THE ROLE OF STATE AGENCIES IN THE ILLINOIS NUTRIENT LOSS REDUCTION STRATEGY

NOVEMBER 2017

Part 2 of 3: Policy Briefs

These policy briefs outline the role of Illinois state agencies in advancing the Illinois Nutrient Loss Reduction Strategy (NLRS) and highlight opportunities to leverage resources to support its implementation.

This document is one part of a series of three documents created by Delta Institute to illuminate opportunities for various stakeholders to support NLRS implementation.

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About Delta Institute

Established in 1998, Delta Institute is a Chicago-based nonprofit organization that collaborates with communities to solve complex environmental challenges across the Midwest. Delta Institute works to achieve landscape-level impacts through its agriculture and water quality programs by working in partnership with farmers, agricultural retailers, local and national nonprofits, conservation districts, and state and federal partners.

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Acknowledgements

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Data Sources

Illinois Department of Agriculture
Illinois Environmental Protection Agency
Illinois Department of Natural Resources
United States Environmental Protection Agency
United States Department of Agriculture - National Agricultural Statistics Service
United States Department of Agriculture - Agricultural Research Service
Illinois Society of Professional Farm Managers and Rural Appraisers

REDUCING NUTRIENT LOSS IN ILLINOIS: REALIGNING THE STATE REVOLVING FUND PROGRAM

OPPORTUNITY

Illinois EPA's (IEPA) state revolving fund, the Water Pollution Control Loan Program (WPCLP), can support the achievement of statewide nutrient reduction goals by aligning project selection criteria with NLRS priorities. Funds that are already appropriated for the WPCLP should be directed to higher-impact projects by aligning prioritization criteria with the Illinois Nutrient Loss Reduction Strategy's (ILNLRS) priority watersheds and with agricultural conservation practices.

BACKGROUND

Created in 1989, the WPCLP appropriates about $400 million in low-interest assistance loans annually t**o help wastewater utilities and local governments finance the construction and maintenance of their water treatment infrastructure.** The WPCLP is funded with federal capitalization grants and a state match of 20 cents for every federal dollar, which grows and "revolves" with loan repayments and additional bonds. **Figure 1** shows the size and composition of the Fiscal Year (FY) 2018 fund, which will provide $500M in assistance.

A 2014 report from the US EPA Environmental Financial Advisory Board outlined opportunities for growing the capacity of the fund and using State Revolving Fund (SRF) funding for innovative pollution control approaches including green infrastructure and public-private partnerships. Expansion of the SRF and its use to address nonpoint source (NPS) pollution is applicable in rural communities where runoff comes from drainage areas include cropland rather than impervious surfaces.

As these discussions occur at the national level, **many states have modernized and expanded their SRF programs** (see Page 4 for examples). The State of Illinois is also seeking to expand and enhance the impact of the program and to meet the requirements of the Clean Water Act, as modified by the Water Resources Reform and Development Act of 2014 (WRRDA), which significantly expanded the list of project eligibility criteria for SRF financing.

Since the establishment of the Green Project Reserve in 2010, SRF expanded to support projects that implement green infrastructure, other NPS pollution control activities, water and energy efficiency improvements, and environmentally innovative activities. The most recent rule change affecting the Illinois WPCLP, taking effect in the state's FY18 loan portfolio, will enable private entities to apply for loans as well.

As shown in **Figure 2**, between 2011 and 2016, assistance fluctuated among facilities located in the NLRS priority watersheds, with most funding going to

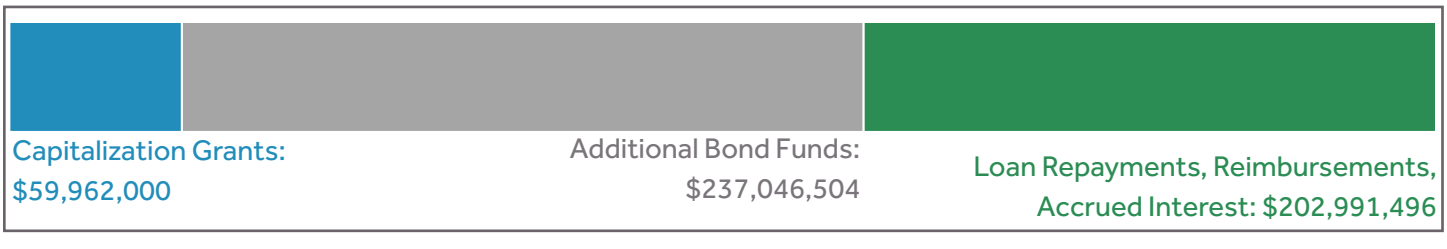

Figure 1. *Composition and amount of the State Fiscal Year 2018 Water Pollution Control Loan Program fund, totaling $500M.*

the northeast area of the state. Facilities in the Des Plaines watershed receive approximately half of the total assistance from WPCLP. The remaining 9 priority watersheds combined only received up to 15% of the assistance. The remainder went to 40 other watersheds in the state.

