

ACHIEVING HEALTHY WATERSHEDS THROUGH INTEGRATING CLEAN WATER ACT PLANNING AND FARM BILL CONSERVATION PROGRAMS

LAURIE RISTINO* & JAMIE KONOPACKY**

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*“Out beyond ideas of wrongdoing and right-doing there is a field.
I’ll meet you there.”¹*

“[W]e should worry less about whether programs are “regulatory” or “voluntary” and more about whether the programs are environmentally sound, fair, and cost-effective.”²

I. INTRODUCTION

Despite decades of implementation of Clean Water Act³ (CWA) and Farm Bill Conservation Title programs⁴ and tremendous investment of public resources, we still do not have clean water in the United States. In fact, our waters are reeling from the effects of nutrient pollution.⁵ Hypoxia in estuaries has significantly increased and over half of the estuaries in the United States are hypoxic in any given year.⁶ Two prime examples are the iconic Chesapeake Bay, which is being choked by hypoxia, and the Gulf of Mexico, with its enormous seasonal dead zone in which no sea life can survive.⁷ Moreover, in 2013, the U.S. Environmental Protection Agency estimated that in the nation’s stream length, high concentrations of nitrogen and phosphorus are present in 28% and 40% of streams respectively.⁸ There are three main contributors to nutrient

* Laurie Ristino is an Associate Professor of Law and the inaugural director of the Center for Agriculture and Food Systems at Vermont Law School.

** Jamie Konopacky is an attorney and Fellow in Watershed Policy for Harvard Law School’s Environmental Policy Initiative. The author would like to thank Kelly Yasaitis Fanizzo and John H. Sprinkle for their valuable input and suggestions, but any remaining errors and omissions remain solely the responsibility of the author.

¹ MEWLANA JALALUDDIN RUMI, *Out Beyond Ideas*, in THE ESSENTIAL RUMI 36 (Coleman Barks & John Moyne trans.) (1995).

² Douglas R. Williams, *When Voluntary, Incentive-Based Controls Fail: Structuring a Regulatory Response to Agricultural Nonpoint Source Water Pollution*, 9 WASH. U. J.L. & POL’Y 21, 29 (2002).

³ Federal Water Pollution Control Act, 33 U.S.C. §§ 1251–1387 (2012).

⁴ The Agricultural Act of 2014, Pub. L. No. 113–79, 128 Stat. 649.

⁵ *Hypoxia*, NAT’L OCEANIC & ATMOSPHERIC ADMIN. (Oct. 23, 2014), <http://oceanservice.noaa.gov/hazards/hypoxia/>.

⁶ *Id.*

⁷ *Id.*

⁸ *Id.*

water pollution—wastewater treatment plants (POTWs), urban stormwater (MS4s), and agricultural runoff.⁹ Of these, agricultural runoff has been cited as the leading source and greatest challenge.¹⁰

Our lack of progress in restoring nutrient impaired waterbodies is not surprising. Relevant CWA and Farm Bill conservation programs have lacked implementation and enforcement¹¹ and have focused on the wrong metrics. Specifically, for many years, the Environmental Protection Agency (EPA) gauged the success of the CWA Total Maximum Daily Load (TMDL) program based on the number of TMDLs executed,¹² and the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), which implements the bulk of farm bill conservation programs, has focused on the number of conservation contracts executed with

⁹*Nutrient Pollution, Sources and Solutions*, U.S. ENVTL. PROT. AGENCY, <https://www.epa.gov/nutrientpollution/sources-and-solutions> (last updated Mar. 10, 2017). In some areas septic systems and industrial food processing are also major contributors. *See, e.g., Nutrient Pollution, Sources and Solutions: Wastewater*, U.S. ENVTL. PROT. AGENCY, <https://www.epa.gov/nutrientpollution/sources-and-solutions-wastewater> (last updated March 10, 2017); *Sources of Eutrophication*, WORLD RESOURCES INSTITUTE, <http://www.wri.org/our-work/project/eutrophication-and-hypoxia/sources-eutrophication> (last visited March 11, 2017).

¹⁰ Economic Research Service, UNITED STATES DEPARTMENT OF AGRICULTURE, *Agricultural Resources and Environmental Indicators*, Ch. 2.3 *Water Quality Impacts of Agriculture* (2012), 2.3 https://www.ers.usda.gov/webdocs/publications/ah722/30288_waterquality.pdf (“[A]griculture is the leading source of remaining impairments in the Nation’s rivers and lakes and a major source of impairments to estuaries.”); Douglas R. Williams, *When Voluntary, Incentive-Based Controls Fail: Structuring a Regulatory Response to Agricultural Nonpoint Source Water Pollution*, 9 WASH. U. J.L. & POL’Y 21, 22 (2002) (“Indeed, agricultural nonpoint source pollution is now considered the nation’s most persistent and most difficult water quality problem.”).

¹¹ Implementation and enforcement for both the TMDL and conservation programs has historically been lacking. *See* MISSISSIPPI RIVER COLLABORATIVE, *DECADES OF DELAY: EPA LEADERSHIP STILL LACKING IN PROTECTING AMERICA’S GREAT RIVER* 1–2 (Nov. 2016), www.msrivercollab.org/wp-content/uploads/Decades-of-Delay-MRC-Nov-2016.pdf; *see also* Laurie A. Ristino & Gabriella Stier, *Losing Ground: A Clarion Call for Farm Bill Reform to Ensure a Food Secure Future*, 42 COLUM. J. ENVTL. L. 59, 70–71 (2016). With respect to TMDLs, the failure to implement or enforce implementation is no surprise because the CWA TMDL program does not include explicit implementation provisions. 33 U.S.C. § 1331 (2012). With respect to enforcement of BMP implementation and other conservation requirements, a culture of voluntary compliance, lack of tracking technology, lack of funding, and significantly increased workload have been cited as impediments to enforcement. *See* MISSISSIPPI RIVER COLLABORATIVE, at 1–2; *see also* Ristino & Stier, *Losing Ground* at 70–71.

¹² ENVIRONMENTAL PROTECTION AGENCY, *A Long-Term vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program* (2013), 4 https://www.epa.gov/sites/production/files/.../vision_303d_program_dec_2013.pdf (“Previous performance measures for the Program have served to draw attention and effort to areas important during those times, such as tracking the number of TMDLs approved . . . A workgroup of States and EPA is developing a metric to replace, by FY 2015, the simple tally of TMDLs completed with one that measures the extent of State priority waters addressed by TMLs or alternative approaches in impaired waters.”).

producers.¹³ Consequently, over 50,000 TMDLs¹⁴ have been executed, and very little understanding of or demonstrated implementation progress exists.¹⁵ Similarly, the number of conservation contracts has skyrocketed¹⁶ with little or no focus on the effectiveness of funded conservation practices, how conservation practices fit into watershed plans, or how practices help, if at all, to achieve state water quality goals.¹⁷ Instead of bean counting, an integrated approach is needed that is designed to achieve measurable water quality improvements.

In addition, the voluntary nature of CWA and Farm Bill conservation programs have posed a challenge for effectively remedying NPS pollution.¹⁸ Although the CWA is an essential tool for addressing agricultural producers' contribution to nutrient water pollution, agricultural runoff,

¹³ John H. Davidson, *Commentary: Using Special Water Districts to Control Nonpoint Sources of Water Pollution*, 65 CHICAGO KENT L. REV. 503, 511–12 (1989).

¹⁴ U.S. GOV'T ACCOUNTABILITY OFF.: REPORT TO CONGRESSIONAL REQUESTERS, CLEAN WATER ACT: CHANGES NEEDED IF KEY EPA PROGRAM IS TO HELP FULFILL THE NATION'S WATER QUALITY GOALS 14 (December 2013) www.gao.gov/assets/660/659496.pdf [hereinafter GAO, CLEAN WATER ACT: CHANGES NEEDED]. EPA has focused the TMDL program on large-scale watershed TMDLs. *Impaired Waters and TMDLs: TMDL Information and Support Documents*, U.S. ENV'T'L PROTECTION AGENCY, <https://www.epa.gov/tmdl/impaired-waters-and-tmdls-tmdl-information-and-support-documents> (last updated Feb. 21, 2017). Large-scale watershed TMDLs can cover massive land areas—6 million acres in the case of the Wisconsin River TMDL currently being completed—and include several impaired waterbodies or stream segments. See Jamie Konopacky, *Battling the (Algae) Bloom: An Analysis of Watershed Policy Approach and Watershed Plans in Wisconsin* 26 (March 13, 2017) (unpublished manuscript) (on file with the Boston College Environmental Affairs Law Review). Watershed TMDLs are considered efficient because states can complete several TMDLs through a single plan. U.S. ENV'T'L PROTECTION AGENCY, DRAFT HANDBOOK FOR DEVELOPING WATERSHED TMDLS 3 (Dec. 15, 2008) https://www.epa.gov/sites/production/files/2015-10/documents/2009_01_09_tmdl_draft_handbook.pdf. However, execution of very large TMDLs may preclude or delay necessary data gathering/ inventorying and landscape scale modeling necessary for implementation – i.e. result in paper plans that do not facilitate implementation. GAO, CLEAN WATER ACT: CHANGES NEEDED at 30–31. Moreover, the need to redo calculations for smaller areas within large-scale watershed TMDL areas, which has occurred in the Rock River Basin in Wisconsin, calls into question the efficiency of the large-scale approach. See Konopacky at ...

¹⁵ “EPA tracks basic information on TMDL development, such as the number, location, and type of long-established TMDLs but, generally, does not have information on the extent to which the TMDLs have been implemented or have improved the quality of impaired water bodies.” GAO, CLEAN WATER ACT: CHANGES NEEDED, *supra* note 14, at 27. “EPA cannot use its different databases to assess the extent to which most TMDLs have been implemented, and it does not have comprehensive, nationwide information on whether and to what extent TMDLs have led to improved water quality.” *Id.* at 28.

¹⁶ “The administrative imperative is on writing ‘contracts’ to producers, that is, obligating cost share payments for the installation of conservation practices under the Farm Bill Title II programs. A 2007 report by the Soil and Water Conservation Society on technical assistance concluded: serious gaps are opening in the nation’s technical assistance network. NRCS staff levels, for example, are 11% below their 1985 level, despite the 500% increase in funding for financial assistance programs.” Ristino & Steier, *supra* note 11, at 99.

¹⁷ *Id.* at 103–04 (discussing § 1619 and the Conservation Effects Assessment Project (“CEAP”) findings).

¹⁸ *Id.* at 70, 92, 100.

unlike POTWs and MS4s, remains largely exempt from the permitting requirements of the CWA.¹⁹ And, enforcement of limited permitting requirements applicable to large agricultural operations and implementation of plans for restoring waterbodies impaired by agricultural sources are lacking.²⁰ Moreover, the TMDL program, the CWA's watershed planning program, lacks a specific implementation requirement, essentially making compliance voluntary for non-permitted sources.²¹

Much has been written on opportunities to use or amend CWA programs to better address agricultural pollutant loading.²² However, amendment of the CWA to include agricultural sources in the CWA permitting program or to make TMDL implementation mandatory for agricultural sources is unlikely given the current and foreseeable political climate.²³ Moreover, previous efforts to regulate agricultural runoff have been unsuccessful,²⁴ and it is not clear that a regulatory solution would be effective given the diffuse, variable environmental impacts of agricultural production,

¹⁹ Williams, *supra* note 10, at 22.

²⁰ *Id.* at 98.

²¹ 40 C.F.R. § 122.44 (d)(1)(vii) (2016). In 1996 EPA convened a committee to evaluate the TMDL program. GAO, CHANGES NEEDED IF KEY EPA PROGRAM IS TO HELP FULFILL THE NATION'S WATER QUALITY GOALS 15 (2013). The committee made several recommendations, one of which was implementing TMDLs as the crux of the program (focusing in particular on implementing TMDLs with nonpoint source components). *Id.* at 15–16. Partly in response to these recommendations, in 2000, EPA promulgated revised TMDL rules that specified, *inter alia*, an implementation plan component. *Id.* at 16. Although EPA issued its final rule, Congress delayed its effective date. *Id.* And, in 2002, after the issuance of the NRC report, EPA withdrew its revised rule. *Id.* at 16–17. Since that time, EPA has included similar implementation provisions in its TMDL guidance documents for states and EPA Regional administrators. *Id.*

²² See, e.g., OLIVER A. HOUCK, CLEAN WATER ACT TMDL PROGRAM (2002); Williams, *supra* note 10, at 112–121 (recommending federal-level changes); see generally Chelsea H. Congdon et. al, *Economic Incentives and Nonpoint Source Pollution: A Case Study of California's Grasslands Region*, 14 HASTINGS W. NW. J. ENVT'L L. & POL'Y 215, 217–222 (2008); Robin Kundis Craig & Anna M. Roberts, *When Will Governments Regulate Nonpoint Source Pollution? A Comparative Perspective*, 42 B.C. ENVT'L AFF. L. REV. 1, 1–36 (2015) (describing examples of state regulation in this area); Linda Malone, *The Myths and Truths that Ended the 2000 TMDL Program*, 20 PACE ENVT'L L. REV. 63, 86 (2002) (“[C]ommitted control of nonpoint source pollution for the foreseeable future will have to come from the local level[.]”).

²³ See, e.g., Ayesha Rascoe & Timothy Gardner, *Trump Orders Review of Obama Waterway Regulation*, REUTERS (Feb 28, 2017) <http://www.reuters.com/article/us-usa-water-idUSKBN16712K> (describing the Trump administration's hostility to expanded EPA jurisdiction).

²⁴ See HOUCK, *supra* note 22, at 100–04 (discussing Congress's failed attempt to require enforceable mechanisms to implement nonpoint management measures in the CZMA and CZARA).

economic realities of farming,²⁵ and the unique treatment of agriculture in our federal policy and political history.²⁶

The Farm Bill's approach to addressing environmental impacts resulting from agriculture is likewise voluntary.²⁷ The Farm Bill is our single biggest investment in private, working lands conservation through the Conservation Title (Title II).²⁸ Approximately every four years, a new farm bill is authorized and provides billions of dollars of cost share funding to producers to implement conservation practices or take land out of production.²⁹ Unfortunately, despite some federal efforts at targeting conservation dollars to address resource priorities like NPS run-off, soil erosion, and wetlands protection and enhancement, USDA's implementation often falls short of achieving improved environmental outcomes.³⁰ Despite these challenges, Farm Bill conservation programs, like CWA programs, are a critical component in addressing agriculture NPS.

In this article, we set forth our initial synthesis for a Healthy Watershed Framework (Framework), which integrates CWA programming and federal Farm Bill agricultural conservation programming with watershed stakeholders. This paper draws from previous and current watershed planning policy and practice. In order to convey the components of this

²⁵ See Karen R. Hansen, *Agricultural Nonpoint Source Pollution: The need for an American Farm Policy Based on an Integrated Systems Approach Recoupled to Ecological Stewardship*, 15 HAMLINE J. PUB. L. & POL'Y 303, 320–21 (1994) (“[T]he mere addition of a harsh environmental regulatory and enforcement stance towards agricultural NPS pollution without subsequent modification of a production-based federal farm policy will do little more than further tighten the economic “vise grip” which already binds the average farmer.”); *id.* at 318 (“Normally, the industrial internalization of the cost of agricultural NPS pollution would be the classic theoretical solution to the problem. The difficulty with this solution lies in the fact that the majority of American farmers are merely price takers in the marketplace and do not have the ability to pass added production costs on to consumers. Therefore, this solution would only increase the pressure to produce which is at the root of the agricultural NPS pollution problem. In addition, numerous federal policies have directly and indirectly had the effect of encouraging the practices which contribute to agricultural NPS pollution.”).

²⁶ Susan Schneider, *A Reconsideration of Agricultural Law: A Call for the Law of Food, Farming, and Sustainability*, 34 WM. & MARY ENVTL. L. AND POL'Y REV. 935, 936, 938–39 (2010).

²⁷ ENVIRONMENT AND ENERGY STUDY INSTITUTE, FACT SHEET: CONSERVATION MEASURES AND THE FARM BILL (March 2017), http://www.eesi.org/files/FactSheet_Farm_Bill_Conservation_Measures_0317.pdf.

²⁸ *Farmers and Fresh Water: Voluntary Conservation to Protect our Land and Waters: Hearing Before S. Comm. On Agric., Nutrition and Forestry*, 113th Cong. (Dec. 3, 2014) (statement of Chairwoman Debbie Stabenow).

²⁹ MEGAN STUBBS, CONG. RESEARCH SERV., R43054, CONSERVATION PROVISIONS IN THE 2014 FARM BILL 1–2 (2014).

³⁰ See, e.g., Natural Resources Conservation Service, *Summary of Findings: Assessment of the Effects of Conservation Practices on Cultivated Cropland in the Texas Gulf Basin 1*, 3–4 (April 2015) (finding some conservation progress but a continued critical need for soil erosion and nutrient loss reduction from cultivated cropland).

framework in an accessible and replicable manner, we have endeavored to use graphics and actual watershed maps and planning examples. We intend for our work to be iterative, taking into account feedback of stakeholders and lessons learned from on the ground efforts at improving water quality in watersheds across the country. This Article is grounded in our work and expertise on national law and policy matters related to water quality and our knowledge of current, leading watershed planning and implementation efforts in both Wisconsin and Iowa.

Although robust academically, we have conceived of this piece with an eye toward practitioners as well as watershed stakeholders and policymakers, with the goal of facilitating their efforts at improving water quality. This Article is organized as follows: in the Section II we set forth key principles that undergird the healthy watershed framework and are exhibited in the real-world examples we reference. In the Section III we describe the framework process, or “the Framework.” Finally, we conclude with a summary of recommendations for policy reforms needed to achieve healthy watersheds.

