Iowa Nutrient Reduction Strategy

Annual Progress Report 2014-2015

Reporting Period: June 1, 2014 through May 30, 2015

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Executive Summary:

The 2014 Nutrient Reduction Strategy Annual Progress Report is the first step in employing the logic model framework to data collection and reporting. The reporting process has helped identify the many challenges in collecting and reporting this data gathered from a wide range of sources. Key challenges include:

- Consistent collection and reporting from individual groups and agencies to better allow compilation of the data.
- Timely and consistent summaries of publicly funded conservation measures. Programs collect and report information differently, making aggregation of the data difficult.
- The current timeframe of this report creates challenges in the collection, reporting and aggregating of information due to variability in the reporting periods of partner entities and the datasets provided.
- Comprehensive accounting of the collective efforts of all groups and individuals. This report includes only the information that IDALS, DNR and ISU receive. There are many activities and practices that go unaccounted for because of the complexity and costs associated with that data collection.

The three principals and partner entities are committed to a robust reporting framework that provides information needed to direct resources and show progress. Some key elements of a strong framework include:

- Inputs tracked over time will provide a better gauge to indicate progress in funding for key programs that fund NRS practices and other outputs.
- Measuring the knowledge, attitudes, and barriers to farmer adoption and other stakeholders will allow for better delivery of programs to provide the best information needed to ensure successful and widespread adoption of practices.
- Feasibility studies have already provided vastly more data on nutrient effluent levels coming from point sources. This information will continue to be collected and analyzed to inform future decisions.
- Expansion of edge-of-field monitoring, remote sensing and planning tools, can help inform farmers and others of the impacts of nutrient loss and help drive mitigation efforts in the future. This information can also help better target practice implementation resources to locations of the most need.

The framework will continue to be developed and this process will continue to evolve and improve as this effort advances into the future. Both NPS and PS groups will continue to build the capacity required to deliver the message and practices needed to meet the goals of the NRS. Key highlights include:

- New partnerships and alliances have been formed as a result of the NRS.
- Knowledge and awareness of the NRS continues to increase as information and outreach efforts are expanded.
- NPS partners continue to leverage and build resources for practice adoption.
- Actual data is replacing estimates for point sources, which will lead to better understanding of point source impacts and will improve facilities ability to develop plans to fit their specific situation.
- Municipalities and industries are committing to install nutrient removal technology and optimize their current plants.
- Methodologies to calculate nutrient load reductions from both point and nonpoint sources were developed and initial results are shared in this report.
- Efforts are underway to improve understanding of the multiple nutrient monitoring efforts that may be available and can be compared to the nutrient WQ monitoring framework to identify opportunities and potential data gaps to better coordinate and prioritize future nutrient monitoring efforts.

Introduction

The Nutrient Reduction Strategy Annual Progress Report is compiled by the three lead agencies (Iowa Department of Agriculture and Land Stewardship, Iowa Department of Natural Resources and Iowa State University) of the Iowa Nutrient Reduction Strategy and presented to the Water Resources Coordinating Council. The report follows the Iowa Nutrient Reduction Strategy (NRS) (nutrientstrategy.iastate.edu) framework that is based on EPA recommendations provided in their March 16, 2011 memo, "Working in Partnership with States to Address Phosphorus and Nitrogen Pollution through Use of a Framework for State Nutrient Reduction." The annual report provides progress updates on point source and nonpoint source efforts related to the action items listed in the elements of the strategy and updates on implementation activities to achieve reductions in nitrogen and phosphorus loads.

This report transitions from following the outline of the 2011 memo to the "Logic Model" framework as the basis of considerations set forth by the WRCC Measures Subcommittee. The Logic Model will still include the 2011 memo as the foundation of the report, but will structure and build upon the memo to report activities conducted towards progress of the Iowa Nutrient Reduction Strategy.

The logic model approach allows for measureable indicators of desirable change that can be quantified and show a progression towards specific goals or objectives. The logic model employed in this report will assess quantifiable measures with the end goal being improved water quality. The logic model is based on the foundation and progression of four primary categories:

- Inputs
- Human
- Land
- Water

The logic model is based on the premise, before water quality can be improved, practices/changes in land use must be implemented on the landscape. Before changes in land use/practices are made there need to be changes made in the human element, which may include perceptions towards practices, knowledge of utilizing practices, knowledge of water quality related issues, etc. Before changes can be made in the human category, there need to be inputs to help drive these changes. Inputs may be in the form of a variety of sources including investments in conservation practices, outreach/information activities conducted by various groups, etc.

The NRS logic model framework will be refined as additional information becomes available. As such, other indicators may be included in the model for future assessments and reporting as model development continues. Additional indicators could include various surveys from USDA, Census of Agriculture, etc. These indicators will need to be part of future reports and part of this effort will be to gather information on when those reports are available and for what reporting period to provide consistency in reporting, avoid duplication, and ensure reports are comparing information gathered at or near the same timeframe. For instance, consideration will need to be given when comparing the Census of Ag (conducted every 5 years) vs. a survey conducted more or less frequently.

The value of the logic model is to show a progression and change over time in all categories. Rather than focus on one indicator in one category compared over time, the idea of the logic model is to be able to assess an extensive list of indicators over all four categories. It also can show and help target resources to areas that need additional attention and/or resources.

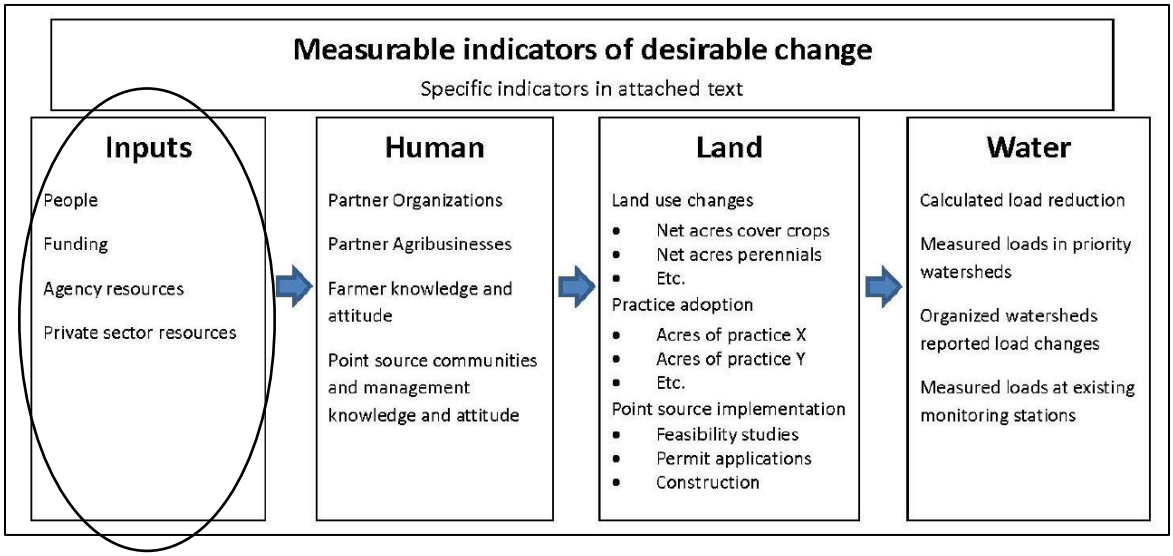
Membership in the Water Resources Coordinating Council includes:

- Secretary of Agriculture, Chair
- Governor's Office
- Iowa Department of Agriculture and Land Stewardship (IDALS)
- Iowa Department of Natural Resources (DNR)
- Iowa Department of Public Health
- Iowa Homeland Security and Emergency Management Division
- Iowa State University (ISU)-College of Agriculture and Life Sciences
- University of Northern Iowa (UNI)-College of Natural Sciences
- Iowa Department of Transportation (DOT)
- Iowa Economic Development Authority (IEDA)
- Iowa Finance Authority (IFA)
- NOAA-National Weather Service (NWS)
- University of Iowa (UI)-College of Engineering
- University of Iowa (UI)-College of Public Health
- United States Geologic Survey (USGS)
- USDA-Natural Resource Conservation Service (NRCS)
- USDA-Farm Service Agency (FSA)
- USDA-Rural Development (RD)
- US-Environmental Protection Agency (EPA)
- US-Army Corps of Engineers (USACE)

Within the WRCC, a Measures Subcommittee includes representatives from ISU, IDALS, DNR, University of Iowa, USDA-NRCS, USDA-FSA, and USGS.

The 2014-2015 Annual Progress Report was organized by the three lead agencies of the Nutrient Reduction Strategy (NRS). The report was submitted to the WRCC members during the June 2015 meeting. Activities and accomplishments for the reporting period were solicited and collected from individual WRCC and Watershed Planning Advisory Council (WPAC) members. Information provided in this report is a compilation of the information by member agencies and groups. Individual reports received from members are attached at the end of the report.

INPUTS: Summary of funding levels by program w/ short description of program



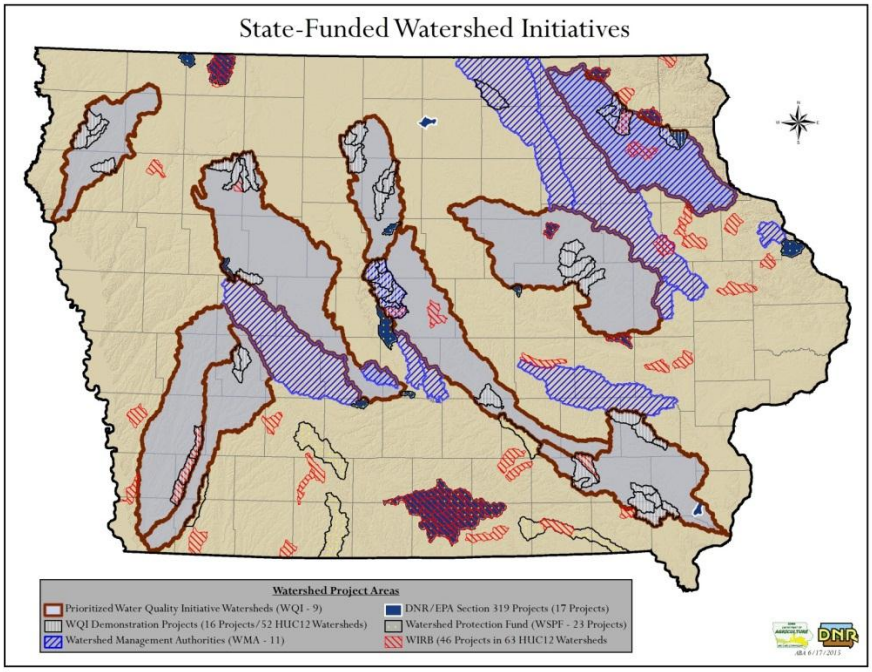
Reporting Element 1 – Inputs				
Compilation of completed reports from WRCC/WPAC Members on "Inputs" their respective agencies have to assist in the implementation of the Iowa NRS, improve water quality, and/or practices associatied with the Iowa NRS Science Assessment. These funding sources are directed at 3 main categories in the "Logic Model" framework including: Human, Land, and Water. Funding sources often combine multiple indicators as shown in the summary below.				
Lead Agency/Organization:	Programs:	Category: Human (info/outreach), Land (practice imp), Water (measurement)	FY 2015 Funding:	Description:
Governmental Agencies				
Department of Natural Resources (DNR)	EPA Section 319, Lakes Restoration, Lands, Water Quality Monitoring	Human/Land/Water	$ 16,018,000.00	Summary of DNR-led programs and funding to develop, install, promote, and monitor various conservation practices in the state.
Iowa Dept. of Agriculture and Land Stewardship (IDALS)	Water Quality Initiative (WQI), Iowa Financial Incentives Program (IFIP), Ag Drainage Well Closure (ADW), Watershed Protection Fund (WSPF), Conservation Reserve Enhancement Program (CREP), Resource Enhancement and Protection Program (REAP), Integrated Farm and Livestock Management Fund (IFLM), Iowa Buffer Initiative	Land/Human/Water	$ 17,864,000.00	Total list of IDALS led programs and funding to provide technical & financial assistance, education, training, watershed projects, and monitoring. A portion of this funding includes other expenses related to technical assistance, administration of programs, equipment, supplies, other services, etc.
IDALS/DNR	Iowa State Revolving Fund (SRF) Local Water Protection Program Livestock Water Quality Program General Non-Point Program Sponsored Project Program Onsite Wastewater Program	Land	$ 35,700,000.00	SRF is a water, wastewater and water quality infrastructure low interest loan program jointly managed by the Iowa DNR and Iowa Finance Authority. Under a contract with DNR, IDALS helps carry out several non-point water quality programs that fall under SRF. Much flexibility has allowed SRF to target specific needs in Iowa. Programs have been established to finance soil conservation practices, manure management practices, storm water quality practices and onsite wastewater systems.
Iowa State University - College of Agriculture and Life Sciences	Not Provided	Not Provided	Not Provided	Not Provided
USDA-Natural Resources Conservation Service	Environmental Quality Incentives Program (EQIP), Conservation Stewardship Program (CSP), Agricultural Conservation Easement Program (ACEP), Conservation Technical Assistance (CTA), Regional Conservation Partnership Program (RCPP)	Human/Land	$ 33,983,459.00	Total list of NRCS led programs for Financial Assistance (FA) and Technical Assistance (TA). FA includes incentives for the installation of various conservation practices on private lands. FY2015 Technical assistance for conservation planning at all scales, technical assistance for installation of conservation practices not funded through USDA, Also includes conservation district support activities, outreach, communications and related activities. Includes salaries, benefits, rent, equipment, supplies, contracted services, vehicles and other support costs.
University of Iowa - College of Engineering	Various research, modeling, and monitoring programs	Human/Water	Not Provided	See individual report for descriptions of various programs.
Watershed Improvement Review Board	Watershed Improvement Review Board (WIRB)	Land	$ -	The Iowa Watershed Improvement Review Board (WIRB) was initiated in 2005. This Board is responsible for awarding grants to water quality improvement and flood prevention projects. The WIRB is comprised of representatives from agriculture, drinking water and wastewater utilities, environmental organizations, agribusiness, the conservation community along with two state senators and two state representatives. This program did not receive an appropriation for FY2015.
Non-Governmental Organizations				
Conservation Districts of Iowa	Not Provided	Not Provided	Not Provided	Not Provided
Iowa Corn Growers Asssociation	IAWA/Various research, outreach, conservation planning, practice installation, and monitoring programs	Human/Land/Water	Not Provided	See individual report for descriptions of various programs.
Iowa Environmental Council	Not Provided	Not Provided	Not Provided	Not Provided
Iowa Farm Bureau Federation	SHARE Grants/Partnerships in various other projects	Human/Land	$ 72,350.00	See individual report for descriptions of various programs.
Iowa Pork Producers Association	IAWA/Partnership in other projects	Human/Land/Water	$ 210,000.00	See individual report for descriptions of various programs.
Iowa Soybean Association	Various research, outreach, conservation planning, practice installation, and monitoring programs	Human/Land/Water	$ 1,594,303.00	See individual report for descriptions of various programs.
		Total*	$ 105,442,112.00	

