Parameters 5 Day BOD Chloride Conductivity Dissolved Oxygen Chlorophyll a pH Temperature Total Dissolved Solids Total Suspended Solids **Nutrients** Ammonia Nitrogen/Nitrate Nitrogen – Total Kjeldahl Phosphorus, Total Chlorophyll-a (new in 2020) **Metals** Cadmium Lead Calcium Magnesium Copper Zinc Iron	**Sediment Metals** Arsenic Barium Cadmium Chromium Copper Iron Lead Manganese Nickel Potassium Selenium Silver Zinc **Sediment Organics** Organochlorine Pesticides PCBS Percent Moisture Semi-volatile Organics Volatile Organic Compounds

2022 Watershed Outreach Summary

2022 Outreach Materials



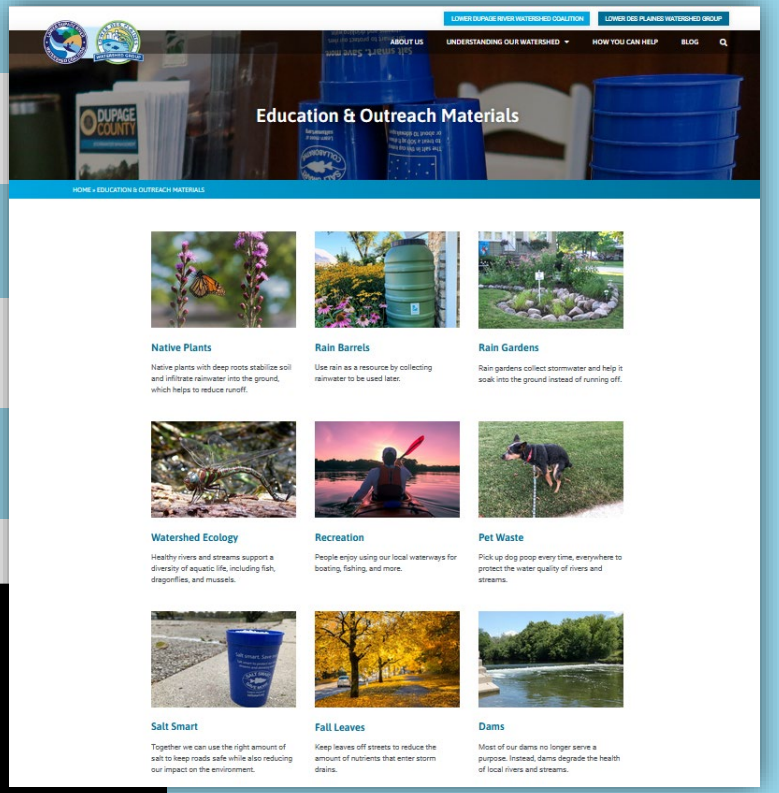
www.LDPWatersheds.org

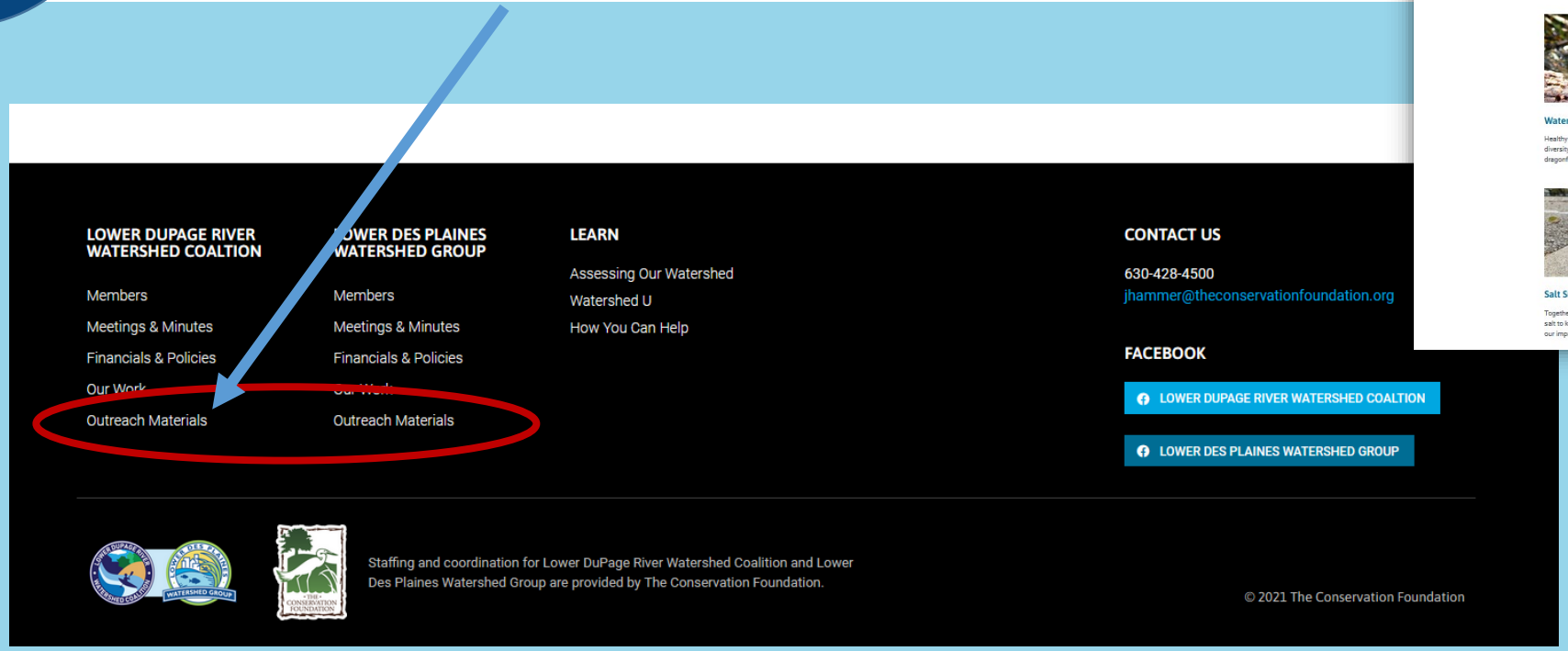
Outreach Materials

Where can I find outreach materials?

LDPwatersheds.org/**outreach**

Bottom of any page on the website





All chloride-related materials are also available on www.saltsmart.org

Spring 2022 Outreach

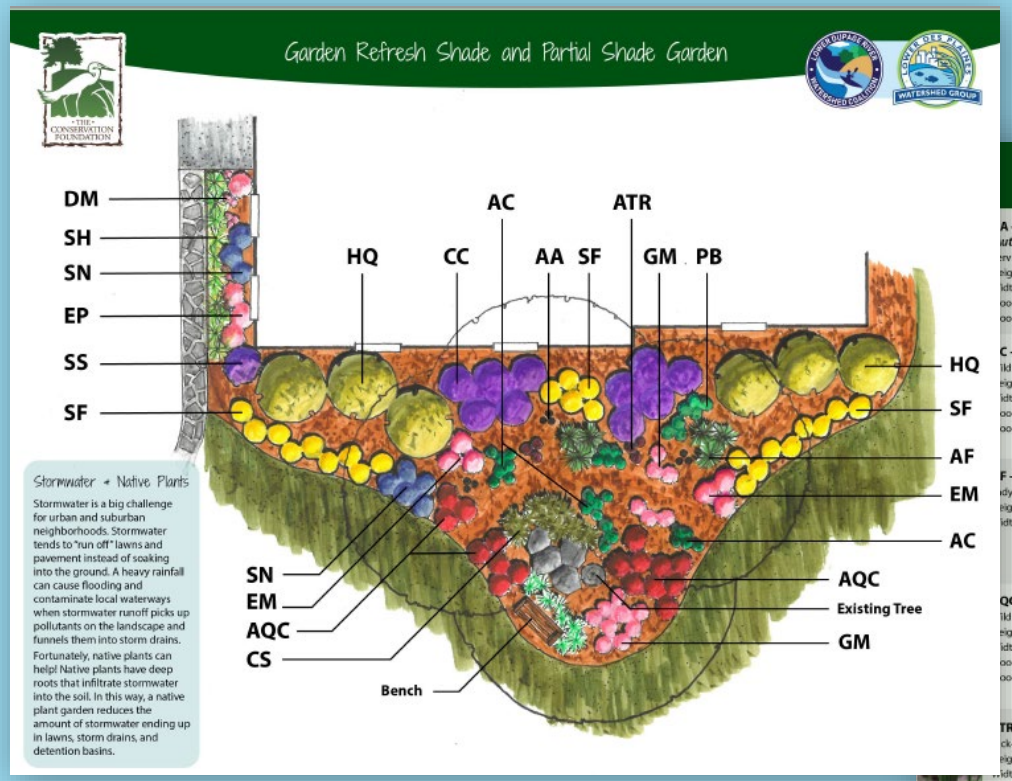
Spring Topics:

