IOWA'S (DRAFT) NONPOINT SOURCE

MANAGEMENT PLAN

A Shared Vision of Water Quality for Iowa

Jacqueline Comito
Iowa State University

OUTLINE

- Background and History
- NPSMP Development Process
- Iowa's Draft Nonpoint Source Management Plan
- Discussion

BACKGROUND AND HISTORY

BACKGROUND

Iowa's Nonpoint Source Management Plan (NPSMP)—

- Articulates the state's approach to addressing nonpoint source pollution in Iowa's surface and groundwater.

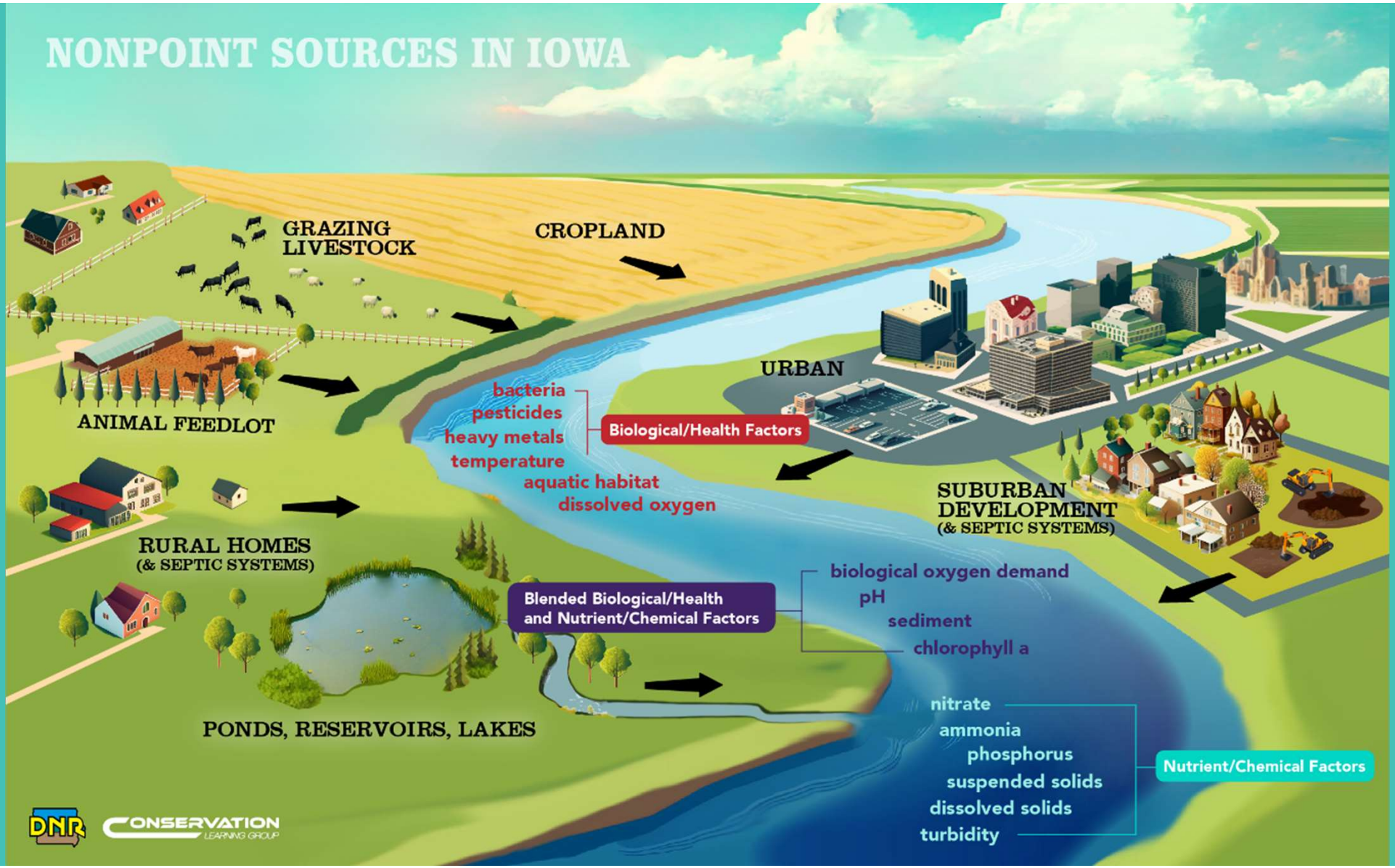
BACKGROUND

Iowa's Nonpoint Source Management Plan (NPSMP)—

- Articulates the state's approach to addressing nonpoint source pollution in Iowa's surface and groundwater.
- Represents Iowa's vision, goals, objectives, and potential action steps to reduce nonpoint source pollution and improve water quality.

"Nonpoint source pollution generally results from land runoff, precipitation, atmospheric deposition, drainage, seepage, or hydrologic modification."

U.S. Environmental Protection Agency (EPA)


NONPOINT SOURCES IN IOWA
GRAZING LIVESTOCK
CROPLAND
ANIMAL FEEDLOT
URBAN
bacteria
pesticides
heavy metals
temperature
aquatic habitat
dissolved oxygen
Biological/Health Factors
SUBURBAN DEVELOPMENT
(& SEPTIC SYSTEMS)
RURAL HOMES
(& SEPTIC SYSTEMS)
Blended Biological/Health and Nutrient/Chemical Factors
biological oxygen demand
pH
sediment
chlorophyll a
PONDS, RESERVOIRS, LAKES
nitrate
ammonia
phosphorus
suspended solids
dissolved solids
turbidity
Nutrient/Chemical Factors
DNR
CONSERVATION LEARNING GROUP

HISTORY

Section 319 of the Clean Water Act provides grants to states and tribes for projects that address NPS pollution.

States must develop a NPSMP that encompasses nine key elements for state NPS management.