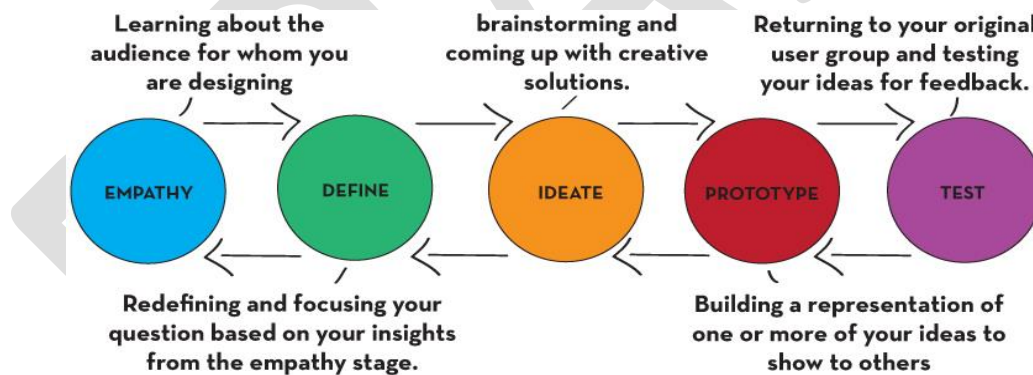
II. PRINCIPLES: SOLVING COMPLEX SOCIAL ISSUES

Water pollution from agricultural nonpoint sources is a complex social problem. NPS is highly influenced by topography, soil type, precipitation, hydrology, farm practices, and crop type.³¹ In other words, agricultural nonpoint source pollution is born of a complex system comprised of many interconnected variables. Solving complex problems like agricultural NPS pollution requires a highly coordinated systems approach. In this subsection, we provide background on systems thinking and problem solving as a foundation to further elucidate the Framework presented in Section III. Relatedly, we then set forth principles we have discerned from our clean water research that are indicative of successful complex problem solving in this context.

³¹ See Tomer et al., *Agricultural Conservation Planning Framework: 2. Classification of Riparian Buffer Design Types with Application to Assess and Map Stream Corridors*, 44 J. OF ENVTL. QUALITY 668, 668–69 (2015); Mahdi Al Kaisi & Matt Helmers, *Heavy Rain, Soil Erosion and Nutrients Losses*, (June 5, 2008), <http://crops.extension.iastate.edu/cropnews/2008/06/heavy-rain-soil-erosion-and-nutrient-losses>.

The study of complex systems arose over the last half of the 20th Century across many disciplines in an effort to better understand phenomena and solve challenging problems.³² The systems approach was in counterpoint to reductionist or linear analysis, which had failed to adequately explain the behavior of both natural and human-created phenomena.³³ A key proponent of system thinking was the scientist Donella Meadows.³⁴ Meadows is known for her influential book *Limits to Growth*, based on her work at MIT modeling global trends on population, economics, and environment.³⁵ She espoused the idea that by thinking in systems one is better able to see the component parts and their interactions and, therefore, design effective interventions or solutions that minimize unintended, negative consequences.³⁶

Around the time Meadows' work was gaining popularity, the concept of design thinking as a methodology for creating solutions was evolving. Design thinking is not about how things look but a process to discover solutions and opportunities.³⁷ Although the tools and techniques used in design vary, the core of design process is the same and can be summarized as follows:



³² Alexander Lazlo & Stanley Krippner, *Systems Theories: Their Origins, Foundations, and Development*, ELSEVIER SCIENCE, SYSTEMS THEORIES AND A PRIORI ASPECTS OF PERCEPTION, at 5 (J.S. Jordan ed. 1998) <http://terras-altas.net.br/MA-2013/statistics/Systems%20Theories/SystemsTheory-Alexander%20Laszlo%20and%20Stanley%20Krippner.pdf>.

³³ *Id.* at 9–10.

³⁴ See, e.g., DONELLA H. MEADOWS, *THINKING IN SYSTEMS: A PRIMER* ix–x (2011).

³⁵ *Id.* at xi.

³⁶ *Id.*

³⁷ Fast Company Staff, *Design Thinking . . . What is That?*, FAST COMPANY (Mar. 20, 2006), <https://www.fastcompany.com/919258/design-thinking-what>.

³⁸[IMAGE #1]: The design process encourages risk taking and continuous learning.

The Framework we are presenting in this paper is informed by both systems and design thinking. Through these lenses, we have worked to create a policy framework for addressing agricultural NPS pollution based on inclusive and collaborative watershed planning rather than on implementing and enforcing a specific number of conservation practices on an individual producer's land. We have endeavored to work on a policy solution from the end user's perspective, not our own, because a policy created in this way is more likely to be successfully implemented and maintained. The Framework is rooted in the idea that planning and implementation is largely locally driven, taking into account unique, on the ground realities and needs.³⁹

In this Article, we have included visualizations to show how the Framework works—based, in part, upon real-world efforts by the State of Wisconsin and the Iowa Soybean Association. We have ground-truthed⁴⁰ these schematics with representative stakeholders in Wisconsin, Iowa, and other states. The Framework is also based upon our research and previous work, which recommends a HUC 12 watershed planning approach for addressing water quality impairment.⁴¹ We intend for the visuals to create a blueprint or tool that is useful to federal, state, and local agencies, and other stakeholders addressing NPS pollution. At the same time, this blueprint is intended to be iterative—as any good design process is—in order to incorporate lessons learned and to be tailored to the specific, on the ground realities of a particular watershed. Further, to facilitate use of the Framework and its iterative development, we have created a separate visual pull-out with minimal text intended for broad dissemination to stakeholders in local clean water efforts.

³⁸ CREATEDU, *What is Design Thinking*, (2013) <http://createdu.org/design-thinking/what-is-design-thinking/>

³⁹ A similar approach has recently been reaffirmed by scientists with the Agricultural Research Service, *see* Tomer et al., *supra* note 31; Tomer et al., *Combining Precision Conservation Technologies into a Flexible Framework to Facilitate Agricultural Watershed Planning*, 68 J. OF SOIL AND WATER CONSERVATION 113A (2013).

⁴⁰ *Ground Truth*, OXFORD DICTIONARIES.COM, https://en.oxforddictionaries.com/definition/ground_truth (last visited Mar. 8, 2017).

⁴¹ *See generally*, Konopacky, *supra* note 14, at 28.

Based upon our study of Wisconsin and Iowa's watershed approaches to improving water quality and similar efforts elsewhere, we have discerned several principles that undergird and overarch watershed planning policy, set forth below. These principles have significant overlap with the conditions⁴² associated with the collective impact model of solving complex, social problems,⁴³ which involves highly structured, cross-sector collaboration in order to create system-wide change.⁴⁴ The characteristics of successful watershed planning and implementation efforts that we have identified include:

1. **Collaboration and Coordination.**⁴⁵ Addressing agriculture nonpoint source pollution requires both transdisciplinary collaboration and higher-ordered coordination to solve because of its dispersed nature, variability, and data requirements. In particular, successful collaboration in this space requires coordination between different levels of government—local, state, and federal—as well as between different stakeholders in the watershed, including scientists, agricultural producers, conservation districts, government officials, and NGOs.
2. **Leadership.**⁴⁶ Successful watershed clean-up efforts require organizational leadership to initiate, coordinate, and ensure follow-through. Leadership must be trusted by key stakeholders in order to rally stakeholders around a shared set of common goals while

⁴² Research on successful collective impact efforts have identified “five conditions that together produce true alignment and lead to powerful results: a common agenda, shared measurement systems, mutually reinforcing activities, continuous communication, and backbone support organizations.” John Kania & Mark Kramer, *Collective Impact*, STAN. SOC. INNOVATION REV. (Winter 2011), https://ssir.org/articles/entry/collective_impact.

⁴³ The collective impact model arose in recognition of the persistent failure of single organization-style advocacy to transform isolated solutions into broader change. See, Fay Hanleybrown et al., *Channeling Change: Making Collective Impact Work*, STAN. SOC. INNOVATION REV. (Jan. 26 2012), https://ssir.org/articles/entry/channeling_change_making_collective_impact_work. Traditionally, the social sector has invested in discrete programs and approaches to address social problems with the idea that the solutions innovated could then be adopted by other organizations, resulting in scaled change. See, John Kania & Mark Kramer, *Embracing Emergence: How Collective Impact Addresses Complexity*, STAN. SOC. INNOVATION REV. (Jan. 21, 2013) https://ssir.org/articles/entry/embracing_emergence_how_collective_impact_addresses_complexity. However, “[t]he problem is that such predetermined solutions rarely work under conditions of complexity—conditions that apply to most major social problems—when the unpredictable interactions of multiple players determine the outcomes.” *Id.*

⁴⁴ See Hanleybrown, *supra* note 43.

⁴⁵ See discussion *infra* Part III.

⁴⁶ See discussion *infra* Part III.

avoiding the political and cultural fault lines that often separate producers⁴⁷ and environmentalists. For example, in watershed planning projects being implemented in Wisconsin, soil and water conservation district representatives and producer groups have served as leaders and helped catalyze producer participation, and, in Iowa, representatives at the Iowa Soybean Association have been using the Agricultural Conservation Planning Framework⁴⁸ to develop watershed plans. Additionally, the creation of Watershed Management Authorities in Iowa represent another effort to develop and maintain leadership for watershed efforts in that state. These entities serve in the critical role of connective tissue between watershed stakeholders.

3. **Transdisciplinary Approach.**⁴⁹ The work of watershed NPS assessment, planning and implementation requires the expertise and partnership of many actors, including farmers, scientists, conservationists, government officials, and NGOs, among others.
4. **Data.**⁵⁰ Site specific data related to baseline water quality, topography, soil and land management conditions, as well as new practice installation and any resulting water quality change data are absolutely critical to making real, measurable progress in addressing NPS. Unfortunately, current federal policy and law related to farm bill data privacy, as well as a lack of data and research regarding the efficacy of farm bill funded conservation practices create barriers to data collection, assessment, and sharing that is crucial for watershed planning, scientific assessment and adaptive management. In our recommendations set forth in Sections III and IV, we discuss this issue in greater depth. Watershed stakeholders in Wisconsin have been able to mitigate some of these data hurdles through creative practices that provide data needed to measure progress and

⁴⁷ In this paper, we refer to farmers as “producers” consistent with the terminology of the USDA. See U.S. DEP’T OF AGRIC., *Financial Resources for Farmers and Ranchers*, <https://www.usda.gov/topics/organic/financial-resources-farmers-and-ranchers> (last visited Mar. 8, 2017).

⁴⁸ U.S. DEP’T OF AGRIC.: NAT’L AGRIC. LIBR., *Agricultural Conservation Planning Framework (ACPF) Toolbox*, <https://data.nal.usda.gov/dataset/agricultural-conservation-planning-framework-acpf-toolbox> (last visited Mar. 8, 2017).

⁴⁹ See discussion *infra* Part III.

⁵⁰ See discussion *infra* Section III.C.3.ii.g.

improve scientific understanding while protecting producer privacy. Moreover, the Agricultural Research Service's Agricultural Conservation Planning Framework is an innovative method for developing precision conservation practices for HUC 12 watershed using publicly available soil, land use, and high resolution (LiDAR) topography data.

5. **Appropriate Scale.**⁵¹ Watershed level planning and data is important for contextualizing, directing, and prioritizing efforts to improve nutrient impaired waters. However, the critical planning level for guiding on the ground action is at the HUC 12 level. This scale promotes effective inventorying, implementation, and adaptive management.

Many of these principles are reflected in NRCS's own conclusions in its Conservation Effects Assessment Program (CEAP), "a multi-agency effort to quantify the environmental effects of conservation practices and programs and develop the science base for managing the agricultural landscape for environmental quality."⁵² A 2016 CEAP report entitled "Quantifying the Potential Water Quality Benefits of Agricultural Conservation Practices for Stream Fish Conservation in the Western Lake Erie Basin," concluded, in part:

While the amount and cost of CP [conservation practice] implementation needed to improve stream health in the WLEB [Western Lake Erie Basin] may appear daunting, our modeling indicates that win-win-wins for agricultural productivity, local stream ecosystems, and downstream Lake Erie are possible. Achieving these wins in the most cost-effective manner, however, will require strategic conservation to ensure that the right practices are getting to the right places in the right amount, continued research to explore and maximize the potential benefits of CPs, and expanded water quality and biological monitoring to track progress and allow for adaptive management. Unprecedented collaboration across government agencies, conservation organizations, research universities, agribusinesses, and individual farmers also will be necessary to develop innovative, cost-effective solutions. And, because a perfect strategy likely does not exist that can meet all conservation, management, and socioeconomic

⁵¹ See discussion *infra* Section III.B.2.i.

⁵² *Conservation Effects Assessment Project (CEAP)*, U.S. DEP'T OF AGRIC., NATURAL RESOURCES CONSERVATION SERVICE, <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/technical/nra/ceap/#more> (last visited Mar. 5, 2017).

goals in the WLEB, we must be aware of tradeoffs, be willing to take action with the best available information, and be willing to adapt.⁵³

III. THE FRAMEWORK

As discussed above, instead of mandating TMDL implementation or CWA permits for agricultural sources, to address agricultural NPS pollution, we propose an integrated, healthy watershed policy framework that is based on HUC 12 watershed planning building blocks and rooted in whole farm conservation planning. The Framework recommends modifications to CWA and Farm Bill programming and implementation and integration of these programs. The Framework maintains the voluntary approach to Farm Bill conservation programs and does not advocate any additional CWA regulatory requirements for producers. The Framework aims to align, leverage, and target funding;⁵⁴ promote transparency for planning and scientific research while protecting producer privacy;⁵⁵ promote monitoring, continuous learning, and adaptive management; increase stakeholder participation; and improve farm productivity.⁵⁶ We seek to provide a policy approach that moves beyond pilot projects to the programmatic development of locally led HUC 12 watershed plans pursuant to science-based, statewide impaired water and NPS plans. Additionally, our approach aims to catalyze the development of implementation-oriented plans, as opposed to informational plans, that can be used on the ground to effectively install conservation practices and restore water quality.

⁵³ S. CONOR KEITZER ET. AL., QUANTIFYING THE POTENTIAL WATER QUALITY BENEFITS OF AGRICULTURAL CONSERVATION PRACTICES FOR STREAM FISH CONSERVATION IN THE WESTERN LAKE ERIE BASIN viii (29 July 2016), https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcseprd1250408.pdf.

⁵⁴ Specifically, this framework seeks to align, leverage and target the following funds: CWA Nonpoint Source grant funds for states, 33 U.S.C. § 1329(h) (2012), farm bill conservation program funds, 16 U.S.C. § 3841(a) (2012), state funds, permitted entity funds, and NGO funds.

⁵⁵ See discussion *infra* Part III.B.2.ii.g.

⁵⁶ Many of the most effective practices for achieving water quality nutrient reduction targets may also improve soil and farm productivity. See M.D. Tomer et al., *Agricultural Conservation Planning Framework: 1. Developing Multipractice Watershed Planning Scenarios and Assessing Nutrient Reduction Potential*, 44 J. OF ENVTL. QUALITY 754, 758 (“[T]he planning framework begins with an emphasis on practices that promote healthy functioning of soils to minimize soil erosion, enhance infiltration and water retention, and minimize loss of plant nutrients (N and P). These practices, such as zero or zonal tillage, cover crops, and nutrient management, carry the potential benefit of increased farm profitability and/or soil productivity . . . and are therefore emphasized in the planning framework without geographic prioritization.”).

This approach builds on existing capacities and institutional competencies within relevant agencies and groups and does not require state or federal agencies to cede jurisdiction. USDA agencies and their regional and local extensions have localized, extensive sets of conservation practices and experience working with conservation districts and producers to develop and implement farm scale plans.⁵⁷ Conservation districts, in combination with USDA and state infrastructure, provide a critical, yet not optimized, delivery mechanism to address on the ground environmental conditions. In addition, states have extensive experience assessing and monitoring waters and developing plans for water quality improvements. If respective federal, state, and local agencies evolve existing programs, build capacity, and improve coordination, farm conservation practices developed through HUC 12 watershed plans and implemented through whole farm conservation plans may be used to comprehensively address agricultural nutrient loading and restore water quality to state-assessed and prioritized waterbodies.

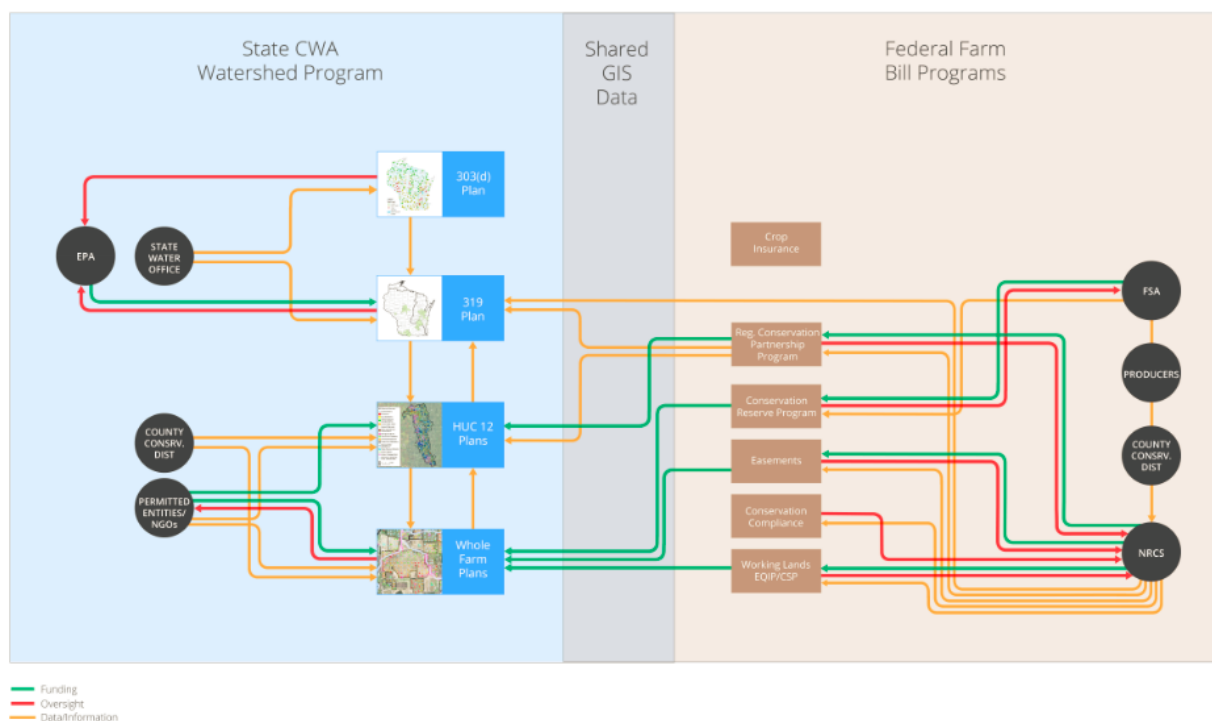
On the ground variability in natural resource conditions, the complexity and disaggregated nature of farm bill conservation funding, and USDA's broad interpretation of Farm Bill privacy provisions make the necessary level of coordination outlined in the proposed framework challenging. The Framework provides two potential approaches to address at the planning stage, the information barriers presented by Farm Bill privacy requirements.⁵⁸ In addition, to facilitate implementation and adaptive management, we recommend development of a shared GIS data tagging protocol. Moreover, we provide an approach to publicly sharing conservation practice implementation data that will facilitate transparency needed for scientific assessment and informed planning while adequately protecting producer privacy. In addition, we discuss the necessity for states, NRCS, EPA, and private stakeholders to work together to realistically evaluate, based on existing HUC 12 plans, funding, and technical assistance needed for plan development and implementation and also how to leverage federal and local resources to meet those needs. The

⁵⁷ See e.g., Douglas Helms, *Getting to the Roots*, U.S. DEP'T OF AGRIC., NATURAL RESOURCES CONSERVATION SERVICE (1992), https://www.blogs.nrcs.usda.gov/wps/portal/nrcs/detail/national/about/history/?cid=nrcs143_021394 (discussing the history and programs of the conservation district delivery mechanism).

