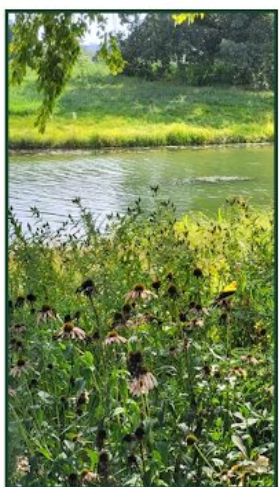
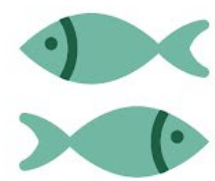




# Illinois CREP Annual Report



October 1<sup>st</sup>, 2019  
to  
September 30<sup>th</sup>, 2020



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## INTRODUCTION

For over 20 years, Illinois Conservation Reserve Enhancement Program (CREP) has been a successful partnership between the U.S. Department of Agriculture (USDA), Farm Service Agency (FSA), the Illinois Department of Natural Resources (IDNR), and the Soil and Water Conservation Districts (SWCDs). CREP provides long-term environmental benefits by allowing up to 232,000 acres of eligible environmentally sensitive lands within the Illinois and Kaskaskia River Watersheds (Figure 1) to be restored, enhanced, and protected over periods ranging from 15 years to perpetuity.

In CREP, landowners enroll frequently flooded and environmentally sensitive cropland in a Federal CREP contract, with FSA. IDNR extends the environmental benefits of that Federal contract by enrolling the land into an Illinois CREP grant of conservation right and easement agreement (easement) for 15 years, 35 years, or in perpetuity beyond the expiration of the Federal contract. In exchange for voluntarily removing land from production, landowners received compensation to implement conservation practices that contribute to the goals of CREP.

The goals of CREP are to reduce sediment and nutrient runoff, improve water quality, and create and enhance critical habitat for fish and wildlife populations on private lands. As one of the oldest and most popular CREP programs in the nation, the CREP partnership has achieved restoration and long-term protection of over 90,000 acres in Illinois. With over 90% of land in Illinois privately owned, programs like CREP are essential to effectively address important environmental issues.

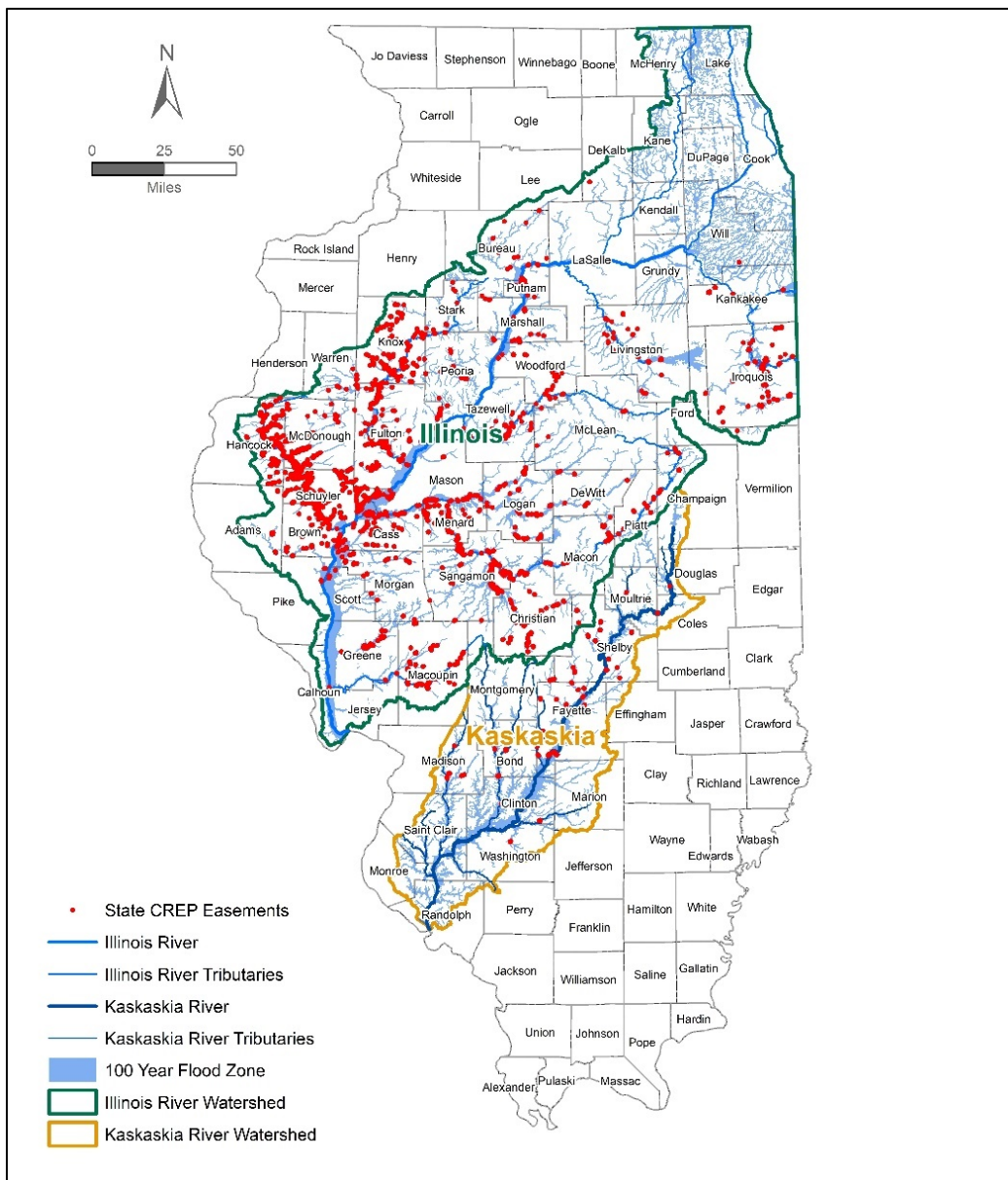


Figure 1. CREP eligible watersheds and executed easements.

## ILLINOIS CREP ENROLLMENT

Illinois CREP was created by an agreement between USDA and the State of Illinois in March of 1998. Enrollments into the program began on May 1, 1998. Throughout the 20-plus year history of CREP, the CREP agreement has been amended several times to clarify terms, increase the number of practices offered, and expand the eligible area.

Enrollment in CREP has been overwhelmingly popular since the beginning of the program. During the first two years of the program, there were nearly 700 easements totaling more than 46,000 acres enrolled in the stateside of CREP. Currently, there are 1,323 CREP easements protecting 90,529 acres<sup>1</sup> (Figure 1).

The CREP project area has grown significantly through the years (Figure 2). In 1998, only a portion of the Illinois River basin was eligible for CREP enrollments. By 2001, CREP expanded to the entire Illinois River basin, and by 2010, the Kaskaskia River basin was added to the CREP eligible acres.