*This table is a compilation of the reports provided to IDALS by WRCC/WPAC members. This list indicates all "inputs" provided by members that were complete including program, category, funding level, and description. More detail on individual member "inputs" and programs can be found in the individual reports attached at the end of this report.

This description of program funding is what funding is available during the reporting period. These figures in combination with reported practices applied will not coincide due to variability in when funding is received and when the corresponding practice(s) are delivered. The practices/activities applied during the reporting period are often a result of past funding due to the lag in time between funding received, applications approved, any design/layout of said practices, and payment of funds. Additionally, various practices and programs administer their funds differently and these factors have not been fully assessed to the level necessary for inclusion in the current report. It should also be noted that funding covers more than practice implementation, and includes items such as FTEs, administration, technical assistance, outreach, and monitoring.

Prioritization of Watersheds

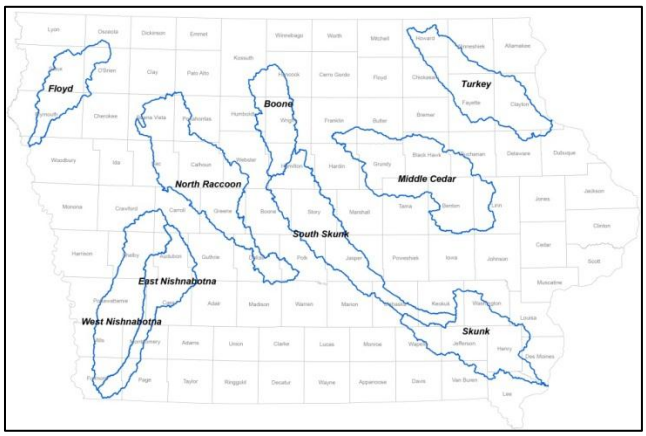
Overview of active state-supported watershed projects, priorities, or organized watershed groups-Statewide



This map is a compilation of various state-supported watershed efforts that include: DNR/EPA Section 319, WQI, Watershed Management Authorities (WMAs), WSPF/WPF, and WIRB.

The Nutrient Reduction Strategy (NRS) continues to build upon efforts located in the designated "priority watersheds" established by the WRCC and reported in the initial WRCC NRS report.

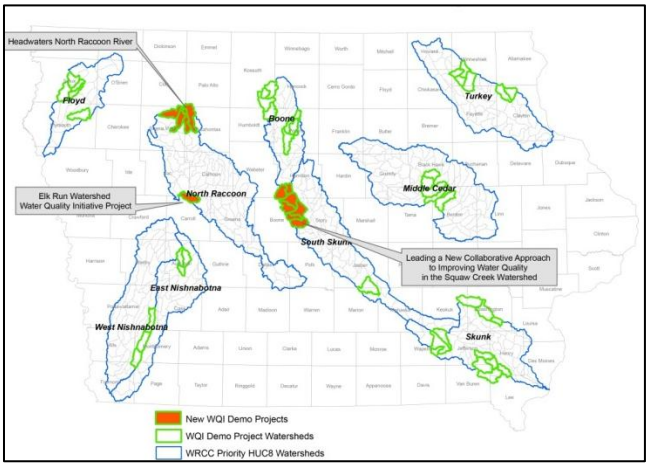
WRCC Priority HUC8 Watersheds



Efforts built upon in the priority watersheds are summarized here and explained in detail further in the report:

- Water Quality Initiative (WQI) Targeted Demonstration Watershed Projects
    - Currently 16 active projects (3 new in 2015 reporting period)
        - Includes 53 HUC12 watersheds
    - More than 95 unique partnerships
    - Targeted efforts of outreach, financial and technical assistance, and delivery methods to inform future programs and delivery methods.
    - More information on individual projects can be found here: http://www.cleanwateriowa.org/demonstration-projects.aspx

WRCC HUC12 Demonstration Watershed Projects



- 8 of 9 WQI Urban Conservation projects prioritized to these watersheds
- Farmer Knowledge and Attitude Survey
- USDA-Regional Conservation Partnership Program (RCPP) funding awarded to IDALS to support additional financial and technical assistance to 8 WQI Targeted Demonstration Watershed Projects in 4 of the 9 priority watersheds.
- USDA-RCPP funding awarded to the City of Cedar Rapids to support additional financial and technical assistance to 2 demonstration watershed projects in the Middle Cedar watershed.
- USDA-NRCS targeted MRBI funding to watersheds located within these priority watersheds
    - 1 currently active project in the North Raccoon in Buena Vista County
- Prioritize point source permitting activities to point sources in the designated priority HUC 8 watersheds

Focus Conservation Programs:

Public Inputs*

Iowa Water Quality Initiative (WQI)

The Iowa Water Quality Initiative (WQI) was established during the 2013 legislative session to assist the implementation of the Nutrient Reduction Strategy (NRS). The WQI seeks to harness the collective ability of both private and public resources and organizations to reduce nutrient loss and improve water quality. Significant investments have been and continue to be made on reducing nutrients lost from nonpoint sources by both private and publicly funded programs. It's important to note that in addition to the level of public funding utilized to install practices, these funds leverage 50% or more of the cost from private landowners and producers. The Iowa WQI has received commitments of $26.4 million in state funding over the past three years.

The WQI is a state-funded program established as a result of the Iowa NRS. This report highlights the collective funding, practices applied, and other accomplishments of various State, Federal, and NGO programs. These individual programs can often be a complement to the WQI and NRS even though they have differing areas of focus. Examples include:

> Iowa Financial Incentives Program (IFIP), also commonly referred to as "cost-share":
> IDALS funds the installation of soil conservation practices. These practices can include terraces, grassed waterways, grade stabilization structures, cover crops and/or no-till or other reduced tillage practices. All of these practices are important in reducing and/or controlling soil loss.
>
> Environmental Quality Incentives Program (EQIP):
> Federal programs such as EQIP have designated targets to certain priorities and resource concerns. EQIP must spend 60% of its allocation on livestock related practices. Structures and other practices to manage manure are important to minimizing environmental impacts of livestock operations.

USDA-NRCS - Regional Conservation Partnership Program (RCPP)

The RCPP promotes coordination between NRCS and its partners to deliver conservation assistance to producers and landowners. NRCS provides assistance to producers through partnership agreements and through program contracts or easement agreements. More information can be found at:
http://www.nrcs.usda.gov/wps/portal/nrcs/main/ia/programs/farmbill/rcpp/

Summary of the RCPP projects funded in the first year of the program:

Project Name: Middle Cedar Partnership Project
Lead Partner: City of Cedar Rapids
Funding Amount: $2.1 Million
Led by the City of Cedar Rapids, the Middle Cedar Partnership Project will focus on working with local conservation partners, farmers and landowners to install best management practices such as cover crops, nutrient management, wetlands and saturated buffers to help improve water quality, water quantity and soil health in the Cedar River Watershed. The goal of the project is to address nutrient loading and extreme flood events in the Cedar River. This project will lay the foundation for needed improvements, and bring together a diverse group of conservation partners.

Project Name: Iowa Targeted Demonstration Watersheds Partnership Project
Lead Partner: Iowa Department of Agriculture and Land Stewardship
Funding Amount: $3.5 Million
Critical Conservation Area: Mississippi River Basin

Led by the Iowa Department of Agriculture and Land Stewardship, the Iowa Targeted Demonstration Watersheds Partnership Project will focus on the adoption of conservation practices that are most beneficial to reducing nutrient loading in focus watersheds. These watersheds were targeted because of their high nutrient losses as shown by monitoring data and watershed analyses. The project is directly tied to implementation of Iowa's Nutrient Reduction Strategy, developed in response to the Gulf Hypoxia Task Force goal of 45 percent nutrient reduction to the Gulf. The nine watersheds will serve as models for future work, and will focus on farmer-to-farmer outreach and education.

Project Name: Regional Grassland Bird and Grazing Land Enhancement Initiative
Lead Partner: Missouri Department of Conservation
Funding Amount: $5 Million
The goal of this project is to create and implement management strategies that integrate habitat needs of grassland-dependent birds on grazing lands, maintain the tall grass prairie ecosystem, and enroll high quality grasslands into contracts. The project will target at-risk bird species habitat on pastures and agricultural lands, enhance water and soil quality, and improve plant productivity limited by undesirable invasive plant species. NRCS is providing $5 million for this project through RCPP and MDC and other partners are providing $10 million. Parts of Nebraska, Kansas and Iowa are also included in this project.

Non-Governmental Organization Supported Inputs*:

Iowa Agricultural Water Alliance (IAWA)
Created and funded by Iowa Corn Growers Association, Iowa Soybean Association and Iowa Pork Producers Association, the alliance is working to increase farmer awareness of the Iowa Nutrient Reduction Strategy and their adoption of science-based practices proven to have environmental benefits.
More information can be found at: http://www.iowaagwateralliance.com/
A report was submitted by IAWA to augment WPAC members: Iowa Corn Growers Association, Iowa Pork Producers Association, and Iowa Soybean Association reports as they are the lead organizers of this group.

Accounting for other private inputs:

One identified need for this report is the collection and reporting of privately funded investments in conservation structures, management practices and nutrient management. While many resources in the public and NGO sector work to inform those decisions, this data is largely not collected and reported in a way that allows for load reduction calculations to be made.

Some retailers and other ag businesses offer discounts and other services that can help farmers incorporate practices on their farms. These are valuable inputs that are currently unaccounted for in the current framework.

In the past, attempts to collect this information have focused on surveys and other means. Creating a system of collecting and accounting for this information, in aggregate, will not only help account for loading changes with these practices, but also help inform other efforts to help influence these decisions over time.

*This is a sample of the types of programs led by non-governmental organizations on conservation and water quality related issues. More information can be found in the individual reports attached at the end of this report.

Ensure Effectiveness of Point-Source (PS) Permits

Number of Permits Issued that Require Nutrient Reduction Feasibility Studies
One of the goals of the point source component of the NRS was to each year issue or reissue NPDES permits to 20 of the 147 facilities listed in the strategy that would include a requirement to complete studies on the feasibility of reducing the amounts of nitrogen and phosphorus discharged by these larger POTWs and industries. Twenty-one permits were issued during the first year following NRS release. An additional 33 permits were issued during the second year, which ended May 31, 2015. These 54 permits represent 37% of

the facilities that require nutrient reduction feasibility studies, and exceeded the goal of 40 permits issued within the first two years.

Thirty-seven of the 147 point sources listed in the strategy are located in one of the nine priority watersheds designated by the WRCC. Nine permits were issued to facilities in priority watersheds in 2013-2014 and an additional six were issued in 2014-2015. All point sources in the West Nishnabotna and Turkey River Watersheds listed in the strategy have been issued new permits that require TN and TP monitoring and submittal of a nutrient reduction feasibility study. Significant progress has been made in most of the remaining seven priority watersheds.