⁵⁸ Cite to § 1619 of Farm Bill (2014).

proposed higher-ordered level of collaboration is not easy, but it is both politically viable and scientifically sound. Moreover, the proposed coordinated approach is possible and necessary to address the intertwining legal, political, social, scientific, economic, and practical dimensions of agricultural nutrient loading to waterways.

The graphic below provides a visual representation of the proposed Framework. On the left, we show our proposed revised CWA watershed programming. And, on the right, we show relevant Farm Bill Conservation Programs. The substance of our proposed CWA and Farm Bill conservation programming are discussed below. The box in the center represents GIS data that must be shared to facilitate efficient and effective watershed planning, and stakeholders are shown in the black circles. The yellow, red, and green lines display information flow, oversight, and funding, respectively. These lines also show our approach to integrating information, funding sources, and utilizing existing oversight responsibilities to achieve a comprehensive watershed policy for restoring nutrient impaired waters.



Healthy Watershed Policy Matrix⁵⁹

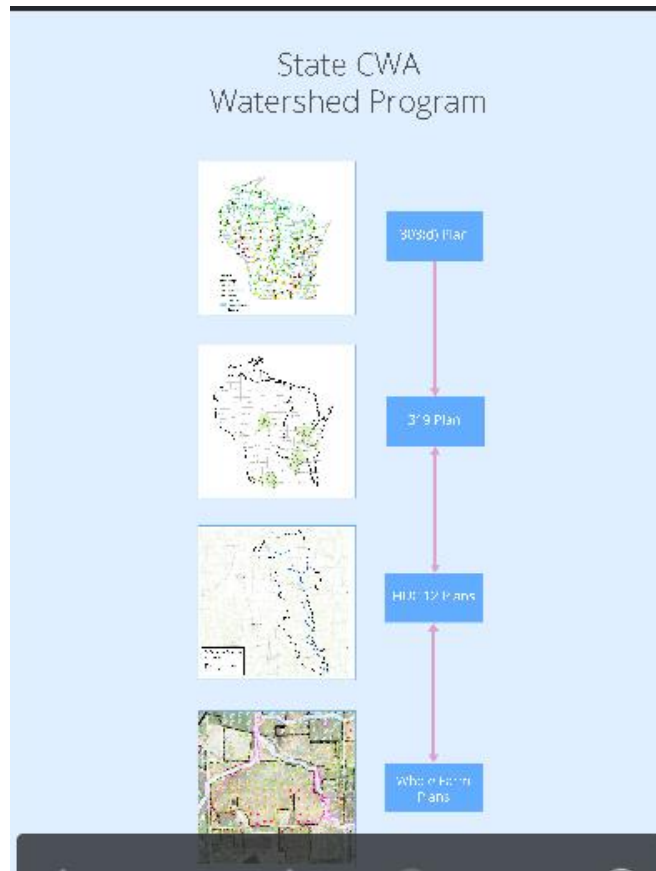
A. Proposed State CWA Programming

We propose that state CWA programming to address nutrient pollution be evolved from an approach comprised of incomplete assessment, listing, and TMDL development to a prioritized watershed planning approach based on comprehensive scientific assessment. The proposed CWA programming approach identifies priority areas for the deployment of farm bill conservation programs and will enable farm bill conservation program funding and practices to be combined with state, permitted entity, and NGO funds and efforts to strategically and more effectively address agricultural nutrient loading.

The proposed CWA programming includes a specific approach to impaired water (Section 303(d)) and NPS (Section 319) programming and two novel layers of watershed planning.

The four planning levels comprising the revised CWA watershed planning approach are shown in the graphic below. The two highest planning levels represent recommended approaches for state Section 303(d) and Section 319 programming. The third level—HUC 12 scale implementation plans—represents a new layer of planning that is not required under the CWA. The base layer of planning—site-level whole farm conservation plans—is also novel in the CWA programming context, but not in the USDA farm bill conservation planning context, and, in our Framework, occurs as part of the development of HUC 12 plans.

⁵⁹ Find cite for Image #2



Need Caption for Image

B. Proposed Clean Water Act Watershed Programing

This subsection provides a brief overview of the CWA § 303(d)⁶⁰ and § 319⁶¹ statutory and regulatory requirements. We then address the substance, procedural considerations, and stakeholders for each proposed plan included in our revised CWA watershed programming and approach and shown in the above graphic.

1. Overview of CWA TMDL and Nonpoint Programs

The CWA § 303(d) program addresses waterbodies that do not meet water quality standards.⁶² It requires states to identify and prioritize waters where technology-based effluent

⁶⁰ 33 U.S.C. § 1313(d) (2012).

⁶¹ *Id.* § 1329 (2012).

⁶² *Id.* § 1313(d)(1)(A) (2012).

limitations applicable to point sources will not result in the attainment of water quality standards.⁶³ Program regulations require states to submit impaired water lists to EPA biennially, and specifically identify waters targeted for TMDL development within the next two years.⁶⁴ In addition, the regulations require states to submit, according to schedules agreed upon with a Regional Administrator, TMDLs to EPA for approval.⁶⁵ In its guidance, EPA recommends that states establish priority in their § 303(d) lists through the use of a scheduled TMDL completion date or a ranking system.⁶⁶ A TMDL for a waterbody determines the amount of a pollutant that a water body can assimilate without violating water quality standards.⁶⁷ TMDLs include an analysis of pollutant loads from point and nonpoint sources and a margin of safety.⁶⁸ TMDL pollutant load allocations for point sources⁶⁹ are implemented through permits.⁷⁰ Agricultural operations, with the exception of large farms designated as Concentrated Animal Feeding Operations (CAFOs),⁷¹ are considered nonpoint⁷² sources, not permitted entities under the CWA. Accordingly, the CWA NPDES permit mechanism is not used to implement nonpoint load allocations.⁷³

⁶³ *Id.*

⁶⁴ 40 C.F.R. § 130.7(d) (2016).

⁶⁵ *Id.*; 40 C.F.R. § 130.7(a) (2016).

⁶⁶ U.S. ENV'T'L PROTECTION AGENCY, *Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act* 20 (2005) <https://www.epa.gov/tmdl/integrated-reporting-guidance>.

⁶⁷ 40 C.F.R. § 130.2(i) (2016).

⁶⁸ *Id.*

⁶⁹ Point sources of pollutants include those sources that discharge through discrete pipes to waterbodies. 33 U.S.C. § 1362 (14) (2012).

⁷⁰ US EPA, *Program Overview: Total Maximum Daily Loads (TMDL)*, <https://www.epa.gov/tmdl/program-overview-total-maximum-daily-loads-tmdl> (last updated March 2, 2017).

⁷¹ 33 U.S.C. § 1362 (14) (2012).

⁷² Nonpoint sources include all sources that are not point sources. EPA, *Polluted Runoff: Nonpoint Source Pollution*, <https://www.epa.gov/nps/what-nonpoint-source> (last updated Nov. 28, 2016).

⁷³ See HOUCK, *supra* note 22, at The CWA TMDL program “provides no direct authority for EPA to implement [load allocations] for nonpoint sources.” *Id.* at 80. However, the EPA has through guidance created a vague requirement that states provide some type of “implementation plan” for TMDL nonpoint load allocations and reasonable assurances that load allocations will be achieved. See Robert Perciasepe, *New Policies for Establishing and Implementing Total Maximum Daily Loads (TMDLs)* (1997) <https://www.epa.gov/tmdl/new-policies-establishing-and-implementing-tmdls> (stating “[f]or all 303(d) listed waters each state should describe its plan for implementing load allocations for nonpoint sources. The plan may describe how load allocations will be achieved for individual waters, for several waters within a watershed, or for all affected waters in the State . . . States may submit implementation plans to EPA as revisions to state water quality management plans, coupled with a proposed TMDL, or as part of an equivalent watershed or geographic planning process” and explaining that plans should include:

Unlike the CWA point source program, the CWA nonpoint program is not a permit program.⁷⁴ Instead, EPA requires that states develop Nonpoint Management Program plans (Section 319 plans) that include: (1) BMPs for addressing nonpoint sources; (2) implementation programs; (3) a schedule with milestones that provide for sources to utilize programs and BMPs at the earliest practicable date; (4) a certification that state laws provide or will be amended to provide adequate authority to address nonpoint pollution; (5) sources of and uses for funding; (6) programs and projects; (7) use of local and private experts to the maximum extent practicable; and (8) a program developed and implemented on a watershed basis, to the maximum extent practicable.⁷⁵ Section 319 also creates a grant program to assist states in carrying out their nonpoint management programs.⁷⁶ If a state has made “satisfactory progress” implementing its nonpoint program in the previous fiscal year, the federal government may provide up to 60% of the cost for the state’s nonpoint program.⁷⁷ However, the reality is that Section 319 grant funding is limited; for example, in 2016 only \$163.4 million was available nationally,⁷⁸ a funding level that is far exceeded by the farm bill conservation programs. EPA requires that states update their NMP plans every five years.⁷⁹

2. Revised State CWA Program Planning Levels

i. Section 303(d) Program Plan

The highest-level plan in the proposed state CWA program is a § 303(d) program plan.⁸⁰ Currently, states likely do not have sufficient or current water quality assessment data to develop

reasonable assurances that nonpoint source loads will be achieved; a public participation process and recognitions of source water protection programs).

⁷⁴ 33 U.S.C. § 1329(b) (2012).

⁷⁵ *Id.*

⁷⁶ 33 U.S.C. § 1329(h) (2012).

⁷⁷ 33 U.S.C. § 1329(h)(1),(3),(8) (2012).

⁷⁸ *319 Grant Program for States and Territories*, U.S. ENV’T’L PROTECTION AGENCY <https://www.epa.gov/nps/319-grant-program-states-and-territories> (last updated Feb. 1, 2017).

⁷⁹ U.S. ENV’T’L PROTECTION AGENCY, *Nonpoint Source Program and Grants Guidelines for States and Territories*, (Apr. 12, 2013) <https://www.epa.gov/sites/production/files/2015-09/documents/319-guidelines-fy14.pdf> [hereinafter U.S. ENV’T’L PROTECTION AGENCY, *Nonpoint Source Program* 2013].

⁸⁰ See *Program Overview: 303(d) Listing of Impaired Waters*, U.S. ENV’T’L PROT. AGENCY <https://www.epa.gov/tmdl/program-overview-303d-listing-impaired-waters>. (last updated Jan. 9, 2017)

a statewide priority listing of watersheds within which watershed planning and implementation is needed.⁸¹ To remedy this, we propose that states take a comprehensive approach similar to the Clean Air Act (CAA) assessment and planning process.⁸² Specifically, we recommend that states identify, based on the severity of measured water quality impairment, HUC 10 areas within which HUC 12 watershed planning should be prioritized. Our § 303(d) program focus on systematically assessing and prioritizing smaller scale plans with implementation components is consistent with the EPA's most recent recommendations for revising the § 303(d) program.⁸³ This method will make § 303(d) programs statewide in scope. Instead of a piecemeal approach to identifying impaired waters for which watershed plan development is necessary, under the Framework approach, a state would assess all waters within its boundaries at the HUC 10 scale and use this assessment information to prioritize watershed plan development and implementation.

The challenge of defining, through monitoring, the scope of nutrient pollution under the CWA is arguably greater than the challenge of identifying nonattainment areas under the CAA.⁸⁴ As such, the proposed comprehensive § 303(d) plan focuses monitoring at a manageable watershed

⁸¹ Mississippi River Collaborative, *Decades of Delay* (November 2016), www.msrivercollab.org/wp-content/uploads/Decades-of-Delay-MRC-Nov-2016.pdf.

⁸² Under the CAA, attainment and maintenance of air standards is accomplished through a comprehensive planning process that provides a nearly complete inventory of all of regions of the country. Robert W. Adler, *Integrated Approaches to Water Pollution: Lessons from the Clean Air Act*, 23 HARV. ENVTL. L. REV. 203, 232 (1999). Each state is divided into air quality control regions, which are designated as “nonattainment,” “attainment” or “unclassifiable” for each air pollutant standard. 42 U.S.C. § 7407(d)(1)(A) (2012). Plans are then developed to restore or maintain air quality for the designated regions. *See* 42 U.S.C. §§ 7410, 7407 (2012); *see also* Adler, at 232.

⁸³ In EPA's 2013 vision statement for the 303(d) program, the agency recommends that instead of executing large-scale watershed TMDLs with the sole aim of completing as many TMDLs as possible, states prioritize watersheds for action and focus on TMDL alternative planning mechanisms when they are more likely to achieve water quality and balance plan development with implementation. U.S. ENVTL. PROT. AGENCY, A LONG-TERM VISION FOR ASSESSMENT, RESTORATION, AND PROTECTION UNDER THE CLEAN WATER ACT SECTION 303(D) PROGRAM 1, 5, 9 (December 2013), https://www.epa.gov/sites/production/files/2015-07/documents/vision_303d_program_dec_2013.pdf.

⁸⁴ Adler, *supra* note 83, at 257.

“[F]rom a practical perspective, it is easier to assess compliance with NAAQS in contiguous airsheds than to measure attainment in watersheds that comprise a large number of components whose conditions may vary considerably in size, pollution sources, geology, morphology, hydrology, chemistry, biology and other factors. One headwater stream might be badly polluted from any number of sources, while its neighbor is relatively pristine. There are millions of water body components in the country, compared to the 247 airsheds into which the nation has been divided for purposes of CAA compliance. Monitoring each segment would be a monumental task that far exceeds available resources.”

Id. at 259.

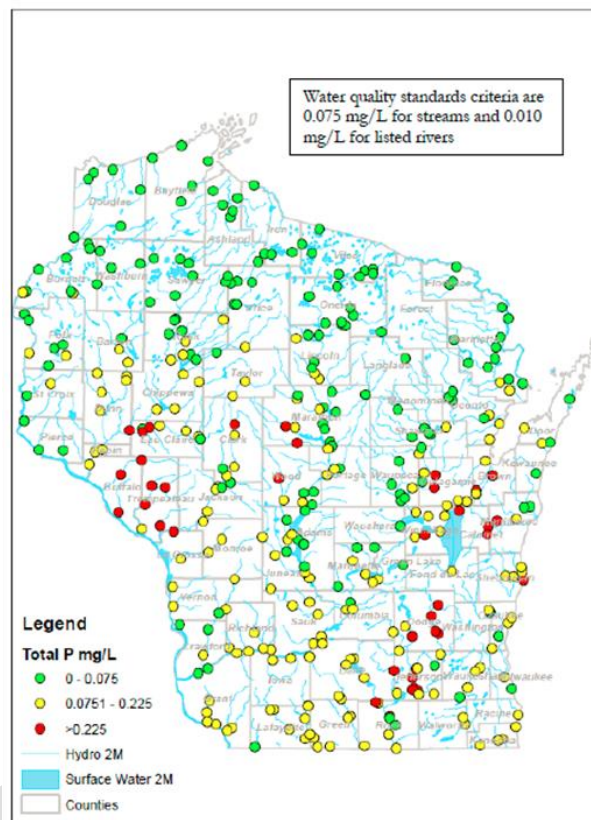
scale—the HUC 10 scale—and supplements proposed monitoring with screening-level watershed assessment at the HUC 12 scale. This combined monitoring and watershed assessment approach is based on work done in Wisconsin to develop the state’s § 303(d) program and Nutrient Reduction Strategy.⁸⁵ Following Wisconsin’s lead, states could use a rotating basin approach to monitor HUC 10 watersheds. After identifying priority HUC 10 watersheds based on monitoring, states could utilize watershed screening-level assessment to prioritize HUC 12 subwatersheds within identified priority HUC 10 areas.⁸⁶

The graphics below show the results of a similar approach to identification and prioritization used in Wisconsin. The first graphic shows the results of Wisconsin’s HUC 10 phosphorus monitoring, which the state used to prioritize areas for nutrient reduction pursuant to its Nutrient Reduction Strategy. The second graphic shows the first priority group of HUC 10 areas in which the state wants to work to address phosphorus impairments. The third graphic shows results of the state’s Healthy Watershed Assessment⁸⁷ using ecosystem health and vulnerability indices. Under the Framework, HUC 10 prioritization shown in the second graphic would be repeated for subsequent priority groups until all impaired watersheds were prioritized, and the results of graphics two and three would be layered to identify priority areas for HUC 12 scale watershed planning within prioritized HUC 10 areas.

⁸⁵ See, e.g., WIS. DEP’T OF NATURAL RES., WISCONSIN WATER QUALITY REPORT TO CONGRESS 1, 4 (2016), <http://dnr.wi.gov/water/wsSWIMSDocument.ashx?documentSeqNo=127714665>; Jim Baumann et al., WIS. DEP’T OF NATURAL RES., WISCONSIN’S NUTRIENT REDUCTION STRATEGY 1, 7, 10–11 (November 2013) dnr.wi.gov/topic/SurfaceWater/nutrient/combined_draft.pdf (discussing the revised TMDL prioritization framework).

