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THE NONPOINT SOURCE MANAGEMENT PROGRAM UNDER THE CLEAN WATER ACT: PERSPECTIVES FROM STATES

HEARING

BEFORE THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

UNITED STATES SENATE

ONE HUNDRED SIXTEENTH CONGRESS

SECOND SESSION

JANUARY 8, 2020

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COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

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C O N T E N T S

THE NONPOINT SOURCE MANAGEMENT PROGRAM UNDER THE CLEAN WATER ACT: PERSPECTIVES FROM STATES

WEDNESDAY, JANUARY 8, 2020

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
Washington, DC.

The Committee met, pursuant to notice, at 10:08 a.m. in room 406, Dirksen Senate Office Building, Hon. John Barrasso (Chairman of the Committee) presiding.

Present: Senators Barrasso, Carper, Inhofe, Capito, Braun, Rounds, Sullivan, Boozman, Wicker, Ernst, Cardin, Merkley, Gillibrand, and Van Hollen.

OPENING STATEMENT OF HON. JOHN BARRASSO, U.S. SENATOR FROM THE STATE OF WYOMING

Senator BARRASSO. Good morning. I call this hearing to order.

I would like to wish you all a happy new year. Welcome back to everyone on the Committee.

As Chairman, I look forward to another very productive year.

I will tell you, Senator Carper, I have this incredible list of things that we have done for the last year, working together in partnership, very successful. The staff has put it together, and it shows that we are a Committee that works and gets things done.

Last year, we advanced bipartisan transportation infrastructure legislation. This year, the full Senate will pass that legislation, so we can build better roads and bridges and highways. We will be working on legislation to support critical water infrastructure as well, such as dams and locks and levees.

We will also continue to work together to advance legislation and protect America's air, our water, our wildlife.

This Committee has a proven track record of working across the aisle to get important legislation done, and I look forward to having that continue in 2020 and working in partnership with you.

Today's hearing is a great way to start the year by examining a popular program that improves water quality through cooperation, not regulation. This program is the Nonpoint Source Management Program under the Clean Water Act. Established in 1987, the program recognizes that controlling water pollution is not a one size fits all issue.

Nonpoint sources are ones that do not come out of a pipe or a confined source. They are everywhere, runoffs from roads in urban

areas, to water from agricultural operations, to sediment from construction sites, and eroding stream banks.

For this reason, Congress correctly recognized that the best way to address these nonpoint source pollutions is to empower States. States come up with solutions that work for them. Washington provides grant funding for States to implement their programs. States must secure our funding to leverage those Federal dollars.

The program is more than 30 years old. It has seen many successes, and we want to make sure it is working as effectively as possible. That is why we are having this hearing today.

We are honored to welcome two experts from very different parts of the country, but both who realize just how very important this is.

We have from Wyoming, Jennifer Zygmunt, who is the Nonpoint Source Program Coordinator at the Wyoming Department of Environmental Quality. Wyoming has some of the cleanest water and air and land in the country. Wyoming is the home of the headwaters that supply water throughout the country. The four major river basins fed by Wyoming are the Missouri-Mississippi, the Green-Colorado, the Snake-Columbia, and the Great Salt Lake.

Wyoming also uses a variety of industries that rely on water supply and re-use, including energy production, ranching, and farming. Effective conservation and cleanup of water in Wyoming requires flexibility plus a deep understanding of our water systems. The Nonpoint Source Program was designed to do just that, to give States flexibility to manage water and to reduce pollution in a way that is best suited to the States' needs.

From 1999 to 2018—about 20 years—Wyoming funded 164 projects under its Nonpoint Source Management Program. As a result of the program, 15 streams and river segments—more than 187 miles in length—are now clean.

In 2018, Wyoming completed six projects. Those projects reduced sediment, reduced nitrogen, reduced phosphorus and E. coli loading in Wyoming's rivers and streams. Sediment loading alone fell by more than 40,000 tons per year.

The USEPA has published a number of Wyoming's nonpoint source projects as model success stories. One EPA published example occurred near my hometown of Casper, Wyoming, where yesterday the wind was blowing 79 miles an hour. And they closed down the Federal Government because they thought it might snow.

[Laughter.]

Senator BARRASSO. Well, who are these people?

Parts of Wyoming have naturally high levels of selenium in the soil. Several years of cooperative work between the Natrona County Conservation District, the State of Wyoming, local landowners, and a number of other organizations led to selenium levels falling in the North Platte River. Selenium levels in the river dramatically decreased due to the education, due to outreach, and voluntary implementation of best management practices.

These efforts included converting hundreds of acres from flood irrigation to sprinkler irrigation and replacing open irrigation ditches with underground pipelines. A 36 mile segment of the North Platte River now meets water quality criteria for selenium.

I look forward to hearing more about Wyoming's successes through this program during today's testimony.

I also look forward to hearing from Secretary Ben Grumbles from Maryland. We have two Maryland Senators on this Committee. This is a very critical Committee, and we are happy to have you here to testify.

I know that both of the Senators from Maryland are here to listen very closely to what you have to say, because Maryland, as you know and this Committee is constantly reminded, is home to the Chesapeake Bay. Maryland has critical challenges. I know that, Secretary Grumbles, you will discuss those.

Now I would like to turn to Ranking Member Carper for his opening remarks.

OPENING STATEMENT OF HON. THOMAS R. CARPER, U.S. SENATOR FROM THE STATE OF DELAWARE

Senator CARPER. Thanks, Mr. Chairman.

I just want to say I approve this message with respect to your opening statement. I am very proud of what we accomplished last year. I want to shout out to our bipartisan staff, and not just the majority and minority staff, but the folks who work for each of our members on our Committee of handling the environmental portfolio.

We got a lot done. We have a few things still left to do on our table and on our list, but we look forward to working on all of those.

I want to welcome our witnesses.

Jennifer, have you always been a Zygmunt? I would hold onto that name. I bet you have some great nicknames.

Any favorite albums by David Bowie? One comes to mind: Ziggy Stardust. There is a lot of good fun to be had with your name, but we will play it straight here today.

And Ben Grumbles, that is a good name to play with as well.

[Laughter.]

Senator CARPER. We are not going to go there, because Chris Van Hollen told me that you never grumble; you are just a delight to be around. You are our neighbor on the Delmarva Peninsula, and we love working with you.

Right behind me is Christophe Tulou, who used to be my Secretary of the Department of Natural Resources. You may recall I was Governor. We greatly value our partnership with your State.

I suspect we all know that our States are beset by continuing drinking water challenges: dead zones in the Gulf of Mexico and the Chesapeake Bay, hazardous algae blooms off the coast of Florida, and in our Great Lakes, continuing non-attainment of water quality standards in rivers and lakes and estuaries in every State across our Union.

These events are often devastating, not only to ecosystems and to human health, but also to local economies. For example, a 2009 study published in the Journal of Environmental Science and Technology calculated the combined cost of freshwater nutrient overloads in the U.S. at $2.2 billion annually. I will say that again: $2.2 billion annually—I had no idea it was that large—with losses in

recreational water use and waterfront real estate values and drinking water.

In response to a 2011 toxic algae bloom in Lake Erie—Toledo's primary drinking water source—the city issued a 3 day drinking water ban that affected over a half-million residents. The city has since invested more than $1 billion on water treatment upgrades and pollution remediation projects.

Florida spent $17.3 million in emergency funding in 2018 in response to harmful algae blooms; $17.3 million.

In July 2019, massive harmful algae blooms off the Gulf of Mexico coast forced Mississippi to close all of its beaches. Can you imagine what that would be like, to close all of our beaches in Delmarva?

We know these challenges well in our home States of Delaware and Maryland and our southernmost county in Delaware, Sussex County, which is home to more chickens than any other county in the Nation, I think. Last time we counted, 400 chickens for every person in Delaware, and a lot of them are in Sussex.

With the robust production of corn, soybeans, and vegetables to feed the chickens, constituents must contend with unhealthy levels of nitrate in their well water too often. That nitrate is a legacy of decades of intensive agriculture, and until the last couple of decades, a lack of understanding and appreciation for the adverse effects this nutrient can have on the health of our babies and the quality of our invaluable coastal waters.

And along and around our inland bays, too many of those same Delawareans are also living with highly polluted estuaries. They bloom with algae in warmer months, resulting in dead zones, occasional toxic algae blooms, and consequently, fish kills and stench.

Though several Federal programs exist to mitigate these sources of nonpoint source pollution, Section 319 of the Clean Water Act is our primary defense against this pollution.

Given the very real ecological, economic, and public health impacts associated with nonpoint source pollution, we either must do a better job with the tools we have or find more effective and expeditious means to reduce the nutrient sediment and other pollutants that flow off of our lands and into our waters. Maybe we need to do both.

I am particularly interested to learn how well the Clean Water Act Section 319 Program and other provisions of law actually arm our States in their efforts to meet their water quality goals, especially in the Chesapeake Bay watershed. As an upstream State in that watershed, Delaware is acutely aware of Maryland's and Virginia's expectations that we all do our part to reduce pollution in our States, pollution loading, and assist with the restoration of the iconic treasure that is the Chesapeake Bay.

At one point, Delaware was not doing enough. We are doing a whole lot better now, and can we do more? Yes, probably so, and we will.

But it is time for some other upstream States like the Commonwealth of Pennsylvania to step up and clean up the water that they send down the Susquehanna River to the Chesapeake. This is essential, as our downstream neighbors have little recourse if up-

stream States fail to act on and meet their good neighbor expectations.

In that regard, Mr. Chairman, our States of Delaware and Wyoming share similar a circumstance. We lie at the headwaters of rivers and streams that are critical to the health of ecosystems and communities downstream. Given that nonpoint source pollution is the No. 1 cause of non-attainment across our country, I am also very interested to learn whether Section 319 is keeping our waters clean and serving the needs of downstream communities and neighboring States.

Let me close with this. While the 319 Program has certainly resulted in demonstrable successes, we continue to struggle with many of the same nonpoint source pollution problems that we did decades ago.

More troubling, our changing climate has made the problems even worse. According to a recent CRS report, scientific research indicates that in recent years, the frequency and geographic distribution of harmful algae blooms have been increasing nationally and globally.

Climate change is exacerbating these problems as heavier and more frequent rainfall increases runoff into our rivers.

Clearly, we have plenty of work ahead of us. We must make sure our nonpoint source pollution programs are able to respond to our new climate reality, and I hope this hearing will give us insights into how to do both.

Thank you, Mr. Chairman, and welcome.

Senator BARRASSO. Thank you very much, Senator Carper.

We are now going to hear from our witnesses.

I am pleased to introduce Jennifer Zygmunt, who is the Nonpoint Source Program Coordinator for the Wyoming Department of Environmental Quality. A native of Casper, she spent some time in New Mexico before heading back to Wyoming, and we are very glad that she did.

She graduated from the University of Wyoming in 2003 with a degree in botany and a minor in environment and natural resources. After graduation, she joined the department, where she wrote permits under the State's Clean Water Act Discharge Permit Program, and she did this for 5 years. For the last 11 years, she has managed the Nonpoint Source Program.

We thank you for your public service in protecting water quality for all the people of Wyoming. We are honored that you are here to testify today before the Committee and to share your expertise with us. I know you have much to tell us about Wyoming's strong record of environmental protection and restoration through its nonpoint source program, and we look forward in a few moments to hearing your input on how we in Congress can make sure Washington works even better with Wyoming and other States to protect our Nation's water quality in the future.

Before you start, we are also honored to welcome Mr. Ben Grumbles, Maryland's Secretary of the Environment. We have strong Maryland representation on this Committee.

Senator Cardin, as the senior Senator from Maryland, would you like to say a few words first? And then I will be happy to call on Senator Van Hollen as well.

Senator CARDIN. Well, Mr. Chairman, first of all, thank you very much for the courtesy of being able to introduce Ben Grumbles, with my colleague, Senator Van Hollen. Particularly, thank you for holding this hearing on Section 319. Wyoming and Maryland indeed have a common need for clean water, and we are proud of the actions of both of our States as leaders on clean water.

I am delighted to welcome Ben Grumbles, Maryland's Secretary of Environment. His duties include serving as Chairman of the Governor's Chesapeake Bay Cabinet and Chair of the Regional Greenhouse Gas Initiative, RGGI. Ben has served as the Assistant Administrator for Water at the U.S. Environmental Protection Agency from 2003 to 2009, and as Director of the Arizona Department of Environmental Quality, and as environmental counsel and a senior staff member of the Transportation and Infrastructure Committee and Science Committee in the U.S. House of Representatives.

So he has a great deal of experience at the State level, but also understands the Federal level from his experience there, and both branches of Government, the executive and legislative branches. He also was President of the U.S. Water Alliance, an environmental non-profit organization that educates the public on the value of water and the need for integrative and innovative solutions.

Section 319, as we will hear today, is a vital source of resources for us to deal with nonpoint source management. In our State, it is important in regard to how we deal with developers, local officials, and farmers to deal with water quality. Both the Chairman and Ranking Member have mentioned the Chesapeake Bay, and Section 319 provides sources for help in dealing with our commitment to the Chesapeake Bay.

One more word about Ben Grumbles and the Bay program. He is our leader in the State on the Bay, and he is following in a great tradition of really nonpartisan leadership in our State in our commitment to the Chesapeake Bay. He has shown incredible innovation and leadership, and we are very proud of what he has been able to demonstrate that we can do in Maryland, working with our partners in the surrounding States.

The key to the Chesapeake Bay Program was that it was developed by the local governments. It started 40 years ago, and it was from the ground up. It was not from the Federal Government down. It was the local governments that came up with plans based upon best science and the political realities of their State as to what they could do to save the Chesapeake Bay.

Then they joined together. The States surrounding the Chesapeake Bay said, We have got to do this collectively. It was later that we involved the Federal Government. We involved the Federal Government for two main reasons, and I think Secretary Grumbles is very much aware of that.

First of all, we need help funding, funding sources. The Chesapeake Bay has been the beneficiary of the direct funding from the Federal Government as well as programs such as Section 319. But we also need someone to make sure that all stakeholders—and that means the farmers, the developers, the local governments, and all regions, all States—were doing their fair share, so that we had a committed program that all of us were doing our share.

That is where the enforcement by EPA has become so critically important, including the TMDLs. Secretary Grumbles, I think, can speak to how all this has worked well and the progress we have made, but we need all of our tools working together, and that is why Section 319 is a very important program and one that I hope, as we look at reauthorization programs, how we can expand and improve Section 319.

I thank Secretary Grumbles for being here.

Senator BARRASSO. Thank you, Senator Cardin.

Senator Van Hollen.

Senator VAN HOLLEN. Thank you, Mr. Chairman.

Well, with respect to the accolades about Secretary Grumbles, I am just going to say, amen to that.

Thank you and our partners around this table on both sides of the aisle for working with Senator Cardin and myself, Senator Capito, and other members of the Bay States to provide the support that we need as a country to this national treasure. Secretary Grumbles has been a big part of that.

We will get into this a little more later, but both Senator Cardin and Senator Carper mentioned the Chesapeake Bay Agreement and the need to enforce it. We have voluntary tools, but we decided in the Bay Agreement that when necessary, we ultimately need to have more leverage and more enforcement to make sure that all of the members of that multi-State jurisdiction take their responsibilities seriously and meet their reduction goals.

Thank you, Mr. Chairman, for having this hearing. This is a very important voluntary program, Section 319. We need to use all the tools at our disposal when we are addressing these issues.

Thank you.

Senator BARRASSO. Thank you, Senator Van Hollen.

I want to remind the witnesses that your full written testimony will be made part of the official hearing record, so we ask that you try to keep your statements to 5 minutes, so we have time for questions. I look forward to hearing from both of you.

Ms. Zygmunt, please begin.

STATEMENT OF JENNIFER ZYGMUNT, NONPOINT SOURCE PROGRAM COORDINATOR, WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

Ms. ZYGMUNT. Good morning, Chairman Barrasso, Ranking Member Carper, and honorable members of the Committee. Thank you for the opportunity to provide testimony for the Wyoming Department of Environmental Quality Nonpoint Source Program, which I have had the privilege of managing for the past 11 years.

You will find detailed background information on our program in my written testimony. For more information on recent program accomplishments, I encourage you to review our 2018 annual report, which is available online in an RJAS story map format.

Overall, the Wyoming DEQ believes that the Section 319 program is functioning effectively. We would like to highlight several aspects of the program that we feel are important to its success.

First, national program guidance has provided sufficient flexibility to allow Wyoming to manage its nonpoint source program according to the needs of our State.

We appreciate areas of flexibility that were incorporated into the guidance during its 2013 revision. As one example, the increased ability to protect healthy waters in addition to restoring impaired waters has helped support important river restoration projects in Wyoming, expanding partnerships with Wyoming Game and Fish Department, conservation districts, and Trout Unlimited. We continue to advocate for revisions to program guidance that support flexibility so that States can best address their priority water quality issues.

Second, the DEQ believes that a voluntary approach to nonpoint source pollution management is the most effective approach. While often challenging, bringing stakeholders together in a spirit of collaboration promotes partnerships, information sharing, and innovation. Projects with multiple benefits are the most likely to succeed in the long term, and the voluntary approach helps identify such win-win situations.

As one example, over 36 miles of the North Platte River were recently restored to meeting water quality standards. Converting flood irrigation to sprinkler irrigation in the watershed not only improved water quality, but it increased agricultural production, and it saved farmers money by reducing water usage and labor costs.

The importance of partnerships and local leadership and the successful voluntary approach cannot be overstated. Finding common goals with other agencies, organizations, and individuals is key to success.

Some of DEQ's most important partnerships are those with the Wyoming Association of Conservation Districts, our 34 individual conservation districts, and local members of those districts. As local government entities with the authority to lead watershed planning and restoration efforts, conservation districts sponsor the majority of our 319 projects, and they provide an important link between the DEQ and our local stakeholders.

Finally, though a challenging part of the program, the collection of data to evaluate the program's effectiveness is important. The program's primary measure of success—the number of water bodies restored to meeting standards—emphasizes accountability and provides a meaningful communication tool with the public.

While the DEQ believes the program is operating effectively, we respectfully offer the following recommendations for further program improvement. Of highest priority, we recommend that EPA evaluates ways to streamline the 319 grant application and award process to avoid delays in awarding grants to States. Having a definitive timeframe for when grants will be awarded will improve our ability to notify sponsors of anticipated project start dates, allowing sponsors to better plan projects and coordinate their non-Federal sources of match.

We appreciate that EPA Region 8 has heard our concerns on this subject and is taking steps to determine if improvements can be made. We encourage that this conversation happens at the national level as well.

Our second recommendation is that if the 319 allocation formula is reevaluated, it needs to be done with careful consideration and input from all States. While changes to the formula would benefit some States, they could be detrimental to others. The DEQ has in-

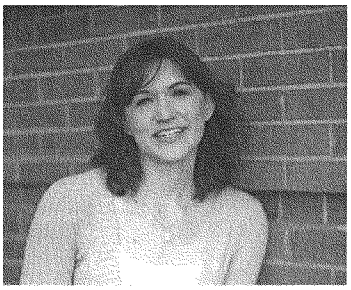
cluded in its written testimony some suggested factors for consideration if the formula is reevaluated.

Finally, the DEQ recommends that nationally, EPA and NRCS continue to gather and evaluate State feedback to determine how the Federal National Water Quality Initiative can be improved. The DEQ's partnership with our Wyoming NRCS is a critical partnership for us. With the common goal of water quality improvement, both agencies are committed to working together to improve delivery of conservation programs, including the National Water Quality Initiative.

While the initiative has resulted in positive outcomes in Wyoming, new requirements under the initiative have put additional burden on limited DEQ staff, and it has been challenging to meet those requirements. Further national initiatives with NRCS should stem from significant outreach to States and should allow flexibility in how States best pursue partnerships with their NRCS counterparts.

Thank you again for the opportunity to be here, and I look forward to your questions.

[The prepared statement of Ms. Zygmunt follows:]



Jennifer Zygmunt
Nonpoint Source Program Coordinator
Wyoming Department of Environmental Quality

Jennifer Zygmunt is the Nonpoint Source Program Coordinator for the Wyoming Department of Environmental Quality. She began her career with the DEQ after graduating from the University of Wyoming in 2003 with a B.S. in Botany and a minor in Environment and Natural Resources. She has managed the Nonpoint Source Program for the last eleven years; prior to that, she worked as a permit writer for the WYPDES Program for five years.

A native of Casper, she grew up in New Mexico before finding her way back to Wyoming, where she is privileged to work with people across the state to protect its water resources.

Written Testimony of Jennifer Zygmunt, Nonpoint Source Program Coordinator
Water Quality Division
Wyoming Department of Environmental Quality

Before

U.S. Senate Committee on Environment and Public Works

Hearing to receive testimony on

"The Nonpoint Source Management Program Under the Clean Water Act: Perspectives from States"

January 8, 2020 at 10:00 AM

Room 406 Dirksen Senate Office Building

Contents

REGULATORY BACKGROUND

Section 319(b) of the Clean Water Act (CWA) provides the legal basis for the implementation of state nonpoint source management programs and identifies requirements that states must meet to qualify for financial assistance under the Act. Section 319(b) stresses two items that must be completed by a state prior to receiving grant funds to address nonpoint source pollution—the State Assessment Report and the State Nonpoint Source Management Program.

Wyoming's State Assessment Report is the Integrated 305(b)/303(d) Report[1], which the Wyoming Department of Environmental Quality (WDEQ) has prepared on a biennial basis since 1988. The Integrated Report provides a statewide analysis of water quality impairments, including those caused by nonpoint source pollution. The State Nonpoint Source Management Program (the Wyoming Nonpoint Source Program) works to restore these water quality impairments following directions established in the Wyoming Nonpoint Source Management Plan[2]. Thus, the 305(b)/303(d) Integrated Report and the Nonpoint Source Management Plan provide the basis for nonpoint source pollution management in Wyoming in accordance with Section 319(b) of the CWA.

The Wyoming Nonpoint Source Program also implements state regulations. As the designated agency for water quality management in Wyoming, the WDEQ works through many programs, including the Nonpoint Source Program, to fulfill the policy purpose of the Wyoming Environmental Quality Act (EQA) as stated in §35-11-102. Sections 35-11-109 (a) (iii) and (viii) of the Wyoming EQA provide the director of the WDEQ with authority for securing intergovernmental cooperation in implementing the Wyoming Nonpoint Source Program. Furthermore, §35-11-114 establishes that through WDEQ, the Water and Waste Advisory Board will recommend to the Environmental Quality Council comprehensive

[1] Wyoming's 2016/2018 305(b)/303(d) Integrated Report is available at http://deq.wyoming.gov/wqd/water-quality-assessment/resources/reports/. The draft 2020 Integrated Report will be available for public comment in early January 2020.
[2] The 2013 Wyoming Nonpoint Source Management Plan is available at http://deq.wyoming.gov/wqd/non-point-source/resources/reports/.

plans and programs for the "prevention, control and abatement of air, water, and land pollution and the protection of public water supplies."

Finally, the current Wyoming Nonpoint Source Management Plan has been prepared to meet requirements established in 1999 by the Environmental Protection Agency (EPA) as part of national Section 319 Program guidance (Key Components of an Effective State Nonpoint Source Management Program; currently available in Appendix A of *Nonpoint Source Program and Grants Guidelines for States and Territories*[3], April 2013).

In accordance with the state and federal regulations cited above as well as WDEQ policy, the management plan receives significant review by program partners and the public. The plan is prepared by the WDEQ Nonpoint Source Program Coordinator with input from other WDEQ programs, partnering agencies and organizations, and the Nonpoint Source Task Force[4] (a board of governor-appointed citizens who oversee the program). Once approved by the Nonpoint Source Task Force, the Water Quality Division Administrator, and the WDEQ Director, the plan is presented to the Water and Waste Advisory Board for adoption by resolution. Following a 45-day public comment period, the plan is submitted for certification by the governor—in accordance with Section 319(b)(1) of the CWA—before being submitted to EPA for approval.

The Wyoming NPS Management Plan was first written and approved in 1989 and most recently updated and approved in 2013. The WDEQ is currently working on another revision of the plan.