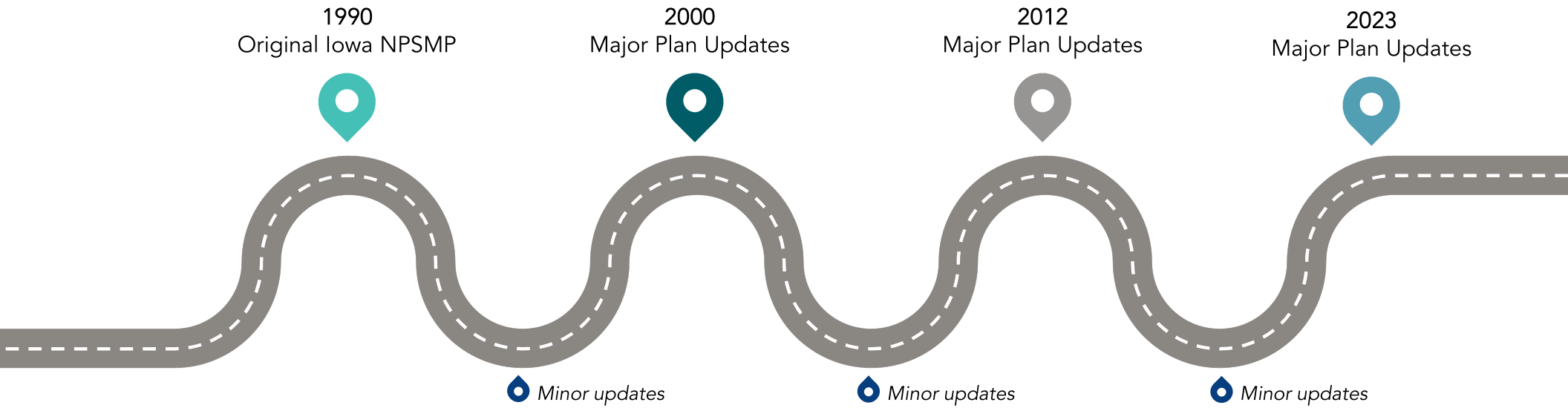
EPA's Nine Key Elements for State NPS Management

Key Element	Addressed in Iowa NPSMP?	Location in Iowa NPSMP
1. Provide explicit short- and long-term goals and strategies.	✓	Section 2 Section 3 Section 4 Section 5 Section 6
2. Provide strong collaborative partnerships among state, federal, local, tribal, and private-sector stakeholders.	✓	Section 1.3
3. Provide a balanced approach that emphasizes both statewide and watershed efforts.	✓	Section 1
4. Abate known water quality impairments and prevent pollution of unimpaired waters.	✓	Section 2 Section 3 Section 4 Section 5 Section 6
5. Identify impaired and threatened waters and establish a process to progressively address these.	✓	Section 1.2 Section 2
6. Address all components required by Section 319 of the Clean Water Act and expeditiously restore and protect water resources	✓	Section 1 Section 2 Section 3 Section 4 Section 5 Section 6 Section 7
7. Identify federal lands and activities that are not managed consistently with state nonpoint source program objectives.	✓	Very few federal lands in Iowa.
8. Provide efficient and effective management and implementation of state nonpoint source management program, including financial management.	✓	Section 1.2
9. Review, evaluate and update nonpoint source assessment and management program at least every five years.	✓	2023 Iowa Nonpoint Source Management Plan (complete document)

HISTORY

To remain eligible for Section 319 funding, the state must update the Plan every five years to incorporate lessons learned, changing circumstances, and new priorities and opportunities.

HISTORY


1990
Original Iowa NPSMP
2000
Major Plan Updates
2012
Major Plan Updates
2023
Major Plan Updates
Minor updates
Minor updates
Minor updates

NPSMP DEVELOPMENT PROCESS

PROCESS

Collaborative effort to reflect a shared vision of water quality for our state

PROCESS

Collaborative effort to reflect a shared vision of water quality for our state

Central Project Team
Iowa DNR 319 Program
Iowa State University (ISU)

Advisory Committee
Lori McDaniel (DNR), Matt Lechtenberg (IDALS), Jamie Benning (ISU)

Stakeholder Working Group
23 participants, representing DNR, IDALS, USDA-NRCS, ISU, and University of Iowa

General Public

US EPA

PROCESS

PUBLIC SURVEY OF IOWANS
2,717 General Public Responses
2,821 College Student Responses (3 regent universities)
5,538 Total Responses

2022

JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC

General Public

Central Project Team
Iowa DNR 319 Program
Iowa State University (ISU)

PROCESS

CAMPUS VIDEO INTERVIEWS

60 college students interviewed across campuses of three regent universities

General Public

Central Project Team

Iowa DNR 319 Program

Iowa State University (ISU)

PROCESS

DNR provides ISU with preliminary NPSMP outline for key conceptual framework and overarching themes
DNR defines key goals and related action steps
ISU and DNR work together to refine NPSMP outline, goals and action steps

2022

Central Project Team

Iowa DNR 319 Program
Iowa State University (ISU)

PROCESS

NPSMP writing in progress

2023

Central Project Team

Iowa DNR 319 Program
Iowa State University (ISU)

PROCESS

LISTENING SESSIONS
3 rural listening sessions (Palo Alto Co., Tama Co., Lucas Co.)
3 urban listening sessions (Des Moines, Iowa City, Sioux City)
47 total participants

General Public

Central Project Team
Iowa DNR 319 Program
Iowa State University (ISU)

PROCESS

Draft #1 of NPSMP completed
DNR reviews draft NPSMP
Revisions to NPSMP
Draft #2 of NPSMP submitted to Advisory Committee

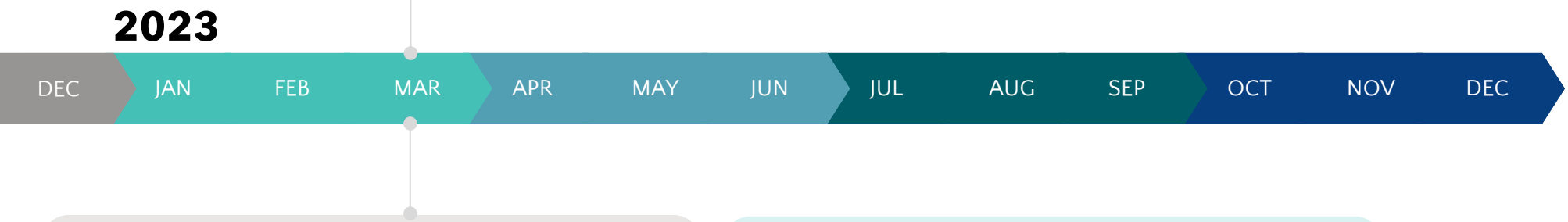
2023

Central Project Team

Iowa DNR 319 Program
Iowa State University (ISU)

PROCESS

Advisory Committee reviews draft NPSMP
Revisions to NPSMP
Draft #3 of NPSMP submitted to DNR



Advisory Committee

Lori McDaniel (DNR), Matt Lechtenberg (IDALS), Jamie Benning (ISU)

Central Project Team

Iowa DNR 319 Program
Iowa State University (ISU)

PROCESS

Revisions to NPSMP
Draft #4 of NPSMP completed
Working Group participants identified/invited to April 27 NPSMP Stakeholder Workshop

2023

Central Project Team

Iowa DNR 319 Program
Iowa State University (ISU)

Stakeholder Working Group

23 participants, representing DNR, IDALS, USDA-NRCS, ISU, and University of Iowa

PROCESS

Revisions to NPSMP
Draft #4 of NPSMP completed
Working Group participants identified/invited to April 27 NPSMP Stakeholder Workshop