Point sources listed in the strategy are required to monitor raw waste and final effluent for TN and TP during a two-year period following issuance of their NPDES permit. A facility will use that data together with other information to evaluate the feasibility and reasonableness of reducing the amounts of nutrients discharged into surface water with a target of reducing nitrogen and phosphorus by 66% and 75% respectively. The required feasibility study report will include an evaluation of operational changes to the existing treatment facility that could be implemented to reduce the TN and TP discharged. If the implementation of operational changes alone cannot achieve the targets, the facility will evaluate new or additional treatment technologies that could achieve significant reductions in amounts discharged. As of May 31, 2015, only one feasibility study has been submitted but 20 more are due to be submitted within the next year.

The feasibility study report also must include a proposed schedule for implementing the operational changes and/or installing new or additional treatment technologies found to be feasible and reasonable. Upon approval of the proposed schedule by the DNR, the facility's NPDES permit will be amended to include the schedule for construction and/or implementation of changes. Four permits have been amended to include construction schedules for treatment facilities that will include nutrient reduction capabilities prior to those facilities having submitted a feasibility study.

While the strategy itself has not yet directly resulted in implementation of point source nutrient reduction, some facilities in Iowa have voluntarily implemented nutrient removal practices. The City of Clinton constructed and began operating a new wastewater treatment plant in 2013 designed to remove nitrogen and phosphorus. Monitoring data shows the facility is meeting the nutrient reduction targets specified in the strategy. Iowa City and Sioux City both operate new wastewater treatment plants designed to remove nitrogen and will be evaluating opportunities to reduce phosphorus as part of their feasibility studies. Initial monitoring data from a number of other wastewater treatment plants show these are removing substantial amounts of nitrogen and/or phosphorus. The DNR will be looking to confirm this as more information becomes available.

A summary of the status of individual permitted facilities can be found in Appendix A.

Research/Technology

The Iowa Nutrient Research Center funded 10 new projects in 2014 and continued several of the projects initiated in the first year. The projects reflect collaboration across the three Regent institutions and work consistent with the original legislation. Details on these projects and progress reports can be viewed at http://www.nutrientstrategy.iastate.edu/center

- Development of Remote Sensing Protocols for Inventory of Nutrient Management Practices: Permanent Vegetative Practices. Jim Giglierano, Amy Logan, Sarah Porter, David James, Thomas Isenhart
- IIHR - Hydroscience & Engineering, University of Iowa, Work plan for Iowa Nutrient Research. Continuation of four separate objectives. Larry Weber and staff
- Modeling of nitrate loads and concentrations in the Raccoon River. Gabriele Villarini, Christopher J. Anderson, Christopher S. Jones, Keith Schilling
- Measuring the effectiveness of stacked nutrient reduction practices using a paired watershed approach at the sub-watershed scale. Keith E. Schilling, Wren Almitra, Doug Schnoeblen
- Nutrient trading in Iowa: a pilot study in the Catfish Creek Watershed. Larry Weber, Chad Drake

- Drainage Water Quality Impacts of Current and Future Agricultural Management Practices. Matt Helmers, Michelle Soupir, Antonio Mallarino, Carl Pederson
- Phosphorus loss from ephemeral gully formation and sediment transport. Richard Cruse, Eric Hurley, Antonio Mallarino, Matt Helmers
- Development of Remote Sensing Protocols for Inventory of Nutrient Management Practices. Brian Gelder, Sarah Porter, Amy Kaleita, Calvin Wolter, Richard Cruse, Thomas Isenhart, Mark Tomer, Peter Wolter, David James
- Performance of Woodchip Tile Denitrification Bioreactors: Optimal Design / Performance and Experimental Bioreactor Installation and Study, Addendum to Year 1 study. Michelle Soupir, Roger Wolf
- General versus custom designed prairie seed mixes for contour buffer strips: on-farm demonstration and workshops for technical providers. Daryl Smith
- Trends Over Two Decades in Stream Nitrate as Affected by Farming Practices in the Walnut Creek Watershed. David Peters, Dan Jaynes

Nutrient Trading/Innovative Approaches

Nutrient trading continues to be a hot topic moving forward into NRS implementation. IDNR, EPA, and several stakeholder groups continued discussions about the different aspects of successful trading programs. IDNR has met with EPA to discuss NPDES permitting options to accommodate different styles of trading programs and is aware of several cities interested in the concept. More work is expected in the upcoming year.

Stormwater, septic and minor POTWs

Urban Stormwater:
IDALS began the Urban Conservation Program in 2008. The program provides technical assistance to communities in developing programs and specific projects to address stormwater runoff following well established criteria and procedures detailed in the Iowa Stormwater Management Manual (http://www.iowadnr.gov/Environment/WaterQuality/WatershedImprovement/WatershedBasics/Stormwater/StormwaterManual.aspx).

IDALS and partners currently fund four Urban Conservationists in State to serve as technical resources for communities and individuals interested in implementing storm water protection practices and programs. Efforts are expanding in the urban conservation area through some new and unique partnerships.

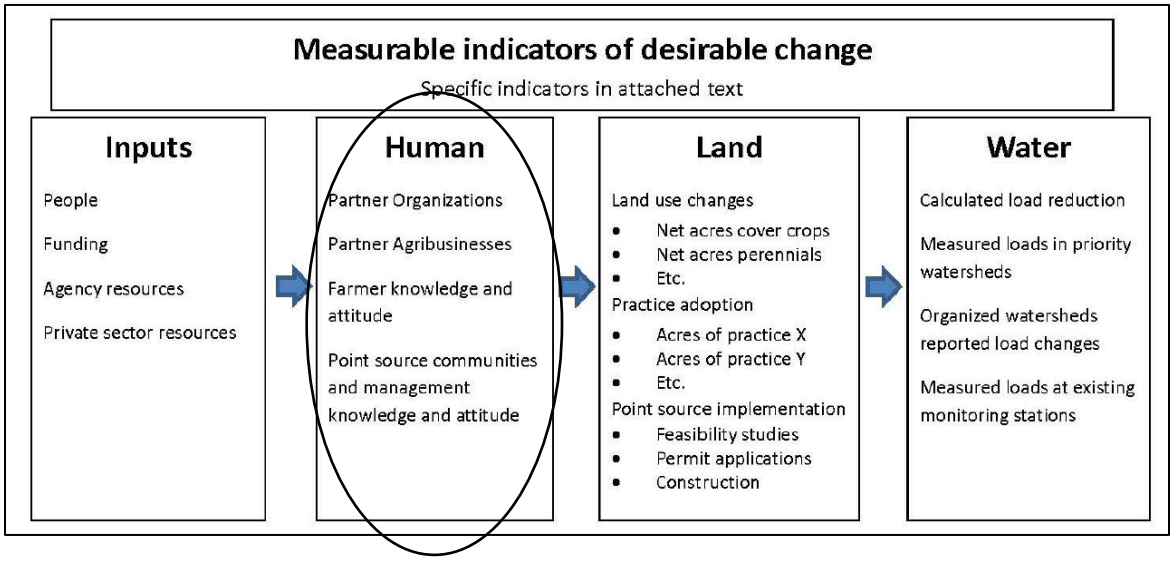
- In 2015, IDALS funded 9 projects through WQI for urban conservation demonstration projects
- Iowa DNR and IDALS partner on the State Revolving Fund (SRF)-Sponsored Project program to leverage investments made by municipalities to upgrade wastewater facilities to include additional resources for urban and ag stormwater projects.
    - Currently funding 38 projects with $32.2M in funding.
- Partnered with Iowa Economic Development Authority (IEDA) Green Streets Criteria for Community Development Block Grants (CDBG) and other funding mechanisms (http://www.iowaeconomicdevelopment.com/userdocs/documents/ieda/Iowa-Green-Streets-Criteria.pdf).

Private Sewage Disposal Systems (PSDS):
Upgrading of failing septic systems continues through implementation of Iowa's "time of transfer" law that took effect in 2009. Database improvements continue to progress to better enumerate the success of this program. A more recent development was the National Sanitation Foundation (NSF) Standard 40 approval of two new media filters that reduce nitrogen via recirculation. The approval allows for their use in the state of Iowa.

Minor Publicly Owned Treatment Works (POTWs)
The point source approach in the NRS focuses on facilities classified as "major" in the NPDES permitting regulations; however facilities classified as "minor" (facilities that discharge less than 1 million gallons per day)

are beginning work on installing nutrient removal technologies as well. For example, the City of Northwood plans to construct a wastewater treatment facility that will be financed in part with a Clean Water State Revolving Load (CWSRF) loan. The plant will be designed for nutrient removal. Also through this loan the City plans to utilize a sponsored project to help build nutrient removal wetlands in a nearby watershed.

HUMAN: Summary of efforts to assess the human/social element of the NRS.



Strengthen Outreach, Education, Collaboration

Below is a summary of outreach, education and collaborative efforts as reported on by WRCC/WPAC members. Individual member reports are available at the end of this report. This summary shows the value of partnerships to spread information far beyond the scope and reach of any one individual group or any of the three principal leads of the Iowa NRS.

These activities conducted by individual groups often are done in collaboration with other organizations as evidenced by the list of partners contributing to these activities in the annual report. The summary below doesn't list these partnerships because of the difficulty to accurately account for the various partnerships across multiple activities/events.

Reporting Element 2 – Human*

Below is an aggregate summary of resources available and/or invested in ***Organization/Agency Supported Outreach Activities*** *during the reporting period for the Nutrient Reduction Strategy and/or practices detailed in the science assessment. This report is a collection of all activities conducted as reported by individual WRCC/WPAC members. More detailed information from those individual members can be found in the attachments following the report.*

Description	Number	Attendance	Topics Covered	Partnerships	Response/Feedback
Field Days	637	23,366	Varies between individual agencies/groups, individual events, categories, etc. Attendance numbers were not made available for every category/event*		
Presentations	269	15,487			
Conferences	16	3,842			
Workshops/Meetings	198	3,266			
Print or Media**	252	975,258			
Radio & Television**	258	4,300,000			
Newsletters	249	489,845			
Awards/Recognition Activities	21	116			
Surveys***	6	1,856	Varies*	Varies*	If applicable, please note survey information related change in knowledge, attitude, and behavior
Additional Activities and Partnership Organizations	*more detail from individual reports can be found in the detailed reports attached at the end of this report. **Attendance column represents an estimate of circulation through various media outlets ***Attendance column represents respondents to the survey				

Individual groups and agencies contributing to this information (in alphabetic order):
WRCC Members:
Iowa Department of Agriculture and Land Stewardship
Iowa Department of Natural Resources
Iowa State University – College of Agriculture and Life Sciences
USDA-Natural Resources Conservation Service
University of Iowa – College of Engineering
WPAC Members:
Conservation Districts of Iowa
Iowa Corn Growers Association
Iowa Environmental Council
Iowa Farm Bureau Federation
Iowa Pork Producers Association
Iowa Soybean Association

Increased public awareness and recognition

Iowa Learning Farms

In 2014, Iowa Learning Farms, a program at Iowa State University that seeks to build a Culture of Conservation by utilizing sound research and partnerships, conducted a 10-year evaluation of their programming. Farmers attended Iowa Learning Farms field days to gather information from their peers and experts, but also to gain confidence to speak to other farmers about the conservation practices they are using. Field day attendees are using the information they have gained from field days and influencing more farmers than those attending the field day in person, thus creating a multiplier effect.

Farmers attending Iowa Learning Farms field days report they successfully influence 65% more farmers to try conservation practices.

- 88% of farmers attending ILF field days have made a change in their behavior between 2010-2014
- An average of 373 new acres with no-till or strip-till per survey respondent since 2010
- 38% of farmers responding increased surface residue management (no-till/strip-till) on 97,331 new acres since 2010
- 47% of farmers responding increased cover crop usage since 2010, on 77,492 acres

Additional information from the Iowa Learning Farms 2014 and 10-year evaluation can be found here:

http://www.extension.iastate.edu/ilf/sites/www.extension.iastate.edu/files/ilf/Evaluation_report_2014.pdf

http://www.extension.iastate.edu/ilf/sites/www.extension.iastate.edu/files/ilf/10-year-infograph.pdf

Established in 2004, Iowa Learning Farms encourages adoption of conservation practices. Farmers, researchers and ILF team members are working together to identify and implement the best management practices that improve water quality and soil health while remaining profitable. Partners of Iowa Learning Farms are the Iowa Department of Agriculture and Land Stewardship, Iowa State University Extension and Outreach, Leopold Center for Sustainable Agriculture, Iowa Natural Resources Conservation Service and Iowa Department of Natural Resources (USEPA section 319), Conservation Districts of Iowa, Iowa Farm Bureau, Iowa Water Center and Practical Farmers of Iowa.

Iowa Farm Environmental Leader Awards

In 2014, 88 Iowa farm families were recognized with the Iowa Farm Environmental Leader Award during a ceremony at the Iowa State Fair. The award is a joint effort between the Governor of Iowa, Iowa Department of Agriculture and Land Stewardship, and Iowa Department of Natural Resources to recognize the efforts of Iowa's farmers as environmental leaders committed to healthy soils and improved water quality. It seeks to recognize the exemplary voluntary actions of farmers that improve or protect the environment and natural

resources of our state while also encouraging other farmers to follow in their footsteps by building success upon success.