NONPOINT SOURCE POLLUTION AND WYOMING

Nonpoint source pollution refers to a broad range of pollutant sources that are not regulated. Typically, nonpoint source pollution occurs when surface water runoff (from rainfall and snowmelt, as

[3] Available at https://www.epa.gov/sites/production/files/2015-09/documents/319-guidelines-fy14.pdf
[4] Nonpoint Source Task Force members represent various interests within Wyoming: wildlife, conservation districts, environment, oil and gas, timber, sheep, recreation and travel, cattle, public-at-large, and local government. A list of current Task Force members is available at http://deq.wyoming.gov/wqd/non-point-source/resources/task-force/.

well as human activities such as irrigation) travels over or percolates through the ground and picks up contaminants. These contaminants are deposited into streams, lakes, rivers, and groundwater. Nonpoint source pollution can also be caused when stream and river channels become unstable, resulting in erosion and sedimentation. Common nonpoint source pollutants include fertilizers and pesticides from agricultural and residential activity; oil, grease, and toxic chemicals from urban runoff; sediment from construction activity or stream bank erosion; and pathogens and nutrients from livestock and pet waste or failing septic systems. Nonpoint source pollution typically comes from large, diffuse areas, which, along with many factors affecting fate and transport, can make it a challenge to mitigate. In contrast, point sources of pollution come from discrete conveyances, such as pipes and outlets, and are regulated through permitting programs such as the Wyoming Pollutant Discharge Elimination System.

Nonpoint sources of pollution are inherently variable, and many factors (e.g., precipitation, soil type, slope, geology, vegetative cover, depth to groundwater, and distance to surface water) affect whether or not a land use will cause nonpoint source pollution. Thus, nonpoint sources of pollution and methods to mitigate them can vary from state to state as well as from watershed to watershed within a state. Some key characteristics about Wyoming that influence nonpoint source pollution and its management include the following:

- Wyoming is characterized by an arid to semi-arid climate, high elevation, and an abruptly variable topography. Most of the state's precipitation is received as snowfall in the high elevations, which melts and runs off into major river systems or recharges groundwater aquifers. During peak run-off times during melting of the snowpack and during high-intensity storm events, flooding can occur. This, in combination with highly erosive soils in some areas of the state, can result in a significant amount of natural erosion.
- Wyoming is a headwater state, with most surface waters originating in Wyoming and few major river systems entering Wyoming from other states. Interstate coordination is an important aspect of managing water resources.

- Riparian areas along surface waters are important ecological features. Only 1 percent or less of Wyoming is considered riparian, but the majority of native animals depend on riparian areas at some point during the year for food, water, shelter, and migration routes. In addition, riparian areas filter sediment and nutrients to improve water quality and help to minimize the effects of flooding by storing water.
- More than 75 percent of Wyoming's population relies on groundwater for part or all of their drinking water supply. Mitigation of nonpoint sources of pollution is important for both surface water and groundwater.
- Over 50 percent of Wyoming is public land; partnerships with federal and state land management agencies are important to protect and restore water quality.
- Wyoming is the least populous state in the nation; according to the U.S. Census Bureau, Wyoming's population was 577,737 as of July 2018. All but two of Wyoming's municipalities have a population less than 50,000, and a significant portion of Wyoming residents live in unincorporated rural areas. Finding local resources to address nonpoint sources of pollution can be challenging for smaller municipalities and rural areas.
- Agriculture is an important industry in Wyoming that includes cropland farming and livestock production. According to the U.S. Department of Agriculture, National Agricultural Statistics Service, cash receipts from agricultural commodities in Wyoming exceeded $1.4 billion in 2018; in addition, there were 11,900 farms and ranches with an average size of 2,437 acres, making Wyoming first in the nation for this statistic. Partnerships with the agricultural community are important for successful nonpoint source pollution mitigation.
- Outdoor recreation and tourism are also important socioeconomic factors—Wyoming's open spaces and extensive public lands draw many visitors each year. According to Wyoming State Parks, there were over four million visitations to state parks and recreation areas in 2018. According to the National Park Service, there were over eight million visitations to

Wyoming's national parks, monuments, and historic sites in 2018. Outdoor recreation activities and tourism have the potential to impact Wyoming's water quality.

Management measures (referred to as best management practices [BMPs] or conservation practices) can be implemented to prevent, mitigate, or eliminate nonpoint source pollution resulting from a particular land use. Major land uses in Wyoming that can potentially generate nonpoint source pollution are shown in Table 1 below, along with examples of BMPs that have been implemented to reduce nonpoint source pollution from those land uses. As part of the Nonpoint Source Management Plan, the Nonpoint Source Program manages five BMP Manuals: Livestock/Wildlife, Cropland, Urban, Stream and Lakeshore Restoration, and Silviculture. The Livestock/Wildlife, Cropland, and Stream and Lakeshore Restoration manuals incorporate by reference conservation practices used by Wyoming Natural Resources Conservation Service (NRCS) and the United States Forest Service. The Nonpoint Source Program also includes by reference the Forestry BMP manual prepared by the Wyoming State Forestry Division.

Table 1. Major land uses in Wyoming and examples of BMPs implemented to address nonpoint source pollution that may occur from those sources.

Land Use	**Examples of BMPs Implemented**
Urban	Stormwater wetlands Rain gardens Storm sewer catch basins and treatment units Pet waste campaigns
Rural Residential	Remediation of failing septic systems Small-acreage grazing management
Livestock and Wildlife	Off-channel water sources Grazing management Riparian fencing and cross fencing for improved pastures Corral relocations
Irrigated cropland	Conversion of flood irrigation to sprinkler irrigation Irrigation water management Converting dirt ditches to buried pipeline Soil health workshops
Forestry	Wildfire rehabilitation (seeding, soil stabilization)
Hydrologic Modification	Stream and river restoration using natural channel design principles (e.g., grade control structures, bank stabilization, channel realignment) Irrigation diversion improvements Irrigation push-up dam removal
Recreation	Road closures and decommissioning; Campsite remediation

Wyoming's Water Quality Impairments

The WDEQ collects biological, chemical, and physical data on Wyoming's surface waters and analyzes that data to make assessment decisions (i.e., determining if a waterbody is or is not meeting water quality standards). Other agencies, such as conservation districts, can also submit data that the WDEQ may use for assessment decisions. Impaired waterbodies are those streams, rivers, lakes, and reservoirs that are not meeting water quality standards. Most, but not all, of Wyoming's surface water impairments are caused at least in part by nonpoint source pollution—as of 2018, nonpoint source pollution contributed to 89 percent of the water quality impairments in Wyoming.

The three nonpoint source pollutants causing the majority of Wyoming's surface water quality impairments are pathogens, sediment, and selenium, as shown in Figures 1 and 2 below. Pathogens (as measured by the indicator *E. coli*) impair recreational use of waterbodies, selenium impairs aquatic life other than fish use, and sediment impairs fisheries and other aquatic life uses.

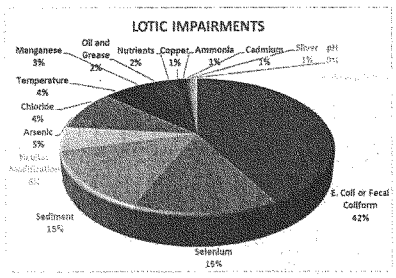


Figure 1. Pollutants causing water quality impairments in Wyoming streams and rivers as of the 2016/2018 Integrated Report.

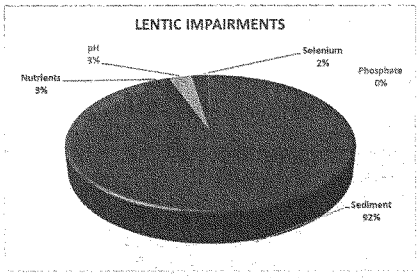


Figure 2. Pollutants causing water quality impairments in Wyoming lakes and reservoirs as of the 2016/2018 Integrated Report.

THE WYOMING NONPOINT SOURCE PROGRAM

The Wyoming Nonpoint Source Program is housed within the Watershed Protection Section of the Water Quality Division. It works closely with other Water Quality Division programs as well as numerous partner agencies and organizations to implement the nonpoint source pollution control process as shown in Figure 3.

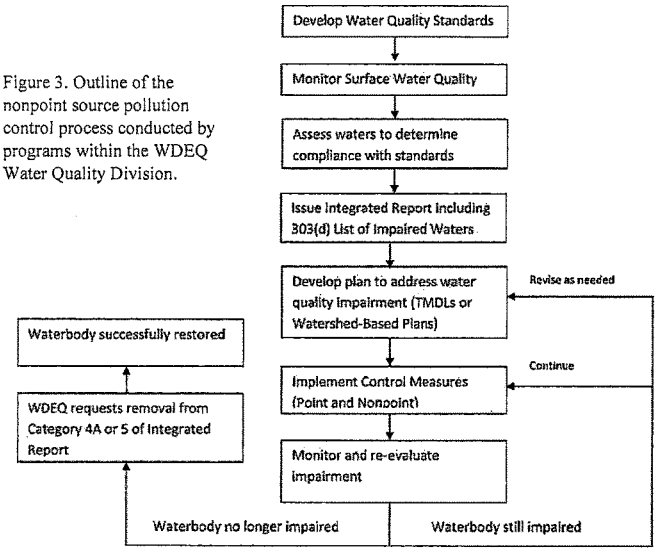


Figure 3. Outline of the nonpoint source pollution control process conducted by programs within the WDEQ Water Quality Division.

Goals, Principles, and Objectives

The goals of the Wyoming Nonpoint Source Program are to (1) **identify sources of nonpoint source pollution to surface water and groundwater of the State of Wyoming** and (2) **to prevent and reduce nonpoint source pollution such that water quality standards are achieved and maintained.** The program works to achieve these goals through a set of overarching principles that emphasize **voluntary and incentive-based participation, locally led projects, partnerships, measurable water quality improvement, and effective and efficient program administration**. Program activities are directed to fulfill nine objectives established in the 2013 Nonpoint Source Management Plan:

1. **Identification and prioritization:** identify waterbodies impaired or threatened due to nonpoint source pollution and prioritize those waterbodies for restoration and protection efforts
2. **Planning:** work with local stakeholders to develop accurate and effective watershed-based plans that identify how impaired waterbodies will be restored

3. **Implementation:** provide technical and financial assistance to local sponsors to implement effective watershed restoration projects in accordance with watershed-based plans
4. **Documenting environmental results:** collect credible data and use other methods to evaluate project effectiveness and water quality improvement
5. **Protection**: protect high-quality waters from degradation and work to prevent new water quality impairments from occurring
6. **Groundwater protection:** work to understand current groundwater quality conditions, improve groundwater quality, and protect drinking water supplies from nonpoint sources of pollution
7. **Information and education:** increase public awareness of water quality, nonpoint source pollution, and actions that can be taken to improve and protect water quality
8. **Partnerships and interagency coordination:** continue to improve existing partnerships and build new ones
9. **Efficient and effective program administration:** administer the program as effectively and efficiently as possible, with a focus on integration with other programs, demonstration of accountability, and continual program evaluation

Milestones and tracking measures are established for each objective to evaluate progress over time.

Administration of Section 319 Grant Funds

Section 319 grant funds awarded to Wyoming are administered to fulfill the nine objectives listed above. Historically, $675,000 (approximately 45 percent) of each annual Section 319 grant is used for staffing to support full-time employees who implement various aspects of the nonpoint source pollution control process (see Figure 1). The remaining Section 319 grant funds ($800,000–$900,000 in recent years; approximately 55 percent of the total grant award) are awarded as pass-through funds to third-party sponsors who implement locally led, voluntary watershed restoration and protection projects.

Projects are selected through a competitive proposal process—a Request for Proposals is issued annually (usually in the summer), with final proposals submitted in early fall. The Nonpoint Source Task Force makes funding recommendations after evaluating proposals at a fall meeting. Sponsors whose proposals are recommended for funding then work with the Nonpoint Source Program Coordinator to develop Project Implementation Plans (PIPs). PIPs are submitted to EPA Region 8 for approval as part of the Section 319 grant application. After grant funds are awarded, the WDEQ issues cooperative agreements with project sponsors. Section 319 grants are active for a maximum of five years; most projects require three to four years for completion.

During the course of each project, the Nonpoint Source Program Coordinator works with the sponsor to monitor project progress, provide technical assistance, track budgets, and ensure that grant requirements are met. Project management training is provided to each sponsor at the time the agreement is signed. Reimbursement requests and progress reports are submitted quarterly, and an annual progress report is submitted at the end of each calendar year. A final project report is submitted when the project closes.

A 40 percent nonfederal match component is required for Section 319 grant funds; each project awarded funding commits to reporting 40 percent of total project cost as nonfederal match, though many projects report significantly more. Common sources of nonfederal match include Wyoming Department of Agriculture grant funds, Wyoming Wildlife and Natural Resource Trust funds, Wyoming Game and Fish Department funds and staff time, local government (conservation district, county, or city) funds or staff time, and contributions (cash or in-kind services) from landowners.

The Nonpoint Source Program also manages a minor amount of grant funding under Sections 604(b) and 205(j) of the CWA. These funds are used for water quality management planning, with $60,000 per year being used for staffing and support and $40,000 per year being pass-through funding for local agencies to implement water quality management planning projects. The funds are awarded through

the same competitive proposal and award process as described above for Section 319 funds and are also administered in a similar manner.

Wyoming's Section 319 Budget

Wyoming receives 0.977 percent of the total Section 319 allocation. Between 1996 and 2019, Wyoming's total Section 319 allocation has ranged from $970,800 (FY96 and FY97) to $2,270,000 (FY03), as shown in Figure 4 below.

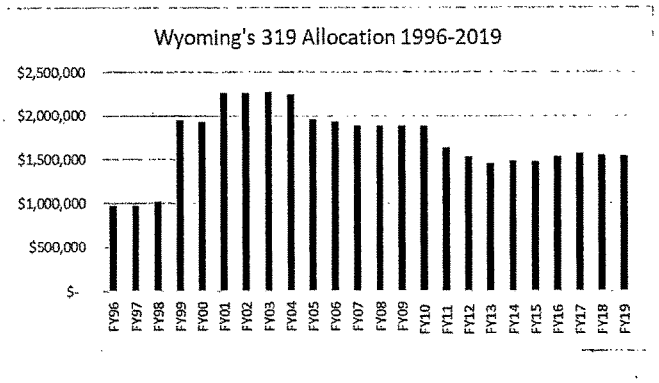


Figure 4. Comparison of Wyoming's Section 319 allocation from 1996 to 2019.

As described above, the WDEQ has historically used $675,000 of the total Section 319 allocation each year for staffing and support; the remaining funding (typically $800,000–$900,000) is awarded to third-party projects through the competitive proposal process. It is typical to have more funds requested by applicants each year than funds available; over the past five years, applicants have requested 1.1 to 2.3 times the amount of funding available (see Figure 5).

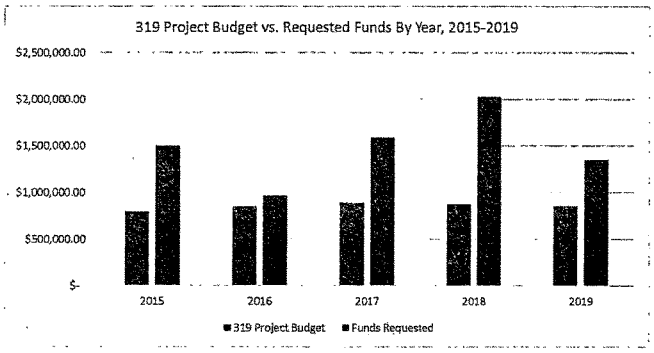


Figure 5. Comparison of Wyoming's Section 319 project budget with amount of funds requested by applicants, 2015–2019.

As part of its ninth objective (Efficient and Effective Program Administration), the WDEQ has made it a priority to effectively use grant funds. The last four closed Section 319 grants (FY11 – FY14) had all grant funds expended prior to grant closure. The WDEQ has consistently met or exceeded the required 40 percent nonfederal match for each grant.

Program Partners

Addressing nonpoint source pollution is a challenging task that requires efforts at local, state, and federal levels. Numerous other agencies, organizations, and individuals also work to reduce nonpoint source pollution, and the Nonpoint Source Program seeks to form partnerships to share resources, encourage communication, and promote collaboration.

The WDEQ's partnerships with Wyoming's 34 conservation districts and the Wyoming Association of Conservation Districts (WACD) are among the most important for successful implementation of the Nonpoint Source Program. As local government entities with the authority to lead watershed planning and restoration activities, conservation districts have sponsored the majority of Section 319 projects, providing an important link between the WDEQ and local stakeholders. Wyoming's conservation districts also lead water quality education programs to support on-the-ground restoration,

and most districts also conduct water quality monitoring activities. The WDEQ and WACD routinely communicate and collaborate on Nonpoint Source Program activities.

The partnership with the Wyoming NRCS is also critical. The NRCS and WDEQ recognize the importance of developing strong partnerships resulting in coordinated interagency delivery of watershed planning efforts, conservation technical assistance, and voluntary implementation of water quality improvement programs. Both agencies also recognize that owners and managers of farmland, rangeland, forestland, and other lands are key customers for each agency's programs and activities. Increased coordination, collaboration, and educational efforts have been a focus of improving the WDEQ/NRCS partnership. The WDEQ is a participating member of the NRCS State Technical Advisory Committee. In recent years, the WDEQ and NRCS have worked together to implement the National Water Quality Initiative.

A complete list of program partners is included in the 2013 Nonpoint Source Management Plan. Partners that the Nonpoint Source Program routinely collaborates with include the following:

- Wyoming Association of Conservation Districts
- Wyoming's 34 conservation districts
- Wyoming NRCS
- Wyoming Game and Fish Department
- Wyoming State Forestry Division
- Trout Unlimited
- The Nature Conservancy
- United States Forest Service
- City and county governments
- Environmental Protection Agency

Program Summary 1999-2018

The following highlights are provided as a summary of program progress and accomplishments between 1999 and 2018:

- A total of 164 projects have been funded.
- Over $20.4 million in grant funds have been invested in nonpoint source pollution reduction projects. Over $19.5 million in non-federal funds have matched these projects.
- A total of 55 agencies or organizations have sponsored projects. Conservation districts continue to sponsor the majority (55 percent) of projects (see Figure 6).

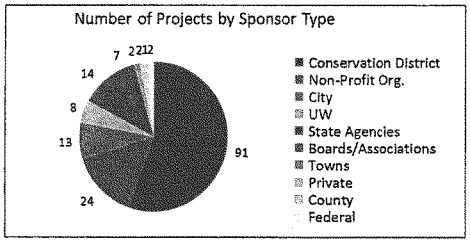


Figure 6. Pie chart showing number of projects sponsored by sponsor type, 1999–2018.

- Out of four broad project types (implementation, education, planning/assessment, and groundwater), the majority of funds (over 75 percent) continue to be spent toward implementation projects that install on-the-ground best management practices for water quality improvement in Wyoming's streams, rivers, lakes, and reservoirs (see Figure 7). Within the last five years, greater than 97 percent of project funds have been awarded to on-the-ground implementation projects.

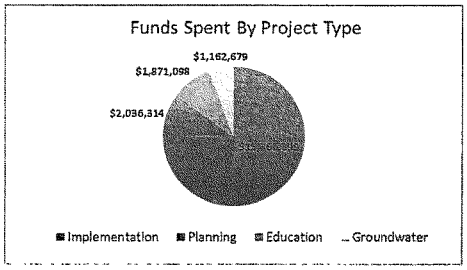


Figure 7. Pie chart showing funds expended by project type, 1999–2018.

- Projects have addressed a variety of sources, with a focus on livestock- and urban-related sources (see Figure 8).

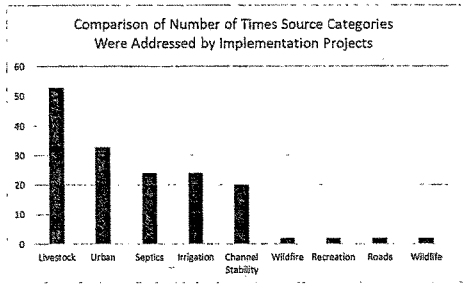


Figure 8. Chart showing relative number of times projects have addressed source categories, 1999–2018.

- Projects have addressed a variety of pollutants, with a focus on sediment and pathogens (see Figure 9).

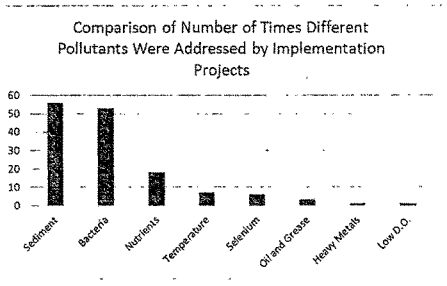


Figure 9. Chart showing relative number of times projects have addressed different pollutants, 1999–2018.

- Water quality monitoring data continue to show positive results. To date, 15 stream and river segments totaling over 187 miles have been restored to meeting water quality standards using technical and financial assistance provided by the WDEQ. All of Wyoming's restoration success stories can be viewed on EPA's nonpoint source success story website[5]. Over 40 different local, state, and federal entities are identified as partners in those stories.

[5] https://www.epa.gov/nps/success-stories-about-restoring-water-bodies-impaired-nonpoint-source-pollution

- In addition to its restoration success stories, Wyoming has two nationally-published success stories where nonpoint source pollution efforts have addressed water quality degradation that had not yet reached impairment status. These two stories are also available on EPA's success story website.
- Watershed-based plans have been completed for over 60 percent of the waterbodies where nonpoint sources of pollution contribute to a water quality impairment.
- A total of 66 nonpoint source impaired segments (47 percent) have been or are being addressed by at least one BMP implementation project in accordance with a watershed-based plan.
- Since 1999, 80 percent of BMP implementation projects have included information/education activities.
- Since 1999, 70 percent of implementation projects have included a monitoring component to evaluate effectiveness.

Aspects of the Program That Are Working Well

Overall, the WDEQ believes that the Section 319 Program is functioning effectively. We would like to highlight the following aspects of the program that we believe are important to its success.

Flexibility: Priority nonpoint source issues vary from state to state, as do the best methods to address them. Furthermore, priorities can vary within a state over time—state programs need to be able to adapt to emerging issues, new initiatives, and opportunities for partnerships. Some specific areas where program flexibility is needed are as follows:

- **Determining the amount of resources to put toward restoring impaired waters versus protecting healthy waters:** In some cases, it may be more cost-effective to protect healthy waters and prevent new water quality impairments from occurring.

- **Determining the amount of resources to put toward surface water versus groundwater:** In states such as Wyoming that are largely dependent on groundwater for drinking water, resources may need to be mobilized toward groundwater projects rather than surface water projects.
- **Determining the best use of grant funds to realize water quality improvement:** While on-the-ground project implementation has been the primary focus of the Wyoming Nonpoint Source Program, there are times when the most significant financial assistance need is for activities other than on-the-ground project implementation—e.g., planning, engineering and design, technical assistance, education, and monitoring. Allowing flexibility in how states use Section 319 funds better enables coordination with other funding sources and helps Section 319 funds be a catalyst for securing other funding.
- **Determining whether grant funds should be targeted to specific watersheds:** Historically, the Wyoming Nonpoint Source Program has made grant funds available statewide each year; however, based on the success of some states in using a rotating-basin approach or targeted-watershed approach, the program is considering, with input from partners, whether such an approach would have value in Wyoming to focus restoration efforts, improve program integration, and ease administrative burden.

National Section 319 program guidance established by EPA needs to provide enough flexibility that states can structure and manage nonpoint source programs according to the needs of each state while maintaining the focus on water quality improvement. National guidance has provided sufficient flexibility to meet Wyoming's needs to date; however, we continue to advocate that EPA supports flexibility in program guidance during future revisions. We would like to commend EPA on the amount of outreach and coordination that occurred with states during the development of the current (2013) guidance and the incorporation of additional areas of flexibility into the guidance. Furthermore, EPA staff (both at Region 8 and Headquarters) have consistently been open to discussing new ideas and have supported the Wyoming Nonpoint Source Program in its efforts to pursue innovative solutions.