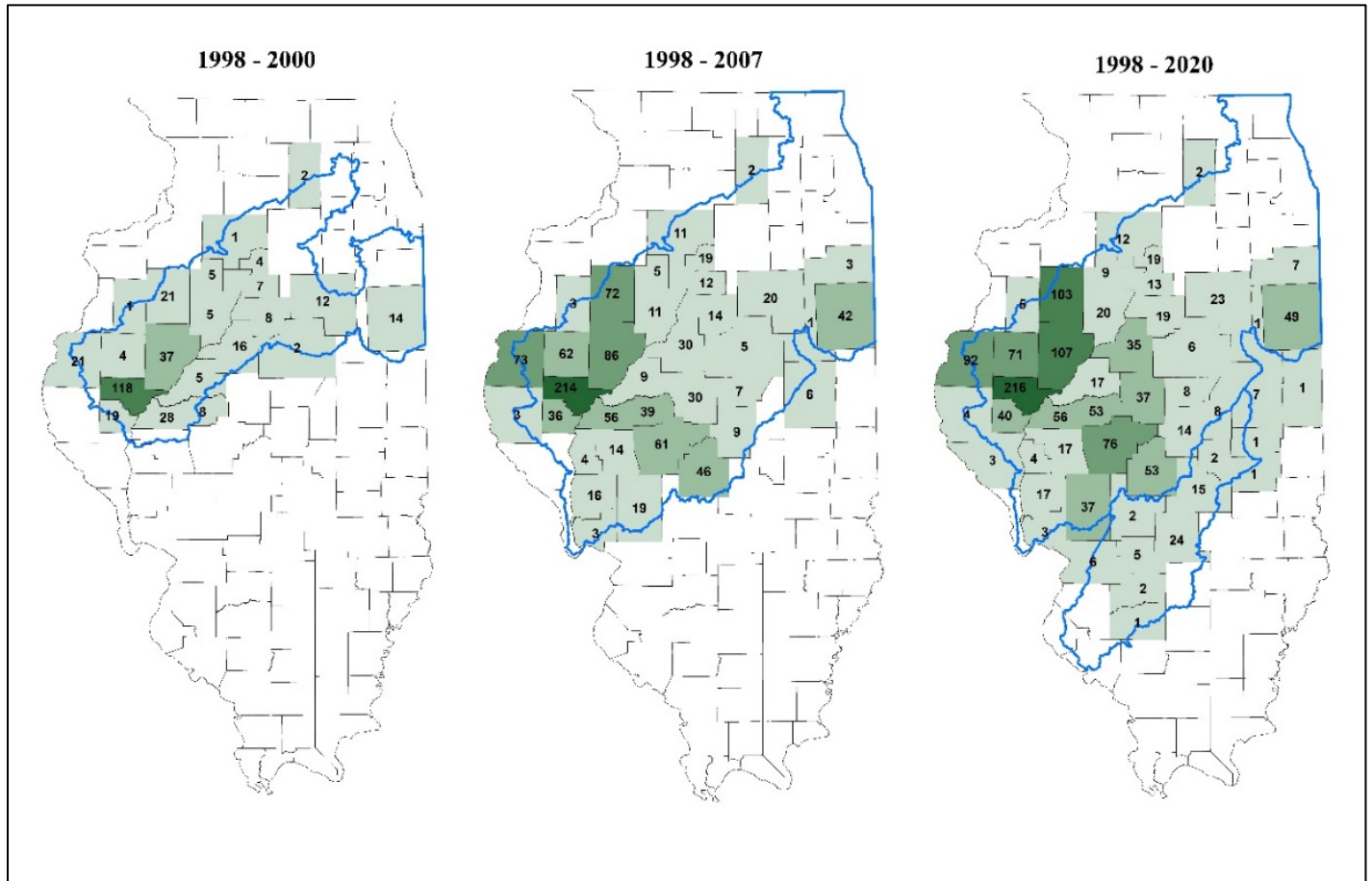


Figure 2. The Illinois CREP eligible areas and easements per county from 1998 through 2020.

The lack of a state budget during Fiscal Years 2016 and 2017, blocked IDNR's ability to offer state options under CREP. On July 1, 2015, FSA and IDNR suspended CREP enrollment. CREP funding was reinstated in Fiscal Year 2018, and IDNR and FSA started the negotiation process to amend the CREP agreement. With the release of the 2018 Farm Bill, the negotiation process was placed on hold until the regulations for the 2018 Farm Bill were released. Beginning in January of 2020, the 2018 Farm Bill regulations were released and IDNR and FSA met frequently throughout 2020 to negotiate the terms of the CREP agreement. Once the revised CREP agreement is signed, the suspension of the program can be lifted and preparations for new enrollments can begin. It is anticipated that the revised CREP agreement will be completed in 2021.

<sup>1</sup> The number of easements and the number of acres has decreased from what was reported on previous CREP annual reports due to the fact that some easements have expired, and quality control practices corrected previous errors in reporting.

## PROGRAM EXPENDITURES

The CREP agreement details the formula determining the overall costs of the program. These costs include the following: CRP payments paid by USDA, easement payments paid by IDNR, cost-share reimbursement for conservation practices paid by USDA and IDNR, costs associated with the monitoring program, and the aggregate costs of technical assistance incurred by IDNR for implementation and management of easements.

Per the CREP agreement, the State of Illinois must contribute 20% of the total program costs. Since the CRP contract payments are annual payments spread out over 15 years, a 2.35% net present value (NPV) discount rate (per the CREP agreement) was used to compare the CRP payments to the State easement payments.<sup>2</sup> Based on USDA reports, as of September 30, 2020, there were 65,060 acres enrolled in Federal CREP contracts, with an average soil rental rate of \$259.85 per acre.<sup>3</sup> In 2020, IDNR contributed 28.43% of the total program costs (Table 1).

<b>Illinois CREP Summary 1998 - Sept 30, 2020</b>			
Number of Current Federal Contracts - 4,236		Current Federal Acres - 65,060	
Number of State Easements - 1,323		Total State Protected Acres - 90,544	
<b>Payments 1998 - Sept 30, 2020</b>	<b>IDNR</b>	<b>USDA</b>	<b>USDA (NPV 2.35)</b>
Total Life of Contract Rent (15 Yrs)		\$252,059,331.36	\$210,370,475.72
Cost Share		\$21,077,916.31	\$21,077,916.31
Monitoring	\$10,766,433.12		
IEPA CREP Assistants IEPA 319	\$2,180,665.94		
Illinois State Enrollments	\$71,572,168.41		
IDNR In-Kind Services	\$7,442,259.78		
<b>CREP Contribution 1998 – Sept 30, 2020</b>	<b>IDNR</b>	<b>IDNR/USDA</b>	<b>IDNR/USDA</b>
USDA Total		\$273,137,247.67	\$231,448,392.03
IDNR Total	\$91,961,527.25		
Program Total		\$365,098,774.92	\$323,409,919.28
% of IDNR Program Contribution		25.19%	28.43%

Table 1. Financial contributions by IDNR and USDA from 1998 through 2020.

<sup>2</sup> Net Present Value (NPV) <https://www.whitehouse.gov/wp-content/uploads/2019/12/M-20-07.pdf>

<sup>3</sup> CRP Monthly Summary – September 2020 – <https://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdfiles/Conservation/PDF/Summary-September-2020-1.pdf>

## LOCAL PARTNERSHIPS

Since CREP's inception, the Soil and Water Conservation Districts (SWCDs) have been the driving force of CREP on the local level. When enrollment is open, the local SWCDs assist landowners and IDNR by conducting many of the steps needed to execute a CREP easement. The SWCDs are also a key component in the management of executed CREP easements. SWCDs answer landowner questions about CREP, conduct monitoring checks, verify land ownership, and facilitate discussions with landowners and IDNR regarding conservation management. The superior dedication to local landowner's needs, and boundless commitment to conservation provided by the SWCDs, has led to the Illinois CREP program being the nation's premier example of interagency cooperation and success.

## LOOKING FORWARD

During 2021, the terms of the CREP agreement will continue to be negotiated between IDNR and USDA/FSA. Once the CREP agreement is signed by both parties, preparations can begin for the reopening of CREP. Policy and procedure amendments for both IDNR and FSA must be completed to reflect the changes in the CREP agreement. Contracts will be executed with the local SWCDs, trainings will be developed, and key documents will be drafted prior to reopening. IDNR is poised to execute the CREP agreement in 2021 and initiate the steps necessary to introduce CREP enrollment back to the landowners of Illinois.

## MONITORING PROGRESS TOWARD ACHIEVING CREP GOALS

IDNR has partnered with the Illinois State Water Survey (ISWS) and the Illinois Natural History Survey (INHS) to evaluate and monitor the effectiveness of CREP in Illinois more effectively. An update on the progress of the monitoring programs in 2020 can be found below.