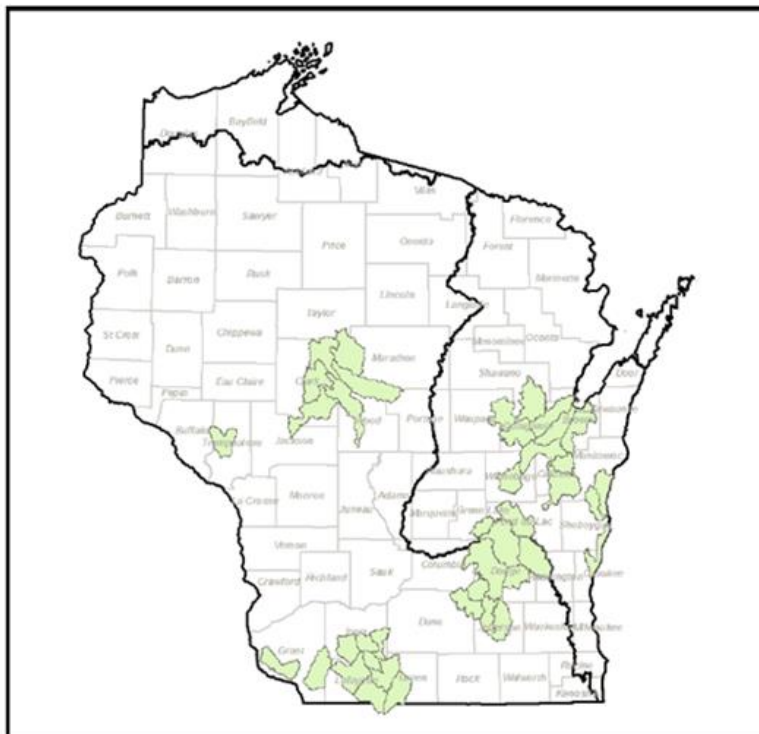
⁸⁶ Models used to prioritize HUC 12 areas at this level of planning are preliminary. To develop HUC 12 watershed plans—the third planning level in the framework chart—watershed inventories and farm conservation plans must be developed and that data must be incorporated into revised modeling.

⁸⁷ Healthy Watershed Assessment may vary based on data availability. See ENVTL. PROT. AGENCY, INTEGRATED ASSESSMENT OF HEALTHY WATERSHEDS, <https://www.epa.gov/hwp/healthy-watersheds-assessment-overview> (last updated Feb. 27, 2017). “Healthy watersheds integrated assessments can range from screening-level assessments using GIS data layers to statistical and geospatial modeling of ecological attributes.” *Id.*



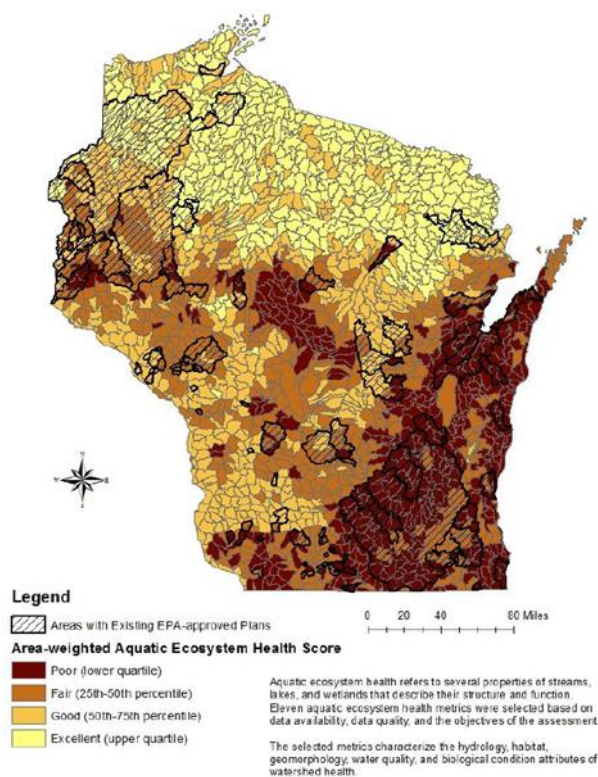
Results of Wisconsin's HUC 10 monitoring used to prioritize watersheds for planning purposes⁸⁸

⁸⁸ WISCONSIN WATER QUALITY REPORT TO CONGRESS, *supra* note 86, at 27.



Top HUC 10 watersheds prioritized for nutrient reduction work based on monitoring results⁸⁹

⁸⁹ WISCONSIN WATER QUALITY REPORT TO CONGRESS, *supra* note 86, at Executive Summary 3.



Wisconsin’s Healthy Watershed Initiative screening-level results identifying watersheds in need of restoration at the HUC 12 scale⁹⁰

Although this Framework proposes a substantive approach that likely differs from state’s current assessment, listing and TMDL development procedures pursuant to their § 303(d) programs, stakeholder development and approval processes would remain unchanged. Responsibility for developing the § 303(d) program plan would remain with state environmental agencies. The TMDL program plan would then be incorporated into states’ Integrated Reports⁹¹ and approved by EPA.

ii. Nonpoint (§ 319) Program Plan:

The second highest level plan in the proposed state CWA program is a § 319 plan. Unfortunately, because of lack of data, funding challenges, and vague EPA guidance regarding the scope of impaired water implementation plans for nonpoint sources,⁹² many state § 319 plans may

⁹⁰ Blank cite.

⁹¹ State Integrated Reports are single documents that integrate the reporting requirements of the CWA §§ 303(d), 305(b), and 314. U.S. ENVTL. PROT. AGENCY, *Guidance for 2006*, *supra* note 67, at 9.

⁹² See HOUCK, *supra* note 22, at 80–81 (“For a state to have the option of offering an implementation plan for ‘all affected waters’ runs a real risk of describing everything and requiring nothing. For the plan to be offered as part of a

be informational, rather than implementation-oriented plans.⁹³ The Framework approach aims to ensure that state § 319 plans are working planning documents composed of implementation plans for HUC 12 watersheds. Specifically, the Framework recommends that § 319 plans be used to track and monitor implementation and adaptive management of HUC 12 watershed plans in the HUC 12 watersheds identified in a state's § 303(d) program plan. Section 319 plans should identify, organize and track:

- (1) all impaired HUC 12 watersheds identified in state's TMDL program plan;⁹⁴
- (2) timelines for HUC 12 plan development⁹⁵ and implementation;⁹⁶
- (3) plan adaptive management; and
- (4) modeled and monitored⁹⁷ conservation practice implementation and water quality progress.

In addition to the proposed substantive shift in § 319 planning, we recommend a shift in the approach to stakeholder involvement in § 319 plan implementation. We propose that NRCS at the state level be more strategically involved in the implementation of state § 319 plans.

'geographic planning process' or as part of state water quality management plans is also patently amorphous and runs a serious risk of continuing nonpoint source nonmanagement. As anyone who has dealt with state water quality plans knows, they are not 'plans' in a dictionary sense of the word; . . . they are more a process composed of criteria, standards, and abbreviated assessments, some published and some in file drawers, an environment in which site-specific implementation measures can lose their focus, if not simply get lost. . . . [I]t is hard to have confidence in 'reasonable assurances'; from plans that could appear in so many different and diffuse ways.'').

⁹³ Blank cite. (try HOUCK, *supra* note 22).

⁹⁴ The proposed Nonpoint Source Water Pollution Prevention Act of 1993, if enacted, would have required that "target watersheds in the State [be organized] into 5 priority groups (each consisting of approximately 1/5 of the target watersheds) on the basis of the relative severity of nonpoint source pollution problems in the target watersheds and other relevant considerations." H.R. 2543, 103d Cong. § 321(c)(2) (1993).

⁹⁵ The Nonpoint Source Water Pollution Prevention Act of 1993 proposed the following schedule for submitting implementation plans: first priority group plans concurrently with the revision of the state nonpoint management plan; second priority group plans not later than one and one-half years after approval of the state's revised nonpoint plan; third priority group plans not later than two and one-half years after approval of the state's revised nonpoint plan; fourth priority group plans not later than three and one-half years after approval of the state's revised nonpoint plan; and fifth priority group plans not later than four and one-half years after approval of the state's revised nonpoint plan. *Id.* § 321(e)(5).

⁹⁶ The Nonpoint Source Water Pollution Prevention Act of 1993 proposed that "[i]t shall be the purpose of each implementation program for a target watershed . . . to achieve full restoration . . . of the watershed before the expiration of the 8-year period beginning on the date of approval of the implementation program." *Id.* § 321(e)(2).

⁹⁷ The Nonpoint Source Water Pollution Prevention Act of 1993 proposed that state nonpoint programs include random on-site inspections and in situ water quality monitoring techniques. *Id.* § 321(d)(2)(C).

Specifically, we recommend that NRCS state offices with their conservation district partners provide GIS tracking information, appropriately bundled within each HUC 12 watershed, for conservation practices implemented in § 303(d) priority watersheds. In addition, we recommend that NRCS administer the Regional Conservation Partnership Program (RCPP) to prioritize projects funded through the state fund pool⁹⁸ to address areas identified in state §§ 303(d) and 319 plans. NRCS should also report appropriately bundled implementation data or include reporting requirements as provisions in RCPP partner agreements in order to allow states and EPA to track progress in implementing nonpoint components of watershed plans.

iii. HUC 12 Plans:

The third level plan in the proposed state CWA program is a HUC 12 plan. HUC 12 plans are the building blocks of the revised CWA programming component of the Framework. HUC 12 areas can be aggregated to form plans covering larger areas.⁹⁹ However, all plans should be based on HUC 12 building blocks. On the ground efforts and related research¹⁰⁰ have shown that this is an effective scale for gathering specific land use data through an inventory method and implementing and adaptively managing conservation practices.¹⁰¹ The planning levels above the

⁹⁸See U.S. DEP'T OF AGRIC.: NAT. RESOURCES CONSERVATION SERV., *About RCPP*, , <https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/programs/farmbill/rcpp/?cid=nrcseprd1308280> (last visited Mar. 2, 2017) (describing RCPP, which joins producers, private landowners, water and irrigation districts, nongovernmental organizations, and other partners to “increase the restoration and sustainable use of soil, water, wildlife and related natural resources on regional or watershed scales”).

⁹⁹ See, e.g., MADISON METRO. SEWERAGE DISTRICT, MADISON METROPOLITAN SEWERAGE DISTRICT ADAPTIVE MANAGEMENT PLAN 48 (January 2017), [http://www.madsewer.org/Portals/0/ProgramInitiatives/YaharaWIn/Meetings/MMSD%20adaptive%20management%20plan%20updated%20January%202017%20submittal%20to%20DNR%20\(1\).pdf](http://www.madsewer.org/Portals/0/ProgramInitiatives/YaharaWIn/Meetings/MMSD%20adaptive%20management%20plan%20updated%20January%202017%20submittal%20to%20DNR%20(1).pdf) (aggregating up to the HUC 12 “watershed scale to provide a standardized spatial comparison to identify priority areas”); see also e-mail from Dave Taylor to Jamie Konopacky (Oct. 24, 2016) (on file with author) (explaining that the Madison Metropolitan Sewerage District Adaptive Management Plan covers 19 HUC 12 areas).

¹⁰⁰ See, e.g., See M.D. Tomer et al., *Agricultural Conservation Planning Framework: 1. Developing Multipractice Watershed Planning Scenarios and Assessing Nutrient Reduction Potential*, 44 J. OF ENVTL. QUALITY 754, 754 (“[W]e propose and demonstrate an interim technology that is suited to the hydrologic unit code (HUC)12 watershed scale”); see also Tomer et al., *Agricultural Conservation Planning Framework: 2*, *supra* note 31, at 771 (“Our objective is to apply a classification scheme to identify conservation opportunities throughout a riparian network to six Midwestern hydrologic unit code (HUC)12 watersheds and compare the results among watersheds.”); see also Iowa State Univ. Extension & Outreach, *Heavy Rain, Soil Erosion and Nutrient Losses*, INTEGRATED CROP MGMT. (June 5, 2008), <http://crops.extension.iastate.edu/cropnews/2008/06/heavy-rain-soil-erosion-and-nutrient-losses> (describing methods of minimizing property and soil damage where heavy rains filled soil profiles to capacity with water).

¹⁰¹ See Konopacky, *supra* note 14, at 47 (discussing county Nine Key Element Plans and case studies).

HUC 12 planning level—the §§ 303(d) and 319 plans—guide, prioritize and direct the development of HUC 12 plans. The planning level below the HUC 12 planning level—whole farm or site level plans—inform the development of and serve as the implementation mechanism for HUC 12 plans. HUC 12 plans should include the EPA’s recommended Nine Key Elements,¹⁰² and could, but need not be labeled TMDLs.¹⁰³

The scale of plans is important.¹⁰⁴ Our recommendation that states focus on smaller-scale plans contrasts with the growing size of TMDLs currently being executed in Wisconsin¹⁰⁵ and, to some extent, with the watershed approach as discussed in guidance by EPA.¹⁰⁶ We propose this scale because it facilitates stakeholder involvement as well as the land management inventories needed to identify, model and target land use implementation measures.¹⁰⁷

We recommend an integrated approach to HUC 12 planning that incorporates environmental and economic considerations. To address economic considerations, HUC 12 plans should involve an assessment of impacts on producer productivity¹⁰⁸ and aim to utilize the most

¹⁰² The EPA’s Nine Key Elements include the following: 1) causes of impairment, pollutant sources (identified at the subcategory level with contribution estimates), and supplementary watershed goals; 2) management measure load reduction estimates; 3) needed nonpoint source management measures and critical implementation areas; 4) technical and financial assistance and cost estimates “and/or the sources and authorities that will be relied” on; 5) an “information and education component”; 6) reasonably expeditious nonpoint source management measure implementation schedule; 7) interim milestones for measuring management measures or other control action implementation; 8) criteria for determining loading reduction and water quality standard attainment progress; and 9) “[a] monitoring component to evaluate the effectiveness of the implementation efforts over time.” U.S. ENV’T L PROT. AGENCY, *Nonpoint Source Program* 2013, *supra* note 80, app. at 63–67.

¹⁰³ To receive Section 319 funding for efforts to address NPS loading, a Nine Key Element Plan must be in place. *Id.* at 63. Pursuant to EPA’s revised vision for the 303(d) program and associated new metrics for tracking state progress in addressing impaired waterbodies, in tracking states 303(d) progress, the agency will recognize TMDLs or alternative plans that are better suited to restoring an impaired waterbody. *Id.* at 35

¹⁰⁴ The scale determination impacts “stakeholder participation, data capture and analysis, inventories, policy recommendations, remedial actions, monitoring [and] cost.” MICHIGAN DEP’T OF ENV’T L QUALITY, SCALE CONSIDERATIONS IN THE DEVELOPMENT OF A NINE-ELEMENT MANAGEMENT PLAN 1 (May 20, 2013), https://www.michigan.gov/documents/deq/wrd-nps-scale_456936_7.pdf.

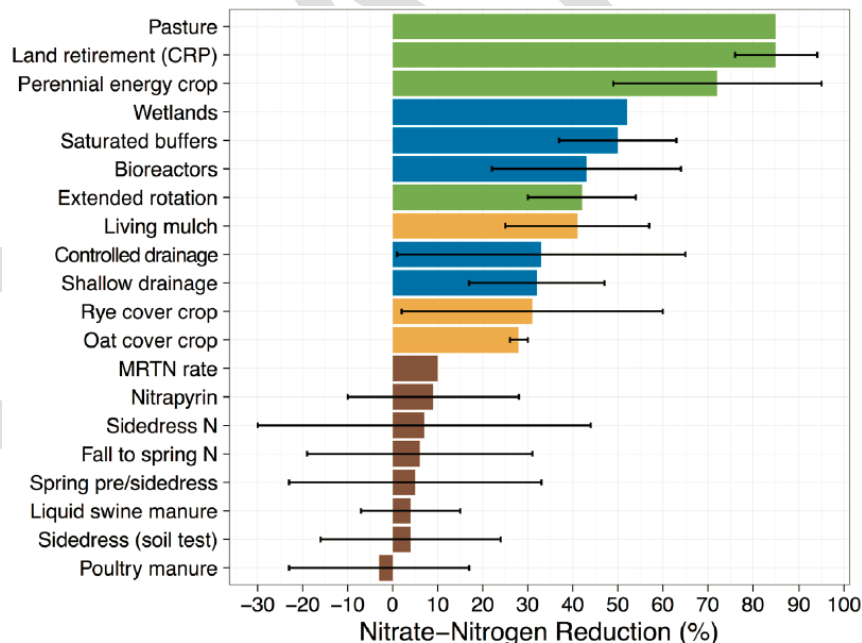
¹⁰⁵ See Konopacky, *supra* note 14 at 22–28 (critiquing Wisconsin’s continuing focus on large-scale TMDL’s and proposing smaller-scale alternatives).

¹⁰⁶ See *id.* at 20–21 (stating that EPA has not identified an appropriate scale for watershed planning and noting agency guidance stating “[w]atershed TMDLs have addressed areas ranging in size from a few square miles to thousands of square miles.”).

¹⁰⁷ MICH. DEP’T OF ENV’T L. QUALITY, *supra* note 105, at 6–9.

¹⁰⁸ See Tomer et. al., *Agricultural Conservation Planning Framework: 1*, *supra* note 101, at 754–55 (describing the need for watershed management plans to consider costs, effectiveness, and producer preference and need).

effective conservation practices. Planners in Iowa have utilized this type of integrated plan development. The Iowa Soybean Association (ISA), for example, has been developing plans utilizing the USDA's Agricultural Conservation Practices Planning Tool, which recommends a dual focus on productivity and environmental benefit.¹⁰⁹ And in developing plans, ISA is focusing on conservation practices studied and determined to be effective as part of the ongoing development and implementation of the Iowa Nutrient Reduction Strategy.¹¹⁰ The below graph shows the effectiveness and standard deviation of practices studied pursuant to the Iowa Nutrient Reduction strategy and being used in planning efforts by ISA. The first graphic depicts a menu of conservation options that could have been used in the studied watershed, and the following graphic depicts the conservation practices selected after consultation with farmers and consideration of the twin aims of promoting producer productivity and achieving nutrient reduction goals for the watershed.