Voluntary approach: Wyoming believes that a voluntary approach to nonpoint source pollution management is the most effective approach. Stakeholders voluntarily working together in a spirit of collaboration prompts productive dialogue and information sharing that would not occur in a regulatory approach. Such dialogue and information sharing often leads to innovative solutions and long-lasting partnerships. Furthermore, a voluntary approach promotes finding long-term solutions that have multiple benefits—the WDEQ encourages projects that improve water quality while also benefiting other resources such as wildlife habitat and agricultural production (see attachment A, In-Depth Success Story on the North Platte River). Wyoming's restoration success stories support that a voluntary approach can effectively address nonpoint source pollution. Whether a state pursues voluntary or regulatory approaches to mitigate nonpoint sources of pollution is a decision that should be made by each state.

Local leadership: A successful voluntary approach requires leadership at the local level—individuals, agencies, and organizations who drive efforts to find and implement solutions with assistance from state and federal partners. Wyoming's most successful projects have had a local "champion" who builds support, awareness, partnerships, and access to financial and technical resources. Building capacity of local agencies and organizations is an important part of the Nonpoint Source Program. Wyoming's conservation districts are important local leaders in protecting and restoring water quality in Wyoming, and the WDEQ supports activities that build capacity within the state's conservation districts.

Environmental measures of success: Nationally, the Section 319 Program emphasizes environmental measures of success: Pollutant load reduction estimates for sediment, nitrogen, and phosphorus are reported annually. Water quality data is collected to determine if impaired waterbodies are now meeting water quality standards following nonpoint source pollution reduction efforts—such restoration success stories are the primary measure of success for the program. While challenging, the collection of environmental data to measure success is a valuable part of the program, providing a means of accountability, an effective communication tool with the public, and feedback to evaluate program progress over time and prompt adaptive management. Data collection, however, can be resource

intensive, and such costs and staff time need to be factored into successful nonpoint source program management. In addition, it may take many years before projects implemented in a watershed become fully effective and improving water quality trends are detected; monitoring may be needed over one or more decades to fully understand trends (see attachment B; Whitelaw Creek Success Story). Coordination between state nonpoint source programs and state monitoring programs is important, as is training project sponsors to collect water quality data when possible. For example, in Wyoming, most conservation districts conduct water quality monitoring to evaluate effectiveness of their nonpoint source projects, often providing the data that leads to a restoration success story.

Partnerships: Water quality is an issue that affects all Wyoming citizens, and because nonpoint source pollution management touches most land uses in the state, the importance of partnerships in successful nonpoint source program implementation cannot be overstated. Finding common goals with other agencies, organizations, and individuals is key to success, helping to build trust, raise awareness, and leverage financial and technical resources toward targeted conservation. Successful conservation requires actions at the federal, state, and local levels; partnerships ensure these actions occur (see attachment C, Muddy and McKinney Creeks Success Story). Building partnerships takes time and resources and is a significant activity for program staff.

Nonpoint Source Task Force: Wyoming is unique in that the members of its Nonpoint Source Task Force are citizens appointed by the governor to represent various interests within the state. This has provided an additional link between the state program and the general public to ensure that grant funds meet the needs of Wyoming. The Task Force has provided sound input on program directions and helpful insight when selecting projects for funding on an annual basis. Most members have served at least two four-year terms, with several current members serving their third or fourth term; the commitment of members and the amount of time they have volunteered contributes significantly to the success of the Wyoming Nonpoint Source Program.

RECOMMENDATIONS FOR PROGRAM IMPROVEMENT

The WDEQ respectfully offers the following recommendations for nonpoint source program improvement.

Grants Award Process: We recommend that EPA evaluates ways to streamline and simplify the Section 319 grant application and award process. Delays in awarding grants to states in turn leads to delays in states starting projects with sponsors. In recent years, grants have not been awarded until early summer, and project agreements have not been signed until mid to late summer, meaning sponsors miss most of the first field season for monitoring and construction activities. Having a definitive timeframe for when grants will be awarded will improve our ability to notify sponsors of anticipated project start dates, allowing sponsors to better plan projects and coordinate nonfederal sources of match. Having an indefinite timeframe for when funds will be available reflects poorly on the program and may discourage interested sponsors from applying, especially if their first experience was negative. We appreciate that EPA Region 8 has heard our concerns on this subject and is taking steps to determine if improvements can be made in our region. We encourage that this conversation happens at the national level as well.

Allocation Formula: The WDEQ is aware that there has been discussion in recent years about whether the original Section 319 allocation formula should be re-evaluated. If the allocation formula is re-evaluated, it needs to be done with careful consideration and input from all states; while changes to the formula would benefit some states, they could be detrimental to others. If the formula is re-evaluated, the WDEQ encourages that the following items be included in that discussion:

- Consideration of visitations to the state for recreation and tourism activities
- Consideration of increased weight for rangeland and pastureland activities
- Consideration of factors that would provide smaller municipalities and unincorporated rural areas with better access to resources
- Consideration of the benefits of protecting water quality in headwater streams and rivers

Watershed-Based Plan Review: With the 2013 national program guidance, a requirement was added that EPA would review at least one watershed-based plan from each state per year. We feel that EPA review of watershed-based plans is unnecessary and that the plans should be left to state review and approval.

Data Entry: We commend EPA for developing the "How's My Waterway" application to better provide water quality information to the public. While we support this tool, EPA needs to recognize that this tool indirectly puts more emphasis on states' data entry in the Grants Reporting and Tracking System. Increased data entry will be an additional staff resource burden on the Wyoming Nonpoint Source Program.

Partnerships with NRCS: The WDEQ recommends that nationally, EPA and NRCS continue to gather and evaluate state feedback to determine how the federal National Water Quality Initiative can be improved. The WDEQ's partnership with Wyoming NRCS is a critical one. Recognizing the common goal of water quality improvement, both agencies are committed to working together to improve delivery of conservation programs, including the National Water Quality Initiative. While the initiative has resulted in some positive outcomes in Wyoming, new requirements under the initiative have put additional burden on limited WDEQ staff resources, and it has been challenging to meet these new requirements. Further national initiatives with NRCS should only be considered after significant outreach to states and should allow flexibility in how states best pursue partnerships with their NRCS counterparts.

WDEQ CONTACTS

Todd Parfitt, Director

307-777-7937
todd.parfitt@wyo.gov

Kevin Frederick, Water Quality Division Administrator

307-777-5985
kevin.frederick@wyo.gov

David Waterstreet, Watershed Protection Section Manager

307-777-6709

David.waterstreet@wyo.gov

Jennifer Zygmunt, Nonpoint Source Program Coordinator

307-777-6080

Jennifer.zygmunt@wyo.gov

OTHER WYOMING NONPOINT SOURCE PROGRAM RESOURCES

2018 Wyoming Nonpoint Source Program Annual Report

- Report (in ArcGIS Story Map format) prepared by the WDEQ Nonpoint Source Program describing accomplishments of the Wyoming Nonpoint Source Program for 2018
- https://arcg.is/18SG5S

2018 Wyoming Watersheds Progress Report

- Report (in ArcGIS Story Map format) prepared by the Wyoming Association of Conservation Districts describing work that Wyoming's conservation districts are doing to restore impaired waterbodies
- https://arcg.is/10vb4b

Shoshone River Sediment Watershed Plan

- Example of a recent voluntary watershed planning effort completed with a local stakeholder group to reduce sediment loading to the Shoshone River near Cody, Wyoming
- https://arcg.is/0PmPvS
- https://arcg.is/1ymq19

ATTACHMENTS

Attachment A: *In-Depth NPS Program Success Story: Communitywide Effort to Convert to Sprinkler Irrigation Reduces Selenium and Yields Environmental and Economic Benefits*

Attachment B: *Section 319 NPS Program Success Story: Coordinated Resource Management and Riparian Restoration Improves [Whitelaw] Creek*

Attachment C: *Section 319 NPS Program Success Story: Coordinated Resource Management Restores Fish and Aquatic Life Habitat in Wyoming's Muddy and McKinney Creeks*

In-Depth NONPOINT SOURCE SUCCESS STORY

Highlighting the People Behind the Progress

Communitywide Effort to Convert to Sprinkler Irrigation Reduces Selenium and Yields Environmental and Economic Benefits

NORTH PLATTE RIVER, WYOMING

Natrona County farmers near Casper, Wyoming, banded together to reduce levels of selenium in local waters by switching from flood irrigation to sprinkler irrigation. By 2018, thanks to the example of a few enterprising landowners and the leadership of the local conservation district, more than 65 percent of the farms had switched to sprinkler irrigation and added other management practices. Water quality improved, field production increased, and water and labor costs were reduced. Plus, local stakeholders and government officials formed lasting partnerships.

Partners in Success

Lisa Ogden, Natrona County Conservation District (NCCD)
Local Leader Creates Change
Lisa spearheaded efforts to use irrigation best management practices (BMPs) throughout the area.

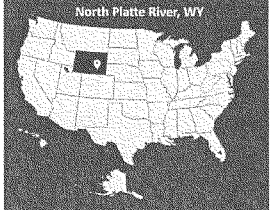
Kelly Burch, Farmer
Neighbor Leads by Example
An early adopter of sprinkler irrigation, Kelly told others about the financial and environmental benefits.

Andy Anderson, Farmer and NCCD Board of Supervisors
Local Leader Inspires Others
Andy highlighted cost savings when encouraging operators of small farms to use sprinkler irrigation.

Jennifer Zygmunt, Wyoming Department of Environmental Quality
State Staff Serves as a Resource
Jennifer helped the NCCD access Clean Water Act (CWA) section 319 funds to support the project.

Success Story *Highlights*

- **Pollutant of concern:** Selenium
- **Practices implemented:** Converting flood irrigation to sprinkler irrigation reduced the mobilization of selenium into surface water
- **Waters restored/improved:** 36.8-mile segment listed as impaired in 1998 and delisted in 2018
- **Key elements of success:**
  - » Strong local leadership
  - » Landowners were willing to take risks to gain long-term benefits
  - » Practices offered economic advantages



Problem

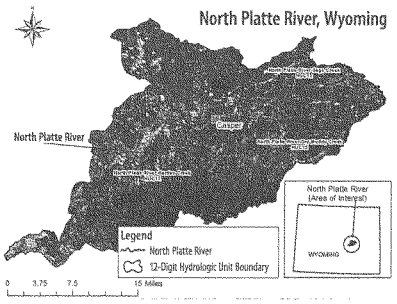
Selenium is a water-soluble mineral that naturally occurs within the Cody Shale underlying Natrona County soils. Groundwater and irrigation water readily dissolves selenium, which can then be carried to surface waters in runoff and can also accumulate on agricultural fields as water pools and evaporates on the surface. Elevated selenium levels are particularly harmful to waterfowl, fish, and aquatic insects. Livestock can be affected if they consume too much selenium by eating plants that absorb selenium.

Background

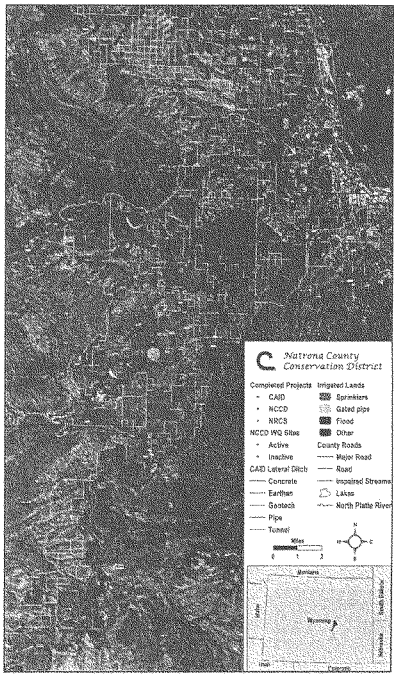
After widespread fish mortality and animal deformities occurred in 1983 at California's Kesterson National Wildlife Refuge, the U.S. Bureau of Reclamation identified 26 areas in western states that were hydrologically similar to Kesterson (i.e., presence of Cody Shale), including the Kendrick Project Area near Casper, Wyoming. The Wyoming Department of Environmental Quality (WDEQ) found that the aquatic life, coldwater fisheries, and wildlife designated uses in the North Platte River within the Kendrick Project Area were impaired by selenium and added a 36.8-mile segment to the CWA section 303(d) list in 1998.

Key Accomplishments

To reduce the amount of selenium in surface waters, stakeholders implemented numerous BMPs including replacing dirt ditches with pipeline, adding stage-control structures and automation, and replacing flood irrigation with more efficient sprinkler systems (see map for location of BMPs). Water quality has improved as a result. The 2018 North Platte River *NPS Success Story* provides additional technical details. The following pages identify the key project elements that contributed to success and the dedicated individuals who helped drive the work forward.



Map of the North Platte River watershed.



By 2018, many selenium-reducing BMPs had been installed throughout the North Platte River watershed in the Kendrick Project area.

Want More Information?

- *Selenium Management Booklet*
- *North Platte River Watershed TMDL Implementation Project: Section 319 Final Report*

THE PEOPLE BEHIND THE PROGRESS

Lisa Ogden, District Manager, NCCD

A Local Leader Creates Change

Lisa grew up in Casper, Wyoming, and has worked at the NCCD since 2010. She is the only paid staff member. Lisa works directly with landowners and leads implementation of irrigation BMPs.

- ***What is the history of the selenium problem?***

Lisa: Local residents have known about the selenium issue since the early 1950s. In the 1990s, the University of Wyoming studied selenium concentrations in the North Platte River and its tributaries. In the early 2000s, the Casper Alcova Irrigation District (CAID), the Natural Resources Conservation Service (NRCS), the NCCD, and landowners began a focused effort to address the problem by switching from flood irrigation to sprinkler irrigation and adding other BMPs.

- ***What was your biggest obstacle?***

Lisa: Getting to know the landowners, gaining their trust, and assuring them that I'm here for the long-haul. My background was not in agriculture, so I listened and learned from the landowners to fully understand the issues.

- ***What role did the CWA section 319 program play?***

Lisa: The 319 funding provided a "foot in the door" to build strong relationships. It provided the funds to complete the projects and offered flexibility. For example, when NRCS had a staff shortage and could no longer provide engineering assistance, the 319 grant allowed NCCD to hire outside help.

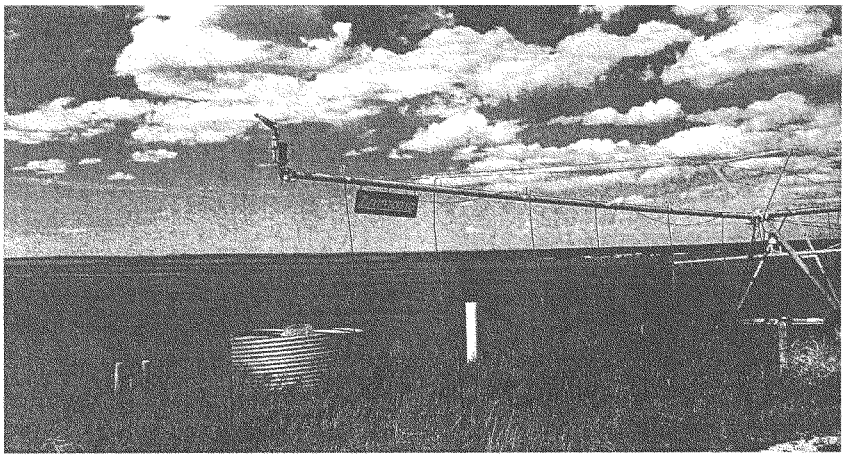
- ***What should people know?***

Lisa: Selenium will always be a part of the geologic makeup of much of Natrona County due to the Cody Shale. People's concerted efforts to work together for a common goal has made the watershed healthier. The delisting of the North Platte River from the 303(d) List of Impaired Waters is a tremendous "feather in the cap" of the landowners and the partners who have worked together.

"I love my job. I get to work every day with the some of the best stewards of our land: the farmers and ranchers."

Lisa Ogden

NCCD staff collect water quality data in the watershed.



Landowners began using more pivot sprinkler irrigation systems in the North Platte River watershed.

"Good things can happen at the grassroots level."

Kelly Burch

Kelly Burch, Farmer/Rancher

A Neighbor Leads by Example

Kelly, a retired agriculture teacher, works on his ranch full time. An early adopter of sprinkler irrigation, Kelly has been encouraging other farmers in the North Platte River watershed to do the same. Kelly served on the NCCD Board of Supervisors for 8 years.

- ***What inspired you to get involved?***

Kelly: I knew the selenium had to be cleaned up—and that overwatering contributed to the problem. I began converting my land from flood irrigation to sprinkler irrigation in 2004. I cut water usage in half and doubled my production. I no longer need to purchase additional water, which has helped the pocketbook.

- ***What inspired other farmers to join in?***

Kelly: Once others saw the economic benefits, they got on board. By installing sprinkler irrigation, they could water uniformly across both low-lying and elevated areas, which increases production. In addition, NRCS provided cost-share funding to purchase the pivots [a type of sprinkler irrigation system that rotates on a central axis], which can cost approximately $100,000. Local banks supported the community's efforts and provided low-interest loans because they knew this practice increased landowners' income and allowed them to pay back the loan. Because funding was available, it was pretty easy to convince other landowners to switch.

Andy Anderson, Farmer and NCCD Board of Supervisors

A Local Leader Inspires Others

Andy grew up on a small Wyoming farm. He holds professional engineering and geology licenses and worked in consulting for a number of years. He and his wife currently operate a ranch near Casper. He has served as the NCCD Chair for 8 years. Andy encourages operators of small local farms to convert from flood irrigation to sprinkler irrigation.

- ***What inspired farmers to participate?***

Andy: Farmers were enthusiastic because the project offered benefits for the river, community, and their farms. The new pivots helped address the selenium issue, increased production, and reduced labor costs. The larger-acreage producers were more invested at first, but in the past few years the smaller-acreage farmers have seen the larger farms doing well and also began applying for cost share to convert to sprinkler irrigation.

"Farmers saw that using sprinkler irrigation practices was more efficient and saved money."

Andy Anderson

Jennifer Zygmunt, WDEQ

State Staff Person Serves as a Resource

Based in Cheyenne, Jennifer is the WDEQ's Nonpoint Source Program Coordinator. Jennifer helped the NCCD access CWA section 319 funds.

- ***What impressed you about this nonpoint source success story?***

Jennifer: Thanks to the community's hard work, over 36 miles were officially delisted from Wyoming's impaired waters list. The scope of BMPs implemented is impressive! The project is also notable because of its monitoring program. NCCD's data has not only shown that the chronic water quality criterion for selenium is being met, it has also helped correlate water quality improvement and reduced selenium loading with BMP implementation. The NCCD was proactive in developing a strong monitoring component to their projects.

- ***What role did CWA section 319 program play in this project?***

Jennifer: Section 319 was a key funding element. Funds from both CWA section 319 and NRCS EQIP [Environmental Quality Incentives Program] were used to accomplish what was needed. The 319 funds helped spotlight the water quality issues and covered a lot of ground that EQIP couldn't have.

- ***Is this project serving as an example for others?***

Jennifer: Yes! NCCD's long-term monitoring program to document project effectiveness is a good model for others in the state. NCCD's positive attitude, persistence, and commitment to partnerships are also traits worth emulating.

"This project promoted dialogue and raised awareness that addressing water quality problems is a community-wide effort."

Jennifer Zygmunt

Watershed landowners collaborate on land management.

Widespread Participation Was Key

NCCD led the selenium-reduction project, including managing landowner contracts and administrative reporting and budgeting. To ensure success, NCCD turned to diverse stakeholders throughout the watershed and beyond for information, funding, encouragement, and engagement:

- **Watershed landowners** participated in the project and shared information with others.
- **City of Casper, Casper Public Utilities Board**, and the **Natrona County Commissioners** offered local leadership and funding for projects.
- **Natrona County Weed and Pest** supplied conservation recommendations.
- **Wyoming Association of Conservation Districts** offered leadership and information to NCCD.
- **University of Wyoming Extension Service** provided outreach assistance.
- **USDA National Resource Conservation Service** provided program assistance and technical support.
- **Casper Alcova Irrigation District** partnered on projects.
- **USDA Farm Service Agency** helped landowners.
- **Wyoming Department of Agriculture** provided guidance and water quality grant funding.
- **WDEQ** provided project leadership, supervision, and financial support.
- **Wyoming Department of Game and Fish** provided technical assistance on issues regarding watershed wildlife.
- **U.S. Environmental Protection Agency Region 8** provided grant and project support.

A Community-Based *Success*

Both environmental and financial considerations played motivating roles in the project. Farmers knew that reducing selenium was important for protecting wildlife and livestock health, and that the placement of the North Platte River on the CWA section 303(d) list of impaired waters had raised concerns of possible increased water treatment costs. As described in the NCCD's *Selenium Management booklet*, if landowners and local agencies did not make a documented effort to reduce selenium loading to surface waters, it was possible that local municipalities within the county could eventually be required to treat excessive selenium concentrations at the local wastewater treatment plant. If required, the expensive upgrades needed to treat the selenium-laden water would substantially increase water costs for consumers.

Private citizen John Lawson offered his unique insight into the project. "At first, the project was not getting much attention. With the 303(d) listing, the larger community began to take notice because concerns about selenium had the potential to increase utility bills if water treatment became necessary," he said. "Plus, less labor is needed with sprinkler irrigation, so costs are lower. There were not many obstacles once the community understood the economics. They clearly saw the benefits of reducing selenium levels in the river."

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Office of Water
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For additional information contact:

Lisa Ogden
Natrona County
Conservation District
307-261-5436
Lisa.Ogden@wy.nacdnet.net

Jennifer Zygmunt
Wyoming Department of
Environmental Quality
307-777-6080
Jennifer.Zygmunt@wyo.gov

Section 319
NONPOINT SOURCE PROGRAM SUCCESS STORY

Wyoming

Coordinated Resource Management and Riparian Restoration Improves Creek

Waterbody Improved Historical livestock grazing practices resulted in damaged riparian areas and eroding streambanks along Whitelaw Creek, leading to poor water quality and degraded fisheries. Local landowners, the U.S. Forest Service (USFS), and other partners worked through a process known as Coordinated Resource Management (CRM) to implement improved grazing management practices. After two decades of improved management, monitoring data indicate improved water quality, restored riparian areas, and improved fisheries.

Problem

Whitelaw Creek is a 2.4-mile-long tributary to Beaver Creek, approximately 8 miles north of the town of Sundance in the Belle Fourche River Basin of northeast Wyoming (Figure 1). The creek's headwaters originate at an elevation of approximately 6,100 feet near Warren Peak in the Black Hills National Forest. Whitelaw Creek is protected by the Wyoming Department of Environmental Quality (WDEQ) for drinking water, cold-water game and non-game fisheries, fish consumption, aquatic life (other than fish), recreation, wildlife, industry, agriculture, and scenic value uses. For the purposes of this project and its ongoing evaluation, WDEQ divides Whitelaw Creek into upper and lower segments, which are separated by USFS road 851.

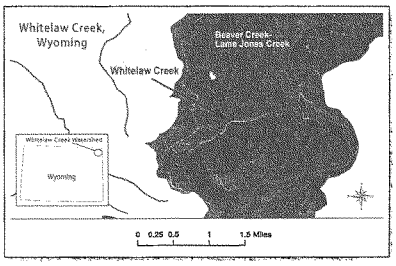

Figure 1. Whitelaw Creek is in northeastern Wyoming.

Season-long historical livestock grazing practices in the mid- to late 20th century resulted in damaged upland and riparian areas and degraded stream banks, which consequently led to increased sediment loading, elevated water temperatures, and reduced dissolved oxygen in Whitelaw Creek. Biological information collected in the 1980s indicated the cold-water game fishery consisted entirely of brook trout in low densities.

In 1988 the USFS implemented a two-pasture, deferred-rotation livestock grazing system along Whitelaw Creek. Unfortunately, poor water distribution and a lack of late-season water limited the opportunities to implement the new grazing system, and thus the resource received minimal benefits.