### Illinois State Water Survey

#### Monitoring and Evaluation of Sediment and Nutrient Delivery to the Illinois and Kaskaskia Rivers

The Conservation Reserve Enhancement Program (CREP) was initiated as a joint federal/state program with the goal of improving water quality and wildlife habitat in the Illinois River basin. Based on numerous research and long-term data in the Illinois River basin, the two main causes of water quality and habitat degradations in major river corridors were known to be related to sedimentation and nutrient loads. Based on this understanding, the two main objectives of the CREP were to reduce the amount of silt and sediment entering the main stem of the Illinois and Kaskaskia Rivers by 20 percent; and to reduce the amount of phosphorous and nitrogen loadings by 10 percent. To assess the progress of the program towards meeting the two goals, the Illinois Department of Natural Resources (IDNR) and the Illinois State Water Survey (ISWS) developed a scientific process for evaluating the effectiveness of the program. The process includes data collection, modeling, and evaluation.

The monitoring and data collection component consist of a program to monitor sediment and nutrients for selected sub-watersheds within the Illinois and Kaskaskia River basins and assemble and analyze land use data throughout the river basins. This will assist in making a more accurate assessment of sediment and nutrient delivery. The Illinois River basin (IRB) has five small watershed monitoring stations, established in 1999, for intensive collection of sediment and nutrients data within the Spoon and Sangamon River watersheds. Three stations are in the Spoon River watershed which generates the highest sediment per unit area, while the Sangamon River watershed, the largest tributary watershed to the Illinois River and delivers the largest total amount of sediment, has 2 monitoring stations. The four stations in small watersheds, established in 2013, intensively monitoring sediment and nutrient in the Kaskaskia River Basin (KRB) located in the Middle and Lower Kaskaskia River watersheds. Progress reports for the IRB and KRB watersheds present the data collected and preliminary analyses for each of the monitoring stations.

IRB CREP monitoring data does show some differences in sediment and nutrient mean annual yields between stations. The Panther (#201) and Cox (#202) Creek stations (Lower Sangamon River watershed) show higher sediment yields than the three stations in the Spoon River watershed. Cox (#202) has higher nitrate-N yields than all the stations. Court Creek (#301) has slightly higher mean annual TKN yields than the other four stations and all five stations have similar mean annual total phosphorus yields. Land cover data from 2007 to 2018 appears that agricultural land area somewhat increased over this time period while forest/shrubland and developed land area remained steady.

Observations can be made on some differences between average annual sediment and nutrient yields the four KRB CREP stations. Hurricane (404) sediment yield (tons/acre) 4-fold more than the other three monitoring stations. The nitrate-nitrogen yields (lbs/acre) at East Fork Shoal (405) are twice as high than the other three stations. The North Fork Kaskaskia (403) station has the higher total Kjeldahl nitrogen yields (lbs/acre). All stations have similar average annual yields (lbs/acre) for total phosphorus.

An exploratory data analyses (EDA) for the IRB and KRB CREP watersheds was initiated for total suspended sediment, nitrate-nitrogen, total Kjeldahl nitrogen and total phosphorus concentrations. It is useful to begin a compare and contrast analysis between IRB and KRB CREP watersheds for the overlapping years of data collection (2014-2018). For CREP IRB stations the median concentration of suspended sediment ranges from 62 to 135 mg/l for all samples and from 71 to 263 mg/l for summer samples. In contrast, for CREP Kaskaskia stations the median suspended sediment concentration is more than two times the IRB and ranges from 152 to 263 mg/l for all samples and 162 to 653 mg/l for summer samples. The median nitrate-nitrogen concentration for IRB watersheds is above 1 mg/l whereas it is below 1 mg/l for Kaskaskia. Nitrate-N for the all period and summer season indicate that concentration is not only higher but also shows more variability for IRB CREP monitoring stations as compared to those in Kaskaskia River watershed. The median total Kjeldahl nitrogen and total phosphorus concentrations in both Illinois and Kaskaskia CREP watersheds are generally similar but show different degrees of variability. Similarly, the variability is generally more pronounced in IRB CREP watersheds. Both in Illinois and Kaskaskia River CREP watersheds, all summer concentrations seem to be higher.

Since 2014 the ISWS has been developing hydrologic and water quality models for the major watersheds of the Illinois River Basin to assess the impacts of conservation measures on reduction of sediment and nutrient loading in streams and rivers. This has involved updating each IRB major tributary watershed with a standalone hydrologic and nutrient/sediment

model with incremental calibration for sediment and nutrient when data becomes available. The IRB CREP monitoring program is supplying much of the data for the Spoon and Sangamon River watershed models for calibration and validation purposes. Also, watershed models were developed, calibrated and validated for the IRB monitored watershed using data from 2000-2016. To assess possible impact of CREP enrollments a ‘what-if’ scenario simulation was run by removing all CREP practices from the watershed. Simulations were run for 3 monthly time periods estimating marked changes in contract enrollments: 2000-2003 representing initial CREP enrollments, 2004-2008 representing substantial increase in enrollments and 2009-2016 representing a period of maintaining previous enrollments. Results for the IRB CREP Court Creek watershed showed load for all parameters with the least reductions were obtained during the 2000-2003 period. Load reductions for most months increased for the next two periods. Some exceptions were, for example, nitrate-N load reductions were highest predominantly during the fall months of the 2004-2008 and 2009-2016 periods. Simulations showed the smallest impact on sediment load reductions. Percent load reduction in total phosphorus exhibited the highest reductions for all periods. Since these load reduction percentages are relative differences between the sediment and nutrient loads with and without CREP enrollment, high percentage load reduction in a given month does not necessarily imply periods of high load reduction in magnitude.

A water quality trends analysis was computed for all five IRB CREP monitored watersheds using data from 2000 to 2016. Flow-normalized fluxes of sediment and nutrients were computed to eliminate the influence of annual flow variability and thereby providing insight into the effectiveness of conservation efforts. Preliminary results for annual trends in mean flow show an increasing trend where flow-weighted fluxes for sediment, nitrate-N and total phosphorus show decreasing trends at all five watersheds. Development of this trends analyses was initiated several years ago which explains including data only through 2016. Therefore, the trend results are preliminary and need to include the most current data to account for possible variations in flux which could alter the trends presented at this time.

Along with the current IRB CREP monitoring program, long-term data is also being examined which includes statewide nutrient information from the IEPA, suspended sediment data from the USGS and ISWS. This information will place the current CREP monitoring data into a long-term context to establish trends and observed changes in nutrient and sediment loadings between IRB tributary watersheds. Using IEPA nutrient data starting in the 1970s through 2019 for three stations in the Lower Illinois River, the long-term trend shows decreases in nitrate-N yields and increases in total phosphorus yields.

Recently the ISWS published a trends analyses using 1980-2016 data from the ISWS Benchmark Sediment Monitoring Network for stations located in the Illinois River Basin. Results indicated that no trends were detected for annual discharge at all seven stations. Three stations showed decreasing annual sediment load trends and three stations with decreasing trends in annual mean sediment concentration with 90% confidence. All other station parameters had no trends detected. The ISWS BSMN sediment data is collected weekly at USGS stations. This analysis used a different method from that performed for the five IRB CREP watersheds presented in the IRB progress report.