This is the third year for the award program and to date more than 200 families have received recognition. All winners were chosen by a selection group representing both conservation and agricultural groups. More information can be found here: iowaagriculture.gov/EnvironmentalLeader.asp

Governor's Environmental Excellence Awards

These awards are the premier environmental honors in Iowa. The awards are sponsored by the Governor's Office, the Iowa Department of Natural Resources, the Iowa Department of Agriculture and Land Stewardship, the Iowa Economic Development Authority, the Iowa Department of Education, the Iowa Department of Public Health and the Iowa Waste Reduction Center.

These awards offer an opportunity to recognize groups, agencies and individuals representing point and/or nonpoint sources who have been leaders in these issues.

ISU Farm and Rural Life Poll

The 2014 Iowa Farm and Rural Life Poll examined Iowa farmers' awareness of and attitudes toward the Iowa Nutrient Reduction Strategy. This survey was conducted in early 2014, seven months after the formal launch of the Nutrient Reduction Strategy. The results can therefore be viewed as an early measure of farmer perspectives on the strategy and its goals.

In general, the results show that farmers were both aware of the NRS and supportive of it. Most farmers knew about the Nutrient Reduction Strategy, and more than half rated themselves as at least somewhat knowledgeable about the strategy. Corn and soybean farmers, reported higher levels of knowledge than farmers as a whole. Furthermore, farmers with more corn and/or soybean acres indicated higher knowledge levels. The finding that larger-scale farmers were more knowledgeable about the NRS indicates that the stewards of most of Iowa's cropland have already crossed the awareness threshold.

According to the survey more than seventy-five percent of farmers agreed they are concerned about agriculture's water quality impacts, which suggests there is a strong foundation of awareness and concern on which to build greater farmer participation and more intensive and widespread adoption of nutrient management practices.

The full survey analysis can be found at: store.extension.iastate.edu/Product/Iowa-Farm-and-Rural-Life-Poll-Farmer-Perspectives-on-Iowas-Nutrient-Reduction-Strategy

Nutrient Reduction Strategy Farmer Survey

A survey to measure farmer attitudes and behaviors, funded by IDALS, was developed by Iowa State University – Department of Sociology. The proposed farmer survey would focus primarily on the "farmer knowledge and attitude" indicator under the "Human" element of the Logic Model.

Survey objectives: 1) measure farmer knowledge, attitudes, and behavior regarding nutrient loss into waterways, 2) identify barriers to and facilitators of behavior change that reduces nutrient loss, and 3) measure change in these over time.

Sampling approach: The proposed sampling approach will be implemented over a five-year period through an annual rotating longitudinal survey. This approach will allow for coverage of six HUC6 watersheds (figure 1). Only HUC6 watersheds that contain HUC 8 watersheds that have been identified as "priority watersheds" by the WRCC as part of the Iowa Nutrient Reduction Strategy would be surveyed. There are six such HUC6 watersheds, which will be referred to as H1-H6. The sample design would allow for some comparison of

priority HUC8s where demonstration projects are being funded to HUC8s that have not received a priority designation. The HUC6 watersheds and their priority HUC8 watersheds are listed in table 1.

Table 1. HUC6 and priority HUC8 watersheds within the HUC6 watersheds

HUC6 Watershed	**Priority HUC8 Watershed(s)**
Upper Mississippi-Maquoketa-Plum	Turkey
Iowa	Middle Cedar
Des Moines	Boone North Raccoon
Upper Mississippi-Skunk-Wapsi	South Skunk Skunk
Missouri-Nishnabotna	West Nishnabotna East Nishnabotna
Missouri-Little Sioux	Floyd

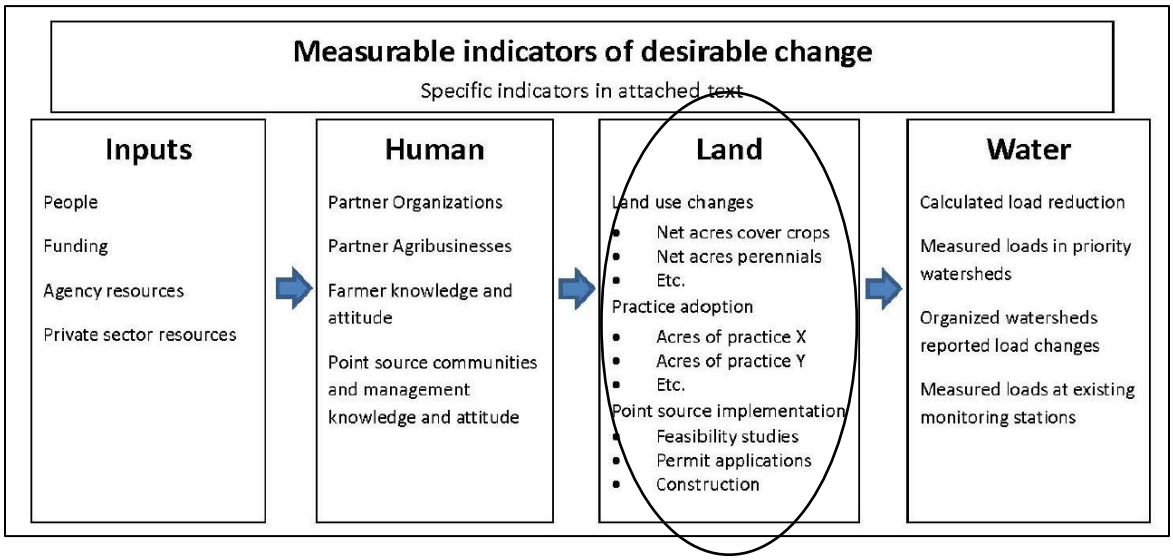
The survey was sent to 4,400 farmer-operators in two HUC6 watersheds on March 20, 2015. By May 30, 2015, 1,650 responses were received. Data entry has begun and analysis is expected to begin the summer of 2015 with anticipated results available in early 2016.

Cover Crop Survey

In 2014, IDALS conducted a cover crop user survey facilitated through the local Soil and Water Conservation District offices. Participants using cover crops (with or without financial assistance) were asked to complete the survey. The goal of the survey was to learn from these cover crop users their management practices; assess their understanding of cover crops; examine what would help facilitate expanded acreage of cover crops on their operation and/or on other farms in their area; and to inform program design and operation.

A list of survey questions and a summary of responses can be found in Appendix B.

LAND: Land Use/Practices/Point Source Implementation: Summary of the practices installed through the various programs, summary of land use through FSA data, NRI, Census, if available.



Summary of land use and crop data (in acres) by crop reporting district for crop year 2013 from the USDA-Farm Service Agency (FSA)*:

Iowa Crop Reporting District	Corn	Soybeans	Alfalfa	Oats & Small Grains	Forage & Grazing Crops	Alternative Agricultural Crops and Practices	CRP	Prevent Plant, Left Standing & Failed
Northwest	2,041,319	1,435,589	30,082	8,951	40,129	5,864	94,599	82,213
North Central	1,706,198	1,090,862	16,821	10,473	22,869	6,511	132,733	391,039
Northeast	1,594,102	722,649	135,771	48,052	102,215	6,262	206,448	172,318
West Central	2,125,863	1,404,368	39,399	11,892	139,724	12,344	142,380	96,231
Central	1,913,802	1,328,168	37,784	11,280	75,831	6,486	142,274	115,267
East Central	1,407,880	896,048	61,337	21,129	107,557	5,583	153,345	52,691
Southwest	1,085,809	956,697	37,857	15,516	237,763	810	160,585	58,352
South Central	536,096	554,269	59,156	24,907	462,994	4,492	318,638	126,679
Southeast	877,903	787,753	36,910	152,200	1,189,082	4,139	293,419	1,094,790
Statewide	13,288,972	9,176,403	455,117	304,400	2,378,164	52,491	1,644,421	2,189,580

Table represents a compilation of FSA data of land use through farm program annual reports. Compared annually, this information can track changes in cropping patterns over time, which can augment practice data.

*Data has been collected for the 2014 reporting period, but due to the timing of this report the complete analysis cannot be included at this time.

Practices Applied through Publicly Funded Programs

Practices highlighted indicate their category on the practice list from the Iowa NRS Science Assessment:

- Green = Management/in-field practices
- Orange = Land use/rotation practices
- Blue = Edge-of-field/structural practices
- None = Practices not included in the NRS at this time

Data has been collected from USDA-NRCS from 2006-present. Data has been collected from 2007 to present from IDALS. 2007 was when IDALS initiated an online processing and collection system for various IDALS funded programs. Prior to 2007, all claims were processed manually through hardcopy forms.

IDALS Administered Programs (CREP, IFIP, REAP, WSPF/WPF, 319 (practices))

Practice	Unit	2007	2008	2009	2010	2011	2012	2013	Totals	Unit
Cover Crop	Acre(s)	159	50			35	13	142,651	*	Acre(s)
Fertilizer Management	Acre(s)	243		160	4,375	128			*	Acre(s)
No-Till - Strip-Till - Direct Seed	Acre(s)		50	3,862	1,300	401			*	Acre(s)
No-Till	Acre(s)		329	937	132	35		190	*	Acre(s)
No-Till + Ridge-Till	Acre(s)	435	168						*	Acre(s)
Nutrient Management	Acre(s)					160			*	Acre(s)
Residue Management - No-Till	Acre(s)	230	3,004	1,632	1,712	513	619	380	*	Acre(s)
Residue Management - Strip-Till	Acre(s)		390	40	197	592		558	*	Acre(s)
Conservation Cover	Acre(s)	113	307	152	131	275	100	373	1,452	Acre(s)
CRP Sign-up Incentive	Acre(s)		60			7	29		96	Acre(s)
Pasture and Hayland Planting	Acre(s)	181	713	482	516	168	359	358	2,777	Acre(s)
Constructed Wetlands	Acre(s)	35	45	78	36	28	138	46	407	Acre(s)
Filter Strip	Acre(s)		0	1	2	122	5		130	Acre(s)
Grade Stabilization Structure	Quantity	185	191	186	189	197	125	134	1,207	Quantity
Grade Stabilization Structure	CY	31,567	14,020	19,000				12,000	76,587	CY
Pond	Quantity		3	2	14	6	3		28	Quantity
Restored or Constructed Wetlands	Acre(s)		3			3	2		8	Acre(s)
Riparian Forest Buffer	Acre(s)					2			2	Acre(s)
Sediment Basin	CY		2,000						2,000	CY
Sediment Basin	CY		1,350						1,350	CY
Sediment Basin	Quantity	12	33	2	4	3	10	6	70	Quantity
Shallow Wetland	Acre(s)	0		10					10	Acre(s)
Terraces	CY	1,550							1,550	CY
Terraces	Feet	1,470,040	2,771,254	3,558,175	4,622,069	3,790,192	2,952,082	2,742,861	21,906,672	Feet
Water and Sediment Control Basin	CY	9,800							9,800	CY
Water and Sediment Control Basin	Feet	21,975	51,500	20,869	16,005	15,400	954	14,775	141,478	Feet
Water and Sediment Control Basin	Quantity	251	446	635	1,018	787	716	494	4,347	Quantity
Wetland Creation	Acre(s)	1	147	2	4		16		171	Acre(s)
Wetland Creation	Quantity		1						1	Quantity
Wetland Restoration	Acre(s)						3		3	Acre(s)
Bio-Retention	Quantity		5	10	**5**	9	20	104	153	Quantity
Grassed Waterway	Acre(s)	289	513	861	1,352	1,154	649	312	5,129	Acre(s)
Grassed Waterway	CY	2,369							2,369	CY
Grassed Waterway	Feet	66,524	64,617	26,494	15,625	2,300	9,050	2,450	187,060	Feet
Pasture and Hayland Management	Acre(s)			2,020		45			2,065	Acre(s)
Planned Grazing System	Acre(s)	123	218	185			40		567	Acre(s)
Prescribed Grazing	Acre(s)			257		130	352		739	Acre(s)
Rain Garden	Sq. Feet			3,059		4,280		76,463	83,802	Sq. Feet
Streambank and Shoreline Protection	Feet	740		2,901		2,065		10,186	15,892	Feet

