

PROJECT OVERVIEW



The Plan Purpose

The Boone River Watershed Management Plan is sponsored by the Boone River Watershed Management Authority (WMA), which is a voluntary coalition of local counties, cities, and soil and water conservation districts within the watershed. The plan identifies and prioritizes projects and activities to address water quality and flooding concerns across the watershed. Implementation of the plan is based on voluntary cooperation between WMA members, landowners, and other stakeholders.

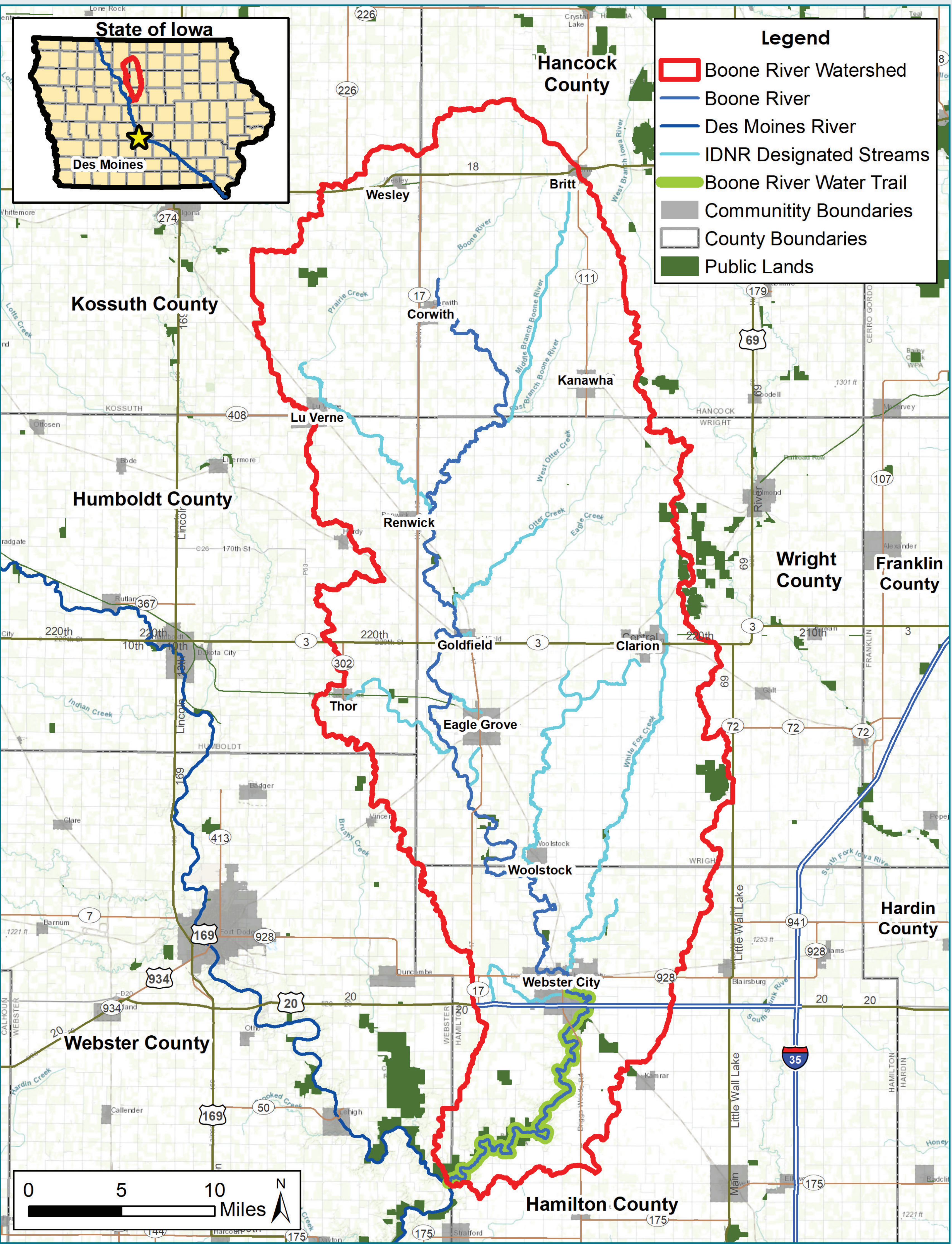
The Plan Vision

The WMA will be a local voice in existing and new watershed efforts through community, county, state, federal, and private partnerships to improve water quality and increase flood resiliency across the watershed. This will be achieved through facilitation of education, outreach, and implementation of practices which are voluntary, compatible with agriculture, economically viable, environmentally sound, and that improve soil health, as well as enhance recreation and wildlife habitat.

Established Goals

- 1 Ensure water quality is adequate for all uses, both within the watershed and downstream, by meeting state water quality standards and goals.
- 2 Reduce flood risks and improve wildlife habitat within the watershed.
- 3 Build an aware and engaged community that works towards improving watershed management.

The Boone WMA Planning Area



WMA Members:

Cities

- » Goldfield

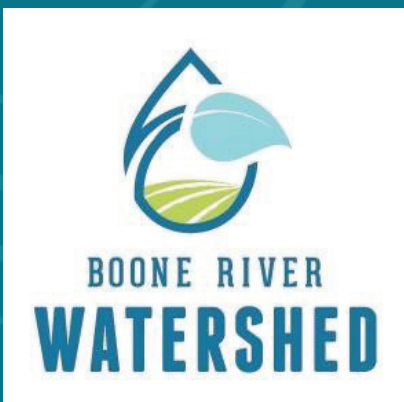
Counties

- » Kossuth
- » Hancock
- » Humboldt
- » Wright
- » Hamilton

Soil and Water Conservation Districts (SWCD)