## Illinois Natural History Survey

Monitoring and Assessment of Aquatic Life in the Kaskaskia River for evaluating IDNR Private Lands Programs: Phase III

Throughout the reporting period, the Illinois Natural History Survey (INHS) has continued efforts to assess aquatic life in the Kaskaskia River Basin. The COVID-19 pandemic interrupted many facets of the University of Illinois operations and the INHS CREP Monitoring Program was no exception. Our typical field season was delayed by 2.5 months to ensure the safety of our team members and adjust our field protocols to follow university guidelines. Despite the truncated 2020 sampling season, 18 wadeable stream sites were sampled during base-flow conditions to evaluate fish assemblages, benthic macroinvertebrate assemblages, stream habitat, and water chemistry throughout the basin (Figure 1). Consistent with previous monitoring methods, the length of each sampling site was established based on a length of 20-times mean wetted width (minimum 100m, maximum 300m). The 18 sites chosen for monitoring surveys fell into multiple categories that correspond with project objectives (4 basin-wide sites, 2 sensitive species sites, 2 paired-sites, 4 sites co-located with Illinois State Water Survey monitoring sites, and 6 less-disturbed sites). With the addition of the sites sampled in 2020, a combined total of 337 streams monitoring surveys have been conducted in the Kaskaskia River Basin since the onset of the monitoring program (Figure 2).

Fish community sampling using a single-pass electrofishing technique (e-seine or backpack) was conducted at each of the 18 monitoring sites. At each site, all fish were identified to species and for at least the first 30 individuals of each species additional metrics (length, weight, and condition) were collected before releasing them back to the stream. Throughout the 18 sites over 7200 fish were identified and processed by our field crew in 2020.



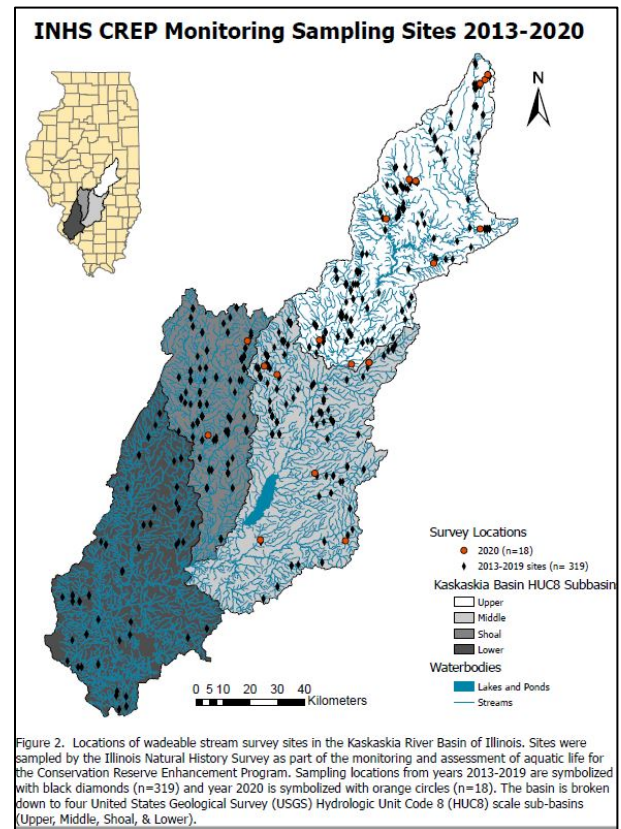
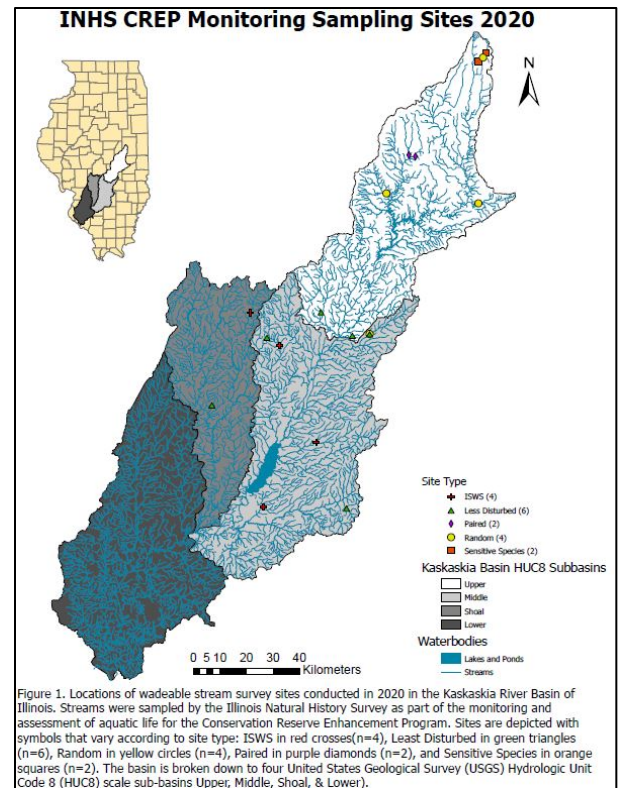
Benthic macroinvertebrate sampling was conducted at each of the 18 sites using a standard multihabitat, 20-jab sampling approach (Barbour et al. 1999, ILEPA 2011). Habitats for macroinvertebrate sampling were determined by the relative ratio of in-stream habitat (riffle, run, pool, or glide) within the established sampling site. The 2020 benthic macroinvertebrate samples are currently being sorted for a 300-organism fixed-count subsample to be sent to a certified external lab for taxonomic identification in early 2021. Throughout this past year, we shipped the macroinvertebrate samples from the 2019 sampling season to a certified taxonomic identification laboratory and have received the data. Those data are currently being incorporated into an analysis evaluating the variation in the macroinvertebrate community within the Kaskaskia River Basin.

Habitat assessments were conducted at each site during the 2020 sampling season using the Qualitative Habitat Evaluation Index (QHEI; Ohio EPA 2006) and the Illinois Habitat Index (IHI; Sass et al. 2010). The QHEI was developed by the Ohio EPA to provide a qualitative assessment of the habitat characteristics that are important for supporting fish communities. The IHI was developed to provide a qualitative evaluation of physical habitat and the response to human degradation in the upstream and local watershed, while also taking into account regional differences throughout Illinois. The combination of the QHEI and IHI assessments aids our understanding of the habitats available to aquatic life and how those habitats are changing through time.

Water chemistry parameters (dissolved oxygen, specific conductance, turbidity, pH, nitrate-nitrogen, total reactive phosphorus, ammonia nitrogen, and temperature) were measured during base flow conditions at each of the 18 sites. These parameters were collected through a combination of Hach field test kits and a handheld water quality meter (Hach HQ 20d). In addition, stream discharge was collected where water depth and flow conditions were appropriate for the threshold of our flowmeter. At sites where no flow was detected a depth profile was taken. Temperature loggers were not deployed at any of the 2020 sites due to the uncertainty of equipment recovery given the changing restrictions due to the pandemic.

In addition to stream monitoring, this project provides technical support for IDNR’s Private Lands Programs. We provide work products that allow for rapid access to geospatial information and assessments of physical site characteristics such as soils, land cover, topography, and hydrologic information to identify sites to be restored and protected through easement or acquisition. Private land program databases were updated and integrated with new USDA imagery, surveys, and data to be used for CREP core activities and to identify priority areas for CREP actions. Data were provided to the IEPA to facilitate analyses within the Illinois Nutrient Loss Reduction Strategy.

A summary of the ongoing work of the stream monitoring project was presented at the 2020 Midwest Fish and Wildlife Conference. (Hostert et al. 2020, Poster Title: “Monitoring the response of wadeable stream communities to the Conservation Reserve Enhancement Program in the Kaskaskia River



Basin”). The Midwest Fish and Wildlife Conference was a great opportunity to highlight the efforts of INHS and the dedication of the IDNR’s Division of Private Lands and Watersheds (PLW) group to monitoring the effects of CREP on the aquatic communities of the Kaskaskia River Basin.

**References:**

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## ILLINOIS CREP PARTNER UPDATES

### Association of Illinois Soil and Water Districts

The Association of Illinois Soil and Water Conservation Districts (AISWCD) continued to work in partnership with the Illinois Department of Natural Resources to help foster the reintroduction of CREP in the Illinois River and Kaskaskia River Watersheds and assisted with the implementation of original CREP. Soil and Water Conservation Districts (SWCDs) play a significant role in the promotion, delivery, and implementation of CREP. Specifically, SWCDs help interested landowners with signups, provide technical assistance, and hold and monitor CREP easements. The AISWCD and SWCDs look forward to again providing needed assistance once the reintroduced version of CREP is announced/opened. The AISWCD is confident that the new CREP will be highly successful in the conservation of natural resources like the original CREP initiative.