With the approval of the loan rules outlined in Title 35 Section 365 of the Illinois Administrative Code (IAC), FY18 **WPCLP will expand the list of project eligibility criteria for the WPCLP financing significantly, including private entities such as agricultural producers** (35 IAC 365.130).

Other states that have utilized the SRF programs to provide financing to farmers (see sidebar for more information about Iowa's program), selected a suite of engineered structural practices as eligible practices. Similarly, Illinois' WPCLP guidance can begin by encouraging applications looking to implement structural conservation practices, in particular those that are also prioritized by the NLRS such as bioreactors and wetlands. County conservation Districts can work with farmers to identify projects that are eligible and facilitate the application process to Illinois EPA.

A specific focus of the expansion of eligible activities with WPCLP will be to provide funding to stormwater projects that provide a water quality benefit. The new rules establish 11 eligible categories of projects and activities, including development and implementation of watershed projects.

As outlined in section 35 IAC 365.210(d), **Illinois will offer an Environmental Impact Discount (EID) on the loan agreement interest rate.** The EID would apply when at least 50% of the eligible project costs fund nutrient removal/reduction activities. The applicant, in turn, receives a 0.2% discount on the interest rate of their loan.

Finally, efforts to amend and update the loan rules in part 35 IAC 366 that set criteria to prioritize projects are also currently underway. These rules were last updated in 1996 and take into account factors such as financial impact, water quality, organic load, assessment of the existing facility, and operational excellence of the facility. **The current prioritization rules, when evaluating water quality, elevate projects in waterways that are already high quality, resulting in shifting resources away from streams and lakes that are impaired.**

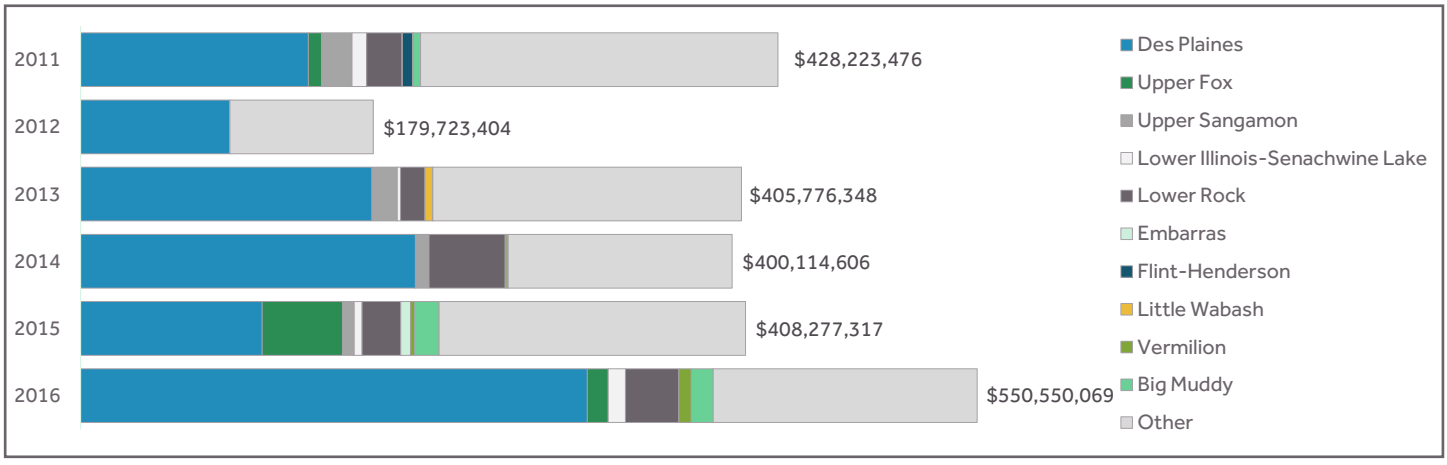

Figure 2. *WPCLP assistance provided to facilities in Illinois for years 2011-2016. Assistance to NLRS priority watersheds is highlighted.*