- » Kossuth
- » Hancock
- » Humboldt
- » Wright
- » Webster
- » Hamilton

EXISTING CONDITIONS



Incorporating Existing Efforts

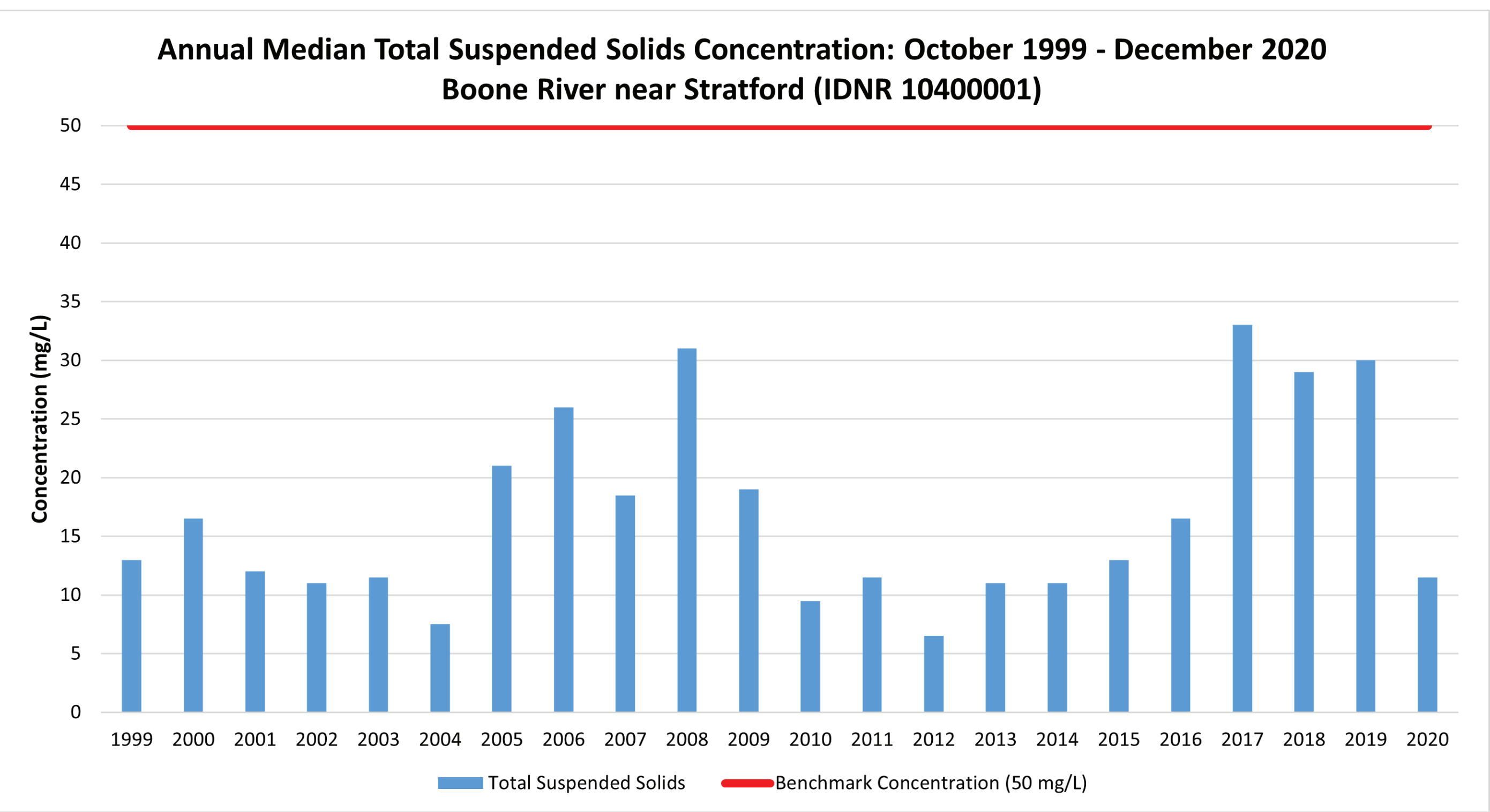
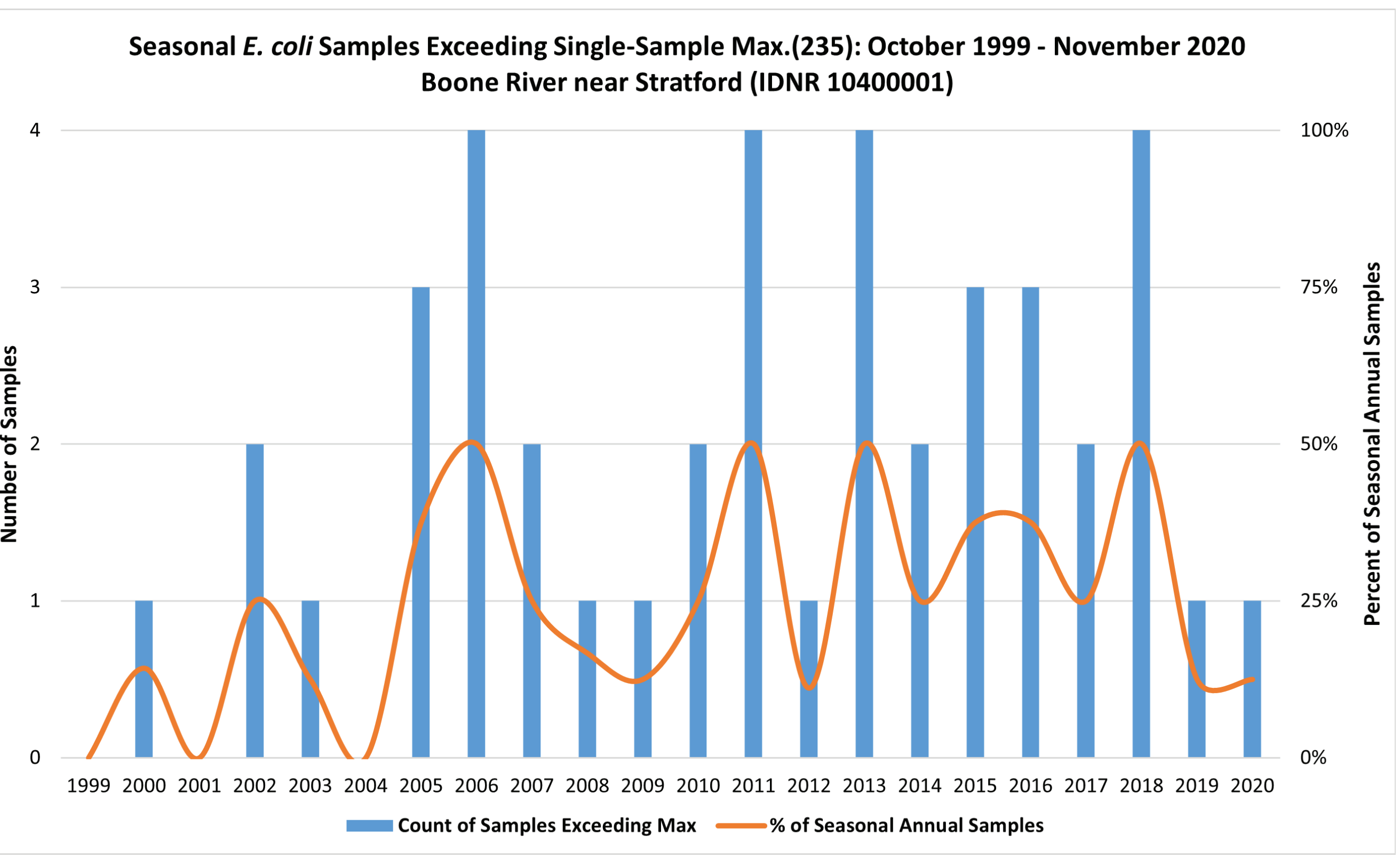
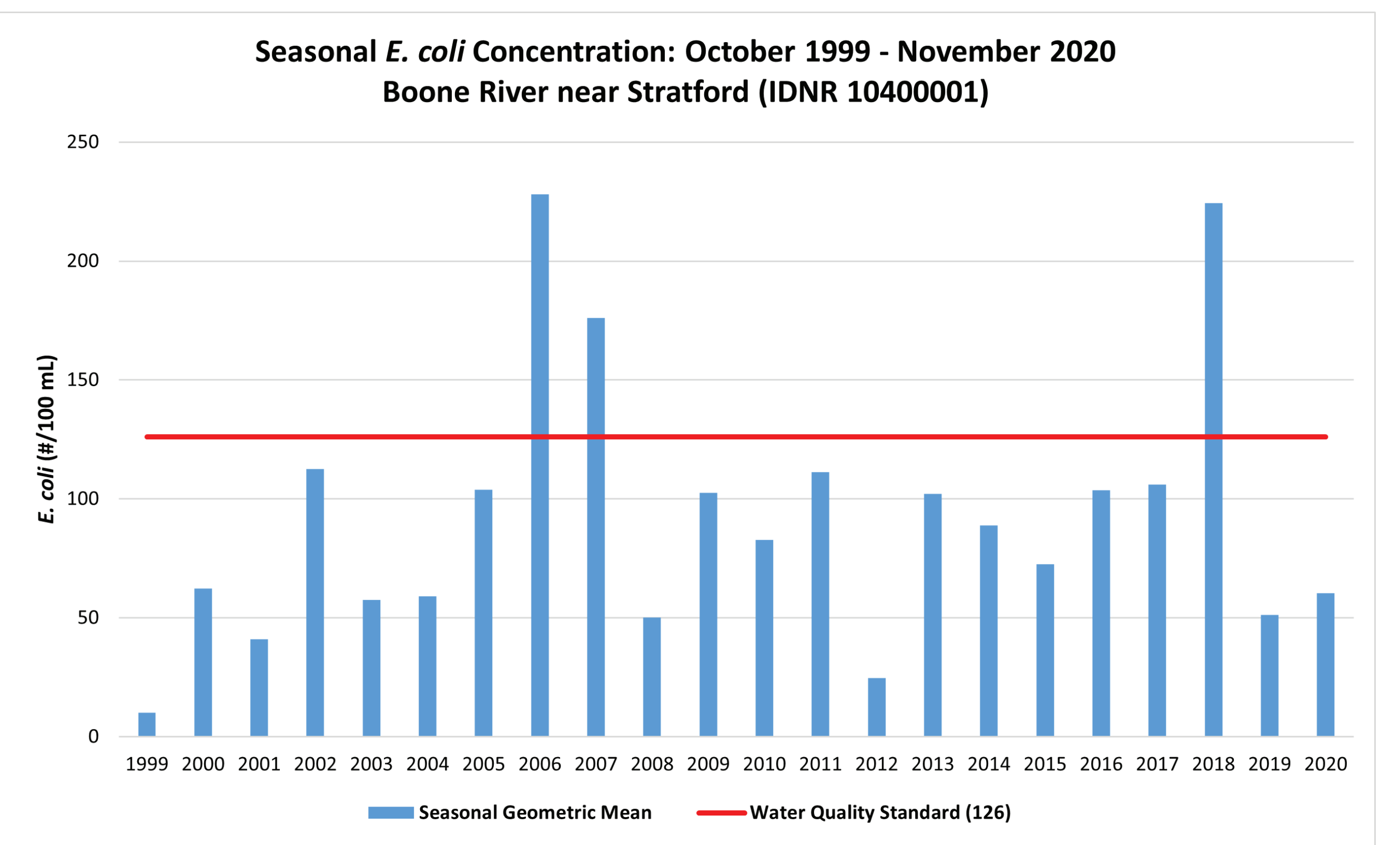
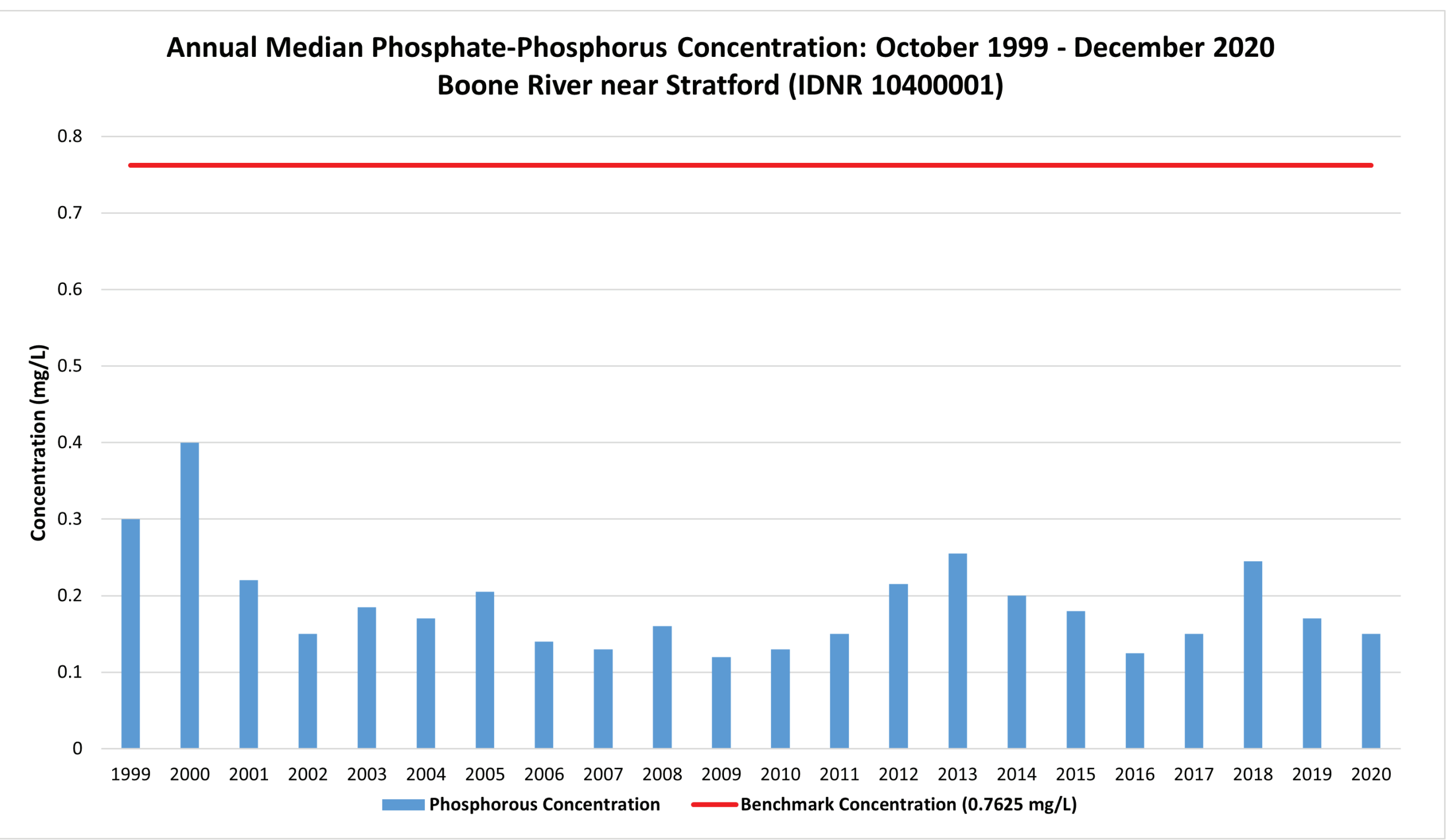