2023

DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC

Stakeholder Working Group

- Draft NPSMP used as a mechanism for feedback and discussion
- Participants pre-assigned to small groups and provided the Plan's four overarching goals for advance review
- 1h of focused small-group discussion related to designated goal and action steps
- 1h of large group discussion, with each small group sharing their suggested revisions/improvements to their goal and its specific action steps

PROCESS

NPSMP revisions underway

2023

Central Project Team

Iowa DNR 319 Program
Iowa State University (ISU)

PROCESS

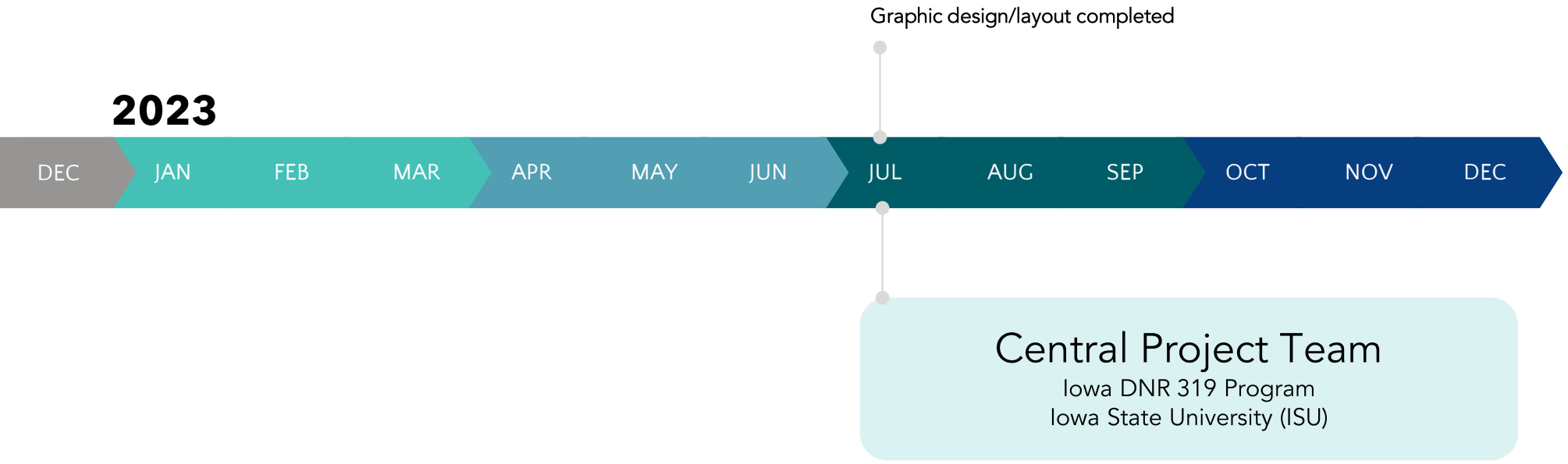
Draft #5 of NPSMP completed, incorporating feedback from Stakeholder Workshop
Final editing
Graphic design/layout underway

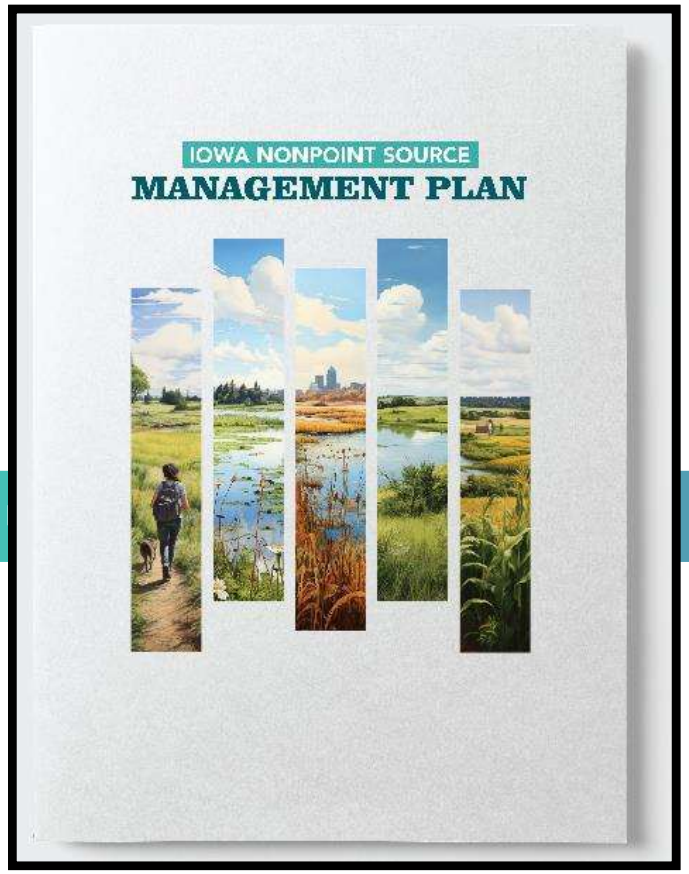
2023

Central Project Team

Iowa DNR 319 Program
Iowa State University (ISU)

PROCESS


Graphic design/layout completed
2023
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Central Project Team
Iowa DNR 319 Program
Iowa State University (ISU)



2023

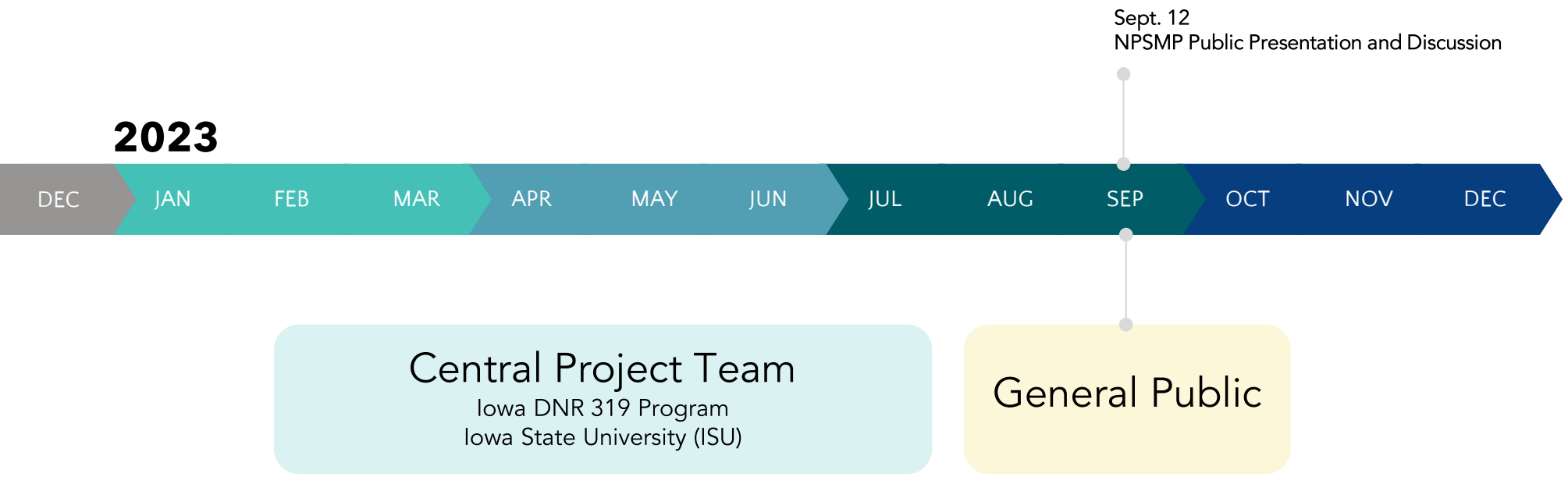
DEC | JAN | JUL | AUG | SEP | OCT | NOV | DEC