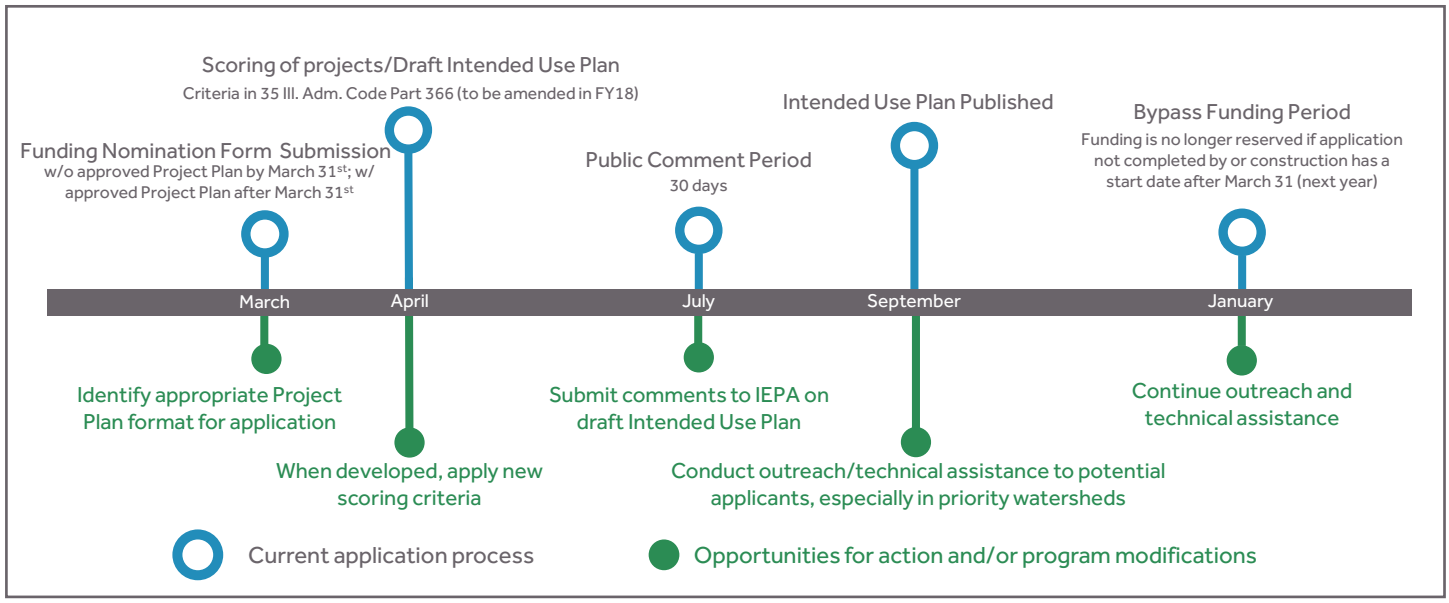

Figure 3. *Current WPCLP application process and potential program modifications and actions that support utilization of the program for agricultural projects.*

RECOMMENDED ACTIONS

The IEPA should inform agricultural producers about the WPCLP program, amend the application process, and develop guidance for new types of applicants and project types. The current application process and opportunities for process improvement are outlined in **Figure 3**. IEPA, as the agency administering the program, is responsible for implementing program changes with input from stakeholders. Community partners can assist IEPA with conducting outreach to newly eligible applicants.

Result: *Producers will be able to use this opportunity to finance agricultural conservation practices.*

The IEPA should use the EID to evaluate project performance in reducing nitrogen and/or phosphorus, especially with nonpoint source-focused project elements. The EID offers a reduced loan interest rate if performance is demonstrated. IEPA can utilize this aspect of the program to set up a tiered discount for different reduction levels, essentially creating a pay-for-performance framework within the WPCLP program.

Result*: Performance-based conservation approach will be incentivized*

The IEPA should seek to align the new loan ranking framework with the priorities already identified in the NLRS. IEPA is currently developing a new framework for prioritizing loan applications. Among the many different scoring criteria being developed in the new rules, there are plans to award points for projects which: a) result in a reduction in phosphorous and/ or nitrogen in the receiving water body, b) implement agricultural conservation practices, c) address elements from a watershed plan, d) implement green infrastructure or agricultural conservation practices, or e) incorporate activities that are part of an approved TMDL. The development of new prioritization rules is currently underway with opportunities for stakeholder engagement in the summer and fall of 2017.

NLRS priority watersheds could be ranked higher, with special emphasis on point source-dominated watersheds, including the Upper Fox, Des Plaines, and Upper Sangamon Rivers. Furthermore, applications featuring conservation practices highlighted by NLRS

should also be elevated in the ranking.

These watersheds and conservation practices are outlined in Delta Institute's Market Drivers Overview Whitepaper. As IEPA develops the rules package, agricultural and conservation organizations should engage in the process to provide feedback and ensure that NLRS priorities are included in the WPCLP rankings.

Result: *Dedicated financial support for NLRS implementation projects will be available, especially for projects in areas of most need.*

The IEPA should evaluate the historical distribution of their loans and identify barriers to program access. It is important to understand the historical funding trends and why program funding is underutilized by some communities across the state. Once the analysis is completed, the IEPA should prioritize funding to small and economically disadvantaged communities, of which there are many in high priority watersheds.

