

NOTE

Can We Agree to Agree? Forming Interstate Agreements to Address Water Pollution

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ABSTRACT

Nonpoint source pollution, such as agricultural pollution, accounts for most of the pollution that currently impairs waterways in the United States. The Clean Water Act, however, largely leaves regulation of this type of pollution to state management and regulation. This leads to a patchwork of differing water quality standards and control methods throughout the country. This patchwork effect is detrimental when waterways flow downstream from one state into the next. Thus, an interstate problem requires an interstate solution.

Although the Clean Water Act typically requires minimal collaboration between states for management of nonpoint source pollution, the Third Circuit's decision in American Farm Bureau Federation v. EPA affirmed the use of total maximum daily loads ("TMDL") for watershed level pollution. The creation of the 2010 Chesapeake Bay TMDL was the first large-scale attempt at using multijurisdictional TMDLs to reduce water pollution in interstate waterways. The Chesapeake Bay TMDL, however, has seen disputes and challenges. This type of TMDL has yet to be recreated because of the unique legislative and political forces that aligned for its creation.

As a solution, multijurisdictional TMDLs should be incorporated into interstate compacts to provide an enforcement mechanism to hold other states accountable for their pollution reduction. With nonpoint source pollution knowing no boundaries, there must be a more effective method to ensure neighboring states will implement appropriate water pollution reduction con-

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trols. Interstate compacts offer a way for states to enhance the strength of their TMDL agreements by incorporating enforcement and reducing unnecessary federal intrusion.

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Large-scale pollution of air and waterways is no respecter of political boundaries, and its effects extend far beyond those who cause it.

—President Lyndon B. Johnson¹

INTRODUCTION

The Mississippi River watershed, the largest watershed in the United States, is comprised of thirty-one states and covers approxi-

¹ President Lyndon B. Johnson, Special Message to the Congress on Conservation and Restoration of Natural Beauty (Feb. 8, 1965).

mately 1.2 million square miles of land from New York to Montana.² This large swath of land accounts for ninety-two percent of the country's agricultural exports.³ This massive amount of crop production results in high levels of nutrient discharges into the Mississippi River and its tributaries.⁴ Once these nutrients make it to the Gulf of Mexico, they contribute to a several-thousand-square-mile hypoxic zone that forms every summer, rendering the area devoid of most aquatic life.⁵ Agriculture in the Mississippi River Basin attributed over ninety percent of the nutrient loadings in the hypoxic zone.⁶ The reoccurrence of the hypoxic zone in the northern Gulf of Mexico prompted the creation of a task force in 1998, charged with providing "direction and support" for nutrient management activities within the watershed.⁷ This "direction and support," however, was not accompanied by any on-the-ground action.⁸ Frustrated with the Environmental Protection Agency's ("EPA") failure to set water quality standards in the basin, environmental organizations sought to compel federal agency action under section 303(c) of the Clean Water Act ("CWA") in *Gulf Restoration Network v. Jackson*.⁹ The environmental organizations argued that the EPA had a duty to set water quality standards and establish total maximum daily loads ("TMDL"), at a minimum, for nitrogen and phosphorus in the mainstem of the Mississippi River and the Northern Gulf of Mexico.¹⁰

The EPA responded by citing many of the common criticisms of increased federal participation in state water pollution control in its denial of the request—e.g., federal participation in large-scale pollu-

2 C.S. SNYDER, INT'L PLANT NUTRITION INST., PROGRESS IN REDUCING NUTRIENT LOSS IN THE MISSISSIPPI RIVER BASIN—BUT EFFECTS ON GULF HYPOXIA STILL LAG 1–2 (2017).

3 *Mississippi River Facts*, NAT'L PARK SERV. (Feb. 10, 2022), <https://www.nps.gov/miss/riverfacts.htm> [<https://perma.cc/ZD3F-QHLM>].

4 Richard S. Davis & Pamela D. Marks, *Is the Chesapeake Bay Really Leading the Way in Managing Major Watersheds?*, 38-APR MD. B.J. 4 (2005).

5 See generally U.S. ENV'T PROT. AGENCY, MISSISSIPPI RIVER/GULF OF MEXICO WATERSHED NUTRIENT TASK FORCE 2015 REPORT TO CONGRESS 5–8 (2015) (discussing the impacts of nutrients in the Gulf of Mexico). Excess nutrients in the Gulf trigger an increase in algae growth that consumes oxygen, resulting in low dissolved oxygen for other organisms. *Id.* at 5. This low dissolved oxygen, coupled with changing temperatures in the summer months, results in hypoxic zones, or dead zones. *Id.* at 5.

6 Davis & Marks, *supra* note 4, at 7.

7 U.S. ENV'T PROT. AGENCY, CHARTER OF THE MISSISSIPPI RIVER/GULF OF MEXICO WATERSHED NUTRIENT TASK FORCE (1998).

8 See generally U.S. ENV'T PROT. AGENCY, MISSISSIPPI RIVER/GULF OF MEXICO WATERSHED NUTRIENT TASK FORCE 2017 REPORT TO CONGRESS 9–11 (2017).

9 No. 12–677, 2013 WL 5328547 (E.D. La. Sept. 20, 2013), *vacated and remanded sub nom.* *Gulf Restoration Network v. McCarthy*, 783 F.3d 227 (5th Cir. 2015).

10 *Id.* at *2.

tion management is expensive, resource intensive, and arguably less efficient than a cooperative, state-first model.¹¹ The federal government's refusal to meaningfully intervene, however, does not preclude the individual states from voluntarily coming together to commit to a watershed-wide TMDL. To ensure that the TMDL carries enforceable requirements, the Mississippi River states should create an interstate compact, requiring implementation of the TMDL and including enforcement provisions for any state that does not follow the terms of the pollution reduction agreement.

This Note explains why multijurisdictional TMDLs should be incorporated into interstate compacts to provide an enforceable and effective method of nonpoint source pollution reduction. Part I discusses the historical and statutory influences on current interstate water regulations. These influences include traditional usage of interstate compacts in water law, the CWA's deference to states regarding nonpoint source pollution, and state collaboration under the CWA. Part II introduces an example of current efforts to manage nonpoint source pollution in an interstate waterway. In the past two decades, the Chesapeake Bay has become the Nation's most comprehensive attempt at water quality improvement in a widespread, regional watershed. Finally, Part III addresses the challenges that have emerged through current water pollution regulatory efforts and advocates for states to incorporate multijurisdictional TMDLs into interstate compacts to create a system that is more efficient and enforceable but still maintains state sovereignty.

I. HISTORICAL AND STATUTORY INFLUENCES ON INTERSTATE WATER AGREEMENTS

Currently, interstate water pollution control is largely governed by the CWA.¹² Under the CWA, the EPA has a statutory mandate to "restore and maintain the . . . integrity of the Nation's waters."¹³ Due to the nature of land use regulation, however, much of the work to reduce and control water pollution is done at the state level. Prior to the 1970s, when there was a lack of overarching federal environmental legislation, states relied upon interstate agreements and interstate cooperation for any disputes that arose. This history provides examples of successful, and not-so-successful, techniques for approaching inter-

¹¹ *Id.* at *2-3.

¹² *See* 33 U.S.C. §§ 1251-1387.

¹³ *Id.*

state agreements.¹⁴ In addition to agreements among states, other influences on the U.S. water pollution control regime include the balance between federal and state authority and the expanding boundaries of regulatory authority.

A. *Using Interstate Compacts to Negotiate Water Agreements*

Interstate compacts have been used in America since the seventeenth century.¹⁵ Boundary disputes between colonies were settled with compacts subject to approval by the King of England.¹⁶ Interstate compacts are, in the simplest form, contracts entered into by states to address shared problems.¹⁷ There are many reasons why a state would agree to join a compact: furthering policy goals; impacting the design of the compact; and limiting potential federal interference into the compact's subject matter.¹⁸ Generally, interstate compacts are negotiated by representatives of the agreeing states and subsequently approved by the respective state legislatures.¹⁹ Following approval by the state legislature, the compact becomes established in state law and enforceable in state courts.²⁰

Certain interstate compacts also require consent from Congress. The Compact Clause of the Constitution provides that “[n]o State shall, without the Consent of Congress . . . enter into any Agreement or Compact with another State.”²¹ The Supreme Court has interpreted the Compact Clause to only require congressional consent when formation of the compact “may encroach upon or interfere with” the supremacy of the federal government.²² If the compact is not related to a subject matter typical for congressional legislation, it is not a possible interference with federal interest and does not require congress-

¹⁴ See *infra* Section I.A.1, for a discussion of the historical use of interstate agreements in water allocation disputes.

¹⁵ Leonard A. Weakley, *Interstate Compacts in the Law of Air and Water Pollution*, 3 NAT. RES. LAW. 81, 82 (1970).

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ Ann O'M. Bowman & Neal D. Woods, *Why States Join Interstate Compacts*, in COUNCIL ON STATE GOV'TS, BOOK OF THE STATES 2017, at 19 (2017), <http://knowledgecenter.csg.org/kc/system/files/Bowman%202017.pdf> [<https://perma.cc/T866-4BTF>].

¹⁹ LAW LIBR. OF CONG., GLOB. LEGAL RSCH. CTR., INTERSTATE COMPACTS IN THE UNITED STATES 2 (2018).

²⁰ Weakley, *supra* note 15, at 86.

²¹ U.S. CONST. art. I, § 10.