Graphic design/layout completed

Central Project Team

Iowa DNR 319 Program
Iowa State University (ISU)

PROCESS


Sept. 12
NPSMP Public Presentation and Discussion
2023
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Central Project Team
Iowa DNR 319 Program
Iowa State University (ISU)
General Public

PROCESS


NEXT STEP:
EPA Review Process
2023
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Central Project Team
Iowa DNR 319 Program
Iowa State University (ISU)
US EPA

IOWA'S (DRAFT) NONPOINT SOURCE MANAGEMENT PLAN

INTRODUCTION

MANAGING IOWA'S NONPOINT SOURCE POLLUTION

INTRODUCTION

MANAGING IOWA'S NONPOINT SOURCE POLLUTION

CIVIL RIGHTS STATEMENT

The Iowa Department of Natural Resources (DNR) does not discriminate on the basis of race, color, religion, sex, sexual orientation, gender identity, national origin, English-language proficiency, disability, or age in the administration of its programs or activities in accordance with applicable laws and regulations. DNR will not tolerate discrimination, intimidation, threats, coercion, or retaliation against any individual or group because they have exercised their rights protected by federal or state law. As a recipient of federal funding, DNR is committed to providing programs and services without discrimination in accordance with: Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, the Age Discrimination Act of 1975, Section 13 of the Federal Water Pollution Control Act Amendments of 1972, and all implementing regulations including Title 40 Code of Federal Regulations Part 5 and Part 7.

Free Language Assistance
If you speak a non-English language, we offer you language assistance services free of charge.
Call (515) 725-8200.

Asistencia lingüística gratuita
Si habla un idioma que no sea el inglés, los servicios de asistencia lingüística están disponibles de forma gratuita. Llame al (515) 725-8200.

SECTION 1: INTRODUCTION TO MANAGING IOWA'S NONPOINT SOURCE POLLUTION

1.1 PURPOSE AND HISTORY

Iowa's Nonpoint Source Management Program Plan (NPSMP or Plan) articulates the state's approach to addressing nonpoint source (NPS) pollution in Iowa's surface and groundwater. Since most pollution in Iowa's waterways comes from nonpoint sources, it is imperative that the state has a robust plan to address NPS pollution.

NPS pollution—unlike pollution from industrial and sewage treatment plants—comes from many dispersed sources. According to the U.S. Environmental Protection Agency (EPA), "NPS pollution generally results from land runoff, precipitation, atmospheric deposition, drainage, seepage, or hydrologic modification."[1] It occurs when rainfall or snowmelt picks up pollutants as it moves over and through the ground, and deposits them in surface and ground waters.

1 Basic information About NPS Pollution. United States Environmental Protection Agency. https://www.epa.gov/nps/basic-information-about-nonpoint-source-nps-pollution

...es of pollution include, but are not limited to—

...ers, herbicides, and pesticides from agricultural and residential land management.
... grease from urban runoff.
...nt from croplands, eroding streambanks, and construction sites.
...e and nutrients from livestock and faulty septic systems.[2]

...type of pollution is challenging. ...opportunity to implement land-use ...rovide multiple benefits—reducing ...also providing habitat for wildlife, ...ational opportunities across the state, ...flood and drought conditions.

...he Clean Water Act (CWA) provides ...and tribes for projects that address ...o be eligible for funding, states must ...MP that encompasses nine key elements, ...ents, required by the EPA. EPA'S Nine ...r State NPS Management, on the ...summarizes the ways Iowa's NPSMP ...es each of these components.

...epresents Iowa's vision, goals, ...potential action steps to reduce NPS ...nprove water quality. To remain eligible ...funding, the state must update the ...ears to incorporate lessons learned, ...stances, and new priorities and ...owa's original NPSMP assessment dates ...ith major Plan updates completed ...2000 and 2012,[3] and minor updates ...etween.

WHY IS NUTRIENT POLLUTION A CONCERN?

Excess nitrogen and phosphorus can—

- Cause algae blooms, contributing to low dissolved oxygen and fish kills.
- Disrupt ecosystems.
- Threaten drinking water sources.

...al land use in the Upper Midwest makes it particularly important that Iowa and neighboring ...nd mitigate NPS pollution. One of the most significant areas of progress in NPS management ...been the adoption of nutrient reduction strategies to curb nutrient pollution in the Upper ...Basin. Nutrient pollution is largely the result of fertilizer from agricultural operations; legacy ...e to cropping system management strategies; soil erosion; and, to a lesser extent, fertilizer ...uses.

...s Nutrient Reduction Strategy (NRS) in 2013.[4] The NRS nonpoint source program is a non-...ram that offers incentives for voluntary adoption of Best Management Practices (BMPs) across ...ape, striving to reduce nonpoint nitrogen and phosphorus pollution. The state tracks and ...rts its progress toward achieving its nutrient reduction goals, and continues to invest in its ...ancial incentives and farmer outreach.

...ce Management Plan, 2012 ed. ...
...ction Strategy. ...

SUCCESS STORIES

319 PROGRAM SUCCESS STORIES

IOWA GREAT LAKES

Tourism thrives, wetlands and native prairie segments return

Section 319 grants have funded mult ple projects to imorove and protect lakes in Dickinson County, particularly West Lake Okoboji. These lakes drive a thriving tourism industry in northwest Iowa, and the local economy depends on good water quality for swimming, boating, and other recreation activities.

The Iowa Great Lakes Watershed Project has restored wetlands and returned native prairie segments across the watershed. These restorat ons provide multiple benefits—filtering pollutants, reducing sediment entering the lakes, and increasing habitat for native fish, bird, and plant species.

LAKE RESTORATION IN NORTH CENTRAL IOWA

Shallow lake ecosystem thrives following carp removal

Located in Wright County, Big Wall Lake is a 978-acre shallow glacial lake. Common carp, a nuisance fish spec es, entered Big Wall Lake during high water events in 1993. The bottom-feeding fish uprooted and elim nated the lake's beneficia submerged aquatic vegetation and continuously stirred up bottom sediment. The resulting increased turbidity blocked light from reaching the lake bed, preventing the growth of healthy aquatic plants.

