



# 2018 ANNUAL REPORT

## ACWA MEMBERS

Founded in 1999, Agriculture's Clean Water Alliance (ACWA) is a non-profit association of ag retailers and support companies in the Des Moines and Raccoon River basins. Members of ACWA are direct competitors with a two-fold mission to help farmers improve their agronomic performance while supporting environmental improvement efforts.

### Ag Partners LLC

Albert City, Iowa | [www.agpartners.com](http://www.agpartners.com)

### First Cooperative Association

Cherokee, Iowa | [www.first.coop](http://www.first.coop)

### Gold-Eagle Cooperative

Goldfield, Iowa | [www.goldeaglecoop.com](http://www.goldeaglecoop.com)

### Heartland Co-op

West Des Moines, Iowa | [www.heartlandcoop.com](http://www.heartlandcoop.com)

### Helena Agri-Enterprises LLC - Midwest Division

West Des Moines, Iowa | [www.helenaagri.com](http://www.helenaagri.com)

### Key Cooperative

Roland, Iowa | [www.keycoop.com](http://www.keycoop.com)

### Landus Cooperative

Ames, Iowa | [www.landuscooperative.com](http://www.landuscooperative.com)

### NEW Cooperative, Inc.

Fort Dodge, Iowa | [www.newcoop.com](http://www.newcoop.com)

### Nutrien Ag Solutions

Wall Lake, Iowa | [www.nutrienagsolutions.com](http://www.nutrienagsolutions.com)

### Pro Cooperative

Gilmore City, Iowa | [www.procooperative.com](http://www.procooperative.com)

### Van Diest Supply

Webster City, Iowa | [www.vdsc.com](http://www.vdsc.com)

## ASSOCIATE MEMBERS

### Corteva Agriscience

Indianapolis, IN | [www.corteva.com](http://www.corteva.com)

### Calcium Products

Ames, IA | [www.calciumproducts.com](http://www.calciumproducts.com)

### Iowa Agriculture Water Alliance

Ankeny, Iowa | [www.iowaagwateralliance.com](http://www.iowaagwateralliance.com)

### Koch Fertilizer, LLC

Wichita, KS | [www.Kochind.com](http://www.Kochind.com)

### Land O'Lakes SUSTAIN

Arden Hills, MN | [www.landolakessustain.com](http://www.landolakessustain.com)

### Verdesian Life Sciences

Cary, NC | [www.sfp.com](http://www.sfp.com)

## ACTIVE COLLABORATORS

Capital Crossroads

Coalition to Support Iowa Farmers

Dallas County Conservation Board

Farm Journal - Trust in Food™

Greater Des Moines Partnership

Guthrie Center FFA

Iowa Cattlemen's Association

Iowa Corn Growers Association

Iowa Department of Agriculture and Land Stewardship

Iowa Farm Bureau

Iowa Pork Producers Association

Iowa Soybean Association

Iowa State University Extension and Outreach

Iowa Water Center

Lake Panorama Association

National Fish and Wildlife Foundation

National Laboratory for Agriculture and the Environment

Raccoon River Watershed Association

Soil and Water Conservation Districts: Boone, Calhoun, Carroll,

Dallas, Greene, Polk, Sac

Soil and Water Conservation Society

Southern Calhoun FFA

The Nature Conservancy - 4R Plus

USDA - Natural Resources Conservation Service

U.S. Geological Survey

Whiterock Conservancy

## OVERVIEW

The spirit that embodies Agriculture's Clean Water Alliance (ACWA) and its activities is collaboration. ACWA members work with their farmer clients, other stakeholders and each other to achieve their mission to help identify and implement solutions that reduce nutrient loss in Iowa's waters. The issues surrounding Iowa's water quality and quantity are larger than one entity can achieve — only through collaborative efforts can progress be made.

Over the last 20 years, the impact ACWA has had on Iowa residents, both rural and urban, is impressive and commanding. Calling attention to water quality issues years before the Iowa Nutrient Reduction Strategy existed, ACWA had the foresight to gather data and knowledge about the health of the Raccoon River, which serves as a main water source for the City of Des Moines. ACWA has the reputation as a leader in addressing water quality issues and finding innovative collaborative solutions for improvement.

Following are highlights of activities in which ACWA has been involved in 2018. Some are ongoing and some have distinct time frames like the North Raccoon Farm to River Partnership project. But one thing is constant: ACWA members are committed to work together to ensure a better future for Iowa farmers and landowners and for those who live downstream.



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## BEYOND THE WATERSHED

**ONE WATER SUMMIT:** The U.S. Water Alliance is driving a national One Water movement to ensure that clean, reliable water is available for all. In 2018, their annual One Water Summit was held in Minneapolis, Minn. ACWA members were part of the Iowa delegation at the summit. The Iowa delegation advances the One Water movement by expanding the One Water mindset across the state using ideas learned at the summit.



