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## **Distressed Watershed: A Designation To Ease the Algae Crisis in Lake Erie and Beyond**

Kenneth K. Kilbert

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# Distressed Watershed: A Designation To Ease the Algae Crisis in Lake Erie and Beyond

Kenneth K. Kilbert\*

## ABSTRACT

Algae pose a severe problem in many waterbodies nationwide, but the algae crisis is perhaps most acute in Lake Erie. Harmful algal blooms choke the lake every year, causing economic and ecologic damage and threatening public health. Solving the algae crisis in Lake Erie depends on reducing the amount of nutrients entering the lake, especially from agricultural stormwater runoff. Ohio's recent designation of Lake Erie as "impaired" under the Federal Clean Water Act is a positive step, and the resulting Total Maximum Daily Load ("TMDL") should be a useful planning tool in the fight against algae. But because the Clean Water Act and TMDLs do not actually regulate nonpoint sources, it is up to state law to address agricultural runoff.

This article urges another designation for Lake Erie—as a "distressed watershed" under Ohio's unique distressed watershed

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\* Kenneth K. Kilbert is a professor at the University of Toledo College of Law, where he also serves as director of its Legal Institute of the Great Lakes. The author thanks Lorrie Rendle and Ashley Weis for their valuable research assistance.

rules. A distressed watershed designation would unleash a suite of binding restrictions specifically aimed at reducing nutrient loading from agricultural nonpoint sources, without the need for any new statute or rulemaking. This article also argues that other states plagued by algae and agricultural nutrient pollution should consider using Ohio's innovative distressed watershed rules as a model for their own rules. Finally, this article recommends improvements to the distressed watershed rules in Ohio and such other states.

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## INTRODUCTION

Excessive algae plague many waterbodies across the nation, from the Great Lakes to Florida and from the Chesapeake Bay to the Pacific Northwest.<sup>1</sup> But the poster child for our nation's algae problem is Lake Erie. Harmful algal blooms ("HABs") in Lake Erie have grown particularly severe in recent years, blanketing wide swaths of the lake with a thick green scum that adversely impacts recreational use, tourism, lakefront property values, fish, and other aquatic life.<sup>2</sup> Perhaps most importantly, HABs can produce toxins that cause illness and even death to humans through ingestion or contact.<sup>3</sup> Warnings not to swim in Lake Erie are common on public beaches.<sup>4</sup> In August 2014, about 500,000 persons in the Toledo, Ohio area were left without safe public drinking water for two and a half days when elevated levels of microcystin, a toxin produced by HABs, were detected in the city's drinking water system.<sup>5</sup>

HABs form in Lake Erie in the summer or early fall from a combination of warm temperatures and excessive nutrients, especially phosphorus. Although several categories of sources contribute phosphorus to the lake, the largest source is stormwater runoff from agricultural activities in Ohio. Many scientists and policy makers concur that solving the HABs problem in Lake Erie will

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1. See *Nutrient Pollution: Harmful Algal Blooms*, U.S. ENVTL. PROT. AGENCY, <https://bit.ly/1Q366pw> [<https://perma.cc/MAA8-ZQJR>] (last visited July 10, 2019) ("Harmful algal blooms are a major environmental problem in all 50 states."); Karl Havens, *Future of Harmful Algal Blooms in Florida Inland and Coastal Waters*, UNIV. FLA. INST. FOOD & AGRIC. SCI. (Feb. 2018), <https://bit.ly/2G3gRxR> [<https://perma.cc/9269-P5HZ>]; Univ. of Md. Ctr. Env'tl. Sci., *Harmful Algal Blooms in the Chesapeake Bay are Becoming More Frequent*, SCIENCE DAILY (May 11, 2015), <https://bit.ly/2kaeiSV> [<https://perma.cc/8TK6-MNSE>]; Dick VanderHart, *Report: Salem Knew for Years that Algae Could Threaten Water*, NORTHWEST PUB. BROAD. (Sept. 17, 2018), <https://bit.ly/2lFhyWJ> [<https://perma.cc/P35A-CMMR>]; Michael Jarvis, *Harmful Algal Blooms (HABs) in the Great Lakes*, NAT. OCEANIC & ATMOSPHERIC ADMIN., <https://bit.ly/2G5Vc80> [<https://perma.cc/C263-45F9>] (last visited July 10, 2019).

2. INT'L JOINT COMM'N, A BALANCED DIET FOR LAKE ERIE 3 (2014), <https://bit.ly/2G8tpE6> [<https://perma.cc/8RVP-AXAY>] [hereinafter BALANCED DIET FOR LAKE ERIE]; OHIO ENVTL. PROT. AGENCY, OHIO LAKE ERIE PHOSPHORUS TASK FORCE FINAL REPORT 11 (2010), <https://bit.ly/2G5udcQ> [<https://perma.cc/M8S8-LXJD>] [hereinafter OHIO LAKE ERIE TASK FORCE I].

3. EUGENE C. BRAIG ET AL., HARMFUL ALGAL BLOOMS IN OHIO WATERS 1 (2011), <https://bit.ly/2G7v5xQ> [<https://perma.cc/XS5N-QRDR>].

4. See Zack Lemon, *Algae Advisory Keeps Many Away from Maumee Bay State Park*, BLADE (Toledo), (Sept. 3, 2017), <https://bit.ly/2Lgc54c> [<https://perma.cc/F5Z7-N9P9>]; *Ohio Algae Information for Recreational Waters*, OHIO ENVTL. PROT. AGENCY, <https://bit.ly/2NKR60a> [<https://perma.cc/JJU4-6RRK>] (last visited July 11, 2019).

5. See Emma G. Fitzsimmons, *Tap Water Ban for Toledo Residents*, N.Y. TIMES, (Aug. 3, 2014), <https://nyti.ms/2JBeJyc> [<https://perma.cc/8GGT-PU3H>].

require drastic reduction in the amount of phosphorus entering the lake, perhaps by as much as 40 percent.<sup>6</sup> The conundrum, however, is that federal and state laws focus primarily on point sources and do little to control phosphorus discharges from nonpoint sources such as agricultural runoff.<sup>7</sup>

In recent years, a growing number of voices have advocated for the designation of Lake Erie as “impaired” under the Federal Clean Water Act as a means to address the algae problem. The Ohio Environmental Protection Agency (Ohio EPA) had been reluctant to make such a designation.<sup>8</sup> However, in spring 2018, spurred by a citizen suit and a crescendo of criticism from public officials, Ohio EPA finally designated the Ohio portion of Lake Erie as impaired due to algae. This designation obligates Ohio EPA to prepare a Total Maximum Daily Load (“TMDL”), which calculates the maximum amount of phosphorus that can enter the lake on a daily basis without exceeding water quality standards. The TMDL should be a useful planning tool for regulators, as it identifies how much pollution exists and how much pollution reduction from point and nonpoint sources is necessary to achieve water quality standards. But it must be recognized that an impaired designation under the Clean Water Act is a limited tool to combat HABs. A TMDL does not regulate nonpoint sources, nor does it require the state to impose new restrictions on nonpoint sources, such as agriculture. Actual regulation of nonpoint source nutrient pollution is up to state law.<sup>9</sup>

Therefore, this article urges another designation for Lake Erie: as a “distressed watershed” under Ohio’s unique distressed watershed rules. Designating the western Lake Erie watershed as distressed will impose binding restrictions on agricultural sources to reduce phosphorus loading. These restrictions can be imposed without a new statute from the Ohio General Assembly or even new rules from an Ohio agency. Once the designation is made, the distressed watershed rules restrict application of manure and require farmers to conform with the terms of an agency-approved nutrient management plan specifically designed to reduce phosphorus stormwater runoff. The binding restrictions imposed by the distressed watershed rules have been effective in reducing agricultural

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6. *See infra* Part II.

7. *See infra* Part III.

8. Ohio owns the lion’s share of the United States’ portion of Lake Erie. *See Eutrophication of Lake Erie: About Lake Erie*, OHIO WESLEYAN UNIV., <https://bit.ly/2XS WBsU> [<https://perma.cc/2RNQ-GK2Z>] (last visited Jul. 11, 2019) (attaching a Google map of Lake Erie showing state and national borders).

9. *See infra* Part IV.

pollution in another Ohio watershed, and implementation of these rules should be an important part of Ohio's strategy for reducing phosphorus loading from agricultural sources to Lake Erie.<sup>10</sup>

Ohio Governor John Kasich and his administration deserve credit for attempting to designate a portion of the western Lake Erie watershed as distressed in summer 2018. Although that effort failed, it highlighted some shortcomings of the existing distressed watershed rules. This article will explore those and other shortcomings of the existing rules and will recommend several improvements for Ohio and other states looking for innovative legal tools to battle HABs.<sup>11</sup>

Part II of this article provides background on the HABs problem in Lake Erie, including why reduction in agricultural stormwater runoff is a key to solving the problem. Part III describes how the Clean Water Act, despite having a rigorous approach to point source pollution, largely leaves regulation of nonpoint sources such as agricultural runoff to state law. Part III also discusses how Ohio state law is trying to regulate agricultural pollution. Part IV explains why the impaired waters designation under the Clean Water Act is a positive development, but not the panacea, for addressing HABs in Lake Erie. Part V discusses why the distressed watershed designation under Ohio law could be an even more important step toward easing the Lake Erie HABs crisis. Finally, Part VI argues that Ohio's unique distressed watershed rules should be emulated by other states battling HABs and offers recommendations to enhance the effectiveness of the distressed watershed rules in Ohio and beyond.

## I. HARMFUL ALGAL BLOOMS AND LAKE ERIE

Blue-green algae, technically cyanobacteria, form in western Lake Erie during the summer or fall due to a combination of warm water temperatures and excess nutrients, especially phosphorus.<sup>12</sup> Although nitrogen is usually the prime nutrient driving the formation of HABs in ocean waters, phosphorus is typically the limiting factor for HABs in fresh waters, such as the Great Lakes.<sup>13</sup> Other pockets of the Great Lakes also suffer from HABs, but as the shallowest and warmest of the Great Lakes, Lake Erie is particularly

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10. See *infra* Part V.

11. See *infra* Part VI.

12. JEFFREY REUTER ET AL., LAKE ERIE NUTRIENT LOADING AND HARMFUL ALGAL BLOOMS: RESEARCH FINDINGS AND MANAGEMENT IMPLICATIONS 2 (2011), <https://bit.ly/30v4vGC> [<https://perma.cc/D2R8-L9C4>].

13. *Id.* at 3.

prone to HABs.<sup>14</sup> And because the western basin is the shallowest and warmest portion of Lake Erie, and receives the most phosphorus loading, the western basin is a hotspot for HABs.<sup>15</sup>

This is not the first era in which algae have plagued Lake Erie. During the 1960s and early 1970s, Lake Erie was heavily polluted, and HABs were a severe problem.<sup>16</sup> But following the infamous 1969 fire on the Cuyahoga River,<sup>17</sup> a Lake Erie tributary, Congress enacted the Clean Water Act in 1972.<sup>18</sup> The resulting regulation of point source discharges dramatically decreased the amount of phosphorus entering Lake Erie. By the 1980s, HABs were virtually non-existent in Lake Erie.<sup>19</sup>

However, during the mid-1990s HABs began to recur in Lake Erie, and the algae have grown particularly intense and widespread since the turn of this century.<sup>20</sup> By 2007, HABs were such a concern that Ohio EPA convened a multi-disciplinary task force to study the algae problem in Lake Erie.<sup>21</sup> While the magnitude of the algal bloom varies year to year, there has been an unsightly

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14. See BALANCED DIET FOR LAKE ERIE, *supra* note 2, at 2.

15. KRISTEN FUSSELL ET AL., SUMMARY OF FINDINGS AND STRATEGIES TO MOVE TOWARD A 40% PHOSPHORUS REDUCTION 2 (2017), <https://bit.ly/2makZ89> [<https://perma.cc/DFC6-JLQK>]; U.S. ENVTL. PROT. AGENCY, U.S. ACTION PLAN FOR LAKE ERIE 2 (2018), <https://bit.ly/2tExdZN> [<https://perma.cc/XGSS-GMLE>] [hereinafter USEPA 2018 ACTION PLAN FOR LAKE ERIE].

16. See OHIO LAKE ERIE TASK FORCE I, *supra* note 2, at 11–12. Even Dr. Seuss noted that Lake Erie was highly polluted. See George Spyros, *Trivia: Dr. Seuss Rewrote The Lorax 20 Years After Publication—Why? VIDEO*, TREEHUGGER (Sept. 22, 2012), <https://bit.ly/2JCZ9SK> [<https://perma.cc/B4H3-57LM>]. A character in his 1971 book *The Lorax*, lamenting a polluted river, said “I hear things are just as bad up in Lake Erie.” *Id.* That line was removed from the book decades later following improvement in Lake Erie’s water quality. *Id.*

17. See Julie Grant, *How a Burning River Helped Create the Clean Water Act*, ALLEGHENY FRONT (Apr. 21, 2017), <https://bit.ly/2G3r5Pw> [<https://perma.cc/E25N-3SUN>].

18. Clean Water Act, Pub. L. No. 92-500, 86 Stat. 816 (1972) (codified as amended at 33 U.S.C. §§ 1251–1387 (2006)). The Great Lakes Water Quality Agreement, a non-binding but influential international agreement between the United States and Canada, also was enacted in 1972. See Agreement Between Canada and the United States on Great Lakes Water Quality, Can.-U.S., Apr. 15, 1972, 30 U.S.T. 1383 (as amended Oct. 16, 1983, Nov. 18, 1987, and Sept. 7, 2012) [hereinafter GREAT LAKES WATER QUALITY AGREEMENT].

19. OHIO LAKE ERIE TASK FORCE I, *supra* note 2, at 12–16. Modification of agricultural practices, such as no-till farming, also helped reduce the amount of phosphorus entering Lake Erie. *Id.* at 13.

20. BALANCED DIET FOR LAKE ERIE, *supra* note 2, at 2–4.

21. See OHIO LAKE ERIE TASK FORCE I, *supra* note 2, at 11. A second Lake Erie phosphorus task force issued another report in November 2013. See OHIO ENVTL. PROT. AGENCY ET AL., OHIO LAKE ERIE PHOSPHORUS TASK FORCE II FINAL REPORT 1 (2013), <https://bit.ly/2XKjc6V> [<https://perma.cc/WU93-GECM>] [hereinafter OHIO LAKE ERIE TASK FORCE II].

layer of green algae covering significant portions of the western basin of Lake Erie almost every year since 2000; this discourages swimming, boating, fishing, and other recreational use of the lake and its shores, and poses a nuisance to residents and tourists alike. In 2011, the algal blooms stretched into the central basin of Lake Erie as far east as Cleveland,<sup>22</sup> causing scientists to rate that year's unprecedented bloom as a 10 on a 10-point scale, only to have that record smashed by an even more massive algal bloom in 2015.<sup>23</sup>

The toxin microcystin, produced by HABs, is often detected in Lake Erie, which limits access to public beaches and raises concerns about the safety of drinking water drawn from the lake. In 2013, Carroll Township in Ottawa County, Ohio shut down its drinking water plant for two days, due to concerns about high levels of microcystin detected in the raw water. This shut-down left 2,000 customers without tap water.<sup>24</sup> Even worse, in August 2014 the public water system of Toledo, Ohio issued a do-not-drink advisory to its customers as a result of elevated levels of microcystin detected in its finished, treated water. For two and a half days, until the toxin levels subsided and the advisory was lifted, nearly half a million persons in the Toledo area were without access to safe drinking water from their taps.<sup>25</sup>

In the 1960s, human sewage was the key contributor of phosphorus pollution to Lake Erie, originating primarily from municipal sewage treatment plants, also known as publicly owned treatment works ("POTWs").<sup>26</sup> But since passage of the Clean Water Act in 1972, point source dischargers such as POTWs are required to comply with the terms of permits.<sup>27</sup> Regulation of POTWs and other

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22. See D'Arcy Egan, *Algae Woes on Lake Erie Demand Immediate Attention from Federal, State Agencies*, CLEVELAND PLAIN DEALER, (Oct. 14, 2011), <https://bit.ly/2GbhuWf> [<https://perma.cc/LVG2-4WPG>]. The HABs problem in the central basin is not as severe as in the shallower western basin, but when HABs from the western basin die and decompose they contribute to hypoxic conditions and the so-called "dead zone" in the central basin. See USEPA 2018 ACTION PLAN FOR LAKE ERIE, *supra* note 15, at 3–4.

23. See 2018 Lake Erie Harmful Algal Bloom Seasonal Forecast, NAT'L. WEATHER SERV., <https://bit.ly/2Y4j1aK> [<https://perma.cc/7EQB-MZL9>] (last visited July 11, 2019). The 2015 bloom was rated a *Spinal Tap*-esque 10.5 on the 10-point scale. *Id.*

24. See *Lake Erie Algae a Threat to Ohio Drinking Water*, USA TODAY, (Oct. 13, 2013, 2:22 PM), <https://bit.ly/2YHqZnf> [<https://perma.cc/T87W-6RHW>].

25. See Tom Henry, *Toledo Seeks Return to Normalcy After Do Not Drink Advisory Lifted*, BLADE (Toledo, Ohio), (Aug. 5, 2014), <https://bit.ly/2YINAj6> [<https://perma.cc/2U3D-XCUN>].