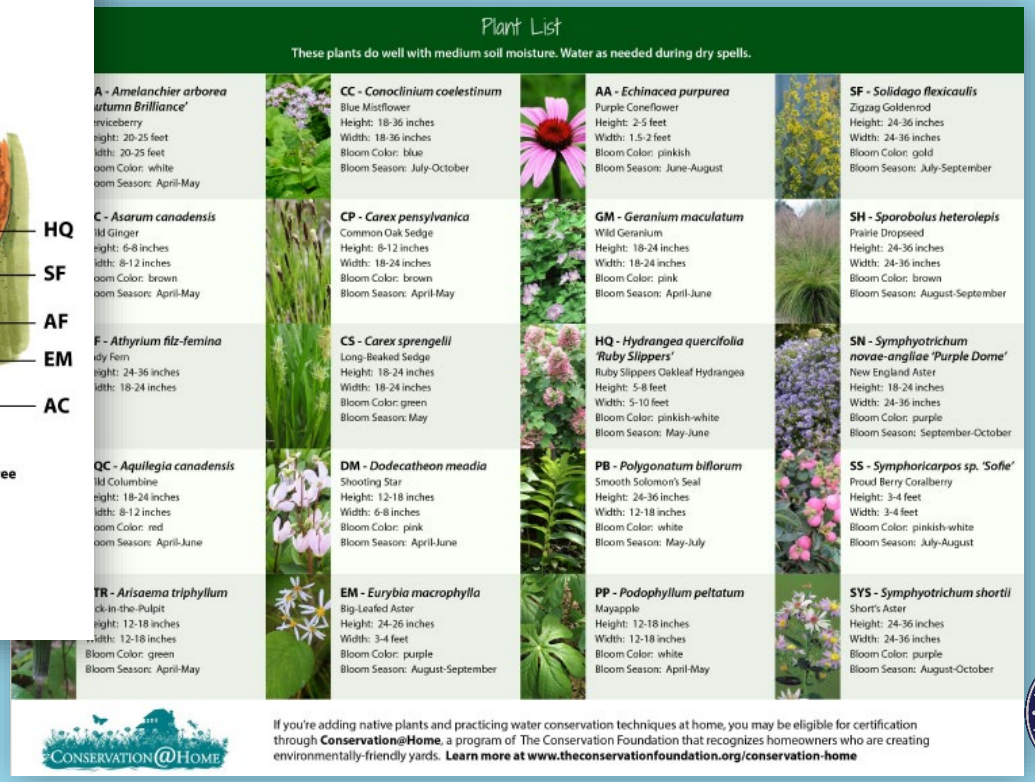
- Pollinator-friendly lawn care
- Proper paint disposal
- Vehicle fluids, leaks, and maintenance

Social Media Posts

Garden Refresh - 2022 Outreach

Garden Refresh Native Plant Garden Designs





Summer 2022 Outreach

River Launch Sign

Landowner Sign

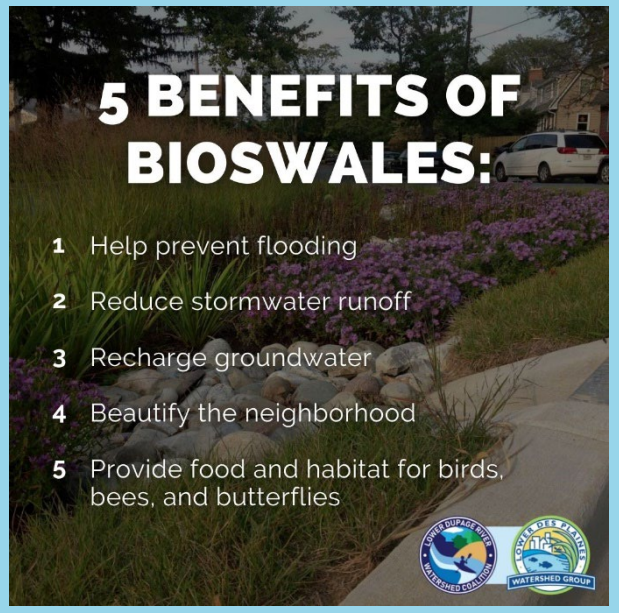
Continued Pet Waste Campaign

Remind residents to scoop the poop to protect water quality!

Fall 2022 Outreach

Fall Topics:

- Tips for clearing fall leaves
- Green infrastructure: bioswales
- Fish in our local rivers and streams



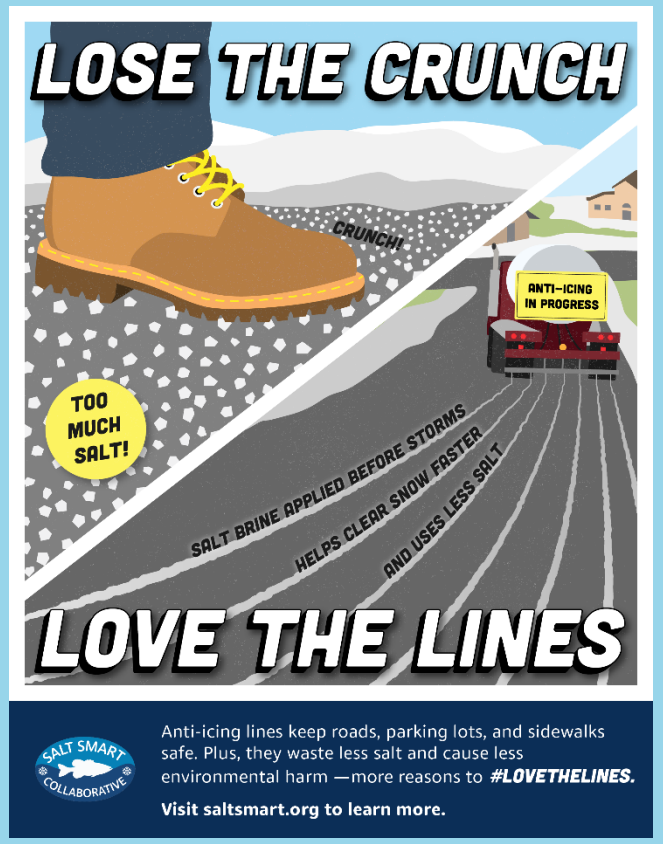
Winter 2022 Outreach

Social Media Posts

Winter 2022 Outreach

Posters

Keep Streets Clear poster



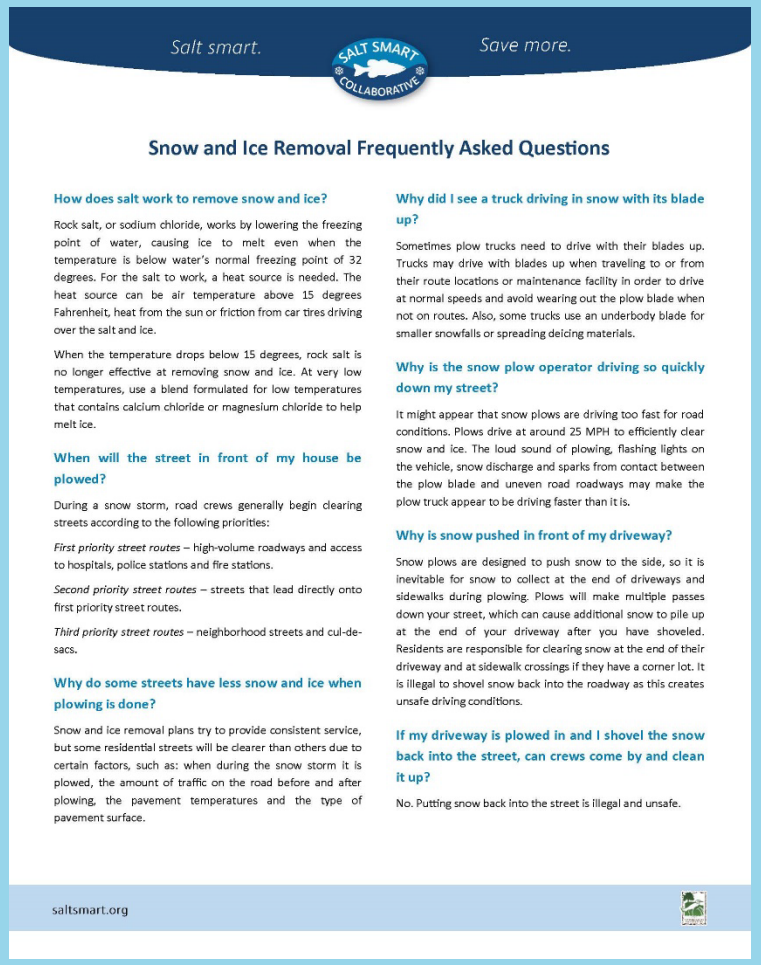
Anti-icing poster
#LoveTheLines

Where to Salt Graphic

Winter – Salt Smart

Safe Driving Poster/Graphic

Snow + Ice Removal FAQ



Salt smart. Save more.