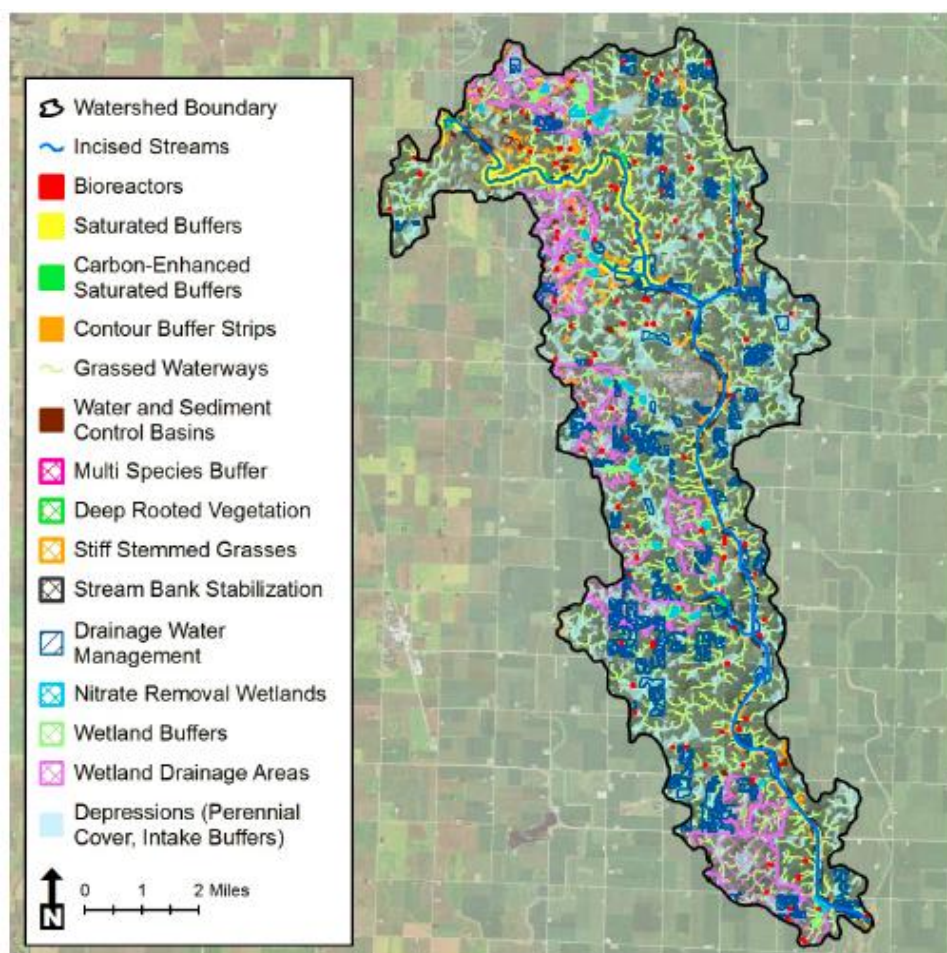


Effectiveness and Standard Deviation of Conservation Practices studies as part of Iowa's Nutrient Reduction Strategy Implementation Efforts.¹¹¹

¹⁰⁹ IOWA SOYBEAN ASS'N RES., IOWA SOYBEAN ASS'N, 2016 ANNUAL REPORT 25 (2016).

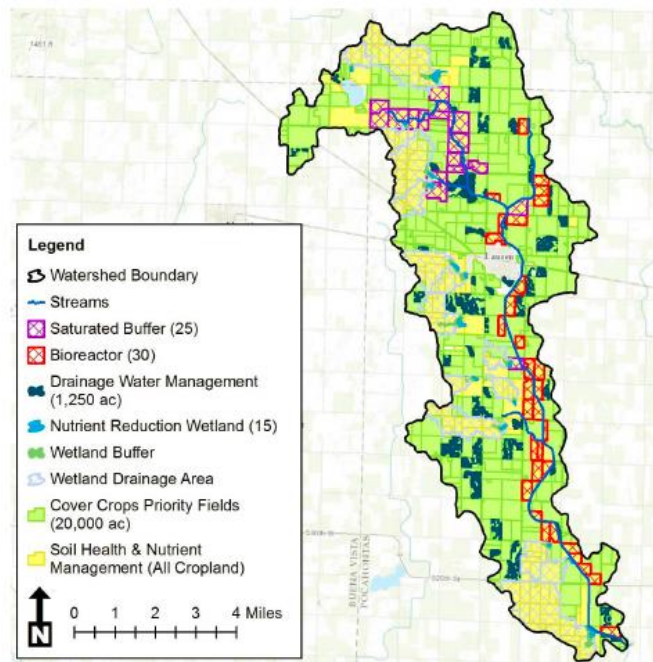
¹¹⁰ *Id.* at 24–25.

¹¹¹ *Id.* at 27.



Iowa Soybean Association plan developed using the ACPF tool showing possible practices for a HUC 12 watershed.¹¹²

¹¹² Adam Kiel, Operations Manager, Water Res., *Iowa Soybean Ass'n, Presentation at Leadership for Midwestern Watersheds Meeting # 7: Incorporating Economic Efficiency into Watershed Planning* (Nov. 2, 2016) <https://sandcountyfoundation.org/uploads/LMW-7-Adam-Kiel.pdf>; See also, *Proceedings: Leadership in Midwest Watersheds #7 Economic Drivers in Agriculture and Watershed Management* 20 (November 1–2, 2016) <https://sandcountyfoundation.org/uploads/LMW-Proceedings-Mtg-7-Nov-2016.pdf>.



Iowa Soybean Association investment strategy.¹¹³

C. ISA plan showing practices selected for a HUC 12 watershed plan

Although HUC 12 planning represents a new layer of planning in state CWA programming, we do not recommend creating new or overlapping¹¹⁴ governance infrastructure or planning authorities to carry out HUC 12 scale planning. Instead, we recommend that conservation districts working with NRCS serve as the default parties responsible for HUC 12 plan development,

¹¹³ *Proceedings: Leadership in Midwest Watersheds #7 Economic Drivers in Agriculture and Watershed Management* 20 (November 1–2, 2016) <https://sandcountyfoundation.org/uploads/LMW-Proceedings-Mtg-7-Nov-2016.pdf>.

¹¹⁴ See John H. Davidson, *Commentary: Using Special Water Districts to Control Nonpoint Sources of Water Pollution*, 65 CHI.KENT L. REV. 503, 516 (1989) (stating that “[b]y merging nonpoint source control into existing water management institutions, significant and practical governmental efficiency may be achieved. . . . The alternative to the merger of purposes is a continued ‘layering’ of governmental districts, corporations, and departments, each attempting to achieve specified water management purposes”); but see J.B. Ruhl et al., *Proposal for a Model State Watershed Management Act*, 33 ENVTL. L. 929, 938, n. 47 (2003) (discussing transboundary and simultaneous independent approaches to watershed planning, stating “that soil and water conservation districts, which in many states are elected and have political boundaries corresponding to county borders, have generally failed to live up to their promise of comprehensively managing soil and water quality issues” and later clarifying that “[w]e do not mean to discount entirely the possibility that soil and water conservation districts in some states could be ‘morphed’ into the kind of local watershed-based political structure we describe [in this article]. Our point is that it would be difficult and unwise simply to graft the authorities and responsibilities we envision as necessary to carry out watershed management on to the existing structure of soil and water conservation districts.”).

implementation, oversight, and adaptive management.¹¹⁵ This ensures that those entities that have historically been responsible for assisting with farm conservation planning,¹¹⁶ have existing producer relationships and have farm planning and conservation practice implementation, tracking and monitoring expertise are leading watershed planning.

Although conservation districts are generally the lead stakeholders in the HUC 12 plan development process, we recommend that states require a uniform, inclusive and cooperative watershed planning “conference” process for developing HUC 12 scale watershed plans. At a minimum, watershed planning conferences should include stakeholders comprised of the following groups: nonpoint sources, point sources, significant water users, federal, state, and local agency representatives, environmental community representatives, scientific community representatives, tribal councils, and other interested parties.¹¹⁷

Where a planning process for a relevant watershed has not been started by a local county conservation department or district, permittees may take the lead in developing a watershed plan as a means of permit compliance. This has occurred in Wisconsin under the state’s Adaptive Management program. That program allows permitted point sources to develop and implement watershed plans to restore water quality in the watersheds within which they are located as an alternative to installing pollution control technology onsite.¹¹⁸ Where permittees take the lead in developing a watershed plan, we recommend that states require coordination with the conservation

¹¹⁵ See analysis of the CWA Rural Clean Water Program finding that the most successful watershed restoration projects were those with strong leadership and follow through at the local county level. See also plans addressing ag nonpoint pollution in Wisconsin and Iowa being developed in partnership with conservation districts and watershed framework developed for Texas.

¹¹⁶ See Davidson, *supra* note 13, at 511 (“Soil conservation special districts were advocated by the SCS in order to organize landowners and allow them to develop common solutions to common erosion problems. The “whole farm conservation plan”-an integrated plan of soil erosion control practices for an entire farming operation-was developed and complemented by soil capability classifications.”); *id.* at 514–15 (“[The whole farm soil conservation plan] has the potential to be reformed and refitted for the control of nonpoint source pollution.... the soil conservation plan is an established vehicle which is ready for deployment should the political will appear. Because the SCS is already situated in each county, and because the conservation plan is a format which is familiar to nearly every rural landowner, it offers a unique opportunity for action.”).

¹¹⁷ See, e.g., Nonpoint Source Water Pollution Prevention Act of 1993, H.R. 2543, 103d Cong. § 321(e)(3)(B) (1993) (listing required representative members of watershed management conferences).

¹¹⁸ See Konopacky, *supra* note 14, at 2.

district(s) within which the watershed is located and require permittees to follow the same process for plan development.

1. Site-Level Whole Farm Conservation Plans:

Whole farm plans are the first level of planning in the proposed framework. Aggregated whole farm plans in a HUC 12 area comprise the nonpoint source component of that HUC 12 watershed plan. Recognizing that abstract mathematical loading targets focused solely on restoring water quality do not encourage widespread producer participation, we propose an integrated approach to plan development for individual producers. We recommend incorporating productivity and profitability analyses of conservation practices, and discussions of public and private financial incentives for conservation practice adoption in addition to environmental considerations in producer planning discussions between plan developers and producers that occur simultaneously with HUC 12 plan development.¹¹⁹

Although the HUC 12 context provides an additional layer, the substantive concept of whole farm conservation planning is not new.¹²⁰ NRCS and conservation districts are the main conduits for conservation planning technical and financial assistance.¹²¹ Consequently, under the proposed framework, we recommend that these stakeholders continue to take the lead on the development and implementation of whole farm conservation plans.

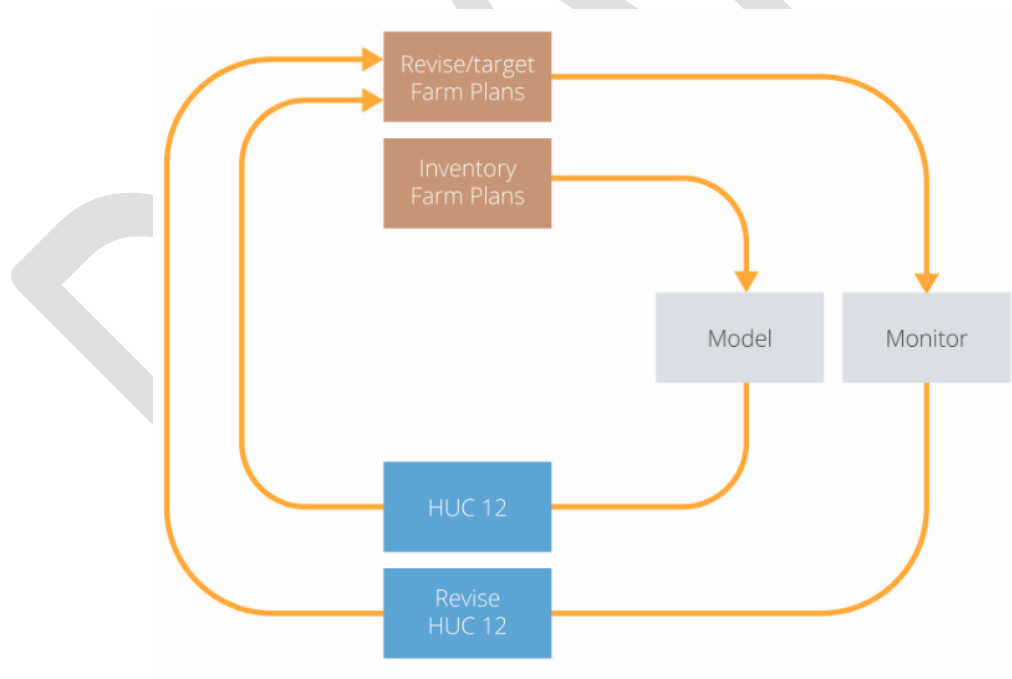
In addition to recommending an integrated farm planning approach, we propose the use of adaptive management during the development and implementation of HUC 12 plans and the development and implementation of whole farm plans. Using this approach, during HUC 12 plan

¹¹⁹ Others have addressed similar approaches. See Karen R. Hansen, *Agricultural Nonpoint Source Pollution: The need for an American Farm Policy Based on an Integrated Systems Approach Recoupled to Ecological Stewardship*, 15 HAMLINE J. PUB. L. & POL'Y 303, 319 (1994) (discussing the need for federal agricultural policy that takes an “integrated systems approach to agricultural NPS pollution ... [and] balances the multiple national policy objectives with the economic and ecological needs of the individual farmer operating within a local, autonomous watershed.”); *id.* at 322 (“[T]he majority of American farmers have become dependent upon their ability to successfully produce within a complex governmental structure based on program subsidies and commodity supports... that... still encourage farmers to maintain the maximum allowable eligible program yields and acres.”).

¹²⁰ See, e.g. CRAIG COX, ET AL., ENVIRONMENTAL WORKING GROUP, LOSING GROUND 5–6 (April 2011), http://static.ewg.org/reports/2010/losingground/pdf/losingground_report.pdf (describing both federally enforced and voluntary conservation programs in place since 1985).

¹²¹ *Id.* at 6, 29–30.

development NRCS and/or local conservation staff (planners) will complete field walks to identify conservation practice opportunities and meet with farmers to discuss implementation feasibility. Planners will identify all possible conservation practices for a relevant watershed. After identifying potential practices, planners will input land management inventory information into models and/or spread sheet tools. They will conduct economic and environmental analyses and determine the ideal mix of practices for the watershed as a whole. After conducting these analyses and consulting with stakeholders, planners will finalize site-level plans with individual producers. As plan implementation is carried out, if water quality monitoring reveals additional amendment of the HUC 12 watershed plan is necessary or appropriate, planners may again revisit practices identified through modeling and/or spreadsheet analysis and revisit with producers and stakeholders to discuss adding or subtracting feasible conservation practices identified in earlier planning discussions. The graphic below depicts the adaptive management of site-level and HUC 12 plans.



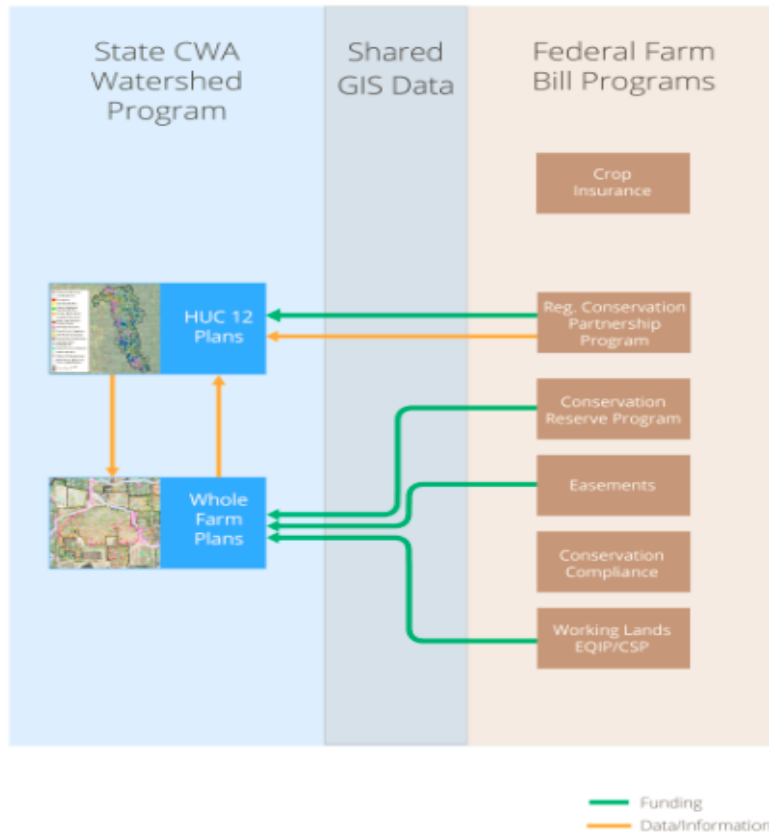
Adaptive Management Approach to HUC 12 and Whole Farm Plan Development.¹²²

¹²² Blank cite.

2. Farm Bill

We propose that Farm Bill conservation programs be evolved to more comprehensively and effectively address agricultural NPS nutrient loading. Conservation practices and land retirement implemented through the farm bill Title II conservation programs are the types of practices needed to implement nonpoint loading reductions called for under the CWA. Farm Bill conservation programs provide needed funding, technical assistance, and local delivery mechanism through producer “contracts”¹²³ that is missing in the CWA. However, at present, the efficacy of conservation practices is undermined by several factors. As shown by the graphic below, we believe that conservation programs should be reframed in future farm bills so that they are designed to address priority environmental concerns at the HUC 12 watershed scale. This contrasts with the current approach of implementing conservation programs and practices on a producer by producer basis. We believe this approach will reduce, to some extent, the heavy administrative burden associated with the current dispersed individual producer signup approach. In-depth discussion of the proposed evolution of the Conservation Title in its entirety is beyond the scope of this article. However, we do provide recommendations for programmatic improvements, some of which are achievable in the near term. By incorporating the proposed recommendations, farm bill conservation programs can more effectively address agricultural NPS loading, restore nutrient impaired waters affected by agricultural NPS pollutant loading and prevent the need for any additional regulation. Consequently, in this Section, we provide an overview of the farm bill programs and then discuss changes to the Farm Bill conservation programs and the farm bill privacy provision. We also discuss amendments to the federal crop insurance program that would help to ensure that crop insurance does not undermine environmental gains that could be made through farm bill conservation programming.

