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Legal Tools for Reducing Harmful Algal Blooms in Lake Erie

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TABLE OF CONTENTS

EXECUTIVE SUMMARY i
I. INTRODUCTION 1
II. CURRENT LAW 4
A. Point Sources 4
1. Industrial Wastewater Treatment Plants 9
2. POTWs 9
3. Home Sewage Treatment Systems 10
4. Stormwater Runoff Classified as Point Sources 13
5. CAFOs 15
B. Nonpoint Sources 18
1. Clean Water Act 18
2. Coastal Zone Management Act 23
3. ORC Chapter 1511 27
4. Biosolids 32
5. ORC § 1531.29 (Stream Litter Law) 34
6. Nuisance 35
C. Miscellaneous Sources 35
1. Toledo Harbor Dredging and Open Lake Disposal 35
2. Phosphate in Public Water Systems and Detergents 37
III. RECOMMENDATIONS 37
A. Promulgate Numeric Water Quality Criteria for Phosphorus 38
B. Agricultural Activities 39
C. Develop Phosphorus TMDLs for More Impaired Waters 41
D. NPDES Permits 42
E. Home Sewage Treatment Systems 43
F. Expand Implementation of Water Quality Trading 43
G. Restrict Phosphorus Lawn Fertilizer 45
H. Further Restrict Open Lake Disposal of Dredged Material 45
I. Limit Addition of Phosphate in Public Water Systems 46
J. Attain Final Approval of Ohio's CNPCP 46
K. Prioritize Grant Funding 46

EXECUTIVE SUMMARY

Harmful algal blooms (HABs), excessive growths of toxin-producing algae, have become increasingly severe and widespread in Lake Erie in recent summers. Triggered primarily by excess phosphorus in the lake, HABs are causing substantial economic and ecological harm as well as threatening human health. The Ohio Lake Erie Phosphorus Task Force, convened by the Ohio Environmental Protection Agency (OEPA) due to increased concerns about HABs, in its April 2010 final report identified a variety of phosphorus sources in Ohio that are or may be contributing to the formation of HABs in Lake Erie. The identified sources included both "point" sources (e.g., effluent from wastewater treatment plants) and "nonpoint" sources (e.g., storm runoff from agricultural activities) of phosphorus to Lake Erie and its tributaries.

This white paper contributes to the battle against HABs in Lake Erie in two ways. First, by describing the complex web of existing federal and state laws applicable to point and nonpoint sources in Ohio, it highlights the legal tools currently available for controlling key sources of phosphorus. Second, it makes recommendations for using these existing tools and for changing the law to help combat the formation of HABs in Lake Erie.

Current Law

The federal Clean Water Act (CWA) and Ohio law, such as Ohio Revised Code chapter 6111, regulate discrete "point" sources more rigorously than diffuse "nonpoint" sources. Key point sources of phosphorus include publicly owned treatment works (POTWs), industrial wastewater treatment plants, home sewage treatment systems, and concentrated animal feeding operations. Although certain types of stormwater are regulated as point sources (e.g., municipal, construction), most storm runoff is classified as nonpoint source pollution. In general, the existing legal regime has been more successful in reducing pollution from point sources than from nonpoint sources.

The CWA prohibits a point source from discharging any pollutant into lakes, rivers or streams without a permit. Point source discharges of most types of pollutants, including phosphorus, require an NPDES permit, which sets the terms under which a discharge is allowed. In Ohio, the NPDES permit program has been delegated to OEPA to administer and enforce.

In the absence of federal technology-based effluent limitations, NPDES permit limits for phosphorus depend largely on state water quality standards. Ohio's water quality standards include narrative criteria that require all surface waters to be "free from nutrients entering the waters … in concentrations that create nuisance growths of aquatic weeds and algae." Only a small percentage of NPDES permits in the Lake Erie basin contain limits on phosphorus, and most permits do not even require monitoring for phosphorus.

As for specific key point sources, POTWs have made marked progress over the past few decades in reducing the amount of phosphorus discharged to Lake Erie. Ohio regulations require large POTWs in the Lake Erie basin to meet a total phosphorus effluent limit of 1 mg/L; combined sewer overflows, however, continue to account for significant phosphorus loading from POTWs. Most municipal, industrial and construction stormwater discharges can take

advantage of general NPDES permits. In addition to any NPDES permitting requirements, new or replacement home sewage treatment systems are subject to regulation by the Ohio Department of Health pursuant to Ohio Revised Code chapter 3718, and large concentrated animal feeding operations are subject to regulation by the Ohio Department of Agriculture pursuant to Ohio Revised Code chapter 903.

Nonpoint sources are virtually unregulated by federal law. The CWA relies on planning and incentive programs to encourage voluntary reduction of nonpoint source pollution, with limited success. OEPA administers Ohio's CWA nonpoint source programs. Similarly, the Coastal Zone Management Act (CZMA) authorizes federal grant money for states that develop and implement a Coastal Nonpoint Pollution Control Program (CNPCP) for controlling nonpoint source pollution in coastal areas. Unlike CWA programs, though, the state CNPCP must include enforceable requirements. Ohio's CNPCP is administered by the Ohio Department of Natural Resources (ODNR), and continued CZMA grants for nonpoint source controls in Ohio may depend on attaining final federal approval of Ohio's CNPCP.

It is largely left to state law to regulate nonpoint sources. Ohio law, however, imposes few enforceable requirements on nonpoint source polluters. Agricultural pollution was identified by the Task Force as the most significant contributor to phosphorus loading to Lake Erie today. ODNR, pursuant to Ohio Revised Code chapter 1511, is responsible for regulating farming operations to abate degradation of waters by sediment pollution and animal waste, for issuing rules to accomplish this mandate, and for issuing orders to ensure compliance with the rules. ODNR's rules provide for liability if a farmer fails to implement best management practices and agricultural pollution of waters occurs. The rules offer general guidance to farmers regarding best management practices, but few pollution-prevention practices are mandated, and enforcement of the rules is cumbersome. ODNR also offers cost-share money to assist landowners to implement best management practices.

More generally, the Ohio Stream Litter Law prohibits persons from placing waste or unsanitary materials into waters, and nuisance suits can be used to abate water pollution in Ohio. Statutory exceptions and defenses, though, make it difficult to maintain such actions against agricultural activities.

Recommendations

There is no simple legal solution to the HABs problem in Lake Erie, as there are numerous different sources implicating multiple federal and state laws. We respectfully submit, however, that the legal tools in Ohio can be better used and improved to reduce the amount of phosphorus entering Lake Erie and its tributaries. Our recommendations for Ohio's agencies and General Assembly to consider include the following:

- <u>OEPA should promulgate numeric water quality criteria for phosphorus.</u> Current narrative criteria are vague and difficult to apply.
- <u>ODNR should designate the Lake Erie watershed "in distress."</u> This would trigger new regulations governing application of manure and requiring nutrient management plans.

- ODNR should establish minimum best management practices for all farming operations and streamline enforcement of them.
- The General Assembly should amend the definition of "concentrated animal feeding facility" to include medium-size animal feeding operations. Currently only large animal feeding operations must obtain operating permits from the Ohio Department of Agriculture.
- OEPA should develop phosphorus TMDLs for all impaired waters in the Lake Erie basin. Total Maximum Daily Loads, in addition to being mandated by the CWA, can serve as important steps toward controlling point and nonpoint sources of phosphorus.
- OEPA should establish more stringent phosphorus effluent limits for POTWs in the Lake Erie basin.
- OEPA should require more NPDES permit holders to monitor for phosphorus in the Lake Erie basin. Currently less than 1/3 of NPDES permits in the Lake Erie basin monitor for phosphorus.
- OEPA should include more "green infrastructure" requirements in NPDES permits. Permeable pavement, grassed swales, etc., can reduce phosphorus runoff cost-effectively and in an environmentally friendly manner.
- OEPA and boards of health should more aggressively enforce against home sewage treatment systems that contribute significantly to phosphorus pollution. Currently only a small minority of home sewage treatment systems has NPDES permits.
- OEPA should encourage water quality trading in the Lake Erie basin. Such programs, already in use in the Ohio River basin, can reduce phosphorus loading cost-effectively and encourage voluntary reductions of phosphorus pollution by nonpoint sources.
- The General Assembly should enact legislation significantly restricting the application of phosphorus-containing fertilizer on lawns in the Lake Erie basin. Other Great Lakes states recently have done so.
- OEPA should further restrict open lake disposal of Toledo Harbor dredged material. This could include stricter conditions on the CWA certification for Army Corps of Engineers dredging and/or a new rule restricting disposal of dredged sediments in Lake Erie.
- OEPA should limit approval of phosphate-based additives as a corrosion control treatment for public water systems in the Lake Erie basin. Other, phosphorus-free corrosion control treatments under the Safe Drinking Water Act may be equally viable.
- ODNR should secure federal CZMA funding to combat nonpoint source pollution by attaining final approval of Ohio's CNPCP.
- Agencies should prioritize grant funding for projects that reduce phosphorus loading in the Lake Erie basin.

Legal Tools for Reducing Harmful Algal Blooms in Lake Erie

By Kenneth Kilbert, Tiffany Tisler and M. Zack Hohl[1]

I. INTRODUCTION

Harmful algal blooms (HABs) are excessive growths of toxin-producing algae in water bodies, typically forming during the summer. Technically not algae but rather cyanobacteria, HABs are a nationwide problem, and they have become increasingly prevalent and severe in Lake Erie in recent years.[2]

HABs are an unsightly and smelly nuisance, discouraging persons from using the lake or its shores for swimming, boating, fishing and other recreational uses, harming tourism, and diminishing the value of lakefront property. But the problem is far more than just the aesthetics of blue-green scum. HABs pose taste and odor problems in drinking water, and they adversely impact fish and other aquatic life by outcompeting other organisms (which serve as fish food) and depleting oxygen (which contributes to the so-called dead zone).[3] Perhaps most importantly, some species produce toxins (e.g., microcystin) that can cause illness or death to humans and animals as a result of ingestion or contact.[4] In summer 2010, excessive HABs caused the closure of Grand Lake St. Marys, warnings at two Ohio Lake Erie public beaches, and toxins detected in

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[2] *See* Ohio Lake Erie Phosphorus Task Force Final Report 11 (April 2010), *available at* www.epa.ohio.gov/portals/35/lakeerie/ptaskforce/Task_Force_Final_Report_April_2010.pdf [hereinafter Task Force Report]; Lake Erie Millennium Network Synthesis Team, Lake Erie Nutrient Loading and Harmful Algal Blooms: Research Findings and Management Implications 2 (June 14, 2011), *available at* http://www.ohioseagrant.osu.edu/_documents/publications/TS/TS-060%2020June2011LakeErieNutrientLoadingAndHABSfinal.pdf [hereinafter Millennium Team Report]. *See generally* Ohio Sea Grant Fact Sheet, Harmful Algal Blooms in Ohio Waters (2010), *available at* http://ohioseagrant.osu.edu/_documents/publications/FS/FS-091-2011%20Harmful%20Algal%20Blooms%20In%20Ohio%20Waters.pdf; U.S. Geological Survey Fact Sheet, Harmful Algal Blooms (Jan. 2007).

[3] Millennium Team Report, *supra* note 2, at 2.

[4] Ohio Sea Grant Fact Sheet, *supra* note 2. Record high levels of microcystin for Lake Erie, 1200 parts per billion (ppb), were detected in Maumee Bay in 2011. World Health Organization guidelines for microcystin are 1 ppb for drinking and 20 ppb for swimming. *See* Dr. Jeffrey Reutter, Understanding Lake Erie and its History (March 2012) (slide presentation), *available at* http://law.utoledo.edu/ligl/habs.

drinking water supplies.[5] HABs were even more severe and widespread in Lake Erie this past summer.[6]

Phosphorus is key

HABs form in Lake Erie due to a combination of warm temperatures and excess nutrients, especially phosphorus.[7] This is not the first era in which Lake Erie has been plagued by HABs. HABs were a severe problem in Lake Erie during the 1960s and early 1970s.[8] Commencing in the early 1970s, efforts were undertaken to reduce the amount of phosphorus entering Lake Erie. Regulation of point source discharges, particularly publicly owned treatment works (POTWs), following enactment of the Clean Water Act and the Great Lakes Water Quality Agreement in 1972,[9] resulted in dramatic reductions in the amounts of phosphorus discharged into Lake Erie and its tributaries. Modifications of agricultural practices, such as no-till cropping, also reduced the amounts of particulate phosphorus (phosphorus attached to sediment particles) entering Lake Erie and its tributaries. As a result, HABs were virtually eliminated in Lake Erie by the 1980s.[10]

However, HABs began to recur in Lake Erie in the mid-1990s and have grown particularly intense and extensive in recent years. The recurrence of HABs coincided with increases in the levels of dissolved reactive phosphorus (DRP) entering Lake Erie.[11] Although total phosphorus (TP) levels in Lake Erie have remained relatively consistent since the mid-1990s, levels of DRP have been rising rapidly since the mid-1990s and are now at the highest levels since monitoring began in the 1970s.[12] TP is comprised of both particulate and dissolved phosphorus; DRP is much more biologically available (i.e., it better serves as food for algae) than TP.[13]

Due to increased concerns about HABs, the Ohio Environmental Protection Agency (OEPA) in 2007 convened the Ohio Lake Erie Phosphorus Task Force (Task Force), with a goal of identifying and evaluating sources of phosphorus to Lake Erie contributing to HABs.[14] The

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[5] *See* OEPA News Release, State Issues Stronger Advisory for Grand Lake St. Marys (July 16, 2010); Editorial, *Protect the Lakes*, Toledo Blade, Aug. 31, 2010.