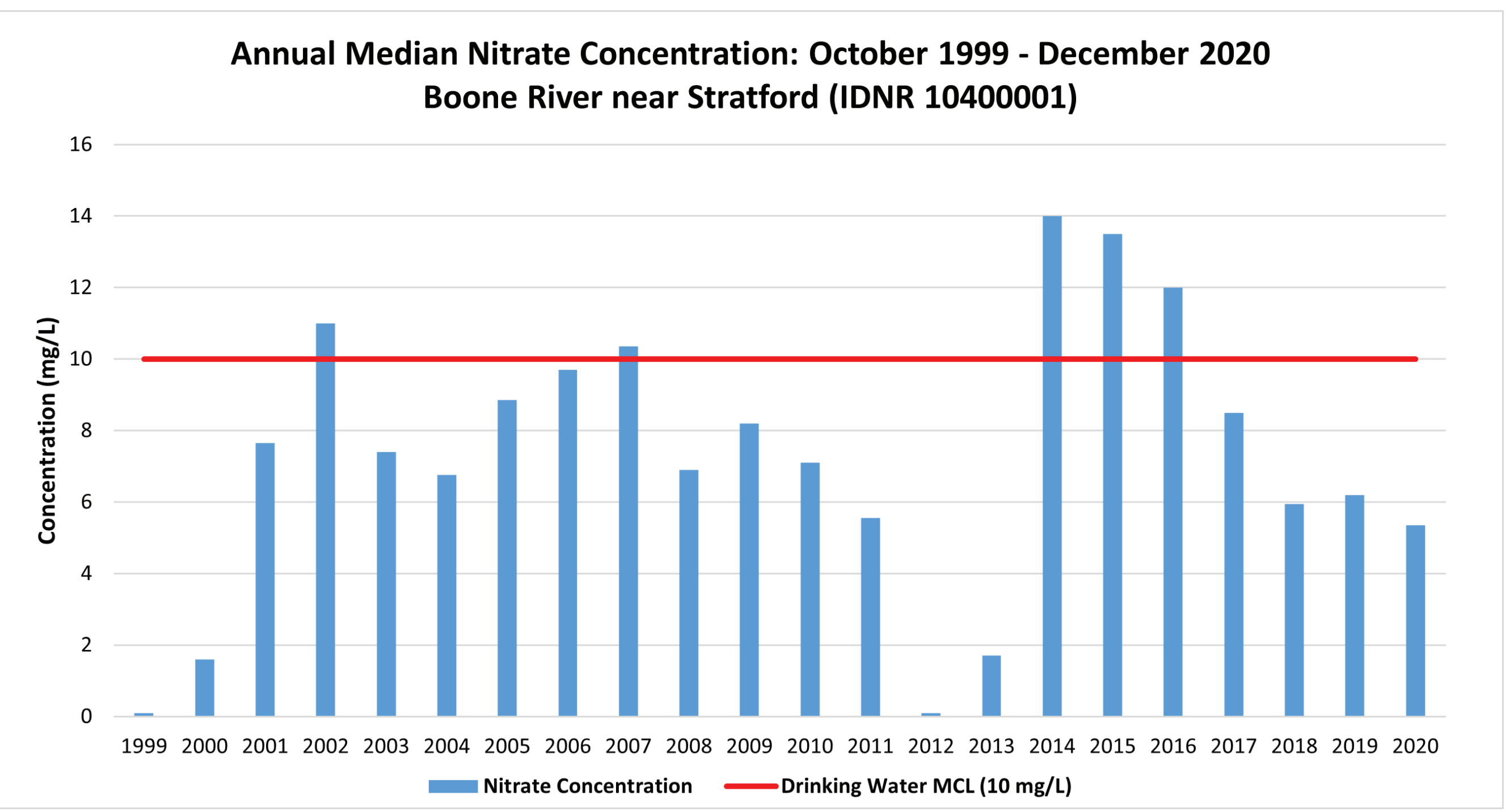
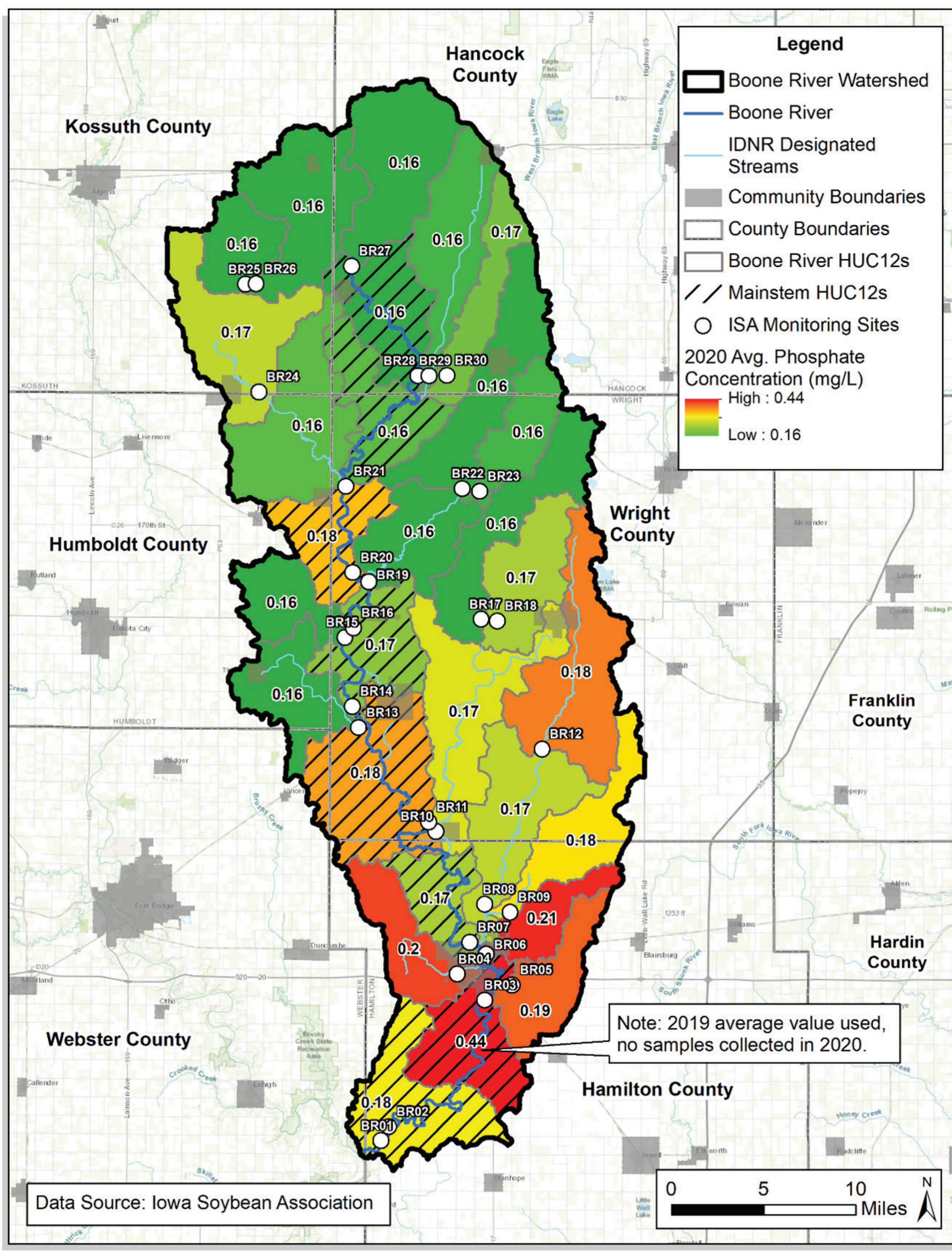
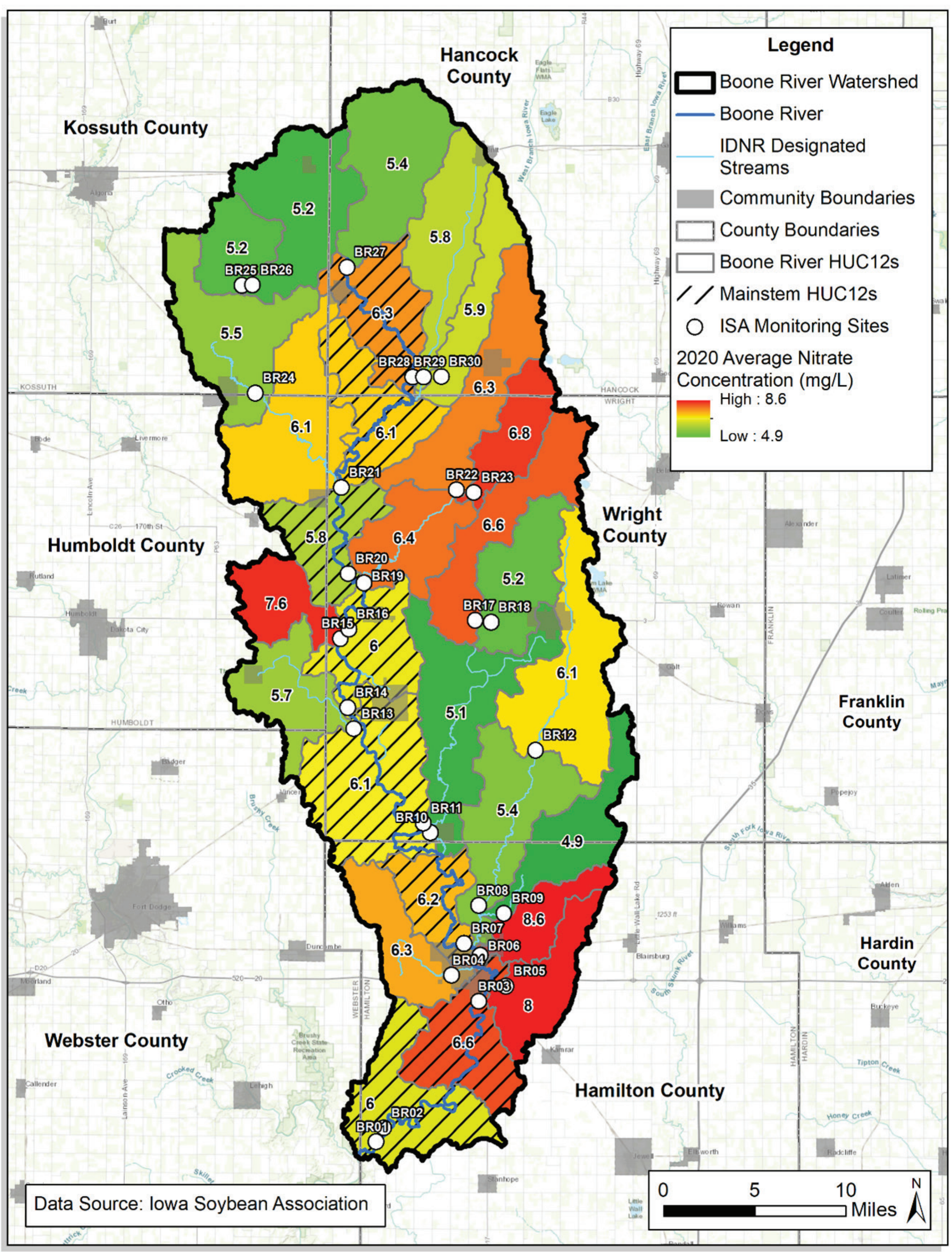
The Boone River Watershed faces many challenges including degraded water quality, altered hydrology, loss of wildlife habitat, and decreased soil health.