26. See OHIO LAKE ERIE TASK FORCE I, *supra* note 2, at 12–16; BALANCED DIET FOR LAKE ERIE, *supra* note 2, at 2–4.

27. See 33 U.S.C. §§ 1311(a), 1342(a) (2006 & Supp. V 2011).

point sources under the Clean Water Act and associated state law has been relatively successful, and the amount of phosphorus discharged to Lake Erie or its tributaries from point sources has decreased markedly.<sup>28</sup> Today, POTWs contribute less than ten percent of the phosphorus loading to Lake Erie;<sup>29</sup> the bulk of phosphorus now comes from nonpoint sources, especially stormwater runoff of manure and commercial fertilizer from agricultural activities.<sup>30</sup>

Lake Erie has three basins: western (western tip of the lake near Toledo to Sandusky Bay), central (Sandusky Bay to Erie, Pennsylvania) and eastern (Erie, Pennsylvania to the eastern tip of the lake near Buffalo).<sup>31</sup> Flow is from west to east. HABs are most common and severe in the shallow, warm, phosphorus-rich western basin. When algae from the western basin die and decompose, they contribute to hypoxic conditions (i.e., a low-oxygen “dead zone”) in the deeper central basin. The deepest, coldest eastern basin has much lower phosphorus levels than the western and central basins, and as a result it is not plagued by the same kind of algae problems.<sup>32</sup>

Most of the phosphorus entering Lake Erie is from the western Lake Erie basin (“WLEB”) watershed.<sup>33</sup> The WLEB watershed is largely in Ohio, with smaller portions in Michigan, Indiana, and Canada.<sup>34</sup> Most of the phosphorus loading from the WLEB watershed is from Ohio nonpoint agricultural sources.<sup>35</sup> In particular, the Maumee River watershed comprises most of the WLEB watershed and, except for parts of a few counties in Indiana and Michigan, is entirely in Ohio.<sup>36</sup> Furthermore, the Maumee River watershed contributes far more phosphorus loading to Lake Erie than any other tributary and is viewed as the principal driver of HABs in

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28. See OHIO LAKE ERIE TASK FORCE I, *supra* note 2, at 12–16; BALANCED DIET FOR LAKE ERIE, *supra* note 2, at 3–4.

29. See FUSSELL ET AL., *supra* note 15, at 2.

30. OHIO LAKE ERIE TASK FORCE I, *supra* note 2, at 73. See also BALANCED DIET FOR LAKE ERIE, *supra* note 2, at 4.

31. See USEPA 2018 ACTION PLAN FOR LAKE ERIE, *supra* note 15, at 3–4.

32. *Id.*

33. *Id.* at 3.

34. See OHIO LAKE ERIE TASK FORCE I, *supra* note 2, at 17.

35. *Id.* at 17, 73.

36. See U.S. DEP’T AGRIC. ET AL., WESTERN LAKE ERIE BASIN WATER RESOURCES PROTECTION PLAN 3 fig. 1 (2005), <https://bit.ly/2JKiC49> [<https://perma.cc/KEE4-W9V6>]; Lake Erie Waterkeeper, *Lake Erie Facts: Maumee River Watershed*, <https://bit.ly/2Mp3VHb> [<https://perma.cc/65Z6-RG7K>] (last visited Aug. 18, 2019).

Lake Erie.<sup>37</sup> In the Maumee River watershed, approximately 88 percent of the phosphorus loading is attributable to nonpoint sources—the vast bulk of which is from agriculture.<sup>38</sup> Thus, although other states and sources of phosphorus contribute to the HABs problem in Lake Erie, agricultural sources in Ohio appear to be the linchpin.

Scientists and policy makers concur that the HABs problem in Lake Erie can be solved by reducing phosphorus loading to the western basin. A 40 percent reduction in phosphorus loading seems to be the consensus magic number. In 2013, the Ohio Phosphorus Task Force II recommended a roughly 40 percent reduction in phosphorus loading from the WLEB watershed, with a particular focus on reducing spring loads from the Maumee River.<sup>39</sup> In 2014, the International Joint Commission also recommended a roughly 40 percent reduction in phosphorus loading to the WLEB and emphasized that reducing spring loads from the Maumee River was the highest priority.<sup>40</sup> In 2015, the governors of Ohio and Michigan and the premier of Ontario pledged to attain a 40 percent phosphorus loading reduction target for the WLEB by 2025.<sup>41</sup> In 2016, the United States and Canada, as part of the Annex 4 process under the Great Lakes Water Quality Agreement of 2012 to address nutrients,<sup>42</sup> set a target of 40 percent reduction of phosphorus loading to the western basin and from the Maumee River watershed.<sup>43</sup> Experts say a 40 percent decrease in phosphorus loading may not eliminate HABs in Lake Erie, but it should significantly reduce

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37. See OHIO LAKE ERIE TASK FORCE II, *supra* note 21, at 31–32; FUSSELL ET AL., *supra* note 15, at 4.

38. OHIO LAKE ERIE COMMISSION ET AL., STATE OF OHIO'S OHIO DOMESTIC ACTION PLAN 1.1 5–6 (2018), <https://bit.ly/2YRiXbB> [<https://perma.cc/B8GW-9TYR>] [hereinafter OHIO DOMESTIC ACTION PLAN]; FUSSELL ET AL., *supra* note 15, at 4.

39. See OHIO LAKE ERIE TASK FORCE II, *supra* note 21, at 31–32, 34.

40. See BALANCED DIET FOR LAKE ERIE, *supra* note 2, at 8. The IJC also recommended a 40 percent reduction in phosphorus loading to the western and central basins to address hypoxia in the central basin. *Id.*

41. Western Basin of Lake Erie Collaborative Agreement, June 13, 2015, <https://bit.ly/33JH5Qc> [<https://perma.cc/E7H5-HVKL>]. The agreement also sets an interim goal of a 20 percent reduction in phosphorus loading by 2020. *Id.*

42. The Great Lakes Water Quality Agreement of 2012 is an international agreement between the United States and Canada, originally signed in 1972 and most recently amended in 2012. See GREAT LAKES WATER QUALITY AGREEMENT, *supra* note 18, at 1. In Annex 4, the nations agreed to address nutrients in the Great Lakes, including phosphorus in Lake Erie. *Id.* at 31–36.

43. See USEPA 2018 ACTION PLAN FOR LAKE ERIE, *supra* note 15, at 1, 6. The plan also recommended a 40 percent reduction of phosphorus loading to the central basin to help address hypoxia. *Id.* at 6.

their severity such that the norm would be minor blooms no larger than those observed in the mildest years this century.<sup>44</sup>

## II. CLEAN WATER ACT LEAVES NONPOINT SOURCES TO STATE LAW

### A. *Clean Water Act*

The Federal Clean Water Act rigorously regulates point sources. Section 301 of the Clean Water Act broadly prohibits the “discharge of any pollutant” except as in compliance with certain sections of the Act.<sup>45</sup> “Discharge of a pollutant” is defined as the addition of any “pollutant” to “navigable waters” from any “point source.”<sup>46</sup> Phosphorus is a “pollutant” under the Clean Water Act<sup>47</sup> and Lake Erie and its tributaries are “navigable waters.”<sup>48</sup> “Point source” is expansively defined to include any “discernible, confined and discrete conveyance,” such as pipes or ditches.<sup>49</sup> End-of-pipe discharges of effluent from treatment plants, including POTWs, are classic point sources.

Discharges of pollutants such as phosphorus from point sources into navigable waters require a National Pollution Discharge Elimination System (“NPDES”) permit under § 402.<sup>50</sup> NPDES permits set the conditions under which a discharge of phosphorus from point sources is allowed.<sup>51</sup> Unpermitted discharges of phosphorus from a point source or discharges in excess of the limits set forth in the permit violate the Clean Water Act, and violators are subject to penalties and injunctive relief.<sup>52</sup>

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44. *See id.* at 11 (noting 40% reductions designed to result in small blooms, such as those observed in 2004 and 2012 or smaller, in nine years out of ten).

45. 33 U.S.C. § 1311(a) (2006 & Supp. V 2011). Compliance usually means discharging in accordance with the terms of an NPDES permit issued under § 402. *Id.* § 1342.

46. *Id.* § 1362(12) (emphasis added).

47. *Id.* § 1362(6).

48. “Navigable waters,” defined under the Clean Water Act as “waters of the United States,” encompass more than navigable-in-fact waters such as Lake Erie and its major tributaries. *Id.* § 1362(7). How much more is unclear. But the Clean Water Act’s jurisdiction currently extends at least to relatively permanent bodies of water (e.g., seasonal streams) that are tributaries of navigable-in-fact waters, and waters and wetlands that have a significant nexus to traditional navigable-in-fact waters. *See Rapanos v. United States*, 547 U.S. 715 (2006).

49. 33 U.S.C. § 1362(14) (2006 & Supp. V 2011).

50. *Id.* § 1342. Most pollutants require an NPDES permit under section 402 but dredged and fill material are permitted under § 404. *Id.* § 1344.

51. *See* 33 U.S.C. § 1342(a).

52. *See id.* § 1319 (relating to government enforcement), § 1365 (relating to citizen suits). In certain instances of negligent or knowing violations, criminal sanctions are available. *See also id.* § 1319(c).

By contrast, discharges from nonpoint sources do not require a permit and are virtually unregulated by the Clean Water Act. “Nonpoint source” is not defined in the statute, but in effect nonpoint sources are diffuse sources not regulated as point sources.<sup>53</sup> Stormwater runoff is generally considered to be nonpoint source pollution.<sup>54</sup> Indeed, the Clean Water Act specifically exempts “agricultural stormwater discharges and return flows from irrigated agriculture” from the definition of point source.<sup>55</sup>

The NPDES permit program is a delegable program, meaning that the U.S. Environmental Protection Agency (“USEPA”) may delegate to a state agency the authority to administer and enforce the program.<sup>56</sup> In Ohio, the Ohio EPA is the delegated agency that issues NPDES permits,<sup>57</sup> while USEPA retains oversight and veto authority.<sup>58</sup> One of the requisites for delegation is that state law be at least as stringent as the Clean Water Act and federal regulations.<sup>59</sup> Ohio Revised Code Chapter 6111 is the prime Ohio statute governing water pollution from point sources.<sup>60</sup> In general, this statute makes it unlawful to place or discharge any sewage, sludge, or other wastes into waters of the state without an NPDES permit.<sup>61</sup> Similar to the Federal Clean Water Act, Ohio Revised Code Chapter 6111 specifically exempts agricultural pollution, including stormwater runoff of fertilizer or manure.<sup>62</sup>

Instead of a permit system, the Clean Water Act relies on planning and incentive programs to encourage reduction of nonpoint

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53. See *Cordiano v. Metacon Gun Club, Inc.*, 575 F.3d 199, 220 (2d Cir. 2009).

54. See U.S. Evtl. Prot. Agency, *Polluted Runoff: Nonpoint Source Pollution*, [www.EPA.gov](http://www.EPA.gov) (last visited July 13, 2019), <https://bit.ly/2ozFdY1> [<https://perma.cc/UJN6-ABMH>]. Certain municipal and industrial stormwater discharges, though, are considered to be point sources and need NPDES permits. See 33 U.S.C. § 1342(p) (2006 & Supp. V 2011).

55. 33 U.S.C. § 1362(14) (2006 & Supp. V 2011).

56. See *id.* § 1342(a)–(b). See also 33 U.S.C. § 1251(b); 40 C.F.R. § 123.1 (2018).

57. See U.S. Evtl. Prot. Agency, *National Pollution Discharge Elimination System (NPDES) State Program Information*, [www.EPA.gov](http://www.EPA.gov), (last visited Jul. 13, 2019) <https://bit.ly/2cKEzjF> [<https://perma.cc/V2P9-VR2F>]; Ohio Evtl. Prot. Agency, *Surface Water Permit Programs*, [www.EPAOHIO.gov](http://www.EPAOHIO.gov) (last visited July 13, 2019), <https://bit.ly/2LTjgij> [<https://perma.cc/SLR5-4DFB>].

58. See 33 U.S.C. § 1342(d) (2006 & Supp. V 2011); 40 C.F.R. § 124.44.

59. See 33 U.S.C. § 1342(b) (2006 & Supp. V 2011). States may have laws that are more stringent and broader than federal law. See *id.* § 1370.

60. OHIO REV. CODE ANN. §§ 6111.01–.99 (West 2018).

61. *Id.* § 6111.04(A)(1). Ohio’s statute reaches all “waters of the state,” which is broader than “waters of the United States” under the Clean Water Act. Compare *id.* § 6111.01(H), with 33 U.S.C. § 1362(7) (2006 & Supp. V 2011).

62. OHIO REV. CODE ANN. § 6111.04(F)(3)–(4) (West 2010).

source pollution, including agricultural stormwater runoff.<sup>63</sup> In other words, the Clean Water Act uses carrots, rather than sticks, to reduce phosphorus loading from nonpoint sources such as agricultural runoff of manure and commercial fertilizer.

The Clean Water Act as originally enacted addressed nonpoint source pollution through § 208.<sup>64</sup> This section required states to designate (a) areas with substantial water quality control problems and (b) organizations capable of developing water treatment management plans for those areas.<sup>65</sup> The designated organizations would then develop management plans for controlling nonpoint source pollution “to the extent feasible.”<sup>66</sup> The designations and the plans were both subject to USEPA approval.<sup>67</sup> USEPA was authorized to make grants to designated agencies to develop and implement the management plans.<sup>68</sup> Nationally, the § 208 program was widely viewed as ineffective. Section 208 did not mandate regulation of nonpoint sources, and Congress ceased funding the grant program under this section in 1981.<sup>69</sup>

In 1987, in response to the perceived failure of § 208 and the growing problem of nonpoint source pollution, Congress amended the Clean Water Act by adding § 319.<sup>70</sup> In short, § 319 requires states to submit an assessment report identifying waters that are impaired by nonpoint source pollution and to develop management

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63. See 33 U.S.C. §§ 1288, 1329 (2006 & Supp. V 2011).

64. *Id.* § 1288.

65. *Id.* §1288(a)(2).

66. *Id.* § 1288(b). See also *id.* § 1288(b)(2)(F) (regarding agricultural nonpoint sources).

67. *Id.* §§ 1288(a)(7), (b)(3), (f).

68. *Id.* § 1288(f). The designated organizations were eligible for technical assistance from the federal government for developing and implementing the management plans. *Id.* §§ 1288(g)–(i). Further, the U.S. Department of Agriculture (USDA), through the Natural Resources Conservation Service (formerly the Soil Conservation Service), was authorized to enter into agreements with owners and operators of rural land whereby the USDA would share in the costs of installing and maintaining best management practices to control nonpoint source pollution. *Id.* § 1288(j).

69. See ROBERT V. PERCIVAL ET AL., ENVTL REG.: LAW, SCI. & POL'Y 802 (8th ed. 2018). Ohio has an USEPA-approved Water Quality Management Plan that incorporates section 208 plans as well as planning requirements under § 303(e). See Ohio Env'tl. Prot. Agency, *Water Quality Management Plans (CWA Sections 208 and 303)*, www.OHIOEPA.gov, (last visited July 13, 2019), <https://bit.ly/2NUOBne> [<https://perma.cc/TE94-FJS2>]. The Water Quality Management Plan broadly addresses elements of water quality that the state supervises, including nonpoint sources. *Id.* The nonpoint source program portion of the plan discusses the importance of identifying and supporting implementation of management practices to reduce nonpoint source pollution. *Id.* However, the plan imposes no requirements on nonpoint sources of pollution.

70. 33 U.S.C. § 1329 (2006 & Supp. V 2011).

plans, including best management practices, which address the nonpoint sources significantly polluting the waters.<sup>71</sup> States with USEPA-approved assessment reports and management programs receive federal grants to help implement the programs.<sup>72</sup> Section 319, though, does not require states to regulate nonpoint sources.<sup>73</sup>

Ohio's current nonpoint source management plan was approved by USEPA in 2014.<sup>74</sup> The plan broadly guides implementation of state and local nonpoint source management measures and includes strategies focused on nutrient pollution. The plan, however, imposes no requirements on nonpoint sources of pollution. Participation in the section 319 grant program is entirely voluntary for nonpoint sources.<sup>75</sup>

There is one important exception to the general rule that agricultural activities are not regulated as point sources under the Clean Water Act. "Concentrated animal feeding operations" ("CAFOs") are expressly included within the statute's definition of "point source."<sup>76</sup> Hence, CAFOs cannot discharge pollutants to waters of the United States except in compliance with the terms of an NPDES permit. Importantly, only CAFOs that actually discharge pollutants into the waters of the United States are required to obtain an NPDES permit.<sup>77</sup>

A CAFO is as an animal feeding operation that confines and feeds more than a certain threshold number of animals.<sup>78</sup> Examples of CAFOs include cattle farms, poultry farms, and swine lots. Regulations distinguish between large, medium, and small CAFOs depending on the number of animals they house.<sup>79</sup> Both large and medium CAFOs need an NPDES permit to lawfully discharge pol-

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71. *Id.*

72. *Id.* § 1329(h)(1).

73. See PERCIVAL ET AL., *supra* note 69, at 802–03.

74. Ohio Env'tl. Prot. Agency, Ohio Nonpoint Source Pollution Control Program (NPS Management Plan tab), <https://bit.ly/31OlpQW> [<https://perma.cc/7ZFM-E8M7>].

75. See OHIO ENVTL. PROT. AGENCY, NONPOINT SOURCE MANAGEMENT PLAN UPDATE (2014), <https://bit.ly/2Y0TAqx> [<https://perma.cc/PK92-72XX>].

76. 33 U.S.C. § 1362(14) (2006 & Supp. V 2011).

77. A 2008 rule had required all CAFOs that *proposed* to discharge must seek an NPDES permit, but the Fifth Circuit vacated that portion of the rule. See *Nat'l Pork Producers Council v. EPA*, 635 F.3d 738, 750 (5th Cir. 2011).

78. An "animal feeding operation" essentially is a facility where animals are confined and fed for at least 45 days a year and crops are not grown. See 40 C.F.R. § 122.23(b)(1) (2018).