[6] In 2011, warnings were posted at Lake Erie public beaches, record levels of microcystin were detected in Lake Erie, and significant HABs in Lake Erie were observed as far east as Cleveland. *See* Editorial, *The Algae Menace*, Toledo Blade, Sept. 3, 2011, at A-6; *Algae Woes on Lake Erie Demand Immediate Attention From State, Federal Agencies*, Cleveland Plain Dealer, Oct. 14, 2011; Reutter, *supra* note 4.

[7] Nitrogen tends to be the key nutrient driving the formation of HABs in marine environments, whereas phosphorus tends to be the driver in freshwaters. Millennium Team Report, *supra* note 2, at 3.

[8] Task Force Report, *supra* note 2, at 11-12.

[9] Clean Water Act, 33 U.S.C. §§ 1251-1387. The Great Lakes Water Quality Agreement (GLWQA), amended in 1978 and 1987, is an international agreement between the U.S. and Canada. 30 U.S.T. 1383, T.I.A.S. No. 9257. Although not legally binding, it guides federal policy and has been the impetus for certain state measures to improve water quality in the Great Lakes. *See, e.g.*, Ohio Admin. Code 3745-1-07 (establishing total phosphorus effluent limit for major POTWs); Ohio Rev. Code § 6111.10 (banning high-phosphorus detergent); Ohio Rev. Code § 1506.22 (establishing Great Lakes protection fund). The U.S. and Canada are discussing revisions to the GLWQA.

[10] Task Force Report, *supra* note 2, at 12-16; Millennium Team Report, *supra* note 2, at 4.

[11] Task Force Report, *supra* note 2, at 11, 16.

[12] *Id*. at 20-23.

[13] *Id*. at 28; Millennium Team Report, *supra* note 2, at 3.

[14] Task Force Report, *supra* note 2, at 11.

multi-disciplinary Task Force issued its final report in April 2010, which discussed a variety of phosphorus sources that potentially could contribute to the formation of HABs in Lake Erie, including both point sources and nonpoint sources.[15]

Point and Nonpoint Sources

"Point source" is a legal term of art that carries substantial import: point sources of water pollution typically are regulated much more rigorously than nonpoint sources under federal and state law.[16] The federal Clean Water Act[17] broadly prohibits discharges of pollutants, including phosphorus, from "point sources" into waters of the United States, including Lake Erie and its surface water tributaries, without a permit.[18] Unpermitted discharges of phosphorus from a point source, or discharges of phosphorus from a point source in excess of the limits set forth in its permit, violate the Clean Water Act, and violators are subject to penalties and injunctive relief.[19] Regulation of discharges from point sources under the Clean Water Act and associated state law has been fairly effective, and the volume of phosphorus discharged from point sources in the Lake Erie basin has decreased markedly since 1972.[20] Nevertheless, the Task Force recognized that certain point sources, such as POTWs, still contribute significant volumes of total phosphorus and DRP to Lake Erie and its tributaries. Because TP loads from point sources have been relatively constant since the early 1980s, however, the Task Force concluded that point source discharges are not primarily responsible for the increased DRP levels being observed in recent years.[21]

In comparison to the law governing point sources, the regulatory regime for nonpoint sources is less compulsory and more complex. Federal efforts to control nonpoint source pollution in Lake Erie and its tributaries involve multiple statutes and agencies, including a variety of provisions under the federal Clean Water Act administered by the U.S. Environmental Protection Agency (USEPA), and the Coastal Zone Management Act administered by the National Oceanic and Atmospheric Administration (NOAA).[22] At the state level, OEPA, Ohio Department of Natural Resources (ODNR), Ohio Department of Agriculture (ODA) and Ohio Department of Health all play roles in regulating key nonpoint sources of phosphorus into Lake Erie and its tributaries under various Ohio statutes. Overall, regulation of nonpoint sources has been much less effective than regulation of point sources, and the amount of phosphorus entering Lake Erie and its tributaries from nonpoint sources now is far greater than the amount discharged from point sources.[23] According to the Task Force, the most significant Ohio contributor to phosphorus loading to Lake Erie today is stormwater runoff from agricultural activities.[24]

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[15] Ohio Lake Erie Phosphorus Task Force Final Report (April 2010).

[16] The Task Force used the term "point source" more colloquially in its report, classifying certain wastewater and sewage treatment plants as point sources and grouping other sources of phosphorus, including all stormwater runoff, as nonpoint sources. *See id*. As discussed in Part II.A infra, some types of stormwater runoff are regulated as point sources under the Clean Water Act.

[17] 33 U.S.C. §§1251-1387.

[18] *See infra* Part II.A.

[19] *Id*.

[20] Task Force Report, *supra* note 2, at 12-15.

[21] *Id*. at 35.

[22] 16 U.S.C. §§1451-1464.

[23] Task Force Report, *supra* note 2, at 17, 36.

[24] *Id*. at 73.

This white paper addresses legal tools for controlling key Ohio sources of phosphorus entering Lake Erie and its tributaries, as part of a multi-disciplinary legal research and public outreach project partially funded by a grant from the National Sea Grant Law Center. Part II of the paper describes current federal and state law in Ohio applicable to point and nonpoint sources of phosphorus, focusing primarily on those sources identified and evaluated by the Task Force.[25] Part III makes recommendations for using these existing legal tools and for changing the law to help combat the formation of HABs in Lake Erie.

II. CURRENT LAW

A. POINT SOURCES

The federal Clean Water Act (CWA) "concentrates its regulatory firepower on pollution from point sources."[26] CWA § 301 prohibits the discharge of any pollutant, except as in compliance with certain sections of the CWA.[27] Phosphorus is a pollutant under the CWA,[28] and "discharge of a pollutant" means the addition of any pollutant to "navigable waters" from any "point source."[29]

"Point source" is broadly defined to include any discernible, confined and discrete conveyance, such as pipes or ditches.[30] Point sources include end-of-pipe discharges of effluent from POTWs and industrial wastewater treatment plants.[31] Discharges from home sewage treatment systems are also included.[32]

The statute specifically exempts "agricultural stormwater discharges and return flows from irrigated agriculture" from the definition of point source.[33] Concentrated animal feeding operations (CAFOs), however, are expressly defined as point sources.[34] Most other types of stormwater runoff are not regulated as point sources but rather as nonpoint sources.[35] However, certain types of stormwater runoff are regulated as point sources, including municipal stormwater, industrial stormwater, and construction sites.[36]

"Navigable waters," statutorily defined as "waters of the United States,"[37] encompasses more than just navigable-in-fact waters such as Lake Erie and its major tributaries. Although its outside parameters are less than clear, CWA jurisdiction extends to relatively permanent bodies

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[25] Sources of phosphorus from outside of Ohio mentioned by the Task Force, such as air deposition and flow from the Upper Lakes/Detroit River, *see id*. at 18, are beyond the scope of this paper.
[26] Robert V. Percival et al., Environmental Regulation: Law, Science, and Policy 648 (6th ed. 2009) [hereinafter Percival].
[27] Clean Water Act § 301(a), 33 U.S.C. § 1311(a).
[28] Clean Water Act § 502(6), 33 U.S.C. § 1362(6) (broadly defining pollutant); 40 C.F.R. § 132 Tables, tbl.5 (listing phosphorus in the Great Lakes System as a pollutant subject to federal, state, and tribal water quality requirements).
[29] Clean Water Act § 502(12), 33 U.S.C. § 1362(12).
[30] *Id.* § 1362(14).
[31] *See generally* Clean Water Act § 402, 33 U.S.C. § 1342.
[32] 40 C.F.R. § 122.1(b)(2).
[33] Clean Water Act § 502(14), 33 U.S.C. § 1362(14); 40 C.F.R. § 122.2.
[34] *Id*. *See infra* Part II.A.5.
[35] *See generally* 40 C.F.R. § 122.26.
[36] *Id.*
[37] Clean Water Act § 502(7), 33 U.S.C. § 1362(7).

of water (e.g., seasonal streams) that are tributaries of navigable-in-fact waters, and waters with a significant nexus to traditional navigable-in-fact waters.[38]

Essentially, discharges of pollutants into navigable waters from point sources without a CWA permit of some kind are unlawful. Disposal of dredged or fill material requires a permit under CWA § 404.[39] Discharges of most other pollutants, including phosphorus, require a National Pollutant Discharge Elimination System (NPDES) permit under CWA § 402.[40] NPDES permits set the terms under which a discharge of phosphorus from point sources will be allowed.[41]

The NPDES program is a delegable program, meaning that USEPA may delegate to a state agency the authority to administer and enforce the program.[42] OEPA is the delegated agency in Ohio.[43] OEPA issues the NPDES permit, while USEPA retains oversight and veto authority.[44] A requisite for delegation is that state law be at least as stringent as the CWA and federal regulations.[45] Ohio Revised Code (ORC) chapter 6111 is the primary Ohio statute governing discharges of pollutants from point sources into waters of the state.[46] In general, ORC chapter 6111 makes it unlawful to place or discharge any sewage, sludge or other wastes into waters of the state without an NPDES permit.[47] Ohio's statute in a sense is broader than the CWA because it covers all "waters of the state," whereas the CWA only covers discharges to statutorily defined "navigable waters."[48] Thus, discharges to groundwater or non-navigable surface waters that are not within the jurisdiction of the CWA may require a permit under ORC chapter 6111.[49] Similar to the federal CWA, ORC chapter 6111 specifically exempts agricultural pollution, including storm runoff and animal waste.[50]

The volume and concentration of a pollutant allowed to be discharged under an NPDES permit (i.e., the effluent limit) depends largely on two factors.[51] The primary driver in setting the effluent limit in an NPDES permit is the technology-based control which USEPA has established for that category of discharger. Each discharger in a certain industry is subject to the same

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[38] *See* Rapanos v. United States, 547 U.S. 715 (2006); USEPA & ACOE Guidance, Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United States* (Dec. 2, 2008). Wetlands also can be waters of the United States if they have a continuous surface connection to relatively permanent bodies of water or have a significant nexus to navigable-in-fact waters.
[39] Clean Water Act § 404, 33 U.S.C. § 1344.
[40] Clean Water Act § 402, 33 U.S.C. § 1342.
[41] *See generally* Clean Water Act § 402, 33 U.S.C. § 1342.
[42] *See* Clean Water Act § 101(b), 33 U.S.C. § 1251(b); 40 C.F.R. § 123 (2011).
[43] *See* OEPA, Division of Surface Water – About Us, http://www.epa.state.oh.us/dsw/general.aspx. As discussed more fully *infra* Part II.A.5, Ohio Department of Agriculture plays a role in permitting CAFOs.
[44] *See* Clean Water Act § 402(d), 33 U.S.C. § 1342(d); 40 C.F.R. § 123.44.
[45] *See, e.g.*, Clean Water Act § 402(b), 33 U.S.C. § 1342(b) (requiring states applying for delegation of the NPDES program to have 'adequate authority' to carry out a program). States may have programs that are broader or more stringent than the federal laws and regulations. *See* Clean Water Act § 510, 33 U.S.C. § 1370.
[46] Ohio Rev. Code ch. 6111.
[47] *Id.* § 6111.04(A)(1).
[48] *Compare* Ohio Rev. Code § 6111.01(H) *with* 33 U.S.C. § 1362(7).
[49] Ohio Rev. Code § 6111.01(H) broadly defines "waters of the state" to include all accumulations of water, surface or underground, natural or artificial.
[50] *Id.* § 6111.04(F)(3)-(4).
[51] *See* 40 C.F.R. § 122.44 (2011).

uniform, nationwide technology-based limit.[52] The size or quality of the receiving water body is irrelevant for purposes of this limit.[53] New sources typically are subject to more stringent requirements than existing sources.[54] POTWs are subject to a separate category of technology-based controls, which are typically less stringent than those imposed on industrial sources.[55]