**IOWA WATER CONFERENCE:** The annual statewide conference, hosted by the Iowa Water Center, carried the One Water movement as a driving theme for its keynote speakers and session presenters. ACWA members conducted a workshop at the conference that brought agribusiness, watershed coordinators and conservationists together to discuss how to work in unison for improved water quality in Iowa and downstream.

## WITHIN THE WATERSHED

**UPSTREAM-DOWNSTREAM PARTNERSHIPS:** The Raccoon and Des Moines Rivers and their tributaries are the connection between ACWA members and their downstream urban neighbors. ACWA is joining forces with municipalities to collaborate on improving water issues including nutrient level reductions, flood and stormwater management, and advancing the One Water ethos.



**FARM TO RIVER PARTNERSHIP PROJECT:** This three-year grant project is an example of how ACWA leads efforts to improve water quality upstream, impacting those who live in the greater Des Moines area downstream. Through the project, ACWA members work with their farmer customers in five sub-watersheds of the North Raccoon River watershed to scale up implementation of farming practices that reduce nutrients entering the rivers and streams. The project goals include increasing cover crop acres, and installing bioreactors, saturated buffers and wetlands.

**NATIONAL FISH AND WILDLIFE FOUNDATION GRANT:** A three-year grant is enabling ACWA to work with Farm Journal's Trust In Food™ division and other partners to build awareness and knowledge of conservation practices that reduce nutrients leaving farm fields. Implementation cannot occur until farmers and landowners understand how these practices benefit them and those downstream.

## WATER MONITORING

ACWA members continue to strive to reduce nutrient levels in the Raccoon, Des Moines and Boone rivers and their tributaries. In 2000, the organization took the initiative to monitor nutrient levels within these watersheds, establishing a benchmark for water quality and identifying locations to focus future work. They added edge-of-field monitoring in 2008 and continue to work with farmers to help them reduce the amount of nitrate leaving their fields. Stream and edge-of-field water monitoring are included annually in ACWA's work plan.

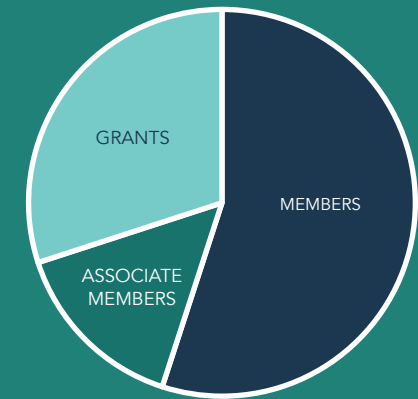


## CODE OF PRACTICE FOR NITROGEN FERTILIZATION

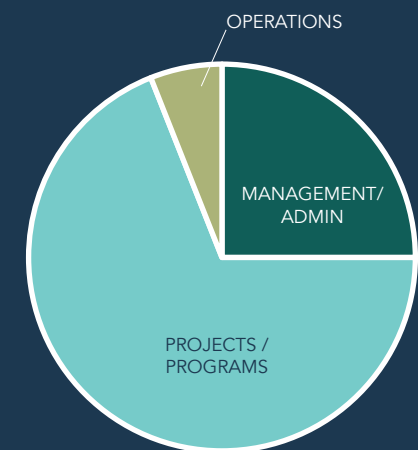
Members of ACWA reaffirmed the Code of Practice for Nitrogen Fertilization for 2018. It stipulates that fall anhydrous applications without a nitrification inhibitor be delayed until soil temperatures are 50 degrees Fahrenheit and trending lower. The group first adopted the code of practice in 2001 and have renewed it annually.



## FINANCES



ACWA TOTAL REVENUE		
TYPE	2018	PERCENTAGE
Members	\$249,303	55
Associate Members	65,000	15
Grants	135,400	30
<b>Total Revenue</b>	<b>\$449,703</b>	



ACWA TOTAL EXPENSES		
TYPE	2018	PERCENTAGE
Management/communication	\$110,050	25
Projects/Programs	304,606	69
Operations	26,365	6
<b>Total Expenses</b>	<b>\$441,020</b>	



# WATER MONITORING

Many Iowa communities extract their drinking water from rivers flowing through the state. The agriculture industry directly affects the quality of Iowa's rivers through the nature of the business and the soils being managed. ACWA members acknowledge that to positively impact water quality it requires advancing solutions that reduce nutrient levels in the Raccoon, Des Moines and Boone rivers and their tributaries.

While trends of nitrate levels exceeding drinking water standards had been well-established in Des Moines, prior to 2000 stream conditions from the tributaries in the Raccoon and Des Moines rivers were largely unknown. ACWA took the initiative to monitor nitrate levels in these watersheds, creating a benchmark for water quality and gaining insight into where to focus work. Since then, ACWA has included water quality monitoring as part of their annual work plan. Collecting and analyzing water samples from the watershed produces an objective assessment of the amount of nutrients and other contaminants in the water.

Through fluctuating markets, varying weather patterns and changes in farming practices over the last 20 years, ACWA maintained and expanded its monitoring program. ACWA and its partners have used this data to target areas for planning and implementation of watershed projects, to build a record of water quality for exploring trends, and to provide farmers with feedback for their own operations.