USDA-NRCS Programs (EQIP & WHIP) **

Practice	Unit	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total	Unit
Conservation Cover	Acre(s)	798	7,508	4,356	4,209	3,168	2,260	2,196	1,293	906	*	Acre(s)
Conservation Crop Rotation	Acre(s)	3,805	49,261	46,354	42,336	35,077	5,807	49,982	34,726	28,326	*	Acre(s)
Continuous no till with high residue	Acre(s)							77	77	77	*	Acre(s)
Contour Farming	Acre(s)	2,231		16,650	13,210	8,927	8,934	13,309	5,662	4,933	*	Acre(s)
Cover Crop	Acre(s)	22	26	39	251	250	612	2,602	6,156	64,948	*	Acre(s)
Res. and Till Mgmt, No-Till	Acre(s)	1,644	16,048	16,903	20,115	13,240	12,136	17,081	12,006	9,453	*	Acre(s)
Res. and Till Mgmt, Reduced Till	Acre(s)		29,540	32,955	28,452	21,609	13,582	25,826	16,417	12,319	*	Acre(s)
Res. and Till Mgmt, Ridge Till	Acre(s)		904	818	587	107	98	218	75		*	Acre(s)
Res. Mgmt, , No-Till/Strip Till	Acre(s)	798	3,219	817	270	445	76	464	11		*	Acre(s)
Res. Mgmt, Mulch Till	Acre(s)	3,232	5,129	1,094	633	108	363	464	204		*	Acre(s)
Res. Mgmt, Seasonal	Acre(s)		224	349	634	215	187	1,143	361		*	Acre(s)
Critical Area Planting	Acre(s)	3	100	305	269	233	237	1,380	1,059	277	3,864	Acre(s)
Forage and Biomass Planting	Acre(s)	405	1,780	1,436	1,277	1,338	744	324	565	549	8,417	Acre(s)
Riparian Herbaceous Cover	Acre(s)	7	6								13	Acre(s)
Shallow Water Dev and Mgmt	Acre(s)		10	8						1	19	Acre(s)
Wetland Creation	Acre(s)				11						11	Acre(s)
Wetland Restoration	Acre(s)	156	1,317	712	797	289	717	321	218	197	4,724	Acre(s)
Constructed Wetland	Acre(s)							2			2	Acre(s)
Contour Buffer Strips	Acre(s)		167	107	111	44	127	374	29	0	958	Acre(s)
Denitrifying Bioreactor	Acre(s)									1	1	Acre(s)
Filter Strip	Acre(s)	108	1,112	602	418	608	490	426	293	135	4,193	Acre(s)
Grade Stabilization Structure	Quantity	6	16	30	25	10	11	7	3	5	113	Quantity
Pond	Quantity		1	15	8		1	1	1	1	28	Quantity
Riparian Forest Buffer	Acre(s)	47	115	144	108	29	39	23	17		522	Acre(s)
Sediment Basin	Quantity		8	8	4	4		1	1		26	Quantity
Terrace	Feet	259,936	535,065	608,801	482,743	523,476	496,331	341,638	302,828	131,672	3,682,488	Feet
Water and Sediment Control Basin	Quantity	26	53	45	56	51	49	879	47	26	1,232	Quantity
Dam, Diversion	Quantity		1								1	Quantity
Dike	Feet		1,500	3,203	2,429	735	1,904			300	10,071	Feet
Diversion	Feet		1	2,900			400	1,302			4,603	Feet
Forest Stand Improvement	Acre(s)				47	49	61	19	14	11	200	Acre(s)
Grassed Waterway	Acre(s)	71	741	577	251	446	360	350	206	92	3,095	Acre(s)
Mulching	Acre(s)			2		4		10	6	6	29	Acre(s)
Prescribed Forestry	Acre(s)			170	16	51					237	Acre(s)
Prescribed Grazing	Acre(s)	651	3,291	1,946	1,954	1,026	954	394	1,130	1,024	12,371	Acre(s)
Streambank and Shoreline Protection	Feet				880	200	284				1,364	Feet
Stripcropping	Acre(s)		26	222	86	20	125	199			677	Acre(s)
Structure for Water Control	Quantity			1	1						2	Quantity
Tree/Shrub Establishment	Acre(s)	114	305	232	178	101	5	105	42	145	1,226	Acre(s)
Wetland Enhancement	Acre(s)		79	47	70	32			1		228	Acre(s)
Windbreak/Shelterbelt Establishment	Feet		43,787	21,864	24,275	19,226	17,430	21,579	27,339	10,316	185,816	Feet

Watershed Improvement Review Board (WIRB)

Practice	Unit	2006	2007	2008	2009	2010	2011	2012	2013	Total	Unit
CNMP	Acre(s)								4	*	Acre(s)
Cover Crop	Acre(s)			330				66	446	*	Acre(s)
No Till Incentives	Acre(s)			150		172				*	Acre(s)
Nutrient Management	Acre(s)				608	142			437	*	Acre(s)
Res. and Till Mgmt, No-Till	Acre(s)								71	*	Acre(s)
Sidedress N	Acre(s)			968						*	Acre(s)
Conservation Planting	Acre(s)			9						9	Acre(s)
Critical Area Planting	Acre(s)		6	10	8					24	Acre(s)
CRP	Acre(s)		7	33	6	451	225	306		1,028	Acre(s)
Pasture and Hay Planting	Acre(s)		321	142		30				493	Acre(s)
Prairie Planting	Acre(s)							9		9	Acre(s)
Buffers	Acre(s)		31							31	Acre(s)
Buffers	Feet		1,650	4,090						5,740	Feet
Contour Buffer	Acre(s)				15					15	Acre(s)
Filter Strips	Acre(s)				58	159	6			223	Acre(s)
Grade Stab. Structure	Feet					700		8,050		8,750	Feet
Grade Stab. Structure	Quantity	1	22	27	24	55	46	16	2	193	Quantity
Riparian Buffer Strip	Feet				525					525	Feet
Sediment Basin	Acre(s)					9				9	Acre(s)
Sediment Basin	CY		13,990							13,990	CY
Sediment Basin	Feet					800	7,450	2,000		10,250	Feet
Sediment Basin	Quantity		38	78	93	99	8	87	9	412	Quantity
Terraces	Feet		87,755	119,531	231,318	262,014	162,152	166,090	16,325	1,045,185	Feet
Wetland	Quantity				7	5				12	Quantity
CSP	Acre(s)				990	5,057	11,596			17,643	Acre(s)
Ag Waste	Quantity				1					1	Quantity
Bank Stabilization	Feet	2,270	2,500	1,715						6,485	Feet
Grassed Waterway	Acre(s)	9	39	10	41	67	18	5	4	192	Acre(s)
Grassed Waterway	Feet		2,140	28,475	15,660	11,910				58,185	Feet
Improved Grazing Mgt.	Acre(s)					1,951	4	38		1,993	Acre(s)
Livestock Manure Mgt	Quantity	1	1	3						5	Quantity
Managed Grazing	Quantity		5	8						13	Quantity
Pasture/Hayland Mgt.	Acre(s)					9				9	Acre(s)
Prescribed Grazing	Acre(s)		40				116			156	Acre(s)
Priority Land Conversion	Acre(s)					326				326	Acre(s)
Wildlife Habitat	Quantity			11	12					23	Quantity

*These practices are management related and therefore it cannot be assumed these practices are being utilized beyond the maintenance agreement beyond the year applied. Total practice(s) implemented were totaled for practices that are assumed to have a longer term maintenance agreement.

**Data collection of USDA-NRCS manure and nutrient management related practices was not accounted for due to an incomplete dataset.

Practices applied are collected from State and Federal sources and reported between June 1 and May 30 of the year of the report. The load reductions included in this report are calculated based on practices completed in 2013. Due to the timing of this report and the complexities of the data analysis, load calculations generated from 2014-applied practices cannot be included in the report at this time.

The collection of publicly funded practice implementation data has never been conducted at this scale. Through this effort, refinements will be needed to reconcile the differences in how data is collected and reported. This will be necessary in order to show consistency in the data and to provide accurate loading reduction calculations. Some variability/complexities have been identified and described below:

- Different programs/agencies report units of practices differently. One agency may report in acres of grassed waterways and another may report in feet of grassed waterways. Grade stabilization structures may be reported in number or cubic yard of earthfill.

- Nutrient management plans/practices is very broad when compared to practices listed in the NRS. Loading reductions are not additive, therefore it's difficult to quantify loading reductions when assessing "nutrient management" as listed.
- There will always be some lag time between practice installation, certification, and reporting. A practice installed and completed in May might not be ready for certification until July, which would delay the reporting period until the following year. Regardless, the practice will be accounted for, but will not be a full representation of the work completed in a given year.
- Besides the lag in practice certification, some practices may be installed and certified during the reporting period, but may not reach their design effectiveness until a year or more after certification (i.e. native grass plantings could take 2-3 years before they are established).
- FSA is working toward reporting cover crop acres when farmers certify their crop annually. This will be valuable information to obtain on cover crops implemented without state and/or federal programs. The intent was to have this information collected in recent crop certifications, but has had limited success due to confusion around terminology. Cover crops may have been certified as green manure, forage crops, small grains, etc. FSA is working through correcting the issue, and the process will be improved in subsequent reporting periods.

DNR/IDALS BMP Mapping Project

In an effort to help support progress measures and accountability efforts of the Iowa Nutrient Reduction Strategy, IDALS and DNR are collaborating with ISU to conduct GIS analyses in selected watersheds to identify and enumerate the aggregate amount of certain structural conservation practices outlined in the NRS Science Assessment. Practices include terraces, water and sediment control basins, grassed waterways, contour buffer strips, and contour strip cropping. These practices are identifiable by use of LiDAR and aerial photos, thereby enabling an accurate accounting of the practices present on the landscape. Beneficial outcomes include:

- Establish a baseline of practices established
- Assign nutrient and sediment load reduction/prevention amounts to current and future practice levels
- Analysis is blind of public/private investment – as such it encapsulates all activity
- Track progress going forward from LiDAR baseline years
- Hindcast to past conditions using historic photos to show progress made over time
- Utilize for planning purposes to target resources to areas most in need of select BMPs
- This analysis is complementary to other similar spatial analysis work to document conservation practices that is being funded by the Iowa Nutrient Research Center. Efforts will be cross-coordinated to maximize efficient use of resources

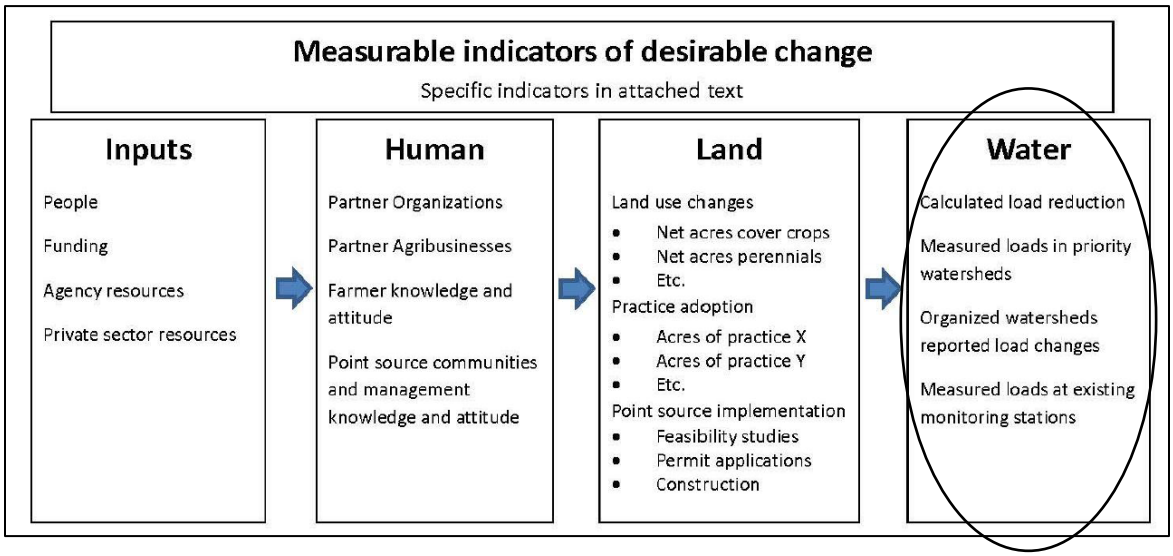
This project will pilot efforts into the WQI Demonstration Watershed Projects and other areas to begin utilizing the tool to ground truth, test the effectiveness and capabilities of the tool, and help validate its usefulness. A progress status map and table summary of mapped BMPs can be found in Appendix C.

Point Source

Number of facilities monitoring nutrients in their effluent

When permits are issued to facilities listed in the strategy they require that those facilities monitor effluent total nitrogen (TN) and total phosphorus (TP) once per week. There are currently 54 facilities that are required to monitor their effluent for TN and TP. This number will continue to grow as additional permits are issued that require this monitoring be done. In addition to the monitoring required by the facilities listed in the strategy, cities that treat the amount of wastewater generated by the equivalent of 3,001 people or greater are required by rule to monitor effluent TN and TP. Industries are required to monitor for TN and TP based on the potential impact of the discharge on the receiving stream. There are 158 facilities not listed in the strategy now monitoring for TN or TP, and this number continues to increase as more permits are issued.

WATER: Summary of WQ monitoring data/network, report load reduction calculations, assessment of weather conditions



Baseline Estimates from the NRS	Nitrogen	Phosphorus
Statewide Baseline Load (tons)	307,000	16,800
Load Reduction Needed for 45% Reduction	138,150	7,560
NPS Portion of Load Reduction	125,870	4,872
PS Portion of Load Reduction	12,280	2,688
% of Target Load Reduction from NPS	91.1%	64.4%
% of Target Overall Load Reduction from PS	8.9%	35.6%

The baseline cited in the Iowa NRS for 2012 based on data collected from 2000-2010. The baseline established from the strategy will be used in future measures and progress as determined by the Measures of Success Subcommittee. The baseline was established based on existing data available in Iowa by MLRA. Through activities including, but not limited to the Water Quality Initiative (WQI) and Nutrient Research Center, new data and information will be available to help refine and improve calculating changes in baseline.