Result: *Funds will be more equitably distributed to areas of need throughout the state.*

CONNECTION TO OTHER MARKET DRIVERS

WCPLP uses State Match Bonds and additional bonds to generate revenue for the fund – the state could incorporate green bonds to direct funding to environmentally impactful projects.

The pay-for-performance approach (discussed in more detail in Delta Institute's Market Drivers Overview Whitepaper and in the accompanying brief is intended to link conservation practices to environmental outcomes. The WPCLP serves as a funding pool in a pay-for-performance program that involves partnerships between point sources (typical recipients of SRF assistance) and agricultural producers. Alternatively, rather in payments for pollution reduced, the SRF can offer a discount in expenses for demonstrating performance. For example, reduced loan interest rates – see discussion in the **Recommended Actions** section.

EXAMPLES

Iowa's Livestock Water Quality Program and Local Water Protection Program direct dollars to agricultural conservation practices provide in the range of $5 to $12 million per year. These programs are administered by the Department of Agriculture and rely on partnerships with local Soil and Water Conservation Districts (SWCDs) to work with landowners and select eligible projects and a network of private lenders. The programs also identify a short list of practices that are eligible, effectively prioritizing particular practices for implementation. Iowa also has a Sponsored Project Program where some portion of the interest repayment amount is invested into watershed projects. This can serve as a model for a pay-for-performance fund for implementation of conservation projects.

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REDUCING NUTRIENT LOSS IN ILLINOIS: UTILIZING THE PAY-FOR-PERFORMANCE APPROACH

OPPORTUNITY

A Pay-for-Performance (PfP) approach can link the implementation of conservation systems to environmental outcomes, achieving measurable reductions with limited funds. Compared to conventional practice-based cost share programs, an approach that ties financial incentives to verifiable pollution reductions has greater potential to meet the long-term goals of the NLRS at lower cost and in less time.

BACKGROUND

The federal Clean Water Act (CWA) of 1972 gave US EPA the authority to implement pollution control programs for private industry and public utilities. **While the CWA regulates activities from point source pollution, it has no explicit authority for nonpoint source pollution control,** including any agricultural operations that do not require a CWA discharge permit.

Furthermore, through CWA, states are required to report assessment and impairment information for all waters within their jurisdiction every two years. These reports provide essential details about the condition, designated uses, causes of impairment, and probable sources for all waterbodies. Any waterway that is not adequately clean for its designated use (e.g. recreation, drinking water, fishing) is deemed impaired and listed on EPA's 303(d) list. To address the impairments, the state develops a Total Maximum Daily Load (TMDL), a maximum daily amount of a specific pollutant that a waterway can assimilate without violating state water quality standards. **While the TMDL program focused initially on point source pollution,** the focus has broadened to include nonpoint source pollution, such as nutrient and sediment runoff from agricultural land.

To address agricultural sources of pollution, federal and state agencies have offered voluntary conservation programs that provide both technical and financial assistance to landowners and farmers to implement conservation practices to reduce environmental impact. These conservation programs are **pay-for practice programs**, which assign monetary rates to specific practices that meet standards set by the United States Department of Agriculture-Natural Resource Conservation Service (USDA-NRCS), but they fail to track conservation outcomes.

Pay-for-Performance (PfP) conservation is a new approach that provides flexible conservation options to farmers while delivering quantifiable water quality benefits in agricultural watersheds. By tying a payment structure to a specific pollutant (e.g. nitrogen, phosphorus, sediment) and paying a farmer for pollutant reductions, PfP conservation programs maximize the cost effectiveness of conservation dollars and achieve measurable improvements.

PfP can be designed to incentivize conservation through a funding structure that uses federal or state grants, or public or private foundations' funding. PfP programs can also involve industrial or municipal point source facilities, either as a collaborative partnership or as a **Water Quality Credit Trading (WQCT) framework, wherein point source facilities can buy nutrient credits from farmers who implement conservation practices to assist in meeting IEPA regulatory requirements.**

As the NLRS was developed, the science assessment was conducted to identify the priority watersheds, taking the following into consideration: total loading

UTILIZING THE PAY-FOR-PERFORMANCE APPROACH (CONT.)

of phosphorus/nitrogen, local water quality conditions, and existing watershed management plans. For a PfP program to be successful, additional factors to consider include: the availability of point source discharge data, impairment status, and impairment source.

Of the priority watersheds identified in the NLRS, the following show the most potential for a PfP program: Big Muddy, Lower Illinois, Upper Sangamon, and Vermilion (tributary to the Illinois River), as shown in Figure 1. Their geography (within state boundaries), mix of point and nonpoint source loads, and hydrology (the headwaters of a river system) combine to make them good candidates for exploring a PfP framework. Within each of the watersheds, there are at least two municipal water treatment plants that have significant upstream agricultural acreage which would provide an opportunity for partnership in a PfP framework.