These issues were raised by the Watershed Management Authority (WMA) and have been issues that local partners have been working to address for many years. The watershed plan will help partners coordinate conservation efforts that need to be taken to meet mutual watershed goals.

Baseline data for the water quality goals (discussed in more detail in Chapter 4) are based on data from 2007-2013 baseline data. These dates match those found in the existing subwatershed plans. Additionally, nutrient reduction goals match those set by the Iowa Nutrient Reduction Strategy.

Primary Concerns to Address in the Boone River Watershed Area

High Nitrogen and Phosphorous Levels



- **Objective 1.1:** Reduce seasonal (April-August) median nitrate levels by 41%, from 9.3mg/L to 5.5 mg/L, by 2035.
- **Objective 1.2:** Reduce average median total phosphorus levels by 29%, from 0.15mg/L to 0.11 mg/L, by 2035.
- **Objective 1.3:** Reduce sediment loading to streams 24% by 2040, by Reducing average in-field erosion rates 25%, from 0.59 tons/acre/year to 0.44 tons/acre/year; and Reducing stream erosion 10% from 22,950 tons/year to 20,655 tons/year.
- **Objective 1.4:** Reduce *E. coli* bacteria levels by 98% to ensure no samples exceed 235 organisms/100mL and that the seasonal geometric mean is maintained below 126 organisms/100mL, by 2035.