The second factor which may affect the effluent limit in an NPDES permit is the water quality standards of the receiving water body.[56] Water quality standards set the maximum level of a pollutant that can lawfully exist in the ambient water body.[57] They effectively serve as a backup to the technology-based limits, mandating a stricter NPDES permit effluent limit if the technology-based limit alone would result in an exceedance of the water quality standard.[58] Water quality standards are a function of the designated use of the water body (e.g., public drinking water supply) and water quality criteria necessary to protect the designated use.[59] Designated uses must at minimum reflect existing uses, but may also establish aspirational high quality uses.[60] Water quality criteria must be adopted for all pollutants affecting a waterbody and may be numeric or narrative.[61] Water quality standards also require an anti-degradation policy, to maintain and protect present uses and water quality, in order to prevent regulatory backsliding on established water quality standards.[62]

In Ohio, OEPA establishes the water quality standards, subject to USEPA approval.[63] Ohio currently has three designated uses: aquatic habitat, water supply and recreation.[64] Within each designated use, there are subcategories. Aquatic habitat subcategories are warmwater, limited warmwater, exceptional warmwater, modified warmwater, seasonal salmonid, coldwater, and limited resource water.[65] Water supply subcategories are public, agricultural, and industrial.[66] Recreational use subcategories are bathing waters, primary contact waters, and secondary contact waters.[67] For example, the lower Maumee River is designated as a warmwater habitat, agricultural water supply, industrial water supply, primary contact water.[68] Lake Erie is

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[52] *See* 40 C.F.R. §§ 122 app. A, 122.26, 122.44.
[53] *See id.*
[54] 40 C.F.R. § 122.44.
[55] 40 C.F.R. §§ 122.45, 125.3. Effluent from POTWs must receive secondary treatment. 40 C.F.R. § 125.3.
[56] 40 C.F.R. § 122.44.
[57] Clean Water Act § 303(c)(2)(A), 33 U.S.C. § 1313(c)(2)(A); 40 C.F.R. § 131.2.
[58] Clean Water Act § 301(b)(1)(C), 33 U.S.C. § 1311(b)(1)(C); 40 C.F.R. § 131.2. Less directly, water quality standards also can be relevant to control of nonpoint sources. *See infra* Part II.B.
[59] Clean Water Act § 303(c)(2)(A), 33 U.S.C. § 1313(c)(2)(A); 40 C.F.R. § 131.2.
[60] *See generally* 40 C.F.R. § 131.10 (2011).
[61] Clean Water Act § 303(c), 33 U.S.C. § 1313(c); 40 C.F.R. § 131.11.
[62] 40 C.F.R. § 131.12(a).
[63] Clean Water Act § 303(a)-(c), 33 U.S.C. § 1313(a)-(c).
[64] Ohio Admin. Code 3745-1-07(A)(1) (2011).
[65] *Id.* at 3745-1-07(B)(1). These aquatic habitat subcategories all focus on the type of community of organisms a waterbody is capable of supporting.
[66] *Id.* at 3745-1-07(B)(3). Public water supply waters are suitable for human consumption with conventional treatment, agricultural water supply waters are suitable for livestock consumption and irrigation without treatment, and industrial water supply waters are suitable for commercial use with or without treatment. *Id.*
[67] *Id.* at 3745-1-07(B)(4). Bathing waters are heavily used for swimming, primary contact waters are suitable for various full-body recreational activities, and secondary contact waters are rarely used for water based recreation. *Id.*
[68] Ohio Admin. Code 3745-1-11 tbl. 11-1 (for segment of river from I-75 to confluence with Maumee Bay); Ohio Admin. Code 3745-1-23 tbl. 23-1.

designated as an exceptional warmwater habitat, public water supply, agricultural water supply, industrial water supply and bathing water.[69]

Although USEPA has been encouraging states to establish numeric water quality criteria for phosphorus,[70] Ohio currently has no numeric water quality criteria for phosphorus.[71] However, Ohio does have a generally applicable narrative water quality criteria that directly relates to phosphorus and algae blooms.[72] This narrative criteria requires all surface waters, to every extent practicable and regardless of designated use, to be "free from nutrients entering the waters as a result of human activity in concentrations that create nuisance growths of aquatic weeds and algae."[73] When this narrative criteria is violated and a nuisance growth exists, total phosphorus discharges from point sources determined significant by OEPA must not exceed a daily average of one milligram per liter.[74]

Other generally applicable narrative criteria, although they do not mention nutrients specifically, could be relevant to phosphorus sources. These include criteria requiring surface waters to be free from materials producing color, odor or other conditions in such a degree as to create a nuisance; free from substances in concentrations that are toxic or harmful to human, animal or aquatic life and/or are rapidly lethal in the mixing zone; and free from public health nuisances associated with raw or poorly treated sewage.[75] Ohio currently lacks any phosphorus criteria associated with specific types of designated uses.[76]

Lake Erie water quality criteria are governed by the generally applicable rules as well as a Lake Erie specific rule and a Lake Erie drainage basin rule.[77] The latter two rules do not mention phosphorus, however, so the only phosphorus criteria applicable to Lake Erie are the generally applicable narrative criteria.[78]

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[69] Ohio Admin. Code 3745-1-31(A). OEPA has proposed revisions that will alter the designated use scheme if adopted. One of these proposed changes is the addition of a lake habitat subcategory to the aquatic life designation—however Lake Erie is specifically excluded from receiving this designation in the proposed rules. *See infra*.

[70] *See, e.g.*, USEPA, Memorandum from Nancy Stoner, Acting Assistant Administrator, to Regional Administrators on Working in Partnership with States to Address Phosphorus and Nitrogen Pollution Through Use of a Framework for State Nutrient Reductions (Mar. 16, 2011).

[71] In response to comments to draft water quality criteria rules, OEPA in December 2010 indicated that it was in the process of developing numerical water quality criteria for phosphorus for recreation use designations. OEPA, December 2010 Response to Comments, Response 44. Ohio does have numeric criteria associated with specific designated uses for a variety of chemicals, compounds, and other factors such as pH, temperature, and bacteria. *See* Ohio Admin. Code 3745-1-07.

[72] Ohio Admin. Code 3745-1-04(E).

[73] *Id.*

[74] Ohio Admin. Code 3745-1-07 tbl.7-11 n. C.

[75] Ohio Admin. Code 3745-1-04(C)-(D), (F). Ohio also has a narrative criteria for wetlands that requires the natural wetland hydrology be protected so as prevent significant adverse impacts on chemical, nutrient and dissolved oxygen regimes. Ohio Admin. Code 3745-1-51(A)(3).

[76] *See* Ohio Admin. Code 3745-1-07.

[77] Ohio Admin. Code 3745-1-31, -33.

[78] The Lake Erie drainage basin rule recognizes a potential need for an alternative phosphorus criteria by providing a method for creating one in the future. Ohio Admin. Code 3745-1-33(D).

OEPA in December 2011 issued proposed rules that, if finalized, would amend Ohio's water quality standards.[79] Proposed changes include elimination of the Lake Erie drainage basin rule,[80] and modifying the narrative public health nuisance criteria such that it will apply to public health nuisances associated with both sewage *and manure*.[81] No numeric water quality criteria for phosphorus are proposed. Simultaneously with publishing the proposed rules, though, OEPA represented that it "is developing numerical water quality criteria for phosphorus. Those criteria are expected to be available for public review and comment in 2012."[82] It is not clear, however, whether the anticipated numeric phosphorus criteria will apply to Lake Erie.[83]

Ohio's anti-degradation policy[84] is essentially silent on phosphorus, except to create an exception to submission and review requirements when a proposed net increase in the discharge of nutrients will comply with water quality standards and cause no environmental harm.[85] The anti-degradation policy classifies Lake Erie as a "superior high quality water,"[86] and hence new and existing sources may not exceed Lake Erie's "pollutant assimilative capacity."[87] By contrast, new and existing sources discharging into "general high quality waters" may be granted variances to discharge pollutants that lower water quality beyond the water quality criteria.[88]

The Clean Water Act provides for enforcement by government and citizens. CWA § 309 provides for government enforcement, both administrative and judicial.[89] Persons discharging in violation of the CWA (e.g., discharging without a permit, discharges in violation of a permit) are subject to civil penalties of up to $25,000 per day for each violation, injunctive relief, and in certain instances of negligent or knowing violations, criminal sanctions.[90] Citizen suits are also available under CWA § 505, against violators and against the government where it has failed to take mandated action.[91]

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[79] OEPA, Proposed water quality standards rules (Dec. 28, 2011). OEPA originally published draft rules in August 2008, and revised draft rules were published in December 2010. On Feb. 1, 2012, OEPA withdrew the proposed water quality standards rules. OEPA intends to re-issue the rules later this year.
[80] OEPA, Proposed rescissions to Ohio Admin. Code 3745-1-33 (Dec. 28, 2011).
[81] OEPA, Proposed amendment to Ohio Admin. Code 3745-1-04(F) (Dec. 28, 2011). This change expands the public health nuisance criteria to cover a phosphorus source closely associated with agricultural runoff and CAFOs.
[82] OEPA, December 2011 Response to Comments, Response 119.
[83] OEPA published draft rules in 2010 that set forth numeric phosphorus criteria for the new lake habitat subcategory of the aquatic habitat designation. OEPA, December 2010 Draft Revisions to Ohio Admin. Code 3745-1-43 tbl.43-12. However, the new lake habitat category expressly did not, and does not, include Lake Erie. OEPA, Proposed amendment to Ohio Admin. Code 3745-1-07(F)(8) (Dec. 28, 2011). The phosphorus numeric criteria for lake habitat was dropped in the proposed December 2011 rules, with the explanation that "[a]doption of lake nutrient criteria will proceed in a future rulemaking simultaneously with the nutrient criteria for streams and rivers." OEPA, December 2011 Summary of Comments, Response 51. *See* OEPA, December 2011 Response to Comments, Response 119.
[84] Ohio Admin. Code 3745-1-05.
[85] *Id.* at 3745-1-05(D)(3)(b).
[86] *Id.* at 3745-1-05(E)(1). Other waters fall into the default category of general high quality waters unless otherwise specified. *Id*. Superior high quality waters, by definition, have exceptional ecological value through high biological integrity and the presence of threatened or endangered species. *Id*. at 3745-1-05(A)(10)(b).
[87] *Id.* at 3745-1-05(C)(6)(b) &(A)(28). "Pollutant assimilative capacity" is a function of discharge flow, water quality criteria and background concentration. *Id*.
[88] *Id.* at 3745-1-05(C)(6)(d).
[89] Clean Water Act § 309, 33 U.S.C. § 1319.
[90] *Id.* § 1319(b)-(d).
[91] Clean Water Act § 505, 33 U.S.C. § 1365.

Similarly, ORC chapter 6111 provides for civil penalties, injunctive relief and criminal sanctions.[92] Further, any pollution prohibited under ORC § 6111.04(A)(1) is declared to be a public nuisance, which gives private parties a cause of action to abate the pollution.[93]

The remainder of this Part II.A will focus on specific point sources identified and evaluated by the Task Force.

1. Industrial Wastewater Treatment Plants

As mentioned above, the primary driver in setting NPDES permit effluent limits is the technology-based effluent limitations established by USEPA. However, USEPA has not established any national technology-based effluent limitations for phosphorus for any industrial category.[94] To the extent there are effluent limits for phosphorus in NPDES permits for industrial wastewater treatment plants in Ohio, they are water quality based effluent limits (WQBELs) derived from water quality standards.

The Task Force reported that there are relatively few significant industrial dischargers of total phosphorus in the Lake Erie basin; food processing plants are an example of an industrial source category discharging high volumes of total phosphorus.[95] OEPA recently reported that less than 3% of industrial wastewater treatment plant NPDES permits in the Lake Erie basin have phosphorus effluent limits, and less than 30% even require monitoring for phosphorus.[96]

2. POTWs

The Task Force concluded that publicly owned treatment works (POTWs) collectively remain a significant source of TP and DRP to Lake Erie and its tributaries.[97] As with industrial wastewater treatment plants, there is no national technology-based effluent limitation for phosphorus for POTWs. Ohio law, however, requires a POTW in the Lake Erie basin with a design flow of 1 million gallons per day or more to meet a total phosphorus discharge limit of 1 mg/L as a 30-day average.[98] Proposed revisions to the anti-degradation rules would require new or expanded sanitary wastewater facilities with a design flow of 500,000 million gpd to meet a total phosphorus discharge limit of 2 mg/L (30-day average) and 3 mg/L (daily & weekly).[99] Depending upon the water quality standards of the receiving water body, WQBELs for phosphorus may be imposed upon POTWs as well.

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[92] Ohio Rev. Code §§ 6111.07, .09, .99.
[93] Ohio Rev. Code § 6111.04(A)(2).
[94] OEPA, Draft Nutrient Reduction Strategy Framework for Ohio Waters 46 (Dec. 2011), *available at* http://www.epa.state.oh.us/portals/35/documents/nutrient_reduction_strategy_framework.pdf [hereinafter Draft Framework].
[95] Task Force Report, *supra* note 2, at 35.
[96] Draft Framework, *supra* note 94, at 27.
[97] Task Force Report, *supra* note 2, at 34-35.
[98] Ohio Admin. Code 3745-33-06(C)(1). This requirement is derived from the Great Lakes Water Quality Agreement, Annex 3. Ohio regulations impose the same effluent limit on certain dischargers to publicly owned lakes or reservoirs or tributaries thereof. *Id*. at 3745-33-06(C)(2).
[99] OEPA, Proposed revisions to Ohio Admin. Code 3745-1-05(C)(2)(a) & tbl.5-1 (Dec. 28, 2011).