Monitoring nitrate on the large river systems helps characterize general and long-term trends. Table 1 shows the export of nitrogen for the major basins that ACWA monitors for the April through July monitoring season. The wet fall and cool spring kept most areas below average in 2019.



	Beaver Creek	Des Moines River	Upper Boone River	Boone River	Upper North Raccoon River	North Raccoon River	Middle Raccoon River	South Raccoon River
<b>Acres</b>	236,475	3,739,942	266,985	541,309	1,030,905	1,462,636	384,544	240,291
<b>2019</b>	12.9	12.5	17.0	16.4	19.4	16.7	6.1	9.3
<b>2007-2018 Average</b>	18.2	12.9	24.4	22.5	17.4	18.2	11.0	15.3

Table 1. Average export of nitrogen in pounds per acre; estimated load divided by total acres.

Monitoring at tributary scales is used to help guide the focus for planning and implementation initiatives led by ACWA and partners in specific sub-watersheds (Figure 1.). Over the years, several targeted watershed projects — including Buttrick Creek, Brushy Creek and Lyons Creek — were developed to assist farmers with implementing practices to reduce nutrient loss. More recent projects include the Headwaters of the North Raccoon, Walnut Creek and the Farm to River Partnership, which ACWA leads.

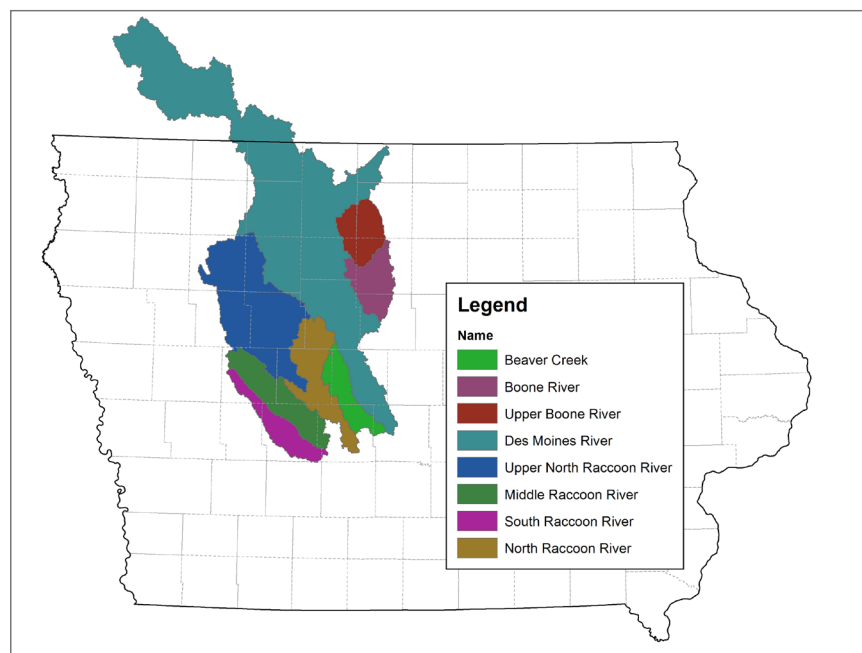


Figure 1. Major watersheds draining to rivers flowing through Des Moines.

In addition to guiding future work, monitoring data is being used to evaluate several Water Quality Initiative (WQI) projects. Using the Boone River as a benchmark, progress in the Prairie Creek WQI appears to be greater than the streams draining adjacent areas.

Evaluating water quality results is a challenging exercise in most cases, particularly when trying to account for the impact of weather. In addition to short-term weather impacts on water, legacy impacts can linger in the soil or shallow groundwater for months or years. As nice as it would be to see nitrate levels steadily drop as more conservation practices are implemented, in the near term, it is highly unlikely as the watersheds in the AWCA trade area are so large and variable.

One method used to evaluate impact over time is to divide the larger watershed into smaller areas to compare the long-term data in those areas against the entire river. One might hope to detect a representative trend response from sub-watersheds where there has been an emphasis on assisting farmers with implementing conservation practices.

The Prairie Creek WQI project, at the north end of the Boone River, is one example where conservation practice implementation has increased. Since 2007, there is significant variation when looking only at the average nitrate-N concentration (Figure 2). But if this concentration is compared to the overall Boone River as a baseline, there are some interesting results. Since the Boone River is the sum of all the sub-watersheds, it makes sense that it would fluctuate with the weather as Prairie Creek does. When comparing Prairie Creek to the Boone River, Figure 3 shows a general downward slope, indicating a decrease in nitrate-N in Prairie Creek over time.