²² *Virginia v. Tennessee*, 148 U.S. 503, 518–19 (1893) (finding that there are situations, such as bordering states agreeing to “drai[n] the district” that is infected with cholera or plague, that should not require consent of Congress—particularly because Congress may not be in session at the time).

sional consent.²³ As a result, any compact created regarding water pollution in interstate waters would require congressional consent.²⁴ Congress has cited its authority under the Commerce Clause for the basis of almost every environmental statute passed, including the CWA.²⁵ In enacting the CWA, Congress specifically provided for the creation of interstate compacts, stating, “[n]o . . . compact shall be binding . . . until it has been approved by the Congress.”²⁶ After they receive the consent of Congress, compacts are enforceable in state or federal court.²⁷ Compacts are enforced according to their terms, following the principles of contract law.²⁸ Interstate compacts have been created on a variety of subject matters,²⁹ but have been particularly influential in U.S. water law.

1. *The Traditional Use of Interstate Compacts: Water Allocation Disputes*

Before water pollution was a concern in the United States, water allocation challenges plagued the western United States, especially the states of the Colorado River Basin.³⁰ The doctrine of prior appropriation—the standard for water use in the water-scarce western states—creates a property right in the diversion of a waterway for a beneficial purpose.³¹ Those who appropriate the water first—i.e., senior appropriators—are able to divert water at the expense of other states.³² States located downstream on the Colorado River feared that upstream states would divert large quantities of water, leaving them with

²³ See *Cuyler v. Adams*, 449 U.S. 433, 440 (1981).

²⁴ See Weakley, *supra* note 15, at 83.

²⁵ See, e.g., *Riverside Bayview Homes v. United States*, 474 U.S. 121, 132–33 (1985) (analyzing the jurisdiction of the 1972 CWA Amendments under Congress’s Commerce Clause authority).

²⁶ 33 U.S.C. § 1253.

²⁷ See LAW LIBR. OF CONG., *supra* note 19, at 1–2.

²⁸ See *Texas v. New Mexico*, 482 U.S. 124, 128 (1987) (finding that the principles of contract law suggest rectifying a failure to perform in the past as well as ordering future performance).

²⁹ See generally LAW LIBR. OF CONG., *supra* note 19, at 10 (referencing the Multistate Tax Compact, Port Authority of New York and New Jersey, Atlantic States Marine Fisheries Commission, and the Midwestern Higher Education Compact).

³⁰ See, e.g., *Kansas v. Colorado*, 185 U.S. 125 (1902); *Wyoming v. Colorado*, 259 U.S. 419 (1922); *Nebraska v. Wyoming*, 325 U.S. 589 (1945).

³¹ JAMES RASBAND, JAMES SALZMAN, MARK SQUILLACE & SAM KALEN, *NATURAL RESOURCES LAW AND POLICY* 862–63 (3d ed. 2016) (noting that the doctrine of prior appropriation is often described as “first in time, first in right”) (citing CHARLES F. WILKINSON, *CROSSING THE NEXT MERIDIAN: LAND, WATER, AND THE FUTURE OF THE WEST* 231–35 (1992)).

³² *Id.*

less water than they needed.³³ In 1922, the Supreme Court validated this fear in *Wyoming v. Colorado*³⁴ and extended the doctrine of prior appropriation to a state's right to divert water.³⁵ The Court noted that prior appropriation was a background principle of law in both Wyoming and Colorado and had been widely applied in instances in which a dispute arose out of *private* appropriators of interstate streams.³⁶ They reasoned that when the dispute arose out of two *state* appropriators, it naturally followed that application of the prior appropriation doctrine is both "eminently just" and "equitable to all concerned."³⁷ Following this decision, the Colorado River Basin states became fearful that the quickly developing state of California would establish a priority right to water.³⁸ The states sought an agreement to ensure that water was equitably distributed.³⁹

Over time, "numerous compacts, federal laws, court decisions and decrees, contracts, and regulatory guidelines collectively known as the 'Law of the River'" have regulated water allocation of the Colorado River between seven states and Mexico.⁴⁰ The heart of the "Law of the River" is the 1922 Colorado River Compact, which effectively split the Colorado River basin into an "upper division" and "lower division."⁴¹ By splitting the basin into separate divisions, the drafters of the compact allocated half of the total water supply to each division, and the states within each division could form agreements about how to further allocate their division's half of the water supply.⁴² This allowed the two divisions to negotiate among a smaller

³³ See *Sharing Colorado River Water: History, Public Policy and the Colorado River Compact*, ARROYO (Univ. of Ariz. Water Res. Rsch. Ctr.), Aug. 1997 at 1 [hereinafter *Sharing Colorado River Water*], https://wrrc.arizona.edu/sites/wrrc.arizona.edu/files/attachment/arroyo_1997_v10_n1_w.pdf [<https://perma.cc/6743-WNZJ>].

³⁴ 259 U.S. 419 (1922).

³⁵ *Id.* at 470.

³⁶ *Id.* The Court went so far as to mention that the doctrine was even incorporated into the state constitutions of Wyoming and Colorado to prevent any departure from the status quo.

³⁷ *Id.*

³⁸ See *Arizona v. California*, 373 U.S. 546, 556 (1963), *judgment entered sub nom. Arizona v. California*, 376 U.S. 340 (1964), *amended sub nom. Arizona v. California*, 383 U.S. 268 (1966), *and amended sub nom. Arizona v. California*, 466 U.S. 144 (1984); see also *Sharing Colorado River Water*, *supra* note 33, at 2.

³⁹ See generally *Sharing Colorado River Water*, *supra* note 33, at 2–3 (describing the Colorado River Compact, which formed between seven Colorado River Basin states to determine their rights to river water in the wake of *Wyoming v. Colorado*).

⁴⁰ *The Law of the River*, U.S. DEP'T. OF THE INTERIOR BUREAU OF RECLAMATION (Mar. 2008), <https://www.usbr.gov/lc/region/g1000/lawofrvr.html> [<https://perma.cc/BT7B-PWHE>].

⁴¹ COLORADO RIVER COMPACT art. III (1922), <https://www.usbr.gov/lc/region/g1000/pdffiles/crcompct.pdf> [<https://perma.cc/H9C7-WS4Z>].

⁴² *Id.* art. I.

group of states, hopefully leading to a more efficient resolution of possible disputes regarding the allocation of water between them. The lower division states had a time constraint to apportion their respective water due to the proposed Boulder Canyon Project, including development of a dam and canal.⁴³ The water was officially apportioned among the lower division states in the Boulder Canyon Project Act of 1928 (“Project Act”).⁴⁴ The upper division states, however, did not officially apportion their 7.5 million acre-feet for another twenty years in the Upper Colorado River Basin Compact of 1948.⁴⁵ This delay did not negatively impact the lower division states, so long as they did not exceed their collective half.⁴⁶

Creation and enforcement of the Law of the River compact, however, was not without conflict. Creation of the compact required compromise between the state’s delegates, and even after compromise was achieved, the Arizona governor refused to ratify the compact.⁴⁷ Tensions grew between Arizona and California, both lower division states, particularly because of the Project Act,⁴⁸ which created a canal and dam that greatly increased California’s ability to access the water.⁴⁹ Arizona finally ratified the compact in 1944 to begin their own reclamation project.⁵⁰ Eight years later, Arizona petitioned the Court for a judicial apportionment of the lower division’s half, leading to the decision in *Arizona v. California*.⁵¹ In *Arizona v. California*, the Court confirmed that Congress provided a specific method of apportionment within the lower division states when it passed the Project Act⁵² and that Congress authorized the Secretary of the Interior to apportion water between the states if the states failed to agree on a compact.⁵³ Although creation of the Law of the River faced challenges, it has weathered many storms since its creation and is one of the nation’s

⁴³ See *Sharing Colorado River Water*, *supra* note 33, at 4.

⁴⁴ Pub. L. No. 70-642, § 4(a), 45 Stat. 1067 (1928) (codified at 43 U.S.C. § 617).

⁴⁵ See *Sharing Colorado River Water*, *supra* note 33, at 2. The lower division states initially apportioned their respective 7.5 million acre-feet of water in the Boulder Canyon Project Act of 1928 due to pending development projects, while the upper division states did not officially apportion their 7.5 million acre-feet for another twenty years in the Upper Colorado River Basin Compact of 1948. *Id.* at 4.

⁴⁶ See *id.*

⁴⁷ *Id.*

⁴⁸ 43 U.S.C. § 617.

⁴⁹ See *Sharing Colorado River Water*, *supra* note 33, at 4.

⁵⁰ *Id.*

⁵¹ 373 U.S. 546 (1963).

⁵² *Id.* at 565–66.

⁵³ *Id.* at 579.

strongest and most preeminent examples of an interstate water agreement.

2. *The Less Common Use of Interstate Compacts: Water Pollution Disputes*

Although less customary than water allocation compacts, a handful of interstate compacts have used to address water pollution, most of which were created before the implementation of the modern TMDL program.⁵⁴ To be truly effective, a compact must provide explicit terms for enforcement.⁵⁵ Some water pollution compacts, however, are silent on enforcement.⁵⁶ One enforcement mechanism that water pollution compacts employ is the creation of an interstate body or commission with representation from all signatory states.⁵⁷ A prominent example of an interstate water pollution control agreement by interstate compact is the Ohio River Valley Water Sanitation Compact (“Ohio River Compact”).⁵⁸ The Ohio River Compact was negotiated and ratified by eight states and obtained congressional consent in 1940.⁵⁹ The Ohio River Compact had the effect of drastically increasing the use of treatment facilities for industrial waste along the Ohio River at a time when federal regulation was nonexistent.⁶⁰ The Ohio River Compact created the Ohio River Valley Water Sanitation Commission (“ORSANCO”), consisting of three members from all states

⁵⁴ See, e.g., Louisiana-Mississippi Tangipahoa River Waterway Compact of 1988, 1988 La. Sess. Law Serv. 630 (West); Mississippi River Interstate Pollution Phase-Out Compact, La. Stat. Ann. § 30:2091; New England Interstate Water Pollution Control Compact of 1947, Conn. Gen. Stat. § 22a-309; Ohio River Valley Water Sanitation Compact of 1948, 45 Ill. Comp. Stat. 60/0.01; Potomac Valley Compact of 1970, Pub. L. No. 91-407, 84 Stat. 856 (1970).