### Illinois Department of Agriculture

Illinois Department of Agriculture the Illinois Department of Agriculture (IDOA) administers numerous soil and water conservation programs that produce environmental benefits in the Illinois River Watershed. In FY19, the Partners for Conservation Fund Program (PFC) Agricultural Components, administered by IDOA, has allocated over \$927,000 to 34 counties that have significant agricultural acreage in the Illinois River Watershed for cost-sharing the installation of upland soil and water conservation practices. With the assistance from County Soil and Water Conservation Districts (SWCDs), the PFC provides up to 75% of the cost of constructing conservation practices that reduce soil erosion and protect water quality. Conservation practices eligible for partial funding under the PFC include terraces, grassed waterways, water and sediment control basins, grade stabilization structures cover crops and nutrient management plans. The IDOA provided grant funding to county SWCD offices in the Illinois River Watershed for operational expenses. Specifically, these funds were used to provide financial support for SWCD offices, programs, and employee' expenses. Employees, in turn, provided technical and educational assistance to both urban and rural residents in the Illinois River Watershed. Their efforts are instrumental in delivering programs that reduce soil erosion and sedimentation that ultimately protects water quality. In an effort to stabilize and restore severely eroding streambanks that would otherwise contribute a large amount of sediment to the Illinois River and its tributaries, the IDOA, with assistance from SWCDs, administers the Streambank Stabilization and Restoration Program (SSRP). The SSRP is a component of the Partners for Conservation Fund Program that provides funds to construct low-cost techniques to stabilize eroding streambanks. A total of \$100,000 has been allocated to stabilize and protect adjacent water bodies.

### Illinois Environmental Protection Agency

One of the key missions of Illinois EPA is to monitor and protect the water resources of Illinois; these resources are relied upon for drinking water, fishing, transportation and recreational use and other environmental and economic benefits. One of the most dramatic improvements in water quality that Illinois EPA has documented has taken place on the Illinois River.

Illinois EPA has seven Ambient Water Quality Monitoring Sites on the main channel of the Illinois River and eight on the Kaskaskia River. Water chemistry is collected at these sites nine times per year. There are approximately 475 Intensive Basin Survey Sites in the Illinois and Kaskaskia River watersheds. These sites are monitored "intensively" once every five years. The monitoring includes water chemistry, macro-invertebrates, fish, habitat, and at some sites fish tissue contaminants are collected. This information is cooperatively collected with the Illinois Dept. of Natural Resources, a partnership that began many years ago and continues annually.

The monitoring shows that the Illinois River mainstream water quality has improved significantly since the passage of the Federal Clean Water Act in 1972. Early improvements were due primarily to point source controls, such as additional treatment requirements and limits on discharges from wastewater treatment plants. The majority of water quality improvements over the last twenty years have been from the implementation of nonpoint source management programs that reduce urban and agricultural runoff, and programs such as CREP. Since 1999, more than \$2,522,000 of Section 319 grant funds have been spent to hire and train personnel responsible for outreach and the enrollment process. The benefits

derived through this financial support was not only efficiency in the sign-up process to increase CREP enrollment, but it also allowed the existing SWCD and NRCS staff to continue to implement the other conservation programs so desperately needed to improve water quality in the Illinois and Kaskaskia River watersheds.

As reported by the Illinois EPA in their 2016 Integrated Report, of the *stream miles assessed* in the Illinois River Basin for Aquatic Life Use Support attainment, 67.8% were reported as —Good, 27.6% as —Fair, and 4.6% as —Poor. This compares to statewide figures of 57.8% —Good, 37.3% —Fair, and 4.9% —Poor.

### **Other Illinois EPA programs that complement CREP include:**

**Section 319:** Since 1990, the Illinois EPA has implemented 337 Clean Water Act Section 319 projects within the Illinois and Kaskaskia River Watersheds. The Agency receives these federal funds from USEPA to identify and administer projects to prevent nonpoint source pollution. These projects include watershed management planning; best management practices implementation and outreach efforts.

**Illinois Green Infrastructure Grants (IGIG):** Since 2011, the Illinois EPA has implemented 31 IGIG projects within the Illinois and Kaskaskia River watersheds. IGIG is administered by the Illinois EPA. Grants are available to local units of government and other organizations to implement green infrastructure best management practices (BMPs) to control stormwater runoff for water quality protection in Illinois.

**Total Maximum Daily Load (TMDL):** TMDLs are a tool that Illinois EPA uses to restore impaired watersheds so that their waters will meet Water Quality Standards and Full Use Support for those uses that the water bodies are designated. A TMDL looks at the identified pollutants and develops, through water quality sampling and modeling, the amount or load reductions needed for the water body to meet its designated uses. Statewide, USEPA has approved a total of 662 TMDLs for 679 causes of impairment. Illinois EPA continues to develop TMDLs on impaired waterbodies.

**Partners for Conservation:** A total of 72 lake monitoring (study) or protection/restoration projects have been conducted in the Illinois and Kaskaskia River watersheds via the Illinois EPA's Illinois Clean Lakes Program and Priority Lake and Watershed Implementation Program. Over \$11.8 million of local and state funds have been allocated for these efforts.

### **Excess Nutrients: A High Profile Water Quality Issue**

Illinois EPA has several on-going efforts addressing nutrients. In July of 2015 Illinois EPA, Illinois Department of Agriculture and a designated Nutrient Loss Reduction Policy Workgroup submitted to U.S. EPA Illinois' Nutrient Loss Reduction Strategy (Strategy) document that provides an implementation strategy to reduce nutrient losses from Illinois. The document identifies eleven priority watersheds for the reduction of nitrogen and/or phosphorus from point and/or nonpoint sources. Five of these watersheds are in the Illinois River Basin. The Strategy also identifies eight watersheds that are considered Keep It for the Crop (KIC) Nutrient Priority Watersheds. Six of the eight designated watersheds are in the Illinois River Basin. Each of these watersheds has a Total Maximum Daily Load developed or being developed for one or two nutrient pollutants (nitrate and total phosphorus). The Illinois EPA invites you to visit <http://go.illinois.edu/NLRS> to examine the complete Illinois Nutrient Loss Reduction Strategy.

### **Current Management Approaches and Issues**

Through Illinois' Nutrient Loss Reduction Strategy, the Illinois EPA has continued its commitment to using a science-based approach to developing water quality standards. A Nutrient Science Advisory Committee has been convened to guide the development of nutrient criteria that helps protect aquatic life in Illinois' streams and rivers. It is comprised of scientific experts nominated by the stakeholder sectors represented in the Illinois Nutrient Loss Reduction Strategy Policy Working Group. Illinois EPA may propose numeric nutrient criteria to the Illinois Pollution Control Board in a rulemaking process based on the findings and determinations of the committee.

In conclusion, the Illinois and Kaskaskia River basins are a valuable resource that we are working hard to protect and restore. Illinois EPA will continue long-term monitoring of the river basins and will continue to pursue funds to help implement water quality restoration and protection projects and to work with citizen groups, local governments, and industry to continue the progress we all have made.

## Illinois Farm Bureau

CREP is an important program in Illinois that provides cost-share incentives and technical assistance to farmers looking to address resource concerns, including nutrient loss reduction efforts and floodplain-related issues. Illinois Farm Bureau (IFB) continues to publicize and promote conservation programs through their statewide radio network, FarmWeek print publication and FarmWeekNow.com, as well as through the county Farm Bureau® system. Illinois Farm Bureau continues to voice support for conservation programs that help farmers meet environmental challenges.