Figure 4 is a similar graph for Otter Creek, a nearby sub-watershed that does not have a WQI project. It shows no consistent trend when compared to the Boone River. While this analysis is not exhaustive or definitive, it suggests that focused conservation efforts in Prairie Creek are having a positive impact

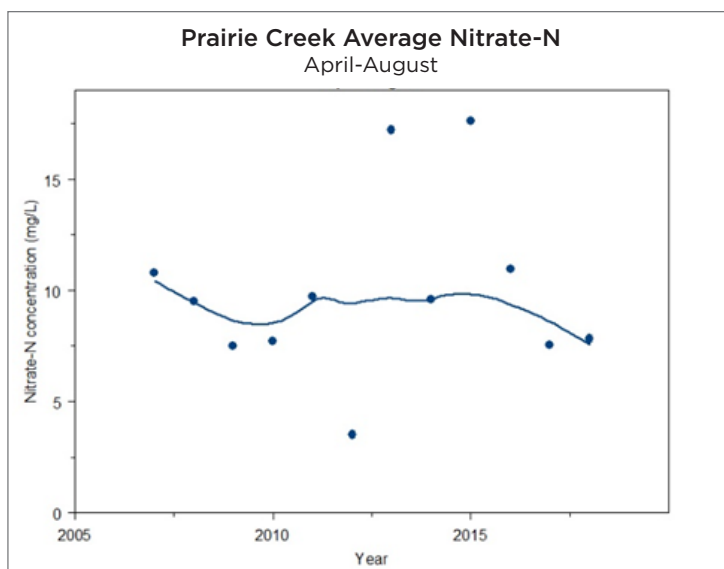


Figure 2. Average Nitrate-N concentrations between April and August 2007-2018 in Prairie Creek.

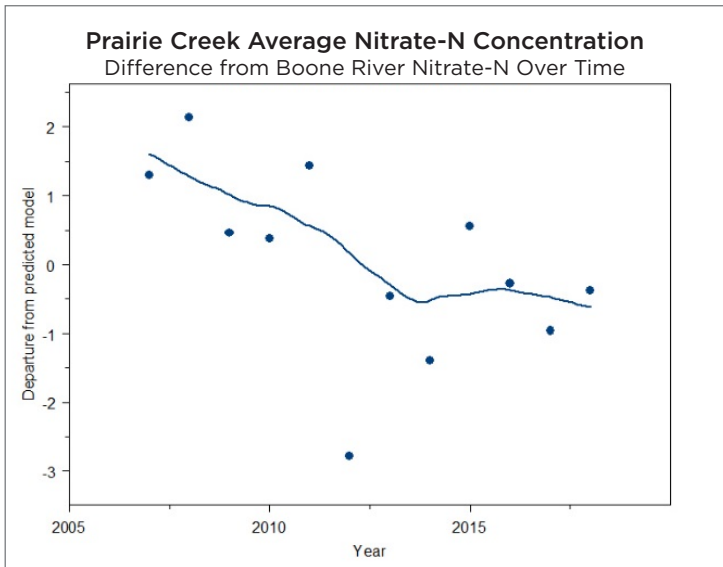


Figure 3. Average nitrate-N concentration difference from the Boone River to Prairie Creek between 2007-2018.

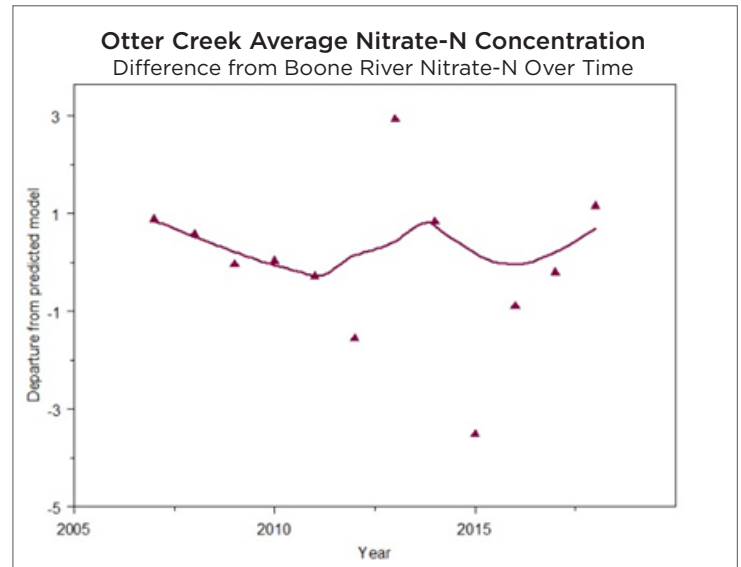


Figure 4. Average nitrate-N concentration difference from the Boone River to Otter Creek between 2007-2018.

on water quality. The amount of time and data needed to confidently show a quantitative reduction of nitrogen loss is still a long way away. However, with time, implementation and data, this picture may continue to emerge and show that improvement is possible with dedicated resources and funding to increase conservation practice use.

ACWA also supports water monitoring at much smaller special scales. The organization oversees the largest network of edge-of-field monitoring in Iowa. Tile-drained water sampling provides information about specific fields, which relate back to individual factors such as crop type, soil management and fertilizer application. ACWA sponsored analysis of more than 1,000 samples from 150 tile outlets and 29 sites with an installed structure for conservation including bioreactors, saturated buffers and ponds.