⁵⁵ See James W. Curlin, *The Interstate Water Pollution Compact—Paper Tiger or Effective Regulatory Device?*, 2 *ECOLOGY L. Q.* 333, 345 (1972). In his article, Curlin argues that interstate compacts can be, and have been, both “paper tigers” and effective regulatory devices. *Id.* at 353. Curlin emphasizes the need for express enforcement provisions but notes that without goodwill efforts by the signatory states, the compact will not be successful. *Id.* at 355.

⁵⁶ See *id.* at 350.

⁵⁷ See *id.* at 345.

⁵⁸ OHIO REV. CODE ANN. § 6113.01 (West).

⁵⁹ See *Ohio River Valley Water Sanitation Compact*, THE COUNCIL OF STATE GOV'TS, <https://apps.csg.org/ncic/Compact.aspx?id=150> [<https://perma.cc/BV9B-88G6>].

⁶⁰ See Cedric Rose, *How ORSANCO's Role As Steadfast Defender Of The Ohio River Has Changed*, CINCINNATI PUB. RADIO (Feb. 4, 2020), <https://www.wvuxu.org/post/how-orsancos-role-steadfast-defender-ohio-river-has-changed#stream/0> [<https://perma.cc/W8V8-LJNH>] (“Before ORSANCO, less than 1% of the sewage generated along the river received treatment. Just 18 years later, 99% of it went through treatment plants. By 1965, 90% of the 1,705 industrial establishments along the river’s length complied with ORSANCO’s minimum industrial waste requirements.”).

that were parties to the agreement.⁶¹ Under the express terms of the agreement, the commission has the authority to conduct investigations, hearings, and issue orders to any “municipality, corporation, person, or other entity discharging sewage or industrial waste” to compel compliance with the agreement.⁶² ORSANCO has the authority to compel member states to adopt water standards by member vote.⁶³ Although ORSANCO has this authority on paper, in reality it is unlikely to be employed because the terms of the agreement require a vote of two out of three commissioners from each state, including the state that violated the standards.⁶⁴ Although ORSANCO is still in operation, the 1972 Amendments to the CWA drastically changed the way water pollution was regulated and made certain aspects of the Ohio River Compact redundant.⁶⁵ Today, those discharging sewage and industrial waste, as provided for in the Ohio River Compact, are regulated under the CWA and are required to obtain permits and maintain records for the pollution that they discharge in proscribed waterways.⁶⁶ The next Section discusses the impact of the modern CWA on management of nonpoint source pollution.

B. State Authority Over Nonpoint Source Pollution

Since the CWA was passed in 1972, control of point source pollution—e.g., water pollution from industrial and municipal sources—has seen great improvement while control of nonpoint source pollution has remained largely unaddressed.⁶⁷ The CWA does not define nonpoint source pollution, but the EPA considers nonpoint source pollution to be anything that is not point source pollution as defined in the CWA.⁶⁸ Point source is, in turn, defined in the CWA to include “any discernible, confined and discrete conveyance”⁶⁹ The defini-

⁶¹ *Id.* ORSANCO is still in operation today, operating programs for improvement of water quality in the Ohio River basin. See ORSANCO, <http://www.orsanco.org/> [<https://perma.cc/E5F7-ML2A>].

⁶² OHIO REV. CODE ANN. § 6113.01 (West).

⁶³ See Rose, *supra* note 60.

⁶⁴ See *id.*

⁶⁵ See *id.*; Lara D. Guercio, *The Struggle Between Man and Nature—Agriculture, Nonpoint Source Pollution, and Clean Water: How to Implement the State of Vermont’s Phosphorous TMDL Within the Lake Champlain Basin*, 12 VT. L. REV. 455, 460 (2011).

⁶⁶ 33 U.S.C. § 1342(a)(1).

⁶⁷ See Guercio, *supra* note 65, at 460.

⁶⁸ *Basic Information about Nonpoint Source (NPS) Pollution*, U.S. ENV’T PROT. AGENCY (July 8, 2021), <https://www.epa.gov/nps/basic-information-about-nonpoint-source-nps-pollution> [<https://perma.cc/MFZ7-WDZ3>].

⁶⁹ 33 U.S.C. § 1362 (14).

tion of point source goes on to expressly exclude “agricultural stormwater discharges and return flows from irrigated agriculture.”⁷⁰ This ensures that this traditionally state-controlled industry will not be overtaken by federal regulation.⁷¹

There are many different examples of nonpoint source pollution,⁷² but this Note only discusses agricultural pollution. Although the proposed solution applies to all forms of nonpoint source pollution, agricultural pollution is the most prevalent form and is at the forefront of many current water pollution disputes. Because agriculture is a large industry in the United States,⁷³ it consequently accounts for the impairment of a large portion of rivers, streams, lakes, reservoirs, ponds, and estuaries throughout the country.⁷⁴ The most prevalent source of pollution from agriculture is excess nutrients—commonly nitrogen and phosphorus.⁷⁵ Harmful algal blooms that form as a result of excess nutrients in the water often lead to ecological disaster, human illnesses, and significant economic loss.⁷⁶ Federal,

⁷⁰ *Id.*

⁷¹ Although agricultural stormwater escapes regulation as a point source, the CWA includes concentrated animal feeding operations (“CAFOs”) as point sources. *Id.* The EPA determines when animal feeding operations are considered “concentrated” for purposes of CWA permitting based on the number of animals, the animal sector, and whether the operation is found to be a “significant contributor of pollutants.” *Regulatory Definitions of Large CAFOs, Medium CAFO, and Small CAFOs*, U.S. ENV’T PROT. AGENCY, https://www.epa.gov/sites/production/files/2015-08/documents/sector_table.pdf [<https://perma.cc/NMW9-ZLCH>]. CAFOs present unique problems because they often produce much more manure than the operation itself is able to utilize. See generally CARRIE HRIBAR, UNDERSTANDING CONCENTRATED ANIMAL FEEDING OPERATIONS AND THEIR IMPACT ON COMMUNITIES 2 (2010), https://www.cdc.gov/nceh/ehs/docs/understanding_cafos_nalboh.pdf [<https://perma.cc/A5X2-FZJV>]. A single feeding operation with 800,000 pigs can produce more manure in a year than the amount of sanitary waste produced by the city of Philadelphia in a year. *Id.*

⁷² See generally *Basic Information about Nonpoint Source (NPS) Pollution*, *supra* note 68 (including sediment from construction sites, excess fertilizers from residential lawns, urban runoff, abandoned mine pollution, and atmospheric deposition).

⁷³ See generally PAUL D. CAPEL, KATHLEEN A. MCCARTHY, RICHARD H. COUPE, KATIA M. GREY, SHEILA E. AMENUMEY, NANCY T. BAKER, & RICHARD L. JOHNSON, U.S. GEOLOGICAL SURV., AGRICULTURE—A RIVER RUNS THROUGH IT—THE CONNECTIONS BETWEEN AGRICULTURE AND WATER QUALITY 43–65 (2018) (describing the changes in the agricultural industry and the connection to water pollution).

⁷⁴ *Watershed Assessment, Tracking & Environmental Results: National Causes of Impairment*, U.S. ENV’T PROT. AGENCY, http://ofmpub.epa.gov/waters10/attains_nation_cy.control#causes [<https://perma.cc/7XSQ-PSW9>].

⁷⁵ Jan G. Laitos & Heidi Ruckriegle, *The Clean Water Act and the Challenge of Agricultural Pollution*, 37 VT. L. REV. 1033, 1037 (2013).

⁷⁶ U.S. ENV’T PROT. AGENCY, A COMPILATION OF COST DATA ASSOCIATED WITH THE IMPACTS AND CONTROL OF NUTRIENT POLLUTION I-1 (2015). Economic losses can occur from decreases in tourism and commercial fishing; decreased property value; and high costs associated with managing the pollution. *Id.* at ES-2.

state, and local governments spend billions of dollars every year to combat the damaging effects of nutrient pollution.⁷⁷

Although nonpoint source pollution is a widespread problem affecting water quality, it is not regulated by the two basic permit programs of the CWA that apply to the discharge of a pollutant from a *point source* into a “water of the United States.”⁷⁸ While point source dischargers are required to obtain permits under sections 402 or 404 of the CWA—which directly regulate the amount of pollutants that they are allowed to discharge—management of nonpoint source pollution is largely left to the states.⁷⁹ Congress recognized the widespread impacts of nonpoint source pollution when drafting and enacting the 1972 amendments to the CWA,⁸⁰ but made deliberate choices to focus on the more easily addressable form of pollution: point sources.