Project Highlights

In 1992 WDEQ partnered with local landowners and grazing permittees, USFS, the Natural Resources Conservation Service, the Wyoming Riparian Association, the Wyoming Game and Fish Department, the Crook County Natural Resource District, and the Wyoming Department of Agriculture to initiate CRM in the Whitelaw Creek watershed to address the known water quality issues, including water quality problems from overgrazing. As part of the CRM, the collaborators managed a Clean Water Act section 319 project, known as the Whitelaw Riparian Improvement Project, in the early to mid-1990s. The partners implemented numerous agricultural best management practices (BMPs) that focused on improving riparian conditions, stabilizing stream banks, and enhancing water quality through short-duration, multi-pasture rotational grazing, the development of off-channel water sources, and cross-fencing (adding fences to limit pasture access for rotational grazing purposes). Project partners installed signs and conducted tours of the project area to offer opportunities for the public to learn about time-controlled grazing management and improvements in the resource that benefit multiple uses. Project partners monitored

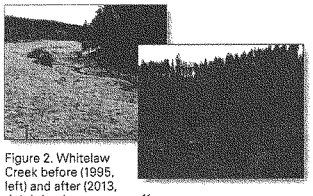

Figure 2. Whitelaw Creek before (1995, left) and after (2013, right) riparian recovery efforts.

the effectiveness of the BMPs from 1992 to 2012 by periodically collecting fish and macroinvertebrate data, conducting vegetative surveys, and gathering chemical and physical water quality data.

Results

The Whitelaw Riparian Improvement Project has successfully improved riparian and water quality conditions throughout the length of Whitelaw Creek. Monitoring data collected from 1992 through 2012 show that the combination of improved water distribution and short-duration rotational grazing has improved riparian conditions. Assessments of four riparian vegetation transects distributed throughout the upper and lower segments all show an appreciable increase in desirable species, specifically sedges in the *Carex* and *Scirpus* genera. The increased density and diversity of riparian vegetation have stabilized segments of streambanks by allowing the channel to narrow and deepen and to become more sinuous. Approximately 20 percent of streambanks experienced improved stability and increased riparian vegetative cover between 1992 and 2012; nearly all stream banks are now at optimal stability and cover conditions (Figure 2). These enhancements have significantly reduced the sediment loading to the stream. The reduction is most apparent within the lower segment of Whitelaw Creek, which had been the segment most negatively affected by excess sediment. Data show that mean embeddedness (percent of coarse substrate covered or surrounded by sand and silt) in riffle substrates in this lower segment declined by approximately 30 percent between 1992 and 2012. Reductions in fine sediment corresponded to coarsening of the riffles, with 35 to 45 percent increases in gravel composition throughout Whitelaw Creek (though most notably in the lower segment) during the same period.

The in-stream and riparian changes, combined with reductions in sediment loading, have translated to cooler instantaneous water temperatures (a reduction of approximately 5 to 8°C) and improved instantaneous dissolved oxygen concentrations (an increase of approximately 1 milligram per liter) during early autumn over the 20-year monitoring period. Temperature and dissolved oxygen levels now meet WDEQ's water quality standards,

The biological condition of Whitelaw Creek has improved with the decreases in sediment loading and water temperature and the increase in dissolved oxygen. WDEQ's Wyoming River InVertebrate Prediction and Classification System (WYRIVPACS) indicated a significant (31 percent) increase in biological condition from 1992 to 2012 within lower Whitelaw Creek with respect to the taxa expected to occur under reference conditions. Moreover, increases in macroinvertebrate community density (from 833 to 2,047 individuals per square meter), percent EPT (Ephemeroptera, Plecoptera, Trichoptera) taxa (a 22 percent increase), and the ratio of EPT to Chironomidae taxa (from a ratio of 5.3 to a ratio of 12.3) were also evident in the lower segment. The percentage of pollutant-tolerant non-insects (e.g., aquatic worms, leeches, etc.) decreased 13 percent within the lower Whitelaw Creek segment from 1992 to 2012.

In the upper segment of Whitelaw Creek, the percentage of sensitive mayflies increased by 10 percent, while the percentage of tolerant organisms and number of burrower taxa decreased by 11 percent and seven taxa, respectively, over the same evaluation period. Both WDEQ's WYRIVPACS and the multimetric Wyoming Stream Integrity Index (WSII) show that the current biological condition throughout the creek is comparable to reference expectations.

Partners and Funding

The Whitelaw Riparian Improvement Project addressed water quality issues on nearly 3,400 acres of federal and private lands. The project received a total of $9,635 of Clean Water Act section 319 funds and used $10,839 of non-federal matching funds. Funding supported BMP implementation, educational deliverables, and effectiveness monitoring of the management changes. The project was a cooperative effort involving local landowners, grazing permittees, USFS, U.S. Department of Agriculture–Natural Resource Conservation Service, Wyoming Riparian Association, Wyoming Game and Fish Department, Crook County Natural Resource District, Wyoming Department of Agriculture, Wyoming Game and Fish Department, and WDEQ.

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For additional information contact:

Jennifer Zygmunt
Wyoming Department of Environmental Quality
Phone: 307-777-6080 • jennifer.zygmunt@wyo.gov

Section 319
NONPOINT SOURCE PROGRAM SUCCESS STORY

Wyoming

Coordinated Resource Management Restores Fish and Aquatic Life Habitat in Wyoming's Muddy and McKinney Creeks

Waterbodies Improved

Unstable stream channels and a loss of riparian function in the upper Muddy Creek watershed threatened aquatic life and cold-water fisheries in the early 1990s. As a result, in 1996, the Wyoming Department of Environmental Quality (WDEQ) added one segment of Muddy Creek and one segment of McKinney Creek to the state's Clean Water Act (CWA) section 303(d) list of impaired waters for habitat degradation due to livestock grazing. The Little Snake River Conservation District (LSRCD) led efforts to implement best management practices (BMPs) to address sediment resulting from habitat degradation. Water quality has improved, prompting WDEQ to remove both segments from the state's 2012 list of impaired waters.

Problem

Muddy Creek is in the Little Snake River Basin in south-central Wyoming (Figure 1). Both Muddy Creek and McKinney Creek (a Muddy Creek tributary) are protected by WDEQ for drinking water, cold-water game and nongame fisheries, fish consumption, aquatic life (other than fish), recreation, wildlife, industry, agriculture and scenic value uses.

The Muddy Creek watershed produces naturally high sediment loads because of its highly erodible soils. In addition, historical livestock grazing practices resulted in damaged riparian areas and stream banks, greatly increasing erosion and sediment loading in the lower watershed during precipitation events and periods of spring snowmelt. Biological and physical data collected in the mid-1990s indicated that excessive sedimentation was threatening the cold-water fisheries and aquatic life uses along a 5.1-mile section of McKinney Creek and an 11.4-mile section of Muddy Creek. WDEQ subsequently placed both creek segments on the CWA section 303(d) list of impaired waters in 1996 as threatened for their cold-water fish and aquatic life uses.

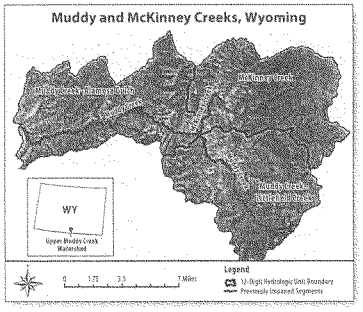

Figure 1. The upper Muddy Creek watershed.

Project Highlights

In 1992, LSRCD, the Bureau of Land Management (BLM), local landowners, grazing permittees, Wyoming Game and Fish Department (WGFD), and other stakeholders initiated a Coordinated Resource Management (CRM) process in the Muddy Creek watershed to address threats to water quality. As part of the CRM, LSRCD managed several CWA section 319 projects between 1993 and 2005 in the upper Muddy Creek watershed. Project partners implemented agricultural BMPs aimed at reducing agricultural runoff, including upland water development, cross fencing, revegetation, road improvements, prescribed burning, brush management, and improved grazing management. WGFD worked with BLM, livestock grazing permittees and LSRCD to implement new grazing strategies, such as the use of herders in some allotments, deferred grazing, and rest-rotation grazing. BLM, in cooperation with Trout Unlimited, WGFD, LSRCD, a local school, and the Natural Resources Conservation Service (NRCS), removed a culvert, installed 14 grade control structures, reconstructed 0.75 mile of Muddy Creek

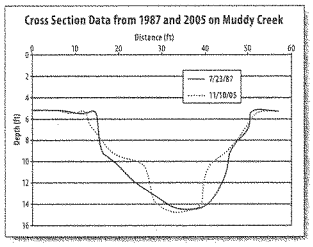

Figure 2. Muddy Creek cross section data.

in the upper watershed, and planted thousands of cuttings and bare-root woody riparian species to help stabilize stream banks.

Results

Over the past two decades, various local, state and federal agencies have produced reports, theses, technical manuscripts and raw data relating to the Muddy Creek watershed. In 2010, WDEQ hired Timberline Aquatics, Inc., to review and summarize this information and to produce a report including trend analysis for the threatened reaches of Muddy Creek and McKinney Creek. WDEQ used physical, chemical and biological data summarized in the report to conclude that the upper Muddy Creek and McKinney Creek segments should no longer be listed as threatened on the 2012 CWA section 303(d) list of impaired waters.

The report indicated marked improvements in macroinvertebrate communities. Multi-metric index scores (representing combined scores of Taxa Richness, EPT Taxa, Shannon Diversity, Hilsenhoff Biotic Index, and Clinger Taxa) indicated that macroinvertebrate communities at sampling sites improved from a 1993 score of 36 to a 2004 score of 93.

In addition, the report showed improvements in stream channel structure. For example, a comparison of cross section data from Muddy Creek sites in 1987 and 2005 showed evidence of terrace formation, improved bank stability and channel deepening (Figure 2). Similar data from McKinney Creek showed narrowing and deepening of the stream channel. Channel stabilization has been enhanced by the recovery of the riparian community, as documented through extensive photo-point monitoring (Figure 3).

Moreover, basic water quality parameters (pH, dissolved oxygen, turbidity, total dissolved solids, and temperature) were found to be within WDEQ's water quality standards, and values remained relatively constant from 2008 to 2010. On the basis of these data, WDEQ has removed the two segments (16.5 miles total) from the 2012 CWA section 303(d) list of impaired waters. The recovery of the creeks' ability to support cold-water fisheries has been further demonstrated by WGFD's reintroduction of native Colorado River cutthroat trout into the upper Muddy Creek watershed.

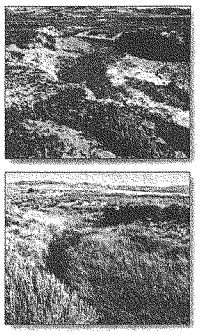

Figure 3. Photo-point monitoring shows Muddy Creek in 1989 (top) and 2005 (bottom).

Partners and Funding

When Wyoming's Upper Muddy Creek CRM Project began, it was the largest watershed improvement project in the state, encompassing nearly 300,000 acres of mixed federal, state and private lands. In cooperation with CRM partners, LSRCD led restoration efforts in the Muddy Creek watershed. LSRCD managed a total of $752,952 in CWA section 319 grants, which supported four project phases implemented between 1993 and 2005. In addition, a total of $952,338 in non-federal matching funds and $454,000 in other federal funding supported the implementation of BMPs, project effectiveness monitoring, and coordination of the CRM and stakeholder involvement.

Success in the Muddy Creek watershed is largely attributed to coordination between more than 30 members representing private landowners; federal, state and local agencies; environmental and conservation organizations; industry and the public. Major partners included the LSRCD, BLM, NRCS, WGFD, Trout Unlimited, Wyoming Department of Agriculture, WDEQ, Wyoming Water Development Commission, Wyoming Natural Resource Trust Fund, Rocky Mountain Elk Foundation, Ducks Unlimited, Wyoming Land Conservation Initiative, U.S. Fish and Wildlife Service, and numerous private landowners.

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Washington, DC

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For additional information contact:

Larry Hicks, Little Snake River Conservation District
307-383-7860 • lsrcd@yahoo.com

Jennifer Zygmunt, Wyoming Department of Environmental Quality
307-777-6080 • jennifer.zygmunt@wyo.gov

Senator BARRASSO. Well, thanks so very much for your thoughtful testimony.

We will have questions in a moment, but first I would like to turn to Mr. Grumbles.

Please proceed.

STATEMENT OF HON. BEN GRUMBLES, SECRETARY OF THE ENVIRONMENT, MARYLAND DEPARTMENT OF THE ENVIRONMENT

Mr. GRUMBLES. Thank you very much, Mr. Chairman, and Ranking Member Carper. What an honor it is to appear before you today.

Our Nation is stronger when the Senate Environment and Public Works Committee is working together in a bipartisan manner for environmental progress. The 319 Program is an outstanding example of a critical effort that involves partnerships, nationally, State based, regionally, and locally.

It really is an honor to appear before you. I am Governor Hogan's Environment Secretary for Maryland, and as very kindly mentioned by Senators Cardin and Van Hollen, I also get to serve as the head of the Chesapeake Bay Program Partnership's Principal Staff Committee of Environment and Agriculture and Natural Resources Secretaries.

This hearing is important because it gives us an opportunity to tout what is working very well and also explore tweaks and possible revisions to make this program even stronger. Because the Nonpoint Source Program is only going to grow in importance and need in meeting our clean water fishable, swimmable goals.

I also want to emphasize, Mr. Chairman, how proud it is for me to appear before a committee where Senator Capito, Senator Boozman, everyone works together to put funding in the right place. We are so appreciative of the recent efforts to boost the funding of programs, including for the Chesapeake Bay.

Senator, I work well with Austin Caperton, and Senator Carper, you know that Shawn Garvin is a real leader, and we all work together to make progress for the Chesapeake Bay Program.

But Mr. Chairman, the 319 Program is an integral component to local, State, and regional progress. So it is an honor to appear before you on that.

Governor Hogan, as the Chairman of the National Governors Association, puts a real emphasis on infrastructure, a foundation for success, advancing repair, enhancement, and modernization of our Nation's infrastructure, including aging water systems, through innovative public-private partnerships, smarter technologies, and a strong focus on resilience. A key to successful infrastructure programs is a holistic, integrated approach that also includes increased focus and attention on runoff and nonpoint source pollution.

One of the things I really want to emphasize here is that in Maryland, we see the value of local progress for clean water and coordinating on a regional basis. The Governor and the State of Maryland together in a totally bipartisan manner have made strong commitments. We are seeing real progress for the Chesapeake Bay, not only in reducing the point sources that are regu-

lated under the Clean Water Act, but also the nonpoint source pollution.

While we have made significant progress in our Bay restoration efforts, we will not be able to fully restore the health of the Bay, a national and ecological treasure with economic value exceeding $1 trillion, unless all of our State partners and the District of Columbia also meet their commitments. We must ensure that we all factor in the impacts of climate change into our efforts to reduce nonpoint source pollution, as changes in rainfall patterns that increase runoff into the Bay threaten to undermine progress.

The other point I want to make is that 319 is something to be proud of. My hat is off to EPA and USDA and other Federal agencies who make it work well. It is a holistic approach to tackle water pollution problems on a watershed basis.

We value partnerships. It is not just with Federal agencies. It is with nonprofit organizations, like the Chesapeake Conservancy, with their Precision Conservation Initiative, and the Nature Conservancy, and other organizations that team up with States, and Trout Unlimited, as Jennifer mentioned.

But for us in the Chesapeake Bay, the key is to ensure that we focus on what is really needed. For us, the nonpoint source and stormwater challenges are among the greatest, and that is why we need all of the States and the EPA to step up and play their appropriate roles.

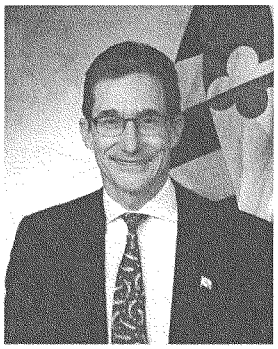
I want to emphasize the role of the EPA. Maryland considers EPA to be the key to our partnerships for the Chesapeake Bay and the TMDL.

Pennsylvania in particular has fallen short—woefully fallen short—and so we would strongly encourage additional funding for nonpoint source pollution for all of the States, streamlining in the process, but also for the interstate umpire, the EPA, to have the courage to step up and use the regulatory backstops that are available. It is not an aspirational role; it is an enforceable TMDL. We think that with a stronger 319 Program, and with EPA stepping up, that would be very important.

I would just like to emphasize, Mr. Chairman, that Maryland is fully prepared and will push the EPA to use its appropriate authority so that we can all make progress. We look forward to the discussions about how to continue to improve the 319 Program.

Thank you for your leadership on this matter.

[The prepared statement of Mr. Grumbles follows:]



Ben Grumbles
Secretary
Maryland Department of the Environment

Ben Grumbles is Maryland's Secretary of the Environment. He was appointed by Governor Larry Hogan and confirmed by the Maryland Senate in 2015. His duties also include serving as Chair of the Governor's Chesapeake Bay Cabinet and Chair of the Regional Greenhouse Gas Initiative and member of the Ozone Transport Commission and the Susquehanna River Basin Commission.

Ben has served as President of the U.S. Water Alliance, EPA Assistant Administrator for Water, and senior staffer and counsel for the Transportation and Infrastructure and Science Committees in the U.S Congress.

Written Testimony of Secretary Ben Grumbles

Maryland Department of the Environment

Before the Committee on Environment and Public Works (EPW)

United States Senate

"The Nonpoint Source Management Program Under the Clean Water Act:

Perspectives from States"

Wednesday, January 8, 2020

Chairman Barrasso, Ranking Member Carper and distinguished members of the committee, thank you for the honor of participating in this important hearing on the section 319 nonpoint source pollution program under the Clean Water Act and state perspectives on how it's working and how it can be improved. I am Ben Grumbles, Maryland's Secretary of the Environment appointed under Governor Larry Hogan, and I also serve as Chair of the Chesapeake Bay Program Partnership's Principal Staff Committee and as Secretary Treasurer under the Environmental Council of the States. Before I discuss Maryland's perspective on opportunities and challenges in protecting Maryland and regional waters, and in particular the Chesapeake Bay, from nonpoint source pollution, I would like to emphasize the value of national programs under the Clean Water Act and the need for bipartisan support for continued environmental

progress. Federal and state agencies must work together, in the spirit of cooperative federalism, to meet our national, state, regional and local goals.

BACKGROUND

First, I'd like to express our appreciation for the strong bipartisan commitment to funding national clean water programs, most recently demonstrated by last month's agreement on U.S. States Environmental Protection Agency's (EPA) and other federal agencies' budgets. Continued progress in the states depends on comprehensive, strategic, and robust support for infrastructure, science, regulation, and innovation. Governor Hogan, as Chair of the National Governors Association (NGA), has focused his year-long initiative, Infrastructure: Foundation for Success, on advancing the repair, enhancement, and modernization of our nation's infrastructure, including aging water systems, through innovative public-private partnerships, smarter technologies, and a strong focus on resilience.

In addition, Governor Hogan co-chairs the NGA's Water Policy Institute, providing states the opportunity to focus on policies and programs aimed at resilience, including approaches and technology that states are using to address emerging contaminants in drinking water, rural water needs, increased droughts, agricultural water needs and impacts, stormwater, and funding and

financing water infrastructure improvements. Strategies for clean and safe water, whether focusing on point sources or nonpoint sources, must be comprehensive and integrated, with flexibility that also includes accountability.

PROGRAM GROWTH UNDER THE HOGAN ADMINISTRATION

Under Governor Hogan's strong conservation and environmental leadership, Maryland has made great strides in meeting its commitments to Chesapeake Bay restoration. Maryland has made a significant investment in not only reducing point source discharges of pollution to the Bay, such as from wastewater treatment facilities, but also in reducing nonpoint source pollution. While we have made significant progress in our Bay restoration efforts, we will not be able to fully restore the health of the Bay--a national and ecological treasure with economic value exceeding a trillion dollars--unless all of our state partners and the District of Columbia also meet their commitments. And, we must ensure that we all factor the impacts of climate change into our efforts to reduce nonpoint source pollution, as changes in rainfall patterns that increase runoff into the Bay threaten to undermine progress.

While reducing point source discharges of pollution to the Bay is itself challenging, it has been much more difficult to achieve the needed reductions in nonpoint source pollution, given the

diffuse nature of the sources of pollution and varied authorities for prevention, management, and restoration. Progress has not happened overnight and programs cannot be sustained without strong partnerships.

The National Nonpoint Source Program, under section 319 of the Clean Water Act, is the primary federal program being implemented to address nonpoint sources of pollution. The 319 Program requires states to evaluate water quality holistically at a watershed level in order to identify the sources and causes of water quality impairments and to identify best management practices needed to achieve nonpoint source pollution reductions. States often use federal grant money provided by EPA through the 319 Program, other state funds and partnerships with other entities and programs, such as U.S. Department of Agriculture conservation programs, to achieve reductions in nonpoint source pollution and to provide reasonable assurance in meeting Total Maximum Daily Load (TMDL) allocations. These reductions occur through states engaging with partners who commit to implement best management practices on the land to reduce the movement of pollutants from the land into our waters.

I mentioned climate change in the context of nonpoint source pollution because it is a threat multiplier that is projected to increase the volume and intensity of rainfall in our region and make

our clean water goals harder to achieve. In the Chesapeake Bay Watershed climate impacts are projected to increase pollution loads as a result of increased precipitation volume and intensity as well as reduce the efficiency of current nonpoint source best management practices. Ultimately, climate change impacts will over time increase restoration costs.

PARTNERSHIP

Chesapeake Bay restoration is a partnership effort, which includes EPA, Delaware, Maryland, New York, Pennsylvania, Virginia and West Virginia (the six states in the Bay watershed), the District of Columbia, and the Chesapeake Bay Commission. Our Chesapeake Bay restoration partnership efforts are paying off. The Bay Health Report card has been seeing better grades recently, and even with more than double our average rainfall in 2018, we witnessed a more resilient Bay where water quality is recovering more quickly than in the past. We are also seeing improvements in the Bay's living resources, including a significant increase in the acres of submerged aquatic vegetation and increases in blue crab abundance.

THE FRAMEWORK

Critical to the success we have been able to achieve thus far is EPA's 2010 Chesapeake Bay TMDL. The Bay TMDL identifies the pollutant load reductions needed by point sources (to be

implemented through National Pollutant Discharge Elimination System (NPDES) permitting) and then separately, establishes needed reductions by nonpoint sources. As required by the Bay TMDL, all pollution reduction practices to achieve these reductions must be in place by the year 2025. For nonpoint sources, the Bay TMDL contains a "Reasonable Assurance and Accountability Framework" section describing the details of the accountability system for nonpoint source reductions as well as describing what options EPA would have to obtain needed reductions of pollutants if states failed to achieve the needed nonpoint source reductions. This "Framework" was created to help ensure that nonpoint source reductions would occur.

MORE COLLABORATION NECESSARY

In the Chesapeake Bay Watershed, many jurisdictions are upgrading the wastewater treatment plants, or as I refer to them, water reclamation facilities, to the limit of treatment technology through NPDES permits and increasing restoration requirements under Municipal Separate Storm Sewer System (MS4) permits. However, nonpoint source pollution comprises a large proportion of the reductions that still need to be made. Agricultural operations alone are one of the largest sources of nonpoint pollution to the Chesapeake Bay and currently account for almost half of the nitrogen pollution loads to the Bay.

ROLE OF THE EPA

Additional funds as well as additional enforcement and regulatory actions to reduce nonpoint source pollution are still greatly needed as recently demonstrated by Pennsylvania and New York, mostly nonpoint source pollution states in their most recent revisions to their Bay Watershed Implementation Plans that fail to adequately address pollution targets. As a downstream and downwind state impacted by unmanaged upstream and upwind pollution, and as a leader in the race to enhance, restore and preserve the Chesapeake Bay, Maryland considers this shortfall unacceptable and unfair to our citizens and to all who desire and want clean water and a healthy economy.

We will press EPA - with help from our delegation and partners, and through litigation, if we must - to live up to its commitment, obligation and responsibility as a regulatory partner and interstate umpire who holds everyone accountable for doing their fair share for our restoration effort and initiatives as we strive - as a watershed - to meet our agreed-upon 2025 deadlines.