Snow and Ice Removal Frequently Asked Questions

How does salt work to remove snow and ice?

Rock salt, or sodium chloride, works by lowering the freezing point of water, causing ice to melt even when the temperature is below water's normal freezing point of 32 degrees. For the salt to work, a heat source is needed. The heat source can be air temperature above 15 degrees Fahrenheit, heat from the sun or friction from car tires driving over the salt and ice.

When the temperature drops below 15 degrees, rock salt is no longer effective at removing snow and ice. At very low temperatures, use a blend formulated for low temperatures that contains calcium chloride or magnesium chloride to help melt ice.

When will the street in front of my house be plowed?

During a snow storm, road crews generally begin clearing streets according to the following priorities:

First priority street routes – high-volume roadways and access to hospitals, police stations and fire stations.

Second priority street routes – streets that lead directly onto first priority street routes.

Third priority street routes – neighborhood streets and cul-de-sacs.

Why do some streets have less snow and ice when plowing is done?

Snow and ice removal plans try to provide consistent service, but some residential streets will be clearer than others due to certain factors, such as: when during the snow storm it is plowed, the amount of traffic on the road before and after plowing, the pavement temperatures and the type of pavement surface.

Why did I see a truck driving in snow with its blade up?

Sometimes plow trucks need to drive with their blades up. Trucks may drive with blades up when traveling to or from their route locations or maintenance facility in order to drive at normal speeds and avoid wearing out the plow blade when not on routes. Also, some trucks use an underbody blade for smaller snowfalls or spreading deicing materials.

Why is the snow plow operator driving so quickly down my street?

It might appear that snow plows are driving too fast for road conditions. Plows drive at around 25 MPH to efficiently clear snow and ice. The loud sound of plowing, flashing lights on the vehicle, snow discharge and sparks from contact between the plow blade and uneven road roadways may make the plow truck appear to be driving faster than it is.

Why is snow pushed in front of my driveway?

Snow plows are designed to push snow to the side, so it is inevitable for snow to collect at the end of driveways and sidewalks during plowing. Plows will make multiple passes down your street, which can cause additional snow to pile up at the end of your driveway after you have shoveled. Residents are responsible for clearing snow at the end of their driveway and at sidewalk crossings if they have a corner lot. It is illegal to shovel snow back into the roadway as this creates unsafe driving conditions.

If my driveway is plowed in and I shovel the snow back into the street, can crews come by and clean it up?

No. Putting snow back into the street is illegal and unsafe.

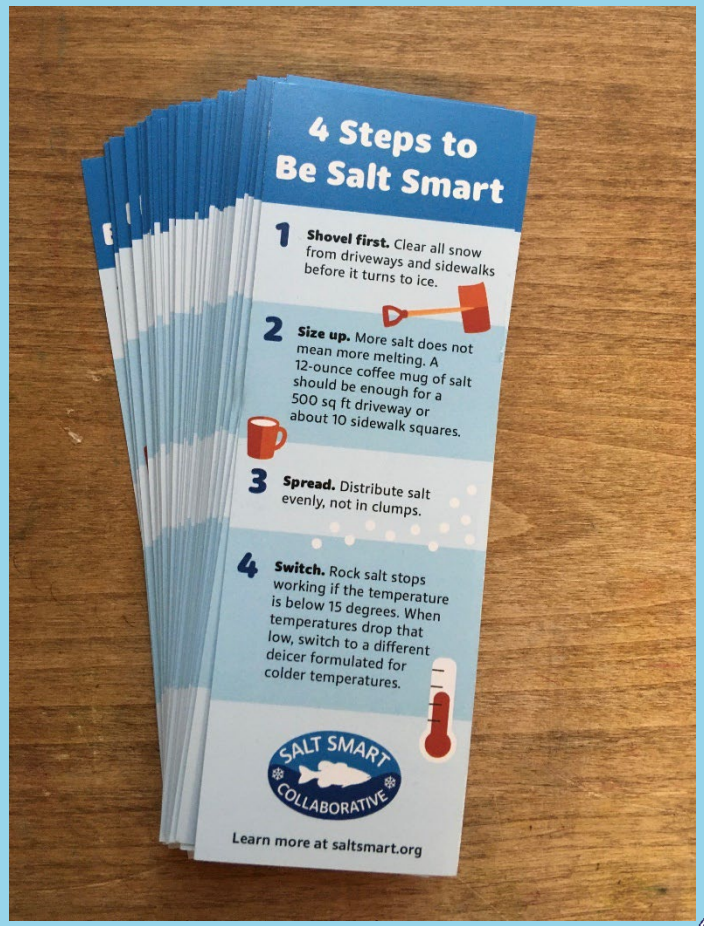
saltsmart.org

Bookmark

Winter – Salt Smart

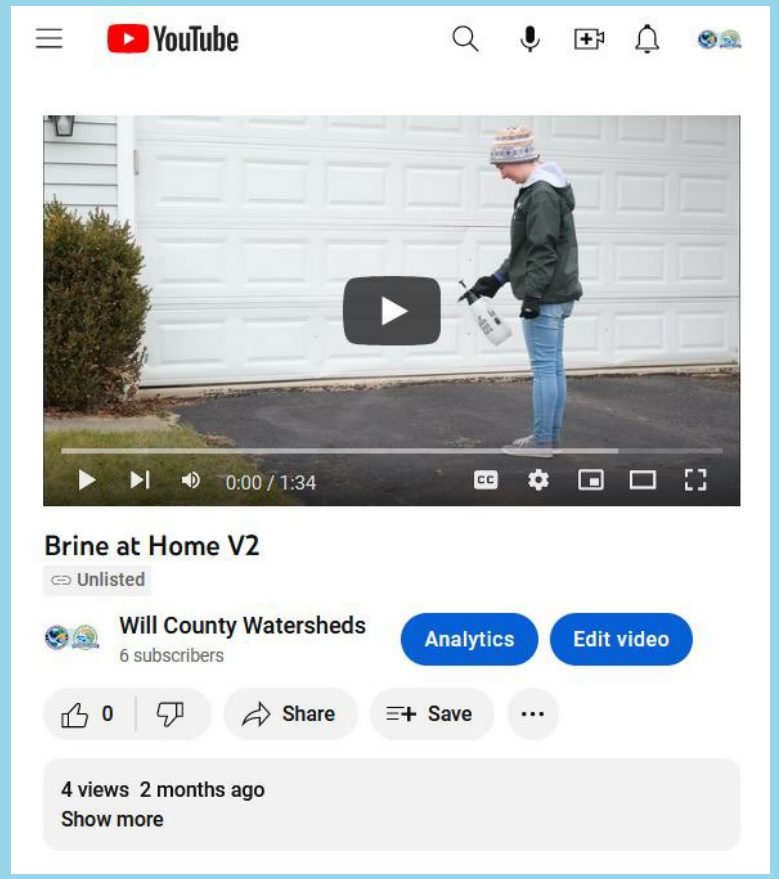
Cups and bookmarks are available now – contact Jennifer or Lea to put in your order