Multiple provisions of the CWA expressly recognize and address nonpoint source pollution; however, the provisions reiterate Congress’s intent to leave the bulk of nonpoint source management to the states. Section 208 sought to address nonpoint source pollution by requiring states to adopt waste treatment management plans that identified agricultural nonpoint sources of pollution and provide “methods . . . to control to the extent feasible such sources.”⁸¹ Although states submitted a total of 222 plans by 1982, these plans were largely ineffective due to implementation failures, lack of financial support, and lack of EPA oversight, among other things.⁸² Federal funding for the program ended in 1981 and the program is no longer in effect.⁸³ In 1987, however, Congress adopted another planning provision—section 319—requiring states to submit “state assessment reports” and develop “state management programs” to address nonpoint source pollution.⁸⁴ Section 319 still plays a significant role in the national framework for nonpoint source pollution: \$172 million was spent across 319 grants funded by the EPA in 2020.⁸⁵ Although section 319’s planning requirements were more effective than previ-

⁷⁷ *Nutrient Pollution: The Effects*, U.S. ENV’T PROT. AGENCY, <https://www.epa.gov/nutrientpollution/effects> [<https://perma.cc/L5VY-EVE9>].

⁷⁸ 33 U.S.C. §§ 1311, 1362.

⁷⁹ See Laitos & Ruckriegle, *supra* note 75, at 1040.

⁸⁰ See S. REP. NO. 92-414 (1971), *reprinted in* 1972 U.S.C.C.A.N. 3668, 3705 (“It has become clearly established that the waters of the Nation cannot be restored and their quality maintained unless the very complex and difficult problem of nonpoint sources is addressed.”).

⁸¹ 33 U.S.C. § 1288(b)(2)(F).

⁸² See Guercio, *supra* note 65, at 467–68.

⁸³ *Id.* at 467.

⁸⁴ 33 U.S.C. § 1329.

⁸⁵ *319 Grant Program for States and Territories*, U.S. ENV’T PROT. AGENCY (Feb. 2, 2022)

ous requirements, states maintained the voluntary control measures they chose to put in place, so there was no enforceable federal *requirement* that the agriculture industry comply with the measures.⁸⁶

Section 303(d) of the CWA requires that states identify and list waters that are unable to achieve the EPA-established water quality standards after all technology-based controls are implemented.⁸⁷ After a waterway, or segment thereof, is listed, the state is technically required to create a TMDL for each pollutant to ensure that the ambient water quality standards can be met.⁸⁸ Although the TMDL program was adopted in 1972, the program remained fairly dormant for nearly two decades while the EPA focused its attention and resources on the programs that provided more immediate results—the technology-based control methods.⁸⁹ The program was forced out of obscurity in 1984 when a citizen suit was brought to compel the EPA to establish TMDLs for pollutants in Lake Michigan after the state failed to do so.⁹⁰

A TMDL is a planning tool to help guide the state to reach the established water quality standards.⁹¹ In its simplest form, a TMDL contains a quantitative level of pollution that would still allow the waterway to attain the applicable water quality standards.⁹² If a state fails to create the TMDL—or submits an unsatisfactory TMDL—the CWA authorizes the EPA to create one on its behalf.⁹³ By creating TMDLs, states have the ability to determine how best to allocate the necessary pollution reductions. It is often easier for states to apply stricter limits on point sources, because those limits are enforceable through National Pollutant Discharge Elimination System (“NPDES”) permits,

<https://www.epa.gov/nps/319-grant-program-states-and-territories> [<https://perma.cc/7SS5-SERD>].

⁸⁶ See Robert W. Adler, *Water Quality and Agriculture: Assessing Alternative Futures*, 25 ENVIRONS: ENV'T L. & POL'Y J. 77, 80 (2002).

⁸⁷ See CLAUDIA COPELAND, CONG. RSCH. SERV., R42752, CLEAN WATER ACT AND POLLUTANT TOTAL MAXIMUM DAILY LOADS (TMDLS) 1 (2012).

⁸⁸ *Id.* TMDLs are often referred to as “pollution budgets” because they serve as a way for states to recognize how much of a pollutant, in total, they are able to discharge in order to achieve the standards.

⁸⁹ *Id.* at 79.

⁹⁰ See *Scott v. City of Hammond*, 741 F.2d 992 (7th Cir. 1984).

⁹¹ *Id.*

⁹² *Id.*

⁹³ See *id.* at 996 (holding that when a state fails to submit a TMDL, this amounts to a constructive submission of an unsatisfactory TMDL prompting the EPA’s statutory duty to create a TMDL for the state); *Columbia Riverkeeper v. Wheeler*, 944 F.3d 1204, 1211 (9th Cir. 2019) (concluding that EPA has a nondiscretionary duty to issue a TMDL, within thirty days of the state listing the impaired water pursuant to § 303(d)).

so this is often what states choose to address first.⁹⁴ Municipal and industrial point sources, however, correctly argue that their operations have been disproportionately regulated because nonpoint sources are contributing a large portion of pollution to waters but are not facing targeted regulation like municipal and industrial sources are.⁹⁵

States retain full authority to determine how, and if, they choose to implement TMDLs.⁹⁶ Therefore, implementation among the states is variable.⁹⁷ In *Friends of Pinto Creek v. EPA*,⁹⁸ the Ninth Circuit addressed a scenario in which a waterway was listed on Arizona's 303(d) list of impaired waters, yet the state had no plan in place to bring the waterway into compliance.⁹⁹ In that case, the EPA attempted to issue an NPDES permit to allow mine-related discharges into Pinto Creek, a waterway that was already in excess of water quality standards and on the list of impaired waters.¹⁰⁰ The court held that NPDES permits cannot be issued for point source discharges into waters already in excess of water quality standards if the state has no plan in place to bring the waterway, or segment thereof, into compliance.¹⁰¹ The decision limited the states' ability to continue allowing point sources—i.e., NPDES permit holders—to discharge pollution while neglecting their responsibility to bring the waterway into compliance.¹⁰² This seemingly addresses one of the loopholes of the TMDL program. The court reasoned that the plain language of the CWA suggests that no permit should be issued to a new discharger if the discharge will contribute to an existing violation of water quality standards.¹⁰³ Because of heavy industrial reliance on NPDES permits, this is, in theory, supposed to serve as an incentive for states to *at least* create a plan to work toward compliance rather than continuing to pollute an already impaired waterway. The court noted that this does not impose a requirement that the state begin remediation toward

⁹⁴ See COPELAND, *supra* note 87, at 6.

⁹⁵ See *id.*

⁹⁶ See *Pronsolino v. Nastri*, 291 F.3d 1123, 1128–29 (9th Cir. 2002) (“States must implement TMDLs only to the extent that they seek to avoid losing federal grant money; there is no pertinent statutory provision otherwise requiring implementation of § 303 plans or providing for their enforcement.”).

⁹⁷ See COPELAND, *supra* note 87, at 6.

⁹⁸ 504 F.3d 1007 (9th Cir. 2007).

⁹⁹ See *id.* at 1009–15.

¹⁰⁰ See *id.*

¹⁰¹ See *id.* at 1014.

¹⁰² *Id.* at 1012.

¹⁰³ *Id.*

compliance, but only that there is a plan in place.¹⁰⁴ The requirements and stringency of the required plan, however, are largely unclear. Ultimately, this may just be a formality that serves as a small road-bump to the issuance of the permit.

The agricultural industry, among others, has long feared the use of TMDLs as tools for nonpoint source pollution management.¹⁰⁵ In *Pronsolino v. Nastri*,¹⁰⁶ for example, an applicant for a tree harvesting permit challenged the EPA's authority to impose a TMDL on the Garcia River—a river only polluted by nonpoint sources of pollution.¹⁰⁷ The Ninth Circuit upheld the application of TMDLs to waterways impaired solely by nonpoint source pollution.¹⁰⁸ The court held that the EPA can require states to submit a TMDL for waters impaired only by nonpoint source pollution, and if the state fails to, the EPA can create the TMDL for them.¹⁰⁹ Although waste load allocations for point sources can be assured through permits, TMDLs for waters impaired by nonpoint pollution require “reasonable assurance” that the proposed load reductions from nonpoint sources can ultimately be attained.¹¹⁰ In 2011, the EPA rejected the Lake Champlain TMDL in part because of a lack of reasonable assurances of nonpoint source load reductions.¹¹¹ The EPA found that the TMDL, and the accompanying implementation plan, did not identify any programs in existence, or with a source of funding, to ensure that nonpoint sources would meet their load allocation.¹¹² Even if the TMDL includes reasonable assurance of needed load reductions, it is left to the states to determine how to implement and allocate the TMDL. When the wa-

¹⁰⁴ See *id.* at 1013.

¹⁰⁵ See Greg LaBarge, *How Does a TMDL Affect Agriculture?*, OHIO FARMER (Aug. 31, 2021), <https://www.farmprogress.com/conservation/how-does-tmdl-affect-agriculture> [https://perma.cc/KF5H-NFHT] (questioning whether the effect of a TMDL on agriculture is “something to fear”).

¹⁰⁶ 291 F.3d 1123 (9th Cir. 2002).

¹⁰⁷ *Id.* at 1129. EPA disapproved the state's original the list of impaired waters as required by § 303(d) and after the state rejected an opportunity to amend it, the EPA established an impaired waters list for the state. Following state inaction, the EPA established a TMDL for the Garcia River setting the amount of sediment sixty percent lower than historical loadings. *Id.*

¹⁰⁸ *Id.* at 1131.

¹⁰⁹ *Id.* at 1137.

¹¹⁰ See COPELAND, *supra* note 87, at 6.

¹¹¹ Letter from H. Curtis Spalding, EPA Reg'l Adm'r, to Deborah Markowitz, Vt. Sec'y of State (Jan. 24, 2011), <https://www.epa.gov/sites/production/files/2015-09/documents/2002-lake-champlain-tmdl-disapproval-decision.pdf> [https://perma.cc/2Q7J-MJX6] (on file with author).