Although there are more than 700 POTWs with NPDES permits in the Lake Erie basin, the bulk of total phosphorus discharged comes from 12 major POTWs with design flows of 15 million gpd or more.[100] More than 100 POTWs in the Lake Erie basin have phosphorus limits in their NPDES permits, including all of the major dischargers.[101] However, most POTW NPDES permits do not have phosphorus effluent limits and only about 30% require monitoring for phosphorus.[102]

Combined sewer systems – i.e., systems that collect both storm and sanitary water – are common in northern Ohio.[103] In wet weather, combined sewer systems can overwhelm the capacity of a POTW such that the overflow discharges without being treated. Such discharges are known as combined sewer overflows (CSOs), and they account for significant phosphorus loading to Lake Erie and its tributaries.[104] Unpermitted CSOs, or CSOs in violation of the terms of an NPDES permit, are illegal under the Clean Water Act. USEPA's CSO Control Policy sets forth minimum requirements for an NPDES permitted CSO, including 9 types of controls and a long-term CSO control plan. Multiple POTWs in the Lake Erie basin have NPDES permits for CSOs.

Over the past two decades, the federal and/or state governments have initiated multiple Clean Water Act enforcement actions in an effort to address CSOs. For example, Toledo continues to improve its sewer system pursuant to the terms of a 2002 consent decree.[105] Cleveland entered into a consent decree in July 2011 that will require improvements in both gray and green infrastructure.[106]

3. Home Sewage Treatment Systems

Home sewage treatment systems (HSTS) were identified by the Task Force as a significant source of phosphorus to Lake Erie.[107] HSTS are subject to regulation by the Ohio Department of Health, and HSTS that discharge to waters of the state must have an NPDES permit from OEPA.[108]

ORC chapter 3718, and regulations issued thereunder, govern sewage treatment systems generally and HSTS in particular.[109] A "household sewage treatment system" is defined as any sewage disposal or treatment system for a single-family, two-family or three-family dwelling.[110] A septic tank system is a common example of an HSTS. In general, households may use HSTS

[100] Task Force Report, *supra* note 2, at 34.
[101] Draft Framework, *supra* note 94, at 22.
[102] *Id*.
[103] OEPA no longer allows installation of combined sewers in Ohio.
[104] Task Force Report, *supra* note 2, at 34; Draft Framework, *supra* note 94, at 25.
[105] *See* United States v. City of Toledo, No. 3:91CV7646 (N.D. Ohio, consent decree entered Dec. 16, 2002).
[106] *See* United States v. Northeast Ohio Regional Sewer District, No. 1:10CV02895-DCN (N.D. Ohio, consent decree entered July 7, 2011).
[107] Task Force Report, *supra* note 2, at 35.
[108] *See* United States v. Lucas, 516 F.3d 316 (5th Cir. 2008) (individual septic tank is a point source under the CWA).
[109] ORC chapter 3718 was substantially amended in 2010. The existing regulations at Ohio Admin. Code chapter 3701-29 remain in effect until new rules are adopted by the Ohio Department of Health. Draft HSTS rules are available at http://www.odh.ohio.gov/odhPrograms/eh/sewage/sewrules.aspx.
[110] Ohio Rev. Code § 3718.01(F).

only where no public or community sanitary sewerage system is accessible. If a sanitary sewage system is or becomes accessible, the household must connect to the sanitary sewage system and abandon use of the HSTS.[111] The board of health can order a household to connect to an accessible sanitary sewer system,[112] subject to exceptions such as where the discharge is authorized by permit or the dwelling to be connected is more than 200 feet from the sanitary sewer system.[113] The board can grant a variance if connecting will cause "unusual and unnecessary hardship" and the variance is not contrary to the public interest.[114]

HSTS must comply with the engineering standards acceptable to the Ohio Department of Health and any effluent must comply with the effluent standards of the OEPA.[115] Discharge from an HSTS into a well or onto the surface is prohibited.[116] Off-lot disposal of sewage effluent is also prohibited, except under limited circumstances where on-lot disposal is not possible and additional precautions are taken to minimize the effects of the disposal off-lot.[117] There are also limitations on where the HSTS can be placed given the topography of the lot and the location of water sources, limits of what products can be placed into the disposal system, and design requirements for underground tanks that are part of the HSTS.[118] The board of health is responsible for approving or denying the installation, operation, or alteration of HSTS and for issuing permits to install and operate these systems.[119] Importantly, older HSTS, in operation prior to September 17, 2010 (the effective date of the statute), are deemed approved and need not be replaced with a new system, provided the older HSTS does not cause a public health nuisance or is repaired so as to eliminate the public health nuisance as determined by the board of health.[120]

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[111] Ohio Admin. Code 3701-29-02(L) prohibits the installation of an HSTS if a sanitary sewer system is accessible, and Ohio Admin. Code 3701-29-02(M) requires households to abandon an HSTS that is in use whenever a sanitary sewer system becomes accessible. *See also* Meeker v. Akron Health Dep't, 2009 Ohio App. LEXIS 3063, 2009 Ohio 3560 (Ohio App. 2009) (city public health department was not estopped from requiring a property owner to abandon his septic system once a city sewer system became available).

[112] Ohio Admin. Code 3701-29-02(M).

[113] *See* Ohio Rev. Code § 6117.51. Other exceptions include the wastes at issue result from the keeping of animals, and the dwelling to be connected is on land held exclusively for agricultural use where the sewage right-of-way was obtained due to public exigency and the health department has certified that the HSTS is functioning properly. *Id.*

[114] Ohio Admin. Code 3701-29-20(A). Ohio Atty. Gen. Op. No. 2010-019 (2010). *See also*, Sullivan v. Hamilton County Bd. of Health, 155 Ohio App. 3d 609, 802 N.E.2d 698 (Ohio App. 2003) (board of health lawfully denied a request for variance from the home sewage system regulations where doing so did not deprive the landowners of any opportunity to develop the property for new home lots).

[115] Ohio Admin. Code 3701-29-02(A)

[116] *Id.* at 3701-29-02(E), 3701-29-02(F)

[117] *Id.* at 3701-29-02(G) requires that there be an easement or some other access to the off-lot disposal site; written permission from the person in control of the property where discharged; that the sewage effluent quality complies with effluent standards; where quality or nuisance issues, that additional standards from board of health may be required; and that all reasonable means be taken to minimize the amount of effluent discharged off the lot.

[118] *Id.* at 3701-29-02(H) through 3701-29-02(K) (lot requirements: necessary topography, isolation from water supply on lot, etc.); *Id.* at 3701-29-02(O) (any waste products (e.g. plastics) known to adversely affect the household sewage disposal system shall not be deposited in the system); *Id.* at 3701-29-07 (septic tank design standards); *Id.* at 3745-42-03(A)(1)(a)(viii) (plans for septic tanks and leach fields need to be signed and certified by a professional engineer).

[119] Ohio Rev. Code § 3718.023(A).

[120] Ohio Rev Code § 3718.012. *See* Ohio Rev. Code § 3718.011 (describing situations where HSTS is causing public nuisance); *see generally* 53 Ohio Jur.3d, Health and Sanitation § 79 (2012).

ORC chapter 6111 provides an exemption from NPDES permit requirements for HSTS installed in compliance with ORC chapter 3718.[121] However, the board of health is required to ensure that an HSTS "shall not discharge into a ditch, stream, pond, lake, natural or artificial waterway, drain tile, or other surface water or onto the surface of the ground" or into a well or other groundwater connection without an NPDES permit.[122] Hence, new or replacement HSTS actually must obtain an NPDES permit for these discharges. Older HSTS, or those not installed in compliance with ORC chapter 3718, must have an NPDES permit if discharging to waters of the state.[123]

OEPA has issued two general NPDES permits for new and replacement HSTS. One general permit (OHK000002) allows the local board of health to determine an HSTS's eligibility, provided the board of health has signed a Memorandum of Understanding with OEPA.[124] Under the other general permit (OHL000001), OEPA determines eligibility. An HSTS can obtain coverage under a general permit by submitting a notice of intent. The limits included in the general permits are representative of the best available demonstrated control technology for sanitary wastewater discharges as outlined by OEPA rules.[125] The permits do not cover any discharges that the director of the OEPA has determined to be contributing to a violation of a water quality standard.[126] Neither general permit contains a phosphorus effluent limit, but both prohibit effluent in amounts that are conducive to the growth of algae.[127] There apparently is no general permit applicable to older HSTS. OEPA estimates that only about 3% of HSTS have NPDES permits.[128]

An HSTS is deemed to be causing a public nuisance if the owner is given notice of and fails to timely remedy one of the following situations: the sewage treatment system is not operating properly due to mechanical or electrical failures; backup in the system is affecting the treatment process or proper drainage; there is ponding of liquid or bleeding onto the surface of the ground; or where an NPDES permit is in place, the system "routinely exceeds effluent discharge limitations specified by the permit."[129]

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[121] Ohio Rev. Code § 6111.04(F)(7).
[122] Ohio Rev. Code § 3718.023(B).
[123] *See* Ohio Rev. Code § 6111.04(A).
[124] OHK000002 (effective Feb. 1, 2012, expiring Dec. 31, 2016) was issued by OEPA on Jan. 27, 2012, replacing general permit OHK000001.
[125] *See* NPDES Permit No. OHK000002 pp. 5-6, *available at* http://www.epa.ohio.gov/portals/35/permits/HSTS_OHK2_final_jan12.pdf *and* NPDES permit No. OHL000001 pp. 5-6, available at http://www.epa.ohio.gov/portals/35/permits/HSTS_Final_GP_jun08.pdf.
[126] *See* NPDES Permit No. OHK000002 p. 10, *available at* http://www.epa.ohio.gov/portals/35/permits/HSTS_OHK2_final_jan12.pdf *and* NPDES permit No. OHL000001 p. 9, *available at* http://www.epa.ohio.gov/portals/35/permits/HSTS_Final_GP_jun08.pdf.
[127] *Id.*
[128] Draft Framework, *supra* note 94, at 28.
[129] Ohio Rev. Code § 3718.011(A). A property owner may request a test to prove the system is causing a public nuisance, but the owner must pay for the test. *Id.* § 3718.011(B). Private citizens could seek to enjoin the operation of an HSTS if there is a nuisance. Ohio Rev. Code § 3767.03. Ohio Rev. Code § 929.04 provides an affirmative defense in civil actions for nuisances involving agricultural activities, and courts have found that fertilizing farmland by spreading the contents of residential septic tanks and portable toilets on farmland is a legal agricultural use. Board of Trustees v. Chasteen, 646 N.E.2d 542, 545 (Ohio App. 1994). Where such activity is conducted primarily for the disposal of sewage and not for fertilizing farmland, however, it is not an agricultural activity. Ohio Atty. Gen. Op. No. 88-052 (1988).