Scatter cups

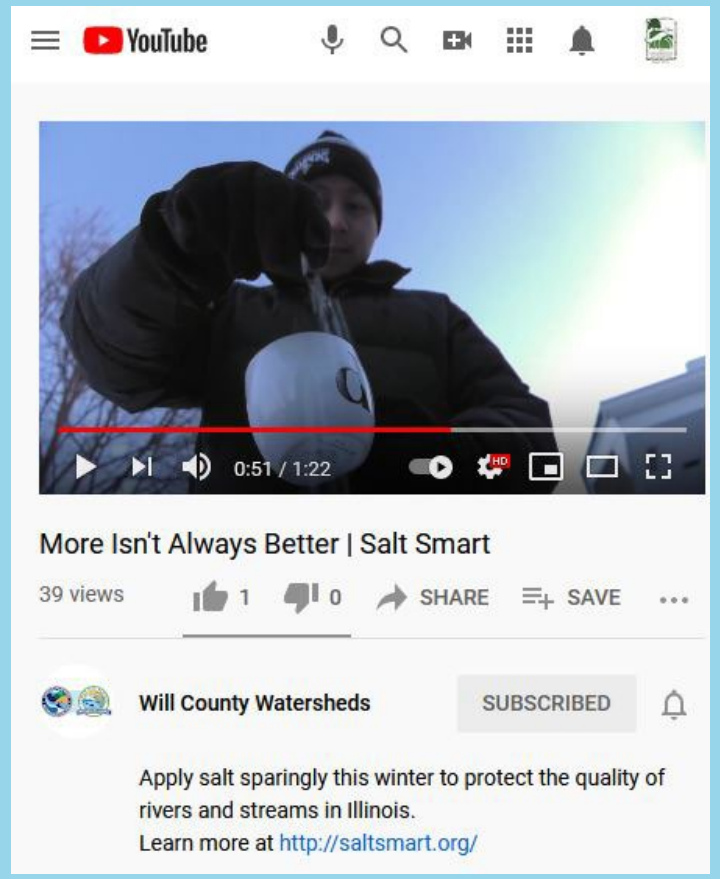


Bookmarks

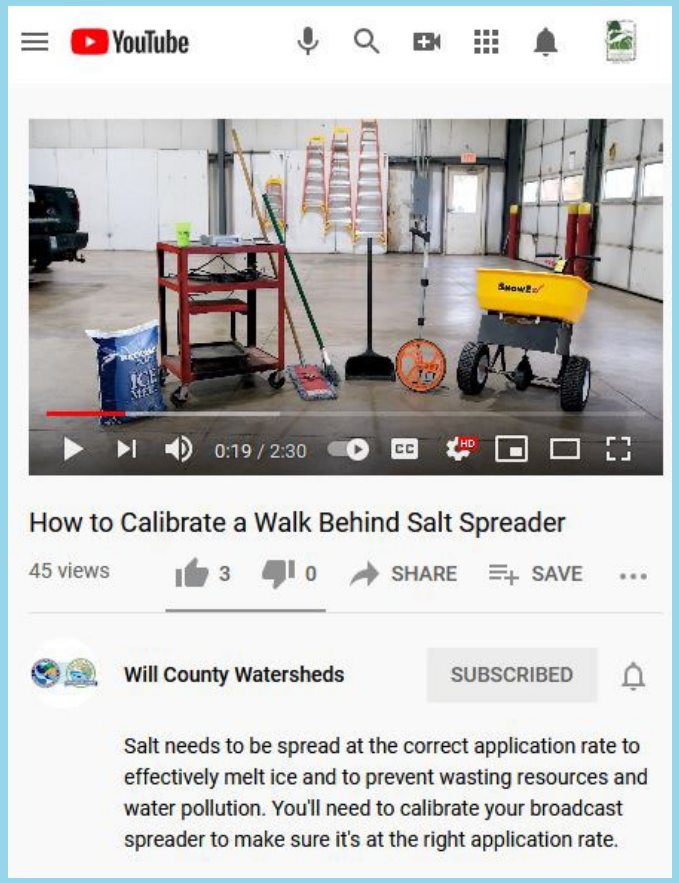
Winter – Salt Smart



Making Brine at Home

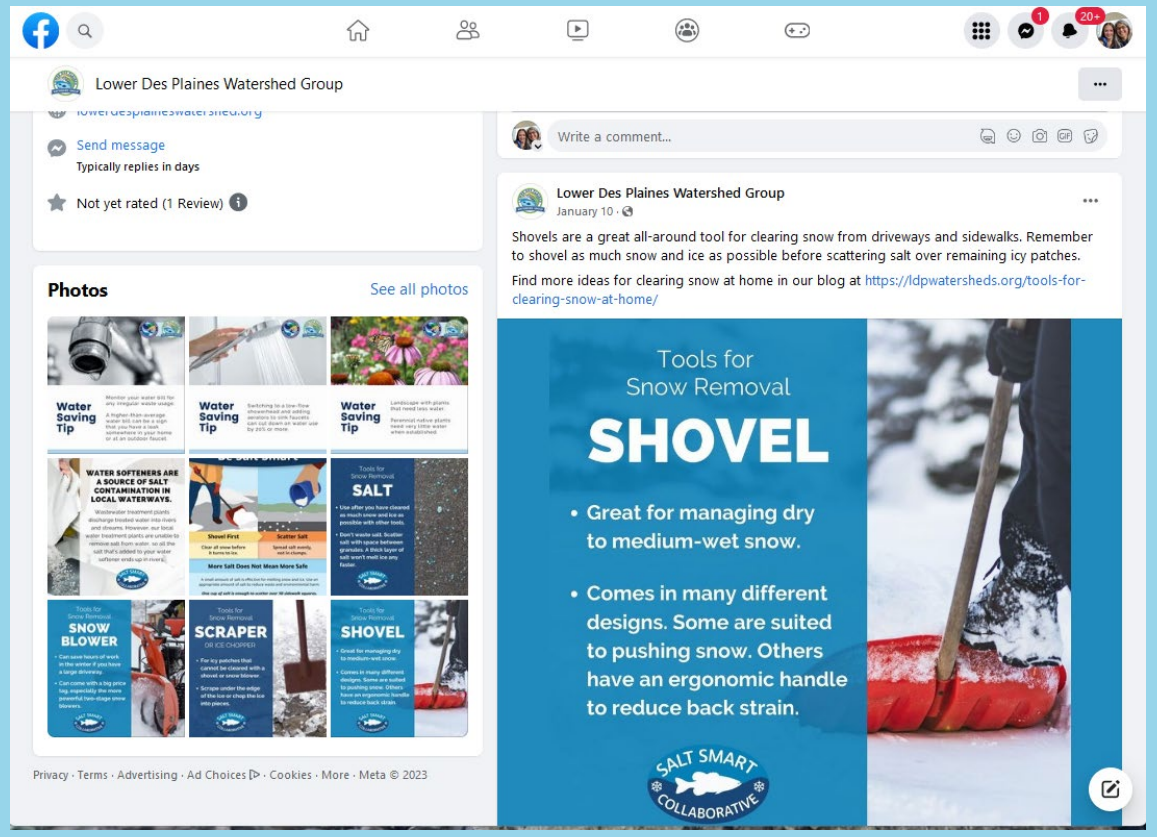


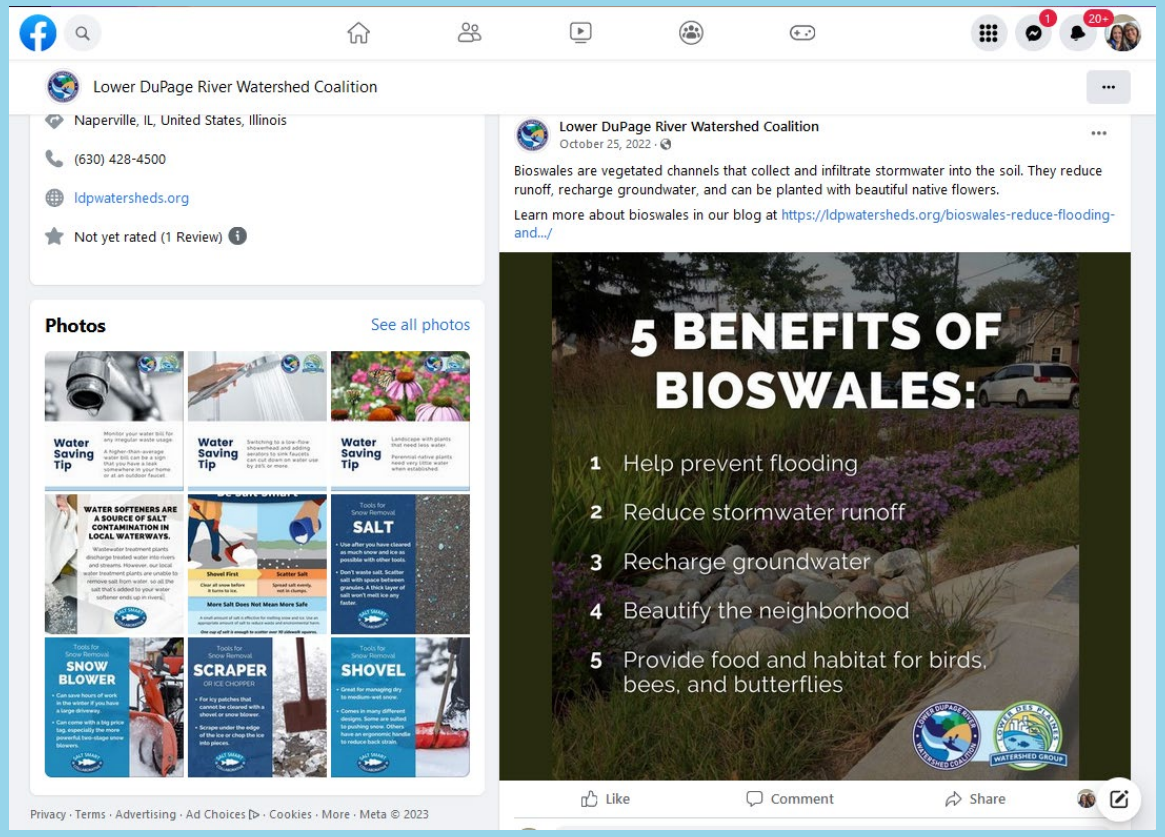
Fun PSA for Residents



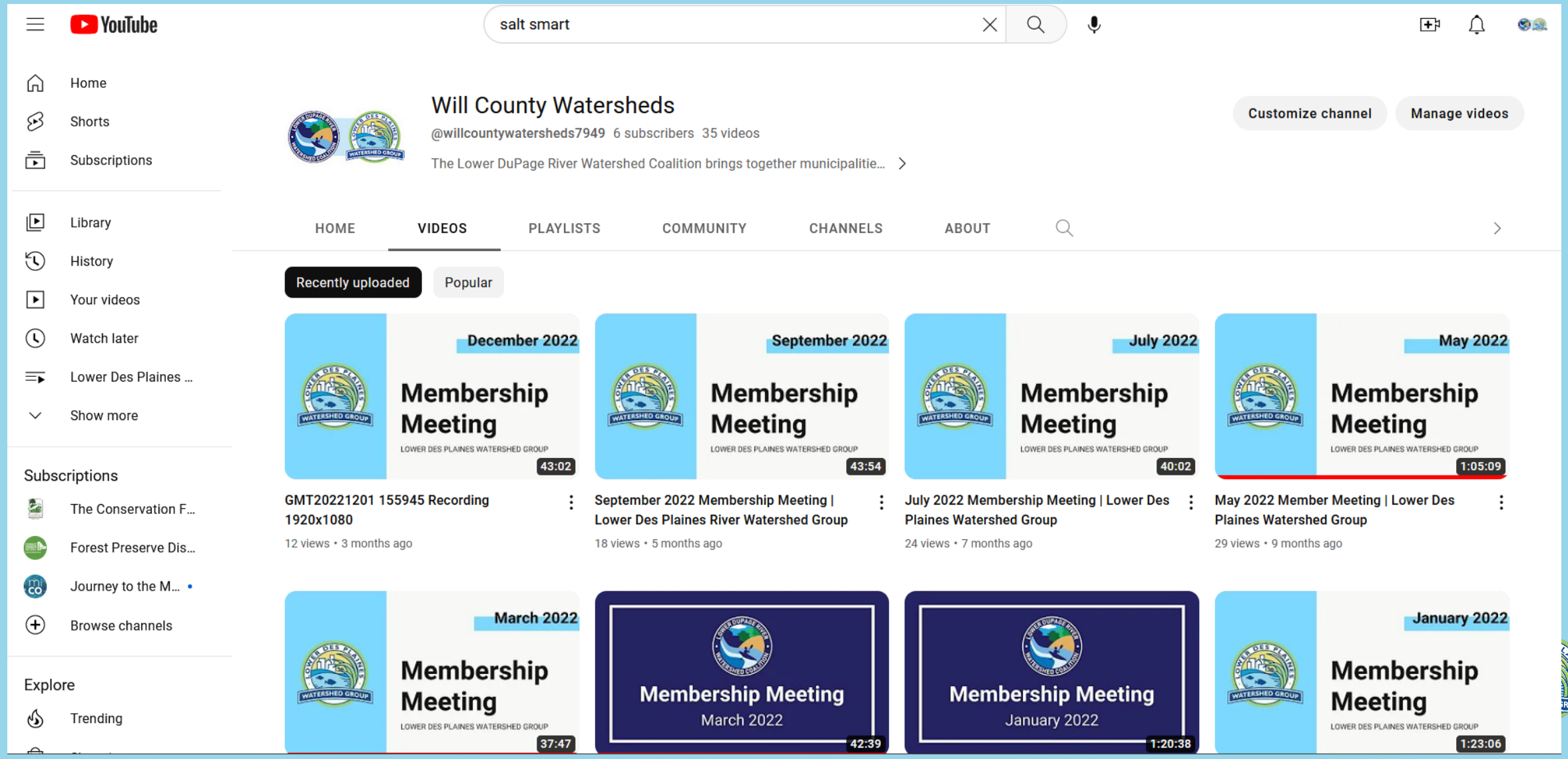
Salt Spreader Calibration Tutorial

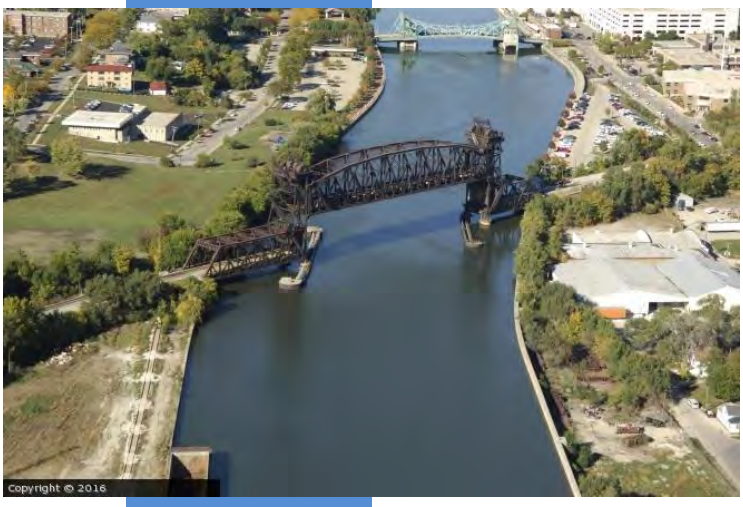
Connect With Us on Facebook!





Will County Watershed YouTube Channel





Lower Des Plaines Watershed Group

2021 Annual Report

Prepared by:
Lower Des Plaines Watershed Group
www.LDPWatersheds.org

Lower Des Plaines Watershed Group
Special Condition Annual Report
Participation & Bioassessment Plan Implementation
2021

Special Condition Language included in Agency Member NPDES Waste Water Permits:

Special Condition Y: The Permittee shall participate in the Lower Des Plaines Watershed Group (LDWG). The Permittee shall work with other watershed members of the LDWG to determine the most cost-effective means to remove dissolved oxygen (DO) and offensive condition impairments in the Lower Des Plaines Watershed to the extent feasible. The Permittee shall participate in the LDWG for the completion of the Bioassessment Monitoring Program Plan of the Lower Des Plaines Watershed Bioassessment Quality Assurance Project Plan dated July 27, 2018 (hereinafter the Plan) which will include biological, chemical and physical monitoring of the Lower Des Plaines River Watershed.

A. *The LDWG will conduct the following activities in accordance with the Plan during the term of this permit:*
   1. *Conduct stream monitoring in Lower Mainstem Des Plaines River in 2018;*