## Illinois Department of Natural Resources

### Natural Resources Damage Assessment

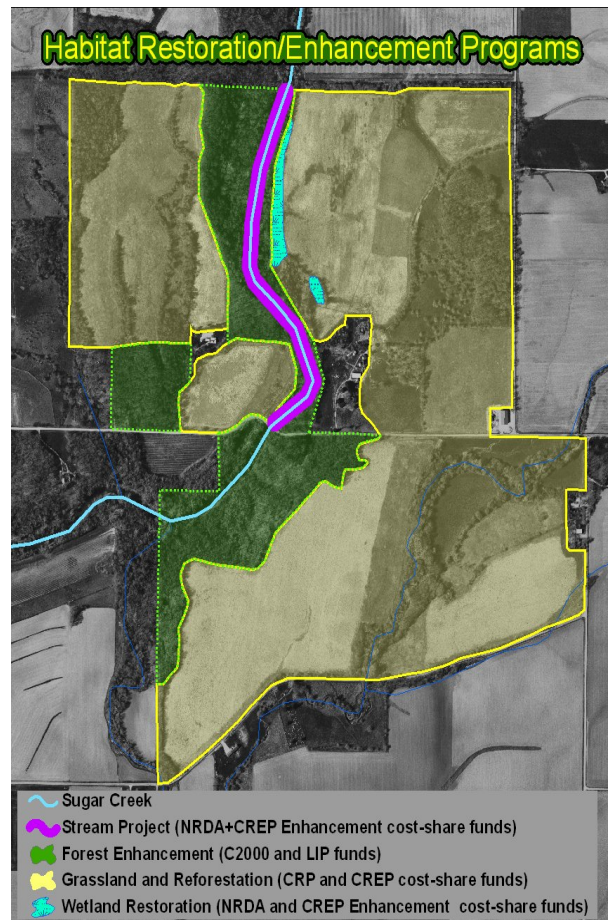
Tributary of Salt Creek & Sandra Miller Bellrose Nature Preserve - Williams Pipeline

Williams Pipeline Company (Williams) owns and operated transmission pipelines that carry refined petroleum products through rural areas of Logan County. Sometime in early 1997, Williams had a leak of 10,000 gallons of gasoline and diesel oil located two miles south of Broadwell, Illinois. The release was discovered on March 27, 1997 and was identified by observance of a petroleum sheen on the surface of the small tributary to Salt Creek. The release was believed to have originated from external corrosion of a 67-year-old section of the pipeline. The release adversely impacted the soil, groundwater, and the unnamed tributary of Salt Creek. Approximately 21 acres of floodplain habitat were also affected, some of which were enrolled in the IDNR's *Illinois Acres for Wildlife Program*.

The Illinois Natural Resource Trustees completed a Natural Resource Damage Assessment (NRDA). Due to NRDA action taken by the IAG, IEPA, and IDNR, Williams agreed to compensate the public for interim losses resulting from the release of gasoline, diesel oil, and related hazardous substances. The matter was settled in November of 2002.

The Illinois Natural Resource Trustees proposed two in-stream restoration projects and two wetland restoration to compensate for injuries caused by Williams. Two final restoration plans (Phase I and Phase II) were drafted and funds were allocated to implement the restoration projects. Phase I activities included wetland enhancement, bank and log jam protection, boulder placement along Sugar Creek at the Sandra Miller Bellrose Nature Preserve (dedicated as a Nature Preserve in 2000). Phase II activities (near the injury) consisted of the installation of rock riffle grade control structures. Biological monitoring of the projects are ongoing. A report summarizing the monitoring activities and results will be made available in the future.

Links to: [Phase 1 Restoration Plan - 5/1/2007](#)  
[Phase 2 Restoration Plan - 8/1/2007](#)



[Outdoor Illinois Article - Habitat Restoration Takes Some Mussel - 10/1/2008](#)  
[Bellrose Stream and Wetland Restoration Monitoring Summary - 8/31/2015](#)

CREP Habitat Enhancement Project - Bellrose

This pilot enhancement program provided cost-share and technical assistance to maintain or improve the wildlife habitat on permanent State CREP Easements. As suggested in the CREP habitat monitoring program pilot study summary with this property, one of the monitoring techniques utilized will be to conduct site visits and use visual technology and observations to evaluate the overall habitat quality of CREP practices. With this approach invasive species can be identified, as well as, documenting the return of desirable species. When appropriate resources are available other quantifiable results can be collected by conducting biological surveys, such as but not limited to: fish, mussel, and vegetation surveys.

For the Bellrose instream project, the objective was to increase the habitat for aquatic wildlife such as smallmouth bass, mussels, and aquatic insect species such as pollution intolerant and high quality indicator species. For the Bellrose wetland project, the objective was to increase wetland habitat for wetland birds, aquatic and terrestrial insects, and amphibians and reptiles. For the grassland and forest projects the objective was to improve the habitat's natural quality.

In 2019, IDNR secured a contract with the U of I, Department of Natural Resources and Environmental Sciences, to monitor the plants and invertebrates of the Bellrose wetland. Preliminary results from the 2019 wetland monitoring indicate plant diversity across four transects has increased since 2010. The Floristic Quality Index (FQI) increased modestly in two transects but decreased in two transects. The FQI decreases are related to the invasion of *Phragmites australis* and *Phalaris arundinacea*. Recommendations to control these plant species will be pursued.

Preliminary results from the 2019 monitoring effort also indicate a general increase in species richness of invertebrates compared to past monitoring efforts. Invertebrates are an essential component of wetland communities and future surveys to document the trajectory of invertebrates utilizing the Bellrose wetland throughout time will be monitored.

In early November of 2020, members of the Jake Wolf Memorial Hatchery and Contaminant Assessment Section set out at Bellrose Nature Preserve to release propagated mussels in Sugar Creek. Plain Pocketbook mussels were propagated at the Hatchery and were placed in areas of the stream that provided the most suitable substrate. The mussels were marked prior to release with glitter glue to be tracked and monitored in the future.

<https://www.facebook.com/JakeWolfHatchery/posts/209917343869419>

A wetland monitoring report is available online at

[https://www2.illinois.gov/dnr/programs/NRDA/Documents/Sandra\\_Miller\\_Bellrose\\_Wetland\\_Monitoring\\_Report.pdf](https://www2.illinois.gov/dnr/programs/NRDA/Documents/Sandra_Miller_Bellrose_Wetland_Monitoring_Report.pdf)

Bellrose Monitoring Schedule										
Calendar Years:	2006	2007	2008	2009	2010	2012	2014	2016	2017	2019
	Pre-Rest	Pre-Rest	1st Year	2nd Year	3rd Year	5th Year	7th Year	9th Year	10th Year	12th Year
<b>Instream:</b>										
Habitat Survey		✓	✓	✓		✓			✓	
Aquatic Insect Survey		✓		✓		✓			✓	
Smallmouth Bass Survey	✓	✓	✓	✓	✓	✓				
Mussel Survey		✓			✓	✓			✓	
<b>Wetlands:</b>										
Vegetation Survey with Hydrological Observations			✓		✓					✓
Insect Survey			✓	✓	✓	✓				✓
Herptile Survey			✓	✓	✓	✓				
Bird Survey	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

### *Illinois Recreational Access Program*

One of the more challenging problems facing Illinois and the Department of Natural Resources (IDNR) is to provide more public outdoor recreational access and opportunities in Illinois. To carry on our outdoor traditions, it is important to connect youth and families to land and opportunities. Privately owned property makes up 97% of Illinois land, ranking Illinois at 46th for public land recreation access. Despite this, Illinois hosts more than 323,000 hunters and 780,000 fishermen in addition to millions of other recreational users.