Following a complaint in writing from the board of health, OEPA may order a county to construct and operate sewage facilities where HSTS are causing unsanitary conditions.[130]

4. Stormwater Runoff Classified as Point Sources

Although water pollution resulting from stormwater runoff is typically characterized as nonpoint source pollution, certain types of stormwater discharges are classified as point sources under the Clean Water Act and require NPDES permits. Stormwater runoff regulated as point sources include municipal stormwater discharges, identified by the Task Force as a significant source of phosphorus to Lake Erie and its tributaries, as well as industrial and construction site discharges. Additionally, concentrated animal feeding operations (CAFOs) are specifically included within the definition of point source under the CWA.

a. Municipal

Municipal stormwater discharges are governed by CWA § 402(p).[131] Discharges from municipal separate storm sewer systems (MS4s) serving populations of 100,000 or more must have NPDES permits. An MS4 includes any system owned or operated by a state or local government entity that collects and conveys stormwater, but excludes combined sewer systems and publicly owned treatment works.[132] Unlike most point sources, MS4s are not subject to technology-based effluent limitations required by CWA § 301. Instead, CWA § 402(p)(3)(B) provides that NPDES permits for discharges from MS4s shall require controls to reduce the discharge of pollutants "to the maximum extent practicable."[133]

In Ohio, large (serving populations over 250,000) and medium (serving populations between 100,000 and 250,000) MS4s must obtain NPDES permits for all stormwater discharges.[134] Permit applications must include a proposed stormwater management program designed to reduce discharge of pollutants to the maximum extent practicable using best management practices (BMPs).[135]

Small MS4s (serving populations less than 100,000) located in urbanized areas or designated by OEPA due to water quality concerns also need an NPDES permit for stormwater discharges, but those serving populations under 10,000 may be able to obtain a waiver from OEPA.[136] Small MS4s also need a stormwater management program to reduce pollutants to the maximum extent practicable using BMPs. However, rather than seeking individual NPDES

[130] *See* Ohio Rev. Code § 6117.34; State of Ohio v. Board of Commissioners for Trumbell County, No. 2002 CV 825 (C.P Trumbell, consent order Jan. 12, 2007).
[131] 33 U.S.C. § 1342(p).
[132] 40 C.F.R. § 122.26(b).
[133] 33 U.S.C. § 1342(p)(3)(B).
[134] Ohio Admin. Code 3745-39-04(A)(3).
[135] *Id.* at 3745-39-04(D)(2)(d). Four MS4s in Ohio have individual NPDES permits. Draft Framework, *supra* note 94, at 53 (Akron, Columbus, Toledo and Dayton).
[136] Waivers must be granted to small MS4 (a) serving less than 1000 persons if the discharge will not result in exceedance of a TMDL, 40 CFR § 122.32(d), or (b) serving less than 10,000 persons if the discharge will not result in exceedance of a TMDL or a water quality standard. 40 C.F.R. § 122.32(e).

permits like large and medium MS4s, small MS4s can obtain coverage under a general permit by submitting a notice of intent to OEPA.[137]

Neither federal nor Ohio law dictate that every MS4 must control discharges of phosphorus. However, discharges from MS4s are prohibited from causing an exceedance of water quality standards.[138] Accordingly, BMPs designed to reduce phosphorus discharges should be required where there is a concern about exceeding a water quality standard, including the criteria prohibiting nuisance growth of algae.[139]

b. Industrial

CWA § 402(p) also governs industrial stormwater discharges. An NPDES permit is required for a discharge from any conveyance used for collecting and conveying stormwater from manufacturing, processing, or raw material storage areas associated with industrial activities.[140] USEPA has defined industrial activities to include facilities within a variety of Standard Industrial Classification (SIC) codes; hazardous waste treatment, storage or disposal facilities; landfills that received industrial wastes; and sewage treatment works.[141] No NPDES permit is needed if the stormwater is not exposed to industrial materials or activities; to meet this exception the industrial materials and activities must be protected from precipitation and runoff by shelter, and the facility must certify that its stormwater discharge is not contaminated.[142] Industrial stormwater discharges can be subject to a general NPDES permit, provided that the facility submits a notice of intent along with a stormwater pollution prevention plan. Certain industrial stormwater discharges are not eligible for a general permit and must obtain an individual NPDES permit, such as discharges to high quality waters or which contribute to exceedances of water quality standards.[143]

c. Construction

Discharges of runoff from construction activities that disturb more than one acre must have an NPDES permit.[144] Discharges associated with construction activity can qualify for the construction general NPDES permit.[145] Requirements for the general permit include submission of a notice of intent before construction begins, and a stormwater pollution prevention plan including erosion and sediment controls. The permittee must certify that the plan meets state and local sediment and erosion requirements.[146] Ohio counties and townships are authorized to

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[137] Ohio Admin. Code 3745-39-03(B(2)(a); Small Municipal Separate Storm Sewer Systems General Permit, OHQ00002 (effective Jan. 30, 2009, expires Jan. 29, 2014). More than 500 small MS4s are subject to Ohio's general NPDES permit. Draft Framework, *supra* note 94, at 53.
[138] *See, e.g.*, Ohio Admin. Code 3745-39-04(F), -03(A)(4), and -03(C)(1).
[139] *See* Ohio Admin. Code 3745-1-04(E) (generally applicable water quality criteria).
[140] 40 C.F.R. § 122.26(b)(14).
[141] *Id*.
[142] 40 C.F.R. § 122.26(g); Ohio Admin. Code 3745-39-04(G).
[143] *See* OEPA, General Permit to Discharge Stormwater Associated with Industrial Activity under the NPDES, (effective Jan 1, 2012 – expires Dec. 31, 2016).
[144] *See* 33 U.S.C. § 1342(p); 40 C.F.R. § 122.
[145] OEPA, Construction General Permit OHC000003, effective April 21, 2008 – expires April 20, 2013.
[146] 40 C.F.R. § 122.44(s).

establish technically feasible, economically reasonable erosion and sediment standards.[147] Construction sites where more than 10 acres are disturbed must have a temporary sediment basin.[148] Construction sites disturbing between one and five acres may be eligible for a permit waiver.[149] Routine maintenance of a site -- to maintain the original line and grade, hydraulic capacity or original purpose -- is excluded from small construction activity requiring an NPDES permit.[150]

5. CAFOs

"Concentrated animal feeding operations" (CAFOs) are expressly included within the definition of "point source" under the Clean Water Act.[151] Accordingly, CAFOs cannot discharge pollutants to waters of the United States except in compliance with an NPDES permit.[152]

CAFOs are "animal feeding operations"[153] where the requisite type and number of animals are confined and fed. Examples include cattle feedlots, poultry farms and swine lots. Large CAFOs have, for example, at least 700 mature dairy cows, 55,000 turkeys or 2500 swine weighing more than 55 pounds,[154] whereas medium CAFOs have at least 200 mature dairy cows, 16,500 turkeys or 750 swine weighing more than 55 pounds.[155] Smaller AFOS can be designated and regulated as CAFOs where determined to be significant contributors to water pollution.[156]

Unpermitted direct discharges of manure or process wastewater from CAFOs clearly violate the CWA. Additionally, stormwater runoff that carries manure or other pollutants from CAFO land to waters of the United States needs an NPDES permit. Although the CWA definition of point source exempts "agricultural stormwater discharge" from NPDES permitting requirements, USEPA regulations limit that exemption to runoff from CAFOs where the manure has been applied to the land in accordance with site-specific nutrient management plans.[157] Thus, for example, runoff of manure excessively applied to the land can be a point source discharge that requires an NPDES permit.

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[147] *See* Ohio Rev. Code §§ 307.79, 504.21.
[148] 63 Fed. Reg. 7858, 7886 (Feb. 17, 1998).
[149] 40 C.F.R. § 122.26(b)(15)(i)(A) (e.g., if the cumulative erosivity factor – an empirical measurement of the potential for soil to wash off disturbed, devegetated earth into waterways during storms -- is less than 5 for the project duration).
[150] *Id.* § 122.26(b)(15)(i).
[151] 33 U.S.C. § 1362(14).
[152] 33 U.S.C. § 1311(a).
[153] An "animal feeding operation" essentially is a facility where animals are confined and fed for 45 or more days a year and crops are not grown. 40 C.F.R. § 122.23(b)(1).
[154] *Id.* § 122.23(b)(4).
[155] *Id.* § 122.23(b)(6).
[156] *Id.* § 122.23(c).
[157] 40 C.F.R. § 122.23(e). This part of the 2003 regulation was upheld in Waterkeeper Alliance v. EPA, 399 F.3d 486 (2d Cir. 2005).

Each CAFO must develop and implement a nutrient management plan (NMP) as a condition of its NPDES permit.[158] The NMP must address 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 of the state, how it will handle unused waste chemicals and other contaminants, and inspection and monitoring of discharges and potential discharges.[159] If the CAFO is participating in land application of manure, the NMP must also include a total nutrient budget, manure and soil characterizations, application methods and timing to minimize discharge into waters of the state, and specific agronomic application rates.[160] Any discharge not anticipated by the NMP is a violation of the CWA.

The NPDES permit will also specify certain operational and management requirements. For example, when a facility is proposing to apply manure over land, these requirements will 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.[161]

Only CAFOs that actually discharge pollutants to waters of the United States must obtain an NPDES permit.[162]

Under Ohio law, a "concentrated animal feeding facility" (CAFF) must have permits to install and operate issued by the Ohio Department of Agriculture, regardless of whether it discharges to waters of the state.[163] The definition of a CAFF is similar to that of a large CAFO under federal law,[164] so a CAFF that discharges to waters of the United States must have an NPDES permit as well as permits from ODA. A CAFF that discharges to waters of the state, but not waters of the United States, needs only the ODA permits. Medium or small CAFOs that discharge to waters of the state, but not waters of the United States, require neither an NPDES permit nor permits from ODA. Regulation of medium and small CAFOs thus falls to ODNR, which pursuant to ORC chapter 1511 has authority over animal feeding operations not required to have an NPDES permit.[165]

ODA derives its authority over CAFFs from ORC chapter 903, and the agency's regulations for CAFFs are at Ohio Administrative Code 901:10. The statute prohibits anyone

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[158] 40 C.F.R. § 122.42(e)(1)
[159] *Id*.
[160] 40 C.F.R. §§ 122.42(e)(5) and 412.4(c). *See also*, OEPA Division of Surface Water, Concentrated Animal Feeding Operations – Land Application Requirements, *available at* http://www.epa.ohio.gov/dsw/cafo/land_app.aspx.
[161] 40 C.F.R. §§ 122.42(e) and 412.4(c). *See also*, OEPA Division of Surface Water, Concentrated Animal Feeding Operations – Operation and Management Practices, *available at* http://www.epa.ohio.gov/dsw/cafo/ompractices.aspx.
[162] A 2008 rule had required CAFOs that *proposed* to discharge must seek an NPDES permit, but the Fifth Circuit vacated that portion of the rule. National Pork Producers Council v. EPA, 635 F.3d 738 (5th Cir. 2011).
[163] *See* Ohio Rev. Code § 903.03(A)(2).
[164] *Compare* Ohio Rev. Code § 903.01(E) *with* 40 C.F.R. § 122.23(b)(4).
[165] Ohio Admin. Code 1501:15-5-01(B)(4). *See infra* Part II.B.3 for a discussion of ORC chapter 1511.

from creating a new CAFF or modifying an existing CAFF without first obtaining a permit to install (PTI) from ODA.[166] The statute also prohibits anyone from operating a CAFF without a permit to operate (PTO) from ODA.[167] In order 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.[168] An important aspect of a PTO is an approved manure management plan, which must include best management practices for reusing and recycling nutrients and preventing direct contact of confined animals with waters of the state.[169] The BMPs are specified in the regulations, and all aspects of the manure management plan must conform to the BMPs.[170] A nutrient budget specifying the quantity of nutrients to be applied in manure land application areas is required.[171] There are limits on application of manure over frozen or snow covered ground.[172] An operator must report any discharge to waters of the state within 24 hours of becoming aware of the discharge.[173]

Operating in accordance with BMPs established under a PTI or PTO is an affirmative defense for a CAFF in a private nuisance action.[174] Failure to comply with the terms of the permit, statute or regulations can result in penalties and injunctive relief. ODA can impose a civil penalty only after the owner receives written notice of deficiencies and time to correct them.[175] ODA may request the attorney general to seek an injunction.[176] Installing or operating a CAFF without a permit is a misdemeanor offense,[177] and violation of the terms of a PTI or PTO is punishable by a fine up to $25,000.[178]

The State of Ohio has petitioned the USEPA to transfer authority for NPDES permitting of CAFOs from OEPA to ODA.[179] Although the petition was submitted several years ago, it is still under review by USEPA. Until the petition is granted, OEPA remains the delegated agency for NPDES permitting for CAFOs as well as other point sources.[180] As a result, although the bulk of ORC chapter 903 is in effect, those portions pertaining to ODA authority over discharges are not in effect pending federal approval of the transfer of NPDES permitting authority from OEPA to ODA.

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[166] Ohio Rev. Code § 903.02(A)(2).
[167] *Id*.
[168] Requirements include that CAFFs must be sited to protect wells and aquifers, and manure storage and treatment facilities must be constructed to prevent discharges to waters of the state. *See* Ohio Admin. Code 901:10-2-01 thru -06.
[169] Ohio Admin. Code 901:10-2-08.
[170] *Id.* at 901:10-2-02 thru -16.
[171] *Id.* at 901:10-2-09(A).
[172] *Id.* at 901:10-2-14(G).
[173] *Id.* at 901:10-2-17.
[174] Ohio Rev. Code. § 903.13.
[175] *Id*. § 903.16(A).
[176] *Id*. § 903.16(C).
[177] *Id*. § 903.99(A).
[178] *Id*. § 903.99(B).
[179] *See* 73 Fed. Reg. 61127 (Oct. 15, 2008).
[180] *See* Draft Framework, *supra* note 94, at 31; USEPA Region 5, Ohio CAFO Program, http://www.epa.gov/r5water/npdestek/odacafo.htm.

B. NONPOINT SOURCES

"Despite significant progress in controlling pollution from point sources, serious water quality problems remain due in large part to pollution from nonpoint sources. *** The importance of nonpoint sources to water pollution problems has been recognized for decades. Yet nonpoint sources have largely escaped federal regulation because of political, administrative, and technical difficulties."[181]

Agricultural activities are the most pervasive source of nonpoint source pollution in the United States[182] and have been identified by the Task Force as the most significant contributor of phosphorus to Lake Erie and its tributaries.[183] This section will focus on federal and state law applicable to nonpoint source pollution in general and on key nonpoint sources of phosphorus pollution, including agricultural activities, in particular.