The data and analytical results inform farmers about the amount of nitrogen leaving their fields and provides insight into what they may want to change to lower nitrogen loss. Additionally, the data analysis measures conservation performance, further informing farmers how to manage practices for maximum benefit. While participating individual farmer data is kept confidential per the ACWA cooperator agreement, the farmers receive individual reports as well as aggregate analysis.

As an example of the impact that edge-of-field conservation practices have on water quality, Figure 5 shows the average incoming and outgoing nitrogen concentrations from 19 bioreactors. The graph shows a significant reduction in nitrate concentration in the water leaving bioreactors compared to levels of the water when entering.

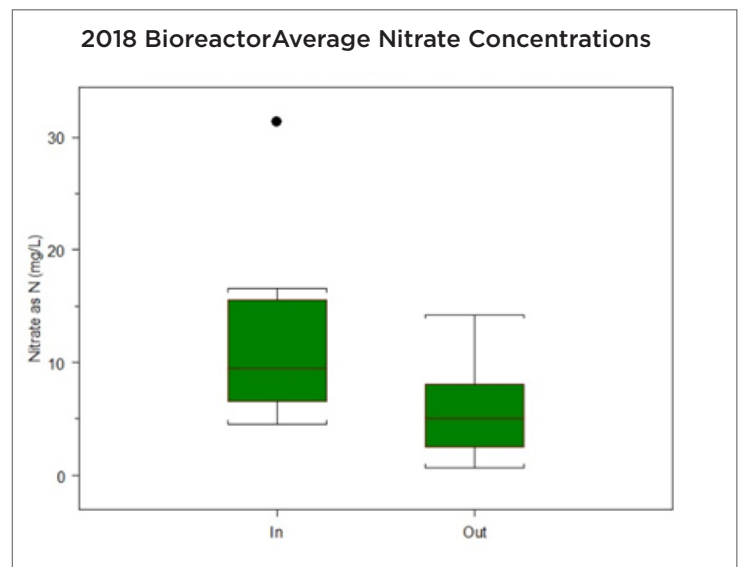


Figure 5: Average incoming and outgoing nitrogen concentrations from 19 bioreactors in 2018.

In targeted areas, all these components unite to guide farmers and watershed coordinators as they work toward improved water quality. Looking at both the overall watershed and individual fields can inform where to work and what practices will have the greatest impact. ACWA has focused on collecting data from these different scales to paint a more complete picture of water quality in its service area.

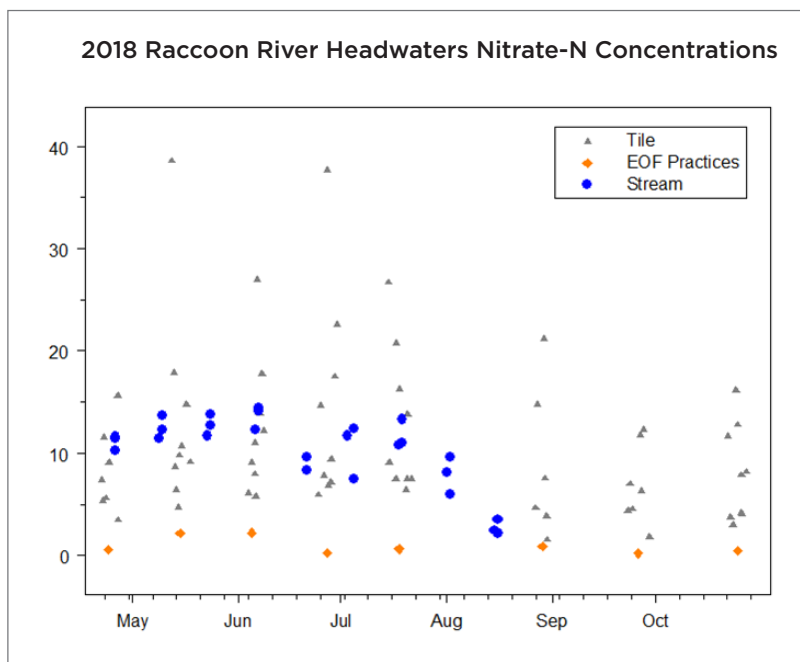


Figure 6 Nitrate-N concentrations of tile drainage, edge-of-field practices and streams in the Raccoon River Headwaters in 2018. Edge-of-field practices include bioreactors, saturated buffers and ponds.

Figure 6 illustrates nitrate concentration from monitoring at different scales. It is interesting to note the variability of tile nitrate concentrations. Additional data mining of crops, soil management and fertility will provide insight into tile water conditions. Also note the low nitrate concentration levels leaving edge-of-field practice sites. Some tiles have concentrations much higher than others, which may present an opportunity to target edge-of-field practices on those tile systems. Conversely, it may not make economic sense to add these expensive practices on low-testing tiles.