¹¹² *Id.* The TMDL imposed less stringent waste load allocations on a treatment plant and planned to rely more heavily on nonpoint source reductions to achieve water quality standards. *Id.*

terway spans multiple jurisdictions, however, decisions on implementation and allocation become increasingly challenging.

C. *Expanding the CWA to Encourage Interstate Collaboration*

Regulation of interstate waters fits squarely within Congress's constitutional authority to regulate interstate commerce.¹¹³ Pursuant to this authority, the CWA includes multiple provisions that expressly prompt cooperation among states when dealing with interstate waters,¹¹⁴ likely due to the widespread and apparent challenges that states dealt with in the water apportionment context. Under § 319(g), states that do not meet applicable water quality standards are able to petition the EPA to convene an interstate management conference with states that contribute significant nonpoint source pollution to the waterway in question.¹¹⁵ One interstate management conference to discuss the Northeast Regional Mercury TMDL has come about as a result of this provision.¹¹⁶ Section 402(b)(5) of the CWA allows for any downstream state that may be affected by the issuance of an NPDES permit, or state equivalent, to submit recommendations to the permitting state and the EPA.¹¹⁷ Although upstream states must write their NPDES permits to ensure that point sources meet the water quality standards of the downstream states,¹¹⁸ there is no such assumption for nonpoint sources. Lastly, § 518(e)(3) extends cooperation provisions to Indian tribes.¹¹⁹ Specifically, this section creates a duty for the EPA to consult with Indian tribes and provide a “mechanism” for the reso-

¹¹³ See *Am. Farm Bureau Fed'n v. EPA*, 792 F.3d 281, 304 (3d Cir. 2015) (citing *United States v. Lopez*, 514 U.S. 549, 558 (1995)) (“Broadly speaking, then, the federal Government’s traditional authority to regulate [channels of interstate commerce] is secure.”). Throughout multiple iterations of rules defining “Waters of the United States” (“WOTUS”), regulation of interstate waters as WOTUS has not been in question until the promulgation of The Navigable Waters Protection Rule under the Trump Administration. *The Navigable Waters Protection Rule: Definition of “Waters of the United States,”* 85 Fed. Reg. 22,250 (Apr. 21, 2020). Even though the definition of WOTUS plays a large role in the applicability of the CWA to certain interstate waters, this unsettled aspect of water pollution law is outside the scope of this Note.

¹¹⁴ See, e.g., 33 U.S.C. §§ 1329(g), 1342(b)(5), 1377(e)(3).

¹¹⁵ *Id.* § 1329(g).

¹¹⁶ See generally *Clean Water Act Section 319(g) Management Conference June 22-23, 2010 Meeting Summary*, ENV’T PROT. AGENCY, https://www.epa.gov/sites/production/files/2015-09/documents/319g_meeting_summary_9-2.pdf [<https://perma.cc/5EUL-Q4FF>] (summarizing the topics of discussion at the two-day conference).

¹¹⁷ 33 U.S.C. § 1342(b)(5).

¹¹⁸ See *Arkansas v. Oklahoma*, 503 U.S. 91, 105 (1992).

¹¹⁹ 33 U.S.C. § 1377(e)(3).

lution of any conflict caused by differing water quality standards set by Indian tribes and the neighboring states.¹²⁰

Although section 303 of the CWA—which contains the TMDL and impaired waters list requirements—does not expressly provide for interstate collaboration, it does not limit the definition of a TMDL in a manner that applies only to a water segment within a given state.¹²¹ The EPA has long encouraged states to develop TMDLs on a regional or watershed level for efficiency and consistency in restoration within the watershed.¹²² This watershed level approach led to the development of many statewide TMDLs that apply to a specific pollutant, including Minnesota’s mercury TMDL and New Hampshire’s chlorine TMDL.¹²³ The broad interpretation of a TMDL made it possible to utilize one TMDL to address larger watersheds that cover more than one state or jurisdiction.¹²⁴ For example, a handful of multijurisdictional TMDLs were developed including the Northeast Regional Mercury TMDL,¹²⁵ TMDL for dissolved oxygen in Long Island Sound,¹²⁶ and the Chesapeake Bay TMDL (“Bay TMDL”).¹²⁷

II. CURRENT STATE OF INTERSTATE WATER POLLUTION CONTROL: THE CHESAPEAKE BAY MODEL

Along with the challenges that generally arise when developing a TMDL for an impaired intrastate waterway—such as determining the most efficient ways to achieve reduction and a balance of state inter-

¹²⁰ *Id.*

¹²¹ *See* 33 U.S.C. § 1313(d)(1)(C).

¹²² *See* COPELAND, *supra* note 87, at 10.

¹²³ *See id.*

¹²⁴ *Id.*

¹²⁵ CONN. DEP’T OF ENV’T PROT., ME. DEP’T OF ENV’T PROT., MASS. DEP’T OF ENV’T PROT., N.H. DEP’T OF ENV’T SERV., N.Y. STATE DEP’T OF ENV’T CONSERVATION, R.I. DEP’T OF ENV’T MGMT., VT. DEP’T OF ENV’T CONSERVATION & NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMM’N, NORTHEAST REGIONAL MERCURY TOTAL MAXIMUM DAILY LOAD 5 (2007), <https://neiwpcc.org/wp-content/uploads/2020/08/FINAL-Northeast-Regional-Mercury-TMDL.pdf> [<https://perma.cc/PU7W-6S8D>] (focusing on reducing atmospheric deposition of mercury into Northeast waterways to meet desired fish tissue concentrations).

¹²⁶ N.Y. STATE DEP’T OF ENV’T CONSERVATION & CONN. DEP’T OF ENV’T PROT., A TOTAL MAXIMUM DAILY LOAD ANALYSIS TO ACHIEVE WATER QUALITY STANDARDS FOR DISSOLVED OXYGEN IN LONG ISLAND SOUND 2 (2000), <http://longislandsoundstudy.net/wp-content/uploads/2010/03/Tmdl.pdf> [<https://perma.cc/6RM4-6E6E>] (setting nitrogen reduction targets for New York and Connecticut to decrease the extent and duration of hypoxic conditions in Long Island Sound).

¹²⁷ U.S. ENV’T PROT. AGENCY, CHESAPEAKE BAY TMDL EXECUTIVE SUMMARY 3 (2010) [hereinafter TMDL EXECUTIVE SUMMARY], https://www.epa.gov/sites/default/files/2014-12/documents/bay_tmdl_executive_summary_final_12.29.10_final_1.pdf [<https://perma.cc/6D5H-DHHS>].

ests—developing a multijurisdictional TMDL presents additional challenges, most notably, the need for state cooperation.¹²⁸ Each state must willingly agree to participate in the TMDL process with another jurisdiction because there is no legal requirement for them to do so. Further, it is possible that neighboring states have different policy priorities, established designated uses for waterways, water quality standards, or nonpoint source control methods,¹²⁹ so one state may be required to accommodate stricter limits because of the limits established in the other state. The Bay TMDL—the largest and most complex TMDL developed to date—required six states and the District of Columbia to grapple with these issues when identifying pollution reduction goals.¹³⁰

The Chesapeake Bay watershed consists of seven jurisdictions and over 18 million people.¹³¹ Since 1983, the Chesapeake Bay Program has been utilizing written agreements between Maryland, Pennsylvania, Virginia, and the District of Columbia to facilitate restoration of the Bay.¹³² Following a citizen suit filed against the EPA for Virginia's failure to create a TMDL, the Chesapeake 2000 agreement ("Chesapeake 2000") was signed to reaffirm the previous commitments.¹³³ Chesapeake 2000 included numerous restoration goals, including reducing nutrient pollution in the Bay by enough to remove the Bay and its tidal tributaries from the 303(d) list of impaired waters by 2010.¹³⁴ Although Chesapeake 2000 did not mention a future

¹²⁸ See generally COPELAND, *supra* note 87, at 10 (noting the additional challenges posed by multijurisdictional TMDLs).

¹²⁹ *Id.*

¹³⁰ TMDL EXECUTIVE SUMMARY, *supra* note 127, at 1. The TMDL addresses pollution from Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia, and the District of Columbia. *Id.*

¹³¹ *Chesapeake Bay*, NOAA FISHERIES, <https://www.fisheries.noaa.gov/topic/chesapeake-bay> [<https://perma.cc/8C56-CJT4>].

¹³² See CHESAPEAKE BAY PROGRAM, THE CHESAPEAKE BAY AGREEMENT OF 1983 (1983), https://www.chesapeakebay.net/documents/1983_CB_Agreement2.pdf [<https://perma.cc/9Y4D-2LBG>]. The 1983 agreement was the first attempt at a collaborative effort to address pollution in the Chesapeake Bay. The agreement showed that Chesapeake Bay restoration would become a policy concern for the Bay states, and it established a Chesapeake Executive Council to oversee the restoration plans of the states. *Id.* It did not, however, include any enforceable requirements or schedules for action. *Id.* The second agreement, however, signed in 1987, included a variety of different goals and deadlines to meet them. CHESAPEAKE BAY PROGRAM, 1987 CHESAPEAKE BAY AGREEMENT (1987), https://www.chesapeakebay.net/content/publications/cbp_12510.pdf [<https://perma.cc/KZ4P-DRRB>].

¹³³ CHESAPEAKE BAY PROGRAM, CHESAPEAKE 2000 (2000), https://www.chesapeakebay.net/documents/cbp_12081.pdf [<https://perma.cc/V3P9-L7AY>].