1. Clean Water Act

The Clean Water Act does not define "nonpoint source." In effect, nonpoint sources are diffuse sources that are not regulated as point sources.[184] As discussed above, the Clean Water Act prohibits unpermitted discharges from point sources, and violators are subject to sanctions. By contrast, the Clean Water Act relies on planning and incentive programs to encourage voluntary reduction of nonpoint source pollution; mandatory regulation of nonpoint sources is largely left to the discretion of the states.

a. Section 208

The CWA as originally enacted addressed nonpoint source pollution through section 208.[185] Section 208 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.[186] Those designated organizations would then develop management plans for controlling nonpoint source pollution "to the extent feasible."[187] Both the designations and the plans were subject to USEPA approval.[188] USEPA was authorized to make grants to designated agencies to develop and implement the water treatment management plans.[189] The designated organizations also were eligible for technical assistance from the federal government for developing and implementing the management plans.[190] Further, the U.S. Department of Agriculture (USDA), through the Natural Resource Conservation Service (formerly the Soil Conservation Service), was authorized to enter into agreements with owners and operators of

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[181] Percival, *supra* note 26, at 762-63.
[182] *Id*. at 642.
[183] Task Force Report, *supra* note 2, at 73.
[184] *See* USEPA Office of Water, Nonpoint Source Guidance 3 (1987); Cordiano v. Metacon Gun Club, Inc., 575 F.3d 199, 220 (2d Cir. 2009).
[185] 33 U.S.C. § 1288.
[186] *Id*. §1288(a)(2).
[187] *Id*. § 1288(b). *See* 33 U.S.C. § 1288(b)(2)(F) (agricultural nonpoint sources).
[188] 33 U.S.C. § 1288(a)(7), (b)(3), (f).
[189] *Id*. § 1288(f).
[190] *Id*. § 1288(g)-(i).

rural land whereby the USDA would share in the costs of installing and maintaining best management practices to control nonpoint source pollution.[191]

Nationally, the section 208 program was widely viewed as ineffective. Although the statute purportedly mandated the states to make designations and develop and implement management plans to control nonpoint sources, USEPA could not force the states to do so nor develop its own plan. Further, once a plan was approved, the USEPA could only withdraw approval for substantial failure to comply with the requirements,[192] and USEPA had no power to implement the states' plans. Instead, the only incentive for a state to participate was the promise of federal grants and assistance, and the withholding of such federal grants and assistance was the only real consequence of non-compliance. In reality, the section 208 program was voluntary for the states. Congress ceased funding the grants programs under section 208 in 1981. Section 208, though, remains on the books and relevant in Ohio.

b. Section 319

In 1987, in response to the perceived failure of section 208 and the growing problem of nonpoint source pollution, Congress amended the CWA by adding section 319.[193] In short, section 319 requires states to submit an assessment report identifying waters that are impaired by nonpoint source pollution and to develop management plans, including best management practices, to address the nonpoint sources significantly polluting the waters. States with USEPA-approved assessment reports and management programs receive federal grants to help implement the programs. However, USEPA cannot force the states to comply with section 319 and the incentives have often been insufficient to encourage states to comply voluntarily.

The assessment report submitted to USEPA by the state must identify all "navigable waters within the state which, without additional action to control nonpoint sources of pollution, cannot reasonably be expected to attain or maintain applicable water quality standards or goals and requirements of [the CWA]."[194] In addition, the assessment report must identify categories or individual nonpoint sources which contribute significant pollution to the identified impaired waters; describe the process for choosing best management practices to control such identified sources "to the maximum extent practicable;" and describe the state and local nonpoint source pollution control programs.[195] If the state fails to submit an adequate assessment report, USEPA must prepare an assessment report that identifies the impaired waters and significant polluting nonpoint sources.[196]

Following the assessment report, the state must submit a management plan for controlling nonpoint sources of pollution.[197] The management plan must include best management practices to reduce pollution from each category or individual source identified in the assessment report.[198]

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[191] *Id*. § 1288(j).
[192] *Id*. § 1288(b)(4)(D)(ii).
[193] 33 U.S.C. § 1329.
[194] *Id*. § 1329(a)(1)(A).
[195] *Id*. § 1329(a)(1)(B)-(D).
[196] *Id.* § 1329(d)(3).
[197] *Id.* § 1329(b).
[198] *Id*. § 1329(b)(2)(A).

The management plan must also describe how to achieve implementation of the best management practices and provide an implementation schedule, certification that state laws are adequate to implement the management program, and information regarding sources of funding.[199] States are urged to involve local agencies and organizations with experience in controlling nonpoint source pollution and to develop and implement the program on a watershed-by-watershed basis.[200] While USEPA must disapprove of the management plan if it is inadequate,[201] USEPA has no authority to develop or implement its own plan.[202] The only sanction for a state's failure to develop or implement a management plan is the inability to receive federal grants to implement the program.

Once a state management program is approved, the state receives grants from USEPA to help implement the program.[203] The federal grant cannot make up more than 60% of the total funds implementing the program, and a state must show it has adequate funding for its share before federal funding is released.[204] This cost-sharing aspect of the grant program is somewhat of a dis-incentive for states to comply with the mandates of section 319, because a state must fund at least 40% of the nonpoint source management program if it complies with section 319, whereas a state that simply ignores section 319 spends nothing and is not subject to any sanction. Continued eligibility for the grant program is conditioned on the state making satisfactory progress in meeting its program's scheduled milestones and maintaining its level of expenditures.[205]

Since states are not required to comply with section 319 and the financial incentives to do so are not very attractive, not all states have developed and implemented nonpoint source management programs. Even for states that have developed approved programs, there is no requirement that the states punish nonpoint sources that fail to comply with best management practices.[206] More typically the programs seek to encourage nonpoint sources to reduce pollution voluntarily via grants to help pay for implementation of the BMPs.

c. TMDLs

Total maximum daily loads (TMDLs) are a potentially important tool under the Clean Water Act that could be used by states to justify regulation of nonpoint sources as well as point sources.[207] However, the Clean Water Act neither authorizes the federal government to regulate nonpoint sources nor requires states to regulate nonpoint sources in order to comply with TMDLs.

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[199] *Id*. § 1329(b)(2).
[200] *Id*. § 1329(b)(3-4).
[201] *Id*. § 1329(d).
[202] Kenneth Murchison, *Learning From More Than Five-and-a-Half Decades of Federal Water Pollution Control Legislation: Twenty Lessons for the Future,* 32 B.C. Envtl. Aff. L. Rev. 527, 569 (2005). A local public agency or organization may, with state approval, develop and implement a management plan for USEPA approval, if no state plan is approved. 33 U.S.C. § 1329(e).
[203] 33 U.S.C. § 1329(h).
[204] *Id.* § 1329(h)(3).
[205] *Id.* § 1329(h)(8-9).
[206] *See* Natural Resources Defense Council v. EPA, 915 F.2d 1314 (9th Cir. 1990).
[207] *See* Oliver Houck, *TMDLs IV: The Final Frontier,* 29 Envtl. L. Rep. 10469 (1999).

A TMDL is the maximum amount of a pollutant that can be discharged daily into a water body from both point and nonpoint sources without violating water quality standards.[208] Pursuant to section 303(d), a TMDL must be calculated for all water bodies/segments where effluent limitations on point sources are not stringent enough to attain/maintain water quality standards.[209] This includes waters that are impaired solely by nonpoint sources.[210] States must identify waters that need a TMDL, prepare the TMDL, and submit a list of impaired waters and TMDLs to USEPA for approval.[211] Once approved, a state must incorporate the TMDLs into its continuing planning process described at CWA § 303(e).[212] USEPA regulations require states to develop water quality management plans, for purposes of section 208 and section 303(e), that must describe how states will control nonpoint source pollution to impaired waters.[213] Thus TMDLs could be used by the state to justify regulation of nonpoint sources as well as point sources.[214] If a state fails to identify waters or set TMDLs, USEPA must do so.[215] But USEPA itself cannot enforce TMDLs or plans, nor can states be required to enforce TMDLs or plans to regulate nonpoint sources.[216] Failure to enforce TMDLs or plans will simply deprive states of grant money.[217]

d. Ohio

Although nationally CWA § 208 was not a success, in Ohio the section 208 program retains some vibrancy. Ohio has an USEPA-approved Water Quality Management Plan that incorporates section 208 plans as well as planning requirements under section 303(e).[218] In Ohio, six areawide councils of government develop the section 208 plans in their respective urban areas, encompassing 24 counties, while OEPA prepares the section 208 plan for the remaining 64 counties. Together, these plans constitute Ohio's section 208 plan submitted for USEPA approval.[219] In January 2011, USEPA approved updates and amendments to Ohio's Water Quality Management Plan.[220]

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[208] *See* Clean Water Act § 303(d)(1)(C), 33 U.S.C. § 1313(d)(1)(C); 40 C.F.R. § 130.2(i) (2011).
[209] Clean Water Act § 303(d)(1)(A), 33 U.S.C. § 1313(d)(1)(A).
[210] Pronsolino v. Nastri, 291 F.3d 1123 (9th Cir. 2002).
[211] 33 U.S.C. § 1313(d)(1)-(2).
[212] *Id.* § 1313(e).
[213] 40 C.F.R. § 130.6.
[214] *See* 40 C.F.R. § 130.2(i); 40 C.F.R. § 130.7(b)(1)(iii).
[215] Clean Water Act § 303(d)(2), 33 U.S.C. § 1313(d)(2); Scott v. City of Hammond, 741 F.2d 992 (7th Cir. 1984); Alaska Center for the Environment v. Reilly, 762 F. Supp. 1422 (W.D. Wash. 1991).
[216] *See* American Wildlands v. Browner, 260 F.3d 1192, 1197 (10th Cir. 2001).
[217] *See generally* Clean Water Act § 303(d), 33 U.S.C. § 1313(d); 40 C.F.R. § 130. By contrast, states can be more easily coerced to force point sources to reduce the amount of pollutants being discharged. USEPA can refuse to approve a state-issued NPDES permit that would allow discharge of a pollutant in excess of the TMDL of the receiving water, and USEPA ultimately could withdraw state authorization to administer the NPDES program. 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).
[218] OEPA, Ohio State Final Water Quality Plan including Section 208 Areawide Water Management Plans (2006). *See* 40 C.F.R. § 130.6.
[219] *See* OEPA, Ohio State Final Water Quality Management Plan including Section 208 Areawide Water Management Plans (2006).
[220] *See* OEPA Division of Surface Water, Water Quality Management Plans, *available at* http://www.epa.ohio.gov/dsw/mgmtplans/208index.aspx.

The Water Quality Management Plan broadly addresses elements of water quality that the state supervises, including nonpoint sources. The nonpoint source program portion of the plan discusses the importance of identifying and supporting implementation of management practices to reduce nonpoint source pollution. However, Ohio's plan imposes no requirements on nonpoint sources of pollution.[221]

Pursuant to its authority under CWA § 303(d), Ohio biannually compiles a list of impaired waters where effluent limitations are not stringent enough to attain or maintain water quality standards. The most recent list was approved by USEPA in 2010.[222]

OEPA has established more than 1000 TMDLs for water bodies/segments, including 274 for waters impaired by phosphorus.[223] At least 14 or the 24 watersheds within the Lake Erie basin have phosphorus TMDLs.[224] OEPA has developed a 12-step process for achieving compliance with TMDLs.[225] The seventh step requires identification of actions to be taken, legal authorities, and parties that may be required to act or may volunteer.[226] For point sources, the typical result is mandatory tightening of NPDES permit conditions.[227] For nonpoint sources, the typical result is voluntary measures implemented through a memorandum of agreement.[228] Where loadings exceed the TMDL, OEPA can impose more stringent NPDES permit limits on point sources, but it has no similar enforceable tool to reduce loadings for nonpoint sources and instead must rely on federal and state programs to encourage voluntary reductions.[229] These include the section 319 program.