79. Large CAFOs, for example, have more than 700 mature dairy cows, 55,000 turkeys, or 10,500 swine each weighing less than 55 pounds, whereas medium CAFOs have at least 200 dairy cows, 16,500 turkeys, or 3000 swine each weighing less than 55 pounds. 40 C.F.R. § 122.23(b) (2018).

lutants to waters of the United States.<sup>80</sup> Even a small animal feeding operation can be designated and regulated as a CAFO requiring an NPDES permit, where the agency determines the operation is a significant contributor to water pollution.<sup>81</sup>

Each CAFO must develop and implement a nutrient management plan as a condition of its NPDES permit.<sup>82</sup> By regulation, the nutrient management plan must address the following: adequate storage capacity, proper disposal of dead animals, practices to divert clean stormwater away from production areas, practices to ensure animals and manure do not come into contact with waters, how it will handle unused waste chemicals and other contaminants, and inspection and monitoring of discharges and potential discharges.<sup>83</sup> If the CAFO is participating in land management of manure, the nutrient management plan must also include a total nutrient budget, manure and soil characterizations, application methods and timing to minimize discharges into waters of the state, and specific agronomic application rates.<sup>84</sup>

By regulation, for CAFOs the point source exemption for “agricultural stormwater discharge” is limited to runoff where manure has been applied to the land in accordance with site-specific nutrient management plans.<sup>85</sup> Thus, runoff of manure excessively applied to the land can be a point source discharge that requires an NPDES permit.<sup>86</sup>

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80. *Id.* § 122.23(d)(1).

81. *Id.* § 122.3(c). CAFOs produce prodigious amounts of manure. CAFOs nationwide produce more than three times the amount of waste excreted by humans, and a single CAFO can produce more waste than a large city. *See* PERCIVAL ET AL., *supra* note 69, at 727; CARRIE HRIBAR, *UNDERSTANDING CONCENTRATED ANIMAL FEEDING OPERATIONS AND THEIR IMPACT ON COMMUNITIES* 2 (Mark Shultz ed., 2010), <https://bit.ly/32pZIrD> [<https://perma.cc/X6ML-P5Q6>].

82. 40 C.F.R. § 122.42(e)(1) (2018).

83. *Id.*

84. *Id.* § 122.42(e)(5). Beyond the nutrient management plan, the NPDES permit also will specify certain operational and management requirements. For a facility proposing to apply manure over land, these requirements include proper operation and maintenance of manure-managing equipment and immediate corrective action when failure occurs, proper closure of facilities, protective vegetation to prevent stormwater discharge during severe rainfall events, minimum freeboard requirements for liquid waste storage structures, and adequate storage to prevent land application on frozen ground. *Id.* § 122.42(e). *See* Ohio Env'tl. Prot. Agency, *Concentrated Animal Feeding Operations*, [www.OHIOEPA.GOV](http://www.OHIOEPA.GOV) (last visited July 14, 2019), <https://bit.ly/2m6cn2c> [<https://perma.cc/L4AN-AKQX>].

85. 40 C.F.R. § 122.23(e) (2018).

86. The State of Ohio has petitioned the USEPA to transfer NPDES permitting responsibility for CAFOs from Ohio EPA to the Ohio Department of Agriculture. USEPA has never approved the transfer, however, so Ohio EPA remains responsible for issuing NPDES permits to CAFOs in Ohio. *See* OHIO ENVTL. PROT. AGENCY, *CAFO NPDES PERMIT—GENERAL OVERVIEW OF FEDERAL*

In sum, agricultural sources of phosphorus pollution, with the exception of CAFOs, are basically unregulated under the Federal Clean Water Act, because they are classified as nonpoint sources. Therefore, it is up to state law to regulate nonpoint sources such as agricultural nutrient pollution.

## *B. Ohio Law and Agricultural Nonpoint Sources*

This section describes the major Ohio statutes that play a role in trying to reduce nonpoint source agricultural nutrient pollution.<sup>87</sup>

### *1. Concentrated Animal Feeding Facilities, Ohio Revised Code Chapter 903*

Under Ohio law, a “concentrated animal feeding facility” (“CAFF”) must obtain permits issued by the Ohio Department of Agriculture (“ODA”) to install and operate regardless of whether the CAFF needs an NPDES permit.<sup>88</sup> A CAFF is defined similarly to a large CAFO under federal law, i.e., based on the number of animals confined.<sup>89</sup> Medium or small animal feeding operations that house fewer than a CAFF’s threshold number of animals are subject to regulation under a different state statute—the Ohio Revised Code Chapter 939 Agricultural Pollution Abatement Program (described later in this section).

ODA’s authority to regulate CAFFs stems from Ohio Revised Code Chapter 903.<sup>90</sup> A new CAFF cannot be created, nor an existing CAFF modified, without a permit to install (“PTI”) from ODA.<sup>91</sup> To obtain a PTI, the facility must satisfy siting and construction requirements aimed at preventing discharges of manure and other pollutants to groundwater or surface waters.<sup>92</sup> Furthermore, the statute requires all CAFFs to obtain a permit to operate

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REGULATIONS 2 (Mar. 2015), <https://bit.ly/2XF3v5u> [<https://perma.cc/GE3M-U83M>].

87. For a more comprehensive treatment of federal and Ohio laws governing point and nonpoint sources of phosphorus loading to Lake Erie, see generally Kenneth Kilbert et al., *Legal Tools for Reducing Harmful Algal Blooms in Lake Erie*, 44 U. TOL. L. REV. 69 (2012).

88. See OHIO REV. CODE ANN. § 903.03(A)(2) (West 2018). A CAFF that discharges pollutants to waters of the United States is considered a CAFO and must have an NPDES permit. See *supra* notes 76–77 and accompanying text.

89. For example, an animal feeding operation that houses more than 700 mature dairy cattle would qualify as a CAFF and as a large CAFO. Compare OHIO REV. CODE ANN. § 903.01(E) (West 2018), with 40 C.F.R. § 122.23(b)(4).

90. OHIO REV. CODE ANN. §§ 903.01–.99 (West 2018). The agency’s regulations for CAFFs are at OHIO ADMIN. CODE 901:10-1-01 to -06 (2018).

91. OHIO REV. CODE ANN. § 903.02(A)(2) (West 2018).

92. See generally OHIO ADMIN. CODE 901:10-2-01 to -06 (2018).

(“PTO”) from ODA.<sup>93</sup> A key element of a PTO is having an approved manure management plan, the purpose of which is to minimize water pollution and protect waters of the state.<sup>94</sup> The plan must include best management practices as articulated in the regulations<sup>95</sup> as well as a nutrient budget specifying the quantity of nutrients to be applied in manure land application areas. If manure is being distributed offsite, the plan must include information about the nutrient quality, quantity, and destination of the manure.<sup>96</sup> The plan must also assure that land application of manure utilizes nutrients at agronomic rates and minimizes nutrient runoff to waters of the state.<sup>97</sup> There are specific restrictions on application of manure on snow-covered or frozen ground.<sup>98</sup> Manure discharges or spills must be reported as soon as possible.<sup>99</sup>

In a private nuisance civil action related to agricultural activities brought against a CAFF, it is an affirmative defense if the CAFF is in compliance with the best management practices of a PTI or PTO, and the activities do not violate federal, state, or local law.<sup>100</sup> Failure to comply with the terms of a permit, the statute, or applicable regulations may result in civil penalties, corrective action, and injunctive relief.<sup>101</sup> Negligent, reckless, and knowing violations of the statute, regulations, or permit terms can result in criminal sanctions.<sup>102</sup>

## 2. *Agricultural Pollution Abatement, Ohio Revised Code Chapter 939*

Ohio Revised Code Chapter 939, and the regulations in the Ohio Administrative Code issued pursuant to that statute,<sup>103</sup> comprise the legal framework for Ohio’s Agricultural Pollution Abatement Program (“APAP”). Prior to 2016, the Ohio Department of Natural Resources (“ODNR”) was in charge of the APAP. Effec-

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93. OHIO REV. CODE ANN. § 903.03(A)(2) (West 2018).

94. OHIO ADMIN. CODE 901:10-2-08. *See also id.* at 901:10-2-07.

95. *Id.* at 901:10-2-08; *id.* at 901:10-2-07(A)(1).

96. *See id.* at 901:10-2-09(A), (C)(2); *id.* at 901:10-2-11.

97. *Id.* at 901:10-2-14.

98. *Id.* at 901:10-2-14(G).

99. *Id.* at 901:10-2-17.

100. OHIO REV. CODE ANN. § 903.13 (West 2018).

101. *Id.* § 903.16.

102. *Id.* § 903.99 (imposing fines up to \$25,000 and three years in prison for a knowing violation).

103. OHIO ADMIN. CODE 901:13-1-01 to -05 (2018).

tive January 1, 2016, however, the Ohio General Assembly transferred control of the APAP from ODNR to the ODA.<sup>104</sup>

The APAP aims to abate agricultural pollution. “Agricultural pollution” is statutorily defined as failure to use management or conservation practices in farming operations to abate soil erosion or the degradation of waters of the state by residual farm products, manure, or soil sediment, including attached substances.<sup>105</sup> Both crop growing operations and animal feeding operations are covered by the APAP,<sup>106</sup> but animal feeding operations that are state-permitted CAFFs or NPDES-permitted CAFOs are specifically excluded.<sup>107</sup> Manure includes excreta from agricultural animals.<sup>108</sup> Residual farm products include animal bedding, wash waters, waste feed, silage drainage, and certain products resulting from the composting of dead animals.<sup>109</sup> Sediment is defined as solid material that is in suspension, is being transported, or has been moved from its site of origin by air, water, gravity, or ice and has come to rest on the earth’s surface.<sup>110</sup> Types of pollutants other than residual farm products, manure, and soil sediments, including attached substances, are beyond the scope of the APAP.<sup>111</sup>

The director of the ODA, subject to the approval of the Ohio Soil and Water Conservation Commission, is required to adopt rules that establish management and conservation practices in farming operations that will abate soil erosion or degradation of the waters of the state by residual farm products, manure, or soil sediment, including attached substances.<sup>112</sup> Such rules must be technically feasible and economically reasonable.<sup>113</sup>

The rules that have been adopted impose multiple requirements on the owners, operators, or persons responsible for animal feeding operations. Each animal feeding operation must operate and maintain manure collection, storage, or treatment facilities so

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104. Am. H. B. No. 64 re-codified Ohio Revised Code chapter 1511 in chapter 939 and instructed that the rules from OHIO ADMIN. CODE 1501:15-5-01 to :15-5-20 be adopted in OHIO ADMIN. CODE 901:13-1-01 to :13-1-20. Act of June 30, 2015, Am. Sub. H.B. 64, § 101.01, 2015 Ohio Laws File 11.

105. OHIO REV. CODE ANN. § 939.01(A) (West 2018).

106. See OHIO ADMIN. CODE 901:13-1-01(A) (2018) (covering farming and animal feeding operations).

107. OHIO REV. CODE ANN. § 939.01(B) (West 2018).

108. *Id.* § 939.01(F); OHIO ADMIN. CODE 901:13-1-01(B)(21) (2018).

109. OHIO REV. CODE ANN. § 939.01(J) (West 2018).

110. OHIO ADMIN. CODE 901:13-1-01(B)(34) (2018).

111. As discussed *infra* Part VI.B, the statutory and regulatory definitions under the APAP do not expressly mention commercial fertilizer.

112. OHIO REV. CODE ANN. § 939.02(E)(1) (West 2018).

113. *Id.*

that overflow or discharge into waters of the state is prevented.<sup>114</sup> Animal feeding operations must be designed, constructed, operated, and maintained to prevent seepage from animal manure management facilities from entering waters of the state.<sup>115</sup> Moreover, each animal feeding operation must prevent pollution from discharge of manure-contaminated runoff from feedlots and animal manure management facilities or from composting of dead animals.<sup>116</sup> If the director finds that an animal feeding operation has failed to implement best management practices for any of these requirements and has caused pollution to waters of the state, the animal feeding operation must develop, obtain approval for, and implement modifications according to the Field Office Technical Guide or other methods approved by the director.<sup>117</sup> The rules also prohibit pollution caused by flooding of animal feeding operations; an animal feeding operation must be constructed such that manure will not be inundated by a 25-year frequency flood.<sup>118</sup>

Crop growing agricultural operations also are subject to APAP rules. Each owner, operator, or person responsible for agricultural operations must prevent pollution caused by sheet and rill erosion, gully erosion, or wind erosion.<sup>119</sup> If the director finds that an agricultural operation has failed to implement best management practices for preventing such erosion and has caused pollution to waters of the state, the agricultural operation must apply and maintain practices to comply with Field Office Technical Guide erosion standards.<sup>120</sup> Agricultural operations are also required to use best management practices to prevent pollution caused by placing soil directly or in such position that it may readily erode or slough into waters of the state.<sup>121</sup>

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114. OHIO ADMIN. CODE 901:13-1-02 (2018).

115. *Id.* at 901:13-1-03.

116. *Id.* at 901:13-1-04, -13.

117. *See generally id.* at 901:13-1-02 to -05. The Field Office Technical Guide is developed by the U.S. Department of Agriculture's Natural Resources Conservation Service. *See id.* 901:13-1-01(B)(18).

118. *Id.* at 901:13-1-06.

119. *Id.* at 901:13-1-07 to -09.

120. *Id.*

121. *Id.* at 901:13-1-12. Although the APAP rules use the term "best management practices," the rules themselves do not specify the particular best management practices that farming operations are expected to follow. "Best management practice" is defined in the rules rather generally as a practice determined to be the "most effective practicable (including technological, economic, and institutional considerations) means of preventing or reducing agricultural pollution sources to a level compatible with water quality goals." *Id.* at 901:13-1-01(B)(7). For purposes of standards for compliance under the rules, the Field Office Technical Guide seems to be the most specific source for best management practices.

Non-compliance with the APAP rules can expose the owner or operator of an agricultural operation or animal feeding operation to corrective action and civil penalties.<sup>122</sup> The corrective action order may require the owner or operator of agricultural land or an animal feeding operation to operate in accordance with an agency-approved operation and management plan.<sup>123</sup> An operation and management plan—which can be approved by the director or the district board of supervisors—contains implementation schedules and best management practices to abate degradation of waters of the state by manure and soil sediment.<sup>124</sup> If the director determines that the farming operation is operating in accordance with an agency-approved operation and management plan, the farming operation shall be considered in compliance with the APAP rules.<sup>125</sup> In a private civil action for nuisance involving agricultural pollution, it is an affirmative defense if the agricultural land or animal feeding operation is in substantial compliance with an agency-approved operation and management plan.<sup>126</sup>

The APAP also provides monetary incentives for farmers to implement best management practices. Cost-share monies are available from the state to assist landowners in installing best management practices which abate soil erosion or degradation of waters of the state by residual farm products, manure, or soil sediment, including attached sediments.<sup>127</sup> Eligible practices are limited to those that require expenditures likely to exceed the economic returns to the owner.<sup>128</sup> The ODA may share the cost of establishing eligible best management practices up to 75 percent of the cost or \$30,000 per person per year, whichever is less.<sup>129</sup> Cost-share funds

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122. See OHIO REV. CODE ANN. § 939.07 (West 2018). Enforcement actions can be initiated by the ODA or the attorney general at the request of the ODA director. Violations can result in corrective action orders and civil penalties up to \$10,000. *Id.*; OHIO ADMIN. CODE 901:13-1-99 (2018).

123. OHIO REV. CODE ANN. § 939.07(A)(2).

124. See OHIO ADMIN. CODE 901:13-1-01(B)(26) (2018).

125. *Id.* at 901:13-1-16(A)(1). If the district finds that a submitted operation and management plan does not meet the APAP standards, the district must advise the person who submitted the plan of its deficiencies, whereupon the district's decision can be administratively appealed to the director. *Id.* at 901:13-1-16(A)(2). In the event a farming operation is operating in accordance with an approved operation and management plan in good faith, yet causes agricultural pollution, the plan shall be revised in a manner necessary to mitigate the pollution. *Id.* at 901:13-1-16(A)(3).

126. OHIO REV. CODE ANN. § 939.03(C) (West 2018); OHIO ADMIN. CODE 901:13-1-16(A)(1) (2018).

127. See OHIO REV. CODE ANN. §§ 939.02(E)(3), (F) (West 2018).

128. *Id.* § 939.02(E)(3).

129. OHIO ADMIN. CODE 901:13-1-14(A) (2018).

are available only to owners and operators with a current operation and management plan.<sup>130</sup> The ODA director also may enter into agreements with soil and water conservation districts to make grants to owners and operators of agricultural land or animal feeding operations to implement operation and management plans.<sup>131</sup>

Importantly, Ohio Revised Code Chapter 939 also serves as the statutory authority for Ohio's unique distressed watershed rules, which are discussed in detail in Part V below.

### 3. *Certification for Applicators of Fertilizer, Amendment to Ohio Revised Code Chapter 905*

In 2014, the General Assembly enacted legislation known as Senate Bill 150 which established a state-wide certification regime for applicators of fertilizer for agricultural purposes.<sup>132</sup> "Fertilizer," for purposes of this statute, is defined broadly as any substance containing phosphorus, nitrogen, or potassium. This definition includes commercial fertilizer but excludes animal manure.<sup>133</sup> Commercial fertilizer may be applied for agricultural purposes on farms of more than 50 acres only by an applicator who has been certified by the ODA or who is acting under the instruction and control of a certified applicator.<sup>134</sup>

To become certified, an applicator must apply, pay a modest fee, and successfully complete an ODA-approved agricultural nutrient training course.<sup>135</sup> The three-hour course educates on the time and place to apply fertilizer, form of fertilizer to apply, amount of fertilizer to apply, storage and handling of fertilizer, and fertilizer application techniques.<sup>136</sup> Certification must be renewed every three years.<sup>137</sup> Certified applicators must maintain rather detailed fertilizer application records that document information such as the date, location, and rate of application; number of acres applied; total amount of fertilizer applied; analysis of the fertilizer; soil conditions; weather conditions, and the type of application method.<sup>138</sup>

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130. *Id.* at 901:13-1-14(A)(2)(d).