¹²³ USDA calls conservation program agreements with producers “contracts,” but they are more akin to cooperative agreements in which the producer is receiving a public benefit to provide a public good (i.e., improved environmental outcomes) with the on-going assistance of NRCS. *See* USDA FARM SERVICE AGENCY, PROSPECTIVE PARTICIPANTS, <https://www.fsa.usda.gov/programs-and-services/conservation-programs/prospective-participants/index> (last visited Mar. 8, 2017).



Proposed approach for implementing revised farm bill programs within HUC 12 watershed context¹²⁴

3. Overview of Farm Bill Conservation Programs and Crop Insurance

i. History

The inclusion of conservation as a standalone title in the Farm Bill is relatively recent¹²⁵, and its evolution over successive farm bills reflects an acknowledgement of the need to address environmental harms caused by agriculture.¹²⁶ The 1985 farm bill, the Food Security Act,¹²⁷ marked a turning point in farm bill history with the purpose of conservation shifting from being part of the “farm safety net” to squarely addressing natural resource concerns.¹²⁸ The conservation

¹²⁴ Blank cite.

¹²⁵ MEGAN STUBBS, *supra* note 29, at 1.

¹²⁶ See generally Zachary Cain & Stephen Lovejoy, *History and Outlook for Farm Bill Conservation Programs*, CHOICES 37, 37–41 (2004), <http://www.choicesmagazine.org/2004-4/policy/2004-4-09.pdf> (outlining the history of conservation provisions within the Farm Bills).

¹²⁷ Food Security Act of 1985, Pub. L. No. 99-198, 99 Stat. 1354.

¹²⁸ See Ristino & Stier, *supra* note 11, at 88.

provisions in the 1985 farm bill were comprised of conservation compliance, which requires a basic level of conservation from agricultural producers in exchange for farm bill benefits like subsidies and crop insurance, and the Conservation Reserve Program, a semi-land retirement program for fragile lands.¹²⁹ Up until the 2014 farm bill the number of conservation programs increased with a noticeable shift in emphasis from land retirement programs to funding conservation practices on working lands.¹³⁰ Throughout, the Farm Bill has taken a voluntary, non-regulatory, approach to addressing environmental harms of farming.¹³¹

Farm bill agricultural conservation programs can be divided into five categories: working lands programs, land retirement programs, easement programs, compliance programs, and other conservation programs.¹³² Under the Farm Bill conservation programs, producers that choose to participate enter into rental, easement or cost share contracts with NRCS.¹³³ Under cost share “contracts,” producers agree to install practices with the government typically providing between 50%–75% of the cost of installation.¹³⁴ Compensation structures vary by program.¹³⁵ Importantly, in addition to funding, NRCS in conjunction with local conservation districts provides technical assistance to producers to plan and install conservation measures to improve environmental outcomes.¹³⁶ Unfortunately, because of the growth of the cost share programs and decline in

¹²⁹ 16 U.S.C. §§ 3801–23 (1988); *id.* at §§ 3831–36.

¹³⁰ See Erik Lichtenberg, *Conservation, the Farm Bill, and U.S. Agri-Environmental Policy*, CHOICES 1–2 (2014) http://www.choicesmagazine.org/UserFiles/file/cmsarticle_385.pdf.

¹³¹ Ristino & Stier, *supra* note 11, at 61, 89.

¹³² *Id.* at 93.

¹³³ *Id.*

¹³⁴ Organic Foods Production Act of 1990, 16 U.S.C. § 3839aa-(2)(d)(4)(B)(i) (Supp. II 2015); *Id.* § 3839aa-2(d)(2)(A) (2012).

¹³⁵ *Id.*; Agriculture Act of 2014, 16 U.S.C. § 3871c(c)(1)(B) (Supp. II 2015) (“[T]he Secretary may make payments to a producer in an amount determined by the Secretary to be necessary to achieve the purposes of the program” “to producers participating in a project that addresses water quality concerns and in an amount sufficient to encourage adoption of conservation practices and systems that improve nutrient management.”); Food, Conservation, and Energy Act of 2008, 16 U.S.C. § 3838g (d)(2) (“The amount of the annual payment shall be . . . based, to the maximum extent practicable, on the following factors: (A) Costs incurred by the producer associated with planning, design, materials, installation, labor, management, maintenance, or training. (B) Income forgone by the producers. (C) Expected conservation benefits. (D) The extent to which priority resource concerns will be addressed through the installation and adoption of conservation activities on the agricultural operation.”).

¹³⁶ 16 U.S.C. § 3841(c)(1); Agriculture Act of 2014, 16 U.S.C. § 3865c (b)(6)(A)(i)–(ii) (“The Secretary shall pay as compensation for a permanent wetland reserve easement acquired under the program an amount necessary to encourage enrollment in the program . . . Compensation for a 30-year contract or 30-year wetland reserve easement

NRCS's workforce, the agency's ability to fulfill its traditional and critical role providing technical assistance has declined over time.¹³⁷ A significant portion of technical assistance is now outsourced through private "technical service providers" or TSPs, with varying degrees of efficacy.¹³⁸

ii. Programs

a. Conservation Compliance

Enacted in 1985,¹³⁹ "Conservation compliance is the closest analog to environmental regulation in the Farm Bill."¹⁴⁰ Comprised of the "Sodbuster" and "Swampbuster" requirements, conservation compliance provisions require that in exchange for commodity support payments, disaster payments, farm loans, conservation program payments, and crop insurance subsidies, producers meet conservation requirements for highly erodible lands and wetlands.¹⁴¹ Under the Sodbuster provisions, producers must agree to cultivate land classified as highly erodible using an approved conservation plan.¹⁴² Under Swampbuster provisions, "[p]roducers who plant a program crop on a wetland converted after December 23, 1985, or who convert wetlands, making agricultural commodity production possible, after November 28, 1990, are ineligible for [U]SDA program benefits." Producers self-certify compliance.¹⁴³ Although critically important because of

shall be not less than 50 percent, but not more than 75 percent, of the compensation that would be paid for a permanent wetland reserve easement."); Farm Security and Rural Investment Act of 2002, 16 U.S.C. § 3833 (a) ("[T]he Secretary shall—(1) share the cost of carrying out the conservation measures and practices set forth in the contract for which the Secretary determines that cost sharing is appropriate and in the public interest; and (2) for a period of years not in excess of the term of the contract, pay an annual rental payment in an amount necessary to compensate for—(A) the conversion of highly erodible cropland or other eligible lands normally devoted to the production of an agricultural commodity on a farm or ranch to a less intensive use; (B) the retirement of any base history that the owner or operator agrees to retire permanently; and (C) the development and management of grasslands for multiple natural resource conservation benefits, including to soil, water, air, and wildlife.").

¹³⁷ *Making it Right*, ENVIRONMENTAL WORKING GROUP, <http://www.ewg.org/losingground/report/making-it-right/2.html>.

¹³⁸ U.S. DEP'T OF AGRIC.: NAT. RES. CONSERVATION SERV., , *Technical Service Providers*, <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/technical/tsp/> (last visited Mar. 12, 2017).

¹³⁹ STUBBS, *supra* note 29, at 2.

¹⁴⁰ Ristino & Stier, *supra* note 11, at 90.

¹⁴¹ STUBBS, *supra* note 29 at 2, 6.

¹⁴² The Food Security Act of 1985, 16 U.S.C. §§ 3811(a), 3812, 3812a (2012).

¹⁴³ *Id.* § 3812a(d)(1).

the basic level of conservation these requirements provide, the statutory authority provides a significant number of exemptions that arguably weaken the effect of conservation compliance.¹⁴⁴ Further, NRCS, the agency under the USDA that implements conservation compliance, has been repeatedly criticized for a failure to enforce its requirements.¹⁴⁵

b. Conservation Easements

NRCS is one of the largest funders of conservation easements with the Farm Bill allocating millions to purchase easements on working lands.¹⁴⁶ In the 2014 farm bill, ostensibly to simplify administration and show a cost-savings, Congress combined several conservation easement programs into the Agricultural Conservation Easement Program (ACEP).¹⁴⁷ ACEP includes two types of easements: agricultural land easements and wetland reserve easements.¹⁴⁸ Under the agricultural land portion of ACEP, NRCS provides matching funding for eligible third parties, like land trusts, to purchase and hold easements.¹⁴⁹ Under the wetland reserve easement provisions, NRCS purchases and holds easements on working lands to restore and protect wetlands that have been previously converted for the purposes of crop production.¹⁵⁰ Wetland easements may be 30-

¹⁴⁴ See e.g., 16 U.S.C. § 3812(f)(1) (“No person shall become ineligible under section 3811 of this title for program loans, payments, and benefits as a result of the failure of the person to actively apply a conservation plan, if the Secretary determines that the person has acted in good faith and without an intent to violate this subchapter.”).

¹⁴⁵ See e.g., OFFICE OF INSPECTOR GENERAL, USDA MONITORING OF HIGHLY ERODIBLE LANDS AND WETLAND CONSERVATION VIOLATIONS, AUDIT REPORT 50601-0005-31 at 5, 15, 18 (June 2016) <https://www.usda.gov/oig/webdocs/50601-0005-31.pdf> (finding that NRCS compliance reviews of HEL tracts resulted in inconsistent determinations, did not clearly define roles and responsibilities for compliance reviews, and did not effectively sample eligible tracts for compliance).

¹⁴⁶ See 16 U.S.C. § 3865 (establishing conservation easement program); *Agricultural Conservation Easement Program*, NAT. RES. CONSERVATION SERV., U.S. DEP’T OF AGRIC., <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/acep/> (explaining that NRCS is offering \$15 million in 2017 to help eligible local partners establish conservation easements). As defined by the Uniform Conservation Easement Act (1981), a conservation easement is “means a nonpossessory interest of a holder in real property imposing limitations or affirmative obligations the purposes of which include retaining or protecting natural, scenic, or open-space values of real property, assuring its availability for agricultural, forest, recreational, or open-space use, protecting natural resources, maintaining or enhancing air or water quality, or preserving the historical, architectural, archaeological, or cultural aspects of real property.” UNIFORM CONSERVATION EASEMENT ACT § 1(1), NAT’L CONF. OF COMM’RS ON UNIFORM STATE LAWS, (amended 2007) http://www.uniformlaws.org/shared/docs/conservation_easement/ucea_final_81%20with%2007amends.pdf..

¹⁴⁷ Agricultural Act of 2014, 16 U.S.C. § 3865 (Supp. II 2015).

¹⁴⁸ *Id.* §§ 3865b, 3865c.

¹⁴⁹ *Id.* § 3865b(a).

¹⁵⁰ *Id.* § 3865c(a).

year easements, permanent easements, or easements for the maximum duration allowed under applicable state laws.¹⁵¹

c. Conservation Reserve Program

The Conservation Reserve Program, or CRP, provides compensation to farmers for taking marginal lands out of production and installing practices that improve soil or water quality or wildlife habitat.¹⁵² Unlike the farm bill easement program, producer agreements under the farm bill land retirement program are not permanent and typically cover 10 to 15 year periods.¹⁵³

d. Working Lands Programs

Working lands conservation programs allow private land to remain in production while requiring participating producers receiving financial support to implement structural or management practices to improve conservation outcomes.¹⁵⁴ Enacted in 1996 and 2002 respectively,¹⁵⁵ the Environmental Quality Incentives Program (EQIP)¹⁵⁶ and the Conservation Stewardship Program (CSP)¹⁵⁷ are the primary working lands programs.¹⁵⁸ EQIP is the largest, measured by funding level, working lands program.¹⁵⁹ In the 2014 Farm Bill, through the EQIP program, Congress authorized NRCS to provide producers with over a billion dollars annually in cost share assistance to install conservation practices.¹⁶⁰ Working lands program participants receive technical, planning, and financial assistance to install conservation practices.¹⁶¹ Each state

¹⁵¹ *Id.* § 3865c(b)(1).

¹⁵² 16 U.S.C. § 3831(a).

¹⁵³ *Id.* § 3831(e).

¹⁵⁴ STUBBS, *supra* note 29, at 7.

¹⁵⁵ Ristino & Stier, *supra* note 11, at 93–94.

¹⁵⁶ Food Security Act of 1985, 16 U.S.C. § 3839aa (2012).

¹⁵⁷ 16 U.S.C. § 3838d.

¹⁵⁸ STUBBS, *supra* note 29, at 7.

¹⁵⁹ *See* 16 U.S.C. § 3841(a) (2012).

¹⁶⁰ Agricultural Act of 2014, § 2601 (codified as amended at 16 U.S.C. § 3841(a)).

¹⁶¹ STUBBS, *supra* note 29, at 7. Practices installed under the EQIP program are carried out according to EQIP plans, *Id.* at 8.

has an entire manual of conservation practices approved by state NRCS offices.¹⁶² For example, approved conservation practices in Iowa under EQIP may include fencing livestock out of streams, planting of cover crops, planting conservation buffers between cropped fields and waterways or installing cement pads for livestock in order to reduce erosion.¹⁶³ EQIP provides assistance to producers to implement new practices, and CSP provides assistance to producers to “maintain and improve existing conservation systems, and adopt additional conservation activities.”¹⁶⁴ EQIP contracts can cover terms of up to ten years.¹⁶⁵ CSP contracts are for five years, with the option to renew if a producer agrees to achieve additional conservation objectives.¹⁶⁶ CSP is now the largest farm bill conservation program, measured by covered acres, with 70 million acres of working lands enrolled.¹⁶⁷

e. Other Programs

Through the creation of the Regional Conservation Partnership Program (RCPP)¹⁶⁸, the 2014 farm bill consolidated various programs¹⁶⁹ focused on partnership opportunities and multi-state funding for watershed-scale projects.¹⁷⁰ RCPP creates partnership opportunities for NGOs, institutions of higher education, state and local governments, tribes, municipal and wastewater entities, and water and/or irrigation districts to leverage federal conservation funding to address

¹⁶² See *General (Local and State) EQIP*, NAT. RES. CONSERVATION SERV., ENVIRONMENTAL QUALITY INCENTIVES PROGRAM, <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/> (last visited Mar. 8, 2017).

¹⁶³ IOWA ENVIRONMENTAL QUALITY INCENTIVES PROGRAM (EQIP): LIST OF ELIGIBLE PRACTICES AND PAYMENT SCHEDULE FY 2017 3–4, 99–100, 235–236, 386–387 (2017), <https://www.nrcs.usda.gov/wps/portal/nrcs/main/ia/programs/financial/eqip/>.

¹⁶⁴ STUBBS, *supra* note 29, at 8.

¹⁶⁵ Food Security Act of 1985, 16 U.S.C. § 3839aa–2(a)(2)(B) (2012).

¹⁶⁶ *CSP Payments*, NAT. RES. CONSERVATION SERV., U.S. DEP’T OF AGRIC., <https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/programs/financial/csp/?cid=nrcseprd1297344> (last visited Mar. 8, 2017).

¹⁶⁷ *Conservation Stewardship Program*, NAT. RES. CONSERVATION SERV., U.S. DEP’T OF AGRIC., <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/csp/> (last visited March 8, 2017).

¹⁶⁸ Agriculture Act of 2014, 16 USC § 3871(a) (2014).

¹⁶⁹ The Agricultural Water Enhancement Program, the Chesapeake Bay Watershed Program, the Cooperative Conservation Partnership Initiative and the Great Lakes Basin Program were all rolled into the RCPP. *Regional Conservation Partnership Program*, NAT. RES. CONSERVATION SERV., U.S. DEP’T OF AGRIC., <https://www.nrcs.usda.gov/wps/portal/nrcs/main/mi/programs/farmbill/rcpp/> (last visited March 8, 2017).

¹⁷⁰ STUBBS, *supra* note 29, at 3.

priority resource concerns such as water quantity and water quality.¹⁷¹ RCPP projects or eligible producers must be located in either a critical conservation area (CCA) or a Regional Conservation Partnership (RCP) area.¹⁷² As shown by the map below, there are eight nationwide CCAs defined by USDA.¹⁷³ RCPs are defined through partnership agreements.¹⁷⁴ Eligible producers may work with sponsoring RCP partner or may choose to work directly with USDA.¹⁷⁵ RCPP conservation program contracts and easement agreements are implemented through the ACEP, EQIP, CSP and Healthy Forests Reserve Program.¹⁷⁶ Partnership agreements cover five-year periods with a possible one-year extension.¹⁷⁷

¹⁷¹ Agriculture Act of 2014, 16 U.S.C. §3871a(2),(4) (2014).

¹⁷² STUBBS, *supra* note 29, at 13.

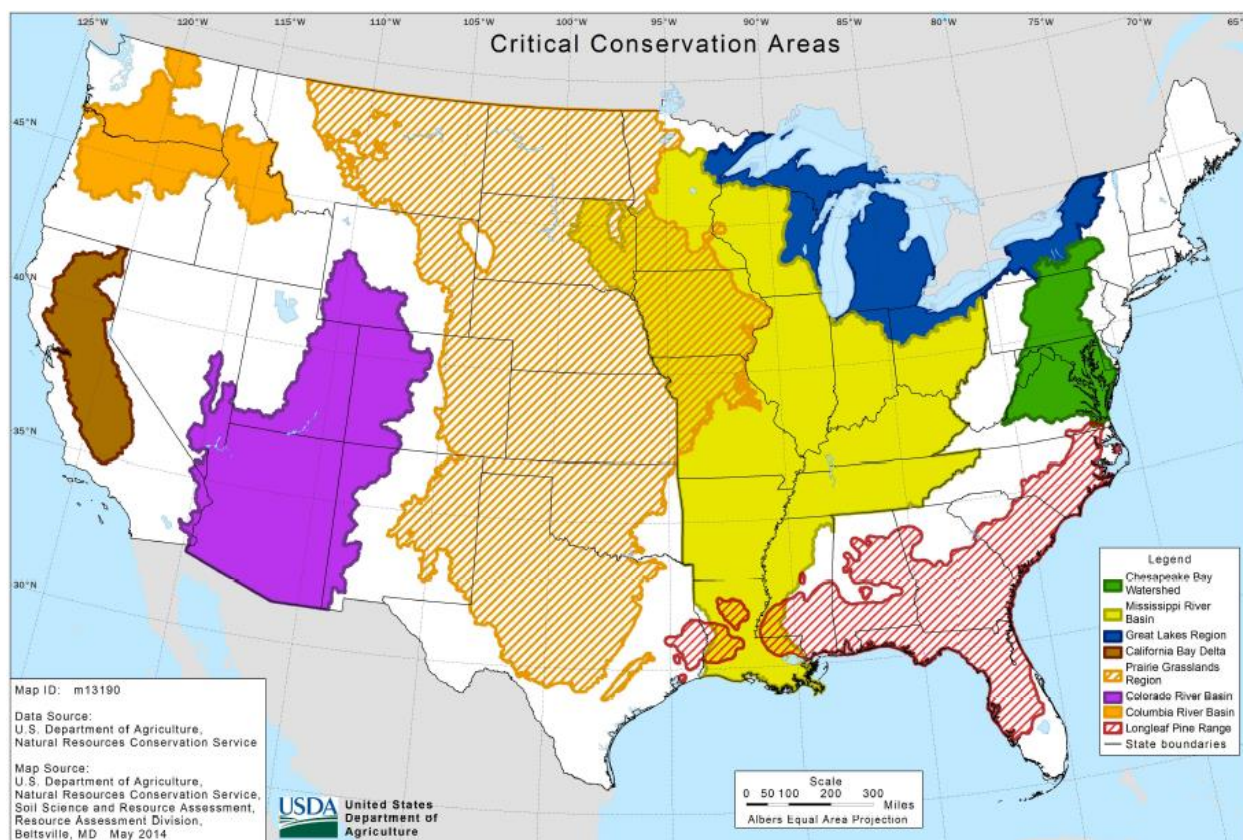
¹⁷³ *Id.* at 13.