EXAMPLES OF SUCCESS

I want to thank the Committee and its members for the $12 million increase this year in funding EPA's Chesapeake Bay Program Office. The Senate also supported a $50 million increase in

funding to the U.S. Army Corps of Engineers Environmental Restoration and Compliance Program, a $2 million increase in U.S. Geological Survey's Ecosystem Science and Monitoring for Chesapeake Bay, and a $1 million increase in the National Park Service's Chesapeake Bay Gateways Program. This is in addition to the approximately $1 billion dollars a year Maryland spends on Bay restoration-related programs. With the most recent estimates of the Bay's total economic value at over $1 trillion dollars, these restoration dollars provide a tremendous return on investment for Maryland, the region and the nation.

Regarding the federal 319 nonpoint source program in particular, this important program allows states some flexibility and opportunity to focus their planning in nonpoint source source sectors at the local scale and develop strong partnerships with the communities that they serve. The 319 Program has allowed Maryland to also focus on protecting and restoring communities outside of the Chesapeake Bay watershed, including areas in western Maryland and our other important estuarine system, like the Atlantic Coastal Bays that we share with Virginia and Delaware. Through it we've developed partnerships with surrounding jurisdictions to come up with cross jurisdictional solutions to mitigate nonpoint source pollution in shared waters. Additionally, the 319 Program serves as a vehicle for aligning our interests in hazard mitigation due to climate

change, ecosystems services, and water quality benefits at the local scale. Our work with EPA in implementing the 319 Program in Maryland has created a forum for sharing ideas to improve state and federal programs, and helps us to adaptively manage the way we reduce nonpoint source pollution.

Maryland receives a little over $2 million dollars a year in 319 Program funds. While the 319 funding is relatively small compared to the state monies being used for nonpoint source pollution reduction, the 319 funds are very important to many of our local communities participating in the program. Currently, Maryland leverages half of the money for state level support of **local** nonpoint source mitigation programs. This support includes work to develop locally-targeted watershed restoration plans to ensure compliance with EPA requirements and water quality monitoring support for local partners. The other half of the money goes directly to nonpoint source mitigation projects that have been identified through the targeted watershed planning process.

Through this program, we interact with local officials, allowing us the opportunity to better understand and develop restoration plans that will help achieve both TMDL goals and provide added benefit to the community. This is best reflected in the work done in western Maryland.

The state developed the watershed plan for the Casselman River. Funding from the 319 program is being used to eliminate numerous acid mine drainage impacts through the use of traditional practices like leach beds and innovative practices like lime sand deposits along the streams. These successes were not only in water quality, but included improvements in the biological communities as well.

IMPROVEMENTS NEEDED

While Maryland is a supporter of the 319 Program, there is always room for improvement. We would like to see the EPA provide more flexibility in where funding is allowed and undertake an effort to reduce administrative requirements that are perceived by local communities to be too prescriptive and burdensome. The grant is structured to reimburse expenses rather than providing funding up-front; therefore, many low-income communities find it difficult to meet the requirements. Additionally, in light of the fact that in most states, nonpoint source pollution is the largest contributor to water quality impairment, increased funding is critical to meeting states' nonpoint source reduction needs. The 319 program is a vital Clean Water Act tool for states to combat nonpoint source pollution, protect existing resources, and mitigate impacts to public health.

We are doing everything we can in Maryland with the resources we have--using innovative approaches like nutrient trading, and we are partnering as much as we can--to restore water quality in the Bay. However, if the other states and DC do not meet their commitments, and if the EPA is not there to provide a federal backstop as promised, and sufficient funds are not available in programs such as the 319 Program to address nonpoint source pollution issues---- we will likely not meet the 2025 pollution reduction target established in the 2010 TMDL. From Maryland's perspective, that is totally unacceptable. Failure is not an option and delay is not a strategy.

CONCLUSION

The National Nonpoint Source Program, under section 319 of the Clean Water Act, is achieving nonpoint source pollution reductions thanks to the collaboration at the federal, state and local level.

I want to thank Chairman Barrasso, Ranking Member Carper, and all the members of the committee for your time, and I look forward to answering your questions.

Senate Committee on Environment and Public Works
Hearing entitled, *"The Nonpoint Source Management Program Under the Clean Water Act: Perspectives from States"*
January 8, 2020
Questions for the Record for Secretary Grumbles

Secretary Grumbles' Response to Questions

Senator Cardin:

1. Maryland uses federal grants made available by the Clean Water Act, including Section 319, to help fund state nonpoint source management and to provide grants for nonpoint source control by state and local projects that help eliminate water quality impairments caused by nonpoint sources.

a. Is it an accurate description of Maryland's Nonpoint Source Plan as designed to meet requirements of Clean Water Act Section 319 and to be consistent with Maryland commitments and responsibilities in the Chesapeake Bay Agreement, the Chesapeake TMDL, and Maryland's Chesapeake Bay Watershed Implementation Plan (WIP)?

Response: Yes, Maryland's 2015-2019 Nonpoint Source Plan (NPS) was designed to provide a comprehensive inventory of the various non-point source programs within our State, and strategies to address a number of pollutants above and beyond nutrients and sediment. Maryland's Plan used a balanced approach of both regulatory and non-regulatory methods, including targeted monitoring and watershed planning to effectively address nonpoint source impairments. Maryland's NPS was also designed to be consistent with milestones from MD's Phase II WIP for the Chesapeake Bay TMDL. Revisions to the plan are currently being made, which will bring it up to date with Maryland's Phase III WIP commitments.

b. Please explain how this synergy helps Maryland allocate resources effectively.

Response: Maryland receives about $2M annually in 319 funds. While this represents only a small percentage of the approximately $1-billion Maryland spends on Bay restoration annually, 319 grant funding has allowed Maryland and its local partners to address local priorities -- like public health and safety, flooding, and fishing -- while also reducing pollution to the Bay.

By providing regional and pollutant specific strategies in one document, the plan allows the State to provide guidance and information to local practitioners in a more consistent and open manner. The document also presents strategies and milestones to achieve various water quality goals, by region, that help us focus our attention on issues important to constituencies in more rural locations.

2. The 2010 Chesapeake Bay Total Daily Maximum Load (TMDL) and EPA evaluations of Watershed Implementation Plans are part of a federal accountability framework for the Chesapeake Bay Program. I am alarmed the EPA refers to the Chesapeake Bay Total Maximum Daily Load (Bay TMDL) in its latest evaluations as "an informational planning tool." The TMDL was required under the federal Clean Water Act and responded to consent decrees in Virginia and the District of Columbia from the late 1990s.

a. How have EPA's actions to hold states accountable for reducing Chesapeake Bay pollution helped you implement Section 319 and other Clean Water Act programs?

Response: EPA's actions have encouraged some of our partners under 319 to scale up restoration projects within their counties that improve local water quality while also helping to achieve nutrient and sediment pollution reductions central to Chesapeake Bay restoration. Maryland's 319 program is implemented in watersheds with local TMDLs that have their own watershed plans approved by the Section 319 program.

The biggest federal funding source for state water pollution programs comes from the Water Pollution Control (Section 106) Grant. These funds help support:

- monitoring and assessing ambient water quality;
- Developing and reviewing water quality standards;
- Developing total maximum daily loads (TMDLs);
- Providing permits to dischargers through the National Pollutant Discharge Elimination System (NPDES);
- Overseeing and enforcing NPDES permits;
- Developing watershed and groundwater plans; and,
- Providing training and public information.

EPA may be able to better leverage Section 106 funding to ensure all Bay jurisdictions are doing their part to restore water quality.

Your Committee's recent support for increased Chesapeake Bay Program funding was much appreciated and resulted in $13-million increase in funding across the watershed. These dollars can also be leveraged to ensure restoration accountability and progress across the watershed.

b. What should this Committee be doing to ensure the EPA fulfills its compliance and enforcement role, to support you and Maryland's goals?

Response: The Committee may want to communicate to EPA its view that EPA has a mandatory duty under 303(e) to ensure that required load reductions of the Bay TMDL have been incorporated into State continuing planning processes. One can argue that the jurisdictions' Phase III WIPs are the functional equivalent of a jurisdiction's continuing planning process. Therefore, if EPA approves a Phase III WIP and it does not reflect required load reductions as they appear in the Bay TMDL, it can be argued that such an approval is in violation of 303(e) of the CWA which requires that a jurisdiction's "continuing planning process" be consistent "at all times" with the CWA.

In addition, in its December 29, 2009, letter to the Bay jurisdictions, EPA listed various federal actions that EPA "may" take to ensure that jurisdictions develop and implement appropriate WIPs, attain appropriate 2-year milestones of progress, and provide timely and complete information to an effective accountability system for monitoring pollutant reductions. The Committee could ask EPA to take some or all of the following actions it listed in its December 2009 letter if State Phase III WIPs fall short of meeting targets:

- "Expand NPDES permit coverage to unregulated sources: For example, using residual designation authority to increase the number of sources, operations or communities regulated under the NPDES permit program;
- NPDES program agreements: Expanding EPA oversight review of draft permits (significant and nonsignificant) in the Bay watershed and objecting to inadequate permits that do not meet the requirements of the CWA (including NPDES effluent limits that are not consistent with the Chesapeake Bay TMDL WLAs);
- Require net improvement offsets: For new or increased loadings, requiring net improvement offsets that do more than merely replace the anticipated new or increased loadings;
- Establish finer-scale WLAs and LAs in the Chesapeake Bay TMDL: Establishing more specific allocations in the final December 2010 Chesapeake Bay TMDL than those proposed by the jurisdictions in their Phase I WIPs;

- Require additional reductions of loadings from point sources: Revising the final December 2010 Chesapeake Bay TMDL to reallocate additional load reductions from nonpoint to point sources of nitrogen, phosphorus, and sediment pollution, such as wastewater treatment plants;
- Increase and target federal enforcement and compliance assurance in the watershed: That could include both air and water sources of nitrogen, phosphorus, and sediment;
- Condition or redirect EPA grants: Conditioning or redirecting federal grants; incorporating criteria into future Requests for Proposals based on demonstrated progress in meeting WIPs or in an effort to yield higher nitrogen, phosphorus, or sediment load reductions; and/or,
- Federal promulgation of local nutrient WQS: Initiating promulgation of federal standards where the jurisdiction's WQS do not contain criteria that protect designated uses locally or downstream."

3. The pollution contributed by nonpoint sources is the main reason why many of Maryland's waters are listed as impaired. Water Quality Standards are not being met for designated uses including fishing, swimming, drinking water, and shellfish harvesting.

a. How can the Section 319 program be better managed to produce the greatest runoff pollution reductions?

Response: The Section 319 program gives the jurisdictions great flexibility in some ways to address multiple pollutants. However, if the requirement for a watershed specific plan were relaxed to allow jurisdictions to produce broader planning areas, or reduce the strict requirements, we anticipate there would be greater interest in the program. Additionally, increased funding to make the program competitive with other grant programs would increase its appeal.

b. What targeting of funding within the program is needed? Are there examples in other federal or state programs?

Response: Maryland is currently exploring opportunities to leverage this funding to help prioritize needs of low income communities experiencing multiple water quality and human health impacts. Paired State/federal funds may allow us to significantly decrease the cost to these communities and provide benefit to an under-served portion of our constituency.

4. With climate change increasing the amount of precipitation, urban and suburban stormwater runoff is one of the only major sources of pollution that is growing in the Chesapeake Bay and its rivers. The 2018 Water Resources Development Act (WRDA) this Committee reported included a provision directing the EPA to create a new voluntary stormwater financing task force to identify infrastructure financing needs and provide policy recommendations to Congress and federal agencies. As ranking member of the Senate EPW Transportation and Infrastructure Subcommittee, I expect the next WRDA reauthorization to provide communities greater support managing stormwater, particularly with the task force expected to submit its report to Congress in the spring.

a. What opportunities do you see within the Section 319 and other nonpoint source pollution programs that could be enhanced to help communities deal with more frequent flooding and polluted runoff?

Response: Maryland's Section 319 program is looking into ways to incorporate FEMA's Hazard Mitigation Planning into its water quality plans for State-issued TMDLs. Maryland feels that aligning the protection of people and property with water quality improvements will allow us to leverage additional funding sources for implementation. This planning process is still being coordinated, but there is a great potential to create more comprehensive planning synergies within the program. In some more extreme cases, allowing 319 funding to help cost-share on adaptive retreat measures that also reduce nonpoint source pollution may be beneficial. 319 eligibility could perhaps also be expanded to flood prone areas by waiving the mandatory plan requirements for meeting all a-i criteria in those areas.

Senator Sanders:

5. In thinking about the nexus between grey and green infrastructure, what are the limitations for states to use Section 319 of the Clean Water Act to leverage resources and better address alternatives to the conventional wastewater and stormwater infrastructure that is now typically funded by the State Revolving Funds (SRF)? What can Congress do to better facilitate states' use of their SRF funding to augment the use of sustainable infrastructure options, including conservation to support resilience of downstream infrastructure? Likewise, is there something Congress could do to facilitate the use of Section 319 grants to support sustainable infrastructure?

Response: Maryland's portion of 319 is currently not substantial enough to support a large-scale sustainable infrastructure initiative. We recognize sustainable infrastructure provides multiple co-benefits, including climate resiliency, and would like to incorporate more in our State. However green streets, or low impact development restoration, are extremely expensive and generally need more funding than the grant can provide at this time.

As far as SRF, Maryland has a fully subscribed SRF program where funding applications for capital projects from local jurisdictions have to be turned away every year due to lack of available funds under the current SRF capitalization grant allotments. Maryland currently funds innovative energy conservation projects such as the WSSC Piscataway bio-energy project, and significant green infrastructure programs and projects for Phase I MS4 jurisdictions such as Montgomery County and Prince George's County. Additional SRF appropriations would allow the state to fund more source water protection, watershed management, and land conservation projects that would provide multiple resilience benefits and contribute to the implementation of Maryland's Phase III WIP and cleanup of the Chesapeake Bay. The eligibility for these types of projects and watershed finance partnerships exists in federal statute as implemented by the Water Resources Reform and Development Act of 2014. The state has interest from potential watershed funding partners, and additional appropriations for the CWSRF and DWSRF would better position the SRF to fund integrated watershed projects and partnerships in addition to traditional treatment works and water and energy conservation capital projects.

These and the responses further above point to the urgent need for a National Infrastructure package to both accelerate new green and sustainable infrastructure while also providing adequate funding for ongoing maintenance. Governor Hogan looks forward to continued work with this Committee and others in the federal family, as well as through the National Governor's Association, to deliver a desperately needed national infrastructure financing package.

Senator BARRASSO. Thank you for your testimony.

Thank you both for your testimony.

We will start with some questions.

If I could start with you, Ms. Zygmunt, EPA regularly publishes success stories of particularly effective nonpoint source projects, nationally recognized Wyoming's 14 projects, including the one you mentioned with the North Platte River restoration project. In your experience, and you have done this for a while, what are the key factors in designing a project and implementing a project that make a project really overwhelmingly successful?

Ms. ZYGMUNT. Yes, Mr. Chairman. Thank you for the question. That is a very good question, and one that we ask ourselves often, and it is a question that needs to be asked often. Why do we see success? How can we build that success?

In terms of the ingredients that make a successful project, in my experience in Wyoming, first, you need that local champion, whether it is an individual, an organization, an agency that sees the need for some solutions to a problem and takes the initiative to make it happen.

Part of my job is building that local capacity so that we have these champions on the ground. Often in Wyoming, that is a conservation district, but it may also be a nonprofit organization, or other folks as well.

Those champions, water quality might be their focus, it might not, but they need to look beyond water quality. What are the other benefits that bring in partners into the watershed to make improvements, these win-win situations? Perhaps it is helping out the agricultural producers, perhaps it is helping hunting groups, recreation groups, fishing groups.

There are many reasons why people will come to the table. Water quality is just one of the reasons, and I think you need to find those projects where we are benefiting water quality, but we are finding solutions to other problems at the same time.

When you can bring everybody to the table, you build those partnerships which are critical for coordination. You need that coordination to make the dollars on the ground go further, make sure you are not duplicating efforts, and then you just need commitment over time.

This is a point that again, in my experience, it often takes decades to start seeing improvements from our projects. It is not always an immediate response. Sometimes you have to try many different practices before you find the right combination that results in water quality improvement.

Some of the nonpoint source pollution problems that we deal with in Wyoming are legacy impacts going back hundreds of years, and they are not going to be fixed overnight. It takes time to mobilize the resources, it takes time to implement the projects, and it just takes time to work with nature and let those projects become effective and get the data to show effectiveness.

And that being the last component of a successful project is that you have to monitor, you have to go out and look for data. I think we have to get beyond the point of just hoping that what we are doing is working. It is an important part of the program that we

evaluate it whether it is water quality data, range data, many ways that you can look for issues.

Senator BARRASSO. There is a funding issue as well because, and we heard this from Senator Cardin as well, in order to have—these things have started as a ground up. But in order to receive Federal funding, you have to seek out other funds. How does Wyoming secure resources to leverage the dollars that it receives from the EPA?

Ms. ZYGMUNT. Yes. Thank you for the question. We do require non-Federal match for all of our Wyoming projects. We require a 40 percent minimum match. As an easy example, if your total project costs just $100,000, $60,000 could be 319 funds. The sponsor would need to show that 40 percent, $40,000 is coming from a non-Federal source.

Really, one of the most important sources of match in Wyoming are from our landowners, either cash contributions to a project or in kind services, meaning they volunteer their time or they volunteer their equipment toward a project.

We don't advocate for 100 percent cost share. It is our philosophy for the conservation districts working with these producers that when we are working with agricultural producers, that they have skin in the game, so to speak, that they are contributing to the project as well. I think that is a very important point to make is that they are contributing their own resources and their own time to these projects.

We have local sources of funding, again the conservation districts, their time, if they have a local mill levy that provides them support, is a common source of match as well as city and county funds. Other State agencies that are critical for us showing non-Federal match would be Wyoming Game and Fish Department and several other agencies.

Senator BARRASSO. One last question as we talk about the 319 funds. According to the Government Accountability Office, the formula is weighed heavily toward State population, as well as the number of acres and agriculture crop production. If we were to update the formula, what suggestions would you make to ensure that each State receives a fair share of the funding?

Ms. ZYGMUNT. If the formula is updated, I think for Wyoming, some other factors that we would suggest be considered is that in addition to population size, we account for the number of tourists that come to Wyoming. We have under 600,000 in terms of our State's population. In 2018 we had over 4 million visitations to State parks, over 8 million to our national parks, monuments, and historic sites. That is not something that is considered, but obviously that level of tourism has the potential to impact our water quality.

I would also recommend that we consider increased weight for ranch land and grazing activities in addition to cropland acreage. I think as a headwater State, we would advocate for consideration of the benefits of protecting water quality at the source.

Finally, the emphasis on population size makes it hard for some of our smaller communities. All but two of our cities are under 50,000 people. It can be hard for them to find the local resources

to address some of these problems, so I think a factor to help some of our smaller communities would be good.

Senator BARRASSO. Thanks. Very, very helpful.

Senator Carper.

Senator CARPER. Thank you. I love it when the witnesses say, "thank you for that question." We have some people over here that may have three or four rounds of questions. Every question, they will say "thank you for that question." Even the lousy questions, they will still say "thank you" for that, so thank you for thanking us.

I want to look for some consensus here, a little bit of agreement. I want each of you to give me maybe at least one, maybe two areas of agreement, most important areas of agreement, that we could use to improve the 319 Program to better address the NPS pollution, problems that our States face. Just two areas where you think you agree that are really important. Go ahead.

Do you want to go first, Jennifer?

Ms. ZYGMUNT. Yes. So in terms of improved areas of agreement, I would have to say our first would be our partnership with Wyoming NRCS. That is an evolving partnership, but we have common goals. We have had improved dialogue in recent years about how to prioritize.

Obviously, they have many resource concerns beyond just water quality. We have had much better conversations with them in recent years about how to prioritize water quality or to coordinate that with some of their other conservation programs.

As important in Wyoming, our evolving partnership with the Wyoming Association of Conservation Districts, because of our reliance on the districts to help connect us to the local level, implement these projects. Our partnership with the conservation districts is one that we routinely coordinate with, maintain, and try to improve over time.

Senator CARPER. All right. Stick to your guns.

Secretary Grumbles, do you agree with that?

Mr. GRUMBLES. Thank you for the questions.

Senator CARPER. Oh, you are welcome, you are welcome.

[Laughter.]

Mr. GRUMBLES. And I really mean it.

I do agree. I agree with just about everything that Wyoming DEQ is saying, although when it come to an allotment formula, we may have some disagreements. On the tourism component, though, that sounds very exciting as a criterion.

We certainly—I think there is common agreement that the 319 Program is a tremendously impactful and wise investment, and so that program from a Federal funding perspective should grow.

I also think there is agreement that flexibility is absolutely needed with any partnership program that doesn't rely on heavy regulatory controls. Partnerships are key, so you need to continue to boost innovation.

I think there is also agreement that for 319, the key is to tap into this exciting new world of smarter information technology, affordable sensing programs, remote sensing, really being be able to target where those dollars are best spent and working with agriculture and other sectors where it is really needed.

I would agree that this is a good program. The less paperwork, the more streamlining in the application process, I think, would also be something that States would uniformly agree is a good way to go with this critically important Program 319.

Senator CARPER. All right, thank you.

Ellicott City is a town that my wife and some of her friends visited a year or so ago. They went shortly after—I don't know if they are 1,000 year floods or 500 year floods, that occurred within like, months of each other.

Mr. GRUMBLES. More than 500 year floods.

Senator CARPER. Yes, there you go. The folks in Ellicott City think that climate change is real, and that it had something to do with the flooding that is going on.

I have been intrigued. Delaware punches above its weight in farming. We do a lot of farming in Sussex County, and frankly, in Kent County and some in New Castle County.

I am always looking for ways, as my colleagues know, to find ways to do good things for our planet, including addressing climate change and create economic value. I am intrigued by the ideas of encouraging farmers to use carbon capture in the soils that they grow crops in, in order to take the carbon out of the air and provide economic opportunity, better soils, to grow crops, of all kinds.

Would you all just comment on that? Is that something that you are mindful of, thinking at all about?

Mr. GRUMBLES. Yes. First of all, I was caught in that Ellicott City flood and had to be rescued, eventually. It is a powerful reminder in an urban environment that flood control, flood prevention, and increasingly wild weather in this area needs to be taken seriously. That is why we are proud that we are supporting climate resiliency efforts to help engage not only in urban retrofits, but also in smarter planning upstream and throughout the watershed.

Carbon capture sequestration is critically important, whether you are wearing the water pollution control hat or the climate change hat. Because it is all about healthy soils and finding ways to make agriculture more productive and also mitigate the risks of climate change by reducing carbon dioxide that is in the air through the healthy soil.

We are putting a real emphasis—Governor Hogan is—on healthy soils initiatives, and working with agriculture, not against, to be real leaders in reducing carbon pollution and increasing the health of our soils.

Senator CARPER. My time is expired, Ms. Zygmunt. Anything quickly you could add to this, just briefly?

Ms. ZYGMUNT. Yes. I agree, the soil health initiative is fascinating. We are seeing farmers in Wyoming that are starting to learn more about it, starting to implement techniques. That, and other practices I think are a great part of the 319 Program in that we are building resiliency from many angles.

A lot of the projects that we do are going to stabilize riparian areas, helping with flood control, off channel water that we do with ranchers helps during droughts.

Climate variability is not new in Wyoming. It is something that we deal with regularly; droughts, floods, wildfires. Regardless of

the reason, the increased resiliency from our projects, I think, benefits for many reasons.

Senator CARPER. Mr. Chairman, I think I keep coming back to something that we talked about just a little bit in other hearings. There is something good here for farmers, and I would like to say it is possible to do good things for our planet and add economic value, and this is one way to do that.

I know farmers can—there are always good stories like that, I think our first was. But they can be better stories, and we can figure how to help facilitate that in the end.

Senator BARRASSO. Thank you, Senator Carper.

Senator Capito.

Senator CAPITO. Thank you, Mr. Chairman.