131. *Id.* at 901:13-1-18.

132. Act of May 22, 2014, Am. Sub. S.B. 150, § 1, 2014 Ohio Laws File 95 (codified at OHIO REV. CODE ANN. §§ 905.321 to 905.325 (West 2018)). Senate Bill 150 was enacted shortly before the August 2014 water crisis in Toledo.

133. OHIO REV. CODE ANN. § 905.31(D) (West 2018).

134. *Id.* § 905.321. The certification requirement took effect Sept. 30, 2017. *Id.* § 905.321(A).

135. OHIO ADMIN. CODE 901:5-4-02 (2018).

136. *Id.* at 901:5-4-03(A)(1)-(6).

137. *Id.* at 901:5-4-02(E).

138. *Id.* at 901:5-4-04(A)(1)-(13). The records must be maintained for three years and are subject to random audits by the ODA. *Id.* at 901:5-4-04(C), (E).

Critically, the statute and regulations do not require an applicator to actually follow any best management practices regarding the application of fertilizer. But applicators are subject to civil penalties for, *inter alia*, fertilizer application that results in a discharge of fertilizer that enters waters of the state or poses a significant risk of harm to public health or the environment.<sup>139</sup>

Senate Bill 150 also encouraged development of voluntary nutrient management plans by providing an affirmative defense against civil actions resulting from the application of fertilizer. The defense is available if the fertilizer was applied in substantial compliance with an approved voluntary nutrient management plan, by a certified applicator or person acting under the instruction and control of a certified applicator, and records were maintained in accordance with the rules adopted by the ODA director.<sup>140</sup>

#### 4. *Senate Bill 1 of 2015, Amendments to Ohio Revised Code Chapters 903 & 939*

Following the Toledo water crisis in 2014, the Ohio General Assembly in 2015 enacted legislation, known as Senate Bill 1, that included a variety of measures aimed at addressing nutrient pollution, particularly in the Lake Erie basin.<sup>141</sup> Three of the measures targeted agricultural pollution specifically.<sup>142</sup>

First, a new section was added to Ohio Revised Code Chapter 903 that restricts who can apply manure obtained from a CAFF. No one may apply manure obtained from a CAFF unless the person (1) has been issued a livestock manager certification under Ohio Revised Code section 903.07 or (2) has been certified to apply manure by the ODA in accordance with the procedures certifying

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139. OHIO ADMIN. CODE 901:5-4-07(B)(2)–(3) (2018).

140. OHIO REV. CODE ANN § 905.325(C) (West 2018). A voluntary nutrient management plan can be a plan that is in the form of the Ohio Nutrient Management Workbook made available by Ohio State University; a plan that has been developed by the federal Natural Resources Conservation Service; or an equivalent plan approved by the ODA including soil test results, documentation of the method and time of nutrient application, identification of the type of nutrients applied, and information about the land subject to the plan. *Id.* § 905.31(DD).

141. Act of April 2, 2015, Sub. S.B. 1, § 1, 2015 Ohio Laws File 4. The bill was signed by Governor John Kasich on April 2, 2015 and took effect 90 days later, i.e., July 3, 2015.

142. Other measures included naming the Ohio EPA director as coordinator of the state's harmful algae management and response; restrictions on placement of sewage sludge on frozen ground; enhanced monitoring of phosphorus by major POTWs; and a ban on disposal of dredged material in Lake Erie after 2020, absent Ohio EPA approval. *Id.*

applicators of commercial fertilizer under Ohio Revised Code sections 905.321 and 905.322.<sup>143</sup>

Second, the bill added two new sections to the APAP statute that impose specific prohibitions on the application of manure in the western basin of Lake Erie.<sup>144</sup> New Ohio Revised Code section 939.08 prohibits anyone from surface applying manure in the western basin (i) on snow-covered or frozen soil, (ii) when the top two inches of soil are saturated from precipitation, or (iii) when the local weather forecast predicts precipitation exceeding one-half inch in a 24-hour period is likely.<sup>145</sup> Exceptions to this general ban include if the manure is injected into the ground, is incorporated within 24 hours of surface application, or is applied onto a growing crop.<sup>146</sup> The ODA director also can provide a written emergency exception provided the manure is applied in accordance with certain procedures established by the U.S. Department of Agriculture's Natural Resources Conservation Service.<sup>147</sup> This section, like the rest of the APAP statute, does not apply to large animal feeding operations regulated as CAFFs.<sup>148</sup> New Ohio Revised Code section 939.09 provides for the imposition of civil penalties for violations of section 939.08.<sup>149</sup> The civil penalty is assessed via an ODA order, following an administrative hearing, up to a maximum of \$10,000 per violation.<sup>150</sup>

Third, Senate Bill 1 added two new sections to Ohio Revised Code Chapter 905 that impose specific prohibitions on the application of fertilizer in the western basin of Lake Erie. Section 905.326 prohibits anyone from surface applying fertilizer in the western basin (i) on snow-covered or frozen soil or (ii) when the top two inches of soil are saturated with precipitation.<sup>151</sup> Additionally, application of fertilizer in granular form in the western basin is prohibited when the local weather forecast predicts precipitation exceeding one inch within a 12-hour period is likely.<sup>152</sup> Exceptions to this general ban include if the fertilizer is injected into the ground,

143. OHIO REV. CODE ANN. § 903.40 (West 2018).

144. The term "western basin" is defined by tributary watersheds. *See id.* § 939.08(E) incorporating the definition of "western basin" in *id.* § 905.326(E).

145. *Id.* § 939.08(A)(1)–(3).

146. *Id.* § 939.08(B)(1)–(3).

147. *Id.* § 939.08(B)(4).

148. *Id.* § 939.08(D).

149. *Id.* § 939.09(A). Small and medium operators could apply for a temporary exemption from the new prohibition on applications of manure for up to two years, i.e., until July 3, 2017. *See id.* § 939.09(D)(1)(a)–(b).

150. *See id.* § 939.09; OHIO ADMIN. CODE 901:13-99 (2018).

151. OHIO REV. CODE ANN. § 905.326(A)(1) (West 2018).

152. *Id.* § 905.326(A)(2).

is incorporated within 24 hours of surface application, or is applied onto a growing crop.<sup>153</sup> Section 905.327 authorizes the ODA to impose civil penalties for violation of section 905.326 via an order, following an administrative hearing, up to a maximum of \$10,000 per violation.<sup>154</sup>

The Ohio statutes discussed in this section of the article undoubtedly serve to reduce phosphorus loading from agricultural nonpoint sources to some degree. But in 2018 even the Ohio EPA acknowledged that the current, mostly voluntary measures aimed at decreasing phosphorus loading and algae in Lake Erie were not making sufficient progress.<sup>155</sup> The Ohio General Assembly of course could enact further restrictions on agricultural pollution. But the legislature appears to have no inclination to do so. Rather than pass a bill that requires farmers to take mandatory actions to reduce nutrient runoff, the General Assembly in 2018 instead opted to pass legislation that makes more money available to study the problem and entice farmers to take voluntary measures.<sup>156</sup>

So what can be done by the state to reduce phosphorus loading to Lake Erie from agricultural nonpoint sources in the absence of new legislation? One option that gained traction among environmentalists and some government officials was designating Lake Erie as an “impaired” water under the Federal Clean Water Act.<sup>157</sup> While an impaired designation is a useful step, it must be recognized that its legal force is limited due to the Clean Water Act’s virtual hands-off approach to nonpoint source pollution. However, another designation, available under existing state law, would result in legally binding and enforceable restrictions aimed at reducing nonpoint source agricultural nutrient pollution. The next two Parts of the article discuss these two designations.

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153. *Id.* § 905.326(B). “Fertilizer” as used in section 905.326 is defined as nitrogen or phosphorus, notwithstanding section 905.31(D), which defines “fertilizer” seemingly somewhat broader. *Compare id.* § 905.326(f), *with id.* § 905.31(D).

154. *See id.* § 905.327; OHIO ADMIN. CODE 901:5-4-07 (2018).

155. Andy Chow, *Ohio EPA Chief Says It May Be Time to Regulate Farm Run-off*, WKSU (June 19, 2018), <https://bit.ly/2L5Pd7p> [<https://perma.cc/Z8RQ-VMQL>]. *See also* OHIO ENVTL. PROT. AGENCY, NUTRIENT MASS BALANCE STUDY FOR OHIO’S MAJOR RIVERS 2 (Apr. 16, 2018), <https://bit.ly/2Y5B9Rv> [<https://perma.cc/CZ8J-P89M>] (indicating that, based on the results of the study, there is no clear decrease in nutrient loading in nonpoint source dominated watersheds like the Maumee River).

156. Act of July 11, 2018, Am. Sub. S.B. 299, § 4, 2018 Ohio Laws File 85 (Clean Lake 2020).

157. *See, e.g.*, BALANCED DIET FOR LAKE ERIE, *supra* note 2, at 8; Tom Henry, *Michigan Designates Part of Lake Erie as “Impaired,”* BLADE (Toledo, Ohio), (Nov. 11, 2016), <https://bit.ly/2LpVLhw> [<https://perma.cc/YE9L-WB6M>].

### III. IMPAIRED WATER DESIGNATION

#### A. *Generally*

Under the Federal Clean Water Act, states are required to list all surface waters, or water segments, for which effluent limitations on point sources are not stringent enough to achieve water quality standards.<sup>158</sup> This list is known as the “303(d) list” (named after the Clean Water Act section which requires it), and waters on this list are known as “impaired” waters. The list includes not only waters that are impaired by point sources but also waters that are impaired by nonpoint sources.<sup>159</sup> A state is supposed to update its list every two years.<sup>160</sup>

For each water listed as impaired, § 303(d) obligates the state to establish a total maximum daily load (“TMDL”) for that water.<sup>161</sup> A TMDL is a calculation of the maximum amount of a pollutant, such as phosphorus, that can enter the water on a daily basis from all sources without exceeding the water quality standard, taking into account seasonal variations and a margin of safety.<sup>162</sup> By regulation, a TMDL is the sum of waste load allocations for point sources and load allocations for nonpoint sources plus that margin of safety.<sup>163</sup> So a TMDL not only sets a total loading capacity number, it also generally sets pollutant loading allocations for point sources and for nonpoint sources. A TMDL takes the form of a report, the elements of which are governed by statute, regulations, and agency guidance.<sup>164</sup> “The objective of a TMDL is to determine the loading capacity of the waterbody and to allocate that load among different pollutant sources so that the appropriate control actions can be taken and water quality standards achieved.”<sup>165</sup>

There is no specific timeline under the Clean Water Act for a state to prepare a TMDL. Per § 303(d), the state must establish a priority ranking for its impaired waters, taking into account the se-

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158. 33 U.S.C. § 1313(d)(1)(A) (2016).

159. *Pronsolino v. Nastri*, 291 F.3d 1123, 1140–41 (9th Cir. 2002).

160. 40 C.F.R. § 130.7(d)(1).

161. 33 U.S.C. § 1313(d)(1)(C) (2016).

162. *Id.*; 40 C.F.R. § 130.7(a)(1).

163. 40 C.F.R. § 130.2(i).

164. See U.S. Env'tl. Prot. Agency, *Overview of Total Maximum Daily Loads*, [www.epa.gov](http://www.epa.gov) (Sept. 13, 2018), <https://bit.ly/2XHs6a0> [<https://perma.cc/DB9Y-APYX>]; U.S. ENVTL. PROT. AGENCY, *GUIDELINES FOR REVIEWING TMDLS UNDER EXISTING REGULATIONS ISSUED IN 1992* (May 20, 2002), <https://bit.ly/30Ae7Qd> [<https://perma.cc/KJ8K-F6GN>] [hereinafter TMDL REVIEW GUIDELINES].

165. U.S. Env'tl. Prot. Agency, *Overview of Total Maximum Daily Loads*, *supra* note 164.

verity of the pollution and the uses of the waters.<sup>166</sup> TMDLs are to be prepared in accordance with this priority ranking.<sup>167</sup> The public must have a chance to be involved in the development of a TMDL.<sup>168</sup>

Once a TMDL is finalized, the Clean Water Act requires the state to incorporate the TMDL into the state's "continuing planning process" under § 303(e).<sup>169</sup> This continuing planning process is supposed to result in plans for achieving better water quality in the state.<sup>170</sup>

As discussed above, it is the state that shoulders the principal responsibilities with respect to TMDLs. Pursuant to § 303, it is the state's duty to list waters as impaired, then prepare the TMDLs, and then incorporate the TMDLs into the state's continuing planning process. But USEPA also plays an important, albeit more limited, role in connection with TMDLs.

Specifically, § 303(d) states that it is up to USEPA to approve or disapprove of a state's list of impaired waters and TMDLs.<sup>171</sup> The state submits its 303(d) list and TMDLs to USEPA for approval, and if USEPA approves them, then the state incorporates the TMDLs into its continuing planning process, as outlined above. However, if USEPA disapproves of the state's list of impaired waters, USEPA itself must identify what waters in the state are impaired.<sup>172</sup> And if USEPA disapproves of the state's TMDL, USEPA itself must establish the TMDL.<sup>173</sup> Even if USEPA prepares a TMDL, though, the TMDL still goes to the state for incorporation into the state's continuing planning process.<sup>174</sup> The

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166. 33 U.S.C. § 1313(d)(1)(A) (2016).

167. *Id.* § 1313(d)(1)(C).

168. *See* 40 C.F.R. § 130.7(c)(1)(ii); U.S. Evtl. Prot. Agency, *Overview of Total Maximum Daily Loads*, *supra* note 164 (noting the level of citizen involvement in the TMDL process varies by state). In Ohio, the public participation process for TMDLs was revised in the aftermath of the Ohio Supreme Court decision, *Fairfield Cty. Bd. of Comm'rs v. Nally*, 34 N.E.3d 873, 885 (Ohio 2015), in which TMDLs were held to be rules subject to the requirements of the Ohio Administrative Procedure Act. In 2017, the Ohio General Assembly passed new legislation exempting TMDLs from the rulemaking requirements of the Ohio Administrative Procedure Act but providing for more formalized and extensive public involvement in the TMDL process than in the past. *See* Act of June 29, 2017, Am. Sub. H.B. 49, § 101.01, 2017 Ohio Laws File 14; OHIO REV. CODE ANN. §§ 6111.561–.564 (West 2018).

169. 33 U.S.C. §§ 1313(d)(2), (e).

170. *See id.* § 1313(e); 40 C.F.R. §§ 130.5, 130.6 (2019).

171. 33 U.S.C. § 1313(d)(2).

172. *Id.*

173. *Id.*

174. *Id.*

state's continuing planning process plans are subject to USEPA approval.<sup>175</sup>

There are statutory time limits for USEPA to take action under § 303(d). Once the state submits its list of impaired waters or TMDL, USEPA must approve or disapprove within 30 days.<sup>176</sup> If USEPA disapproves of the list or TMDL, then USEPA has 30 days to identify the impaired waters or establish the TMDL.<sup>177</sup> There are, however, no such statutory deadlines for a state to submit its list of impaired waters or prepare a TMDL.<sup>178</sup>

In Ohio, the list of impaired waters required by § 303(d) is prepared by Ohio EPA; the list appears in the agency's biennial Integrated Water Quality Monitoring and Assessment Report ("Integrated Report").<sup>179</sup> The most recent edition is the 2018 Integrated Report, submitted by Ohio EPA in June 2018 and approved by USEPA the next month.<sup>180</sup> More than 1,500 water segments in Ohio have been assessed and the majority of them have been listed as impaired, including virtually every major waterbody in the state.<sup>181</sup> TMDLs have been prepared by Ohio EPA for many listed waters and are underway for many others.<sup>182</sup>

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175. 33 U.S.C. §§ 1313(e)(1)–(2) (2016).

176. *Id.* § 1313(d)(2).

177. *Id.*

178. Although § 303 has been part of the original Clean Water Act since 1972, for decades most states and the USEPA ignored the mandates to list impaired waters and prepare TMDLs. Citizen suits eventually spurred the states and USEPA to actually comply with § 303. See ROBERT PERCIVAL ET AL., *supra* note 69, at 772. As of 2001, Ohio had only three TMDLs, but a citizen suit and 2004 consent decree helped spur the development of TMDLs by requiring Ohio to assess and establish TMDLs for 50 watersheds by the end of September 2007. See *Motion to Enter Consent Decree, Nat'l Wildlife Fed'n v. EPA*, No. 2:01-cv-1052, 2004 WL 5609820 (S.D. Ohio, Aug. 18, 2004), ECF No. 55.

179. The report is referred to as "integrated" because it is designed to fulfill the agency's obligation under Clean Water Act § 305(b), 33 U.S.C. § 1315(b), for a biennial report on the condition of the state's waters as well as for a biennial report identifying impaired waters under § 303(d). See *Ohio Integrated Water Quality Monitoring and Assessment Report*, OHIO ENVTL. PROT. AGENCY, <http://bit.ly/2NBR5Hb> [<https://perma.cc/NZ59-3Q2C>] (last visited July 7, 2019).

180. See OHIO ENVTL. PROT. AGENCY, OHIO 2018 INTEGRATED WATER QUALITY MONITORING AND ASSESSMENT REPORT (2018), <https://bit.ly/2JDVQMt> [<https://perma.cc/DNW7-W527>] [hereinafter 2018 INTEGRATED REPORT]. The list of impaired waters, with priority rankings, appears in section J.

181. *Id.* at J-19.

182. See *Ohio Total Maximum Daily Load Program Progress*, OHIO ENVTL. PROT. AGENCY, <http://bit.ly/2NB0SNF> [<https://perma.cc/Z5NC-8R9H>] (last updated July 19, 2017).