¹³⁴ *Id.*

TMDL, it represented an interstate compact among the states agreeing to commit to restoring the Chesapeake Bay.

Although Chesapeake 2000 included lofty goals, there were no consequences for failure to achieve the goals. In 2000, Congress passed the Chesapeake Bay Restoration Act that amended the CWA and imposed an affirmative duty on the EPA to continue Chesapeake Bay restoration efforts under the CWA.¹³⁵ After the EPA announced that various goals of Chesapeake 2000 would not be met, environmental organizations filed suit against the EPA alleging that the agency breached its duty under the CWA, the Administrative Procedure Act (“APA”),¹³⁶ and the Chesapeake Bay Agreements.¹³⁷ The settlement agreement in that case became the force behind creation of the Bay TMDL.¹³⁸

The Bay TMDL, created by the EPA with substantial input from the Bay states, is unique because it provided express allocations—including target dates—and required reasonable assurances that water quality standards would be met.¹³⁹ Each state was required to submit to the EPA a Watershed Implementation Plan (“WIP”) that detailed the state’s proposed plan on how they would approach the required pollution reduction.¹⁴⁰ The Bay TMDL is also unique because it was created in conjunction with the Chesapeake Bay Protection and Restoration Executive Order,¹⁴¹ which directed federal agencies to create a framework to guide the states and the District of Columbia in the restoration of the Bay.¹⁴² The Bay TMDL includes a detailed accountability framework with four main components: (1) WIPs submitted by the Bay states to the EPA; (2) interim milestones to demonstrate pollution reduction progress; (3) a federal progress tracking system; and (4) consequences in the form of “federal actions if the jurisdictions fail to develop sufficient WIPs, effectively implement their WIPs, or fulfill

¹³⁵ 33 U.S.C. § 1267.

¹³⁶ Pub. L. No. 79-404, 60 Stat. 237 (1946) (codified in scattered sections of 5 U.S.C.).

¹³⁷ Complaint at 2, *Fowler v. EPA*, No. 1:09-CV-00005 (D.D.C. Jan. 5, 2009).

¹³⁸ COPELAND, *supra* note 87, at 12. The agreement required the EPA to establish the Bay TMDL by December 31, 2010, required watershed implementation plans, and required reasonable assurances for controlling nonpoint source pollution. *Id.*

¹³⁹ *Am. Farm Bureau Fed’n v. EPA*, 792 F.3d 281, 292 (3d Cir. 2015).

¹⁴⁰ *Id.* at 291–92. Where the EPA was unconvinced that the WIP would be sufficient, such as Pennsylvania’s urban stormwater budget and West Virginia’s agricultural pollution budget, they imposed a “backstop adjustment” that would require more stringent point source limitations if the states cannot meet the nonpoint allocations. *Id.* at 292.

¹⁴¹ Exec. Order No. 13,508, 3 C.F.R. § 203–204 (2010).

¹⁴² *Id.*

their 2-year milestones.”¹⁴³ The “federal actions” include implementing stricter NPDES permit limits on point sources in under-performing jurisdictions, increased NPDES program oversight, required offsets, and redirecting or conditioning EPA grants, among other actions.¹⁴⁴ Even with these possible federal actions, there has been dispute between the Bay states about disproportionate implementation and lack of progress.

A. *Challenging the Bay TMDL: American Farm Bureau Federation v. EPA*

In *American Farm Bureau Federation v. EPA*,¹⁴⁵ a coalition of trade groups challenged the main components of the Bay TMDL, arguing that the TMDL is only authorized to be a number and that the Bay TMDL usurped the traditional state power to regulate land use.¹⁴⁶ The Third Circuit analyzed the Farm Bureau’s challenges under *Chevron v. NRDC*¹⁴⁷ to determine if the EPA’s actions represented a reasonable interpretation of the CWA’s TMDL requirements.¹⁴⁸ The court concluded that the term “TMDL” in the CWA is ambiguous because it is susceptible to multiple meanings.¹⁴⁹ Further, the court recognized that the CWA requires that the TMDL account for nonpoint and point source pollution, but the CWA is silent on how to account for them.¹⁵⁰ Deferring to the agency, the court found that the EPA’s development of this TMDL reflects a “reasonable and . . . legitimate policy choice . . . in administering a less-than-clear statute.”¹⁵¹

American Farm Bureau Federation was a monumental case for multijurisdictional TMDLs. Prior to this case, TMDLs established the maximum daily amount of pollution for the waterway, but states would have the option to apply all the pollution reduction to point sources if they wished. The Bay TMDL, in contrast, specified waste

¹⁴³ CHESAPEAKE BAY TMDL SECTION 7 REASONABLE ASSURANCE AND ACCOUNTABILITY FRAMEWORK 7-5 (2010) [hereinafter TMDL SECTION 7], https://www.epa.gov/sites/production/files/2014-12/documents/cbay_final_tmdl_section_7_final_0.pdf [<https://perma.cc/F44G-B57F>].

¹⁴⁴ Letter from Shawn M. Garvin, Reg’l Adm’r, EPA Region 3, to L. Preston Bryant, Va. Sec’y of Nat. Res. (Dec. 29, 2009), https://www.epa.gov/sites/production/files/2015-07/documents/bay_letter_1209.pdf [<https://perma.cc/M26G-46Z6>].

¹⁴⁵ 792 F.3d 281 (3d Cir. 2015).

¹⁴⁶ *Id.* at 291–92.

¹⁴⁷ 467 U.S. 837 (1984).

¹⁴⁸ *Am. Farm Bureau Fed’n*, 792 F.3d at 294 (citing *Chevron*, 467 U.S. 837).

¹⁴⁹ *Id.* at 306.

¹⁵⁰ *Id.* at 300.

¹⁵¹ *Id.* at 309.

load allocations for point sources and required load allocations to nonpoint source sectors such as agricultural and urban runoff. The *American Farm Bureau Federation* court went further than the *Pronsolino* court, which merely held that TMDLs can be used for waters solely impaired by nonpoint source pollution.¹⁵² In *American Farm Bureau Federation*, the court upheld the EPA's use of authority to apply specific load allocations to nonpoint sources and reasoned that even if the CWA does not specifically require that the EPA's final TMDL allocate portions of the load among the different sources, the EPA has the authority to do so.¹⁵³ The court applied a new, broader meaning to the term "TMDL" and upheld EPA authority used to make them stronger.

B. *The Bay TMDL Since American Farm Bureau Federation*

Following the Third Circuit's decision in *American Farm Bureau Federation v. EPA*, and the Supreme Court's denial of certiorari, the legality of multijurisdictional TMDLs to address nonpoint source pollution has not been debated. The enforcement challenges of the Bay TMDL, however, have led many to wonder whether the multijurisdictional TMDL method of pollution control can be relied upon.¹⁵⁴ Although the Bay has seen progress in the reduction of nonpoint source pollution and many of the Bay states have made great strides to reduce their impact, this large-scale form of TMDL is not likely to be recreated in the same manner.

Typically, the EPA does not have the authority to enforce a TMDL or punish a state for lack of implementation of a TMDL.¹⁵⁵ Although the Bay TMDL includes a detailed accountability framework to help ensure the implementation of the TMDL, the document itself states that the accountability framework "is not itself an approvable part of the TMDL."¹⁵⁶ This follows the EPA's long standing position that a TMDL "does not impose any binding implementation requirements on the States," and that "the Bay TMDL does not di-

¹⁵² See *Pronsolino v. Nastri*, 291 F.3d 1123, 1139 (9th Cir. 2002).

¹⁵³ *Am. Farm Bureau Fed'n*, 792 F.3d at 300.

¹⁵⁴ See generally Letter from Chris Van Hollen et al., U.S. Senator, to Andrew Wheeler, EPA Adm'r 4 (Jan. 10, 2020), <https://www.vanhollen.senate.gov/imo/media/doc/Van%20Hollen%20Letter%20to%20EPA%20on%20Chesapeake%20Bay%20TMDL.pdf> [<https://perma.cc/7PWF-XD4Z>] (questioning whether the EPA intends to continue pursuing restoration efforts under the Chesapeake Bay TMDL framework).

¹⁵⁵ See *supra* notes 91–97 and accompanying text.

¹⁵⁶ TMDL SECTION 7, *supra* note 143, at 7–5.

rectly regulate any sources or require any permits.”¹⁵⁷ This begs the question: where does the federal authority for the implementation of the TMDL come from, if it exists at all?

The Chesapeake Bay Restoration Act of 2000 amended the CWA giving the EPA the authority to “ensure that management plans are developed and implementation is begun.”¹⁵⁸ When the EPA created the Bay TMDL, however, they noted that the federal actions available to ensure compliance are all based on existing EPA authorities,¹⁵⁹ avoiding any presumption that it relied on a new authority. The EPA cited its existing authority in its oversight role of the state-assumed NPDES programs and the federal administration of grant funding programs.¹⁶⁰

Despite the accountability framework of the Bay TMDL, states have made disproportionate efforts to reduce pollution. As the watershed works its way closer to the 2025 pollution reduction targets set out in the TMDL, some states are much closer to their goals than others,¹⁶¹ leading to tension among the states. In January 2020, Dana Aunkust, the EPA Chesapeake Bay Program Director, reportedly stated that the 2025 targets of the Bay TMDL were “not enforceable.”¹⁶² This statement triggered backlash from senators and representatives of several Bay states who wrote a letter to then-EPA Administrator Andrew Wheeler to determine whether the EPA plans to “remain an active member of the [Bay] partnership” and to determine the EPA’s plan for enforcement of the TMDL.¹⁶³ In September 2020, the disputes over the Bay TMDL came to a boil when Maryland, the District of Columbia, Virginia, and Delaware (collectively “the states”) filed a lawsuit against the EPA.¹⁶⁴ A group of environmental organizations, including the Chesapeake Bay Foundation, also filed suit against the EPA for failing to perform their statutory duties under the CWA, the Administrative Procedure Act and the Chesapeake Bay Agreements.¹⁶⁵

157 Letter from Cosmo Servidio, EPA Reg’l Adm’r, to U.S. Senator Chris Van Hollen 1 (Jan. 28, 2020).

158 33 U.S.C. § 117(g)(1).