Continued monitoring enables assessment of progress toward improving water quality. Annual results and links to real-time monitors are posted on the ACWA website: <https://www.acwa-rrws.org/water-monitoring/des-moines-and-raccoon-river-sub-watersheds/>.

## Learning what farmers think helps ACWA to improve upon the work being done for clean water. ACWA surveyed farmers participating in the water monitoring program. Insights from that survey (51 percent return rate) include:

- More than 90 percent responded that water monitoring reports were informative, and 88 percent stated the reports were easy to understand.
- 92 percent responded that the tile water monitoring data was important regarding their farm's environmental condition.
- 87 percent would encourage other farmers and landowners to participate in tile water sampling.
- 33 percent stated they made changes to their farming operation because of the monitoring data, an additional 32 percent indicated they were making changes in the future.



# BEYOND THE WATERSHED

Over the last 20 years, ACWA has steadily increased their involvement within the Raccoon River watershed and beyond its geographic boundaries. The organization has become a leader in water quality improvement efforts in Iowa and beyond.

From the humble beginnings of collecting water samples to gauge nitrate levels of the Raccoon and Des Moines rivers, ACWA is setting an example for improved water quality within the watersheds. The goals of ACWA align with the Iowa Nutrient Reduction Strategy, which calls for a 45 percent reduction in nitrogen and phosphorus in Iowa waterbodies and ultimately the Gulf of Mexico.

Representatives from ACWA are participating in regional and national conversations. They are sharing how the organization is structured to collaborate with others for improved water quality.

## ONE WATER SUMMIT

The U.S. Water Alliance is driving a national One Water movement “to ensure that clean, reliable water is available for all, now and in the future.” The organization hosted its annual One Water Summit in 2018 in Minneapolis, Minn., with delegate groups attending from across the country.

ACWA leaders Harry Ahrenholtz, Roger Wolf and Dan Dix were part of the 51-strong Iowa delegation, the largest at the event. More than 900 attendees gathered to find solutions for water issues across the nation. The Iowa delegates were encouraged that agriculture was a significant component of this national conversation.



**“The One Water Summit is a reinforcement of the ACWA plan — to reach out to our urban neighbors. The more we do that, the better off we’ll be. It’s not technology that is the issue, but it’s relationships,” Ahrenholtz said.**

The event was a venue for attendees to learn from one another, to take ideas that could be applied elsewhere in regard to water quality, flood and stormwater management and more.

“The summit was an eye-opener for me. Nutrient loading is a problem in Iowa and the Midwest, but there are different issues across the country,” said Dix. “Others spoke about water equity, safety and affordability. Water is such a large issue. Often, we put our blinders on and focus only on one thing.”



To build upon the One Water movement, ACWA is collaborating with urban partners for improved water quality for the future. Through upstream-downstream partnerships, ACWA is ensuring key entities are included in the efforts to scale up practices that contribute to the Iowa Nutrient Reduction Strategy goals. ACWA members continue to open the dialogue between each other, their customers and urban residents to inform and advance the One Water movement.

## IOWA WATER CONFERENCE

The Iowa Water Conference, held annually in Ames, is focused on forwarding the national One Water movement. The conference is hosted by the Iowa Water Center, which is part of the national network created by U.S. Congress. After attending the One Water Summit, Iowa Water Center leaders were empowered to forward the One Water movement to their conference attendees.

ACWA furthered their leadership in the water quality arena by holding a workshop at the conference. The goal of the workshop was to engage agribusiness with water quality programming and conservation delivery.

ACWA Executive Director Roger Wolf moderated the workshop. ACWA chair Harry Ahrenholtz, Kent Klingbeil, Landus Cooperative; and Gregg Schmitz, Nutrien Ag Solutions, told of their experiences in advancing water quality improvement in the Raccoon and Des Moines River watersheds. They also facilitated small group discussions with attendees comprised of conservation professionals, agriculture retailers and farmers.

The nearly 50 participants discussed barriers that conservation professionals perceive when working with agribusinesses as well as ways to overcome them to move toward future collaboration. Retail agronomists must manage many variables and some of them can be conflicting when it comes to conservation, and workshop attendees were understanding of these positions. The consensus was that communication between ag retailers, landowners and farmers is crucial and will serve all stakeholders as they move forward to improve Iowa's rivers and streams.







# WITHIN THE WATERSHED

Since 1999, ACWA has worked within the Raccoon River watershed to improve water quality for its residents and those living downstream. This has been the primary goal of the organization since its inception. ACWA began monitoring nitrate levels in the Raccoon and Des Moines rivers and later added monitoring of edge-of-field structures, such as bioreactors, on private farms. Over time, members have reached out to stakeholders within the watershed to collaborate with ACWA to help achieve its mission.

Today, ACWA is working with numerous organizations, municipalities, farmers and landowners with the common goal of reducing nutrients in the rivers that more than a half-million people depend on as their drinking water source. In addition to water quality, water quantity is a concern for downstream residents. ACWA is also addressing flood mitigation by changing how farmers work the land within the watershed.