Ohio's Water Quality Management Plans are used to satisfy the continuing planning process required by § 303(e).<sup>183</sup> In Ohio, six areawide councils of government develop the water quality management plans for their respective urban areas, encompassing 24 counties, while Ohio EPA prepares the water quality plan for the remaining 64 counties.<sup>184</sup> These seven plans are compiled by Ohio EPA and together constitute Ohio's Water Quality Management Plan.<sup>185</sup>

### B. Lake Erie

Ohio EPA has listed as impaired all 32 of the watersheds in Ohio that feed Lake Erie. TMDLs have been completed for 22 of those watersheds and are underway for the remaining ten.<sup>186</sup> For years, however, the Ohio EPA resisted listing the open waters of Lake Erie as impaired.

The saga of listing the Ohio portion of Lake Erie as impaired began several years ago. In the aftermath of a record-breaking algae bloom in Lake Erie in 2011, Ohio EPA in its 2012 Integrated Report listed certain small, shallow areas of Lake Erie near the shorelines in the western basin and central basin as impaired due to algae pollution.<sup>187</sup> Asserting that the open waters of Lake Erie were the lead responsibility of USEPA, Ohio EPA requested that the federal agency develop a TMDL for the open waters of Lake Erie.<sup>188</sup>

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183. The same plans are used to satisfy § 208, codified at 33 U.S.C. § 1288 (2018). See 40 C.F.R. § 130.6(a) (2019); *Water Quality Management Plans (CWA Sections 208 and 303)*, OHIO ENVTL. PROT. AGENCY, <http://bit.ly/2L6k7N3> [<https://perma.cc/T5LX-KE26>] (last visited July 7, 2019) [hereinafter *Water Quality Management Plans (CWA Sections 208 and 303)*].

184. *Water Quality Management Plans (CWA Sections 208 and 303)*, *supra* note 183.

185. *Id.* Ohio's current Water Quality Management Plan does not impose any particular restrictions on agricultural sources of nutrient pollution. See OHIO ENVTL. PROT. AGENCY, STATE WATER QUALITY MANAGEMENT PLAN INCLUDING SECTION 208 AREAWIDE WASTE MANAGEMENT PLANS (2006), <http://bit.ly/2XuiyPq> [<https://perma.cc/7CQM-6VSC>].

186. 2018 INTEGRATED REPORT, *supra* note 180, at J-12.

187. OHIO ENVTL. PROT. AGENCY, *Evaluating Beneficial Use: Aquatic Life*, in OHIO 2012 INTEGRATED WATER QUALITY MONITORING AND ASSESSMENT REPORT G-9 (2012), <http://bit.ly/2LeAYgT> [<https://perma.cc/46VX-L6RG>]. The 2012 listing of those shoreline areas, which included the shores of islands within the western basin, was based on the aquatic life beneficial use only. The listing was based on sampling conducted more than a decade earlier. *Id.*

188. OHIO ENVTL. PROT. AGENCY, *Addressing Waters Not Meeting Water Quality Goals*, in OHIO 2012 INTEGRATED WATER QUALITY MONITORING AND ASSESSMENT REPORT J-3 (2012), <https://bit.ly/2kaC15j> [<https://perma.cc/X38P-ZFJV>].

In its 2014 Integrated Report, submitted after the Toledo water crisis of August 2014, Ohio EPA continued to list those shoreline areas as impaired due to algae.<sup>189</sup> But once again Ohio EPA asserted that lead responsibility for the open waters of Lake Erie, due to the multi-state, bi-national ownership of the lake, belonged to USEPA. Ohio EPA also reiterated its previous request that USEPA initiate a TMDL for the open waters of Lake Erie.<sup>190</sup> Although USEPA complained that Ohio EPA did not assess the open waters of Lake Erie in the 2014 Integrated Report, USEPA nevertheless approved Ohio's 2014 Integrated Report in August 2015. In the approval letter, however, USEPA said that it expected Ohio EPA to fully assess all of Ohio's portion of Lake Erie in the next biennial report.<sup>191</sup> Ohio EPA did not fulfill USEPA's expectation.

In its 2016 Integrated Report as originally submitted to USEPA, Ohio EPA again listed the shoreline areas of the western basin and central basin as impaired due to algae.<sup>192</sup> But again, Ohio EPA declined to assess or list the open waters of Lake Erie. Instead, Ohio EPA continued to assert that USEPA was responsible for assessing and listing the open waters of Lake Erie.<sup>193</sup> Ohio EPA also expressed a preference for approaching the nutrient pollution problem in Lake Erie via the bi-national governance framework under Annex 4 of the Great Lakes Water Quality Agreement of 2012, by which the United States and Canada agreed to address nutrients in the Great Lakes, including phosphorus in Lake Erie.<sup>194</sup>

Responding to a draft of the 2016 Integrated Report, USEPA made clear that the responsibility to assess and list the open waters

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189. The 2014 Integrated Report listed those shoreline areas as impaired for all four beneficial uses—human health, recreation, aquatic life, and public drinking water. See OHIO ENVTL. PROT. AGENCY, *Summary Tables of Waterbody Conditions, List of Prioritized Impaired Waters, and Monitoring and TMDL Schedules*, in OHIO 2014 INTEGRATED WATER QUALITY MONITORING AND ASSESSMENT REPORT § L3 (2014), <http://bit.ly/2LcrMJE> [<https://perma.cc/Q83C-PNR5>].

190. See OHIO ENVTL. PROT. AGENCY, *Addressing Waters Not Meeting Water Quality Goals*, in OHIO INTEGRATED WATER QUALITY MONITORING AND ASSESSMENT REPORT J-4 (2014), <http://bit.ly/32ht3o9> [<https://perma.cc/DFT6-MZ3N>].

191. *Envtl. Law & Pol'y Ctr. v. EPA*, No. 3:17-CV-01514, 2018 WL 1740146, at \*5–6 (N.D. Ohio Apr. 11, 2018) (quoting a letter from USEPA to Ohio EPA dated August 5, 2015).

192. OHIO ENVTL. PROT. AGENCY, OHIO 2016 INTEGRATED WATER QUALITY MONITORING AND ASSESSMENT REPORT D-6 (2016), <http://bit.ly/2LPGS7D> [<https://perma.cc/2QHY-AZU3>]. The shoreline areas were listed as impaired for all four beneficial uses. *Id.* at L3-1.

193. *Id.* at D-5 to -6, J-4.

194. *Id.* at D-6, J-11; see Great Lakes Water Quality Agreement, Can.-U.S., Sept. 7, 2012, T.I.A.S. 13-212. Pursuant to Annex 4, *id.* at 31–36, each Great Lakes state and nation has prepared action plans. See, e.g., USEPA 2018 ACTION PLAN FOR LAKE ERIE, *supra* note 15; OHIO DOMESTIC ACTION PLAN, *supra* note 38.

of Lake Erie was the duty of the state and directed Ohio EPA to assess the Ohio portion of Lake Erie against the applicable water quality standards, including the narrative “free from nuisance growths of algae.”<sup>195</sup> Nevertheless, in October 2016, Ohio EPA submitted its final original version of the 2016 Integrated Report without substantive change regarding Lake Erie.<sup>196</sup> Not incidentally, Michigan in its 2016 Integrated Report listed its sliver of western Lake Erie as impaired due to algal blooms.<sup>197</sup>

USEPA did not promptly approve or disapprove of Ohio EPA’s 2016 list of impaired waters within the 30-day period specified by statute. Shortly after commencement of a federal citizen suit seeking to compel USEPA to make a decision on the 303(d) list,<sup>198</sup> in May 2017 USEPA approved Ohio EPA’s 2016 list of impaired waters—a list that did not include the open waters of Lake Erie.<sup>199</sup> This approval spurred a second citizen suit in federal district court, which contended USEPA’s approval of Ohio’s 2016 list, absent the open waters of Lake Erie, was unlawful.<sup>200</sup> In January 2018, one day before its response to a motion for summary judgment was due in the citizen suit, USEPA withdrew its approval of Ohio’s 2016 list of impaired waters due to the absence of Lake Erie open waters.<sup>201</sup> In withdrawing its approval, USEPA asked Ohio EPA to submit an evaluation of whether the open waters of Lake Erie should be listed as impaired, so that USEPA could re-consider its approval.<sup>202</sup> In April 2018 the federal court ordered USEPA to either approve or disapprove of Ohio EPA’s 2016 list within 30 days.<sup>203</sup> Before the 30-day period expired, Ohio EPA amended its 2016 list by adding the open waters of Lake Erie as impaired due to algae.<sup>204</sup> USEPA promptly approved Ohio EPA’s amended 2016 list of impaired waters on May 19, 2018.<sup>205</sup>

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195. *Envtl. Law & Pol’y Ctr.*, 2018 WL 1740146, at \*6 (quoting an August 29, 2016 letter from USEPA to Ohio EPA).

196. *Id.* at \*7.

197. See *Western Lake Erie Basin Impairment Reported by MDEQ*, MICHIGAN DEP’T OF ENV’T, GREAT LAKES, AND ENERGY (Nov. 10, 2016), <http://bit.ly/30rPIME> [<https://perma.cc/H8UG-5AUM>].

198. See *Envtl. Law & Pol’y Ctr.*, 2018 WL 1740146, at \*7.

199. *Id.* In rendering its approval, USEPA stated that it was deferring to the state’s judgment not to assess the open waters for the 2016 list. *Id.*

200. *Id.* at \*8.

201. *Id.* (quoting January 12, 2018 letter from USEPA to Ohio EPA).

202. *Id.*

203. *Id.* at \*12.

204. OHIO ENVTL. PROT. AGENCY, AMENDMENT TO 2016 INTEGRATED REPORT 1 (May 4, 2018)

205. U.S. Envtl. Prot. Agency, Letter to Ohio EPA Approving Amended Algal-Related Listings (May 10, 2018). See Ohio Envtl. Prot. Agency, Ohio Inte-

Shortly thereafter in June 2018, Ohio EPA submitted its 2018 Integrated Report, which likewise included the open waters of Lake Erie on the 303(d) list of impaired waters.<sup>206</sup> Both the amended 2016 report and the 2018 report list multiple segments of Lake Erie in Ohio as impaired: both the open waters and the shorelines of the western basin, Sandusky Bay, and the central basin, plus the shoreline of the western basin lake islands.<sup>207</sup> USEPA approved Ohio's 2018 list of impaired waters on July 9, 2018.<sup>208</sup>

But despite having listed the open waters of Lake Erie as impaired, Ohio EPA continues to resist performing a TMDL for Lake Erie. In the amended 2016 report submitted to USEPA in spring 2018, Ohio EPA again asserted that Annex 4, not a TMDL, is the preferred process for addressing nutrient pollution in Lake Erie.<sup>209</sup> Ohio EPA did acknowledge that if the collaborative Annex 4 process fails, then a TMDL may be required. However, Ohio EPA made clear that it did not intend to engage in the TMDL process for the open waters of Lake Erie at this time.<sup>210</sup> Ohio EPA took the same position, using virtually identical language, in its 2018 Integrated Report.<sup>211</sup>

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grated Water Quality Monitoring and Assessment Report (2016 tab), <https://bit.ly/2JvrWIH> [<https://perma.cc/FUQ9-3N5T>] (last visited August 19, 2019).

206. 2018 INTEGRATED REPORT, *supra* note 180, at L-44, -54, -55.

207. *Id.*; AMENDMENT TO 2016 INTEGRATED REPORT, *supra* note 204. All seven segments of Lake Erie are listed as impaired for all four beneficial uses, except the central basin shoreline has no public drinking water inlet and hence is not classified as impaired for public drinking water. 2018 INTEGRATED REPORT, *supra* note 180, at J-19. Both the amended 2016 Integrated Report and the 2018 Integrated Report adopted an innovative approach to determine whether the open waters of Lake Erie are impaired for recreational use due to algae. Basically, if the algal bloom is no worse than in 2004 or 2012, two years in which the blooms were relatively limited, recreational beneficial use is attained. Using NOAA satellite images plus samples from lake water monitoring stations, Ohio EPA looks at the breadth and density of the bloom during ten-day periods throughout the summer and fall HABs season to make the impairment determination. Essentially, if a bloom of sufficient density covers greater than 30 percent of the western basin in more than three ten-day periods during one year, then the bloom exceeds the standard for that year; if any two years in a rolling six-year period exceed the standard, then the open waters are considered impaired. AMENDMENT TO 2016 INTEGRATED REPORT, *supra* note 204, at 2-6; 2018 INTEGRATED REPORT, *supra* note 180, at F-33 to -34.

208. Ohio Env'tl. Prot. Agency, *Ohio Integrated Water Quality Monitoring and Assessment Report* (2018 tab), <https://bit.ly/2JwosHu> [<https://perma.cc/T5NM-4KLG>] (last visited July 12, 2019).

209. AMENDMENT TO 2016 INTEGRATED REPORT, *supra* note 204, at 9.

210. *Id.*

211. 2018 INTEGRATED REPORT, *supra* note 180, at J-12, -13. Ohio EPA officials have taken the same position in public remarks following the impairment designation. See Tom Henry, *State Official: Confusion Caused Kasich to Hold Off*

In light of Ohio EPA's stated intent not to do a TMDL for Lake Erie at this time, plaintiffs in the citizen suit moved to supplement their complaint to challenge USEPA's approval of the amended 2016 impaired waters list. Arguing that Ohio EPA's stated intent constituted a "constructive submission" of no TMDL, thus triggering USEPA's obligation under § 303(d) to establish a TMDL when a state fails to do so, plaintiffs asked that USEPA be ordered to conduct the TMDL for Lake Erie. The federal court, however, reluctantly dismissed the case. Although finding Ohio EPA has been dilatory, the court ruled that under the "constructive submission" doctrine Ohio EPA has more time before it can be viewed as having failed to submit a TMDL for Lake Erie under § 303(d). Therefore, USEPA could not yet be ordered to establish a TMDL for Lake Erie.<sup>212</sup>

The Clean Water Act does not afford a state the option to ignore its duty to perform a TMDL once it lists a water as impaired. Under § 303(d), "[e]ach State shall establish for the waters identified [as impaired] . . . the total maximum daily load."<sup>213</sup> Granted, the statute does not specify a deadline by which a state must prepare its TMDL, unlike the 30-day deadline the statute sets for USEPA to prepare a TMDL if it disapproves of a state's TMDL. A state, however, is not free to delay preparing a TMDL indefinitely.<sup>214</sup> In light of the importance of Lake Erie to the state and region and the severity of the problems posed by nutrient pollution

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*on Impairment Designation*, BLADE (Toledo, Ohio), (Apr. 18, 2018), <https://bit.ly/2LH6ldQ> [<https://perma.cc/6F9P-SGVL>] (quoting Ohio EPA's deputy director).

212. *Env't. Law & Pol'y Ctr. v. EPA*, 349 F. Supp. 3d 703, 706 (N.D. Ohio 2018) (granting defendant's motion for summary judgment and denying plaintiffs' motion for leave to supplement the complaint).

213. 33 U.S.C. § 1313(d)(1)(C) (2006 & Supp. V 2011).

214. Courts have found that where a state is not preparing a TMDL for a listed water and has no concrete plan to prepare one, the state has "constructively submitted" no TMDL, thus triggering USEPA's statutory duty to act. See *generally* *Scott v. City of Hammond*, 741 F.2d 992 (7th Cir. 1984); *Ohio Valley Env't. Coal., Inc. v. McCarthy*, No. 3:15-0271, 2017 WL 600102 (S.D. W.Va. Feb 14, 2017); *Alaska Ctr. for the Env't v. Reilly*, 762 F. Supp. 1422 (W.D. Wash. 1991) (indicating USEPA had a duty to promulgate TMDLs in face of state inaction). Relying on the constructive submission doctrine is an uncertain, time-consuming, imperfect tool for policing state delays in preparing TMDLs for impaired waters. Congress should consider amending Clean Water Act § 303 to set a firm deadline by which a state must establish a TMDL once a water is listed as impaired. A state's failure to establish a TMDL by the deadline, as extended if applicable, would trigger USEPA's statutory duty under §303(d) to promptly establish the TMDL for the impaired water.

and HABs, Ohio EPA should prepare a TMDL for the Ohio portion of Lake Erie sooner rather than later.<sup>215</sup>

A TMDL can be an important and useful legal tool for reducing nutrient pollution and HABs in Lake Erie. It establishes a number for the maximum amount of phosphorous that can enter the lake on a daily basis,<sup>216</sup> which is a more precise measure than relying on a narrative water quality standard such as “free from nuisance growths of algae.”<sup>217</sup> But a TMDL is much more. A TMDL identifies how much pollution is entering the lake and, at least generally, the sources of the pollution.<sup>218</sup> It makes clear how much pollution loading must be reduced overall to attain the water quality standard. It further specifies, via waste load and load allocations, how much of that total pollution loading reduction must be borne by point sources and by nonpoint sources.<sup>219</sup> In a sense, a TMDL outlines a diet for both point sources and nonpoint sources of pollution to achieve the goal of clean water quality.<sup>220</sup>

By furnishing such information, the TMDL can guide and spur a state to take steps to reduce the amount of pollution loading from point and nonpoint sources in order to achieve the TMDL and in turn achieve the water quality standard. That could mean using existing federal and state legal levers such as imposing more rigorous NPDES permit limits on point sources of phosphorus such as POTWs, commencing public nuisance enforcement actions against failing septic tanks contributing to phosphorus pollution, or funneling grant money to incentivize reduction of phosphorus pollution

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215. USEPA itself could perform a TMDL for the entire U.S. portion of Lake Erie or the western basin, at least if the affected states agreed. See JACK TUHOLSKE & KEN KILBERT, *MOVING FORWARD: LEGAL SOLUTIONS TO LAKE ERIE'S HARMFUL ALGAL BLOOMS* 88–92 (Apr. 2015) (discussing how the Chesapeake Bay TMDL was developed by USEPA pursuant to agreements among the watershed states and USEPA); INT'L JOINT COMM'N, *FIRST TRIENNIAL ASSESSMENT OF PROGRESS ON GREAT LAKES WATER QUALITY* 13 (Nov. 28, 2017) (recommending tri-state phosphorus TMDL for the western basin of Lake Erie involving Ohio, Michigan, Indiana and USEPA).