Section 319 grants supported installation of a new outlet structure to draw down the lake's water level and subsequent treatment of the lake with rotenone to eliminate the carp population. Following carp removal, desirable submersed and emergent aquatic vegetation reestablished, accompanied by decreased turbidity and improved water quality. The restorations also increased habitat and recreational value at Big Wall Lake, attracting huge populations of waterfowl and shorebirds includ ng ducks, geese, sandhill cranes, American bitterns, black terns, and yellowlegs.[5]

LESSONS LEARNED

Sustained long-term investment is necessary for success. Resources, including sustained funding and dedicated long-term watershed coordinators, are vital to successful watershed projects.

LESSONS LEARNED

Water quality work takes time. A full project timeline—project planning, choosing and designing a suite of practices, implementing the practices, and monitoring to assess practice performance—may take 15 to 20 years.

LESSONS LEARNED

Local buy-in is crucial. Watershed coordinators and other local personnel are well situated to form connections with community leaders, developing trust and buy-in on projects to reduce NPS pollution.

LESSONS LEARNED

Statewide outreach and education are essential. Outreach and education for all Iowans—from all backgrounds and walks of life—are key to building and sustaining momentum for improved water quality.

EMPHASIS ON PARTNERSHIPS

Using public and private resources to achieve the objectives of the NPSMP is a vital component of progress and successful outcomes.

Management of those resources is multifaceted and relies on strong partnerships working together to use funds efficiently and effectively.

TAKING ACTION

Iowa's NPSMP focuses on four primary goals.

TAKING ACTION

Iowa's NPSMP focuses on four primary goals.

Each goal includes:

- Specific action steps for pursuing this goal
- Citizen action steps

TAKING ACTION

Iowa's NPSMP focuses on four primary goals.

Goals addressed via four action categories:

- Outreach and education
- Planning
- Practice implementation
- Measurements and monitoring

GOAL 1

IMPROVING IOWA'S SURFACE WATER AND GROUNDWATER QUALITY

GOAL 1

The primary goal of Iowa's NPSMP is to improve surface water and groundwater quality in the state. Drinking water, recreational opportunities, and habitat and ecosystem services depend on healthy waters.

GOAL 1

Specific action steps for pursuing this goal of improving Iowa's surface water and groundwater quality include—

- Fostering the development of new projects with monitoring, assessment, and planning in areas of state- and locally determined priority plans (TMDLs, nine-element watershed plans to restore impaired waters, alternative watershed improvement plans, and comprehensive water quality plans).

GOAL 1

Specific action steps for pursuing this goal of improving Iowa's surface water and groundwater quality include—

- Supporting existing and new projects by providing technical assistance, water quality monitoring, and project personnel.

GOAL 1

Specific action steps for pursuing this goal of improving Iowa's surface water and groundwater quality include—

- Encouraging and supporting research by Iowa State University, University of Iowa, University of Northern Iowa, and other organizations on the social challenges, emerging practices, and innovative solutions to improving the health of Iowa's surface water and groundwater.

GOAL 1

Specific action steps for pursuing this goal of improving Iowa's surface water and groundwater quality include—

- Implementing and demonstrating both established and innovative water quality improvement BMPs to address water quality concerns, raise awareness of emerging practices, and strive for healthier ecosystems that support the interplay of water and soil.

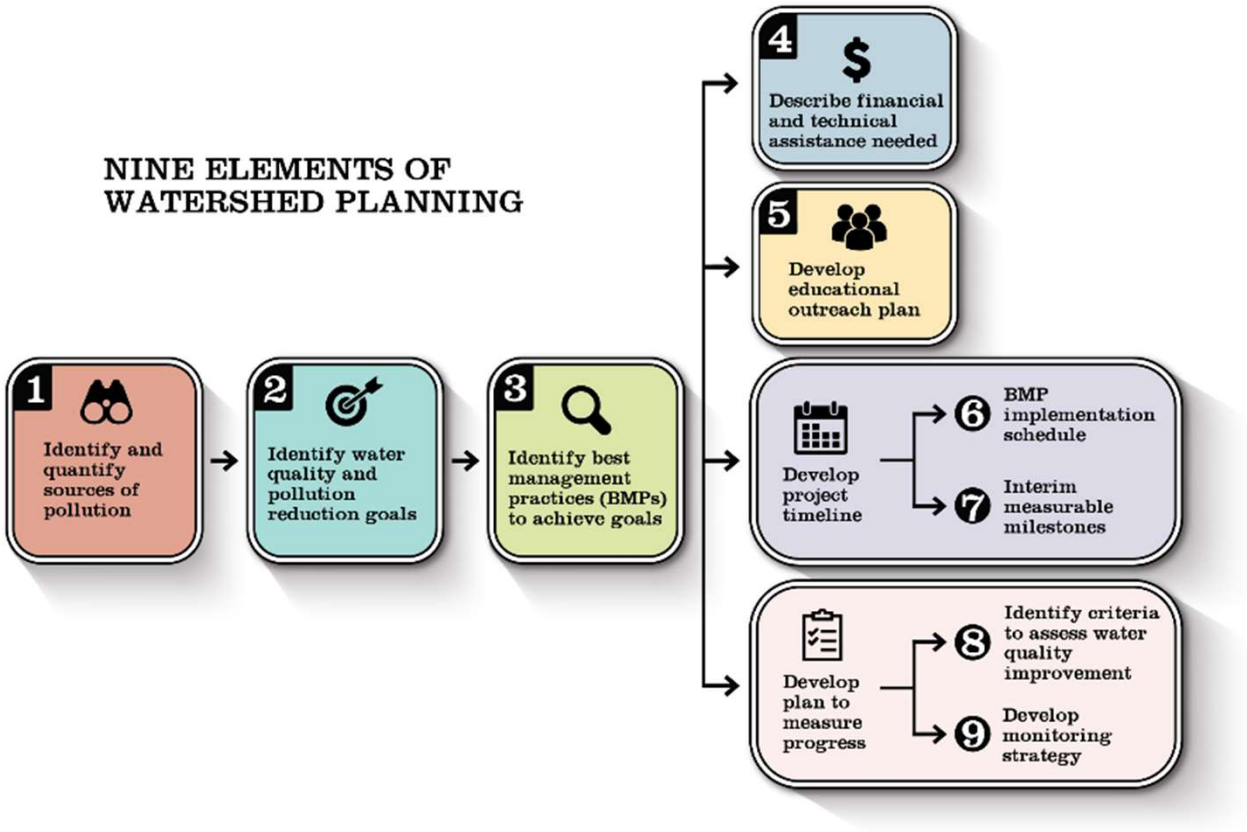
GOAL 1

Specific action steps for pursuing this goal of improving Iowa's surface water and groundwater quality include—

- Collecting information on water quality improvement and healthy ecosystem successes and sharing this information about the benefits of existing and innovative practices with local, statewide, regional, and national audiences in creative and effective ways.