   2. *Conduct stream monitoring in Upper Mainstem and tributaries of the Des Plaines River in 2019;*
   3. *Conduct stream monitoring in Hickory Creek Watershed in 2020;*
   4. *Conduct stream monitoring in remaining tributaries of the Des Plaines River in 2021; and*
   5. *Assess stream monitoring and develop recommendations for future stream monitoring in 2022:*

B. *The Permittee shall submit an annual progress report on the activities identified in (A) above to the Agency by March 31 of each year. The Permittee may work cooperatively with the LDWG to prepare a single annual progress report that is common among LDWG members.*

C. *In its application for renewal of this permit, the Permittee shall consider and incorporate recommended LDWG activities listed in any annual progress report or Nutrient Assessment Reduction Plan that the Permittee will implement during the next permit term.*

2021-2022 Participating Members:

Table 1. 2021-2022 Participating Treatment Plants

Member Agency	**NPDES Permit No.**
Channahon	IL0069906
Crest Hill East	IL0064998
DuPage County Knollwood	**IL0065188**
Elwood	IL0074713
Joliet -Westside	IL0033553
Joliet -Eastside	IL0022519
Lockport -STP	IL0029611
Lockport -Bonnie Brae	IL0021261
New Lenox -STP#1	IL0020559
New Lenox -STP#2	IL0046264
New Lenox - STP#3	IL 0075957
New Lenox – WRRF	IL0080228
Manhattan	IL0020222
Mokena	IL0024201
Frankfort Regional	IL0072192
Romeoville	IL0048526
MWRD -Kirie	IL0047741
MWRD -Lemont	IL0028070
IL AM Water -Santa Fe	IL0032760
IL AM Water -Derby Meadows	IL0045993
IL AM Water -Chickasaw	IL0031984
IL AM Water -Oak Valley	IL0055981