Thank both of you for being here today. The 319 Program is critical, we talked about, to the water quality of my State of West Virginia; under its non-regulatory framework, Federal, State, and local governments partner with private groups and individuals to implement these programs. We do have a great DEP administrator in Austin Caperton, I am glad to know you are working with him.

Senator CARPER. Sorry to interrupt. Is he related to Gaston Caperton?

Senator CAPITO. He is cousins, yes. It is West Virginia, we are all cousins.

[Laughter.]

Senator CAPITO. In any event, the two prevalent major nonpoint sources in our State are bacteria and then acid mine drainage, which we have dealt with, and done very well actually. Down the way from where I live, the Coal River Group has utilized the 319 grant funding to help homeowners repair their septic systems. This is something we have worked on in this Committee, with getting people to get their septic systems up to quality, so that they don't become a bigger problem or age or leak or other things.

So now, the Coal River, they have a great kayaking business; they have great water festivals on the Coal River, and it is been a direct, I think, result from the 319 Program.

In terms of the Chesapeake Bay, West Virginia is one of the headwaters of the Chesapeake Bay, and we have worked well, I think, to get our total maximum daily load down, thanks to the 319 Program. It is been very helpful with that.

On that issue, I would like to ask you, Secretary Grumbles, you mentioned working with other States. I have a two-part question.

No. 1, I don't know the answer to this question. Does the 319 Program allow you to do a regional approach where you could apply for funding as a region of States? Or is it mostly State to State, and then how do you coordinate that when you are on the border? You want to do a project near Hagerstown, Martinsburg, Shepherdstown, that type of thing.

That is my first question. Go ahead.

Mr. GRUMBLES. My answer to that is yes. We use the 319 Program to partner with other States in the Chesapeake Bay watershed. So 319 funds for Maryland can be used in a partnership program with West Virginia or with other States that are above us or beside us.

Senator CAPITO. So, does the funding come, like the West Virginia 319 Program uses their funding to partner with the funding from Maryland, so to speak?

Mr. GRUMBLES. Yes.

Senator CAPITO. Right. So one of the issues, I think, particularly in that region, and particularly with the Chesapeake Bay, is there is not a lot of population in the West Virginia part. I realize when you get into Maryland, you have got more population driven into that area when you start getting into the more populated parts of the Bay.

I think this has been an issue, not an issue, but something to look at in terms of funding, because of the heavy impacts that a less inhabited part, a more rural part of West Virginia is going to have on a more inhabited place, places in and around the Chesapeake Bay.

Would you consider, would you see, is there enough flexibility built into the program to be able to help that rural community? I think this is what you were talking about in Wyoming. I don't know how you see that issue.

Mr. GRUMBLES. I think it is important to look at that and work with the Committee on trying to build as much flexibility into that in the spirit of source water protection and working upstream where you get the most bang for your buck and leveraging those dollars.

I just want to make sure the Committee understand that the 319 Program, when you use the allotment for it—Maryland only gets $2 million, but we have put up over $75 million of our money into that program, and it just leverages tremendous broader partnerships. I think that the key of having flexibility, working with local or smaller populated communities upstream is where we see some real value downstream.

Senator CAPITO. In Wyoming, I think you mentioned that you have a headwater, you are a headwater State as well. The discussion we are having in terms of being able to fund those projects in terms of impacts further downstream, do you have an opinion on that?

Ms. ZYGMUNT. Yes. I would agree with Secretary Grumbles. I do think we have the flexibility to address both those issues, working with rural communities and having interstate coordination as needed.

In Wyoming, interstate coordination is very important. We haven't had as much formal coordination in the 319 Program. I routinely talk with my other State counterparts when we have got projects on the border with other States, we were letting them know what we are doing, seeing if we can encourage projects downstream as well. They are obviously very interested when we are doing projects upstream.

I absolutely feel that we have the flexibility that we need to work with our other States and to bring resources to our smaller communities.

Senator CAPITO. I don't have another question, but if I did, I would have asked about the capacity building. I think this is an issue in all types of water treatment, no matter whether you are looking at a nonsource point, or whether you are looking at a rural

water system, the technical expertise, I think, is something we really need to work on here to spur that on.

Mr. GRUMBLES. Can I just simply say, thank you for mentioning acid mine drainage. In Western Maryland, we are very proud as well, just like West Virginia, of using different technologies to reduce acid mine drainage and using 319 dollars for that. It is one of our true success stories, and we might have learned it from West Virginia, but it is certainly another reason to support the flexibility and continued flow of Federal support for 319 Programs like acid mine drainage mitigation.

Senator CAPITO. Thank you.

Senator BARRASSO. Thank you, Senator Capito.

Senator Van Hollen.

Senator VAN HOLLEN. Thank you, Mr. Chairman.

Thank both of you, as witnesses.

I think this hearing highlights the importance of the Section 319 Program to address nonpoint source pollution.

Another important program in that regard is the Rural Conservation Partnership Program, and I want to thank Senator Boozman for working with Senator Capito, Senator Cardin, myself, and others to increase the mandatory funding on the Farm Bill for that, because that is also vitally important to protect watersheds like the Chesapeake Bay.

I would like to zero in on something Secretary Grumbles commented on in his statement, and that is the current state of the Chesapeake Bay Agreement, which essentially puts different States on what we call a pollution diet, right? The TMDL is the total maximum daily load. As part of the Chesapeake Bay Agreement, some of the key States agreed that they would hit certain pollution reduction targets.

We just saw from EPA's analysis in December that the State of Pennsylvania is falling very far short on some of those key pollution reduction targets. There were some alarming statements made recently by the head of the EPA's Chesapeake Bay Program suggesting that those pollution targets that States are supposed to achieve by 2025 are purely "aspirational," and that they are not enforceable, which, I think is dead wrong when you look at the agreement.

Secretary Grumbles, my first question is, have you gotten any clarification from EPA since that comment was made, as to whether they believe that the agreement is enforceable?

Mr. GRUMBLES. EPA issued a statement that backed away from using that word, aspirational, and underscored that they are committed to working with each of the States to meet their goals by 2025. We are still very concerned about that. We absolutely believe that it is not just aspirational, it is enforceable, and it is not just informational, it is integral to our success for 2025.

We understand full well that nonpoint source pollution is not regulated directly under the Clean Water Act. But when you have a TMDL and the uniqueness of the Chesapeake Bay TMDL, which is like no other in the country with these watershed implementation plans that are then integrated into the 303(E), the continuing planning process, there are some real commitments and respon-

sibilities and obligations that EPA has to implement the EPA Chesapeake Bay TMDL beyond aspirational.

Senator VAN HOLLEN. I want to make it clear that I think all of the members of the Chesapeake Bay States would like to work with the State of Pennsylvania to help it achieve its targets. We would like to see additional Federal resources, whether it is from the Rural Conservation Program or other programs go to Pennsylvania to address these issues.

But ultimately, as of today, Pennsylvania is not on course to meet its targets, and we need assurances from EPA that it will play its role to ultimately enforce those targets. I am drafting a letter with Senator Cardin and others to make it clear to EPA that that is our understanding of what it means, and that understanding is actually affirmed by the Third U.S. District Court of Appeals decision. This has been litigated before, has it not?

Mr. GRUMBLES. It has. It is over a 5-year period from the 2013 decision to a 2016 Supreme Court letting it stand. The Chesapeake Bay TMDL is lawful; EPA has an important role.

We are not trying to make the Nonpoint Source Program regulatory. It is through the context of the TMDL there is a clear and distinct responsibility of the interstate umpire to step in and take actions when a State like Pennsylvania is not even meeting 75 percent of its commitment. When it is going to be hundreds of millions of dollars, and they don't have the plan, we need intervention on that front and still work together as partners, but we need intervention and leadership.

Senator VAN HOLLEN. Right. No, I don't think anyone is suggesting, just to be clear, making the Section 319 Program a mandatory program. This is a distinct agreement under the TMDL among the States, and a Third U.S. District Court of Appeals judge has already said that this creates enforceable rights and obligations.

I just want to say to you, Mr. Secretary, and to the Governor, that if we don't get assurances from the EPA in short order, that they are going to enforce these targets and come up with a realistic plan for hitting those targets, then we are going to have to sue EPA to do its job and enforce the agreement. I believe you agree, do you not?

Mr. GRUMBLES. Yes. And the Governor agrees. The Governor feels very strongly about this.

Senator VAN HOLLEN. I just think this has come to a boil now with the statements that were made recently by the head of the EPA's Chesapeake Bay Program, and so this is a moment we need absolute clarity and an enforceable program to hit the targets in 2025.

Thank you.

Senator ROUNDS [presiding]. Thank you.

I think now what you will see is part of the dysfunctionality within the Senate as we now move in and out to try to get down and vote, so we will be passing the Chairmanship back and forth and around. Those individuals who are leaving are not doing it out of disrespect, but simply because they have to go and vote and try to get back in an orderly fashion.

Ms. Zygmunt, like Wyoming, South Dakota is a farming and ranching State with a relatively small population, but a fairly good

size. Looking at Section 319—and we utilize 319 in South Dakota just like you do in Wyoming—I think there has been a question as to whether or not there is an appropriateness or whether or not there should be modifications to the existing formula with regard to two particular items. That is, the amount of ag land; that is, within the formula itself, versus the weighted credibility given to the population of the particular State.

In many cases, where you find, since this is a nonpoint source pollution program, the question is, should this be based or should we reconsider the formula funding to perhaps provide some additional credibility or weighting to the ag acres that are under production? I would like your thoughts.

If you could re-do the formula; you have been doing this for more than 11 years now, in Wyoming. What would you see with regard to not so much, would you consider a fairer formula? It hasn't been changed since the beginning. What would you see with regard to other areas that might be considered as we consider a fair distribution formula?

Ms. ZYGMUNT. Thank you, Senator, for that question.

I think I have trouble answering that question nationally, in terms of what is fair. I can definitely speak for Wyoming, in that yes, agricultural land use is one of our key land uses that we need to address nonpoint source from. Most of our success stories have involved an agricultural component.

If I am just looking at Wyoming, and if I had a pot of money, and I had to come up with the formula to distribute the money in Wyoming, agricultural land use would be one of the top factors that I would consider in terms of what needs are where. But it is not the only factor, and whether or not it should be weighted more or less, I have trouble speaking to that beyond Wyoming.

One of the good aspects of the 319 Program is that we are able to address nonpoint sources of pollution from other sources. The urban related sources in Wyoming, sometimes there is not funding to help communities out with those sources. Septic systems are another issue in Wyoming that we can help with.

So agriculture is important in Wyoming. I see that being one of our top priorities, but there are other sources in parts of the State that 319 has the flexibility to address. Within the State, that flexibility is very important.

Ag as a factor, as I mentioned in my statement previously, I would recommend if the formula were reevaluated to add more weight to the rangeland, grazing aspect of it, not just irrigated cropland.

Senator ROUNDS. Thank you. I am also curious. In your testimony, you state that partnerships with the agricultural community are important for successful nonpoint source pollution mitigation. In your testimony, you have also included supporting documents highlighting your success in reducing levels of selenium in local waters flowing through the North Platte River.

Can you talk a little bit about the success of this voluntary program, and nobody is talking about making it a mandatory program, but can you talk about how the ag community and the rural communities feel about this being a voluntary program?

Ms. ZYGMUNT. Yes, in Wyoming, absolutely, there is support for our program being voluntary. Again, that is what we have found to be most effective. It builds the most trust with our agricultural community, and again, our conservation districts are key in building that link between the 319 Program and the local producers. The conservation districts are the folks out there talking with producers, talking about the program, explaining what 319 is. It is my job to help build that trust with the conservation district to facilitate that discussion, provide the district with the resources that they need so that they can take the next step working with the producers.

Yes, absolutely, support for the voluntary approach in the conservation districts are key to building that trust with the ag community. Thank you.

Senator ROUNDS. Thank you.

Senator Merkley.

Senator MERKLEY. Thank you. Coordinator Zygmunt, do you have much challenge with phosphorus in Wyoming as a runoff that affects waterway quality?

Ms. ZYGMUNT. It is a newer issue for us. Nutrients, including phosphorus, is an issue. It is not one that we have done a lot of monitoring for to date. We are in the process of developing numeric nutrient criteria, but we are seeing harmful algal blooms within the State and are working on a response plan for those. We are in the process of developing a bigger nutrient program right now. Our focus has been on sediment and bacteria, but we are heading that way.

Senator MERKLEY. Secretary Grumbles, is that an issue for you in Maryland?

Mr. GRUMBLES. It is. It is also an opportunity. It is a very important issue, as Senator Carper knows, in the Delmarva Peninsula, phosphorus management. Governor Hogan is very proud of the fact that we updated the science and put in place strong regulations to reduce potential phosphorus.

Senator MERKLEY. The reason I ask both of you is because algal blooms across the country are affecting almost every State, most certainly the warmer water. The nutrient runoff is causing lots of troubles in our lakes and waterways in Oregon.

There is some very complex chemistry that is occurring. For example, Diamond Lake has a significant phosphorus that was driving an algal bloom, but when the invasive tui chub fish was removed from the lake, then the zooplankton ate the algae, and the water clarity increased to a depth of over 20 feet from about 2 or 3 feet. It just cleared up the algae because of changing the chemistry, even with the same phosphorus load.

We have another lake, Klamath Lake, where we have endangered suckers. We are having a really complex challenge with it, where you have one algae bloom that fixes nitrogen, and then a second algae bloom that uses that nitrogen, and it produces a range of toxins. It is not really just two algaes; there is a whole suite of different algaes, but I am crudely describing it. We have a species there, the fathead minnow, that has become 80 percent of the mass in the lake.

As I see these issues, they are so complex. Shouldn't we have kind of a national algae team that understands and is learning from each and everybody's experience and challenges in Wyoming and Maryland and Oregon to kind of help everyone else, including ourselves understand these issues better and how to address them?

Mr. GRUMBLES. Yes.

Senator MERKLEY. We don't really have that, at least I haven't seen that, like experts at the national level on algae that can come to Oregon and help us understand, because we have very different challenges in lakes that are not that far apart.

I think this is the main thing I wanted to address because in terms of our nonpoint, we have sediment issues and so on and so forth as well, but this is one that is really changing the chemistry of the lake. The algae near the surface is creating warmer temperatures in the lake. It is also decreasing the sunlight going deeper into the lake. Not only does it produce toxins, but when it dies, it strips oxygen from the lake.

We have multitudinous sources of phosphorus, including natural background phosphorus, tail water from irrigation operations, former wetlands that are drying out and release a lot of phosphorus when it rains.

I am just thinking, in addition to these moneys, it would be great to have a real team of experts on the biochemistry of lakes and the interaction with aquatic zooplankton, algae, invasive species, and so forth to help us address these challenges.

Ms. ZYGMUNT. Senator, I think that is a very good point. Like I said, we are in the initial stages of building an improved harmful algal bloom response strategy in Wyoming. We have prioritized one of our reservoirs for proactive nutrient reduction efforts. It is a very high rec use reservoir, so it is very important for us to address the recurring algal blooms that are occurring there.

As one example, the University of Wyoming has put together a team that hopefully will get some funding to do a detailed study on that reservoir to understand that complexity and help answer some of the questions particularly that we are getting from stakeholders about with the blooms are occurring and the best way to address them.

It is a complex issue, and I think there is definitely a need to have support for technical assistance to understand it so that we can mitigate it most effectively. We are seeing some assistance through the University of Wyoming, and we are also attending regional conferences when they become available. I know upcoming in February, there is a Midwest conference on harmful algal blooms where we will be participating to learn from other State resources.

Mr. GRUMBLES. Senator, I would just simply add, I know there has been a national effort on harmful algal bloom research and control. Perhaps what you are suggesting is there needs to be more at the national, Federal level of the many excellent research scientific agencies that are there.

I can tell you that from a regional and State perspective, we absolutely agree that nutrients, particularly phosphorus, need good strong science and integrated partnerships and find ways to reduce unacceptable or excess levels of phosphorus and repurpose that

phosphorus and use voluntary as well as regulatory tools, not just in agriculture, but in the wastewater community through enhanced wastewater treatment technologies, but not lose sight of the importance of the phosphorus loading, which is a big part of our Chesapeake Bay challenge.

Senator MERKLEY. We are looking at how can you cost effectively strip algae, harvest algae from the lake, removing that algae and the phosphorus. We are looking at how much can the wetlands reduce it. We are looking at the whole range of things.

What has really struck me is, for example, in aquarium studies of how toxins affect the fish, we only have limited toxins that are relevant to the range of toxins produced by the algae to even be able to test, so there is a big scientific gap here that we need to focus more on.

I will just close by noting that the amount of funding for this program has gone down significantly over time, and it seems to be that the challenges are getting greater. Maybe we should be increasing funding for it.

Thanks.

Senator BARRASSO [presiding]. Senator Boozman.

Senator BOOZMAN. Thank you, Mr. Chairman, and we appreciate you all being here very, very much.

Ms. Zygmunt, the State of New Hampshire in comments collected by the Association of Clean Water Administrators suggested that an audit should be performed on reporting requirements to detect any redundant reporting done by the States to EPA. Do you believe that there are areas of the 319 process that can be streamlined, and can you give some examples of that, perhaps?

Ms. ZYGMUNT. Yes. Thank you, Senator. Overall, I feel like we have worked in recent years to evaluate reporting requirements. Right now, I don't feel like the reporting requirements that we have as a program are onerous.

Senator BOOZMAN. Good.

Ms. ZYGMUNT. I have worked at the next step to help my project sponsors with that reporting step. If I make their job easier, it makes my job easier, it makes the EPA's job easier. It is definitely a team effort.

Right now, I don't have any immediate suggestions for streamlining reporting. I think it is an ongoing process.

EPA is coming up with some very good tools, such as "How's My Waterway," which will be an excellent tool to get more information to the public about water quality. It will pull information from the main data base that we use to track our 319 projects, which is good, but it will require us to go and make sure that we are keeping our data entry up to date, making sure that it is thorough and sound and it is what we would want to present to the public.

I think there are some upcoming requirements that we just need to have conversation with EPA about in terms of how to make that most effective.

Senator BOOZMAN. Very good. That is good to hear.

Secretary Grumbles, it is good to see you. The Secretary was one of my former predecessors, is that right? Former predecessor?

[Laughter.]

Senator BOOZMAN. Anyway, a Congressman that he served under and worked for, and I just want to compliment you. It is so good to hear the two Senators from Maryland be here and compliment you on your hard work. The fact that you are so well respected on both sides of the aisle, that is a great example for all of us.

We do appreciate all you do. I know that you work very, very hard. Nobody understands the issues better than you, and the fact that you make it, especially with these water issues that are so, so very important. These are areas that we can find common ground on. We all want to get it done in a logical way, and you have really set the pace in that regard, so give yourself a pat on the back.

I have got a quick question for you because I have got to run and vote. Aside from providing additional money to the 319 Program, how can we leverage more funding for nonpoint source pollution projects?

Mr. GRUMBLES. Thank you, Senator. The key to innovation is being willing to find ways to bring in additional partnerships and market based solutions, one of the best ways to leverage additional funding through the 319 Program.

We should get a boost in funding, but the best way to leverage is by using market based strategies, creating incentives, such as water quality trading or pay for performance contracting, where with the knowledge that is gained through the 319 Program and the science of the technologies of being able to see, wow, we will get some really good progress in water quality, that can then help create incentives for unregulated players to come to the table and come up with ways to reduce the pollution, whether it is acid run-off from mining or excess phosphorus or nitrogen or algae or green infrastructure.

The best way to leverage is to invite more partners to the table and reward them through market based strategies like water quality trading or pay for performance contracting.

Senator BOOZMAN. Very good. Thank you, and we do appreciate both of you very, very much.

Senator BARRASSO. Thanks, Senator Boozman.

Senator Gillibrand.

Senator GILLIBRAND. Mr. Chairman, thank you for holding this hearing today.

Clean water is a basic human right, and assuring that all Americans have access to it for their families must be a top priority for all of us. New York State has a strong record when it comes to protecting our water. New York City has a water supply providing unfiltered, clean drinking water for 9 million New Yorkers.

However, our State continues to face the challenge of ensuring that our water stays safe and clean. Harmful algal blooms and other water quality problems associated with nutrient runoff and fertilizer use threatens our lakes.

We are spending record amounts of money to clean up the Long Island Sound and reduce its nitrogen load. New York State is also committed to partner to doing our part to clean up the Chesapeake Bay, and we will meet the 2025 targets in New York's watershed implementation plan.

One of the biggest water quality challenges we face has to do with the growing problem of PFAS contamination. That is an issue

that is affecting New York, the whole country, and it is creating great concern.

I am very concerned about the prospect of PFAS chemicals entering our water bodies through nonpoint source pollution due to the use of sludge from water treatment facilities as a fertilizer on agricultural croplands. We are essentially taking PFAS pollution from point sources and turning it into nonpoint source pollution through agricultural runoff and groundwater contamination. This hurts our farmers, who now must deal with PFAS contamination on their land. It potentially harms the public by contaminating food and water.

This is happening in States from Maine to Michigan to New Mexico.

Secretary Grumbles and Ms. Zygmunt, are your States taking any action to detect and address nonpoint source pollution from PFAS?

Mr. GRUMBLES. Well, Senator, I know that for us in Maryland and the Maryland Department of the Environment, we are looking very carefully at potential biosolids land application of sewage sludge as a potential source. Our Water Office and our Land and Management Office are looking at this.

The first step is to see, are there indications of a problem. Because we are, in working with other States like New York, or States around the country, know that there is growing evidence of real concern about PFAS, and not just from a point source, but from nonpoint sources.

So it is on our radar screen, and we are committed to learning more and partnering for pollution prevention.

Ms. ZYGMUNT. Thank you, Senator. My short answer is that no, PFAS has not made its way to our nonpoint source program at this time. We have other staff in our water quality division that are working on PFAS issues. It is beyond my area of expertise at the moment, but I would be happy to get more information for you from the staff in terms of what efforts they have made and where they are at.

Senator GILLIBRAND. Great. And what can be done on a Federal level to support more awareness and action at the State and local levels to address the issue?

Mr. GRUMBLES. I certainly can say as a member of the Environmental Council of the States, ECOS, which is all the State directors and commissioners on environment, that every single meeting our group has from the director of Wyoming DEQ, to our State, to New York, Basil Seggos, the commissioner, we talk about and develop strategies and compare notes on regulatory tools and science based tools.

The answer is a continued, strong commitment on Federal agencies like EPA to keep moving forward on the science and the communication and the necessary regulatory tools to reduce the threat from PFAS chemicals.

Senator GILLIBRAND. What impacts do you anticipate that increased precipitation will have on the amount of pollution entering our water bodies and our ability to implement measures to address pollution?

Mr. GRUMBLES. This is a question separate from PFAS, although, everything can be connected.

Senator GILLIBRAND. Correct.

Mr. GRUMBLES. Well, as Jennifer mentioned, and as I certainly mentioned in our testimony, a key component of a successful water program is resilience and taking into account weather and precipitation.

New York participates in the Chesapeake Bay TMDL, and I am proud to say that we all have agreed to factor in climate resiliency, specifically because it becomes—it is a multiple—the increased precipitation in some regions, like here in the Mid-Atlantic, including snowmelt. Basically precipitation becomes a threat multiplier in terms of pollutants that are on the land, urban, suburban, rural.

We are factoring in a narrative and numeric criteria to the Chesapeake Bay pollution budget specifically dealing with the anticipated increase in precipitation in our region.

Senator GILLIBRAND. Thank you, Mr. Chairman.

Thank you, witnesses.

Senator BARRASSO. Thank you, Senator.

Senator Braun.

Senator BRAUN. Thank you, Mr. Chairman.

I have been a lifelong conservationist. I have been worried about the state of the air quality and water quality since I have been a kid. I was able to move back to my hometown and actually practice what I preach.

When it comes to nonpoint sources, we employ riparian buffers, cover crops, no-till farming, a lot of different methods, and I think somebody earlier mentioned that farmers are the true stewards of the land.

I also look at air quality and water quality to where air quality, we make great strides, but we are largely at the mercy of what the rest of the world does. When it comes to water quality, we can really have impact within our own country.

When it comes to, I have heard, first of all, Section 319, I think it is worked very well. The skin in the game that you mentioned is important.