Through the Illinois Recreational Access Program (IRAP), the IDNR is increasing public recreational opportunities for the following activities:

- Youth and Adult Spring Turkey Hunting
- Youth Shotgun Deer Hunting
- Archery Deer Hunting
- Small Game and Upland bird hunting
- Waterfowl Hunting
- Fishing (Ponds and Streambanks) Non-Motorized Boat Access on Public Waterways

Utilizing resources obtained from four separate grants from the US Department of Agriculture 's Voluntary Public Access and Habitat Incentive Program, the IDNR pays an annual stipend to landowners enrolling their property into IRAP. IRAP also prepares a habitat management plan and assists with the implementation of those plans for landowners. Emphasis is placed on developing a habitat management plan for the landowner and assisting with the implementation of the management plan.

IRAP's success has led to the creation of two Habitat Strike Teams to work on private lands enrolled in IRAP. The Illinois Recreational Access Program provides an additional option of on-the-ground habitat management for CREP easements. Currently about half of all IRAP leased properties enrolled in both IRAP and CREP, both working towards private land conservation and restoration, and providing landowners access to the resources they need.

IRAP accomplishments:

- Leased approximately 24, 000 acres in 49 counties.
- Provided thousands of hunting and fishing opportunities for youth and adults.
- Created more than 80 habitat management plans for IRAP leased properties.
- Habitat Management implementation on more than 15,000 acres of IRAP leased property include:
  - o Non-Native Invasive Species (NNIS) removal.
  - o Aerial Spraying (NNIS).
  - o Site Prep/Grassland management.
  - o Prescribed Burning.
  - o Timber stand Improvement
  - o Prairie Plantings.

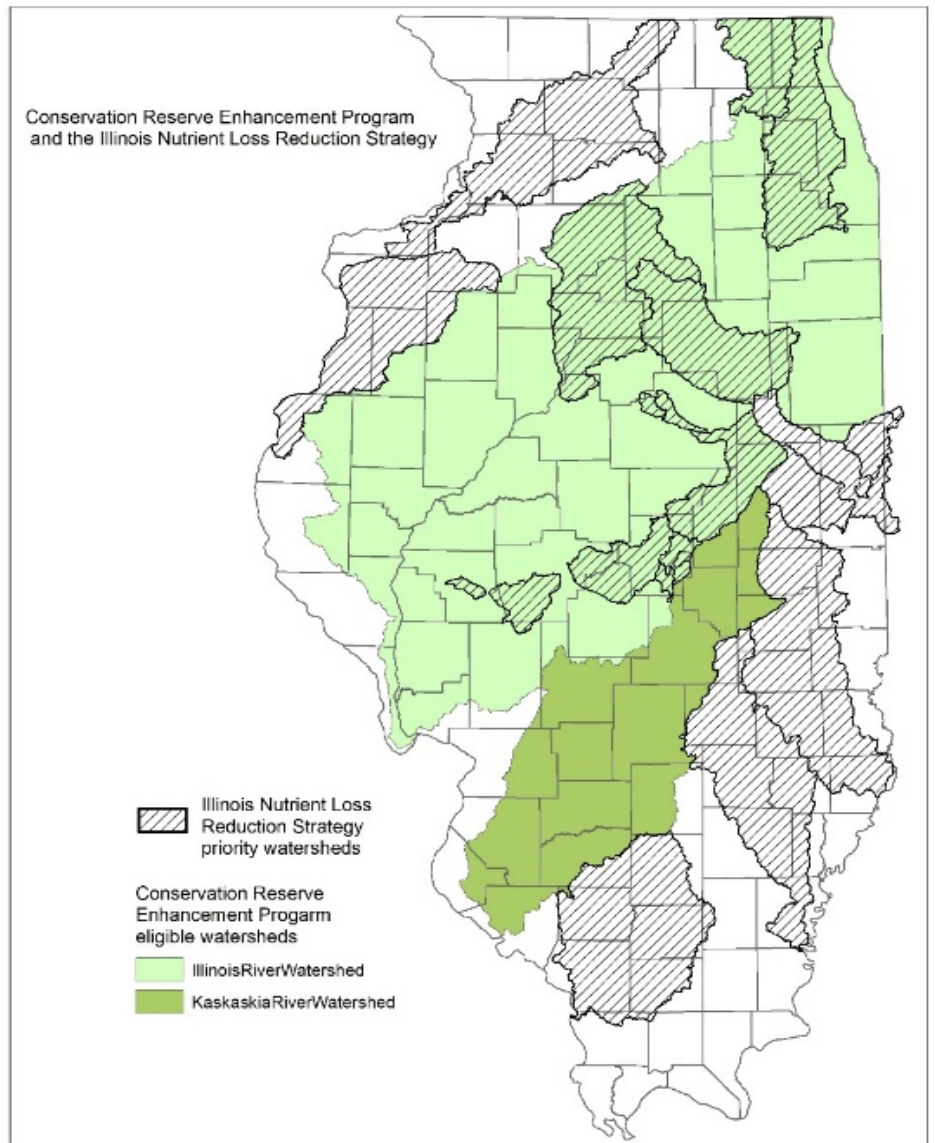
## Illinois Nutrient Loss Reduction Strategy

Illinois consists of more than 22 million acres of corn and soybeans (60 percent of the state's land area). The goal of the Illinois Nutrient Loss Reduction Strategy (NLRS) for farmers is to select and apply the most beneficial practices for any given field. These practices are based on the science assessment and are those deemed by the Illinois NLRS Policy Working Group to have the greatest potential impact toward nutrient loss, based on available research. The specific suite of practices appropriate for any given field will depend on many factors including soil characteristics, landscape position/hydrology, and current cropping and management practices.

The NLRS has identified measures that would address nutrient reductions (see list below).

Of those, several can be accomplished through CREP:

- reduce N rate from background
- nitrification inhibitor with fall fertilizer
- two split applications of fall and spring
- one spring-only application
- three split applications
- cover crops on tile drained
- cover crops on non-tile
- bioreactors
- **wetlands**
- **buffers on crop land**
- **perennial/energy/hay crops**
- perennial/energy on tile drained



For more information, the full NLRS strategy can be found here:

<https://www2.illinois.gov/epa/topics/water-quality/watershed-management/excess-nutrients/Pages/nutrient-loss-reduction-strategy.aspx>

NLRS Priority Watersheds and CREP eligible watersheds



CREP is driven by locally led conservation efforts and employs a variety of Best Management Practices to protect and restore riparian corridors. The table below shows CREP practices that were identified by the NLRS science assessment as measures to be tracked. The acres listed are only for easements where the Federal CREP contract has expired, and they are solely on the State side of the CREP program so as not to double report with the federal CRP program.

	<b>BMP</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
CP9 and CP23	Wetland Acres	20	651	3,681	11,976	17,406	19,467	19,523	19,523	19,523	19,528
CP21 and CP22	Buffer Acres	526	1,324	2,720	5,467	8,768	13,568	13,764	13,850	13,855	13,883
CP2 and CP4D	Perennial/Energy Acres	0	7	84	1,622	2,107	4,395	4,670	4,718	4,726	4,726
	<b>Total Cumulative NLRS Acres</b>	<b>546</b>	<b>1,981</b>	<b>6,484</b>	<b>19,065</b>	<b>28,281</b>	<b>37,430</b>	<b>37,956</b>	<b>38,091</b>	<b>38,104</b>	<b>38,137</b>

The CREP practices identified for the NLRS do not represent all CREP practices that could result in nutrient loss reduction. CREP has several other practices that are not identified as contributing BMPs at this time by the NLRS Science Assessment, but perhaps could be in the future. This table below lists all CREP practices and acreages associated with CREP from the start of the program until 2019. The acres listed are only for where the Federal CREP contract has expired, and they are solely on the State side of the CREP program.