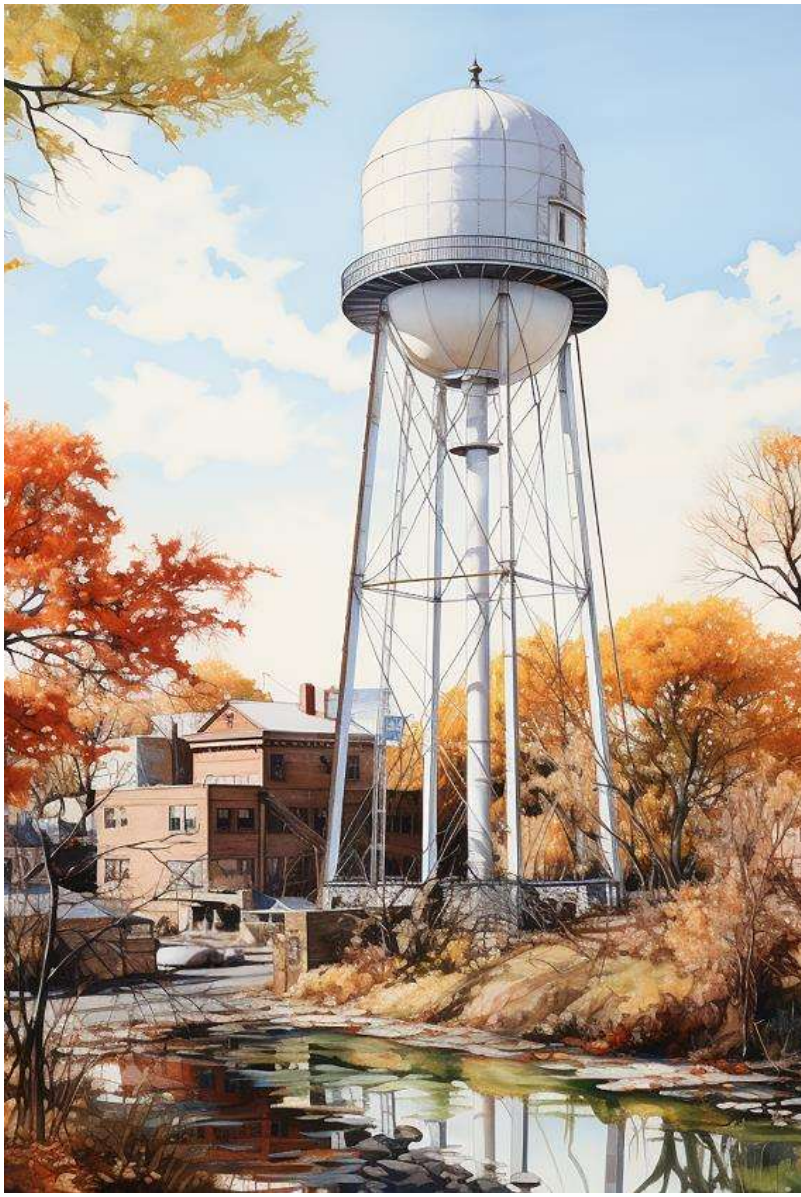
GOAL 1

IMPROVING IOWA'S SURFACE WATER AND GROUNDWATER QUALITY



GOAL 2

IMPROVING WATERS THAT AFFECT PUBLIC HEALTH



GOAL 2

Recognizing the interconnected public health and safety implications of NPS pollution, efforts to increase awareness of the public health risks related to NPS pollution and water quality are integral to Iowa's Nonpoint Source Management Plan.

GOAL 2

Specific action steps for pursuing this goal of improving waters that affect public health include—

- Informing the public through a variety of outreach mechanisms of the risk levels for known and emerging contaminants and providing science-based data for making informed decisions.

EMERGING CONTAMINANTS: A CLOSER LOOK

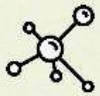
WHICH EMERGING CONTAMINANTS ARE ON THE RADAR IN IOWA?

Pesticides and pharmaceuticals

Pesticides are transported to Iowa's waters via nonpoint source pathways, primarily from agricultural lands. Pharmaceuticals pass through the human body, exit as waste, and even after passing through wastewater treatment plants and septic systems, can persist in Iowa's waters. Pharmaceuticals from livestock use are also increasingly present in soil and water.[8] Together, pesticides and pharmaceuticals include thousands of chemical compounds with widely varying degrees of toxicity, persistence, and bioaccumulation potential. The DNR rotates monitoring of pesticides and pharmaceuticals into its Ambient Stream Monitoring routine approximately every five years, with monitoring of pesticides and pharmaceuticals most recently completed in 2020 and 2014.

Blue-green algae

Blooms of blue-green algae, also referred to as "Harmful Algal Blooms" (HABs), are fueled by excess waterborne nutrients, which come primarily from Iowa's vast agricultural lands. Blue-green algae blooms are highly dynamic, exhibiting wide seasonal fluctuations, and are of particular concern due to their potential to release harmful cyanotoxins (e.g., microcystin). The DNR actively monitors water bodies for indicators of blue-green algae through its Ambient Stream Monitoring, Ambient Lake Monitoring, and State Park Beach Monitoring Programs. Between these three programs, select water bodies are monitored for algal pigments (chlorophyll and phycocyanin) and total microcystin, which serve as proxy indicators of blue-green algae.



Per- and polyfluoroalkyl substances (PFAS)

PFAS are widely used, long-lasting chemicals, components of which break down very slowly over time—lending these substances their moniker of "forever chemicals." There are thousands of PFAS chemicals, found in numerous consumer, commercial, and industrial products—making it particularly challenging to study and assess the potential human health and environmental risks. PFAS tend to be more frequently linked with point sources (e.g., nonstick substance manufacturing); however, many of these contaminants have the potential to impact waters via both point source and nonpoint source pathways. To address this class of emerging contaminants, the DNR has implemented a routine that includes monitoring PFAS in public water supplies. Iowa's Grants to Counties Program, which provides free private well water testing, is expanding its monitoring to include PFAS in pilot areas of the state. Additionally, the DNR's Water Quality Bureau has established a PFAS monitoring committee to coordinate monitoring efforts across the state.

GOAL 2

Specific action steps for pursuing this goal of improving waters that affect public health include—

- Educating the public on how to reduce known and emerging public health risks, such as pollutants that affect drinking water sources, and on nonpoint source mitigation methods underway to enhance public health and safety in Iowa's waters.

GOAL 2

Specific action steps for pursuing this goal of improving waters that affect public health include—

- Implementing plans and programs that directly impact public health, such as approved Source Water Protection Plans, approved Beach Risk Reduction Plans, and private well protection programs.