159 See Letter from Shawn M. Garvin, *supra* note 144, at n.6.

160 *Id.*

161 See Mike Argento, *Pennsylvania is Failing the Chesapeake Bay—Here’s How That Affects You*, YORK DAILY REC. (Feb. 4, 2021) (finding that Pennsylvania has the largest pollution reduction gap to close before the 2025 target).

162 Letter from Chris Van Hollen, *supra* note 154, at 1.

163 *Id.* at 4.

164 Complaint, *Maryland v. Wheeler*, 1:20-cv-02530 (D.D.C. Sept. 10, 2020).

165 Complaint, *Chesapeake Bay Found., Inc. v. EPA*, 1:20-cv-02529 (D.D.C. Sept. 10, 2020).

The states brought the suit under section 117 of the CWA, arguing that the EPA failed to comply with its duty to ensure that the states of Pennsylvania and New York develop and implement sufficient management plans.¹⁶⁶ Additionally, the states argued that the EPA's approval of plans by Pennsylvania and New York was arbitrary and capricious under section 706 of the APA.¹⁶⁷ The states did not, however, seek enforcement of the TMDL because, like many courts have held, TMDLs are not themselves legally enforceable. The results of these challenges, and the success of the Bay TMDL efforts, are still unknown. As it stands, the EPA and the Bay states are still working toward the 2025 Bay TMDL goal of having the required pollution control measures in place to "fully restore the Bay."¹⁶⁸

III. COMBINING INTERSTATE COMPACTS AND TMDLS TO REDUCE WATER POLLUTION

Although multiple provisions in the CWA expressly address nonpoint source pollution,¹⁶⁹ the text of those provisions and the legislative history of the 1972 amendments suggest that Congress did not intend for the current CWA to be the ultimate solution to the "complex and difficult" problem of nonpoint source pollution.¹⁷⁰ Large-scale changes in the Nation's pollution management system, or amendment to the CWA, is unlikely in the near future. These congressionally driven actions would require federal political support that does not currently exist. Therefore, multijurisdictional TMDLs are, quite literally, the wave of the future. Neither interstate compacts nor multijurisdictional TMDLs alone are flawless methods of controlling interstate agricultural water pollution. Together, however, these two legal tools create a method for state collaboration that can be more efficiently enforced while still limiting federal involvement in an area of regulation that has typically been left to the states.

Multijurisdictional TMDLs should be incorporated into interstate compacts to create a long-lasting collection of interstate agreements, similar to the Law of the River.¹⁷¹ To achieve the most efficiency, the compacts should include express terms for creation, enforcement, and dispute resolution of the multijurisdictional TMDL. Further, the

¹⁶⁶ Complaint, *Maryland v. Wheeler*, *supra* note 164 at 2.

¹⁶⁷ *Id.*

¹⁶⁸ TMDL EXECUTIVE SUMMARY, *supra* note 127, at 1.

¹⁶⁹ See *supra* text accompanying notes 81–86.

¹⁷⁰ See S. REP. NO. 92-414 (1971), *reprinted in* 1972 U.S.C.A.N. 3668, 3705.

¹⁷¹ See *supra* Section I.A.1.

agreement can create an interstate body, similar to ORSANCO,¹⁷² that is charged with these duties. By addressing these likely challenges before they arise, the states will have a cooperative framework independent of the EPA or the courts.

Although this solution requires voluntary efforts by states, as interstate compacts do, states would likely enter into this type of agreement because it can fit into the nonpoint source pollution management programs that states already enforce, including existing TMDLs. The benefits would include more efficient enforcement of the TMDL and increasing state's participatory roles while reducing the need for federal involvement.

A. *Interstate Compacts as Enforcement Mechanisms for TMDLs*

TMDLs have been widely used for the past two and a half decades and have proven to be a beneficial tool for reducing point source pollution. Despite this, nutrient pollution is still widespread. This is the result of many factors, including that states are more likely to take the path of least resistance and apply stricter requirements to point sources than attempt to restrict agriculture operations. This is largely a result of deficiencies in implementation and enforcement. If TMDLs are merely “informational tools” that assist states with their pollution management, there are no consequences if states choose not to achieve the TMDL's goals. The Bay TMDL, however, is different because it includes a plan for federal oversight. But, as evidenced by the suits brought against the EPA,¹⁷³ inclusion of a federal oversight plan does not guarantee federal enforcement. Although the states have a method of compelling action by filing suit against the EPA under the APA, this is time consuming, resource intensive, and uncertain—given courts' willingness to defer to the agency.¹⁷⁴

Unlike TMDLs, interstate compacts can be enforced by a signatory state just as a contract can be enforced by a private party. By incorporating the TMDL into a compact, states can compel their partnering states to take action toward the agreed upon goal. In a large-scale regional effort, such as management of interstate water pollution, it is likely that states will put forth unequal effort, so accountability is imperative. For example, in the Chesapeake Bay restoration efforts, Pennsylvania and New York—the states furthest from

¹⁷² See *supra* notes 61–65 and accompanying text.

¹⁷³ See *supra* notes 164–65 and accompanying text.

¹⁷⁴ See, e.g., *Am. Farm Bureau Fed'n v. EPA*, 792 F.3d 281, 294 (3d Cir. 2015) (citing *Chevron v. NRDC*, 467 U.S. 837 (1984)).

the Bay—are the ones that are lagging behind. This can be attributed to the adage, “out of sight, out of mind.”¹⁷⁵ The Chesapeake Bay is not alone in this phenomenon. In the Mississippi River Basin, for example, the citizens of Louisiana are the first to feel the effects of the nutrient pollution in the Gulf of Mexico.¹⁷⁶ An interstate compact would address these challenges head-on, like in the Law of the River, where division of states into two groups made initial agreement—and later, implementation—more efficient.¹⁷⁷ This approach would work well in large watersheds, such as the Mississippi River Basin, because of the initial challenges of agreement. It is unlikely that a group of thirty or more states could agree to any specific terms. It is more likely, however, that the entire group of Basin states could agree to a general proposition, such as a general intent to restore the Gulf. Then as the groups get smaller and more regional, the agreements could get more specific and concrete.

Interstate compacts would create more certainty—both inside and outside of the courtroom. The current method of compelling “enforcement” under the APA is both inefficient and uncertain. Although an important benefit of compacts is their enforceability in court, they can also reduce the need to resort to litigation. Litigation is inherently a reactive process; one that occurs after a wrong has been alleged. In contrast, utilizing a compact can provide non-litigation enforcement mechanisms to proactively address issues that may arise in implementation and enforcement of the TMDL. Therefore, an effective compact would address the initial immediate issues as well as create a plan for how to handle potential challenges in the future.

Further, interstate compacts that incorporate TMDLs are enforceable by the states themselves, independent of federal involvement. Federal enforcement of TMDLs is dependent on whether the current political administration prioritizes it. States should not be subject to the whims of federal politics because the presence of pollution does not change every four or eight years. The Bay TMDL is illustra-

¹⁷⁵ Robert McCartney, *Trump's Crusade Against Environmental Protection Reaches the Chesapeake Bay*, WASH. POST (Jan. 27, 2020) (quoting Chris Van Hollen, Maryland Sen., Letter to U.S. Env't Prot. Agency), https://www.washingtonpost.com/local/md-politics/trumps-crusade-against-environmental-protection-reaches-the-chesapeake-bay/2020/01/26/74926d46-3e1b-11ea-baca-eb7ace0a3455_story.html [<https://perma.cc/8TJC-YJFD>].

¹⁷⁶ See Rocky Kistner, *There's an Environmental Disaster Unfolding in the Gulf of Mexico*, HUFFINGTON POST (July 11, 2019, 5:45 AM), https://www.huffpost.com/entry/mississippi-louisiana-gulf-coast-environmental-disaster_n_5d262c42e4b0583e482b28ed [<https://perma.cc/K2ZQ-B5XD>] (discussing the impacts on nutrient pollution in the Mississippi River on Louisiana shrimpers, crabbers, and oystermen).

¹⁷⁷ See *supra* Section I.A.1.

tive on a national scale. The Obama Administration heavily prioritized the restoration of the Chesapeake Bay, as evidenced by Obama's Chesapeake Bay Protection and Restoration Executive Order.¹⁷⁸ The Trump Administration, in contrast, outwardly sought to rollback Chesapeake Bay restoration efforts through lack of enforcement and dramatic cuts in federal funding.¹⁷⁹ Multiple state leaders disagreed with the Trump Administration's indifference toward Chesapeake Bay restoration efforts.¹⁸⁰

Although Chesapeake Bay restoration efforts started out as a partnership between states, over time the states began to view the efforts as opposing parties with the EPA playing the role of "referee."¹⁸¹ If the "referee's" priorities change every few years, there will never be consistent enforcement of the agreement. The state's only recourse is to challenge the EPA's position, like in *Maryland v. Wheeler*.¹⁸² But because agency actions and statutory interpretations are given broad deference by courts, as evidenced by *American Farm Bureau Federation*,¹⁸³ the outcome of a challenge to an EPA position, even a changing position, is uncertain.