216. 33 U.S.C. § 1313(d)(1)(C) (2006 & Supp. V 2011); 40 C.F.R. § 130.7(a) (2018).

217. Ohio does not have a numeric water quality standard for phosphorus. Ohio's narrative water quality criteria requires all surface waters, to every extent practicable and regardless of designated use, to be “[f]ree from nutrients entering the waters as a result of human activity in concentrations that create nuisance growths of aquatic weeds and algae.” OHIO ADMIN. CODE 3745-1-04(E) (2018).

218. 33 U.S.C. § 1313(d)(1)(C) (2006 & Supp. V 2011); TMDL REVIEW GUIDELINES, *supra* note 164, at 1.

219. 40 C.F.R. § 130.2(i) (2018).

220. See U.S. Env'tl. Prot. Agency, *Chesapeake Bay Total Maximum Daily Load*, www.EPA.GOV (June 19, 2019), <https://bit.ly/2yrOR3E> [<https://perma.cc/V6XY-TWMA>] (describing TMDL as a “pollution diet”).

from key nonpoint sources such as agriculture.<sup>221</sup> By setting numbers, a TMDL can make it easier for the state to determine what NPDES permit limits should be, despite the absence of a numerical water quality standard for phosphorus, and it can serve as a basis for new water quality trading programs among point and nonpoint sources.<sup>222</sup> And ideally, a TMDL could also encourage the state to enact new statutes or regulations to more rigorously restrict nutrient pollution from agricultural operations.

But it is important to recognize that a TMDL is not a silver bullet for solving the Lake Erie HABs problem. A TMDL basically reinforces existing water quality standards rather than establishing new legal requirements of its own. A TMDL serves as a link in the chain between water quality standards and implementation of controls to attain those standards.<sup>223</sup> A TMDL is effectively a planning device; it is not self-executing.<sup>224</sup> Nor does a TMDL require a state to impose any new regulatory controls. While the TMDL sets the goal of pollution reduction, it is up to the state to determine how to achieve that goal.<sup>225</sup>

For point sources, USEPA might be able to coerce a state into regulating NPDES permit holders more rigorously, by refusing to approve NPDES permits that would result in an exceedance of the TMDL or even withdrawing the state's authority to administer the NPDES program.<sup>226</sup> But a state must reduce nonpoint source pollution only to the extent the state seeks to avoid losing federal grant money under § 319.<sup>227</sup> Importantly, a TMDL does not provide the state with any additional legal authority to regulate nonpoint sources. Therefore, in order to achieve pollution reduction from

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221. U.S. Env'tl. Prot. Agency, *Overview of Total Maximum Daily Loads*, *supra* note 164.

222. *Id.*; see Nathan Finch, *Nutrient Water Quality Trading: A Market-Based Solution to Water Pollution in the Natural State*, 69 ARK. L. REV. 839, 859-61 (2016) (noting the value of TMDL to water quality trading).

223. U.S. Env'tl. Prot. Agency, *Overview of Total Maximum Daily Loads*, *supra* note 164.

224. *Am. Farm Bureau Fed'n v. EPA*, 792 F.3d 281, 291 n. 4 (3d Cir. 2015); *City of Arcadia v. EPA*, 265 F. Supp. 2d 1142, 1144 (N.D. Cal. 2003).

225. *Am. Farm Bureau Fed'n v. EPA*, 792 F.3d 281, 303 (3d Cir. 2015); Jamie Konopacky, *Battling the (Algae) Bloom: Watershed Policies and Plans in Wisconsin*, 44 B.C. ENVTL. AFFAIRS L. REV. 253, 261 (2017).

226. See Lara Guercio, *The Struggle Between Man and Nature—Agriculture, Nonpoint Source Pollution, and Clean Water: How to Implement the State of Vermont's Phosphorus TMDL Within the Lake Champlain Basin*, 12 VT. J. ENVTL. L. 455, 474-76 (2011); 40 C.F.R. § 123.63 (2018).

227. *Pronsolino v. Nastri*, 291 F.3d 1123, 1140 & n. 19 (9th Cir. 2002).

nonpoint sources, authorities must look to state law, not the Clean Water Act.<sup>228</sup>

As discussed in Part III.B above, the Ohio General Assembly has enacted some laws that serve to reduce nutrient pollution from agricultural sources. By and large, however, the legislature and agencies have been relying on measures that try to entice farming operations to voluntarily reduce nutrient runoff.<sup>229</sup> It is clear that voluntary efforts to reduce agricultural nutrient pollution are insufficient. There is widespread recognition that reliance on voluntary measures is not making adequate progress toward the goal of a 40 percent reduction in phosphorus loading to the western basin of Lake Erie.<sup>230</sup> At least one of the reasons for this is that many farmers are not voluntarily making efforts to reduce nutrient runoff. Survey data reportedly indicates about one-third of farmers in the WLEB watershed are implementing best management practices, but another one-third are unlikely to adopt them voluntarily.<sup>231</sup> More mandatory requirements aimed at reducing agricultural nutri-

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228. *Id.* at 1140; *City of Arcadia v. USEPA*, 265 F. Supp. 2d 1142, 1145 (N.D. Cal. 2003). USEPA can insist that the state provide reasonable assurances that the TMDL goals will be met. *See* 33 U.S.C. § 1313(d)(1)(C) (2006 & Supp. V 2011) (providing TMDL must be set at a level necessary to implement the applicable water quality standards); *Am. Farm Bur. Fed'n v. EPA*, 792 F.3d 281, 300 (3d Cir. 2015). But USEPA cannot itself require the state to implement the plan against nonpoint sources. *See also* Letter from USEPA & USDA to state environmental and agriculture departments re Agency Engagement in Addressing Nutrient Pollution (Dec. 4, 2018), <http://bit.ly/2QHzCNI> [<https://perma.cc/HS9D-87GY>] (“[A]t the end of the day reducing excess nutrients in watersheds will require local solutions.”); OHIO ENVTL. PROT. AGENCY, OHIO 2016 INTEGRATED WATER QUALITY MONITORING AND ASSESSMENT REPORT, *supra* note 192 at D-6 (“The TMDL process does not provide additional authority to either Ohio or USEPA to regulate nonpoint sources of pollution; Ohio’s regulatory tools are limited to permits and enforcement actions against point sources of pollution.”).

229. *See* OHIO DOMESTIC ACTION PLAN, *supra* note 38, at 7 (“[Ohio’s] Domestic Action Plan does not establish any new legislation, rule or enforceable standard.”); Act of July 11, 2018, Am. Sub. S.B. 299, § 4, 2018 Ohio Laws File 85 (providing more money to study the HABs problem and entice farmers to take voluntary measures).

230. *See* INT’L JOINT COMM’N, FIRST TRIENNIAL ASSESSMENT OF PROGRESS ON GREAT LAKES WATER QUALITY, *supra* note 215, at 12–13 (noting that water quality of western and central Lake Erie remains “unacceptable” and recommending swifter action and “enforceable standards governing the application of agricultural fertilizer and animal waste”); OHIO ENVTL. PROT. AGENCY, NUTRIENT MASS BALANCE STUDY FOR OHIO’S MAJOR RIVERS, *supra* note 155, at 2 (showing no clear decrease in phosphorus loading in nonpoint source dominated watersheds like the Maumee River); Andy Chow, *Ohio EPA Chief Says It May Be Time to Regulate Farm Run-off*, WKSU (June 19, 2018), <https://bit.ly/2L5Pd7p> [<https://perma.cc/Z8RQ-VMQL>].

231. *See* KRISTEN FUSSELL ET AL., SUMMARY OF FINDINGS AND STRATEGIES TO MOVE TOWARD A 40% PHOSPHORUS REDUCTION 6–7 (Sept. 25, 2017).

ent pollution are necessary to ensure that farmers do the right thing and are not at a competitive disadvantage for doing so.

The next part of this article explores how Ohio could take advantage of an existing set of state rules to impose additional requirements upon farming operations in the western Lake Erie basin watershed that would help reduce phosphorus loading and HABs in Lake Erie.

#### IV. DISTRESSED WATERSHED DESIGNATION

Ohio could impose significant restrictions on key agricultural sources of phosphorus pollution promptly, using existing rules and without the need for any legislative action, by designating the western Lake Erie watershed “in distress.” This designation would trigger the state’s “distressed watershed rules” specifically designed to reduce nutrient pollution from agriculture and combat harmful algal blooms.<sup>232</sup> Unlike the designation of Lake Erie as “impaired” under the Federal Clean Water Act, a designation as a distressed watershed under Ohio state law would impose binding legal requirements on significant agricultural nonpoint sources of nutrient pollution. In distressed watersheds, the restrictions on agricultural nutrient pollution extend beyond the large animal feeding operations regulated under the Clean Water Act (i.e., CAFOs) and Ohio Revised Code Chapter 903 (i.e., CAFFs) and beyond the restrictions on agricultural nutrient pollution imposed by other Ohio laws.

Ohio’s distressed watershed rules were issued in 2010 in the aftermath of massive blooms of toxic algae earlier that summer in Grand Lake St. Marys. Located in west-central Ohio, the 13,500-acre Grand Lake St. Marys usually is popular for swimming, fishing, and boating by both tourists and nearby residents.<sup>233</sup> The lake also serves as the source of drinking water for the small city of Celina, Ohio.<sup>234</sup> Excess phosphorus and HABs were a growing problem in the lake for years. But in summer 2010, the lake contained so much toxic algae that the ODNR posted “no contact” warnings, effectively closing the lake for recreational and tourism purposes and raising concerns about the safety of the city’s public drinking water

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232. See OHIO ADMIN. CODE 901:13-1-11, -19, -20 (2016).

233. Ohio Dep’t. of Nat. Res., *Park Overview, Grand Lake St. Marys State Park*, <https://bit.ly/2S192xq> [<https://perma.cc/X4H4-Q2QX>] (last visited July 17, 2019).

234. OHIO DEP’T. OF NAT. RES., *DISTRESSED WATERSHED DESIGNATION ANALYSIS GRAND LAKE ST. MARYS WATERSHED 7* (2011).

supply.<sup>235</sup> Upwards of 80 percent of the Grand Lake St. Marys watershed is devoted to agriculture, and experts attributed the HABs problem in the lake primarily to phosphorus runoff from farming operations.<sup>236</sup> The distressed watershed rules were designed specifically to reduce phosphorus loading from farming operations in an effort to address the HABs problem.<sup>237</sup>

The distressed watershed rules were originally promulgated by the Ohio Department of Natural Resources pursuant to its authority under the Agricultural Pollution Abatement Program statute, which at that time was codified at Ohio Revised Code Chapter 1511. Subsequently in 2015, the Ohio General Assembly passed legislation that transferred responsibility for the APAP from ODNR to the Ohio Department of Agriculture, effective January 2016.<sup>238</sup> The APAP rules, including the distressed watershed rules, also were transferred to the ODA and are now codified in Ohio Administrative Code Chapter 901.<sup>239</sup>

In short, the distressed watershed rules impose more rigorous regulation of nutrient pollution from farming operations in watersheds that are designated as in distress in three important ways. First, each owner, operator, animal manure applicator, or person responsible for land application of manure from an animal feeding operation must minimize pollution occurring on land application areas by following the standards in the Field Office Technical Guide or other appropriate methods or practices approved by the ODA.<sup>240</sup> Second, the distressed watershed rules severely restrict application of manure during winter months or when the ground is

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235. Jim DeBrosse, *Grand Lake St. Marys “Dying” from Toxic Algae*, DAYTON DAILY NEWS (July 2, 2010), <https://bit.ly/2lpVA42>; D’Arcy Egan, *Grand Lake St. Marys Sounded First Algae Alarm*, CLEVELAND PLAIN DEALER, (Aug. 11, 2014), <https://bit.ly/2L6FJsI> [<https://perma.cc/ZXP2-8WXP>].

236. OHIO ENVTL. PROT. AGENCY, TOTAL MAXIMUM DAILY LOADS FOR THE BEAVER CREEK AND GRAND LAKE ST. MARYS WATERSHED 53 (2007) (indicating waters were impaired due to nutrient pollution from agricultural operations); Stephen Jacquemin et al., *Changes in Water Quality of Grand Lake St. Marys Watershed Following Implementation of a Distressed Watershed Rules Package*, 47 J. ENVTL. QUALITY 113 (2017). Grand Lake St. Marys is not within the Lake Erie watershed.

237. *Grand Lake St. Marys—Watershed in Distress*, OHIO DEP’T OF AGRIC. (Apr. 18, 2018), <https://bit.ly/2LaW6Ey> [<https://perma.cc/7J4S-Q25G>].

238. Act of June 30, 2015, Am. Sub. H.B. No. 64, § 101.01, 2015 Ohio Laws File 11. The Agricultural Pollution Abatement statute is now codified at OHIO REV. CODE ANN. §§ 939.01–.10 (West 2018).

239. See OHIO ADMIN. CODE 901:13-1-11, -19, -20 (2016). The distressed watershed rules originally were codified at OHIO ADMIN. CODE 1501:15-5-05, -19, -20 (2010).

240. OHIO ADMIN. CODE 901:13-1-11(A) (2016). By contrast, in other watersheds not designated as in distress, farmers must follow the Field Office Technical

frozen, snow-covered, saturated, or precipitation is likely. Specifically, an owner or operator cannot apply manure at all between December 15 and March 1 absent advance agency approval. During other months, an owner or operator cannot apply manure on frozen, snow-covered, or saturated soils or when precipitation is likely in the next 24 hours unless it is incorporated or injected into the ground.<sup>241</sup> These timing restrictions take effect two years following the distressed designation.<sup>242</sup> Because Senate Bill 1 imposed similar timing restrictions on application of manure (as well as fertilizer) in the western basin of Lake Erie,<sup>243</sup> the timing restrictions of the distressed watershed rules have been largely superseded in the western basin of Lake Erie. The timing restrictions of the distressed watershed rules, though, would continue to have vitality in watersheds designated in distress in the rest of the state.

Third, the distressed watershed rules require many farms to conform to the terms of an agency-approved nutrient management plan.<sup>244</sup> The obligation to develop and conform to an ODA-approved nutrient management plan applies to the owner, operator, or person responsible for producing, applying, or receiving more than a threshold amount of manure annually in a distressed watershed. The threshold amount is 350 tons or 100,000 gallons of manure on an annual basis. A nutrient management plan must be submitted to and approved by the ODA director or the director's designee. Once a watershed is designated in distress, the director must establish a deadline for all nutrient management plans within the watershed to be submitted for approval.<sup>245</sup> The deadline must be between 6 and 24 months after designation as distressed.<sup>246</sup>

In broad brush, a nutrient management plan addresses the methods, amount, form, placement, and timing of nutrient application. Plans, which can take the form of a federal Natural Resources Conservation Service comprehensive nutrient management plan or an Ohio equivalent, must contain the following information: recent soil tests for the land application area, (2) annual manure analysis that is representative of the manure being applied, (3) spreading agreements for all land used for manure application not under the control of the party responsible for the nutrient management plan,

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Guide standards only after they have caused water pollution. *See id.* 901:13-1-02 to -05.

241. OHIO ADMIN. CODE 901:13-1-11(B) (2016).

242. *Id.*

243. OHIO REV. CODE ANN. § 939.08 (West 2018). *See supra* Part III.B.

244. OHIO ADMIN. CODE 901:13-1-19, -20 (2016).

245. *Id.* at 901:13-1-19(B).

246. *Id.*

(4) number, weight, and kind of all animals, (5) total volume of manure produced, (6) method and time of manure application, (7) planned manure application rates, (8) other nutrients applied (e.g., commercial fertilizer, sewage sludge), (9) field information including location, spreadable acreage, crops grown, and actual and projected yields, (10) type of manure storage and capacity, and (11) emergency information in case of a spill.<sup>247</sup>

Land application areas receiving manure must be assessed, and manure application rates and setback distances are based on these risk assessments.<sup>248</sup> The owner, operator, or person responsible is required to keep a variety of operating records for five years. These records include manure application, weather forecasts, manure and soil analysis, and manure storage volumes. Upon a minimum of 24-hour notice, these records shall be made available for review by the director or designee. Additionally, the director or designee must visit the operation and review records at least once every three years and then provide a report to the soil and water conservation district and the ODA.<sup>249</sup>

Once approved, a nutrient management plan must be updated as conditions change and is subject to re-approval at least every three years. Changes that trigger an update include a change of ownership or a more than ten percent increase in the number of animals.<sup>250</sup> For a new animal feeding operation in a distressed watershed, the management plan must be submitted and approved prior to initiation of construction.<sup>251</sup>

If a nutrient management plan is disapproved, an administrative hearing may be requested pursuant to Ohio's Administrative Procedure Act.<sup>252</sup> Any person denied approval of a nutrient management plan can appeal to the Court of Common Pleas of Franklin County.<sup>253</sup>

Certain agricultural operations are not subject to the nutrient management plan mandate of the distressed watershed rules. Small operations that do not meet the annual threshold amount of manure are not required to have a nutrient management plan. Also excluded are CAFFs subject to Ohio Revised Code Chapter 903

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247. *Id.* at 901:13-1-19(C).

248. *Id.* at 901:13-1-19(D).

249. *Id.* at 901:13-1-19(E).

250. *Id.* at 901:13-1-19(F). The plan must be updated prior to any expansion in the number of animals by more than ten percent. *Id.*

251. *Id.* at 901:13-1-19(G).