¹⁷⁴ *Id.* at 12–13.

¹⁷⁵ *Id.* at 13.

¹⁷⁶ NAT. RES. CONSERVATION, SERV., U.S. DEP'T OF AGRIC., *About RCPP*, <https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/farmbill/rcpp/?cid=nrcseprd1308280> (last visited March 8, 2017).

¹⁷⁷ Agriculture Act of 2014, 16 U.S.C. §3871b(b) (2016).



RCPP Critical Conservation Areas as designated by the Secretary of Agriculture.¹⁷⁸

f. Crop Insurance

Under the 2014 Farm Bill, the federal crop insurance program is now the primary farm “safety net” through which agriculture is subsidized, with over \$100 billion in liabilities annually.¹⁷⁹ The crop insurance program is widely subscribed by producers, covering about 90% of planted cropland by 2015.¹⁸⁰ Crop insurance is a public-private partnership with USDA Risk Management Agency (RMA) and Federal Crop Insurance Corporation Board (FCIC). The RMA

¹⁷⁸ NAT. RES. CONSERVATION SERV., U.S. DEP’T OF AGRIC., *RCPP Critical Conservation Areas*, <https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/farmbill/rcpp/?cid=stelprdb1254053> (last visited March 8, 2017).

¹⁷⁹ Joshua Woodard, *Integrating High Resolution Soil Data into Federal Crop Insurance Rates: Actuarial, Policy, and Sustainability Implications* 2 (Working Draft, 2016) http://www.foodandagpolicy.org/sites/default/files/Woodard%20Working%20Paper_SoilCropInsurance_Jan-2016.pdf.

¹⁸⁰ CROP INSURANCE, *Why is the insurance premium discount provided by the Federal government so important?*, <http://www.cropinsuranceinamerica.org/just-the-facts/what-is-the-premium-discount-or-premium-subsidy-and-why-is-it-important/#.WHa1NU2zFjo> (last visited March 8, 2017).

and FCIC are responsible for determining the set of insurance products, rules, and rates/prices and private companies deliver the insurance product.¹⁸¹ Rather than using information on soil quality, a prime indicator of productivity and actual planting risk, to determine rates, the RMA determines premium rates using the Actual Production History method.¹⁸² The Actual Production History method is a “measure of average historical yields across mixed fields.”¹⁸³ To encourage producers to participate in the federal crop insurance program, the federal government provides a 60% premium discount.¹⁸⁴

iii. Recommendations for Farm Bill Conservation and Crop Insurance Programs

Farm bill conservation programs and crop insurance rate setting based upon risk are key to funding and successfully implementing the conservation practices necessary to address NPS nutrient pollution. Unfortunately, the fundamental efficacy of these conservation programs is undercut for several reasons. Below we recommend changes to the farm bill conservation programs and the farm bill privacy provision as well as amendments to the crop insurance program to improve conservation outcomes.¹⁸⁵ We address revised farm bill programming in one section, rather than on a per program basis—as we did in our discussion of revised CWA programming—because our recommendations are generally applicable across the programs. Some of the recommendations presented may be accomplished administratively, and others may require changes in law.

a. Crop Insurance

Crop insurance, for which the tax payer underwrites 60% of the premium on average, is the now the main farm “safety net,” having largely replaced unpopular direct payments in the 2014

¹⁸¹ Woodard, *supra* note 180, at 2.

¹⁸² *Id.* at 2–3.

¹⁸³ *Id.* at 3.

¹⁸⁴ See CROP INSURANCE, *supra* note 181.

¹⁸⁵ See discussion *infra* Part IV. These recommendations are reflected in the Farm Bill programming as depicted in the Framework graphic, *supra* note 59 [Image #2].

Farm Bill.¹⁸⁶ Also in the 2014 Farm Bill, conservation compliance requirements were “coupled” with farm bill benefits like crop insurance in order to expand the number of producers subject to its conservation requirements.¹⁸⁷ Unfortunately, the actual environmental benefits of this coupling have been muted because of the USDA’s failure in rate setting to take into account risky planting practices and reward best management practices.¹⁸⁸ Crop insurance premiums should be correlated to risk associated with soil type to avoid a result in which risky planting practices are subsidized and good farming practices are essentially penalized.¹⁸⁹ By doing so, federal crop insurance policy would promote farming on the most productive land and disincentive farming on marginal land.¹⁹⁰ It may also promote more sustainable production decisions by “appropriately incentivizing (or at least not disincentivizing) adoption [of optimal conservation practices such as cover crop use, skip-row, adaptive nitrogen management, or others] via insurance which is appropriately designed and rated.”¹⁹¹

b. Resource Prioritization

For some time now, NRCS has recognized the value of partnering and landscape initiatives to address priority resource concerns, strengthen locally driven initiatives, and leverage non-federal funding to improvement environmental outcomes. NRCS landscape initiatives begun under the 2008 farm bill (e.g., Sage Grouse Initiative)¹⁹² and the RCCP are promising examples of this approach. Similarly, NRCS’s NWQI¹⁹³ makes progress toward addressing, with various levels of state consultation, agricultural NPS nutrient loading in prioritized watersheds rather than on a producer by producer basis. However, prioritizing across all conservation programs needs to occur

¹⁸⁶ Jonathan Coppess, *Conservation Compliance and Crop Insurance in the New Farm Bill*, University of Illinois at Urbana-Champaign (May 2, 2014) <http://farmdocdaily.illinois.edu/2014/05/conservation-compliance-and-crop-insurance-in-farm-bill.html>.

¹⁸⁷ *Id.*

¹⁸⁸ Woodard, *supra* note 180, at...

¹⁸⁹ *Id.*

¹⁹⁰ *Id.* at 1.

¹⁹¹ Joshua Woodard, *Soil Data Not Considered in Cornerstone U.S. Agricultural Policy* 13 (2016).

¹⁹² See, U.S. DEPT. OF AG. LANDSCAPES CONSERVATION INITIATIVES, (Date)

¹⁹³ U.S. DEPT. OF AG., NATIONAL WATER QUALITY INITIATIVE, (Date)

more robustly and transparently.¹⁹⁴ To best address NPS nutrient loading, conservation practices should be implemented in HUC 12 areas prioritized by states through their comprehensive § 303(d) water quality assessments.¹⁹⁵ Currently, farm bill programs pay lip service to addressing state priorities, but the programs do so superficially, differently, or not at all.¹⁹⁶ Through statutory amendment or guidance further specifying the “state priorities” statutory language, Congress or NRCS, respectively, could ensure that conservation practice funding is being directed to HUC 12s that have been prioritized based on the scientific assessment of state water quality experts. Moreover, Congress or NRCS could ensure that conservation practices are being implemented as part of HUC 12 watershed plans that will most effectively address loading, thereby obviating the need for redundant or ineffective practices or additional regulatory measures.¹⁹⁷

¹⁹⁴ See, for example, this excellent critique by Taxpayers for Commonsense on needed conservation program reforms: TAXPAYERS FOR COMMON SENSE, *Improving Performance Measurement in Agricultural Conservation Programs* (Mar. 2014) http://www.taxpayer.net/images/uploads/downloads/Improved_performance_measurement_in_conservation_programs_FINAL.pdf.

¹⁹⁵ See *infra* 303(d) plan discussion

¹⁹⁶ 16 U.S.C. § 3831(f) (2012) (CRP Program) (“Conservation priority areas (1) Designation On application by the appropriate State agency, the Secretary shall designate areas of special environmental sensitivity as conservation priority areas. (2) Eligible areas Areas eligible for designation under this subsection shall include areas with actual and significant adverse water quality or habitat impacts related to agricultural production activities. (3) Expiration Conservation priority area designation under this subsection shall expire after 5 years, subject to redesignation, except that the Secretary may withdraw an area’s designation if the Secretary finds that the area no longer contains actual and significant adverse water quality or habitat impacts related to agricultural production activities. (4) Duty of Secretary In carrying out this subsection, the Secretary shall attempt to maximize water quality and habitat benefits in the watersheds described in paragraph (1) by promoting a significant level of enrollment of land within the watersheds in the program under this subpart by whatever means the Secretary determines are appropriate and consistent with the purposes of this subpart.”); 16 U.S.C. § 3838e(a)(2012); 16 U.S.C. § 3838d (3)(2012)(CSP Program) (“[T]he Secretary shall carry out a conservation stewardship program to encourage producers to address priority resource concerns and improve and conserve the quality and condition of natural resources in a comprehensive manner...”)(“Priority Resource Concerns The term “priority resource concern” means a natural resource concern or problem, as determined by the Secretary that – (A) is identified at the national, State, or local level as a priority for a particular area of a State; (B) represents a significant concern in a State or region; and (C) is likely to be addressed successfully through the implementation of conservation activities under this program.”); 16 U.S.C. § 3871 (c)(2) (2012) (“The Secretary shall, to the maximum extent practicable, ensure that eligible activities carried out in critical conservation areas designated under this section complement and are consistent with other Federal and state programs and water quality and quantity strategies.”); *see also* U.S. DEPT. OF AGRIC., REGIONAL CONSERVATION PARTNERSHIP PROGRAM, *supra* note 70 (“Regional Conservation partnership Program project applications submitted for consideration through the state funding pool should address at least one of the national priorities or a state-identified priority, listed below.”).

¹⁹⁷ Avoiding additional regulation is a goal cited in both the RCPP and EQIP programs. 16 U.S.C. § 3839aa(2) (2012) (“avoiding, to the maximum extent practicable, the need for resource and regulatory programs by assisting producers in protecting soil, water, air, and related natural resources and meeting environmental quality criteria established by Federal, State, tribal, and local agencies.”); 16 U.S.C. § 3871(b)(3) (2012) (“To encourage eligible partners to

c. Resource Allocation

Funding for Farm Bill conservation programs should be allocated in a manner that supports the prioritized implementation discussed above. One option for better allocating funds would be to increase funding for the RCPP, which focuses on watershed implementation and to make more explicit the definition of watershed implementation in that program. In addition to increasing funding for the RCPP generally, the size of the RCPP state funding pool¹⁹⁸ within the RCPP should be increased. Moreover, the requirements for applications submitted for consideration through the RCPP state funding pool should be revised to make clear that the RCPP state pool can only be used to fund projects that are being implemented in HUC 12 areas prioritized by states in the manner set out above. Currently, the EQIP, which takes a producer by producer approach to conservation, not the RCPP, is the highest funded program.¹⁹⁹ For 2018, Congress authorized \$1.75 billion to be used to implement the EQIP program.²⁰⁰ In contrast, in the 2014 Farm Bill, Congress authorized \$100 million in standalone funds plus 7% of funds and acres from the EQIP, CSP, HFRP, ACEP, Watershed Protection and Flood Prevention program to be used for carrying out the RCPP program.²⁰¹ For 2018, this formula will make approximately \$252,600,000 available to carry out the RCPP program.²⁰² To best address agricultural NPS nutrient loading, we recommend increased funding levels for approaches like RCPP, which take a landscape or watershed approach and leverage local dollars by supporting locally-driven initiatives. Because the RCPP utilizes existing farm bill conservation programs, this approach results in those programs being implemented on a watershed basis and in alignment with state water quality priorities.²⁰³

cooperate with producers in – (A) meeting or avoiding the need for national, state, and local natural resource regulatory requirements related to production on eligible land.”).

¹⁹⁸ RCPP funding is separate into three funding pools: (1) a critical conservation area funding pool; (2) a national funding pool; and (3) a state funding pool. The pools receive 35%, 40%, and 20%, respectively of RCPP funds. U.S. DEPT. OF AGRIC. REGIONAL CONSERVATION PARTNERSHIP PROGRAM, RCPP announcement for program funding for fiscal year 2018 <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/farmbill/rcpp/>.

¹⁹⁹ *Id.*

²⁰⁰ 16 U.S.C. § 3841(a)(5) (2012).

²⁰¹ 16 U.S.C. §3781d(a),(c) (2012).

²⁰² U.S. DEP’T. AGRIC., REGIONAL CONSERVATION PARTNERSHIP PROGRAM 9 (Jan. 12, 2017), <https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/farmbill/rcpp/?cid=nrcseprd1309629>.

²⁰³ The RCPP program already includes the goal of aligning with and addressing, through CCAs, state water quality priorities. 16 U.S.C. § 3871e(c)(2) (2012) (“The Secretary shall, to the maximum extent practicable, ensure that

Existing federal conservation funds in combination with existing state and federal CWA funds are not likely sufficient to scale up watershed planning and implementation to the level necessary to completely restore nutrient impaired waterbodies in the U.S.²⁰⁴ Additional state funds like those provided by Minnesota Legacy Fund, for example, will also likely be needed and should be contributed as a good policy matter.²⁰⁵ Moreover, leveraging NGO funding and technical resources are also needed. In many watersheds, land trusts as well as organizations like Ducks Unlimited²⁰⁶ and Pheasants Forever are essential partners and stakeholders in improving and protecting wetlands and associated habitat.

d. Technical Assistance

e. Streamlining Administration

In addition to the above concrete policy recommendations, well-designed administrative streamlining of conservation programs would improve farm bill conservation program efficacy. In general, the conservation programs, a product of accretion over successive farm bills, are too complex and administratively burdensome for USDA to administer and for producers to access. In the last farm bill, some attempt was made at streamlining. For example, several easement programs (Farm and Ranchlands Protection Program, Wetland Reserve Program, and Grassland Reserve Program) were lumped together under the new Agriculture Conservation Easement Program. Although this effectively reduced the number of programs, the new program is essentially an amalgam of all three but with less funding. Consolidation of this sort is not a substitute for well-

eligible activities carried out in critical conservation areas designated under this section complement and are consistent with other Federal and state programs and water quality and quantity strategies.”).

²⁰⁴ Marc Ribaud, *Reducing Agriculture’s Nitrogen Footprint: Are New Policy Approaches Needed?* 37 (“About 108 million acres of U.S. cropland need improved nitrogen management. Assuming that farmers would adopt nutrient management practices for an annual payment of \$8.88 per acre (the average EQIP payment rate made to farmers adopting nutrient management), the cost would be 959 million per year, out of a total EQIP budget of about \$1.1 billion).

²⁰⁵ See Konopacky, *supra* note 14, at 46; *Clean Water Fund*, MINNESOTA’S LEGACY, (2017) <http://www.legacy.leg.mn/funds/clean-water-fund>.

²⁰⁶ *Farm Bill: The importance of Farm Bill policy to Ducks Unlimited*, DUCKS UNLIMITED (Mar. 10, 2017), <http://www.ducks.org/conservation/public-policy/farm-bill>.

designed program solutions, but rather a sleight of hand to reduce need conservation dollars. What dominates in the conservation title are EQIP and CSP, which are remarkably similar programs, and which require NRCS to execute with individual producers tens of thousands of contracts in order to obligate funds annually.

Although the RCCP program's approach to landscape and watershed level conservation is critical to addressing persistent environmental harms caused by agriculture, its administration could be simplified. Instead of receiving part of its funding through other conservation programs, as discussed previously, the RCCP could be authorized and funded as a freestanding program. This would eliminate the layering of administrative constraints from existing conservation programs onto the RCCP.

f. Program Consideration of Nutrient Loading

Each of the Farm Bill conservation programs requires the execution of contracts and conservation and/or easement plans.²⁰⁷ However, nutrient loading reduction is not one of the conservation plan elements mentioned in the statute.²⁰⁸ As was previously discussed, conservation

²⁰⁷ 16 U.S.C. § 3838d(3)(A)–(D) (2012) (Conservation Stewardship Plan) (“The term “conservation stewardship plan” means a plan that – (A) identifies and inventories priority resource concerns; (B) establishes benchmark data and conservation objectives; (C) describes conservation activities to be implemented, managed, or improved; and (D) includes a schedule and evaluation plan for the planning, installation, and management of the new and existing conservation activities.”); 16 U.S.C. § 3832(a)(1)(b) (2012) (CRP plan) (“an owner or operator of a farm or ranch shall agree – (1) to implement a plan approved by the local conservation district (or in an area not located within a conservation district, a plan approved by the Secretary) . . . The plan . . . (1) shall set forth— (A) the conservation measures and practices to be carried out by the owner or operator during the term of the contract; and (B) the commercial use, if any, to be permitted on the land during the term.”); 16 U.S.C. § 3865c(f)(1) (ACEP wetland reserve plan) (“The Secretary shall develop a wetland reserve easement plan for any eligible land subject to a wetland reserve easement, which shall include practices and activities necessary to restore, protect, enhance, and maintain the enrolled land.”); 16 U.S.C. § 3839aa-4(1)(A)–(C) (2012) (EQIP plan) (“To receive payments under the program, a producer shall agree—(1) to implement an environmental quality incentives program plan (including a comprehensive nutrient management plan, if applicable) that describes conservation and environmental purposes to be achieved through 1 or more practices that are approved by the Secretary.”); 16 U.S.C. § 3801 (a)(3) (sodbuster conservation plan) (“The term ‘conservation plan’ means the document that—(A) applies to highly erodible cropland; (B) describes the conservation system applicable to the highly erodible cropland and describes the decisions of the person with respect to location, land use, tillage systems, and conservation treatment measures and schedule; and (C) is approved by the local soil conservation district, in consultation with the local committees established under section 590h(b)(5) of this title and the Secretary, or by the Secretary.”); 16 U.S.C. § 3812a (1)–(4) (2012) ([T]he Secretary shall ensure that the standards and guidelines permit a person to use a conservation system that – (1) is technically and economically feasible; (2) is based on local resource conditions and available conservation technology; (3) is cost-effective; and (4) does not cause undue economic hardship on the person applying the conservation system under the person’s conservation plan.”).