The Vermilion River watershed, draining to the Illinois River, should be considered for a pilot program due to its geography, hydrology, as well as an active mechanism to drive implementation (an impairment designation and a corresponding Total Maximum Daily Load) and ongoing conservation projects and partnerships among local stakeholders. In addition, the majority of the watershed lies within Livingston County, significantly reducing complexity in collaborative projects involving nontraditional partners, such as permitted facilities and agricultural producers. The Vermilion River also contains waterways designated as a public

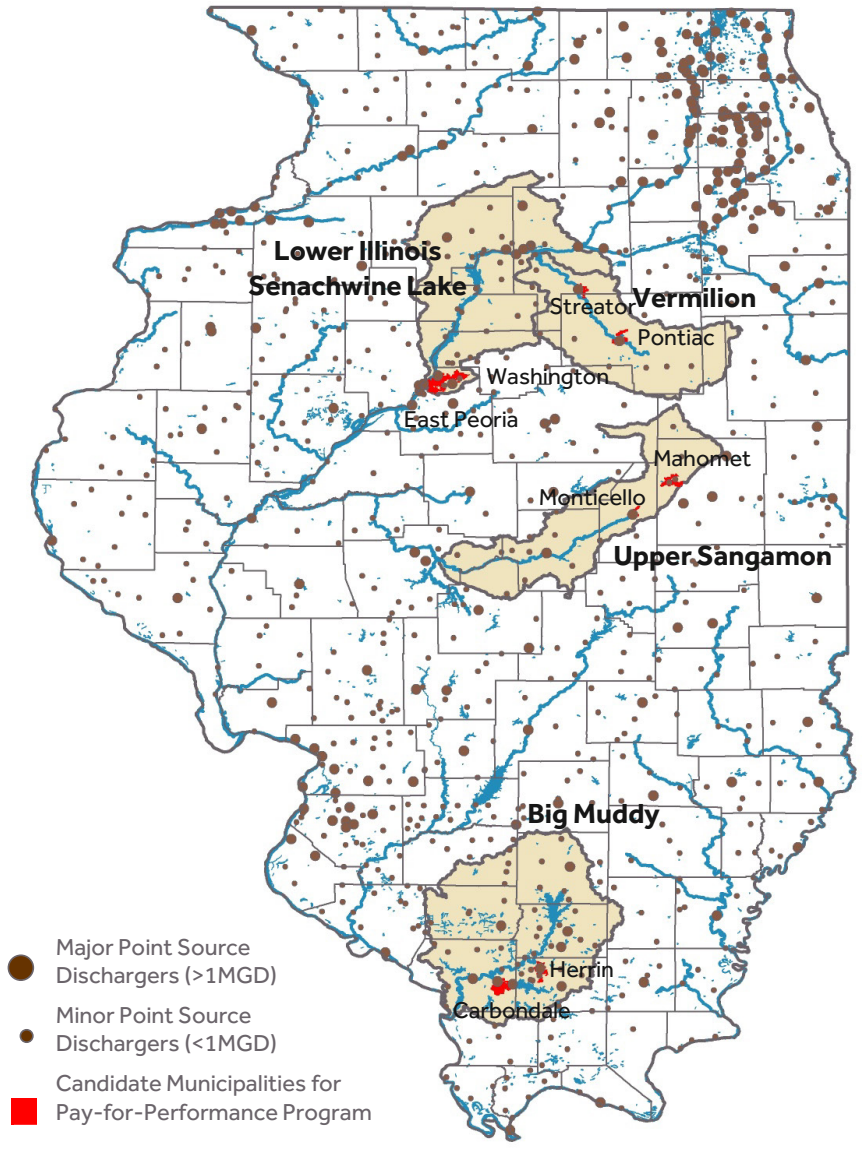

Figure 1. *Potential watersheds for a PfP approach in Illinois. At least 2 municipalities with major wastewater treatment plants are identified within each watershed..*

water supply source, further elevating the need to take action and address water quality impairments.

The Vermilion watershed is shown in **Figure 2** in more detail, including the two municipalities, Streator and Pontiac, on the main stem of the river, and the major wastewater treatment facilities that discharge effluent to the river. As shown in the map, the majority of crops in the watershed are corn and soybeans, which is representative of cropland in Illinois. The map shows where existing US Geological Survey gauges are located and highlights the lack of water quality and flow data throughout the watershed downstream.If monitoring can occur at or near the wastewater treatment facilities and before the Vermilion flows in the Illinois River, it would allow tracking and verification of conservation performance and resulting nutrient reductions.