SHORT-TERM ACTION PLAN



The action plan identifies priority activities that each city, county, and SWCD, along with the WMA should take over the next 5 years.

This action plan has been developed around a framework of four categories of activities which include Education, Projects and Studies, Partnerships and Policy, and Monitoring and Plan Evaluation. Each of these categories contain specific, recommended actions that help to address the objectives identified in the Boone River Watershed Plan goals.



Education

Action Items

1. Install BMP outreach signage that highlights the good practices landowners or producers are utilizing
» Goal Addressed: #1, #2, #3
2. Enhance signage at river access points
» Goal Addressed: #3
3. Install watershed boundary signs where major roads enter into the watershed
» Goal Addressed: #3
4. Promote partner efforts and leverage information
» Goal Addressed: #3
5. Create an onboarding document that would help get new members up to speed on WMA, goals, and other updates
» Goal Addressed: #3

Projects & Studies

Action Items

1. Apply for grant funding to implement BMPs, education, and outreach, or other activities within a priority subwatershed
» Goal Addressed: #1, #2, #3
2. Complete a hydrologic assessment of the watershed to understand the hydrology, historic floods, future hydrologic trends, and evaluate structural and nature-based flood mitigation strategies at the watershed level
» Goal Addressed: #2
3. Develop a unified water quality model for the BRW that addresses nutrients, sediment, and bacteria
» Goal Addressed: #1
4. Complete a detailed evaluation and mapping of drainage district infrastructure
» Goal Addressed: #1, #2, #3
5. Gauge BMP retention levels with randomized yearly follow-ups
» Goal Addressed: #1, #2, #3
6. Develop a BMP demonstration farm that can be used for education, outreach, and research at the local level. One possible location is the existing County Farm owned by Wright County
» Goal Addressed: #1, #2, #3

Partnerships & Policy

Action Items

1. Hire and/or maintain a local watershed coordinator position
» Goal Addressed: #3
2. Create and distribute an annual report of WMA activities and finances
» Goal Addressed: #3
3. Attend board meeting with the goal of recruiting potential members to join the WMA
» Goal Addressed: #3
4. Keep a standing invite for WMA meetings to all potential members or partners
» Goal Addressed: #3
5. Bring projects or proposals to county supervisor meetings and give them ideas for partnership
» Goal Addressed: #3

Monitoring & Plan Evaluation

Action Items

1. Track river use through metrics
» Goal Addressed: #3
2. Develop a database to track locations, types, and costs of BMPs implemented. For reporting purposes, aggregate practice adoption rates to the watershed scale to protect personal identifiable information.
» Goal Addressed: #1
3. Continue to operate existing water quality monitoring and sampling efforts
» Goal Addressed: #1 & #2

BEST MANAGEMENT PRACTICES



What is a BMP?

Best Management Practices (BMPs) are defined as a broad set of conservation practices that help to conserve soil and water resources.

Both watershed-wide and targeted implementation efforts to improve water quality and flood resiliency will primarily be accomplished through both existing partner programs/projects and newly identified best management practices. There are a variety of Best Management Practices (BMPs) which are proven to improve water quality and reduce flooding.

Whole Farm Conservation BMPs

Practice	Ability to Address Resource Concern						
	Soil Health		Nutrient Loss Reduction			Habitat	
	Impact	Confidence	Nitrogen Impact	Phosphorous Impact	Confidence	Impact	Confidence
Cover Crops		✓✓✓			✓✓✓		✓✓
No-Tillage		✓✓✓			✓✓		✓✓✓
Strip-Tillage		✓✓✓			✓		✓✓✓
N Management		✓✓			✓✓✓		✓✓✓
P Management		✓✓			✓✓✓		✓✓✓
Diverse Rotations		✓✓			✓✓		✓✓✓
Wetlands		✓✓			✓✓✓		✓✓✓
Saturated Buffers		✓✓			✓✓✓		✓✓✓
Bioreactors		✓✓			✓✓✓		✓✓✓
Field Buffers		✓✓✓			✓✓		✓✓✓
Controlled Drainage		✓✓			✓		✓✓
Terraces		✓✓✓			✓✓		✓✓✓
Ponds		✓✓			✓		✓✓✓
Water/Sediment Control Basins		✓✓			✓✓✓		✓✓✓
Grassed Waterways		✓✓✓			✓✓		✓✓✓
Strategically Placed Perennials		✓✓			✓✓		✓✓✓
Prairie Strips		✓✓✓			✓✓		✓✓✓

* Soil health improvement occurs within the practice footprint. However, no improvement is measure in the rest of the field
Potential habitat impact if pollinator habitat is installed above the practice

Strong

Moderate

Weak

No Impact

✓ Anecdotal Evidence

✓✓ Multiple Studies

✓✓✓ Scientific Consensus

Livestock & Manure BMPs



Exclusion or Cross Fencing

Clean Water Diversion Berm

Alternative Water Sources

Vegetative Treatment System

Grazing Management Plans

Heavy Use Area Protection

Stream Crossings

Manure Management

Animal Waste Manure Storage Systems

Urban Stormwater BMPs



Bioretention Cell

Rain Water Harvesting

Bioswale

Soil Quality Restoration

Native Turf

Storm Water Wetlands

Permeable Pavers

Stream Stabilization

Native Landscaping

Wet Ponds

Rain Garden

Green Roofs

For a complete list of BMPs included in this plan, visit the Boone WMA website and review the most recent draft of the plan.

NEXT STEPS



As the planning process enters its final stages, the Boone River WMA is seeking public feedback on the current draft of the plan. Members of the public are invited to share their comments and feedback with the planning team and WMA. This information will be used to help guide the final review and adoption of the plan.