252. *Id.* at 901:13-1-19(H).

253. *Id.* at 903:13-1-19(I).

and point sources subject to Ohio Revised Code Chapter 6111, such as CAFOs.<sup>254</sup>

The director of the ODA has the authority,<sup>255</sup> subject to the consent of the Ohio Soil and Water Conservation Commission,<sup>256</sup> to designate a watershed as in distress. In considering a potential designation, the director may consider seven factors:

- (1) The watershed is listed as impaired by nutrients or sediments from agricultural sources in Ohio EPA's section 303(d) list or in an approved TMDL;
- (2) The watershed or a portion thereof exhibits conditions that are a threat to public health based on information provided by the Ohio Department of Health or local health district;
- (3) Streams, lakes or other waterbodies in the watershed exhibit periodic evidence of algal or cyanobacterial blooms capable of producing toxins harmful to humans, domestic animals or wildlife;
- (4) There is a threat to, or presence of contaminants in, public or private water supplies;
- (5) There is a threat to, or presence of contaminants in, waters designated by the state for use as recreational or bathing water;
- (6) Other unacceptable nuisance conditions exist, including depletion of dissolved oxygen in water that impacts aquatic life;
- (7) Other situations as determined by the director upon consultation with other federal, state and local agencies.<sup>257</sup>

Before proposing to designate a watershed in distress, the director must prepare a report documenting the relevant above-listed regulatory factors.<sup>258</sup> Designation of a watershed as in distress depends upon consent by a majority vote of the seven-member Ohio Soil and Water Conservation Commission.<sup>259</sup> The director may remove the in distress designation upon reasonable confirmation of a sustained recovery, restoration, and mitigation of the factors leading to the original designation.<sup>260</sup>

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254. See OHIO ADMIN. CODE 901:13-1-19(A) (2018). CAFFs and CAFOs must have approved nutrient management plans pursuant to Ohio Rev. Code chapters 903 and 6111, respectively. See *supra* Part III.B.

255. OHIO ADMIN. CODE 901:13-1-20(A) (2018).

256. *Id.* at 901:13-1-20(C).

257. *Id.* at 901:13-1-20(A)(1)–(7).

258. *Id.* at 901:13-1-20(B).

259. *Id.* at 901:13-1-20(C).

260. *Id.* at 901:13-1-20(D).

Only one watershed has been designated as in distress since the distressed watershed rules were issued. Grand Lake St. Marys was designated as a distressed watershed in January 2011 by the director of the ODNR with the unanimous approval from the Ohio Soil and Water Conservation Commission.<sup>261</sup> The ODNR study supporting this designation determined that the Grand Lake St. Marys watershed met the regulatory criteria for designation as a watershed in distress. The lake was listed as impaired by nutrients from agricultural sources by Ohio EPA in its 2010 Integrated Report and the 2007 TMDL report for Grand Lake St. Marys; the lake exhibited conditions that were a threat to public health; there was periodic evidence of algal or cyanobacteria blooms capable of producing toxins harmful to humans and wildlife; there was a threat to a public drinking water supply and a recreational body of water; and it posed unacceptable nuisance conditions.<sup>262</sup> The deadline for nutrient management plans was set for December 15, 2012, and the timing restrictions on application of manure took effect January 19, 2013 (i.e., two years after the designation).<sup>263</sup>

Grand Lake St. Marys is still heavily polluted with excess nutrients, significant algal blooms, and elevated levels of toxins.<sup>264</sup> But a recently published scientific study indicated that the distressed watershed rules had resulted in significant reductions in the levels of nutrients entering the lake.<sup>265</sup> The objective of the study was to assess the long-term changes in water quality, specifically nutrient and sediment concentrations, following the designation of the watershed as distressed in 2011. The study found that concentrations of nutrients and sediments in the main tributary leading to Grand Lake St. Marys were significantly reduced since the watershed was designated in distress. All parameters measured—total suspended solids, particulate phosphorus, soluble reactive phosphorus, nitrate and TKN—were demonstrably lower than prior to the designation, in some cases up to 60 percent lower.<sup>266</sup> The study noted that while few farmers in the watershed maintained an active nutrient man-

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261. *Grand Lake St. Marys—Watershed in Distress*, *supra* note 237.

262. OHIO DEP'T OF NAT. RES., DISTRESSED WATERSHED DESIGNATION ANALYSIS GRAND LAKE ST. MARYS WATERSHED, *supra* note 234, at 3–6.

263. *Grand Lake St. Marys—Watershed in Distress*, *supra* note 237.

264. See Brian Kollars, *Lake's Problems Persist Despite Changes*, DAYTON DAILY NEWS, (Aug. 15, 2015), <https://bit.ly/2xEYR8c> [<https://perma.cc/EN58-9ANS>].

265. See generally Stephen J. Jacquemin et al., *Changes in Water Quality of Grand Lake St. Marys Watershed Following Implementation of a Distressed Watershed Rules Package*, 47 J. ENVTL. QUALITY 113 (2017).

266. *Id.* at 113–18.

agement plan prior to the designation, more than 95 percent had active nutrient management plans following the designation.<sup>267</sup>

Ohio Governor John Kasich and the ODA deserve credit for attempting to designate a large portion of the Maumee River watershed as distressed in July 2018. Spurred by an executive order by the governor,<sup>268</sup> the ODA director proposed that eight subwatersheds within the Maumee River watershed be designated as distressed due to nutrient pollution from agricultural sources. The proposed designation was supported by a report demonstrating how those eight subwatersheds met the regulatory criteria of distressed watersheds.<sup>269</sup> Unfortunately, however, the Ohio Soil and Water Conservation Commission voted not to approve the distressed watershed designation.<sup>270</sup> Instead, the Commission opted to refer the matter to a subcommittee-to-be-named-later for indefinite study.<sup>271</sup> Lacking consent by a majority vote of the Commission, the distressed watershed designation for those subwatersheds did not take effect.<sup>272</sup>

In my view, the entire western Lake Erie basin watershed in Ohio, based on the regulatory criteria, is ripe for designation as in distress. Alternatively, the somewhat smaller Maumee River watershed, Lake Erie's largest tributary and responsible for the vast majority of nutrient loading to western Lake Erie,<sup>273</sup> should be designated as a distressed watershed. Both the WLEB watershed and the Maumee River watershed meet each of the regulatory criteria for designation as a distressed watershed.

As discussed in Part IV above, Lake Erie is listed as impaired on Ohio EPA's latest 303(d) list due to nutrients or sediments from agricultural sources. So is the Maumee River.<sup>274</sup>

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267. *Id.* at 113–14.

268. Ohio Exec. Order No. 2018-09K (July 11, 2018).

269. See OHIO DEP'T OF AGRIC., DISTRESSED WATERSHED DESIGNATION ANALYSIS SELECTED WESTERN LAKE ERIE BASIN WATERSHEDS (2018), <https://bit.ly/32fTLXr> [<https://perma.cc/X9H9-MUNG>] [hereinafter DISTRESSED WATERSHED DESIGNATION].

270. See Alex Ebert, *Kasich's Lake Erie Cleanup Plan Punted by Ohio Committee*, BLOOMBERG ENV'T & ENERGY REP., (July 19, 2018), <https://bit.ly/2NHEGS8> [<https://perma.cc/TPJ9-ED6K>].

271. *Id.*

272. The Commission at subsequent meetings continued to refuse to approve the designation. See John Seewer, *Board Again Sidelines Kasich's Order on Lake Erie Algae*, NEWS-HERALD (N.E. Ohio), (Nov. 3, 2018), <https://bit.ly/30ld6eH> [<https://perma.cc/458S-SF3E>].

273. See *supra* Part II.

274. 2018 INTEGRATED REPORT, *supra* note 180, at L-42.

At least portions of the WLEB and Maumee River watersheds exhibit conditions that are a threat to public health based on information provided by the Ohio Department of Health or a local health district. In 2017, four public health advisories related to algal blooms and toxins were issued by the Department of Health for the beach at Maumee Bay State Park,<sup>275</sup> located on the shore of western Lake Erie close to the mouth of the Maumee River. Also in 2017, the Toledo-Lucas County Health Department issued a recreational public health advisory for the Maumee River in Toledo due to an extensive algal bloom, warning the public against swimming or wading in the river.<sup>276</sup>

Both the WLEB and Maumee River regularly exhibit evidence of algal or cyanobacteria blooms capable of producing toxins such as microcystin which are harmful to humans, domestic animals, and wildlife. Furthermore, both the western Lake Erie basin and the Maumee River are listed as impaired for recreational use due to harmful algal blooms. Those impairment listings are based, *inter alia*, upon water sampling results and satellite imagery demonstrating the existence of widespread algal blooms and microcystin.<sup>277</sup>

There is a threat to public water supplies that draw their water from western Lake Erie evidenced by the August 2014 “do not drink” advisory issued for the Toledo public drinking water system (due to elevated levels of microcystin detected in the finished water)<sup>278</sup> and the September 2013 shutdown of the Carroll Township public drinking water system (due to high levels of microcystin detected in the raw water).<sup>279</sup> There is also a threat to public water supplies that rely on water from the Maumee River as evidenced by samples showing elevated levels of microcystin in the raw water at multiple public drinking water systems over multiple years.<sup>280</sup> Both western Lake Erie and the Maumee River are now listed as impaired for public drinking water.<sup>281</sup>

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275. See DISTRESSED WATERSHED DESIGNATION, *supra* note 269, at 7.

276. Lauren Lindstrom & Tom Henry, *Green Algae Leads to Water Advisory for Maumee River Near Downtown Toledo*, BLADE (Toledo, Ohio), (Sept. 22, 2017), <https://bit.ly/2NEIDYF> [<https://perma.cc/JSN6-PZ27>].

277. See 2018 INTEGRATED REPORT, *supra* note 180 at F-27; DISTRESSED WATERSHED DESIGNATION, *supra* note 269, at 7.

278. Tom Henry, *Toledo Seeks Return to Normalcy After Do Not Drink Advisory Lifted*, BLADE (Toledo, Ohio), (Aug. 5, 2014), <https://bit.ly/2YINAj6> [<https://perma.cc/2U3D-XCUN>].

279. See *Lake Erie Algae a Threat to Ohio Drinking Water*, USA TODAY, (Oct. 13, 2013), <https://bit.ly/2YHqZnf> [<https://perma.cc/ML2W-GHV7>].

280. 2018 INTEGRATED REPORT, *supra* note 180, at H-12 (e.g., City of Defiance, Bowling Green).

281. *Id.* at L-44.

Other unacceptable nuisance conditions exist due to nutrient pollution in the western Lake Erie and Maumee River watersheds, including impacts to aquatic life. In addition to both waterbodies being listed as impaired for aquatic life,<sup>282</sup> dozens of fish kills resulting from manure or fertilizer pollution have been reported in the Maumee River and western Lake Erie watersheds over the past several years.<sup>283</sup>

Application of the distressed watershed rules to the WLEB watershed, or at least the Maumee River watershed that makes up the vast bulk of the WLEB watershed, would likely result in significant reduction of nutrient loadings to Lake Erie. Such a designation should be part of Ohio's strategy toward achieving the targeted 40 percent reduction in phosphorus loading.

## V. CURRENT RULES ARE GOOD, BUT COULD BE BETTER

### A. *Worthy of Emulation by Other States*

Algae are a problem in every state, and for many waterbodies the problem is driven by nutrient loading from agricultural nonpoint sources.<sup>284</sup> Ohio's unique distressed watershed rules are worthy of emulation by such states for multiple reasons. One, they offer state legislatures traditionally loathe to regulate agricultural polluters with a palatable, flexible avenue to do so. The rules are not imposed statewide, nor are their requirements in effect all the time. Instead, the rules kick in only when and where there is a particular need for additional agricultural nutrient regulation as determined and documented by experts in the responsible state agency.<sup>285</sup>

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282. *Id.*

283. See DISTRESSED WATERSHED DESIGNATION, *supra* note 269, at 9 & app.

### C.

284. *Harmful Algal Blooms*, U.S. ENVTL. PROT. AGENCY, *supra* note 1 (“Harmful algal blooms are a major environmental problem in all 50 states.”). See also, e.g., *Agriculture*, CHESAPEAKE BAY PROGRAM, <https://bit.ly/2xJ7ZZO> [<https://perma.cc/B3MH-9JF6>] (last visited July 11, 2019) (stating agriculture is the largest source of nutrients entering Chesapeake Bay); Karl Havens, *What Is Causing Florida's Algae Crisis?*, GAINESVILLE SUN, (Aug. 15, 2018), <https://bit.ly/2XWgRdb> [<https://perma.cc/4JGX-TLK7>] (indicating blue-green algae in Florida caused by nutrients washing into the waters from agricultural lands, leaky septic tanks and fertilizer runoff); BARTON H. THOMPSON JR. ET AL., *LEGAL CONTROL OF WATER RESOURCES* 1138 (5th ed. 2012) (“[A]griculture is the major source of pollution in the nation's rivers, streams, and lakes.”).

285. See OHIO ADMIN. CODE 901:13-1-20(A) (2016). A designation of “in distress” can be removed by the ODA director “upon reasonable confirmation of a sustained recovery, restoration and mitigation of the factors leading to the original designation.” *Id.* at 901:13-1-20(D).

Two, once the distressed watershed rules are promulgated, their special restrictions can be implemented relatively promptly without the need for any bill by the state legislature, rule by a state agency, or any federal involvement. All that is necessary is a decision by the director of the ODA to designate a watershed as in distress, supported by a report documenting that the watershed meets the existing regulatory criteria, and consent by a majority of the Ohio Soil and Water Conservation Commission.<sup>286</sup>

Three, the distressed watershed rules offer an effective mixture of universally applicable timing restrictions and of more tailored requirements in nutrient management plans. The timing restrictions for application of manure apply across-the-board to everyone in the designated distressed watershed.<sup>287</sup> By prohibiting application of nutrients during specific winter months, there is no ambiguity for the regulators or the regulated farming community—you are in violation if you apply nutrients to the ground between December 15 and March 1.<sup>288</sup> The prohibition against surface application of manure on frozen ground or ground covered in more than one inch of snow also articulates a fairly bright line rule.<sup>289</sup> The prohibition against applying manure when the local weather forecast calls for a greater than 50 percent chance of precipitation exceeding one-half inch during the next 24 hours is less of a bright line, but it is still a line that can be readily discerned by those seeking to comply with or enforce the rule.<sup>290</sup>

By contrast, the nutrient management plans required under the distressed watershed rules are not one-size-fits-all.<sup>291</sup> Instead, nutrient management plans give the agency and the farmers the flexibility to impose best management practices that make the most sense for the particular farm. The nutrient management plan could include common best management practices that have been shown to be effective in reducing nutrient runoff plus other practices tailored to that farm.<sup>292</sup>

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286. *Id.* at 901:13-1-20(A)–(C).

287. *Id.* at 901:13-1-11(B).

288. *Id.* at 901:13-1-11(B)(1).

289. *See id.* at 901:13-1-11(B)(2).

290. *See id.* at 901:13-1-11(B)(5). The rule references [www.noaa.gov](http://www.noaa.gov), which provides local weather forecast information.

291. *See generally id.* at 901:13-1-19.

292. *See id.* at 901:13-1-19(C). Best management practices shown to be effective in reducing nutrient runoff in northwest Ohio include soil-test-informed application rates, subsurface placement, filter strips, blind inlets, and cover crops. *See, e.g.,* FUSSELL ET AL., *supra* note 15, at 5–9; NAT. RES. CONSERVATION SERV., U.S. DEP'T OF AGRIC., OHIO FIELD OFFICE TECHNICAL GUIDE, <https://bit.ly/2XgksTS> (last visited July 7, 2019).

Nutrient management plans, of one sort or another, are a well-established regulatory tool under federal and state law for reducing nutrient pollution from a variety of sources. Under the Clean Water Act, a CAFO that discharges pollutants to waters of the United States is required to have an NPDES permit, and one of the permit conditions for a CAFO is having a nutrient management plan.<sup>293</sup> In Ohio, a CAFF must have a permit to operate issued by the ODA; one of the permit conditions for a CAFF is having a manure management plan.<sup>294</sup>

Moreover, Ohio and federal law encourage farmers to adopt nutrient management plans voluntarily. Substantial compliance with the terms of a voluntary nutrient management plan is an affirmative defense to a civil action for claims involving or resulting from the application of fertilizer in Ohio.<sup>295</sup> Similarly, substantial compliance with an operation and management plan is an affirmative defense in a civil action for nuisance involving agricultural pollution in Ohio.<sup>296</sup> At the federal level, the Environmental Quality Incentives Program (“EQIP”), a voluntary program administered by the U.S. Department of Agriculture, provides financial and technical assistance to agricultural producers via contracts with the department’s Natural Resources Conservation Service. In order for an animal feeding operation to qualify for EQIP assistance, a comprehensive nutrient management plan is required.<sup>297</sup>

Indeed, even the agricultural community recognizes the utility of nutrient management plans. In 2018, the Ohio Farm Bureau and partner organizations sponsored workshops to develop individualized nutrient management plans for farmers, with the express goal

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293. 40 C.F.R. § 122.42(e)(1) (2018).

294. OHIO ADMIN. CODE 901:10-2-07(A)(1), -08 (2016). Similarly, sewage sludge and biosolids in Ohio must be disposed of in accordance with the terms of an NPDES permit or management plan. *Id.* at 3745-40-08.