DEVELOPING A SOURCE WATER PROTECTION PLAN

Developing a SWPP is fundamental to protecting public drinking water supplies. There are multiple ways to initiate the SWPP development process:

- DNR staff (e.g., source water coordinator, water quality improvement staff member, or field office staff member) identifies a public water supply as potentially benefiting from SWPP development. DNR staff previously developed a priority list of communities based on population, susceptibility of water source to contamination, nitrate concentration in the drinking water source, and the age of any prior SWPP. While DNR staff are encouraged to work with communities from this list, they can also assist interested communities not on the priority list.
- Public water supply contacts DNR to express interest in developing a SWPP.
- Source water protection planner with another organization (e.g., Iowa Rural Water Association) contacts a public water supply to assist them in developing a SWPP.
- A funding source, such as EPA, becomes available to provide financial assistance for developing SWPPs. DNR, a public water supply, or another interested party may initiate the conversation regarding SWPP development.

Once a public water supply decides to pursue a SWPP, the plan is developed through a multistep, collaborative process:

Assessment (Phase 1): DNR source water protection staff (or other qualified source water planners) conduct assessments detailing the water system's active wells, delineating the source water protection area, determining the susceptibility to contamination, and providing potential contamination sources. DNR source water protection staff (or other qualified source water planners) hold meetings with local public water supply employees, board members, and landowners to provide overviews of the planning process, assessments conducted, and financial or technical assistance that may become available through completion and implementation of the plan.

Planning (Phase 2): Through a collaborative team effort, a SWPP is developed. The Iowa Source Water Protection Guidebook[3] provides the team with templates and process guidance to determine how the system will protect its drinking water resource. SWPP drafting and compilation are typically completed by a team that includes DNR source water or water quality improvement staff and an Iowa Rural Water Association planner, or another planner under contract to complete a SWPP—in conjunction with local public water supply representatives, NRCS, and local stakeholders (e.g., farmers and landowners) of the source water protection area. Draft SWPPs are submitted to Iowa DNR, and reviewed by DNR source water staff (and in some cases, water quality improvement and field office staff). Upon approval, Phase 2 SWPPs are saved in the DNR Source Water Protection Tracker database.[4]

GOAL 2

Specific action steps for pursuing this goal of improving waters that affect public health include—

- Enhancing walking/biking areas adjacent to public water quality practice sites to expand the health and education benefits of Iowa's outdoor spaces and thriving ecosystems.

GOAL 3

IMPROVING IOWA'S WATERS FOR NATIVE WILDLIFE AND FISH, AND RECREATION

GOAL 3

Protecting the quality of outdoor spaces through diverse upland, streamside, and instream practices that positively influence outcomes for aquatic life is critical not only to maintain an important economic driver in the state, but also to preserve Iowa's natural heritage and to make Iowa a more desirable place to live, work, and raise families.

GOAL 3

Specific action steps for pursuing this goal of improving Iowa's waters for native wildlife and fish, and recreation, include—

- Protecting, improving, and restoring riparian and upland ecosystems and habitats as part of water quality improvement efforts aligned with improved public access and recreational use.

GOAL 3

Specific action steps for pursuing this goal of improving Iowa's waters for native wildlife and fish, and recreation, include—

- Prioritizing lake, wetland, and stream restoration efforts that benefit native species of concern or desired species.

GOAL 3

Specific action steps for pursuing this goal of improving Iowa's waters for native wildlife and fish, and recreation, include—

- Restoring highly used recreational waters with aquatic-related impairments to provide safe public access to waters for fishing and boating, and to enhance fishing success.

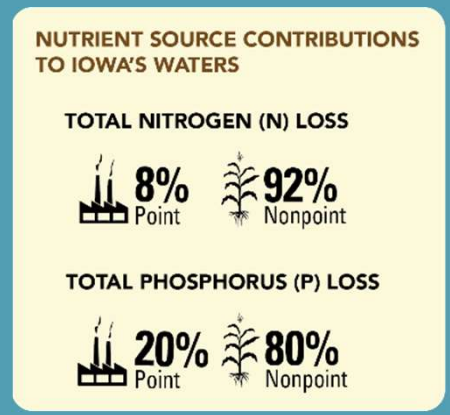
GOAL 4

REDUCING EXCESS NUTRIENT DELIVERY TO IOWA WATERS

GOAL 4

REDUCING EXCESS NUTRIENT DELIVERY TO IOWA WATERS

Many of Iowa's streams, rivers, and lakes carry elevated nutrient loads, and Iowa contributes significant nutrient pollution to the Mississippi River and Gulf of Mexico. Because most of this pollution comes from nonpoint sources, addressing nutrient pollution is a particular focus of nonpoint source pollution management.



GOAL 4

Specific action steps for pursuing this goal of reducing excess nutrient delivery to Iowa waters include—

- Monitoring, tracking, and reporting nutrient loads in new and existing watershed projects as part of local water quality improvement efforts through practice implementation.

GOAL 4

Specific action steps for pursuing this goal of reducing excess nutrient delivery to Iowa waters include—

- Continued support of statewide monitoring of nutrient loads.

GOAL 4

Specific action steps for pursuing this goal of reducing excess nutrient delivery to Iowa waters include—

- Implementing nutrient-reduction practices for projects where nutrients are pollutants of concern.

GOAL 4

Specific action steps for pursuing this goal of reducing excess nutrient delivery to Iowa waters include—

- Participating in and supporting state and regional efforts to address nutrient loss and export, including Iowa's Nutrient Reduction Strategy and the Gulf of Mexico Hypoxia Task Force.

GOAL 4

Specific action steps for pursuing this goal of reducing excess nutrient delivery to Iowa waters include—