The Hypoxia Task Force (HTF) goal for reducing the size of the hypoxic zone is based on the nutrient loading during the 1980-96 period. The Science Assessment Team is in the process of estimating the historical trend of nutrient loading to provide a background on the trends in loading. The team is starting by developing an estimate for 1987, the earliest year that appears to have all the information available that was used to calculate the 2012 baseline. In addition to county level land use and reported aggregate fertilizer sales, it was also a Census of Agriculture year and a survey of tillage practices on a county basis was also conducted in 1987.

<u>Results from comprehensive annual ambient stream monitoring and analysis utilizing existing permanent monitoring locations and focused study areas</u>

A technical work group was formed and first met December 3, 2013, to define a standard method to calculate nutrient loads based on the existing ambient stream monitoring network supported by DNR. The technical work group focused first on nitrogen, as this represented a more consistently detected and stable nutrient in the monitoring network, and therefore could be handled differently than the less detected and highly variable phosphorus.
Technical workgroup members include representatives from:

- DNR, ISU, IDALS, ISA, USGS, and UI.

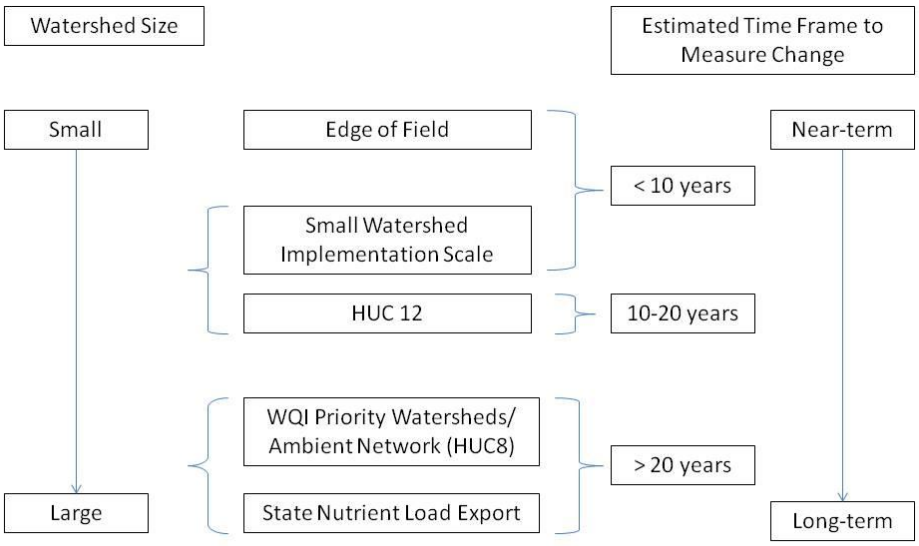
The technical work group developed a method to compare the various load calculations, including a standardized data set based on the work completed for development of the Nutrient Reduction Strategy.

Individual workgroup members were assigned specific load calculation techniques to apply to the standard data set, and reported the results back to the group. The outcomes from the different techniques were organized and evaluated by the workgroup. Based on the evaluation, the linear interpolation method was selected for use in calculating nitrogen loads. This method was applied to 63 monitoring sites using 2013 data and will be applied to 50 sites with 2014 data once the flow data are validated by USGS. A peer reviewed research article titled “Assessment of Nitrate-N Estimation Methods to Quantify Load Reduction Strategies” details the analysis of nitrogen load calculations by this workgroup, and has been submitted to the *Journal of the American Water Resources Association* for publication in 2015.

Work is ramping up on phosphorus, which is a more difficult load calculation to complete. Phosphorus concentrations fluctuate considerably throughout the year based on changes in stream discharge, which make load estimation modeling difficult. Meetings on phosphorus have followed the general approach used for nitrogen. The workgroup is compiling multiple phosphorus data sets to be used to evaluate different load methods.

The WRCC will continue to coordinate and evaluate opportunities for monitoring locations to track progress considering multiple watershed scales. The ability to reliably use water quality monitoring data to assess progress must consider the time scales where changes can be or should be expected. The Nutrient Water Quality Monitoring Framework (below) incorporates the time scales where changes can be expected given watershed size. This helps inform what size and scope of the datasets will be needed to measure progress.

Nutrient Water Quality Monitoring Framework



Water Quality Monitoring Summary

Work was initiated in March 2015 to begin to coordinate WRCC and WPAC nutrient monitoring efforts. A survey template was distributed to WRRC and WPAC members in an effort to better understand the multiple nutrient monitoring efforts currently underway or historic nutrient data sets that may be available and at what scale. Completed surveys have been received from four members to date (DNR, IDALS, ISA, & UI) and are included in the summary below. Information from these surveys will be compared to the nutrient WQ monitoring framework to identify opportunities and potential data gaps to better coordinate and prioritize future nutrient WQ monitoring efforts.

Water Monitoring Efforts Supported									
Compilation of completed design templates from WRCC/WPAC Members on water monitoring efforts, related to nutrients, their respective agencies support/conduct. This list is a summary of the template forms completed at the time of this report.									
Organization	**Monitoring Project Name**	**Project Status**	**Sample Collection Frequency**	**# Sites (total)**	**Watershed Area**	**Start Date**	**End Date**	**Parameters Collected**	**Data-Availability Comment**
IDNR	Ambient Stream	Active	Monthly	51	Varies	Jan-00	Ongoing	NH4, NO2+NO3-N, TKN, Diss Po4-P, total PO4-P,TDS, TSS, VSS, flow, others	Web available
IDNR	Ambient Biological	Active	varies (1X to Monthly)	83	Varies	May-94	Ongoing	NH4, NO2+NO3-N, TKN, Diss Po4-P, total PO4-P,TDS, TSS, VSS, flow, others	Web available
IDNR	Ambinet Lake	Active	3X per rec season	140	Varies	Jun-01	Ongoing	Chlor-a, NH4, NO2+NO3-N, TKN, Diss Po4-P, total PO4-P,TDS, TSS, others	Web available
IDNR	Ambinet Groundwater	Active	annually**	50	Varies	Jun-04	Ongoing *	NH4, NO2+NO3-N, Diss Po4-P, total PO4-P,TDS, Pesticides and degradates, others	Web available
ISA/SWCD	Miller Creek WQI	Active	Bi-weekly 15x per year	26	Varies	Apr-14	Ongoing	F, Cl, NO2-N, NO3-N, PO4-P, SO4, flow	Aggregated only
ISA/SWCD	Van Zante WQI	Active	Bi-weekly 15x per year	23	Varies	May-14	Ongoing	F, Cl, NO2-N, NO3-N, PO4-P, SO4, flow	Aggregated only
ISA/SWCD	West Fork Crooked Creek WQI	Active	Bi-weekly 8x per year	25	Varies	Jun-14	Ongoing	F, Cl, NO2-N, NO3-N, PO4-P, SO4, flow	Aggregated only
ISA/SWCD	Boone River WQI	Active	Bi-weekly 15x per year	19	Varies	Apr-14	Ongoing	F, Cl, NO2-N, NO3-N, PO4-P, SO4, flow	Aggregated only
ISA/RC&D	Turkey River	Active	Bi-weekly NTW 168 samples/yr	12	Varies	Apr-15	Ongoing	F, Cl, NO2-N, NO3-N, PO4-P, SO4, flow	Aggregated only
ISA	ISA Member	Active		23	Varies	Apr-14	Ongoing	F, Cl, NO2-N, NO3-N, PO4-P, SO4	Aggregated only
ISA/ACWA	ACWA Tile Monitoring	Active	Weekly to Bi-weekly	87	Varies	Apr-14	Ongoing	F, Cl, NO2-N, NO3-N, PO4-P, SO4, flow	Aggregated only
ISA/ACWA	ACWA Stream Monitoring	Active	Bi-weekly	90	Varies	Apr-14	Ongoing	F, Cl, NO2-N, NO3-N, PO4-P, SO4, flow	
ISA	Bioreactor CIG	Active	Weekly to Bi-weekly	6	Varies	11-Sep	Ongoing	F, Cl, NO2-N, NO3-N, PO4-P, SO4, alkalinity, temp, flow	Published reports
ISA	Bioreactor INRC	Active	Weekly to Bi-weekly	6	Varies	13-Jul	15-Jun	F, Cl, NO2-N, NO3-N, PO4-P, SO4, alkalinity, temp, flow	Reports
ISA	Bioreactor EOF	Inactive	Weekly to Bi-weekly	6	Varies	12-Jan	14-Dec	F, Cl, NO2-N, NO3-N, PO4-P, SO4, alkalinity, temp, flow	Reports
ISA/SWCD	Lower Skunk WQI	Active	Bi-weekly 8x per year	13	Varies	May-15	Ongoing	F, Cl, NO2-N, NO3-N, PO4-P, SO4, flow	Aggregated only
ISA/WMA	English River Watershed	Inactive	3x in 2014	20	Varies	Apr-14	Oct-14	F, Cl, NO2-N, NO3-N, PO4-P, SO4	Yes via English River WMA
ISA/SWCD	Rock Creek Watershed	Active	Bi-weekly 8x per year	18	Varies	Apr-15	Ongoing	F, Cl, NO2-N, NO3-N, PO4-P, SO4	Aggregated only
ISA	Rock Creek Watershed	Inactive	1x	12	Varies	Sep-14	Oct-14	Biological	Yes via IOWATER
ISA/TNC	Oxbow Monitoring	Active	Bi-weekly, 20x per year	36	Varies	12-Dec	Ongoing	F, Cl, NO2-N, NO3-N, PO4-P, SO4, biological	Published reports
ISA/TNC	Lyons Creek Monitoring	Active	Bi-weekly	8	Varies	Apr-14	Ongoing	F, Cl, NO2-N, NO3-N, PO4-P, SO4, flow	Published reports
ISA/UW-Platteville	Affordable Edge-of-field Monitoring: A Three-State Project to Promote and Evaluate a Simple, Inexpensive, and Reliable Gauge	Active	events	6	varies	Apr-14	9/30/2015	NO3-N, TP. Flow, Suspended Sediment	Published reports
IDALS/ISU	CREP wetland monitoring	Active	Continuous***	19	Varies	Varies	Ongoing	NO3-N, TN, Total Reduced N, TP, TRP, Flow, Temp	Published reports
IIHR	IIHR WQ Monitoring Network	Active	Continuous	21	Varies		Ongoing	NO3-N, Chlor-a, Turbidity, DO, Ph, Specific conductance	Web available
			Total	800					
* program suspended in 2006 and restarted in 2013									
** Aquifer sampling frequency depandant on GW travel time									
***Sample frequency is continuous through ice-free season (late March-November). Weekly sampling during freeze up.									

More information can be found at:

Iowa DNR: www.iowadnr.gov/Environment/WaterQuality/WaterMonitoring.aspx
Iowa Soybean Association: www.iasoybeans.com/environment/services/water-monitoring-network
Iowa Conservation Reserve Enhancement Program (CREP): www.iowacrep.org
IIHR Water Quality Information System: http://ifis.iowafloodcenter.org/ifis/sc/wqis

NPS Practices Applied and Corresponding Load Reductions

The following table is a result of the practices applied through publicly-funded assistance programs. The initial effort to enumerate loading calculations has identified numerous gaps in how agencies report practices. This process will influence future reports and identify additional information that will need to be generated to provide a comprehensive assessment of loading reductions achieved by the collective effort of agencies and private individuals and organizations.

Loading Calculations based on 2013 Reported Publicly-funded Practices*						
			Total N Reduction		Total P Reduction	
2013 Practice Data	Unit	Total	tons	lbs	tons	lbs
Cover Crop	Acres	208,045	866.0	1,732,000.0	24.7	49,348.3
Comprehensive Nutrient Management Plan	Plans	4	x	x	x	x
Nutrient Management	Acres	437	x	x	x	x
No Till	Acres	10,171	N/A	N/A	0.9	1,850.1
Reduced tillage	Acres	12,877			0.3	681.8
Conservation Crop Rotation	Acres	28,326			2.0	3,970.9
Conservation Cover	Acres	1,279	x	x	0.5	1,054.6
Pasture and Hayland Planting	Acres	358				
Critical Area Planting	Acres	277				
Forage and Biomass Planting	Acres	548				
Shallow Water Dev and Mgmt	Acres	1				
Wetland Restoration	Acres	197				
Constructed Wetlands	Acres	46	34.7	69,450.0	N/A	N/A
Terraces	Feet	2,890,858	N/A	N/A	x	x
Grade Stabilization Structures	Quantity	141			x	x
Grade Stabilization Structures	CY	12,000			x	x
Pond	Quantity	1			x	x
Sediment Basin	Quantity	15			x	x
WASCB	Feet	14,775			x	x
WASCB	Quantity	520			x	x
Denitrifying Bioreactor	Acres	1	1.0	2,000.0	N/A	N/A
*Loading calculations were for 2013 installed practices through various state and federal programs only.						
x - Can enumerate load reductions for these practices, but need additional information.						
N/A - no data available to indicate these practices have a documented load reduction for the respective nutrient.						