## UPSTREAM-DOWNSTREAM PARTNERSHIPS

With 150 miles of waterways in the Des Moines metro, urban residents are becoming reacquainted with the rivers that run through the area. The rivers are the literal connection between rural Iowa and these urban locales. But sometimes the connection stops there.

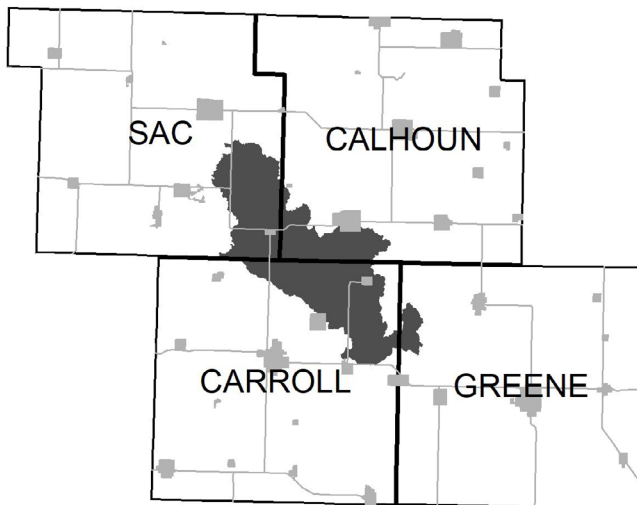
Those who farm the land are concerned about soil health, which directly affects their income. The health of the water leaving their farmland may not be considered. Downstream, urban residents rely on this water for personal use and recreation. Municipalities also must address the amount of water flowing through their communities, therefore flood and stormwater management are key areas of concern.

ACWA is the connection for water quality improvement between their agricultural clients and urban areas downstream. To move beyond conversations and into action, ACWA is ensuring key entities are included such as the Greater Des Moines Partnership, Capital Crossroads, Polk Soil and Water Conservation District, watershed coordinators, city officials along with ag retailers, farmers and landowners.

ACWA members are initiating and implementing projects in key watersheds to install nutrient reduction practices on private farmland such as bioreactors, wetlands, reservoirs, streambank and saturated buffers, along with in-field practices such as cover crops. All of these practices reduce nutrients in the water supply and some also help to reduce flooding for the benefit of those downstream.



# NORTH RACCOON FARM TO RIVER PARTNERSHIP PROJECT



*Above: Iowa Deputy Secretary of Agriculture Julie Kenney announced the Farm to River Partnership Project at a kick-off event in May 2018. The ceremony was held at the bioreactor site on the Mark Schleisman farm near Lake City. Schleisman installed the bioreactor and a saturated buffer as part of the earlier Elk Run watershed project. He continues to improve his farm by adding cover crops and a drainage water recycling system is in the planning stages.*

The North Raccoon Farm to River Partnership project is a Water Quality Initiative (WQI) through the Iowa Department of Agriculture and Land Stewardship (IDALS) that supports the Iowa Nutrient Reduction Strategy goals. This three-year project, totaling \$2.6 million, began in the spring of 2018 and is unique with its substantial goals and management approach.

The project strives to help farmers and landowners implement in-field and edge-of-field practices that reduce nitrogen and phosphorus loading in Iowa waters. The project coordinator is embedded within three ag retailers in the project area: Landus Cooperative, NEW Cooperative, and Nutrien Ag Solutions, as well as the Iowa Soybean Association (ISA). The coordinator is devoted solely to helping farmers and landowners implement conservation practices on their farms for environmental improvement, allowing the retail agronomists to focus on farmer production and profitability. They will work in tandem with farmer clients. ACWA is leading the project, in partnership with ISA, in five sub-watersheds of the North Raccoon River watershed. According to IDALS, this project could potentially be used as a successful model to adopt across the state to scale up nutrient reduction practices to reach the Nutrient Reduction Strategy goals.

## PROJECT GOALS

**Bioreactors: goal of 15 installed**

**Funding = 100% paid**

In 2018, one bioreactor was installed, several are in the design phase and should be in place by the end of 2019. Several more are in the planning phase for installation in 2020.

Bioreactors are edge-of-field structures that reduce nitrogen in tile drained water. Installed near an outlet, drainage water is redirected into an excavated trench filled with woodchips where nitrate-N is removed by denitrification, a natural process. Bacteria use carbon in the wood chips as an energy source to convert nitrate-N to nitrogen gas, which escapes harmlessly into the atmosphere. On average, bioreactors reduce nitrogen leaving the tile lines by 43 percent.





**Saturated buffers: goal of 15 installed  
Funding = 100% paid**

A saturated buffer is a practice where a water level control structure is installed at a tile outlet and redirects drainage water through a buried distribution line into the soil of a streamside buffer. The distribution lines are installed parallel to the stream so the drainage water can seep through the soil toward the stream. The nitrate-N in the drainage water is converted to nitrogen gas by the bacteria that use organic matter in the buffer soil as their energy source. Saturated buffers can reduce nitrogen loss from the drainage system by an average of 50 percent.