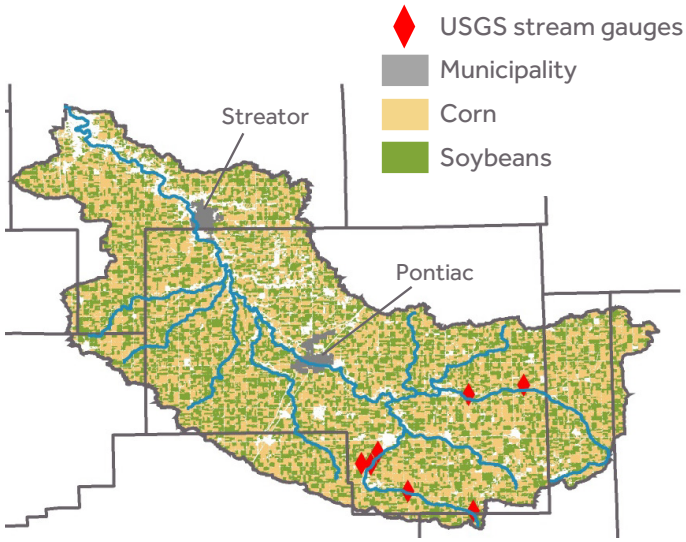

Figure 2. *Vermilion River watershed as PfP program pilot candidate. Streator and Pontiac's wastewater treatment plants' locations on the main stem are well-positioned to participate in a PfP program. One identified barrier is lack of water quality data and monitoring infrastructure in the lower part of the watershed.*

RECOMMENDED ACTIONS

Focus PfP program development in NLRS priority watersheds and/or impaired watersheds as assessed by IEPA. Studies and scientific assessments have been conducted in a number of these watersheds and have indicated that an impairment exists. Illinois DOA should work with County SWCDs to identify existing and/or develop PfP based programs within these watersheds to improve environmental outcomes. As described above, a pilot PfP program can be implemented in the Vermilion watershed.

Result: *Reduction of sediment and nutrient loading is maximized in priority watersheds.*

Work with USGS, agricultural organizations, and local communities to identify and establish appropriate locations for in-stream monitoring. The Illinois Nutrient Research & Education Council provides financial support for nutrient research and has the network to assist in sponsoring technology innovation for real-time and low-cost monitoring. A key to making PfP successful is the availability of models and monitoring infrastructure in the program's watershed. In addition to already installed super gages used to track nutrient loadings from Illinois major rivers, the Nutrient Monitoring Council (an NLRS working group) should install additional gages at outlets of other major

Result: *The appropriate infrastructure is in place to assess and verify nutrient reductions at a watershed scale.*

Enforce timely monitoring and reporting of facility discharges of nutrients into waterways. Of the 217 major municipal dischargers in Illinois, only 164 facilities monitor phosphorus, and 152 facilities monitor nitrate-nitrogen. Of those, only 67 have effluent limits for phosphorus and 13 for nitrate-nitrogen. Without consistent monitoring, the point source loads and reduction demand cannot be evaluated. The NLRS

UTILIZING THE PAY-FOR-PERFORMANCE APPROACH (CONT.)

Biennial report released in August 2017, indicates that 122 facilities now have phosphorus limits in their permits. Yet, it does not attempt to quantify changes in nutrient loading from point sources because the most basic information about discharges is not systematically available. While facilities are conducting their optimization and feasibility studies, IEPA should require monitoring and reporting from all facilities.

Result: *Accurate trends and reduction targets for point sources can be established.*

Redesign state agency programs to serve as a conduit between agricultural nonpoint sources and municipal point sources. The multi-agency Partners for Conservation program can be restructured as a catalyst for PfP initiatives although funding for the program has been inconsistent or absent. State budgetary uncertainties will continue to make it an unreliable source of implementation funding. The IEPA impaired waters assessment and TMDL methodology can also be modified in time for the release of the 2018 Integrated Water Quality Report to address impairments in a more holistic, watershed based approach conducive to PfP programs.

Result: *Farmers and point sources work together to meet water quality standards.*

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CONNECTION TO OTHER MARKET DRIVERS

PfP structure and resulting collaboration between point sources, farmers, and other entities can be utilized as a basis for forming novel governance frameworks for financing and implementing watershed protection projects such as the Environmental Utility, discussed in more detail in the Delta Institute's Market Drivers Overview Whitepaper. One of the funding pools that's accessible to point sources is the Illinois' state revolving fund, the Water Pollution Control Loan Program, discussed in more detail in a separate brief.

EXAMPLES

Recent PfP projects in the Saginaw Bay watershed in Michigan and the Milwaukee River watershed in Wisconsin were structured to incentivize farmers' reduction of sediment and phosphorus loading, respectively. The programs are administered by Non Government Organizations (NGOs) and rely on partnerships with local organizations, such as the Soil and Water Conservation Districts, to provide technical assistance to farmers as well as verification of the conservation practices. The programs leverage geography-specific quantification models that have the ability to identify areas at high risk for sediment and nutrient runoff. These results assist the project field staff in targeting outreach efforts to where the greatest potential for cost-effective reductions can be expected.