MS4 only Permit Holders:

- Village of Burr Ridge
- Village of Hinsdale
- Illinois DOT
- New Lenox Township
- **Village of Riverside**
- Village of Westmont
- Village of Western Springs
- Will County

BOLD signifies new members in 2021

Bioassessment Monitoring Program Implementation

OVERVIEW

The Bioassessment Program is meant to meet the instream monitoring requirements of the NPDES permit holders from a watershed prospective, utilizing paired data (chemical and biological). The first round of bioassessment monitoring was completed in 2018 at the twenty-nine (29) identified sites on the mainstem Des Plaines River from the confluence with the Kankakee River up to the I-355 bridge. The remaining thirty-three (33) mainstem sites were scheduled for sampling in 2019. As stated in the 2019 Annual Report, sampling was not completed in 2019 due to unsafe, high water conditions. A subset of fifteen (15) stations were resampled in 2020. All data collected on the mainstem (2018, 2019 and 2020) will be compiled in a report that will be available in mid-2022. In addition to the mainstem Des Plaines River sites, forty (40) sites were sampled across the Hickory Creek watershed. The Bioassessment Report for Hickory Creek is also expected in mid-2022. The remaining fourteen (14) tributaries were sampled in 2021 with a Bioassessment Report due in early 2023. There is no field sampling scheduled for 2022; this year will be focused finalizing reports and reviewing sampling plans for round two of the bioassessment that will kick-off in 2023. Details of the bioassessment program are below.

BIOASSESSMENT

A biological and water quality survey 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 LDWG bioassessment is the latter.

The LDWG bioassessment program continued in 2021 with the sampling of the fourteen remaining tributary streams, twelve within Will County and portions of Cook County and two in DuPage County, see Table 3 for the list of streams. Table 2 below outlines the overall sampling schedule. The Bioassessment includes fish, macroinvertebrate, QHEI – habitat and water chemistry at all sites and sediment sampling at a subset of sites.

Table 2 – Bioassessment Sampling Schedule

Watershed	Year Sampled	# of Stations
Lower mainstem Lower Des Plaines River	2018	29
Upper mainstem Lower Des Plaines River + northern tributaries	2019	33 – aborted due to high water
Upper mainstem Lower Des Plaines River resample subset	2020	15
Hickory Creek subwatershed	2020	40
Remaining Tributaries	2021	56

Figure 1. Lower Des Plaines River Bioassessment Stations. Year represents order of sampling within bioassessment 5-year cycle.

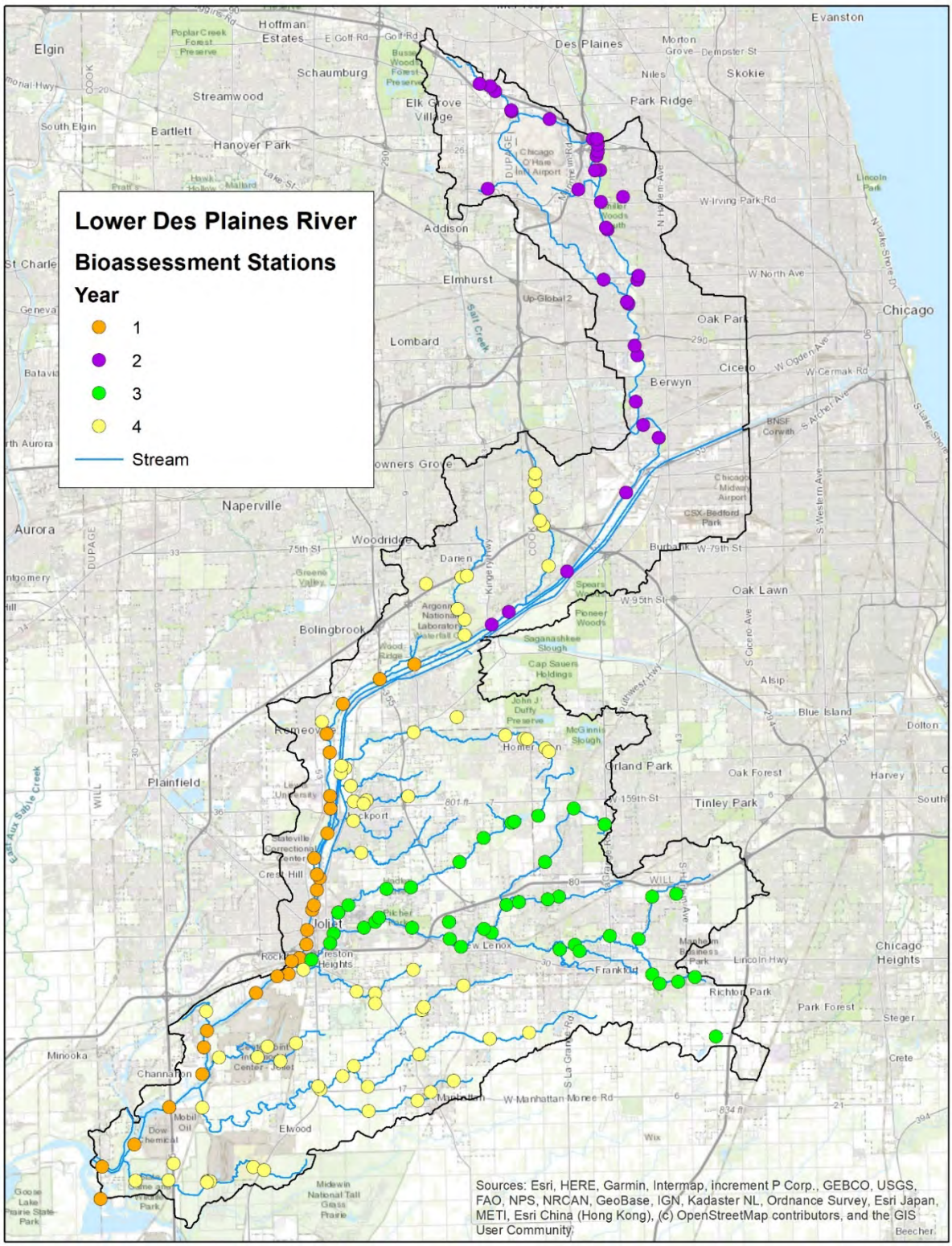


Table 3 – 2021 Tributary Streams

LDGA – Grant Creek	LDGHB – Milne Creek
LDGC – Jackson Creek	LDGHC – Fiddyment Creek
LDGCA – Manhattan Creek	LDGHD – Big Run
LDGCB – Jackson Branch	LDGHE – Long Run
LDGD – Cedar Creek	LDGIX – Deep Run
LDGF – Sugar Run	LDGJ – Sawmill Creek
LDGHA – Fraction Run	LDGK – Flag Creek

The LDWG 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 Des Plaines River watershed 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 will be posted on the LDWG website. It is not the role of the bioassessments to identify specific remedial actions on a site specific or watershed basis.

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 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 and illustrated in Figure 1.

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.

FISH

Methodology

Methods for the collection of fish at wadeable sites was performed using a tow-barge or longline pulsed D.C. electrofishing apparatus (MBI 2006b). A Wisconsin DNR battery powered backpack electrofishing unit was used as an alternative to the long line in the smallest streams (Ohio EPA 1989). A three-person crew carried out the sampling protocol for each type of wading equipment sampling in an upstream direction. Sampling effort was indexed to lineal distance and ranged from 150-200 meters in length. Non-wadeable sites were sampled with a raft-mounted pulsed D.C. electrofishing device in a downstream direction (MBI 2007). Sampling effort was indexed to lineal distance over 0.5 km. Sampling was conducted during a June 15-October 15 seasonal index period.

Samples from each site were processed by enumerating and recording weights by species and by life stage (y-o-y, juvenile, and adult). All captured fish were immediately placed in a live well, bucket, or live net for processing. Water was replaced and/or aerated regularly to maintain adequate D.O. levels in the water and to minimize mortality. Fish not retained for voucher or other purposes were released back into the water after they had been identified to species, examined for external anomalies, and weighed either individually or in batches. While the majority of captured fish were identified to species in the field, any uncertainty about the field identification required their preservation for later laboratory identification. Identification was made to the species level at a minimum and to the sub-specific level if necessary. Vouchers were deposited and verified at The Ohio State University Museum of Biodiversity (OSUMB) in Columbus, OH.

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.