Load reductions were calculated for the subset of practices based on the relative ability to enumerate the reductions. Practices with an (x) indicate the ability to calculate load reductions for the practice, but information needed to make these estimates was not available at this time. Further development of tools to collect and assess these figures will be developed in the future.

PS Load Analysis

Nitrogen and phosphorus loads discharged from point sources

At the time the NRS was developed, little monitoring data were available on the amounts of TN or TP discharged by point sources in Iowa. Assumptions were made based on literature sources that typical domestic sewage contains approximately 25 mg/l TN and 4 mg/L TP, and these values were used together with design flow data to estimate the amounts of TN and TP being discharged by each of the point sources listed in the strategy. Estimates also were made of the amounts that would be discharged if the target concentrations of 10 mg/L TN and 1 mg/L TP are achieved.

Results of weekly monitoring now are being submitted by the 54 facilities whose permits have been issued since the strategy was released. Data in the following table reflect the actual results from the 13 POTWs for which at least 10 months of weekly sample results are available for both raw waste and final effluent and the six industries with at least 10 months of data for raw waste, final effluent or both. Not all industries operate wastewater treatment plants and therefore not all will have raw waste data.

	Estimate (Target)	POTW	Industry
Number of Facilities	147	13	6
Total Nitrogen (average)			

raw waste (mg/L)		30.9 (range 15.9 – 80.1)	133.5 (range 62.5 – 298.6)
final effluent (mg/L)	25 (10)	15.1 (range 4.2 – 53)	27.8 (range 4.6 – 48.9)
% removal	(66)	50.3 (range 11.8 – 80.1)	69.8 (range 45.1 -90.9)
Total Phosphorus (average)			
raw waste (mg/L)		4.4 (range 2.2 – 11.2)	27.6 (range 3.6 - 72.8)
final effluent (mg/L)	4 (1)	2.2 (range 0.8 – 4.4)	16.6 (range 0.6 – 83.4)
% removal	(75)	45.4 (range 16.6 – 84.5)	54.4 (range -14.6 – 94.7)
Annual Load Reduction (2014-2015)			
Total nitrogen (lbs)		2,050,795	247,666
Total phosphorus (lbs)		361,124	37,995

The total amounts of TN and TP removed between May 1, 2014 and April 30, 2015 by the 19 treatment facilities represented by the above data were 2,298,461 lbs (1,149 tons) and 399,119 lbs (199 tons) respectively. It is noteworthy that significant reductions in the amounts of nitrogen and phosphorus discharged by point sources occur even before most facilities have installed or implemented specific nutrient reduction measures. Greater reductions are anticipated for most facilities when specific nutrient reduction technologies are implemented.

These 19 facilities utilize activated sludge, trickling filter, rotating biological contactor and sequencing batch reactor treatment technologies. There is no clear correlation between the type of treatment employed by these facilities and the amounts of nitrogen and phosphorus removed. However, the sample size is quite small and this will continue to be evaluated as data from more facilities becomes available.

The DNR will continue to evaluate data as it becomes available to verify the representativeness of these early results and to determine the levels of reduction achieved both before and after nutrient reduction technologies are implemented.

Nutrient Criteria Development

Lakes

In August 2014, a research study having implications for the development of lake nutrient criteria was completed by Iowa State University. The results of the study were published in the report titled, “Benchmarks of biological integrity for lake restoration success - Fish, invertebrate, and plankton communities in Iowa lakes.” One of the study’s main products is a multimetric biotic index reported to have the ability to distinguish lakes ranked along a gradient from excellent to poor water quality. Monitoring parameters that serve as indicators of nutrient enrichment status, including Chlorophyll a, Secchi depth, total phosphorus, and total suspended solids, were among the best predictors of biological assemblage metrics in studied lakes.

During the past year, DNR staff completed subsequent data analysis using previously collected data from additional lakes to test and better understand the plankton metrics developed as a part of the report. The analysis was not able to verify significant relationships between plankton metrics and levels of lake nutrients or other water quality characteristics. These findings do not support the continued use of the biotic index, as it is currently constructed, for lake nutrient criteria development purposes. Despite these findings, DNR continues to collect and analyze lake nutrient data as part of the ambient lake monitoring and the lake restoration programs. The development of quantitative indicators of lake health, including nutrient status, remains a high priority within these programs.

Rivers and Streams

The DNR completed a second draft of the technical report on stream nutrient criteria development in July 2014. The report includes data analysis results and information from published scientific studies that support preliminary nutrient criteria recommendations for small and medium-size (wadeable) streams. Recommendations for headwater creeks and large rivers are deferred pending the completion of ongoing nutrient monitoring and data analysis. Draft guidelines for conducting nutrient monitoring and assessment are also included in the report.

A workshop on numeric nutrient criteria was held in September 2014 at the Region VII, U.S. EPA office in Lenexa, Kansas. A DNR staff member attended technical presentations by State and EPA representatives and provided information on Iowa’s approach to nutrient criteria development for lakes and streams.

In 2015, DNR continues to collect and analyze stream nutrient data to evaluate draft recommendations for wadeable streams and to support the development of recommendations for headwater creeks and large rivers.

Iowa Nutrient Reduction Strategy Updates

IDALS, ISU and DNR collaborated on identifying needed updates to the Iowa Nutrient Reduction Strategy. The ongoing effort to incorporate updates as necessary ensures the strategy remains up to date based on current information and status of efforts. Following is a summary of the updates that were identified.

Science Updates:

- Added provision for manure application in Phosphorus Application section.

Point Source Updates:

- Updated the list of affected facilities

Public Comment

Iowans are invited to review the updated Iowa Nutrient Reduction Strategy. The Iowa Department of Agriculture and Land Stewardship, the Iowa Department of Natural Resources and Iowa State University seek to continue to broaden the engagement of stakeholders and further advance the strategy.

The public is invited to provide feedback on implementation of the strategy and comment on additional partnerships that could help strengthen the strategy and help achieve the goals of continuous improvement and broad participation by all stakeholders. The comment period will be ongoing.

Areas of focus include

Strengthen collaborative local, county, state, and federal partnerships

- Are there additional partners with a demonstrated ability to advance implementation of nutrient reduction technologies and conservation practices to improve water quality?

Identify additional opportunities for accelerating cost effective N and P load reductions from both point and non-point sources.

- Are there additional or emerging practices and/or technologies that should be considered for inclusion in the NRS Science Assessment? *The WRCC annual report on the strategy identifies a process for these new and emerging practices and technologies to be included in the list of practices.*
- Are there additional delivery methods and opportunities that should be considered to increase the rate of adoption?

Electronic: Please use the form below to submit your comments at nutrientstrategy.iastate.edu/comments

Mail: Comments may be mailed to: *ANR Program Services, attn: Nutrient Reduction Strategy, 1151 NSRIC, Ames, Iowa 50011-3310*.

Comments and contact information submitted here are considered public and are subject to Open Records Law requests from the media or others.

Comments received to date can be found at www.nutrientstrategy.iastate.edu/public

Appendix A: Updated number of permits issued that require nutrient reduction feasibility studies

Permits Issued

#	Facility/Location	Issued Date	Status
1	Dairiconcepts, L.P. - Allerton	9/1/2013	
2	City of Grinnell	9/1/2013	
3	Rembrandt Enterprises - Thompson	9/1/2013	
4	City of West Liberty	9/1/2013	
5	City of Dubuque	10/1/2013	
6	City of Harlan	10/1/2013	
7	Tyson Foods - Perry	11/1/2013	Submitted a Facility Plan to DNR in November 2014 for the installation of phosphorus removal
8	City of Atlantic	12/1/2013	
9	City of Eldridge (South Slope facility)	12/1/2013	Amended permit to include construction of nutrient removal
10	Manildra Milling Corporation - Hamburg	12/1/2013	
11	Oakland Foods LLC – Oakland	12/1/2013	
12	City of Grundy Center	2/1/2014	
13	City of Mount Pleasant (Main facility)	2/1/2014	Amended permit to include construction of nutrient removal
14	City of New Hampton	4/1/2014	
15	City of Boone	5/1/2014	
16	City of Cedar Falls	5/1/2014	
17	City of Iowa City	5/1/2014	Currently conducting total nitrogen removal
18	City of Red Oak	5/1/2014	
19	City of West Burlington	5/1/2014	
20	City of Winterset	5/1/2014	
21	Walter Scott, Jr. Energy Center - Council Bluffs	5/14/2014	
22	Swiss Valley Farms - Luana	6/1/2014	
23	Climax Molybdenum Company - Fort Madison	7/1/2014	
24	City of Davenport	8/1/2014	
25	City of Waukee	8/1/2014	Scheduled to connect to the Des Moines WRA by January 1, 2019
26	City of Charles City	9/1/2014	
27	City of Cherokee	9/1/2014	
28	City of Eldora	9/1/2014	
29	John Deere Dubuque Works	9/1/2014	
30	City of Adel	10/1/2014	
31	City of Greenfield	10/1/2014	
32	City of Newton	10/1/2014	
33	City of Eagle Grove	11/1/2014	
34	Iowa Fertilizer Company – Wever	11/1/2014	
35	City of Anamosa	12/1/2014	
36	City of Oelwein	12/1/2014	
37	City of Council Bluffs	1/1/2015	
38	City of Forest City	1/1/2015	
39	Iowa Premium Beef – Tama	1/1/2015	
40	City of Muscatine	1/1/2015	
41	Tyson Fresh Meats - Storm Lake	1/1/2015	
42	City of Waverly	1/1/2015	
43	City of Vinton	2/1/2015	
44	City of Fort Dodge	3/1/2015	
45	City of Iowa Falls	3/1/2015	
46	City of Maquoketa	3/1/2015	
47	City of Mount Vernon	3/1/2015	
48	City of Estherville	4/1/2015	
49	City of Independence	4/1/2015	
50	City of Sioux City	4/1/2015	
51	IP&L Burlington Generating Station	5/1/2015	
52	Lime Springs Beef - Lime Springs	5/1/2015	
53	City of Montezuma	5/1/2015	
54	City of Emmetsburg	6/1/2015	

Draft Permits on Public Notice

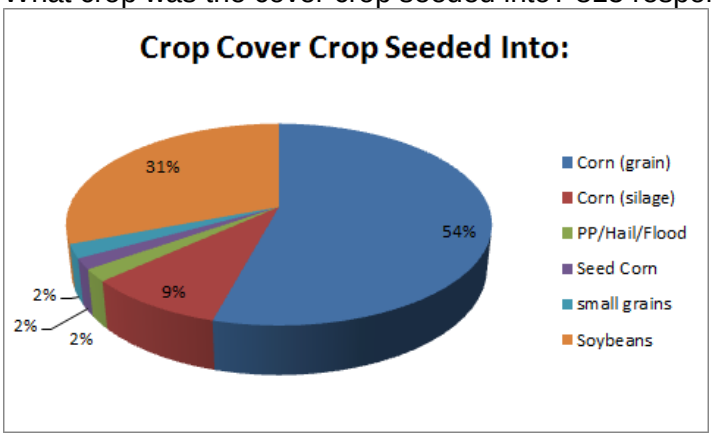
#	Facility/Location	Noticed Date	Status
1	City of Coralville	2/23/2015	
2	Iowa Great Lakes Sanitary District	3/2/2015	
3	Pinnacle Foods Group - Fort Madison	4/9/2015	
4	City of Creston	4/13/2015	
5	Associated Milk Producers Inc. - Arlington	4/17/2015	
6	City of Knoxville	4/17/2015	
7	City of Sioux Center	5/7/2015	
8	City of Humboldt	5/13/2015	

Updates/Closed

#	Facility/Location	Date	Status
1	City of Ankeny	January 2014	Sewer connected to Des Moines WRA. NPDES permit closed on 1/6/2014.
2	City of Bloomfield	March 2015	Facility was rerated and is no longer a Major facility as of 3/30/2015. Facility removed from Strategy list.
3	Sioux Preme Packing Company - Sioux City	May 2015	Signed consent decree with Attorney General. They were issued an operation permit for land application only on 5/1/2015 and the facility has been removed from the Strategy list.