Ohio's section 319 nonpoint source management plan was approved by USEPA in 2006: "Getting the Point About Nonpoint."[230] The plan broadly guides implementation of state and local nonpoint source management measures. The plan does not set forth specific best

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[221] *See* OEPA, Ohio State Final Water Quality Management Plan including Section 208 Areawide Water Management Plans (2006).
[222] *See* 2010 Integrated Water Quality Monitoring and Assessment Report § L4, *available at* http://www.epa.ohio.gov/dsw/tmdl/index.aspx#Ohio's%20303(d)%20List%20and%20Schedule.
[223] USEPA, Ohio Cumulative Number of TMDLs, http://iaspub.epa.gov/waters10/attains_state.report_control?p_state=OH&p_cycle=2008&p_report_type=T#APRTMDLS; USEPA, Ohio Cumulative TMDLs by Pollutant, http://iaspub.epa.gov/waters10/attains_state.report_control?p_state=OH&p_cycle=2008&p_report_type=T#tmdl_by_pollutant. By 2001 Ohio only had 3 TMDLs established, but a citizen suit and 2004 consent decree helped spur development by requiring the State to assess and establish TMDLs for 50 watersheds by the end of 2007. *See also* Consent Decree, National Wildlife Federation v. USEPA, Case No. C2-01-1052 (S.D. Ohio Aug. 19, 2004).
[224] *See* USEPA, Ohio Impaired Waters, TMDL Pollutant: Phosphorus, Total, http://iaspub.epa.gov/tmdl_waters10/attains_impaired_waters.control?p_state=OH&p_pollutant_id=903&p_report_type=T; and USEPA, Ohio Impaired Waters, TMDL Pollutant: Phosphorus, http://iaspub.epa.gov/tmdl_waters10/attains_impaired_waters.control?p_state=OH&p_pollutant_id=901&p_report_type=T; OEPA, TMDL Status Map, http://wwwapp.epa.ohio.gov/dsw/gis/tmdl/ (seven more watersheds are in progress towards receiving phosphorus TMDLs). These phosphorus TMDLs may be set at a range of levels within a single larger watershed.
[225] OEPA, Total Maximum Daily Load app. B (1999), http://www.epa.ohio.gov/portals/35/tmdl/FinalTMDLReport.pdf.
[226] *Id.* at 105-110.
[227] *Id.*
[228] *Id.*
[229] OEPA, Total Maximum Daily Load, app. B (1999).
[230] OEPA, Getting the Point About Nonpoint, http://wwwapp.epa.ohio.gov/dsw/nps/NPSMP/index.html.

management practices and imposes no requirements on nonpoint sources of pollution. Participation in the section 319 grant program is entirely voluntary for nonpoint sources.[231]

Since 1990, OEPA has annually applied for, received and distributed section 319 grant funds. The grant funds are distributed to local governments and other organizations for specific projects to implement locally developed watershed management plans. During FY2011 OEPA received more than $5 million in federal section 319(h) grant funds. In administering those funds, OEPA's priorities include achieving water quality goals, improving implementation of TMDLs and watershed plans, restoring impaired waters, and protecting high quality waters from degradation.[232]

2. Coastal Zone Management Act

The Coastal Zone Management Act (CZMA),[233] enacted in 1972, is intended to promote conservation of coastal resources[234] along the Great Lakes as well as the oceans.[235] The CZMA is administered by the National Oceanic and Atmospheric Administration (NOAA). Coastal states are encouraged, but not required, to develop coastal management programs to carry out the purposes of the CZMA.[236] If a state decides to participate and its coastal management program obtains NOAA approval, the state receives federal grant money to help implement the program.[237]

The 1990 Coastal Zone Act Reauthorization Amendments (CZARA) established the Coastal Nonpoint Pollution Control Program (CNPCP), jointly administered by NOAA and USEPA.[238] The CNPCP, also known as the section 6217 program,[239] is a component of the overall CZMA program.[240] One requirement for a state to obtain and maintain CZMA approval is to develop an approved state CNPCP.[241] A state CNPCP is intended to improve controls over nonpoint sources of pollution.[242] While in some ways it is an extension of the CWA § 319 program, CZARA requires a state CNPCP to have *enforceable* requirements, not merely

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[231] *See id.*
[232] OEPA Program Summary Nonpoint Source Program FY2011 Annual Report. *See* Ohio Rev. Code § 6111.037 (OEPA director sets priorities for nonpoint source management fund).
[233] Coastal Zone Management Act, 16 U.S.C. §§ 1451-1465.
[234] 16 U.S.C. § 1452(1)-(2).
[235] *Id.* § 1453(4).
[236] *Id.* §§ 1451(i), 1452(2), (4)-(6).
[237] *Id.* § 1455(a)-(b); 15 C.F.R. § 923.95 (2011) (approval authority has been delegated from the Secretary of Commerce to NOAA through regulation).
[238] Coastal Zone Act Reauthorization Amendments, 16 U.S.C. § 1455b.
[239] Section 6217 of CZARA was codified at 16 U.S.C. § 1455b.
[240] *Id.* § 1455b(a)(1).
[241] Coastal Zone Management Act, 16 U.S.C. § 1455(d)(16); 15 C.F.R. § 923.133. There are fifteen other requirements for CZMA approval, which include identification of coastal zone boundaries, public hearings, designation of a lead state agency, and mechanisms ensuring adherence. Coastal Zone Management Act, 16 U.S.C. § 1455(d). If a state already had an approved CZMA program at the time the 1990 CZARA were enacted, a non-discretionary duty was imposed to prepare and submit a compliant CNPCP, including enforceable policies, within 30 months after final guidance was published. Coastal Zone Act Reauthorization Amendments, 16 U.S.C. § 1455b(a)(1).
[242] *See* Coastal Zone Act Reauthorization Amendments, 16 U.S.C. § 1455b(a)(2); 136 Cong. Rec. H8068 (daily ed. Sept. 26, 1990) (section 306B analysis).

voluntary.[243] An approved state coastal management program under the CZMA must have "enforceable policies and mechanisms to implement the applicable requirements" of the approved CNPCP.[244] CZARA defines enforceable policies as legally binding measures "by which a [s]tate exerts control over private and public land and water uses and natural resources in the coastal zone."[245] These enforceable policies could come in the form of "constitutional provisions, laws, regulations, land use plans, ordinances, or judicial or administrative decisions."[246]

Both NOAA and USEPA are involved in approving state CNPCP submissions.[247] Failure to obtain approval can result in the state losing grant money and ultimately even approval of the entire state CZMA program.[248] Conditional approval may be granted to a CNPCP, which gives the state more time to develop its program while still getting grant money.[249] Conditions imposed by NOAA and USEPA must be adopted by the state before final approval of the state CNPCP can be granted.[250] If a state fails to adopt the conditions within five years, then CZMA funding is to be withheld.[251]

States are required to impose economically achievable "management measures" for nonpoint sources that reflect the greatest pollutant reduction achievable through application of best available nonpoint source pollution control practices.[252] USEPA has issued guidance regarding management measures.[253] Management measures are technology-based rather than water-quality-based.[254] They cover nonpoint source pollution from agriculture, urban areas,

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[243] Coastal Zone Act Reauthorization Amendments, 16 U.S.C. § 1455b(a)(2); Coastal Zone Management Act, 16 U.S.C. § 1455(d)(16).
[244] Coastal Zone Management Act, 16 U.S.C. § 1455(d)(16).
[245] Coastal Zone Management Act, 16 U.S.C. § 1453(6a).
[246] *Id.* Subsequent guidance seemingly attempted to water down the "enforceable policies and mechanisms" statutory requirement. USEPA & NOAA, Final Administrative Changes to Coastal Nonpoint Pollution Control Program Guidance at 4 (Oct. 16, 1998) ("voluntary or incentive-based programs, backed by existing state enforcement authorities" can suffice for a state CNPCP to obtain federal approval). *See* Doug Williams, *When Voluntary, Incentive-Based Controls Fail: Structuring a Regulatory Response to Agricultural Nonpoint Source Water Pollution*, 9 Wash. U. J. L. & Policy 21, 93-95 (2002).
[247] Coastal Zone Act Reauthorization Amendments, 16 U.S.C. § 1455b(c)(1).
[248] 15 C.F.R. § 923.133; Coastal Zone Act Reauthorization Amendments, 16 U.S.C. § 1455b(c)(3)-(4); *see* Coastal Zone Management Act, 16 U.S.C. § 1458(a),(c)-(d).
[249] USEPA & NOAA, Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance 34-35 (Jan. 1993), *available at* http://coastalmanagement.noaa.gov/nonpoint/docs/6217progguidance.pdf.
[250] *Id.* at 35.
[251] *Id.*; USEPA & NOAA, Flexibility For State Coastal Nonpoint Programs 2 (Mar. 16, 1995), *available at coastalmanagement.noaa.gov/nonpoint/docs/6217flexibilityguidance.pdf.* However, in practice such withholding has not always occurred. USEPA and NOAA were sued for failing to withhold funds from Oregon's CZMA program when Oregon failed to gain final approval for its conditionally approved CNPCP for more than thirteen years. Complaint at 2-3, Northwest Environmental Advocates v. Gutierrez, Civ. No. CV09-0017-PK (D. Or. Jan. 1, 2009), *sub nom*. Northwest Environmental Advocates v. Locke.
[252] Coastal Zone Act Reauthorization Amendments, 16 U.S.C. § 1455b(g)(5).
[253] USEPA, Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters, Pub. No. EPA-840-B-92-002, 1-5 (Jan. 1993), *available at* http://www.epa.gov/owow/NPS/MMGI/ [hereinafter 1993 Guidance].
[254] Note that the 1993 Guidance distinguishes "management measures," which are technology-based reduction standards, from "management practices," which are various on the ground implementation methods that may be used to achieve the "management measure." *Id.* at 1-10.

forests, marinas, hydromodification, and wetlands.[255] After the technology-based, first-tier management measures are implemented, states must follow up with secondary measures to address any remaining water quality issues.[256]

USEPA established the first-tier management measures in its 1993 Guidance.[257] For agriculture there are seven first-tier management measures.[258] First, the 'Erosion and Sediment Control Management Measure' requires conservation and management practices that address sheet and rill erosion, wind erosion, streambank erosion, soil mass movements, irrigation-induced erosion and more.[259] Second, the management measure for large CAFOs requires storage of wastewater and runoff caused by up to 25-year, 24-hour frequency storms, as well as a waste utilization plan that complies with the nutrient management measure.[260] Third, small CAFOs must implement systems to reduce the discharge of contaminants found in wastewater and runoff caused by up to 25-year, 24-hour frequency storms, as well as a waste utilization plan.[261] Fourth, the 'Nutrient Management Measure' requires limited application of fertilizers as determined by variable-dependent calculations, improvement in the timing of application, and the use of efficiency enhancing equipment and technology.[262] Fifth, the 'Pesticide Management Measure' requires site-specific evaluations of pest problems and physical characteristics, the application of pesticides only when economically beneficial and efficiently applied, and use of the least biologically and environmentally harmful substance with calibrated equipment.[263] Sixth, the 'Grazing Management Measure' requires the protection of sensitive areas (wetlands, estuaries, lake shores, riparian zones, etc.) to reduce sediment disturbance and direct loading of animal waste.[264] Seventh, the 'Irrigation Management Measure' requires the usage of precise amounts of water and optimal timing of application.[265]

In Ohio, the coastal area under the CZMA and CZARA includes at least portions of the eight counties bordering Lake Erie, plus part of Wood County.[266] The Ohio Coastal Nonpoint

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[255] *See generally id.* at 1-5.
[256] *Id*. These second-tier management measures might include specific practices that go beyond whatever practices the state has otherwise adopted to meet the first-tier management measure requirements. The guidance lists a variety of specific practices that a state may adopt individually or in combination to meet the first-tier management measure requirements, but that a state need not adopt specifically. Second-tier management measures could include some of the practices mentioned in the guidance but not adopted by the state as a way to meet the first-tier management measure requirements, or they could be something entirely new, so long as they address concerns that remain after application of the first-tier management measures. *See id.* at 1-10 to 1-11. *See also* USEPA & NOAA, Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance 2 (Jan. 1993), *available at* http://coastalmanagement.noaa.gov/nonpoint/docs/6217progguidance.pdf.
[257] Approval Guidance at 28. The guidance also offered some advice on second-tier measures. Management measures may be implemented through regulatory approaches such as permit programs, statutory requirements, and local zoning, or through non-regulatory "back-up" approaches such as economic carrots and sticks. *Id.* at 29-30.
[258] *See* 1993 Guidance, *supra* note 253, at ch. 2.
[259] *Id.* at 2-12 to -13.
[260] *Id.* at 2-33, -36.
[261] *Id.* at 2-43, -46 to -47.
[262] *Id.* at 2-52.
[263] *Id.* at 2-61.
[264] *Id.* at 2-73.
[265] *Id.* at 2-88.
[266] *See* Ohio Rev. Code § 1506.01(A) (defining "coastal area" to include shorelands the uses of which have a direct and significant impact on coastal waters as determined by the ODNR director); Ohio Coastal Management Plan ch. 3 (April 2007) (describing 9-county area); ODNR, Ohio Coastal Nonpoint Pollution Control Program Plan § 2.1

Pollution Control Program Plan was published in September 2000. Ohio's CNPCP was conditionally approved by USEPA and NOAA on June 4, 2002,[267] but final approval has not yet been granted.[268] Federal conditions included development of additional management measures and implementation mechanisms for agriculture, urban, marina, hydromodification, and wetlands, as well as improved program monitoring.[269] With respect to agriculture, Ohio was found to have inadequate management measures for irrigation and failed to demonstrate that back-up authorities were enforceable for irrigation, nutrient, and pesticide management problems.[270] In all other agriculture management areas, including erosion and sediment control, CAFOs and grazing, Ohio was found to have adequate measures.[271] Subsequently, Ohio satisfied the agricultural conditions.[272] Ohio's agricultural management measures largely track those in the 1993 Guidance. Most of the management measures rely on voluntary education and incentive programs, but the plan does point to the Stream Litter Law, ORC § 1531; Agricultural Pollution Abatement Program, ORC § 1511.02 and Ohio Administrative Code 1501:15-5; and regulation of agricultural pesticides through ORC chapter 921.[273]

Ohio has not yet received final approval of its CNPCP program.[274] Per the CZMA and administrative guidance, failure to adopt the conditions within 5 years of conditional approval is supposed to result in cuts to grant money.[275] However, in practice cuts have not always happened.[276] Even if the federal agencies do not take action to withhold funding for failure to gain final approval, a lawsuit by a private party could force the federal government to abide by the terms of the statute and withhold funding.[277] In *Northwest Environmental Advocates v.*

(2000) (describing 9-county area). However, the Ohio CNPCP arguably extends to the entire Lake Erie basin, *see* Ohio CNPCP Executive Summary 6 (2000), and some of the basin's watershed management districts have incorporated CNPCP goals and practices into their watershed action plans. Telephone Interview with Matt Adkins, Coastal NPS Coordinator, ODNR Division of Soil & Water Conservation (Sept. 1, 2011).