REDUCING NUTRIENT LOSS IN ILLINOIS: LAND TENURE AND LONG-TERM CONSERVATION

OPPORTUNITY

Enhancing land tenure security can help to incentivize long-term conservation on leased land, both private and public. Specifically, Illinois state agencies can use the leased land they own to promote stewardship objectives and help Illinois reach its nutrient loss reduction goals.

BACKGROUND

Secure land tenure is one of the key factors that influences conservation behavior. According to the 2012 Census of Agriculture, Illinois ranks among the top states in share of cropland leased at 60%. In some counties the proportion of leased agricultural land exceeds 80%, as shown in **Figure 1**. In addition to managing the majority of cropland acres in the state, tenants farm 521 acres on average, compared to 159 acres for owner-operators.

According to the 2016 Illinois Society of Professional Farm Managers and Rural Appraisers report, a typical lease term is one year. While the vast majority of these leases are from private landowners, the state also owns and manages land rented by tenants for farming. **The Department of Natural Resources (DNR) has the largest land footprint of state agencies, averaging 35,000 acres over the last 5 years.** By comparison, the Department of Agriculture leases approximately 1,000 acres of cropland. Most DNR leases have 4-year terms, but farms participating in the federal Conservation Reserve Program can extend to 15 years. DNR leases are subject to open and competitive bidding, with some exceptions, as specified by Section 150.20 of the Illinois Administrative Code.

Across the state, rental rates vary depending on the productivity of the land. 2016 rental rates in Illinois ranged from $75 to $425 per acre, with regional averages shown in **Figure 2**. By contrast, average lease rates for DNR farmland ranged from $98 to $117 per acre between 2013 and 2017. The leases generated approximately $4 million for the state in 2016 alone, while leasing the same land at typical market rates could have increased the total to $7.6 million.

Though public land leased for farming comprises a small portion of all rented cropland acres, the state can use its leased land to showcase leadership and innovation in land stewardship. Specifically, state managed leases could be tied directly to implementing the recommendations of the NLRS.

RECOMMENDED ACTIONS

IDNR should coordinate leasing activities on public land with other state agencies that own and lease farmland, and develop better policies that enhance tenure security (e.g. longer lease terms, crop share arrangements) that make it worthwhile to invest in long term conservation practices on private land.

Result: *Farmland leasing activities on public lands across the state are managed through a task force or committee to coordinate and enhance conservation on public land. The designated entity also evaluates and recommends strategies to enhance land tenure security on privately leased land.*

LAND TENURE AND LONG-TERM CONSERVATION (CONT.)