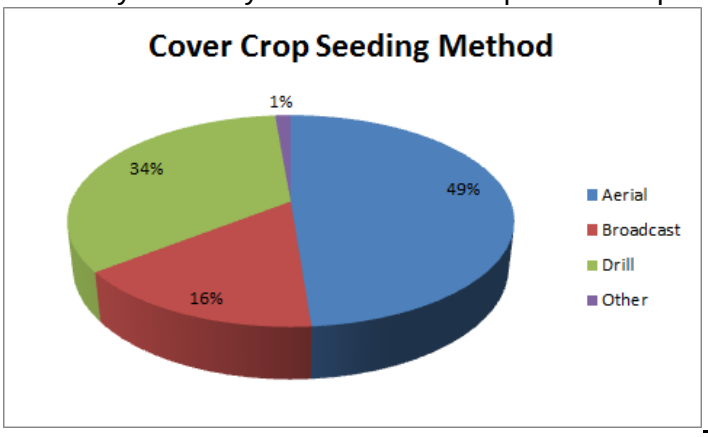
Appendix B: Summary of results from 2014 Cover Crop Survey

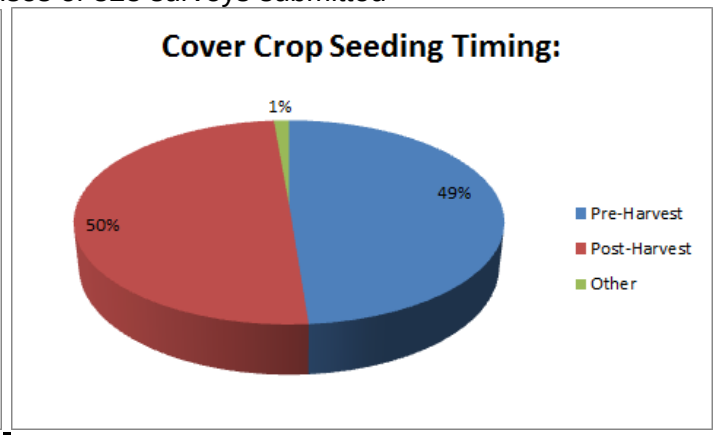
What crop was the cover crop seeded into? 815 responses of 823 surveys submitted



Note: Not able to analyze cover crops seeded into multiple crops (i.e. an applicant may have done 20 acres in soybeans and 20 acres in corn)

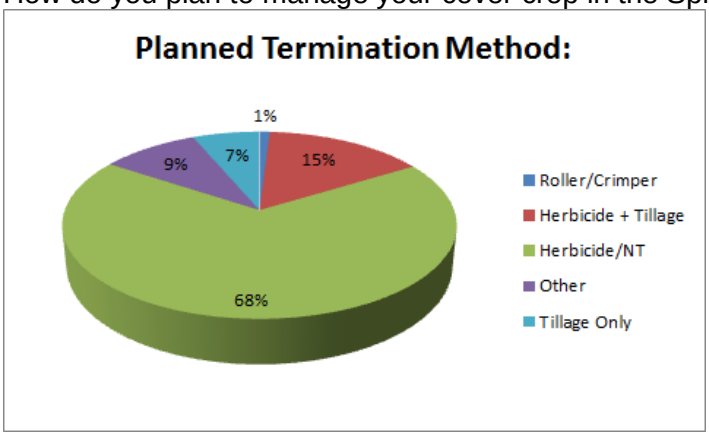
How did you seed your 2014 cover crops? 816 responses of 823 surveys submitted



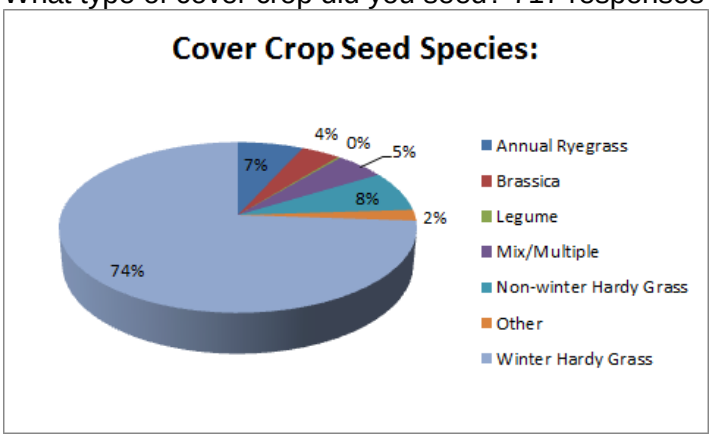


Note: Assumes broadcast and drill were conducted post-harvest, aerial applied pre-harvest.

How do you plan to manage your cover crop in the Spring? 717 responses of 823 surveys submitted



What type of cover crop did you seed? 717 responses of 823 surveys submitted



What do you think would help ease the transition to cover crop use on more acres in Iowa? (Check all that apply) 702 responses of 823 surveys returned

- Better information on cover crops and management from retailers, CCAs, agronomists, etc.
- Better information on cover crop management in my area
- Equipment to get cover crops seeded earlier and improve germination
- Better varieties of cover crop seed that work in Iowa's climate and cropping system
- Nothing, cover crops work fine with current technologies
- Cover crops will never work in Iowa
- Other

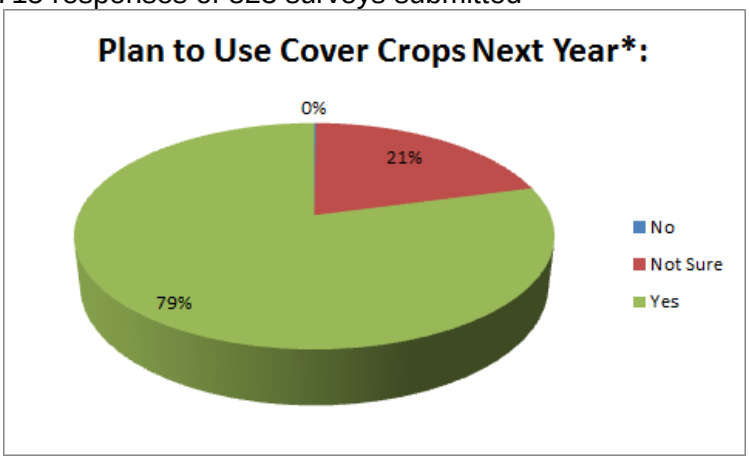
This was a multiple choice and response question not easily summarized by a graph. The majority of the responses selected multiple answers with better equipment needed as the single highest response at 17%. In combination with other responses, this was the leading response with 39% of respondents indicating the need for better equipment. Likewise, 37% indicated a need for better information from local agronomists/retailers, and 35% selected the need for better information regarding management of cover crops for their local conditions. Thirteen percent of respondents indicated no additional information/technology is needed to establish or manage cover crops. One respondent indicated cover crops will not work in Iowa.

What was your motivation in applying for WQI funds to try cover crops for the first time? (Check all that apply) 714 responses of 823 surveys returned

- Improve water quality
- Improve soil health
- Improve yields/profitability
- Prevent soil erosion
- Reduce N loss
- Provide cover for prevent plant/hail/flood acres
- Build soil organic matter
- Provide forage for livestock
- Reduce weed pressure
- Reduce compaction
- Provide wildlife habitat
- Other

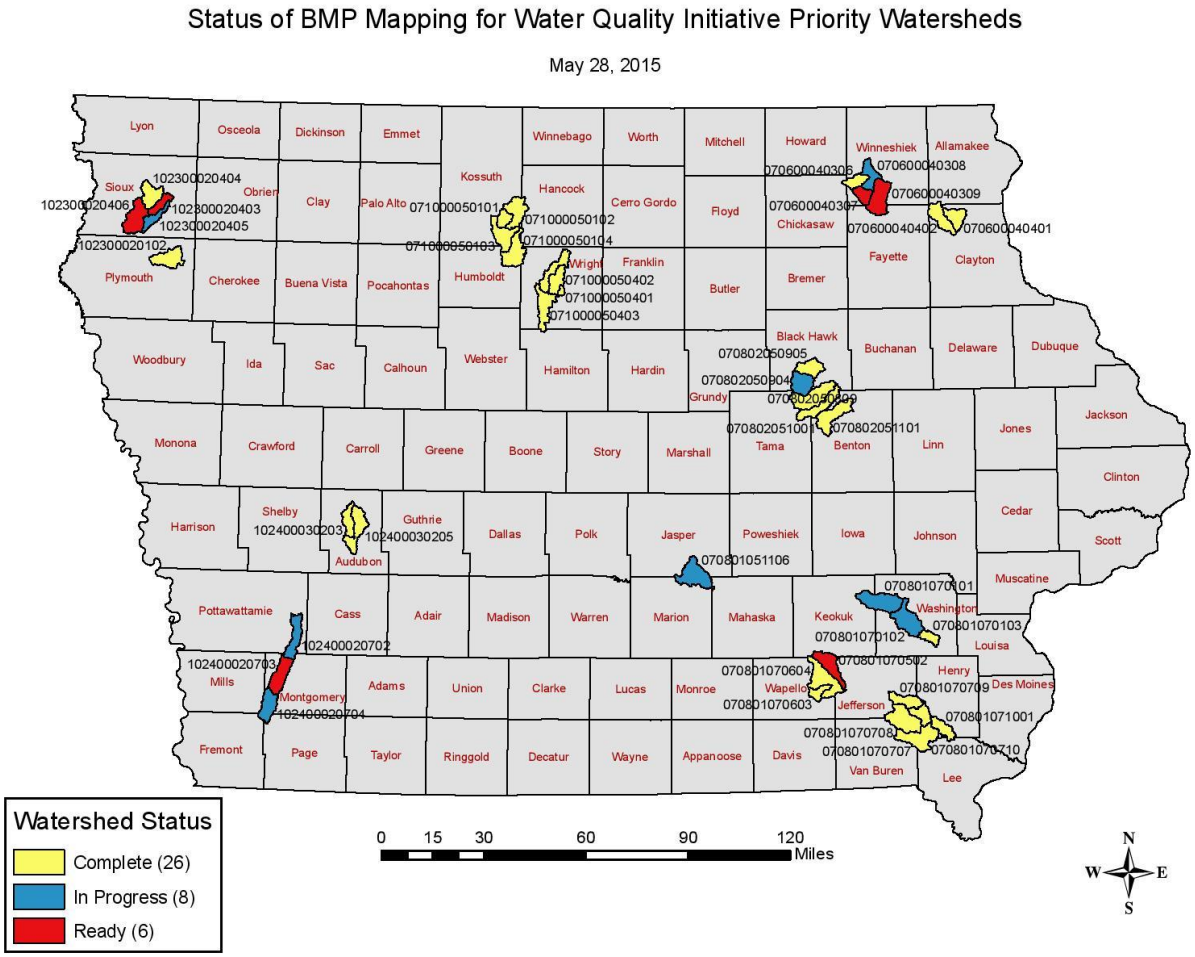
This was also a multiple choice and response question. More than 59% of respondents indicated they are doing cover crops for five or more reasons. Information gathered will help identify trigger points in cover crop interest and inform outreach efforts to discuss reasons for doing cover crops.

Based on your experience with cover crops in 2014, do you intend to continue planting them in future years?
715 responses of 823 surveys submitted



Note: Just one survey indicated they would not be doing cover crops next year.

Appendix C: Status map and summary table of the DNR/IDALS BMP Mapping Project.



Map is an update of the progress towards mapping the initial watershed projects.

BMP Mapping for WQI Watersheds (as of May 29, 2015)							
HUC12	Area (ac)	Pond dams (number)	Grassed waterways (ac)	Terraces (mi)	WASCOBs (mi)	Contour Buffer Strips (ac)	Stripcropping (ac)
70600040306	12,953.00	3	169.3	1.3	0.1	148.1	236.9
70600040402	22,597.00	29	411.5	107	1	2,164.00	366.6
70600040401	17,997.00	22	296.8	134.4	2.3	713.9	587.9
70801070603	10,481.00	61	155.4	32.1	17.7	139	8.1
70801070604	37,026.00	114	579.8	82.1	55.2	284	147.3
70801070707	35,810.00	103	527.5	88.8	34.8	117.1	-
70801070103	10,251.00	64	128	5.5	7.5	62.6	-
70802050905	19,324.00	9	313.9	39.9	0.3	94.7	-
70802051101	31,696.00	11	612.7	60.7	0.6	564.3	-
71000050102	25,894.00	-	88	2.8	0.2	-	-
71000050101	11,442.00	-	46.2	-	0.3	-	-
71000050103	26,133.00	-	31.2	1.2	1	-	-
71000050104	29,339.00	-	13.8	0.5	0.7	-	-
71000050402	21,392.00	10	70.8	2.2	-	-	-
71000050401	18,166.00	-	35.3	-	-	-	-
71000050403	30,077.00	-	98.5	1.1	1.2	-	-
102300020102	25,315.00	-	120.6	191	0.6	-	-
102400030205	28,036.00	81	578.2	176.2	1.6	984.2	-
Total	**413,929.00**	**507**	**4,277.20**	**926.6**	**124.9**	**5,271.80**	**1,346.80**

Table is a list of the practices quantified through the watersheds with completed assessments.

Attachment: Report(s) on Activities Conducted by WRCC and WPAC Members in Support of the NRS.

During the March WRCC meeting, IDALS, DNR and ISU requested input from WRCC and WPAC members to provide a summary report of activities their representative groups or organizations have conducted in the reporting period in support of the NRS. These are located in the appendix to the report and are provided as received by the groups that provided the information. Information provided in the reports is developed entirely by the contributing organization and does not necessarily convey these comments are supported by the WRCC or individual members of the WRCC.