What is the current state of the health of waterways? And I would like you to also talk about point source and nonpoint source, and tell me what your opinion is from where it is now versus what it was 10 to 15 years ago. I would like to hear from both of you on that.

Mr. GRUMBLES. What an awesome question. Thank you. EPA definitely and other Federal agencies need to follow up on that question about national standards and trends. I can say without hesitation that our Nation has made tremendous progress on water quality over the last several decades, unbelievable progress, in terms of reducing toxic pollutions and conventional pollutants. So we are on the right track.

But I can also say without hesitation that in some areas, it can be increasing, localized increasing urbanization, or some pollution source that isn't adequately controlled or managed, or with emerging evidence of contaminants that hadn't previously been focused on that are problems. There is a mission not yet accomplished, for sure.

We often say, and the point source, the regulated, particularly industrial and municipal, that we have made tremendous strides. Maryland has absolutely been a leader in reducing pollution from industrial and wastewater treatment plants with very costly technologies to reduce the nutrients and the pollutants.

But we also know that there are some increasing trends with new contaminants or chemicals, as the Senator from New York mentioned, that are new challenges for us because our science is getting better, our ability to detect challenges.

On the nonpoint source front, the story is still true, that because of the diverse and diffuse nature of the pollution, that is going to continue to be a challenge, and we just need, more than ever, new tools, not just regulatory tools, but partnership tools that are better local and place based. It is really important to not declare victory on the water quality front, and with climate change, the more extreme weather conditions, that brings a whole lot of additional challenges that weren't as big in the past.

I would just conclude with, we are making real progress, but we absolutely need to focus more and more on nonpoint source runoff and smart, market based strategies and ways and also emerging contaminants of concern.

Senator BRAUN. Jennifer, briefly comment, because I want to come back to you with a question before my time expires. Go ahead.

Ms. ZYGMUNT. Thank you, Senator. Yes, speaking for Wyoming, overall, we are blessed with great water quality. We have our challenges. I think we are seeing improvement, as shown by our success stories.

As Secretary Grumble said, we have those emerging contaminants coming up that cause us to adapt and learn new techniques and new methods to deal with them.

We also see changing land use, and that is something that, in Wyoming, causes us to adapt as well. In some parts of the State, we are seeing a lot of rural subdivisions, so whereas previously, maybe you worked with one or two large ranchers, now we are working with maybe 50 small acreage landowners.

It is changes like that that continually keep you challenged, keep you on your toes, and another reason why we need flexibility in the program to adapt to those over time. I think we are seeing improvement. One of the indicators that I have seen over my 11 years in this program is that I see an accelerated buy in into new ways of doing things. People are open to new ideas. Ranchers and farmers are more willing to do something different than they have done in the past, to see if it will improve resources and improve the agricultural production.

Senator BRAUN. Very quickly, and this is a particular question. Riparian buffers are, to me, a poor replacement for forestation that would go deeper into the watersheds. Can we ever have meaningful impact on water quality, especially in agricultural States, if we are just looking at riparian buffers versus what has caused it over time to where we have deforested across main watersheds?

You start, and then give me a quick follow up.

Ms. ZYGMUNT. Sure. I believe riparian buffers are a critical management practice. They are a very small part of Wyoming, but they

are critical for water quality and for wildlife habitat. We see a lot of benefits when we improve our riparian areas to water quality, providing a filter for runoff before it reaches a stream, providing shade to reduce temperature within the stream.

Riparian buffers are a critical practice of what we do in Wyoming. So yes, I do think they are a great practice.

Mr. GRUMBLES. I think your question, obviously, prompts the response of, we have got to have a broader, more holistic approach to forest conservation, looking up into river basins for green infrastructure conservation and protection and source water protection. We get into trouble when we rely solely on end of pipe or edge of field solutions. But riparian buffers are very important, a critically important tool; they just can't be the only tool.

Senator BRAUN. Thank you.

Senator BARRASSO. Thanks, Senator Braun.

This was very interesting and informative.

Fourteen Senators showed up. We are in the middle of a vote, so people have been coming and going, but that is quite a successful attendance, which shows the importance of what you are doing.

No one else is here to ask questions, but they may submit written questions, so you can expect those.

The hearing record is going to be open for the next 2 weeks.

We are very grateful for your time and your testimony. Very, very helpful on this very important issue.

The hearing is adjourned.

[Whereupon, at 11:31 a.m., the hearing was adjourned.]

[Additional material submitted for the record follows:]

ASSOCIATION OF CLEAN WATER ADMINISTRATORS

1634 I Street, NW, Suite 750
WASHINGTON, DC 20006
TEL: 202-756-0605
FAX: 202-793-2600
WWW.ACWA-US.ORG

Statement by the Association of Clean Water Administrators Before the Senate Environment and Public Works Committee Hearing on The Nonpoint Source Management Program Under the Clean Water Act: Perspectives from the States

January 9, 2020

This statement is submitted for the hearing record on behalf of the membership of the Association of Clean Water Administrators (ACWA). ACWA is the national, non-partisan professional organization representing the State, Interstate, and Territorial water quality control officials responsible for the implementation of surface water protection programs throughout the nation. ACWA members are on the front lines of Clean Water Act (CWA) monitoring, permitting, inspection, compliance, and enforcement across the country and are dedicated to restoring and maintaining the chemical, biological, and physical integrity of our nation's waters. As the primary entities responsible for carrying out the CWA, States are uniquely positioned to provide input on how the proposed rule will impact their current activities under the various CWA programs

In response to the hearing held on January 8th, entitled *The Nonpoint Source Management Program Under the Clean Water Act: Perspectives from States*, ACWA members provided input on the program as it stands now, and ways in which it could be improved.

Program Improvements

The states appreciate the opportunity to provide input on potential 319 program improvements. We strongly urge you to extensively consult with the states as you consider changes to this important program. While working with our members, ACWA received feedback on desired program improvements, which covered a wide variety of topics, from many states with extensive experience managing the program. These recommendations include greater funding flexibility, changes to match requirements, and incentivizing partnerships between organizations.

Program Flexibility

Greater program flexibility is needed to help to states achieve success in reducing non-point source pollution. Many states would like to see greater flexibility in how these funds are used. Current EPA guidance requires that states utilize 50% of grant funds for implementation of watershed-based plans. However, since sources and conditions for the use of matching state and local funds differ from state to state, some believe this is an unnecessary restriction that creates needless difficulty for states in coordinating 319 dollars with other sources of federal, state, and

local funding. Greater flexibility would also lead to potential cooperation between state and local groups, which share the same goals.

The states encourage Congress to recognize the complexity of water quality impairments that may be related to a multitude of NPS causes and/or sources, as well as point sources, and direct EPA to adjust the program to eliminate this artificial divide. Several states believe that by splitting program categories as non-regulatory (e.g. - NPS) versus regulatory (e.g. - point source) for reporting purposes inadvertently creates an unnecessary and ineffective divide. This is especially true in more urbanized areas where water quality issues must be addressed from many different angles. Finally, some states recommend that the program be amended to allow section 319 funding be used to implement MS4 stormwater projects.

In order to continue making progress in controlling non-point source pollution, states need these additional program flexibilities. Moreover, providing states with the ability to leverage other federal dollars, along with state funding, will help states to expand their efforts in controlling non-point source pollution.

Improvements to Reporting Requirements

Many states believe there is a significant need to improve the current reporting requirements and that unnecessary and duplicative reporting requirements limit the effectiveness of the overall program. The states also encourage Congress to direct EPA to update and streamline final reporting requirements. There are many reporting requirements that some states feel are redundant and/or duplicated and, as such, encourage Congress to direct EPA to conduct an audit of the final reporting requirements to ensure that the information is necessary and useful. As it stands, some states have made strides to streamline this process on their end, while others believe the program would benefit from these changes coming at a national level. Over the years, reporting requirements continue to expand and the time necessary to comply is taking staff away from project implementation and making progress on improving water quality. A simplified and streamlined reporting system would enable agency staff and grantees to focus on implementation rather than on administrative tasks.

There is some interest in seeing a focus on protection-oriented measures of success given that protecting high quality waters is more cost effective than restoration of impaired waters. In some states, stakeholders have expressed frustration with the focus on restoration projects over protecting high-quality waters. Some states, however, believe the emphasis should be on restoration, which again leads us to urge that as you consider changes to the program you consult extensively with the states.

EPA's review of the 9 Key Elements Plans for watershed projects should honor complementary local and state water planning where it exists because it is redundant and an inefficient use of public planning resources to require 9 Key Elements Plans in those situations. EPA should work with states to demonstrate that existing local water plans satisfy federal and state needs and represent a reasonable and efficient use of public resources.

The states also believe that improvements to the Grants Reporting and Tracking System (GRTS) reporting methods for the annual load reduction parameters are necessary and needed. The metrics being reported to Congress annually are load reductions for nitrogen, phosphorus, and sediments, which highlight agricultural states in contrast to more urbanized states. As it stands now, states that are more urbanized are still tackling a significant amount of nonpoint source issues, and the collective accomplishments of all states nationally are far greater than the current GRTS reporting system seems to recognize. As a way to more correctly reflect the accomplishments of all states in the 319 program, the states would suggest that the following additional reporting parameters be considered:

- Load reductions for other pollutants/pollutant indicators such as bacteria, salt, other chemicals, etc.
- Number of new watershed based plans completed
- Number of dams removed and/or miles of river habitat restored
- Number of BMP measures completed (e.g. – number of rain gardens or swales installed, miles of riparian buffer restored, etc.)

The states also believe it is necessary to improve leveraging and coordination between federal agencies and state agencies working on 319 programs. For example, Natural Resources Conservation Service (NRCS) is unable to share certain pertinent information, such as farm pollutant load reductions, due to farmer privacy concerns. For some states, this limitation impedes their ability to monitor progress, while some have managed to work successfully within these constraints. By improving cooperation and coordination between agencies, the states would be able to fulfil their reporting requirements in a more timely manner and with less strain on state resources.

Finally, the states are concerned that a national GRTS workshop has not been held for several years. This forum was very useful to the states and we would encourage Congress to direct EPA to provide funding for a national workshop in the near future and to plan on conducting such workshops every other year.

Match Requirements

Some states recommend lowering the match requirements for the 319 program. In some states, the state and local match for projects is overly burdensome and hinders program participation. The current requirements of a 40% match are too high for some states and their partners to meet. Some states also suggest that the program be modified to allow states to use other federal program dollars to meet the match requirements in the 319 program.

For instance, New Hampshire is often faced with issues where potential section 319 Watershed Assistance Grant recipients cannot participate in the program because they cannot come up with the required non-federal match amounts. If non-federal match amounts and eligible categories of match are adjusted, this would allow for proper project budgets to be realized and get critical NPS work completed sooner rather than in several phases over many years. Another way to quicken the pace at which NPS work is completed would be to allow federal program dollars to be eligible as match. This, however, is not an issue faced by all states and as such, so we again

urge you to consult with states as you consider program changes so you can understand the nuances of program implementation across the nation.

Allocation Formula

Several state comments focused on the outdated nature of the allocation formula for funding under the 319 program. However, other states are comfortable with the formula as is. The funding formula has not been updated since the inception of the program. For instance, some of ACWA's members in the arid and semi-arid west are finding that their needs are not adequately considered in the formula when it comes to major nonpoint source issues like abandoned mines, wildfire impacts, population growth and use related low stream flows. We would suggest that Congress direct EPA, in coordination with the states, to explore updates to the allocation formula and report back to Congress on those results with suggestions for expanding the criteria used to establish the formula. The states would encourage EPA to investigate changes to the criteria, such as adding criteria that weigh production agriculture, population growth, septic system density and stormwater or tie funding to the miles/area of impaired streams/ lakes in each state. The formula could also take into consideration the added value of protecting the headwaters of major rivers.

Funding

The states appreciate congressional support for the 319 program and the funding provided. However, unsurprisingly, a greater level of support would be a great help to the states. More support would allow for a larger number of completed projects, expanded partnerships, and an overall more efficient program.

Conclusion

With any considered improvements or changes to the 319 program, it is essential to consult and work with all of the states throughout the process, as each state has their own concerns and needs. We remain ready to answer any questions or concerns the Committee may have in response to our written testimony, and ACWA would be pleased to facilitate further dialogue with our state member agencies. Please contact Julia Anastasio, Executive Director & General Counsel, at janastasio@acwa-us.org or 202.756.0600, with any questions about this statement.

January 22, 2020

The Honorable John Barrasso, Chairman, and the Honorable Thomas R. Carper, Ranking Member
Senate Committee on Environment and Public Works

Dear Chairman Barrasso and Ranking Member Carper,
As a follow-up to "The Nonpoint Source Management Program under the Clean Water Act: Perspectives from States" hearing held on Wednesday, January 8, 2020, the Clean Water for All Coalition (CW4A) submits the following letter. We respectfully request that you make this letter a part of the hearing record.

CW4A is a coalition of groups dedicated to improving water quality for drinking, swimming, fishing, and community health. The Coalition works nationwide and in states which administer the Clean Water Act (CWA) Nonpoint Source Management Program.

First, we thank Congress for funding the CWA Section 319 program, which includes funding for restoring waters impaired by nonpoint source pollution. We would also like to thank the Committee for holding a hearing on this important topic and for hearing testimony from two quite diverse states: Maryland and Wyoming. The testimony at the hearing underscored the benefits of the Section 319 program and included administrative recommendations on considerations for funding allocations.

The signers of this letter strongly endorse a robust CWA Section 319 program and urge Congress to increase funding that assists in watershed management and water quality improvements.

The testimony by representatives from both Wyoming and Maryland acknowledged that agricultural runoff has become the dominant water quality challenge. It is important to make clear that nonpoint agricultural nutrient runoff has three primary sources: 1) commercial fertilizer, 2) animal waste (manure and urine), and 3) legacy nutrient buildup in the soils.

In view of the growing evidence regarding the public health and environmental dangers of nitrate toxicity and toxicity from cyanobacteria promoted by phosphorus pollution, it is clear that nutrient pollution must be reduced at the source by applying less commercial fertilizer and better managing animal waste.

It is important to consider management of each of these agricultural nutrient sources.

- Precision agriculture has been proven to reduce commercial fertilizer use and the amount of animal waste that is applied to land. Testing soil nutrients before land application and tailoring application rates per acre can help reduce legacy phosphorus in soils. Commercial phosphorous fertilizer must be reduced by as much as possible and should be applied as strategically as possible. This is a win-win for farmers and for the streams, rivers, lakes and oceans. Many commercial fertilizer consumers now use the 4R Nutrient Stewardship framework, certified crop managers, and precision

agriculture to reduce application. In the western basin of Lake Erie, the Farm Bureau has said these practices have resulted in a 30-50% reduction in phosphorous applications. And there are current recommendations to reduce the amount of phosphorous needed because of changing soil conditions. For example, in Ohio, the recommended change for soil phosphorous is to decrease it from 40 parts per million to 30 parts per million. These reduction efforts are very much appreciated by those striving for a reduction in harmful algal bloom occurrences and for improved water quality.

- Manure has long been used as a nutrient fertilizer, but manure production has radically changed in the past 50 years with a switch from pasturing animals to confining them in massive facilities and bringing operations closer to market. These operations are known as Concentrated Animal Feeding Operations (CAFOs). A 2013 U.S. EPA report states that there are 80% fewer farms raising cows, pigs, and poultry, but that the number of animals raised for meat and dairy has doubled. These increases, along with the practice of consolidating the urine and manure to be land-applied is a major source of increased nutrients in soils and runoff. Although CAFOs are point sources under the CWA, EPA made a regulatory decision to consider runoff contaminated by land-applied manure as nonpoint pollution in many circumstances.

A growing number of US waters are suffering from harmful algal blooms that threaten drinking water, such as the 500,000 people in Toledo, Ohio, who endured a "do not drink" advisory in 2014 due to such an outbreak. These blooms also can kill dogs and other animals, and destroy resources for commercial and recreational fishing. Nitrate pollution threatens drinking water and aquatic life in freshwater systems and has created dead zones in the Gulf of Mexico and other waters.

In conclusion, decades ago, nuisance algae outbreaks were reduced in many waters through a combination of eliminating phosphorous in laundry detergent and reductions of phosphorous discharges from wastewater treatment plants. Other Best Management Practices, like no-till farming, have reduced nutrient pollution from row crop agriculture. However, much more progress is needed. A reduction in manure applications to land from CAFOs would significantly improve the quality of our rivers, lakes and streams. It is incumbent on the meat and dairy industries to reduce phosphorous and nitrogen runoff from these sources. Just as the Clean Water Act requires that municipalities reduce sewage overflows from heavy rains, manure and urine runoff needs to be fully addressed. In view of the massive changes in meat and dairy production, federal decision-makers should consider adopting a number of new approaches to nonpoint source management and land application of animal waste. Section 319 funding should be conditioned on a project's consistency with updated nonpoint management plans that treat land-applied manure to higher standards.

Clean Water for All Coalition
Clean Water Action
Environmental Law and Policy Center
Illinois Council of Trout Unlimited
Lake Erie Waterkeeper
Natural Resources Defense Council

Nebraska Wildlife Federation
Tennessee Clean Water Network

MISSISSIPPI RIVER COLLABORATIVE

January 22, 2020

The Honorable John Barrasso, Chairman, and the Honorable Thomas R. Carper, Ranking Member
US Senate Committee on Environment & Public Works

Dear Chairman Barrasso and Ranking Member Carper,

RE: US Senate Hearing on "The Nonpoint Source Management Program under the Clean Water Act: Perspectives from States"

Members of the Mississippi River Collaborative (MRC) thank you for holding the January 8 hearing to discuss state perspectives of Clean Water Act (CWA) Section 319 funding, and we ask that you add this letter to the hearing record.

Central to MRC's mission is to reduce nitrogen and phosphorus pollution in the Mississippi River. Much of this work regards nonpoint source (NPS) pollution, so we would like to submit the following comments and recommendations to your Committee.

Section 319 of the CWA was designed to provide states with funds to reduce water pollution from nonpoint sources, i.e., unpermitted pollution. It has resulted in a number of great success stories, but it can also be improved. As you consider changes to Section 319 funding, we ask you to keep the following points in mind.

Numeric limits for nitrogen and phosphorus.
As stated in testimony, federal oversight is a key component to the success of any NPS pollution management program. Without EPA using the regulatory power it has over point sources and state implementation of the Clean Water Act, states are limited in what they can accomplish regarding NPS pollution.

In 2011, EPA sent to Regional Administrators a memo called *"Working in Partnership with States to Address Phosphorus and Nitrogen Pollution through Use of a Framework for State Nutrient Reductions,"* (Attachment 1) that stated the following:

> *"It has long been EPA's position that numeric nutrient criteria...are ultimately necessary for effective state programs."*

and

> *"...numeric standards will facilitate more effective program implementation and are more efficient than site-specific application of narrative water quality standards."*

Yet to date EPA has not established these numeric criteria.

Not only that, but the memo included guidance on eight *"Recommended Elements of a State Framework for Managing Nitrogen and Phosphorus,"* yet it has done *nothing* to hold regions or states accountable

for implementing those program elements, as outlined in the 2016 MRC Report, *"Decades of Delay,"* the Executive Summary of which is included as Attachment 2.

Nitrogen and phosphorus are the most important pollutants to consider regarding NPS pollution. **If EPA were to establish numeric limits for nitrogen and phosphorus, states would have a clear and specific goal to attain.** Science and technology have advanced to a point where reasonable numeric limits for nitrogen and phosphorus are not only attainable, but absolutely vital to holding states accountable for NPS reductions. With numeric limits, states have measurable goals to reach and the federal backing to do so. Recent studies regarding nitrate toxicity and the effects of cyanobacteria fueled by phosphorus pollution make it imperative as a matter of both public health and the environment that these pollutants be brought under control.

Animal feeding operations.
It was encouraging to hear the legislators and witnesses repeatedly mention harmful algal blooms as a dangerous byproduct of NPS pollution, but we urge this Committee to look closer at the causes of those algal blooms. In many cases, they occur near large concentrations of animal feeding operations (AFOs), which were not discussed in testimony, but which are inarguably one of the largest contributors to NPS pollution.

There has been exponential and largely unchecked growth of corporate-run livestock facilities – many unpermitted – in most states, leading to serious challenges in NPS pollution reduction. As stated by one member, there are 400 chickens to every one person in Delaware. Until there are **stricter federal regulations on animal feeding operations** (specifically the management of animal waste), Section 319 funding will continue in large part to be used to treat the symptoms, not the cause.

State allotment of 319 funding.
State management of 319 funding was touted more than once as ideal to providing the flexibility for states to manage their own unique problems. However, there is a significant downside to the current method of allotment: **accountability.** State legislators and administrators are under backbreaking pressure from industry lobbyists to keep laws and regulations regarding NPS pollution as lax as possible. This leads to uneven and inadequate rulemaking and enforcement in too many states.

There was some discussion regarding what factors should be weighed if or when a new formula for allotment of 319 funds to states is proposed. This discussion overlooked a major consideration: **efficacy**. Though witnesses spoke of the key importance of data and performance measures, there was no mention of awarding states funds based on the success of its approved programs or projects. Competition for funds based on program efficacy would not be a bad thing.

In addition, the number and dollar value of applications for 319 funding within states should be considered. In some states, there may be valuable projects that go unfunded while another state spends its allotment on less valuable projects simply because it has more funds and fewer applicants.

January 22, 2020
MRC to EPW
RE: Nonpoint Source Management under Section 319

With the above points in mind, MRC proposes the following:

1. This Committee should recommend to EPA that it implement numeric limits for nitrogen and phosphorus to give states the power they need to effectively combat NPS pollution.
2. This Committee should recommend to EPA that it enhance regulations for waste management at animal feeding operations.
3. This Committee should initiate a study on the allotment and use of Section 319 funds in all states and make recommendations to increase the efficacy of program spending.

MRC members would welcome the opportunity to speak directly to this Committee in more detail on these matters and we make ourselves available for further written or oral testimony. You may contact me at your convenience at *kathy@tcwn.org* or 865-208-0792.

Thank you.

Kathy Hawes, Coordinator
Mississippi River Collaborative

for

Albert Ettinger, Counsel to Mississippi River Collaborative
Environmental Law & Policy Center (Chicago, IL)
Harpeth Conservancy (Nashville, TN)
Healthy Gulf (New Orleans, LA)
Iowa Environmental Council (Des Moines, IA)
Tennessee Clean Water Network (Knoxville, TN)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAR 1 6 2011

OFFICE OF
WATER

MEMORANDUM

SUBJECT: Working in Partnership with States to Address Phosphorus and Nitrogen Pollution through Use of a Framework for State Nutrient Reductions

FROM: Nancy K. Stoner
Acting Assistant Administrator

TO: Regional Administrators, Regions 1-10

This memorandum reaffirms EPA's commitment to partnering with states and collaborating with stakeholders to make greater progress in accelerating the reduction of nitrogen and phosphorus loadings to our nation's waters. The memorandum synthesizes key principles that are guiding and that have guided Agency technical assistance and collaboration with states and urges the Regions to place new emphasis on working with states to achieve near-term reductions in nutrient loadings.

Over the last 50 years, as you know, the amount of nitrogen and phosphorus pollution entering our waters has escalated dramatically. The degradation of drinking and environmental water quality associated with excess levels of nitrogen and phosphorus in our nation's water has been studied and documented extensively, including in a recent joint report by a Task Group of senior state and EPA water quality and drinking water officials and managers.[1] As the Task Group report outlines, with U.S. population growth, nitrogen and phosphorus pollution from urban stormwater runoff, municipal wastewater discharges, air deposition, and agricultural livestock activities and row crop runoff is expected to grow as well. Nitrogen and phosphorus pollution has the potential to become one of the costliest and the most challenging environmental problems we face. A few examples of this trend include the following:

1) 50 percent of U.S. streams have medium to high levels of nitrogen and phosphorus.
2) 78 percent of assessed coastal waters exhibit eutrophication.
3) Nitrate drinking water violations have doubled in eight years.

[1] *An Urgent Call to Action: Report of the State-EPA Nutrients Innovations Task Group*, August 2009.