²⁰⁸ See generally 16 U.S.C. § 3812 (2012) (omitting nutrient loading).

contracts and other producer agreements should comprise the nonpoint source component of HUC 12 plans.²⁰⁹ To facilitate this approach, federal conservation contracts and other producer agreements should include provisions for calculating estimated nutrient reductions that will be achieved through implementation of conservation practices.

g. Transparency, Technology Requirements and Public Research

Achieving watershed planning and restoration goals on a large scale will require transparency, efficient electronic data collection, storage, management, and sharing as well as the use of Geographic Information Systems.²¹⁰

However, Section 1619 of the 2008 Farm Bill poses a barrier to transparency and seamless communication between local, state, NGO and federal planning stakeholders. The provision prohibits USDA or any contractors or cooperators working with the department from disclosing: (1) information that producers provide in order to participate in voluntary conservation programs,²¹¹ and (2) any geospatial information on land or operations maintained by the secretary if the geospatial information pertains to land or operations for which a producer has provided information in order to participate in voluntary conservation programs.²¹²

Section 1619 prevents planners from going directly to USDA to gather baseline data on practices installed through farm bill conservation programs.²¹³ To get this information, planners must obtain individual consent from each producer in a watershed.²¹⁴

²⁰⁹ See discussion *supra* Part I.

²¹⁰ “GIS is an organized collection of computer hardware, software, geographic data, and personnel, designed to efficiently capture, store, update, manipulate, analyze, and display all forms of geographically referenced information.” Jacob Opadeyi et. al., *Towards the Use of Geographic Information Systems for Effective Monitoring and evaluation of Land and Marine resources in Small Island developing States*, 31 W. INDIAN J. ENGINEERING 10, 11 (2008) (emphasis omitted).

²¹¹ “Section 1619 does not apply to all information gathered from agricultural producers or landowners. It does not apply to USDA regulatory programs where participation by the agricultural producer or landowner is required by law as a condition of participation in the market place. In addition, Section 1619 does not apply to payment information, including name and addresses, to aggregate statistical information, or to information for which the agricultural producer or landowner has consented to disclosure.” Boyd Rutherford, *Section 1619 of the Food, Conservation, and Energy Act of 2008* 1 (July 30, 2008), https://www.dm.usda.gov/foia/2008FCEA_Section1619.pdf

²¹² Food, Conservation, and Energy Act of 2008, H.R. 2419, 110th Cong. 2d Sess. § 1619 (b)(2)(A)–(B) (May 13, 2008) (codified at 7 U.S.C. § 8791 (2012)).

²¹³ Section 1619 (b)(4)(C).

²¹⁴ *Id.*

Further, even in cases where data sharing is supposed to be occurring within USDA to ensure the effectiveness of Farm Bill programs, communication of crucial data is lacking.²¹⁵ For example, “FSA maintains the database of farm tracts enrolled in Farm Bill programs and provides tract data to NRCS to perform conservation compliance checks. OIG found that neither NRCS nor FSA have developed adequate procedures to ensure that FSA provides to NRCS comprehensive data regarding producers subject to NRCS randomized conservation compliance. Consequently, ten states were entirely omitted from NRCS conservation compliance reviews in 2015.”²¹⁶

Moreover, the EPA and states cannot effectively track TMDL implementation²¹⁷ due to poor and inconsistent data collection and management and lack of data from USDA.²¹⁸ In other cases, after obtaining producer consent, stakeholders desiring USDA data may have to wait for

²¹⁵ Ristino & Stier, *supra* note 11, at 102–104.

²¹⁶ *Id.* at 97–98.

²¹⁷ “Through its national databases, EPA systematically tracks basic information related to TMDL development... includ[ing] the number of TMDLs developed, the name of water bodies to which TMDLs apply, pollutants contributing to impairment, and probable sources of the impairments, as well as information on the extent to which states use nonpoint source management grant funds to support TMDL development and implementation.” GAO, *Changes Needed If Key EPA Program Is to Help Fulfill the Nation’s Water Quality Goals* 27 (2013), <http://www.gao.gov/assets/660/659496.pdf>.

²¹⁸ Tracking “TMDL implementation and any associated effect on water quality,” requires data regarding the “actions [that] have been taken to reduce pollution in a watershed with a TMDL and how much pollution has been reduced as a result.” *Id.* at 29. However, “EPA’s ability to track TMDL implementation is hindered by data system limitations and unavailable USDA data. In addition . . . states have little information on TMDL implementation.” *Id.* at 27. Additionally, “EPA’s databases, which contain information uploaded from states’ databases, function independently of one another. Because information relevant to TMDL implementation is not consistently tagged with geographic information system (GIS) data (i.e., latitude-longitude coordinates on water body segments, permitted discharge locations, and the spatial extent of projects addressing nonpoint source pollution) . . . the information on TMDL implementation projects and impaired water bodies generally cannot be integrated across separate databases.” *Id.* Specifically, “EPA cannot link (1) information on TMDL implementation projects and activities from its Grants Reporting and Tracking System with (2) information on impaired water bodies or the causes of their impairment from the Assessment, TMDL Tracking and Implementation System and can therefore not assess the extent to which TMDLs have been implemented in watershed with impaired waterbodies.” *Id.* Moreover, “the data that states enter into their own systems and upload to EPA’s databases do not consistently include this information, in part because EPA does not require the information and in part because state officials developed the majority of TMDLs before the widespread use of GIS.” *Id.* In short, “[w]ithout consistently obtaining from states GIS data EPA cannot integrate information on TMDL implementation projects and impaired water bodies across separate databases and cannot assess whether and to what extent water quality has been affected by TMDL implementation.” *Id.* at 30–31. For the purpose of integrating information, “requiring states to report GIS data associated with TMDL implementation is more feasible than asking them to create new data systems or to merge existing ones with EPA’s systems.” *Id.* at 31. “[D]ata on the location, type, and number of [USDA] projects could help identify whether and to what extent TMDLs have been implemented and whether water quality has improved as a result.” *Id.* at 32.

USDA to pull the relevant data from their database only to be provided with a mountain of hard copy papers in response to their requests.²¹⁹

We recommend a tailored revision of Section 1619 that better balances producer confidentiality with effective watershed planning and water quality restoration goals and scientific research needs. Projects in Oconomowoc, Madison, and Green Bay, Wisconsin provide examples of balanced approaches to data transparency and producer privacy.²²⁰ To balance producer privacy with data transparency, the permitted entities carrying out watershed planning and implementation in Wisconsin have agreed to locally aggregate data on conservation practice implementation for public reporting purpose.²²¹ This enables tracking of conservation practice implementation at a scale useful for measuring progress toward watershed planning goals while protecting the privacy of individual producers and reserving oversight to permitted entities or NRCS, as appropriate.²²²

We also recommend the use of a GIS-based approach. To facilitate a GIS-based approach, it will be necessary for planning stakeholders at the local, state and federal levels to establish: “[a]

²¹⁹ “USDA’s data . . . are collected and aggregated for areas that cover, on average, 10,000 square miles, encompassing . . . several rivers and their tributaries,” but receiving information about the conservation projects such as their location, type, or number can be delayed as the USDA is legally required to obtain consent from the landowners prior to disclosure of information. *Id.* at 32–33, 68.

²²⁰ See Konopacky, *supra* note 14, at 44; *Lakes, OCONOMOWOC WATERSHED PROTECTION PROGRAM*, (2016) <http://oconomowocwatershed.com/lakes/> (listing lakes within in the Oconomowoc Watershed. Click on a lake to reach the Wisconsin Department of Natural Resources site. Under the section “More”, and subsection “Grants Received,” municipal or non-governmental entities’ submitted watershed plans may be available). *Lake Wingra Watershed Plan*, CITY OF MADISON (2017) <https://www.cityofmadison.com/engineering/stormwater/wingraplan.cfm> (scrolling down to the end of the page shows different sections of the final plan); *Upper Green Bay Basin*, WIS. DEPT. NAT. RES. (WDNR), <http://dnr.wi.gov/water/basin/upgb/> (providing Green Bay Water Quality Management Plans containing information about general land use of the concerned watershed area). For further information on watershed plans in the Wisconsin, visit Wis. Water Planning, WDNR, <http://dnr.wi.gov/topic/surfacewater/watershedplans.html> (Under the section “Documents & Grants” after clicking on the interested region may show the submitted Watershed Plan).

²²¹ See Konopacky, *supra* note 14, at 44 (suggesting that state land and water resources departments “follow the lead of permittees including Madison Metropolitan Sewage District and the City of Oconomowoc, that report [land use best management practices] implementation in a locally aggregated fashion”); see also *County Land and Water Resource Management Plans and the 9 Key Elements*, WDNR, (July 2015) <http://dnr.wi.gov/topic/Nonpoint/documents/NineKeyElementFactSheet.pdf> (demanding the county to submit plans that “describe[s] . . . in reasonable detail . . . (e) Conservation practices needed to address key water quality and soil erosion problems . . . (g) County strategies to encourage voluntary implementation of conservation practices . . . (h) Compliance procedures . . . that will apply if the county takes action against a landowner for failure to implement conservation practices). Example Plans, Environmental Resource Center, Univ. Wis.-Extension, <https://fyi.uwex.edu/watershedplanning/files/2016/03/RedCedarPlanFinalMedResolution.pdf> (providing an example how one should prepare own watershed plan which includes a comparison of best conservation practice managements).

²²² See Konopacky, *supra* note 14, at 44.

consistent data collection programme, [an] efficient data management plan, capacity building [efforts], [and] consistent data models and integrated analysis.”²²³ A GIS-based approach could provide many benefits including: integrated data storage and data retrieval capabilities, systematic data collection, cost reduction in overall data collection and management, increased comparability and compatibility of data sets, increased accessibility, and improved spatial analysis of impacts posing analytical difficulty or high cost.²²⁴

h. Contract Timelines

To effectively integrate farm bill conservation programs into watershed planning and implementation, the timelines for conservation contracts should be coordinated with watershed plans for the HUC 12 area within which conservation practices are to be installed.

In Wisconsin and Iowa, a fifteen to twenty year timeline is common for implementing HUC 12 watershed plans.²²⁵ Currently, the standard contract terms for most farm bill conservation programs do not cover the full duration of a typical watershed plan.²²⁶ The exception is easements, which may be permanent, for the maximum period allowable under state law, or for thirty year terms.²²⁷ CSP contracts range from five to ten years.²²⁸ EQIP contracts can be up to ten years, and CSP and RCPP partner contracts cover five-year terms.²²⁹ To facilitate more effective incorporation of conservation practices into watershed implementation plans, contract terms for farm bill conservation programs other than easement programs should be synched with watershed plans. This will require a legislative change to the duration of agreements under both EQIP and CSP.

²²³ Opadeyi et al, *supra* note 211, at 16.

²²⁴ *Id.* at 12.

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²²⁶ See Konopacky, *supra* note 14, at 47;

²²⁷ 16 U.S.C. § 3865c(b)(1) (2012).

²²⁸ 16 U.S.C. § 3838f (2012).

²²⁹ U.S. DEP’T OF AGRIC., NATURAL RESOURCES CONSERVATION SERVICE, *Environmental Quality Incentives Program*, <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/> (last visited Mar. 7, 2017).

The first line of conservation defense for lands in agricultural production is conservation compliance.²³⁰ Unfortunately, NRCS, the agency responsible for its implementation, has consistently failed to robustly administer conservation compliance.²³¹ The reasons for this are multi-factorial. In particular, NRCS's technical staffing has declined even though farm bill conservation programs have blossomed, shifting the emphasis of NRCS from technical assistance provider to conduit for federal assistance.²³² Understandably, NRCS relies on its collaborative relationships with producers to achieve on the ground conservation, and the quasi-regulatory nature of conservation compliance is at odds with this cooperation.²³³ Finally, a lack of USDA transparency and protocols to publicly report enforcement efforts,²³⁴ creates an environment where such a lack of enforcement and implementation is perpetuated.²³⁵ In addition, the NRCS regulatory standard for the highly erodible lands (HEL) compliance ensures that there will always be a net loss of soils.²³⁶ Specifically, NRCS policy allows soils to erode at approximately twice the rate at which they are created.²³⁷ Moreover, much soil erodes from lands not designated as HEL by NRCS.²³⁸ Despite having a soil conservation policy to address erosion since the 1930s, severe erosion persists.²³⁹ According to the USDA's last Natural Resources Inventory, soil erosion has

²³⁰ See discussion Section III(C)(3)(i)(a).

²³¹ USDA Office of the Inspector General and the General Accountability Office have repeatedly criticized NRCS for failing to implement and enforce conservation compliance. See, e.g., USDA, OFFICE OF INSPECTOR GENERAL, USDA MONITORING OF HIGHLY ERODIBLE LAND AND WETLAND CONSERVATION VIOLATION (2016).

²³² Ristino & Steier, *supra* note 11, 109.

²³³ See *id.* at 100.

²³⁴ See *id.* at 98, 111–15 (data showing farmer conservation violations by state); OIG report last spring regarding lack of protocols

²³⁵ Blank cite.

²³⁶ Ristino & Steier, *supra* note 11, at 101.

²³⁷ Cite to 2T standard

²³⁸ See, e.g., U.S. DEP'T OF AGRIC., NATURAL RESOURCES CONSERVATION SERVICE, *Soil Erosion on Cropland 2007*, <https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/nra/nri/?cid=stelprdb1041887> (last visited Mar. 6, 2017) ("The acreage of non-HEL cropland that had [unsustainable] erosion rates . . . [was] 46 million acres [in] 2007).

²³⁹ See U.S. DEP'T OF AGRIC., NAT. RES. CONS. SERV., *Erosion Exceeding the Soil Loss Tolerance Rate on Cropland, 2012*, https://www.nrcs.usda.gov/Internet/NRCS_RCA/maps/m13663.png (last visited Mar. 6, 2017).

actually increased since 2007, reversing decades of progress, including in the corn-belt, the lake states, and in the southern plains.²⁴⁰

We cannot attain clean water if soil is eroding off farmland. Accordingly, we recommend that conservation compliance be robustly implemented. We further recommend, as longer term strategy, adoption of a national healthy soils policy, which aims to eliminate erosion while increasing soil resilience.

IV. KEY RECOMMENDATIONS

The Framework we have outlined above has promise to be effective in addressing NPS. In this Section, we set forth in an abbreviated recommendation format for relevant state and federal stakeholders and policy makers the policy changes that we have discussed in the revised CWA and Farm Bill programming portions of this text. It is our hope that relevant Farm Bill programming recommendations may be considered and implemented through the upcoming farm bill reauthorization and administrative improvements.

We recommend the following:

CWA Programming:

- Developing comprehensive § 303(d) plans for restoring nutrient impaired waters based on HUC 10 monitoring and supplemented by screening-level HUC 12 Healthy Watershed Assessment or similar analyses
- Shifting § 319 plans from informational documents to working documents that track and monitor implementation and adaptive management of HUC 12 watershed plans in the HUC 12 watersheds identified in a state's § 303(d) program plan
- Utilizing HUC 12 watershed planning as the building blocks of a watershed policy program to restore nutrient impaired waterbodies affected by NPS pollutant loading

²⁴⁰ U.S. DEP'T OF AGRIC., NAT. RES. CONS. SERV., AND CTR. FOR SURVEY STATISTICS & METHODOLOGY, IOWA ST. U., SUMMARY REPORT: NATIONAL RESOURCES INVENTORY 2012 (2015) <https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/nra/rca/ida/?cid=stelprdb1187041>

- Utilizing whole farm conservation planning to address agricultural NPS pollutant loading contributions to nutrient impaired waterbodies affected by agricultural runoff

Farm Bill Programing:

- Revising the rate structure of the crop insurance program so that it is based upon planting risk and rewards good stewardship.
- Ensuring conservation practices are implemented in HUC 12 areas prioritized by states through their comprehensive § 303(d) water quality assessments.
- Increasing funding for RCPP as well as increasing the size of the state funding pool within the RCPP; and overtime shifting programs to facilitate landscape and watershed approaches.
- Streamlining administration of conservation programs.
- Amending conservation planning requirements to include assessments of nutrient loading.
- Tailoring the Section 1619 privacy provision so that it better balances producer confidentiality with effective watershed planning and scientific research needs.
- Using a consistent GIS-based approach to facilitate oversight of conservation practice implementation and use of implementation information in watershed planning.
- Amending duration of conservation program contracts so that they reflect the duration of watershed plans for HUC 12 areas—typically fifteen to twenty years.
- Ensuring robust implementation of the conservation compliance provisions in the Sodbuster and Swampbuster programs.

V. CONCLUSION

Our current approach to addressing nonpoint source pollution, the Achilles heel of clean water in America, is not working. Our window to address this environmental disaster is narrowing given the continued degradation of our major waterways and estuaries coupled with the added stressors of climate change. The good news is that we do have the tools and delivery mechanisms

to address nonpoint source pollution. Further, America continues to make significant payments to working lands conservation through the farm bill and more modest contributions through the Section 319 grant program in the CWA.

The Framework we propose requires stakeholder engagement and local problem solving, resource prioritization, and high ordered collaboration. We understand the associated challenge, but we believe that it possible and no more administratively burdensome than designing and implementing a new permit program for the 2.1 million farms in the United States. Moreover, we believe the transdisciplinary approach proposed is not only possible but necessary to address and scale a policy solution for the complex social problem of agricultural NPS pollutant loading.

Rather than continuing to ask whether a regulatory approach to agricultural NPS loading is possible or would be feasible, we believe the more important question is whether we will take a hard look at existing regulatory CWA programs and voluntary Farm Bill programs and recommit our investments in a way that is designed to improve soil health and productivity and comprehensively and effectively restore water quality across the U.S. With our proposed Healthy Watershed Policy Framework, we have attempted to take the first step in reviewing our water and farm policies and providing insight into how we could evolve and integrate these policies to more effectively achieve our healthy soil and clean water goals.