Interstate compacts can create agencies like ORSANCO that serve as the enforcing body actively implementing pollution reduction efforts to achieve the compact goals.¹⁸⁴ ORSANCO, for example, has been in operation for over eighty years and consists of members from every state involved, as well as technical staff members who perform on-the-ground water monitoring and assessment.¹⁸⁵ ORSANCO's enforcement authority, however, has been limited because pollution management efforts are still subject to state and federal legislation.

But the existence of this interstate body can have other benefits. An interstate body allows the agreement to serve as a "living" partnership that can adapt to changing circumstances over time. Because these administrative bodies are comprised of state leaders, they are more apt than a federal agency to know what challenges are being

178 Exec. Order No. 13,508, 3 C.F.R. §§ 203–204 (2010).

179 See Marissa J. Lang, *Trump Plan Again Guts Funding for Chesapeake*, WASH. POST, Feb 14, 2020, at B1.

180 See, e.g., Letter from Chris Van Hollen, *supra* note 154.

181 See McCartney, *supra* note 175.

182 Complaint, *Maryland v. Wheeler*, 1:20-cv-02530 (D.D.C. Sept. 10, 2020).

183 See *Am. Farm Bureau Fed'n v. EPA*, 792 F.3d 281, 294 (3d Cir. 2015) (citing *Chevron v. NRDC*, 467 U.S. 837 (1981)).

184 See Rose, *supra* note 60.

185 See *id.*

faced within the state and, most importantly, care more about addressing them.

B. Reduction of Federal Intrusion in a Traditionally State Managed Field

For as long as pollution regulation has existed in the United States, nonpoint source pollution has evaded extensive federal regulation.¹⁸⁶ Nonpoint source pollution control, and agricultural pollution, is often thought of as a type of land use regulation.¹⁸⁷ Because of this, implementation of agricultural best management practices has long been thought of as a local issue and any federal attempt at stricter regulations for nonpoint source pollution are not looked upon fondly by the agriculture industry.¹⁸⁸ Prior to *American Farm Bureau Federation*, a House Agriculture Committee hearing to review the Bay TMDL highlighted the hostility of the agriculture industry toward the EPA-created load allocation for the agricultural sector within the Bay states.¹⁸⁹ While referring to the Bay TMDL, an American Farm Bureau Federation President stated, “[i]f we’re going to let the [federal] government dictate where we can and cannot farm . . . then this is not the Land of Liberty.”¹⁹⁰

To the disdain of the agriculture and timber industries, the *Pronsolino* court reasoned that the text of the CWA supported EPA’s long-standing interpretation of section 303(d) that TMDLs can be created

¹⁸⁶ See MEGAN STUBBS, CONG. RSCH. SERV., R41622, ENVIRONMENTAL REGULATION AND AGRICULTURE 1–2 (2014).

¹⁸⁷ *Id.*

¹⁸⁸ See generally AM. FARM BUREAU FED’N, REGULATORY IMPROVEMENT AND REFORM: A PRIORITY FOR AMERICAN AGRICULTURE 2 (2016), https://www.fb.org/files/AFBF_White_Paper_on_Regulatory_Reform.pdf [<https://perma.cc/S3LB-J5JJ>] (“Unlike nearly any other economic enterprise, a farm is not simply a business: it’s often a family’s home. When a government regulation affects the ability of a farmer to use his or her land, that regulatory impact ‘hits home’—not just figuratively but literally.”).

¹⁸⁹ *Hearing to Review the Chesapeake Bay TMDL, Agricultural Conservation Practices, and Their Implications on National Watersheds: Hearing before the Subcomm. on Conservation, Energy, and Forestry*, 112th Cong. 105 (2011) (statement of Hobeys Bauhan, President, Virginia Poultry Fed’n) (“EPA should do more to recognize the tools and programs that are working in Virginia, in other states in the Chesapeake Bay watershed, and across the nation. Overrunning states with a heavyhanded Federal permitting and penalty scheme—using the Federal TMDL’s questionable data and modeling assumptions—only imposes more costs and paperwork for family farms, and achieves marginal benefits at best to water quality.”).

¹⁹⁰ Christopher Doering, *AFBF: Federal Regulations Are the Biggest Threat to Farmers*, DES MOINES REG. (Jan. 10, 2016, 12:14 PM) (quoting Bob Stallman, Am. Farm Bureau Fed’n, Former President), <https://www.desmoinesregister.com/story/money/agriculture/2016/01/10/federal-regulations-biggest-threat-farmers/78131422/> [<https://perma.cc/EQ8Y-F7A6>].

for a waterway impaired solely by nonpoint sources.¹⁹¹ The court concluded that even if the statute was ambiguous, the EPA's interpretation controls the waterway, and the state is required to create a TMDL to attain the applicable water quality standards.¹⁹² Although the plaintiffs in *Pronsolino* raised federalism concerns, the court maintained that its holding would not "upset the balance of federal-state control established in the CWA."¹⁹³ The court recognized that the EPA did not include implementation or monitoring plans in the TMDL purposefully in order to allow the state to retain those traditionally state responsibilities.¹⁹⁴ Although this addresses the federalism concerns, it does not make the TMDL any more effective. This follows the established position that TMDLs are not themselves federal regulation, rather, they are tools that are required and can later be implemented by states, if they choose to do so.

When faced with the water allocation challenge of the Colorado River, the states chose to negotiate a compact to allocate the water to prevent future disputes, prevent federal involvement into what was thought of as a traditionally state law issue, and avoid expensive and onerous litigation.¹⁹⁵ One of the common criticisms of the Bay TMDL is the EPA's significant role in its creation and implementation. The EPA's process to create the TMDL included providing the states with target loads, approving their submitted WIPs, and supplementing any gaps in WIPs by adjusting, drafting, and finalizing the TMDL after public comment.¹⁹⁶ Although the court upheld the EPA's use of federal authority in the Bay TMDL, there was specific statutory authority for the Bay TMDL that does not exist for other waterways, like the

191 See *Pronsolino v. Nastri*, 291 F.3d 1123, 1139 (9th Cir. 2002).

192 See *id.* at 1139–40.

193 *Id.* at 1140.

194 *Id.* "California chose both *if* and *how* it would implement the Garcia River TMDL. States must implement TMDLs only to the extent that they seek to avoid losing federal grant money; there is no pertinent statutory provision otherwise requiring implementation of § 303 plans or providing for their enforcement." *Id.*

195 *Sharing Colorado River Water*, *supra* note 33, at 2. This compact, however, was not perfect and disagreements among the states resulted in delays in ratification. As exemplified by the disputes between Arizona and California, decades of litigation ensued to finalize agreements between the lower division states and the federal government, which ultimately played a substantial and multifaceted role in managing the water apportionment. This is not to say that the Law of the River method of collaboration was not groundbreaking for its time and should not be recreated.

196 *Frequent Questions About the Chesapeake Bay TMDL*, U.S. ENV'T PROT. AGENCY, <https://www.epa.gov/chesapeake-bay-tmdl/frequent-questions-about-chesapeake-bay-tmdl#anchor23> [<https://perma.cc/Y3AL-VQME>].

Mississippi River Basin.¹⁹⁷ Further, states are inherently more aware of the status and needs of the agriculture industry in their state. Like in the Colorado River Basin, the Law of the River created a way for the state officials to agree amongst themselves on terms that they felt would be best for their state needs and ultimate development goals.¹⁹⁸ The use of the interstate compact allows states to negotiate and agree *amongst themselves* how best to allocate pollution. This solution strikes a balance between encouraging states to employ their reserved authority and encouraging cooperation to achieve pollution reduction.

CONCLUSION

The United States is home to many water bodies that carry pollution from one state through another, including the Colorado and Mississippi Rivers. Nutrients from Minnesota farms travel thousands of miles before ending up in the Gulf of Mexico.¹⁹⁹ Regardless of how strictly the Gulf-adjacent states of Louisiana or Mississippi regulate water pollution, if Illinois or South Dakota is not doing the same, their pollution reduction efforts may be in vain. Before too long, states in these watersheds will be forced to address the agricultural pollution that is overwhelming their waterways, much like the Chesapeake Bay states. The Bay TMDL shows that wide-reaching multijurisdictional TMDLs require additional procedures and more accountability measures than a TMDL for a waterway wholly within one state. Thus, interstate pollution requires an interstate solution. The silver lining is that these states have the Chesapeake Bay as an example of what does and does not work, and can learn from the mistakes made in the Bay restoration efforts. Interstate compacts are a useful and readily available tool that states can use to incorporate multijurisdictional TMDLs and can have binding effects while still ensuring the states have a voice in their creation and implementation.

¹⁹⁷ See generally *Am. Farm Bureau Fed'n v. EPA*, 792 F.3d 281, 291–92 (3d Cir. 2015).

¹⁹⁸ See *supra* Section I.A.1.

¹⁹⁹ The headwaters of the Mississippi River are in northern Minnesota at Lake Itasca, approximately 2,300 miles from the Gulf of Mexico. Michael Woodside, *The Challenge of Tracking Nutrient Pollution 2,300 Miles*, U.S. GEOLOGICAL SURV. (Mar. 6, 2017), <https://www.usgs.gov/news/challenge-tracking-nutrient-pollution-2300-miles> [<https://perma.cc/R3TV-37ZN>].