Community-based planning techniques used in this plan included the involvement of a local stakeholder group and an open house style public meeting. The plan development also heavily relied upon participation and input from a technical advisory team (TAT). The TAT was made up of representatives from: Iowa Department of Natural Resources, The Nature Conservancy, Natural Resources Conservation Services, United States Fish and Wildlife Service, Iowa Department of Agriculture and Leadership Stewardship, Iowa Flood Center, Iowa State University Extension, Iowa Soybean Association, county conservation boards, and the Iowa Homeland Security & Emergency Management Division.

Planning process partially funded by IDNR Watershed Management Grant.



Use your phone’s camera and hover over the QR code at left to access the most up-to-date version of the Boone WMA Watershed Management Plan.

Website: booneriver.org/boone-river-wma

Project Timeline



LONG-TERM IMPLEMENTATION STRATEGY

The watershed plan lays out a long-term implementation time frame of 20 years, and education will be the cornerstone to achieving success.

It will take the education and buy-in of landowners, farmers, and communities; plus grants and other partner funds to help make this plan a reality.

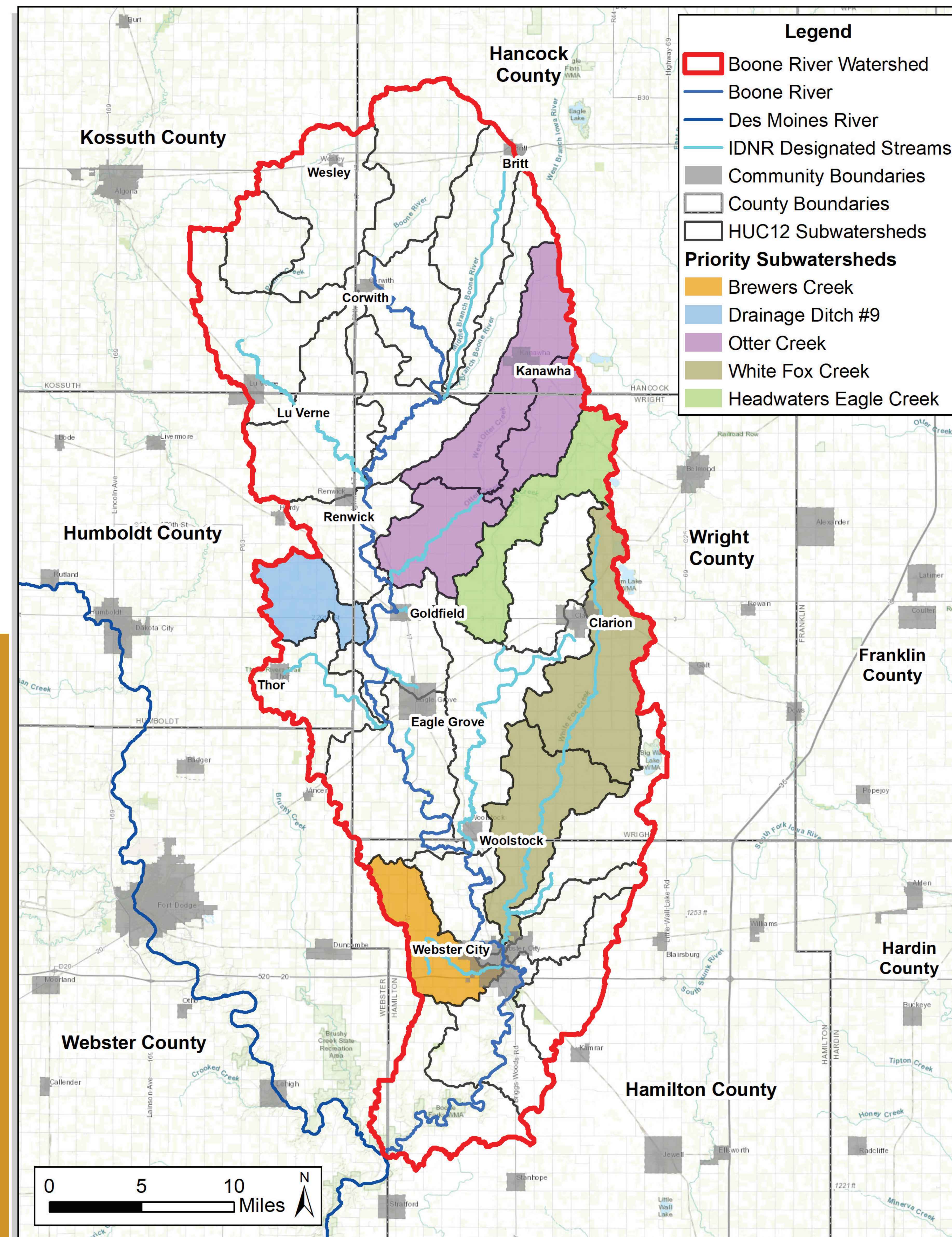
Overarching Strategies

- » Voluntary Adoption of BMPs
- » Compatibility with Agriculture
- » Phased Implementation
- » Identification of Priorities
- » Whole Farm Conservation
- » Policies for Sustainable Communities
- » Flood Resiliency

Special Priorities

- » On-site wastewater treatment systems
- » Low head dams
- » Small open feedlots
- » Fish passage
- » Oxbow restoration
- » Critical source areas

Priority Subwatersheds



Education Plan

The following strategies were identified by stakeholders and through literature review specifically for use during the implementation of this plan:

- » Utilize messaging from the Whole Farm Conservation Manual
- » Provide farmers and landowners with information on the economics of conservation.
- » Implement lessons learned from the Lyons Creek Watershed Improvement Project.
- » Utilize water trails to create a sense of place and leverage opportunities for educational outlets.
- » Utilize ACPF mapping to prioritize outreach to critical source areas.
- » Leverage virtual technology to expand outreach efforts.