**Cover crops: goal of 11,500 acres  
Funding = \$25/acre**

In 2018, farmers committed 1,000 acres to grow cover crops on farms for the first time.

Cover crops are grown between the harvest of cash crops and planting of following year's crop. These plants cover the soil, reduce weeds, increase soil organic matter, reduce nitrogen loss through plant uptake and reduce phosphorus loss through reduced erosion. Cover crops can reduce nitrogen and phosphorus losses by 30 percent, keeping valuable soil and nutrients in the field.



**Targeted wetlands: goal of 2 installed  
Funding = Construction 100% paid, +  
CRP payments for 10-15 years**

A treatment wetland is constructed in a drainage way, where upstream tile drainage water can be captured. Treatment wetlands reduce downstream nitrogen loads through a combination of denitrification, plant uptake and other processes. In addition to removing nitrogen by an average of 50 percent, wetlands help to mitigate flooding and create habitat for wildlife.

**Other opportunities**

Tile water monitoring is being conducted at no expense to farmers. Whole farm conservation assessments also are available, which can identify resources for practices beyond the project's goals. In-field nutrient management analysis can also be completed. Through soil, tile water and plant tissue analyses, farmers will have additional data to make informed nutrient management decisions.

## NATIONAL FISH AND WILDLIFE FOUNDATION GRANT

Increasing the number of conservation farming practices on the land will improve soil health and water quality for growing crops. Building awareness and knowledge of these practices by farmers and landowners is key to their implementation.

A project is underway through a collaboration between AWCA, Iowa Soybean Association (ISA), Iowa Agriculture Water Alliance (IAWA) and Farm Journal's Trust In Food™ division. Funded through a grant from the National Fish and Wildlife Foundation (NFWF), the group is working to scale up conservation practice implementation. The three-year project is focused in the Headwaters of the North Raccoon, Buttrick and Hardin Creek watersheds, and the five watersheds in the North Raccoon Farm to River Partnership.

Phase I of the project includes a multi-media campaign focused with messages tailored on the benefits of conservation farming practices. In the second phase, project partners will help watershed coordinators and technical service providers connect with farmers and landowners to implement practices for improved water quality and soil health. They will focus on those who have responded to the messaging campaign. The project could set an example of how to scale up practice implementation to reach the Iowa Nutrient Reduction Strategy goals.





# 2019 CODE OF PRACTICE FOR NITROGEN FERTILIZATION

Agriculture's Clean Water Alliance (ACWA) members have reaffirmed their agreement to protect Iowa's soil and water resources and have agreed to this code every year since 2001. In the Code of Practice, ACWA members agree to delay fall anhydrous applications without a nitrification inhibitor until soil temperatures are 50 degrees Fahrenheit and trending lower. Members use the county soil temperature and forecast maps compiled by Iowa State University as a decision-tool for beginning fall fertilizer applications.



## PURPOSE:

To establish reasonable and practicable guidelines for nitrogen fertilization applications to reduce nitrate loss from farm fields.

## WHY:

Effective management of farm nutrients is one of the keys to enhancing both environmental quality and profitable crop production. Consistent with the Iowa Nutrient Reduction Strategy, this Code of Practice provides information about guidelines adopted by the ACWA members as a condition of membership.

## APPLICATION GUIDELINES:

1. A nutrient budget for nitrogen, phosphorus and potassium shall be developed that considers all potential sources of nutrients including manure, legumes, etc. Nutrient recommendations shall be based on current soil test results, realistic yield goals, environmental impact and producer management capabilities.
2. Use the standardized county temperature and forecast maps found at <http://extension.agron.iastate.edu/NPKnowledge/> as part of the decision-making process for fall fertilizer application.
3. Delay fall anhydrous applications without a nitrification inhibitor until soil temperatures are:
  - 50°F, trending lower
  - Notify Association office of start of application for accountability documentation - email record to: [sderscheid@iasoybeans.com](mailto:sderscheid@iasoybeans.com).
4. Regardless of time of year application occurs, encourage use of other nutrient management technologies such as stabilizers, slow release fertilizers, incorporation or injection, soil nitrate testing and other technologies that minimize loss to surface or ground water resources.
5. If producer is participating with USDA Conservation Programs additional considerations for producer conformance with NRCS 590 Nutrient Management standard shall be followed. For guidance and requirements see standard: Iowa Nutrient Management Conservation Practice Standard Fact Sheet "What's New That Affects You in the Iowa 590 Standard?" [https://efotg.sc.egov.usda.gov/references/public/IA/Nutrient\\_Management\\_590\\_STD\\_2013\\_10.pdf](https://efotg.sc.egov.usda.gov/references/public/IA/Nutrient_Management_590_STD_2013_10.pdf)
6. Encourage use of other supporting practices where feasible:
  - Tile line denitrification bioreactor
  - Constructed wetland
  - Conservation stream buffer and/or saturated buffer strips
  - Fall cover cropping system