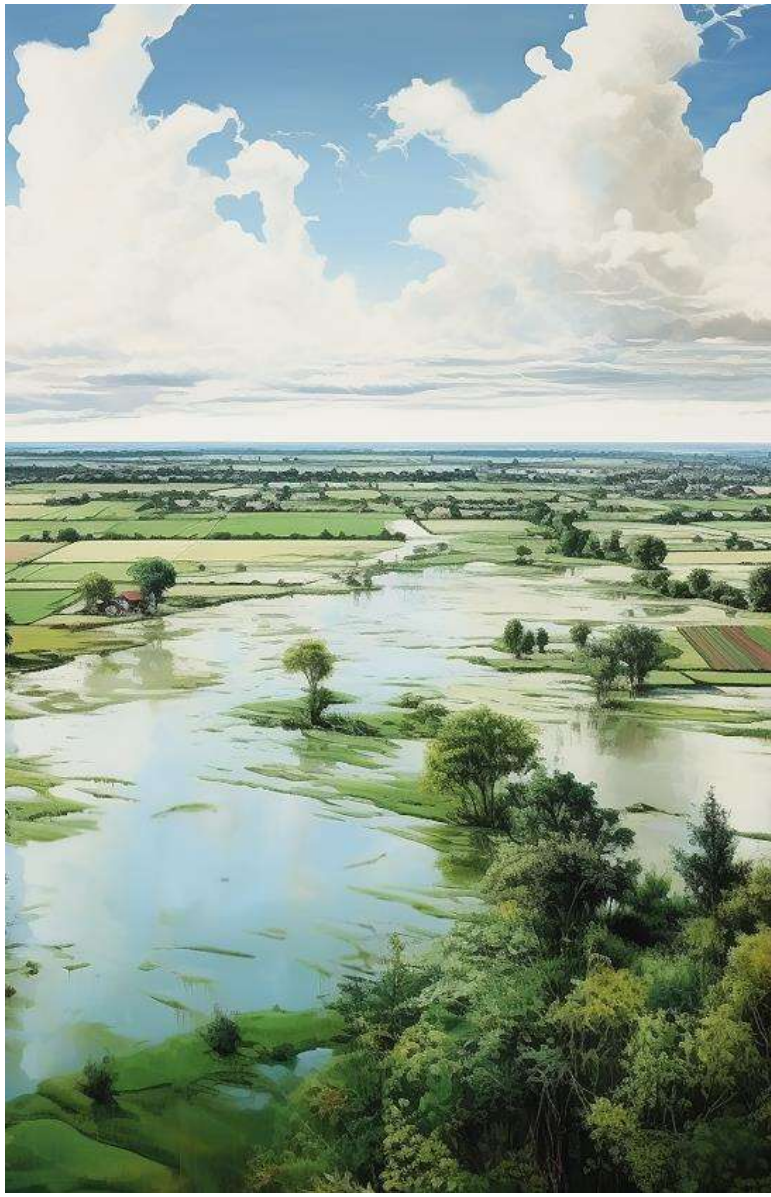
- Developing, assessing, and utilizing innovative technology, tools, and practices that support nutrient load reductions through strategic practice implementation.

GOAL 4

Specific action steps for pursuing this goal of reducing excess nutrient delivery to Iowa waters include—

- Supporting education and outreach efforts.

ADDITIONAL CONSIDERATIONS



ADDITIONAL CONSIDERATIONS

Two additional considerations for environmental management plans are underserved communities and climate resilience. When possible, NPS management should take into account the ways in which pollution management decisions may be affected by and impact these additional considerations.

ADDITIONAL CONSIDERATIONS

ADDRESSING NPS POLLUTION AFFECTING UNDERSERVED COMMUNITIES

Underserved communities:

- Are disproportionately affected by environmental degradation
- Have fewer resources to impact policies and decision-making on their behalf

ADDITIONAL CONSIDERATIONS

ADDRESSING NPS POLLUTION AFFECTING UNDERSERVED COMMUNITIES

Negative consequences of NPS pollution in underserved communities include:

- Polluted drinking water supplies
- Increased likelihood of flood and drought impacts
- Lack of safe access to outdoor spaces

ADDITIONAL CONSIDERATIONS

ADDRESSING NPS POLLUTION AFFECTING UNDERSERVED COMMUNITIES

Actions that address this inequity include expanded engagement, investment, and capacity-building. The DNR will consider the current allocation of funds to underserved communities and work to increase funding to these communities to federally identified levels.

ADDITIONAL CONSIDERATIONS

ADDRESSING NPS POLLUTION AFFECTING UNDERSERVED COMMUNITIES

The DNR will also engage in targeted outreach to ensure meaningful engagement and capacity-building in underserved communities, including offering language-accessible communication consistent with federal civil rights law. The DNR may also adopt other EPA guidance for better supporting underserved communities in NPS management.

ADDITIONAL CONSIDERATIONS

ADDRESSING CLIMATE RESILIENCE

- Increased frequency and intensity of rainfall can send more pollutants into waterways in shorter timeframes
- Following drought, runoff and subsurface drainage water is likely to contain higher concentrations of nutrients that have built up in the soil over time

ADDITIONAL CONSIDERATIONS

ADDRESSING CLIMATE RESILIENCE

Changes in weather patterns, temperatures, and growing seasons have lasting implications for NPS pollution mitigation efforts, and climate resilience should be part of any planning and implementation process.

ADDITIONAL CONSIDERATIONS

ADDRESSING CLIMATE RESILIENCE

At the federal level:

- EPA and USDA are developing and implementing climate-smart initiatives and guidance for Section 319 grants (included in program requirements by 2024)
- NRCS will provide technical and financial assistance to farmers in alignment with EPA's requirements

ADDITIONAL CONSIDERATIONS

ADDRESSING CLIMATE RESILIENCE

Iowa's NPSMP supports programs and practices that mitigate public health risks linked with changing weather patterns.

ADDITIONAL CONSIDERATIONS

ADDRESSING CLIMATE RESILIENCE

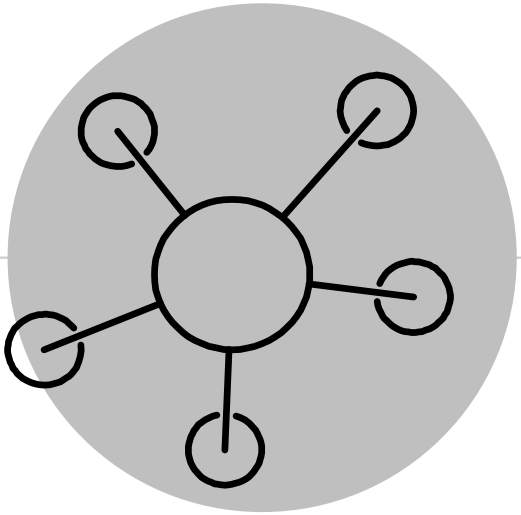
These efforts aim to reduce—

- *Excess nutrients reaching drinking water sources, including surface waters and groundwater*
- *Nutrient export to Iowa waters that can lead to harmful algal blooms*
- *Health risks at public swimming beaches and other swimming areas*
- *Runoff from both agricultural and urban areas (while increasing water infiltration into the soil in targeted areas)*
- *Other (non-nutrient) pollutants to Iowa waters that can harm public health*

ADDITIONAL CONSIDERATIONS

ADDRESSING CLIMATE RESILIENCE

Iowa's NPSMP promotes collaboration between agencies, organizations, and communities to implement programs and practices that provide multiple benefits, simultaneously enhancing nonpoint source pollution mitigation and climate resilience.



ACKNOWLEDGEMENTS/ CONTRIBUTIONS

ACKNOWLEDGMENTS

Key Contributors:

Central Project Team
Iowa DNR 319 Program
Iowa State University (ISU)

Advisory Committee
Lori McDaniel (DNR), Matt Lechtenberg (IDALS),
Jamie Benning (ISU)

Stakeholder Working Group
DNR, IDALS, USDA-NRCS,
ISU, and University of Iowa

General Public

US EPA

DISCUSSION