HABITAT

Methodology

Physical habitat was evaluated using the Qualitative Habitat Evaluation Index (QHEI) developed by the Ohio EPA for streams and rivers in Ohio (Rankin 1989, 1995; Ohio EPA 2006b) and as modified by MBI for specific attributes. Attributes of habitat are scored based on the overall importance of each to the maintenance of viable, diverse, and functional aquatic faunas. The type(s) and quality of substrates, amount and quality of instream cover, channel morphology, extent and quality of riparian vegetation, pool, run, and riffle development and quality, and gradient used to determine the QHEI score which generally ranges from 20 to less than 100. QHEI scores and physical habitat attribute were recorded in conjunction with fish collections.

Chemistry

Methodology

Water column and sediment samples are collected as part of the LDWG bioassessment programs. The number of samples collected at each site is largely a function of the site's drainage area with the frequency of sampling increasing as drainage size increases. Grab sample is taken at center of flow. Temperature, dissolved oxygen, pH and conductivity are sampled in the field. Sediment sampling is done at a subset of 158 sites using the same procedures as IEPA.

The parameters sampled for are included in Table 4 and can be grouped into demand parameters, nutrients, demand, metals and organics. All sampling occurs between May and October of the sample year.

Table 4 – Water Quality and Sediment Parameters sampled as part of the LDWG Bioassessment Program.

Water Quality Parameters	Sediment Parameters
Demand Parameters	**Sediment Metals**
5 Day BOD	Arsenic
Chloride	Barium
Conductivity	Cadmium
Dissolved Oxygen	Chromium
Chlorophyll a	Copper
pH	Iron
Temperature	Lead
Total Dissolved Solids	Manganese
Total Suspended Solids	Nickel
	Potassium
Nutrients	Selenium
Ammonia	Silver
Nitrogen/Nitrate	Zinc
Nitrogen – Total Kjeldahl	
Phosphorus, Total	
Chlorophyll-a (new in 2020)	**Sediment Organics**
	Organochlorine Pesticides
Metals	PCBS
Cadmium	Percent Moisture
Calcium	Semi-volatile Organics
Copper	Volatile Organic Compounds
Iron	
Lead	
Magnesium	
Zinc	

Picture 1 – American Eel from Pilcher Park Impoundment 2020

Initial Results

Final reports for both the mainstem Des Plaines and the Hickory Creek Watershed are delayed until mid-2022. Draft summary tables and graphs of results are provided below for the Hickory Creek watershed. The causes listed for non-attainment are based on thresholds from the Integrated Prioritization System (IPS) Model developed by the DuPage River Salt Creek Workgroup. Full discussion of results will be provided in the final reports, which will be posted to the website when available at https://ldpwatersheds.org/about-us/lower-des-plaines-watershed-group/our-work/reports-resources/

Table 5 – Draft Hickory Creek Attainment Table based on data collected in 2020. Non-attainment causes based on IPS Model thresholds

Site ID	River Mile	Drainage Area (mi²)	fIBI	mIBI	Attainment Status	Very Poor	Poor	Fair	Restorability Score	Susceptibility Score	Threat Score
Hickory Creek - 2020											
LDGG15	22.2	2.78	30	26.7	Non - Fair			TKN; QHEI; Substr;	93.3		
LDGG14	19.9	15.8	16	34.2	Non - Poor	BOD; VSS;		TKN; QHEI; WC Metals;	76.79		
LDGG13	16.5	36.94	20.5	54.4	Partial			BOD; TSS; WC Metals;	87.62		
LDGG12	14.7	38.97	12.5	31.8	Non - Poor	VSS;	TKN; BOD;	QHEI; Chloride; WC Metals;	67.64		
LDGG11	10.3	49.96	30	45.7	Partial		BOD;	TKN; TSS; WC Metals;	77.79		
LDGG10	9.9	72.71	32	53.4	Partial			TKN; BOD; Chloride;	83.42		
LDGG09	8.3	74.78	27	52.7	Partial			TKN; BOD; Substr; Chloride;	85.2		
LDGG08	7.7	75.9	36.5	51.9	Partial	TKN; VSS;		TP; BOD; Chloride; WC Metals;	75.97		
LDGG07	5.79	82.47	27	49.3	Partial	WC Metals;		BOD; QHEI; Chloride;	80.69		
LDGG06	4.57	84	22	-	Non - Fair			BOD; Chloride;	81.32		
LDGG05	4.27	84.61	43	53.2	Full			TKN; BOD; Chloride; WC Metals;	89.26	100	2
LDGG04	3.48	86.35	43	57.8	Full	TKN; VSS;		BOD; TSS; WC Metals;	79.45	89.25	10
LDGG03	2.22	87.65	43.5	61.6	Full	TKN;		QHEI; WC Metals;	85.27	95.55	9
LDGG02	1.74	107.4	34.5	39	Non - Fair	TKN; VSS;	Chan;	QHEI; Substr; Chloride; TSS; WC Metals;	52.34		
LDGG01	0.65	109.27	27	37.9	Non - Fair			TKN; BOD; QHEI; Substr; Chan; Chloride; WC Metals;	66.33		
Trib 4 to Hickory Creek (RM 21.16) - 2020											
LDGGE02	4.38	2.84	9	12	Non - Poor	BOD; Substr; WC Metals;	QHEI; Chan;	Chloride;	55.1		
LDGGE01	0.19	9.69	11	33.2	Non - Poor	BOD;		TKN; QHEI; TSS;	75.6		
Trib 3 to Hickory Creek (RM 20.32) - 2020											
LDGGD01	0.04	1.97	26	31.5	Non - Fair			QHEI; Substr; Chan;	95.96		
Union Ditch (RM 18.03) - 2020											
LDGGC02	2.46	13.61	15	29.4	Non - Poor		QHEI; Substr; Chan; TSS;	BOD; WC Metals;	61.16		
LDGGC01	0.33	17.35	22.5	43.4	Partial			BOD; QHEI; Substr; TSS;	90.8		
Trib 2 (RM 3.56) to Union Ditch (RM 18.03) - 2020											
LDGGCB01	0.34	8.07	9	17.8	Non - Poor	Substr;	QHEI; Chan; TSS;	BOD;	58.48		
Frankfort Trib (RM 14.8) - 2020											
LDGGF01	0.59	2.28	25	39.4	Non - Fair		WC Metals;	Chloride;	89.28		
Van Horne Woods Trib (RM 13.8)- 2020											
LDGGG01	0.49	2.92	32	39.3	Non - Fair			QHEI; Chloride;	97.55		

Table 5 – Continued

Marley Creek (RM 10.1) - 2020											
LDGGB04	9.66	0.42	18	28.3	Non - Poor	Substr; Chloride;	QHEI; WC Metals;	BOD; Conduct; TDS; TSS;	74.85		
LDGGB03	7.98	4.43	29	20.9	Non - Poor			QHEI; Substr; WC Metals;	84.45		
LDGGB02	5.16	8.77	17	25.7	Non - Poor		Substr; Chan;	BOD; QHEI; Chloride;	66.98		
LDGGB01	1.58	21.63	30.5	40.6	Non - Fair	VSS;	WC Metals;	TP; Nitrate; QHEI; Substr; Chloride;	81.13		
East Branch Marley Creek (RM 1.89) to Marley Creek (RM 10.1) - 2020											
LDGGBA03	2.6	4.87	30	33.1	Non - Fair	VSS;	QHEI;	Substr; Chan;	86.92		
LDGGBA02	2.21	5.88	19	18.3	Non - Poor	TP; VSS; WC Metals;		BOD; QHEI; Substr;	70.81		
LDGGBA01	0.74	7.5	32	37.5	Non - Fair		TP; WC Metals;	BOD; QHEI; Chloride;	84.24		
Trib 5 to Hickory Creek (RM 7.43) - 2020											
LDGGH01	0.77	1.84	29	40.9	Non - Fair		WC Metals;	QHEI;	87.18		
Spring Creek (RM 2.10)- 2020											
LDGGA11	12.29	2.3	17	29.9	Non - Poor		QHEI; Substr;	TKN;	87.9		
LDGGA10	11.11	3.81	14	31.7	Non - Poor	Substr;	QHEI; TSS;	TKN; BOD; WC Metals;	70.88		
LDGGA09	10.9	4	14	26.3	Non - Poor	Substr; VSS;	QHEI; WC Metals;	TKN; BOD; TSS;	77.23		
LDGGA07	9.47	7.31	10	31.9	Non - Poor	Substr;	QHEI;	TKN; BOD; TSS; WC Metals;	72.21		
LDGGA06	7.84	9.87	17.5	57.9	Non - Poor			TKN; BOD; QHEI; Substr; WC Metals;	84.85		
LDGGA04	5.4	13.81	13	39.4	Non - Poor	Substr; TSS; VSS;		TKN; BOD; QHEI; Chloride; WC Metals;	76.56		
LDGGA03	4.31	14.51	30	70.7	Partial	TSS;		TP; TKN; BOD; Substr; Chloride; WC Metals;	79.1		
LDGGA02	1.83	17.65	31	57.9	Partial	VSS;		QHEI; Substr; Chan;	84.47		
LDGGA01	0.05	19.51	38.5	38.5	Non - Fair		QHEI; Chan;	BOD; Substr; WC Metals;	65.23		