4) A 2010 USGS report on nutrients in ground and surface water reported that nitrates exceeded background concentrations in 64% of shallow monitoring wells in agriculture and urban areas, and exceeded EPA's Maximum Contaminant Levels for nitrates in 7% or 2,388 of sampled domestic wells.[2]
5) Algal blooms are steadily on the rise; related toxins have potentially serious health and ecological effects.

States, EPA and stakeholders, working in partnership, must make greater progress in accelerating the reduction of nitrogen and phosphorus loadings to our nation's waters. While EPA has a number of regulatory tools at its disposal, our resources can best be employed by catalyzing and supporting action by states that want to protect their waters from nitrogen and phosphorus pollution. Where states are willing to step forward, we can most effectively encourage progress through on-the-ground technical assistance and dialogue with state officials and stakeholders, coupled with cooperative efforts with agencies like USDA with expertise and financial resources to spur improvement in best practices by agriculture and other important sectors.

States need room to innovate and respond to local water quality needs, so a one-size-fits-all solution to nitrogen and phosphorus pollution is neither desirable nor necessary. Nonetheless, our prior work with states points toward a framework of key elements that state programs should incorporate to maximize progress. Thus, the Office of Water is providing the attached "Recommended Elements of a State Nutrients Framework" as a tool to guide ongoing collaboration between EPA Regions and states in their joint effort to make progress on reducing nitrogen and phosphorus pollution. I am asking that each Region use this framework as the basis for discussions with interested and willing states. The goal of these discussions should be to tailor the framework to particular state circumstances, taking into account existing tools and innovative approaches, available resources, and the need to engage all sectors and parties in order to achieve effective and sustained progress.

While the Framework recognizes the need to provide flexibility in key areas, EPA believes that certain minimum building blocks are necessary for effective programs to manage nitrogen and phosphorus pollution. Of most importance is prioritizing watersheds on a state-wide basis, setting load-reduction goals for these watersheds based on available water quality information, and then reducing loadings through a combination of strengthened permits for point-sources and reduction measures for nonpoint sources and other point sources of stormwater not designated for regulation. Our experience in almost 40 years of Clean Water Act implementation demonstrates that motivated states, using tools available under federal and state law and relying on good science and local expertise, can mobilize local governments and stakeholders to achieve significant results.

It has long been EPA's position that numeric nutrient criteria targeted at different categories of water bodies and informed by scientific understanding of the relationship between nutrient loadings and water quality impairment are ultimately necessary for effective state

[2] *Nutrients in the Nation's Streams and Groundwater: National Findings and Implications*, US Geological Survey, 2010.

programs. Our support for numeric standards has been expressed on several occasions, including a June 1998 National Strategy for Development of Regional Nutrient Criteria, a November 2001 national action plan for the development and establishment of numeric nutrient criteria, and a May 2007 memo from the Assistant Administrator for Water calling for accelerated progress towards the development of numeric nutrient water quality standards. As explained in that memo, numeric standards will facilitate more effective program implementation and are more efficient than site-specific application of narrative water quality standards. We believe that a substantial body of scientific data, augmented by state-specific water quality information, can be brought to bear to develop such criteria in a technically sound and cost-effective manner.

EPA's focus for nonpoint runoff of nitrogen and phosphorus pollution is on promoting proven land stewardship practices that improve water quality. EPA recognizes that the best approaches will entail States, federal agencies, conservation districts, private landowners and other stakeholders working collaboratively to develop watershed-scale plans that target the most effective practices to the acres that need it most. In addition, our efforts promote innovative approaches to accelerate implementation of agricultural practices, including through targeted stewardship incentives, certainty agreements for producers that adopt a suite of practices, and nutrient credit trading markets. We encourage federal and state agencies to work with NGOs and private sector partners to leverage resources and target those resources where they will yield the greatest outcomes. We should actively apply approaches that are succeeding in watersheds across the country.

USDA and State Departments of Agriculture are vital partners in this effort. If we are to make real progress, it is imperative that EPA and USDA continue to work together but also strengthen and broaden partnerships at both the national and state level. The key elements to success in BMP implementation continue to be sound watershed and on-farm conservation planning, sound technical assistance, appropriate and targeted financial assistance and effective monitoring. Important opportunities for collaboration include EPA monitoring support for USDA's Mississippi River Basin Initiative as well as broader efforts to use EPA section 319 funds (and other funds, as available) in coordination with USDA programs to engage creatively in work with communities and watersheds to achieve improvements in water quality.

Accordingly the attached framework envisions that as states develop numeric nutrient criteria and related schedules, they will also develop watershed scale plans for targeting adoption of the most effective agricultural practices and other appropriate loading reduction measures in areas where they are most needed. The timetable reflected in a State's criteria development schedule can be a flexible one provided the state is making meaningful near-term reductions in nutrient loadings to state waters while numeric criteria are being developed.

The attached framework is offered as a planning tool, intended to initiate conversation with states, tribes, other partners and stakeholders on how best to proceed to achieve near- and long-term reductions in nitrogen and phosphorus pollution in our nation's waters. We hope that the framework will encourage development and implementation of effective state strategies for managing nitrogen and phosphorus pollution. EPA will support states that follow the framework but, at the same time, will retain all its authorities under the Clean Water Act.

With your hard work, in partnership with the states, USDA and other partners and stakeholders, I am confident we can make meaningful and measurable near-term reductions in nitrogen and phosphorus pollution. As part of an ongoing collaborative process, I look forward to receiving feedback from each Region, interested states and tribes, and stakeholders.

Attachment

Cc: Directors, State Water Programs
Directors, Great Water Body Programs
Directors, Authorized Tribal Water Quality Standards Programs
Interstate Water Pollution Control Administrators

Recommended Elements of a State Framework for Managing Nitrogen and Phosphorus Pollution

1. **Prioritize watersheds on a statewide basis for nitrogen and phosphorus loading reductions**
   A. Use best available information to estimate Nitrogen (N) & Phosphorus (P) loadings delivered to rivers, streams, lakes, reservoirs, etc. in all major watersheds across the state on a Hydrologic Unit Code (HUC) 8 watershed scale or smaller watershed (or a comparable basis.)
   B. Identify major watersheds that individually or collectively account for a substantial portion of loads (e.g. 80 percent) delivered from urban and/or agriculture sources to waters in a state or directly delivered to multi-jurisdictional waters.
   C. Within each major watershed that has been identified as accounting for the substantial portion of the load, identify targeted/priority sub-watersheds on a HUC 12 or similar scale to implement targeted N & P load reduction activities. Prioritization of sub-watersheds should reflect an evaluation of receiving water problems, public and private drinking water supply impacts, N & P loadings, opportunity to address high-risk N & P problems, or other related factors.

2. **Set watershed load reduction goals based upon best available information**

   Establish numeric goals for loading reductions for each targeted/priority sub-watershed (HUC 12 or similar scale) that will collectively reduce the majority of N & P loads from the HUC 8 major watersheds. Goals should be based upon best available physical, chemical, biological, and treatment/control information from local, state, and federal monitoring, guidance, and assistance activities including implementation of agriculture conservation practices, source water assessment evaluations, watershed planning activities, water quality assessment activities, Total Maximum Daily Loads (TMDL) implementation, and National Pollutant Discharge Elimination System (NPDES) permitting reviews.

3. **Ensure effectiveness of point source permits in targeted/priority sub-watersheds for:**
   A. Municipal and Industrial Wastewater Treatment Facilities that contribute to significant measurable N & P loadings;
   B. All Concentrated Animal Feeding Operations (CAFOs) that discharge or propose to discharge; and/or
   C. Urban Stormwater sources that discharge into N & P- impaired waters or are otherwise identified as a significant source.

4. **Agricultural Areas**

   In partnership with Federal and State Agricultural partners, NGOs, private sector partners, landowners, and other stakeholders, develop watershed-scale plans that target the most effective practices where they are needed most. Look for opportunities to include innovative approaches, such as targeted stewardship incentives, certainty agreements, and N & P markets, to accelerate adoption of agricultural conservation practices. Also, incorporate lessons learned from other successful agricultural initiatives in other parts of the country.

5. **Storm water and Septic systems**

   Identify how the State will use state, county and local government tools to assure N and P reductions from developed communities not covered by the Municipal Separate Storm Sewer Systems (MS4) program, including an evaluation of minimum criteria for septic systems, use of low impact development/ green infrastructure approaches, and/or limits on phosphorus in detergents and lawn fertilizers.

6. **Accountability and verification measures**

   A. Identify where and how each of the tools identified in sections 3, 4 and 5will be used within targeted/priority sub-watersheds to assure reductions will occur.

   B. Verify that load reduction practices are in place.

   C. To assess/demonstrate progress in implementing and maintaining management activities and achieving load reductions goals: establish a baseline of existing N & P loads and current Best Management Practices (BMP) implementation in each targeted/priority sub-watershed, conduct ongoing sampling and analysis to provide regular seasonal measurements of N & P loads leaving the watershed, and provide a description and confirmation of the degree of additional BMP implementation and maintenance activities.

7. **Annual public reporting of implementation activities and biannual reporting of load reductions and environmental impacts associated with each management activity in targeted watersheds**

   A. Establish a process to annually report for each targeted/priority sub-watershed: status, challenges, and progress toward meeting N & P loading reduction goals, as well as specific activities the state has implemented to reduce N & P loads such as: reducing identified practices that result in excess N & P runoff and documenting and verifying implementation and maintenance of source-specific best management practices.

   B. Share annual report publically on the state's website with request for comments and feedback for an adaptive management approach to improve implementation, strengthen collaborative local, county, state, and federal partnerships, and identify additional opportunities for accelerating cost-effective N & P load reductions.

8. **Develop work plan and schedule for numeric criteria development**

   Establish a work plan and phased schedule for N and P criteria development for classes of waters (e.g., lakes and reservoirs, or rivers and streams). The work plan and schedule should contain interim milestones including but not limited to data collection, data analysis, criteria proposal, and criteria adoption consistent with the Clean Water Act. A reasonable timetable would include developing numeric N and P criteria for at least one class of waters within the state (e.g., lakes and reservoirs, or rivers and streams) within 3-5 years (reflecting water quality and permit review cycles), and completion of criteria development in accordance with a robust, state-specific workplan and phased schedule.

MISSISSIPPI RIVER COLLABORATIVE

Decades of Delay: EPA Leadership Still Lacking in Protecting America's Great River

For over 20 years, EPA has documented the devastating effects of nitrogen and phosphorus pollution on water quality and strongly encouraged states to take measures to combat it. In "Decades of Delay," the Mississippi River Collaborative examines what progress, if any, the main-stem states have made toward reducing nitrogen and phosphorus pollution and outlines specific steps EPA can and should take to protect public health, aquatic life, and local economies from its devastating effects.

Nutrient pollution from agriculture, municipalities, and industries causes drinking water contamination, harmful algae growth, fish kills, and the Gulf Dead Zone. Though EPA has consistently and emphatically urged states to take measures to combat nitrogen and phosphorus pollution, its encouragement has come without enforceable regulations, specific deadlines, or funding for implementation. Not surprisingly, the problem persists, especially in the Mississippi River, despite a variety of Clean Water Act tools and viable regulatory options available to states.

Source: Mississippi River Network

In this analysis, Mississippi River Collaborative (MRC) members looked at the 10 states bordering the Mississippi River (MN, WI, IA, IL, MO, KY, TN, AR, MS, and LA) to see how each handled nitrogen and phosphorus pollution in five areas: 1) numeric criteria, 2) assessment, 3) permits, 4) clean-up plans called TMDLs, and 5) nutrient reduction strategies.

1) NUMERIC CRITERIA. Has the state established numeric limits for nitrogen and phosphorus in its waters?

Numeric limits for nitrogen and phosphorus are fundamental to protecting aquatic life, recreation and human health. Since 2003, EPA has urged states to adopt numeric criteria for nutrients. To date, no state has numeric limits for nitrogen, and only two (MN and WI) have numeric limits for phosphorus.

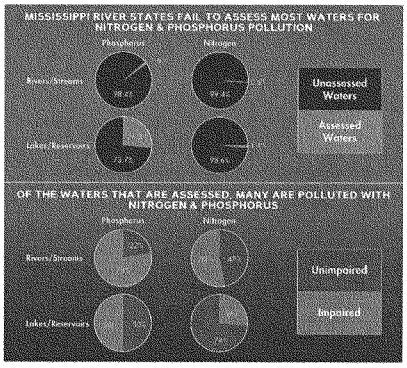
MRC Recommendation: EPA must adopt numeric phosphorus criteria for each of the eight states that have yet to do so, and numeric nitrogen criteria for all 10 states.

2) ASSESSMENT. Does the state assess its waters for nitrogen and phosphorus pollution?

Water quality assessment and monitoring are key to Clean Water Act implementation. Assessments allow states to determine which streams are impaired by pollution and where to set limits. Without adequate monitoring, it is impossible to determine whether water quality goals are being met.

Shockingly, only 1.6% of rivers and streams in the 10 states are assessed for phosphorus, 0.6% for nitrates (and then only for drinking water,) and 3.7% for dissolved oxygen (a solid indicator of nutrient pollution.) When it comes to lakes and reservoirs, the numbers are slightly better, but still low, at 26.3% for phosphorus, 1.4% for nitrogen, and 4.0% for dissolved oxygen. (See Figure below.)

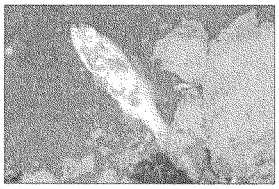
MRC Recommendation: EPA should require states to assess their waters for nitrogen and phosphorus pollution and to prioritize pollution reduction plans accordingly.



3) NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMITS. When the state issues a permit for nitrogen or phosphorus discharges, does that permit include limits sufficient to achieve the state's water quality standards? Does it check for adherence to those limits?

Sewage treatment plants and other industrial sources of pollution must get approval in the form of a NPDES permit before they can discharge into state waters.

Unfortunately Mississippi River states do not utilize the NPDES permitting system to ensure that nitrogen discharges are sufficiently limited to achieve the state's water quality standard, and 61.7% of all permits regulating phosphorus discharges have neither limits nor monitoring requirements.

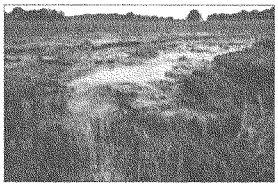


Source: U.S. EPA

MRC Recommendation: EPA needs to strengthen the NPDES program by increasing federal oversight, ensuring adequate pollution limits are established, demanding proper reporting and monitoring of discharges, and assuming control of programs when states demonstrate they will not follow federal requirements.

4) TOTAL MAXIMUM DAILY LOADS (TMDLs). When a state shows that a waterbody is impaired, or polluted, is it preparing clean-up plans (TMDLs) according to EPA regulations? Are TMDLs monitored or reviewed to make sure pollution reduction is occurring?

States and EPA maintain a public list of impaired waters. For each, a state must prepare a TMDL stating how it plans to reduce the pollution causing that impairment. An effective TMDL needs to include provisions to track, reduce, and monitor pollution from direct discharges (point sources) and runoff (non-point sources.)



Source: USDA NRCS

This analysis found few TMDLs (none in six states; just 5% in the remaining four states) that contain provisions addressing both sources of pollution. Among those TMDLs that include reduction plans for nonpoint sources, 92% lacked any follow-up mechanism to see if reductions even occurred.

MRC Recommendation: EPA needs to make sure TMDL review and approval is consistent among its regions, all of which should ensure that TMDLs approved to address nitrogen and phosphorus pollution include implementation plans for both sources of pollution, timelines, monitoring, and review triggers.

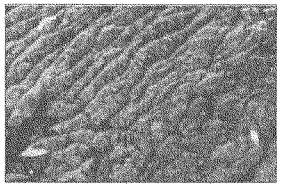
5) NUTRIENT REDUCTION STRATEGIES. Have states developed nutrient reduction strategies in accordance with EPA's 2011 Framework?

In 2011, EPA developed a framework of eight policy guidelines that states should establish – *at a minimum* – to manage nitrogen and phosphorus pollution. EPA stressed the importance of developing these nutrient reduction strategies, but left participation and implementation up to the states.

As expected, the voluntary nature of the Framework rendered it ineffective in achieving any notable nitrogen or phosphorus pollution reductions. In over five years, no state has implemented more than two of the eight minimum plan elements.

MRC Recommendation: EPA should ensure that states develop nutrient reduction strategies containing implementation plans (including reduction goals, responsible parties, funding mechanisms, milestones, measurement metrics, and reasonable timelines) for each of the eight minimum elements.

EPA's mandate, as stated on its mission page, is "to protect human health and the environment." Both are being threatened by nitrogen and phosphorus pollution in the Mississippi River and elsewhere. Public beaches are frequently closed to protect people and pets from illness. Safe drinking water supplies are threatened, as in Toledo in 2014 (from algae blooms) and Des Moines in 2015 (from excess nitrates.) Algae blooms rob aquatic life of its oxygen, causing so-called dead zones where fish and other species cannot live. (The Gulf of Mexico Dead Zone, where the Mississippi River empties into the Gulf, is the second largest in the world.)



Source: Minnesota Pollution Control Agency

"Decades of Delay" clearly demonstrates that states are either unwilling or unable to solve this problem. It is time for EPA to step up and provide leadership and assistance to establish safe and viable pollution limits and provide the regulatory framework and enforcement to back them up. The protection of human health and the environment in the Mississippi River states demands it.

MISSISSIPPI RIVER COLLABORATIVE

The Mississippi River Collaborative *is a partnership of environmental organizations and legal centers from states bordering the Mississippi River as well as regional and national groups working on issues affecting the Mississippi River and its tributaries. This report was funded by the McKnight Foundation. The full report is available online at http://www.msrivercollab.org/wp-content/uploads/Decades-of-Delay-MRC-Nov-2016.pdf. For more information, email info@msrivercollab.org.*

American Fisheries Society

Organized in 1870 to Promote the Conservation, Development and Wise Utilization of Fisheries

425 Barlow Place, Suite 110 * Bethesda, Maryland 20814-2199

301-897-8616 * FAX 301-897-8096 * E-Mail: main@fisheries.org, www.fisheries.org

Scott Bonar
President 2019-2020

Douglas J. Austen
Executive Director

January 23, 2020

The Honorable John Barrasso
Chairman
Committee on Environment and Public Works
U.S. Senate
410 Dirksen Senate Office Building
Washington, D.C. 20510

The Honorable Thomas R. Carper
Ranking Member
Committee on Environment and Public Works
U.S. Senate
410 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Chairman Barrasso and Ranking Member Carper:

Thank you for holding a hearing on the Clean Water Act's (CWA) Nonpoint Source Management Program. The American Fisheries Society (AFS) is the world's oldest and largest professional society of fishery and aquatic scientists and managers. The Society seeks to improve the conservation and sustainability of fishery resources and aquatic ecosystems by advancing fisheries and aquatic science and promoting the development of fisheries professionals.

We write to express support for the Nonpoint Source (Section 319) Program, share our concern for water quality in light of the Waters of the U.S. (WOTUS) Rule released today, and urge you to consider how climate change will exacerbate our nation's water quality challenges.

Why Federal Leadership in Nonpoint Pollution Control is Needed

Section 319 is an essential program for several reasons. Nationwide, diffuse pollutants, particularly nutrients (nitrogen, phosphorus) and fine sediments continue to degrade the structure and function of our nation's aquatic resources. Land use remains the major stressor to water quality (Hughes et al. 2019; IPBES 2019). Weakly regulated pollutants associated with agricultural land use are a major contributor to losses in aquatic ecosystem condition. For instance, the USEPA (2016) reported that the Nation's streams and rivers are burdened by excessive and damaging levels of phosphorus (476,000 miles or 40% of stream miles), nitrogen (329,000 miles; 28%;), riparian vegetation disturbance (284,000 miles; 24%), and sedimentation (177,000 miles; 15%;). Streams and rivers under these conditions support less diverse and impaired aquatic biota, including fish assemblages critical to productive fisheries (Colvin et al. 2019). These national trends can be observed even more starkly at a local or regional scale. For example, in the Willamette Valley; agriculture has been closely linked with negative biological effects on streams and lakes in the upper Mississippi River basin (Deweber et al. 2019); Tennessee-Mississippi basins (Perkin et al. 2019); Kansas River basin (Bruckerhoff and Gido 2019); and Northern Forests, Eastern Temperate Forests, and Great Plains ecoregions (Jacobson et al.

2019).

Because water pollution does not respect political boundaries, it is critically important to continue federal leadership and funding to help states, tribes, and territories to reduce and mitigate diffuse pollution. Section 319 helps focus state, tribal, territorial, and local efforts on reducing nonpoint source pollution through grant money for technical assistance, financial assistance, education, training, technology transfer, demonstration projects and monitoring to assess the success of specific diffuse source implementation projects.

Impact of the New WOTUS Definition

However, the Section 319 program can only be successful if the CWA, in its entirety, can achieve its mandate "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The newly finalized redefinition of "Waters of the US" removes protection for millions of stream miles and acres of wetlands that maintain watershed integrity and keep waters and watersheds healthy. This new definition makes it difficult, if not impossible, to achieve the objectives of the CWA (Sullivan et al. 2019).

Polluted and degraded aquatic ecosystems have strong effects on fisheries, water-based recreation, and the economy. America's anglers are estimated to spend $49.8 billion per year in retail sales associated with their sport. With a total annual economic impact of $125 billion, fishing supports more than 800,000 jobs and generates $38 billion in wages and $16 billion in federal, state and local taxes. (ASA 2018). Blue-ribbon trout streams in two Idaho and Wyoming river basins yielded $12 million and $29 million in county income and 341 and 851 jobs in 2004, respectively—markedly more income and jobs than that provided by agriculture, mining, or fossil fuel extraction in those counties (Hughes 2015).

The loss of protections for our nation's most vulnerable waters will have far-reaching implications for fish, wildlife, and their habitats. The new WOTUS rule is simply inconsistent with the best-available science (Sullivan et al. 2019). By failing to recognize chemical and biological connectivity (and the full scope of hydrological connectivity) in the re-definition of WOTUS, valuable ecosystem services including protecting water quality, recharging aquifers, transporting and cycling of organic material, and maintaining habitats for endangered species are in great peril. These and other ecosystem services depend on watershed and waterbody connectivity.

It is particularly concerning that the new WOTUS rule eliminates protections from many headwater streams and wetlands across the country. Headwater aquatic ecosystems act as a conveyor of nutrients, a path for migrating fish and wildlife, and a drainage and storage system for floodwaters. Most diffuse pollutants enter headwaters because of the extent of headwaters and their close connections with landscapes and land uses (Colvin et al. 2019). It is critically important to protect headwaters from the effects of land mismanagement and intensive and extensive land uses such as agriculture, livestock grazing, silviculture, mining, and urbanization to maintain water quality. Climate change and land use intensification has already shifted waters that were permanent to intermittent and intermittent to ephemeral. Under the revised WOTUS, more waters will lose protection, thus severely undermining our nation's water quality and fisheries. Such changes have, and will increasingly, hinder effective Section 319 protections and increase the need for even more funding to avoid massive degradation of surface and ground waters.

Climate Change Exacerbates Waterway Impairment

Natural resilience mechanisms that maintain aquatic ecosystem condition and diverse native fish assemblages and highly valued fisheries will be further stressed by climate change. Climate change is accelerating and intensifying water pollution, species range reductions and species extinctions. Funding for programs that strengthen high water quality in its multiple forms (chemical, biological, and physical) and support ecosystem resilience will be necessary to address these challenges. Tried and true practices such as erosion control, wetland preservation and rehabilitation, preserving headwater catchments, improved and expanded riparian vegetation buffers, no-till and low-till agriculture, fallowing, reforestation, and naturalized flow regimes offer cost-effective methods for reducing nonpoint pollution across agricultural, forest, and urban landscapes. Such measures will also increase ecosystem resilience in the face of climate change. However, without a fully functioning Clean Water Act, it will be difficult or impossible to address the impacts of climate change.

Thank you for the opportunity to submit this information to the hearing record. We would be happy to discuss these concerns if you have any questions.

Sincerely,

Drue Banta Winters
Policy Director

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