295. OHIO REV. CODE ANN. § 905.325(C) (West 2018).

296. *Id.* § 939.03(C). The recent multi-million-dollar jury verdicts against North Carolina hog farms in nuisance suits are reminders of the value to farmers of a defense to such suits. See Glen Minnis, *Agriculture Group: By Suing Hog Farms Over the Smell, Attorneys Win While Farmers Lose*, LEGAL NEWSLINE (Jan. 15, 2019), <https://bit.ly/2Jp5v8c> [<https://perma.cc/T6GJ-MEDU>]. More than 20 nuisance cases are pending in federal district court against North Carolina hog farmers, and three jury verdicts in 2018 awarded plaintiffs multi-million-dollar verdicts. *Id.*

297. See NAT. RES. CONSERVATION SERV., U.S. DEP’T OF AGRIC., AFO/CAFO ANIMAL WASTE, <https://bit.ly/2XPaA2S> [<https://perma.cc/9LAQ-3UYH>] (last visited July 7, 2019).

of expanding the number of farms with nutrient management plans.<sup>298</sup>

In short, the distressed watershed rules have a lot to offer—the power to impose clear timing restrictions on application of nutrients and to mandate nutrient management plans requiring best management practices tailored to individual farms, when and where there is an algae problem within the state, without the necessity of any new legislation or rules.

### *B. Suggested Improvements in Ohio and Other States*

Ohio's unique distressed watershed rules are designed to reduce agricultural nutrient pollution and help solve the HABs problem, and as discussed above, the rules are worthy of emulation by other states. But Ohio's distressed watershed rules are not perfect. This section highlights three ways in which the distressed watershed rules could be improved in Ohio and in states wishing to adopt their own distressed watershed rules.

#### *1. Eliminate Need for Soil and Water Conservation Commission Consent*

Ohio's recent inability to complete a distressed watershed designation for certain Maumee River subwatersheds highlights a flaw in the state's distressed watershed rules. Specifically, it would be preferable if the designation were not dependent on the consent of a majority of the Ohio Soil and Water Conservation Commission. In summer 2018, the ODA proposed designating eight subwatersheds within the Maumee River watershed as in distress, and its proposal was supported by a report demonstrating that the subwatersheds met the regulatory criteria for designation as distressed. Yet the designation was thwarted because a majority of the Commission refused to consent to the designation.<sup>299</sup>

Following the Dust Bowl crises in the 1930s and encouraged by federal legislation, each state created local soil conservation districts and a state soil conservation committee or commission.<sup>300</sup> The state committee or commission essentially supervises and sup-

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298. Press Release, Ohio Farm Bureau, Farm Groups Announce New Nutrient Management Assistance (Mar. 20, 2018), <https://bit.ly/2Xuw0TG> [<https://perma.cc/S3MG-4PEP>].

299. See *supra* Part V. “No designation of a watershed in distress shall be issued until the Ohio soil and water conservation commission consents by a majority vote to a proposed designation.” OHIO ADMIN. CODE 901:13-1-20(C) (2016).

300. See NAT. RES. CONSERVATION SERV., U.S. DEP'T. OF AGRIC., STATE CONSERVATION DISTRICT LAWS DEVELOPMENTS AND VARIATIONS (1996), <https://bit.ly/2XvUcQL> [<https://perma.cc/M54H-7QVU>].

ports the local soil conservation districts within the state.<sup>301</sup> The Ohio General Assembly created the Ohio Soil and Water Conservation Commission in 1941,<sup>302</sup> and organizationally the Commission is within the ODA.<sup>303</sup> The principal responsibility of the Commission is to ensure Ohioans are served by well-administered and supported soil and water conservation districts.<sup>304</sup> As in most states, the members of the Commission are volunteers.<sup>305</sup> The Commission has seven members: six are appointed by the governor and one by the board of directors of Ohio's federation of soil and water conservation districts.<sup>306</sup> Although a majority of the Commission members are supposed to have knowledge of agricultural production and natural resources, none of them are required to have any expertise in pollution.<sup>307</sup> The lone reference to pollution in the Commission's statutory charge is as follows: "Recommend to the director of agriculture a procedure for coordination of a program of agricultural pollution abatement."<sup>308</sup> It is one thing to have the opportunity to make recommendations to the ODA director regarding agricultural pollution. It is something quite different to have the power to veto the director's designation aimed at reducing agricultural pollution. Imbuing the Commission with such veto power seems counter-productive in the battle against HABs. To the extent farmers or other interested persons are unhappy with the ODA's distressed watershed designation, their recourse should be a challenge in court<sup>309</sup>—not lobbying Commission members for a veto.

Accordingly, another state looking to adopt distressed watershed rules similar to those in Ohio should strongly consider not granting its soil conservation committee or commission with the power to veto the action agency's distressed watershed designation

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301. *Id.*

302. OHIO DEP'T OF AGRIC., OHIO SOIL & WATER CONSERVATION COMMISSION, <https://bit.ly/2Y7oihy> [<https://perma.cc/N6MH-BBKU>].

303. *Id.*

304. *Id.* See also OHIO REV. CODE ANN. § 940.02 (West 2018).

305. *Id.* § 940.02; NAT. RES. CONSERVATION SERV., U.S. DEP'T. OF AGRIC., STATE CONSERVATION DISTRICT LAWS DEVELOPMENTS AND VARIATIONS, *supra* note 300. Members of the Commission may be reimbursed for the necessary expenses incurred by them in the performance of their duties. OHIO REV. CODE ANN. § 940.02 (West 2018).

306. OHIO REV. CODE ANN. § 940.02.

307. See *id.*

308. *Id.* § 940.02(G).

309. See generally *id.* §§ 119.01–.14 (Ohio Administrative Procedure Act).

and the effect of the rules.<sup>310</sup> Rather, the rules should provide for judicial review of the agency's distressed watershed designation pursuant to the state's administrative procedure act.

In Ohio, by terms of the APAP mandate statute, specifically Ohio Revised Code section 903.02(E), all rules regarding agricultural pollution issued by ODA must be approved by the Commission.<sup>311</sup> Thus the initial promulgation of the distressed watershed rules in Ohio required approval by the Commission. However, there appears to be no reason why the distressed watershed rules themselves must include a provision requiring Commission consent for the in distress designation to take effect. Hence, the distressed watershed rules could be amended to eliminate the requirement of Commission consent to the designation. Nevertheless, any such amendment would seem to require Commission approval, per the APAP statutory command,<sup>312</sup> and the Commission may be reluctant to give up its veto power. Therefore, in order to eliminate the need for Commission consent to an ODA designation of in distress, it may be necessary to amend Ohio Revised Code section 903.02(E) so that Commission approval is not required to amend the distressed watershed rules. In the interim, though, the ODA should consider proposing an amendment to the distressed watershed rules that sets a time limit for the Commission to make a final decision whether to consent to a proposed in distress designation by the ODA director; if no decision were made by the Commission within the time limit, it would be deemed consent by the Commission.<sup>313</sup> The Commission may be more willing to accede to this modest change in the rules which would prevent the Commission from indefinitely studying a proposed distressed watershed designation.

## 2. *Cover Commercial Fertilizer as well as Manure*

Ohio's distressed watershed rules focus exclusively on manure.<sup>314</sup> Yet the scientific consensus is that commercial fertilizer also contributes significantly to agricultural nutrient pollution and excessive phosphorus loading.<sup>315</sup> Therefore, to be most effective in

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310. Other states could choose to confer the authority for distressed watershed rules upon their state environmental protection agency rather than their state department of agriculture.

311. OHIO REV. CODE ANN. § 939.02(E) (West 2018).

312. *See id.*

313. The Commission's decision, to consent or not, should be subject to judicial review.

314. *See* OHIO ADMIN. CODE 901:13-1-11, -19(A), -20(A) (2018).

315. *See* BALANCED DIET FOR LAKE ERIE, *supra* note 2, at 4, 30. In the Lake Erie watershed, and the WLEB watershed in particular, commercial fertilizer may

reducing phosphorus loading from agricultural runoff, the distressed watershed rules should cover commercial fertilizer as well as manure. States looking to adopt distressed watershed rules should make sure their rules—both the timing restrictions and the nutrient management plan requirements—apply to commercial fertilizer as well as manure.

In Ohio, the distressed watershed rules were issued pursuant to the APAP mandate statute (Ohio Revised Code Chapter 939) which authorizes rules to abate water pollution by “residual farm products, manure, or soil sediments, including attachments.”<sup>316</sup> It would enhance the state’s capability to reduce agricultural nutrient pollution if this statute were interpreted to cover commercial fertilizer. It is questionable, however, whether the APAP statute currently authorizes the ODA to regulate commercial fertilizer.

In early 2018, the Kasich administration urged the Ohio General Assembly to amend the APAP statute to expressly include “fertilizer,” so that the state would have authority to more comprehensively regulate agricultural nutrient pollution plaguing Lake Erie.<sup>317</sup> However, the administration was unsuccessful, and no such legislation was ever introduced.<sup>318</sup>

Thwarted in the legislature, the Kasich administration then proposed to amend the distressed watershed rules to cover all “nutrients,” including fertilizer.<sup>319</sup> In proposing the rule change, the ODA cited Ohio Revised Code section 939.02 as the statutory au-

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be more of a contributor to nutrient loading than manure. *See also* OHIO LAKE ERIE TASK FORCE I, *supra* note 2, at 37 (showing that based on total tons of phosphorus applied as fertilizer in the Ohio portion of the Lake Erie watershed, commercial fertilizer accounts for 66%, manure 27%, and biosolids 6%); INT’L JOINT COMM’N, FERTILIZER APPLICATION PATTERNS AND TRENDS AND THEIR IMPLICATIONS FOR WATER QUALITY IN THE WESTERN LAKE ERIE BASIN 3–4 (2018) (noting that the amount of phosphorus in commercial fertilizer applied in the WLEB watershed is four times greater than the amount of phosphorus in manure generated in the WLEB watershed).

316. OHIO REV. CODE ANN. § 939.02(E)(1) (West 2018). *See also id.* § 939.01(A) (defining “agricultural pollution” as the failure to use practices in farming operations to abate degradation of waters of the state by “residual farm products, manure, or soil sediment, including attached substances”).

317. *See Hearing on H.B. 643 Before the H. Fin. Comm.*, 132d Gen. Assemb. (Ohio 2018) (including the testimony of Ohio EPA Director Craig Butler).

318. *See* Tom Jackson, *Legislative Leaders Attack Kasich’s Lake Erie Order*, SANDUSKY REGISTER, (July 19, 2018), <https://bit.ly/2GhfXxQ> [<https://perma.cc/2HG2-9MTR>]. This legislative inaction prompted Gov. Kasich’s Executive Order No. 2018-09K, *Taking Steps to Protect Lake Erie*, July 11, 2018.

319. *See* Nutrient Management Planning Requirements for Watersheds in Distress (proposed Oct. 15, 2018) (withdrawn), <https://bit.ly/2KXfUZk> [<https://perma.cc/9B2V-HVBX>].

thority for the amendment.<sup>320</sup> The ODA explained that broadening the current rules beyond manure would help address the algae problem in Lake Erie.<sup>321</sup> The proposed amendments, however, were rejected by the Ohio Joint Committee on Agency Rule Review in December 2018.<sup>322</sup>

The statutory terms “residual farm products” and “manure” are both defined in the APAP statute.<sup>323</sup> Neither definition expressly includes “fertilizer.” “Soil sediments, including attachments,” though, is not statutorily defined. So perhaps there is an argument that the APAP statute authorizes regulation of fertilizer to the extent fertilizer is attached to soil sediment.<sup>324</sup>

However, in addition to relying on the fact that no language in the APAP statute expressly authorizes regulation of fertilizer, opponents could argue that the General Assembly did not intend to regulate fertilizer under the APAP because the legislature has specifically addressed fertilizer in other statutes. For example, Senate Bill 150 in 2014 established a certification program for the application of fertilizer in Ohio Revised Code Chapter 905,<sup>325</sup> not in the APAP statute Ohio Revised Code Chapter 939. Moreover, Senate Bill 1 in 2015 added separate provisions restricting the application of manure and fertilizer on snow-covered, frozen, or saturated soils in the WLEB.<sup>326</sup> The manure restrictions were added to the APAP

320. Ohio Dep’t of Agric., Rule Summary and Fiscal Analysis (Oct. 15, 2018), <https://bit.ly/2HfDJUj>.

321. Ohio Dep’t of Agric., Public Notice (Oct. 15, 2018), <https://bit.ly/2Z2QOCj> [<https://perma.cc/Z3BY-GVLJ>] (regarding Nov. 20, 2018 hearing on proposed amendments to distressed watershed rules).

322. See Jim Provance, *Lake Erie Runoff Rules Delayed*, BLADE (Toledo, Ohio), (Dec. 10, 2018), <https://bit.ly/2Y90h9R> [<https://perma.cc/SF7M-WTXJ>]. Reportedly the review committee “found that the rules contradicted past legislative intent not to include chemical fertilizers.” *Id.* The ODA, under new Ohio Governor Mike DeWine, may re-work the proposed amendments and try again. See Alex Ebert, *Ohio Lawmakers Send \$2B Lake Erie Phosphorus Rule Back to Agency*, BLOOMBERG ENV’T & ENERGY REP. (Dec. 10, 2018, 4:18 PM), <https://bit.ly/2GitzZs> [<https://perma.cc/5PMN-G9BL>].

323. “‘Manure’ means animal excreta.” OHIO REV. CODE ANN. § 939.01(F) (West 2018). “‘Residual farm products’ means bedding, wash waters, waste feed, and silage drainage” and also includes some products resulting from the composting of dead animals. *Id.* § 939.01(J).

324. The terms “soil” and “sediment” are defined by regulation and do not expressly include fertilizer. OHIO ADMIN. CODE 901:13-1-01(34) (2016) (sediment) and *id.* at 901:13-1-01(37) (soil). “Attachments” is not defined by statute or regulation.

325. Act of May 22, 2014, Am. Sub. H.B. 150, § 1, 2014 Ohio Laws File 95 (codified at OHIO REV. CODE ANN. §§ 905.321–.325 (West 2018)). “Fertilizer” is defined at *id.* § 905.31(F).

326. See Act effective July 3, 2015, Sub. S.B. 1, § 1, 2015 Ohio Laws File 4 (codified at OHIO REV. CODE ANN. §§ 905.326–.327, 939.08–.09 (West 2018)).

statute,<sup>327</sup> whereas the fertilizer restrictions were added to a separate statute—Ohio Revised Code Chapter 905 regarding fertilizer.<sup>328</sup> It could be further argued that, by pushing for the amendment of the APAP statute to expressly cover fertilizer (albeit unsuccessfully) in 2018, the ODA was conceding that Ohio Revised Code section 939.02 does not currently cover fertilizer.<sup>329</sup>

Ideally, the Ohio General Assembly will amend the APAP statute to expressly provide ODA the authority to regulate fertilizer, thus making clear that ODA can cover fertilizer in its distressed watershed rules. Other states could avoid any uncertainty by making sure that the mandate statute under which the distressed watershed rules are promulgated expressly includes fertilizer as well as manure.

### 3. *Approval of Nutrient Management Plan Should Be Appealable*

Under Ohio's distressed watershed rules, upon *disapproval* of a nutrient management plan, any person may request an administrative adjudication hearing,<sup>330</sup> and any person *denied* approval of a nutrient management plan may appeal to the Court of Common Pleas of Franklin County.<sup>331</sup> But the rule is silent regarding the ability to appeal *approval* of a nutrient management plan. The ability to appeal administratively and judicially should not be restricted to persons who have been denied approval of a nutrient management plan. Administrative and judicial appeals should be afforded to persons aggrieved by an approval of a nutrient management plan, not just a disapproval. A lack of symmetry in the right to seek administrative or judicial review may tend to make the agency more likely to approve a nutrient management plan, since approval will result in no challenge to the agency action whereas disapproval may engender an appeal.<sup>332</sup> Unless appeals are available to challenge errors in approval of nutrient management plans—for example, where the best management practices in the plan are weak and unlikely to reduce nutrient pollution—nutrient management plans will

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327. OHIO REV. CODE ANN. §§ 939.08–.09 (formerly Ohio Rev. Code §§ 1511.10–.11).

328. *Id.* §§ 905.326–.327.

329. See Joel Penhorwood, *JCARR Sends Water Changes Back to ODA*, Ohio Ag Net (Dec. 12, 2018), <https://bit.ly/2m6zauK> [<https://perma.cc/6ZLM-2ZDD>].

330. OHIO ADMIN. CODE 901:13-1-19(H) (2016).

331. *Id.* at 901:13-1-19(I).

332. See WILLIAM FUNK ET AL., ADMINISTRATIVE PROCEDURE AND PRACTICE 503 (5th ed. 2014) (discussing prudential standing). It may also mean that only erroneous denials can be corrected, not erroneous approvals. *Id.* at 427 (discussing standing).

not be as effective as they should be. Relatedly, the agency should provide public notice that a nutrient management plan has been approved, and approved nutrient management plans should be made publicly available on the agency's webpage.

#### CONCLUSION

Lake Erie, in many ways, is ground zero in our nation's battle against harmful algal blooms. The key to solving the HABs crisis in Lake Erie is reducing the amount of nutrients entering the lake's western basin, especially from nonpoint source agricultural pollution. The recent designation of Lake Erie as "impaired" under the Federal Clean Water Act is a good step forward, and the resulting Total Maximum Daily Load should be a useful planning tool in the fight against HABs. But neither the Clean Water Act nor the TMDL authorizes regulation of nonpoint source agricultural pollution. Instead, that is up to state law.

Another designation, under Ohio's unique distressed watershed rules, would invoke binding restrictions on key nonpoint sources of agricultural pollution to Lake Erie and would be an important step toward easing the HABs crisis. A designation of the western Lake Erie watershed as "in distress" would unleash specific timing restrictions on the application of manure along with other best management practices required by agency-approved nutrient management plans tailored to individual farms. Ohio should make this distressed watershed designation immediately. Additionally, other states looking for new tools to battle algae should seriously consider using Ohio's rules as a model for their own distressed watershed rules. Ideally, Ohio and other states should also consider the enhancements to the distressed watershed rules proposed in this article.