	Narrative Category	fIBI	mIBI	AQLU Status	IPS Narrative Rankings		
	Excellent	≥50	>73	FULL	Very High	Very Low	Very Low
	Good	>41-49	41.8-72.9	FULL	High	Low	Low
	Fair	30-<41	30-41.7	PARTIAL	Moderate	Moderate	Moderate
	Poor	>15-29	>15-29	NON-Fair	Low	High	High
	Very Poor	≤15	≤15	NON-Poor	Very Low	Very High	Very High

Figure 2. Hickory Creek Qualitative Habitat Evaluation Index 2020

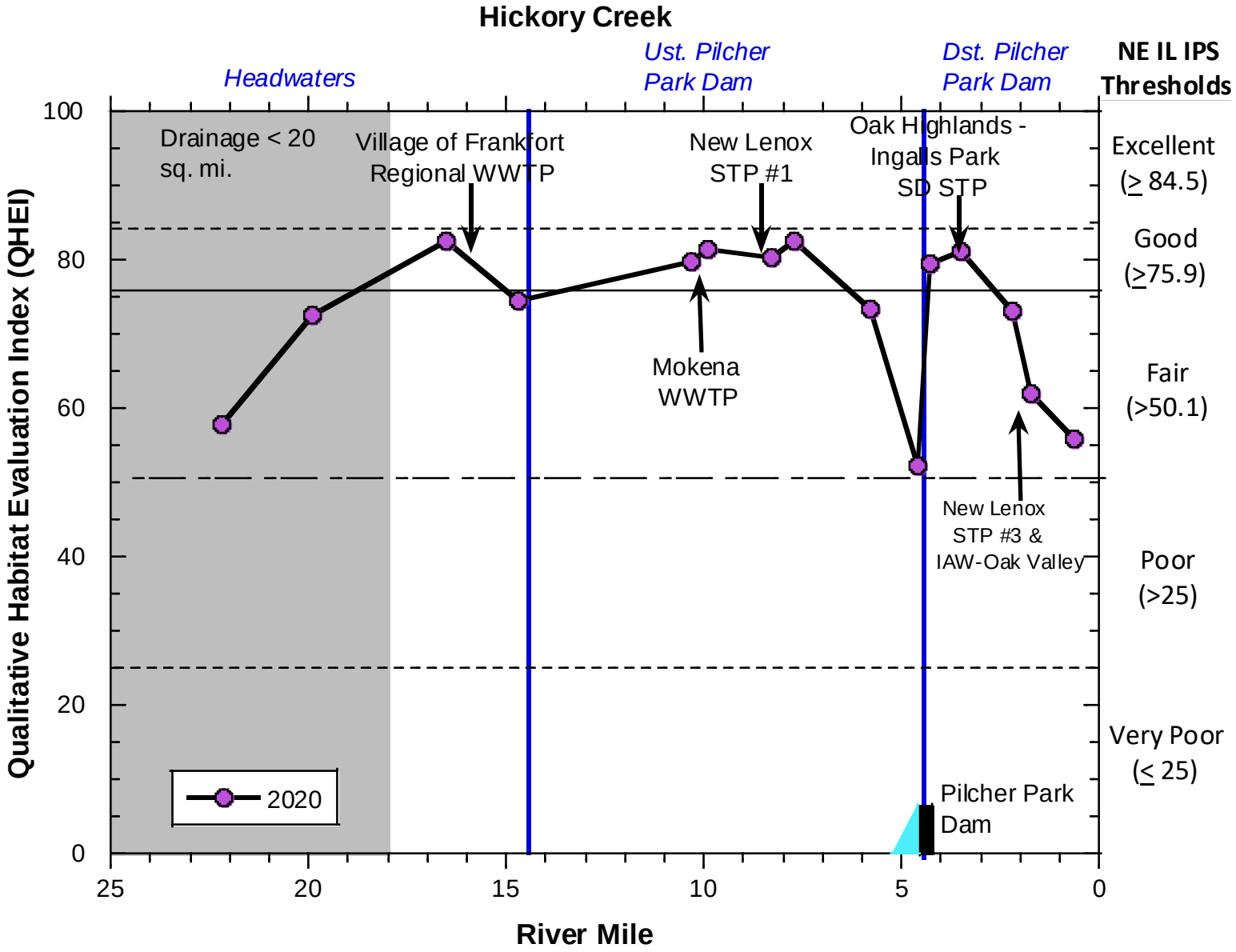


Figure 3. Hickory Creek Fish Index of Biotic Integrity 2020

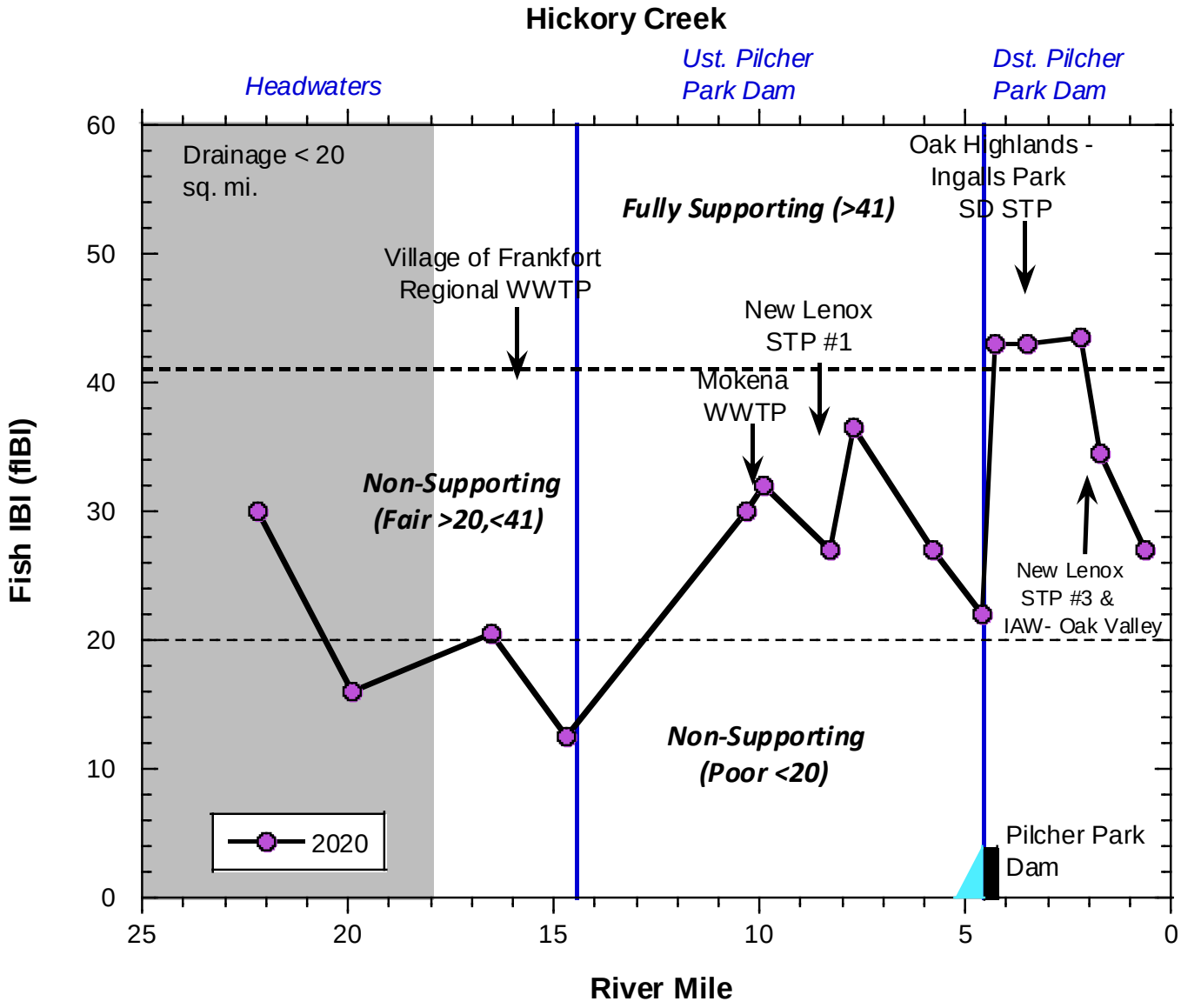


Figure 4. Hickory Creek Macroinvertebrate Index of Biotic Integrity 2020