*\*\*acres refer to calculations done in GIS and may vary slightly from the other acres in the CREP Annual Report. This is due to an on-going effort to map accurate CREP boundaries and acres, which are subject to change slightly again in subsequent reports as more accurate boundaries are mapped. The date column is the federal fiscal year when that ground became part of the State CREP easement.*

	NLRS CP 9 CP23	NLRS CP21 CP22	NLRS CP2 CP4D	Non NLRS crop acres CP11 CP12 CP3 CP3A	Non NLRS Additional Acres
	Wetland acres	Buffer acres	Perennial acres	Other acres	ADD acres
1999	0	0	0	9	5,031
2000	0	0	0	0	7,134
2001	0	17	0	0	7,892
2002	0	6	0	0	3,967
2003	0	0	0	0	303
2004	0	18	0	0	2,412
2006	0	0	0	0	201
2007	11	20	0	6	2,728
2008	0	46	0	0	2,382
2009	0	12	0	0	
2010	0	83	0	0	
2011	10	324	0	7	1,437
2012	630	799	7	9	2,821
2013	3,030	1,395	77	126	1,133
2014	8,296	2,747	1,539	978	1,084
2015	5,430	3,301	485	563	220
2016	2,061	4,800	2,288	1,718	51
2017	56	196	274	29	179
2018	0	86	49	7	107
2019	0	5	8	0	66
2020	5	28	0	17	218
Total	19,528	13,883	4,726	3,468	39,366

## Great Rivers Research and Education Center

Providing boots-on-the-ground, the National Great Rivers Research and Education Center's (NGRREC) Illinois CREP Resource and Land Conservation Specialists Initiative focused their efforts within the newest CREP-eligible watershed—the Kaskaskia River basin. Working in partnership with soil and water conservation districts (SWCD's) and the Illinois Department of Natural Resources (IDNR), Land Conservation Specialists (LCS) with NGRREC were dedicated to outreach with private landowners about CREP, one-on-one attention with agricultural producers about CREP options and the CREP process, and technical assistance to complete CREP projects and manage CREP conservation easement parcels. NGRREC's Illinois CREP Initiative has ended. Once CREP is reopened the IDNR and NGRREC will discuss details to reinstitute the CREP Resource and Land Conservation Specialists initiative. Communications have continued during this year with new CREP leadership at IDNR and we discussed the desire to have dedicated 100% CREP LCS. In the past these positions have been split 50% between NRCS responsibilities. We look forward to more conversations in the future.

## Natural Resources Conservation Service

Conservation Accomplishments in the Illinois River Watershed

The Natural Resource Conservation Service (NRCS) provides technical assistance to farmers, ranchers, and forest landowners as well as financial assistance through a number of conservation programs. Through the conservation title of the 2018 Farm Bill, NRCS provides financial assistance for implementing conservation practices through the Environmental Quality Incentives Program (EQIP), the Conservation Stewardship Program (CSP) and the Regional Conservation Partnership Program (RCPP); and secures easements to protect agricultural lands and wetlands through the Agricultural Conservation Easement Program (ACEP). NRCS also has floodplain easements through the Emergency Watershed Protection Program (EWPP-FPE). NRCS provides technical assistance to accomplish conservation practices through other programs as well, including the Conservation Reserve Program (CRP), the Conservation Reserve Enhancement Program (CREP), Illinois' Partners for Conservation Program, Illinois Farm Bureau's Nutrient Stewardship Grant Program, and many others.

Through program support and general conservation assistance, landowners and operators install and adopt a wide array of voluntary conservation practices such as cover crops, bioreactors, saturated buffers, waterways, filter strips, pollinator habitat, and many others. The implementation of these practices on private lands, with assistance from NRCS, results in: increased soil health, reduced soil erosion, improved water quality, enhanced wildlife habitat and most importantly an improved environment for the NRCS clients and to the general public in the Illinois River Watershed.

## The Nature Conservancy

The Nature Conservancy (TNC) is highly supportive of the Illinois CREP as a powerful way to leverage state and federal resources to partner with farmers to improve water quality, restore wildlife habitat, and improve resiliency. TNC continues to support Illinois Department of Natural Resources' efforts to negotiate with U.S. Department of Agriculture's Farm Service Agency and resume enrollment in the Illinois River and Kaskaskia River watersheds. TNC continues to work cooperatively with other non-profits and agricultural organizations in support of the Illinois CREP. In anticipation of the program's re-opening, The Nature Conservancy has been advancing the science, demonstration and training to implement wetland restoration.

The Nature Conservancy, with McLean County Soil and Water Conservation District, Natural Resources Conservation Service, Farm Service Agency, and the City of Bloomington, has worked with landowners and producers in McLean County to construct more than 20 wetlands that reduce nutrient loss from farm fields. No new wetlands were added in 2020, however, monitoring by The Nature Conservancy and University of Illinois at Urbana-Champaign continued to determine their nutrient loss reduction effectiveness.

With partners from the Illinois Sustainable Ag Partnership, TNC has developed and implemented two training programs to advance the use of soil health and conservation drainage practices across Illinois. The Advanced Conservation Drainage Training provides intensive classroom and hands-on training to better understand the implementation and functioning of edge of field practices such as constructed wetlands and saturated buffers. Complementing this program, *On the Leading Edge* is a three-part virtual meeting series aimed at building knowledge and momentum for the increased implementation of conservation drainage practices. This series covers four practices - saturated buffers, bioreactors, constructed wetlands and drainage water management – and includes sessions on water quality impacts of altered hydrology, using watershed planning tools to improve watershed outreach and education, evaluate nutrient reduction scenarios, and advance practice adoption and implementation. The recorded webinars are available on [ISAP's website](#).

The Advanced Soil Health Training brings farmers, industry advisors like retailers and seed salesmen, and lenders together to develop pragmatic management skills to successfully adopt soil health systems. In January 2020, The Nature Conservancy worked with IDNR staff to bring a ‘taste’ of the Advanced Soil Health Training to 30+ IDNR site managers. Over the course of the day, the principles of soil health were shared, culminating in a technical overview of cover crop selection, management, and troubleshooting. We are eager to continue sharing resources & technical assistance as IDNR implements more soil health practices (like the use of cover crops) on their farmland acres.

## US Fish and Wildlife Service

### Partners for Fish and Wildlife

The US Fish and Wildlife Service Partners for Fish and Wildlife Program (PFW) has supported the Illinois River Conservation Reserve Enhancement Program (CREP) since its inception. The Midwest Region's PFW program assists with projects that conserve native vegetation, hydrology, and soils associated with imperiled ecosystems such as bottomland hardwoods, native prairies, marshes, rivers, and streams. Collaborating with the Illinois and Kaskaskia River CREP has provided opportunities on a landscape scale for restoration, enhancement, and preservation of these natural habitats on private land. Benefits from this collaboration are the enhancements of privately owned land for Federal Trust Species, such as migratory birds, inter-jurisdictional fish, federally threatened or endangered species of plants and animals, as well as numerous state threatened or endangered species.

The primary contribution to the Illinois and Kaskaskia River CREP, by PFW, has been technical assistance through participation on the CREP Advisory Committee. In the field, PFW personnel coordinate with local NRCS, SWCD, and Illinois DNR staff as necessary on individual or groups of projects. Within the Illinois and Kaskaskia River Watersheds, individual Partners projects compliment CREP and other habitat programs. The PFW program provides a tool for restoration and enhancement of habitats on private lands that may not be eligible for other landowner assistance programs. PFW biologists review the full range of landowner assistance programs with each potential cooperator and refer landowners to CREP or other USDA and Illinois DNR programs that best meet their objectives. In federal fiscal year 2020, the PFW program conserved 338 acres of wetlands and 43 acres of upland habitat within the CREP area. In addition to the habitat conservation, our staff participated in 2 landowner workshops within the CREP boundary. We have several wetland restoration and upland projects planned in the upper reaches of the CREP watershed for the summer/fall of 2021.

Two new Private Lands Biologists, Jason Bleich and Scott James, were hired in August of 2020. Brian Hidden, our former Biologist out of the Springfield Office has moved to a new position in Oregon in August of 2020 as well.

For more information about the Partners for Fish and Wildlife Program please contact:  
Michael\_budd@fws.gov.