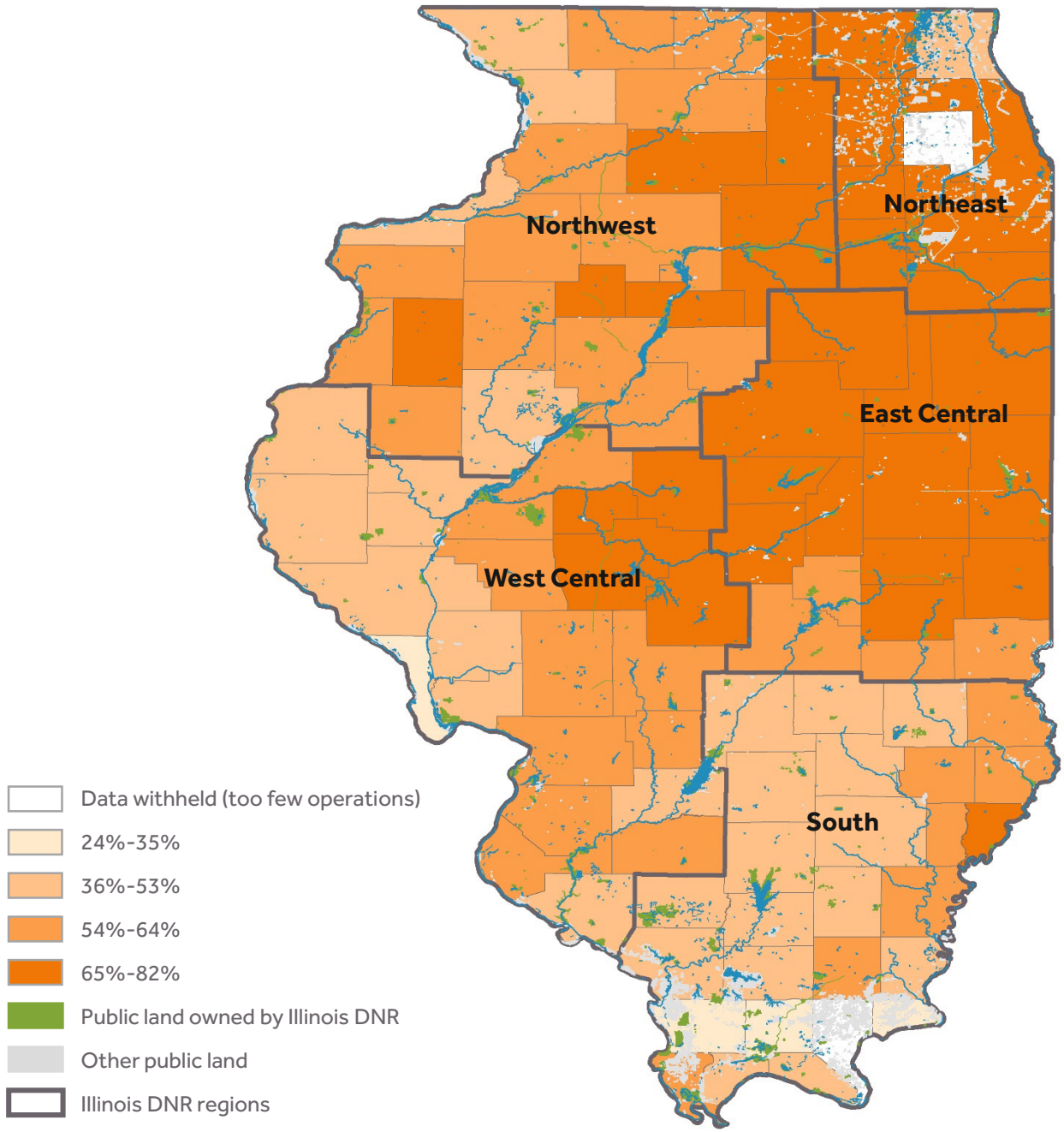

Figure 1. *Proportion of leased acres in Illinois by county.Public lands (managed by local, state, and federal agencies are also shown). Illinois Department of Natural Resources leases approximately 35,000 acres of its land for farming. Data: USDA NASS, 2012 Census of Agriculture.*

LAND TENURE AND LONG-TERM CONSERVATION (CONT.)

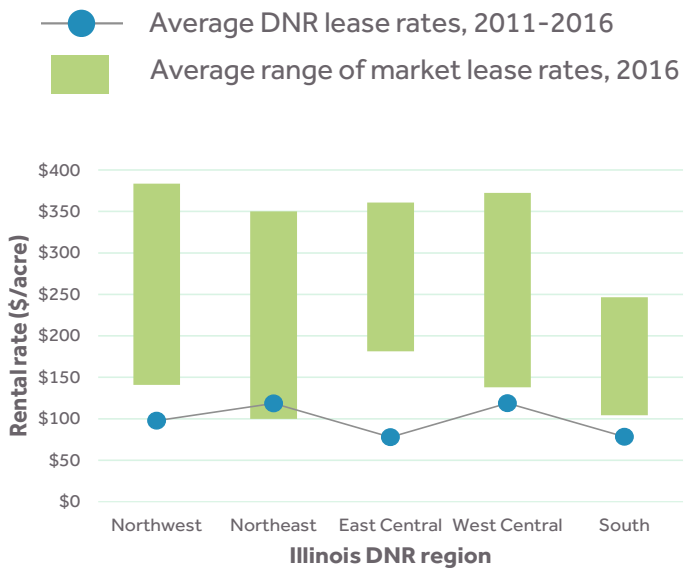

Figure 2. *Lease rates range across Illinois depending on location and productivity of the land. Average rates garnered by DNR typically fall below market rates.*

Agencies that rent public land for farming, led by Department of Natural Resources, should amend leasing practices for farmland to promote land stewardship. The modifications can include conservation standards on state-owned land, aligned with practices that are prioritized in the NLRS. Other changes include longer lease terms that provide more security for the tenants and reduce the risk in adopting practices such as cover crops, which may take up to 5 years to demonstrate benefits.

Result: *State administrative rules for leasing reflect agency and NLRS conservation priorities by allowing longer leases and incentivizing practices prioritized in the NLRS (e.g. reduced tillage, cover crops, improved nutrient management).*

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Use state - leased land to create a network of demonstration sites that train producers and offer equipment rental discounts to support practice implementation.

Result: *Farmers receive the technical resources needed to implement practices without the financial risk associated with buying new equipment.*

Encourage diversified crop rotations by offering market guarantees for "new" crops. Cropping systems that support long-term resilience and soil health include diversified crop rotations, which are risky for producers who have short-term leases.

Result: *Risk is reduced for farmers that introduce new crops into their rotations.*

CONNECTION TO OTHER MARKET DRIVERS

Increasing lease length and securing land tenure for farmers can in turn lead to implementation of conservation practices that improve soil health and fertility, while reducing input costs and nutrient runoff.

Management decisions that improve soil health also have the potential to increase the value of the land, which is discussed in more detail in the Delta Institute's Market Drivers Overview Whitepaper.

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