[267] Coastal Nonpoint Program Approval Findings, NOAA, http://coastalmanagement.noaa.gov/nonpoint/pro_approve.html (last updated Feb. 3, 2010).

[268] Telephone Interview with Matt Adkins, Coastal NPS Coordinator, ODNR Division of Soil & Water Conservation (Sept. 1, 2011). *See* Coastal Nonpoint Program Approval Findings, NOAA, http://coastalmanagement.noaa.gov/nonpoint/pro_approve.html (last updated Feb. 3, 2010).

[269] USEPA & NOAA, Ohio Coastal Nonpoint Program Findings and Conditions (June 4, 2002), *available at* http://coastalmanagement.noaa.gov/nonpoint/docs/6217oh_fnl.pdf.

[270] *Id.* at 3-4.

[271] *Id.* at 3.

[272] Email from Matt Adkins, ODNR Division of Soil & Water Resources (April 18, 2012) (on file with author).

[273] USEPA & NOAA, Ohio Coastal Nonpoint Program Findings and Conditions 4 (June 4, 2002); ODNR, The Ohio Coastal Nonpoint Pollution Control Program Plan: Management Measures for Agricultural Sources 3-3 (Sept. 2000), *available at* http://www.dnr.state.oh.us/Portals/12/programs/coastalnonpoint/cnpcp/chapter%2003.pdf.

[274] Telephone Interview with Matt Adkins, Coastal NPS Coordinator, ODNR Division of Soil & Water Conservation (Sept. 1, 2011). *See* Coastal Nonpoint Program Approval Findings, NOAA, http://coastalmanagement.noaa.gov/nonpoint/pro_approve.html (last updated Feb. 3, 2010).

[275] USEPA & NOAA, Flexibility For State Coastal Nonpoint Programs 2 (Mar. 16, 1995), *available at coastalmanagement.noaa.gov/nonpoint/docs/6217flexibilityguidance.pdf. See also* U.S. EPA & NOAA, Final Administrative Changes to the Coastal Nonpoint Pollution Control Program Guidance for Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA) 5 (Oct. 16, 1998) (confirming 1995 Flexibility Guidance for timeframes such as five year window to gain final approval after conditional approval).

[276] *See* Complaint at 2-3, Northwest Environmental Advocates v. Gutierrez, Civ. No. CV09-0017-PK (D. Or. Jan. 1, 2009), *sub nom*. Northwest Environmental Advocates v. Locke.

[277] *See* Agreed Order Dismissing APA Claims Without Prejudice at 2, Northwest Environmental Advocates v. Locke, Civ. No. CV09-0017-PK (D. Or. Sept. 28, 2010).

Locke, citizen suit plaintiffs claimed USEPA and NOAA failed to withhold funds from Oregon's CZMA program when Oregon failed to gain final approval for its conditionally approved CNPCP for more than thirteen years.[278] The plaintiffs argued that USEPA and NOAA used conditional approval to indefinitely delay both the disapproval of state CNPCPs and the statutorily required withholding of funds when a state fails to submit an approvable CNPCP.[279] Using the Administrative Procedure Act, plaintiffs contended that these instances of inaction constituted "agency action unlawfully withheld or unreasonably delayed."[280] In a September 2010 settlement, USEPA and NOAA agreed to make the final decision regarding approval of the CNPCP or withholding funding by May 15, 2014.[281]

3. <u>ORC Chapter 1511</u>

Ohio Revised Code chapter 1511, and its implementing regulations at Ohio Administrative Code 1501:15-5-01 et seq., are the legal framework for ODNR's Agricultural Pollution Abatement Program.

ODNR, specifically the chief of the division of soil and water conservation, is responsible for regulating farming operations to abate degradation of waters of the state by sediment pollution and animal waste.[282] ORC § 1511.02(E)(1) requires the chief to adopt rules that establish management and conservation practices in farming operations that will abate the erosion of soil or the degradation of state waters by animal waste or soil sediment. The standards adopted by the chief must be "technically feasible and economically reasonable."[283]

The chief is also required to issue orders to ensure compliance with the rules adopted under ORC § 1511.02(E)(1).[284] If a person has caused agricultural pollution by failing to comply with these adopted standards, the chief is authorized to require that person to operate under an operation and management plan approved by the chief.[285] Agricultural pollution is defined as a failure to use management and conservation practices in farming resulting in soil erosion or degradation of waters of the state by animal waste or soil sediment.[286] An operation and management plan includes implementation schedules and operational procedures for pollution abatement practices.[287]

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[278] Complaint at 2-3, Northwest Environmental Advocates v. Gutierrez, Civ. No. CV09-0017-PK (D. Or. Jan. 1, 2009), *sub nom*. Northwest Environmental Advocates v. Locke.
[279] *Id.* at 7.
[280] Administrative Procedure Act, 5 U.S.C. § 706(1) (2006).
[281] Agreed Order Dismissing APA Claims Without Prejudice at 2, Northwest Environmental Advocates v. Locke, Civ. No. CV09-0017-PK (D. Or. Sept. 28, 2010). Oregon's CNPCP was deficient because it inadequately controlled nonpoint source pollution from logging.
[282] Ohio Rev. Code § 1511.02(E)
[283] *Id.* § 1511.02(E)(1). The supervisors of the soil and conservation districts are also granted authority to make this designation, subject to state approval. Ohio Rev. Code § 1515.08(P)
[284] The statute also mandates orders to ensure compliance with animal composting. Ohio Rev. Code § 1511.02(G).
[285] *Id.*
[286] *Id.* § 1511.01(D).
[287] *Id.* § 1511.01(F).

The standards issued by ODNR pursuant to ORC § 1511.02(E)(1) are set forth in Ohio Administrative Code 1501:15-5-01 et seq. The statutory mandate of "technically feasible and economically reasonable standards" has been interpreted as requiring owners and operators of agricultural, silvicultural, and animal feeding operations to implement best management practices (BMPs).[288] Under the rules adopted by the ODNR, if an owner or operator of an agricultural, silvicultural, or animal feeding operation fails to implement BMPs and agricultural pollution occurs, the owner or operator may be subject to enforcement and eventual civil and criminal liability.[289]

The rules prohibit specific types of agricultural pollution associated with either agricultural operations or animal feeding operations (AFOs). Agricultural operations must implement BMPs to prevent agricultural pollution caused by sheet and rill erosion, gully erosion, wind erosion, or placing soil directly into waters of the state or in such a position that it may readily erode or slough into waters of the state.[290] The regulations define BMPs as the most effective practicable means of preventing or reducing agricultural pollution to achieve compliance with water quality goals.[291] For purposes of standards required for compliance, the Field Office Technical Guide (FOTG), published by the federal Natural Resource Conservation Service,[292] seems to be the closest thing to clearly defined BMPs.

An AFO is defined as "an animal feedlot and animal manure management facilities and land application areas for managing and disposal of animal manure," not including those facilities that require a permit from the OEPA or ODA.[293] Regulation of AFOs focuses primarily on animal waste. Owners and operators of AFOs are required to implement BMPs in animal manure collection, storage, or treatment facilities to prevent discharge into waters of the state.[294] AFOs are required to implement BMPs to prevent seepage into waters of the state, to prevent discharge of manure contaminated runoff into waters of the state, to prevent pollution from other waste waters, and to prevent pollution from composting dead animals.[295] There are also limits

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[288] Ohio Admin. Code 1501:15-5-01 thru -12.
[289] Ohio Admin. Code 1501:15-5-01 et seq.
[290] Ohio Admin. Code 1501:15-5-08 thru -12
[291] Ohio Admin. Code 1501:15-5-01(B)(7). Practicable" implies "technological, economic, and institutional considerations." *Id*.
[292] http://efotg.sc.egov.usda.gov/references/public/OH/FOTG_section_descriptions.pdf. *See also*, Natural Resource Conservation Service, *Field Office Technical Guild*, available at http://efotg.sc.egov.usda.gov/treemenuFS.aspx.
[293] Ohio Admin. Code 1501:15-5-01(B)(4). The definition of an AFO explicitly excludes "operations subject to Chapter 903 of the Revised Code or agency 901 of the Administrative Code, facilities permitted or required to have a permit by the Ohio department of agriculture or facilities permitted or required to have a permit under the authority of the Ohio environmental protection agency." *Id.* Under Ohio Rev. Code ch. 903, the ODA is responsible for issuing permits to operate to CAFFs, which are essentially facilities with the same capacities as large CAFOs. Ohio Rev. Code § 903.03(A)(2). As the delegated agency for NPDES permitting, the OEPA is responsible for issuing NPDES permits to small, medium, and large CAFOs that discharge into waters of the United States. Ohio Rev. Code § 6111.03(J)(1). This leaves facilities too small to be deemed CAFOs or CAFFs and small and medium CAFOs that do not discharge into waters of the United States to be regulated as AFOs under Ohio Rev. Code ch. 1511.
[294] Ohio Admin. Code 1501:15-5-02. It is important to note that overflow due to some infrequent storm event will not cause an operator to be in violation. AFOs must be constructed to withstand 25-year frequency flood. Ohio Admin. Code 1501:15-5-07. Discharge resulting from more severe weather events will not result in a violation.
[295] Ohio Admin. Code 1501:15-5-03, 1501:15-5-04, 1501:15-5-06, and 1501:15-5-18.

on land application of manure, including a requirement that owners or operators applying manure to land follow the FOTG or other approved management methods.[296]

New administrative rules and amendments went into effect on December 23, 2010.[297] Perhaps the most significant revisions deal with distressed watersheds. The chief may designate a watershed in distress, subject to a majority vote from the Ohio soil and water conservation commission.[298] Designation of a watershed in distress invokes two important rules: (1) Ohio Admin. Code 1501:15-5-05 significantly restricts land application of manure in a distressed watershed between December 15 and March 1 and when ground is frozen or snow-covered outside those dates,[299] and (2) Ohio Admin. Code 1501:15-5-19 requires farms generating or utilizing all but a small amount of manure to conform to an approved nutrient management plan.[300]

Key factors for designation of a watershed in distress include whether the watershed is listed as impaired by nutrients or sediments and whether streams or lakes within the watershed exhibit evidence of HABs.[301] Neither the Lake Erie watershed, nor any watershed within the Lake Erie basin, is designated as in distress. The Grand Lake St. Marys watershed was designated as in distress in January 2011 due to severe HABs experienced in Grand Lake St. Marys in summer 2010.[302]

Chapter 1511 also mandates that ODNR regulate non-farm soil-disturbing activities that pollute state waters. ORC § 1511.02(E)(2) requires the chief to adopt rules that establish management and conservation practices that will abate the erosion of soil and the degradation of state waters by soil sediment from "land grading, excavating, filling, or other soil-disturbing activities on land used or being developed for . . . nonfarm purposes." While this seems like a

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[296] Ohio Admin. Code 1501:15-5-05.
[297] Ohio Admin. Code 1501:15-5-01 et seq.
[298] Ohio Admin. Code 1501:15-5-20.
[299] Beginning two years after the land is designated as being in distress, an owner or operator cannot apply manure between December 15th and March 1st without prior approval, cannot surface apply manure (manure either has to be injected or incorporated into the ground) when the ground is frozen or has at least one inch of snow cover, can only apply snowpack manure if it is in the nutrient management plan or approved by the chief, cannot apply manure if there is a weather forecast of a greater than 50% chance of at least one inch of rainfall within a 24 hour period after the land application, and must have capacity to store manure for a 120 days. Ohio Admin. Code 1501:15-5-05(B). This rule also makes failure to comply with the standards a violation whether or not pollution has actually occurred. *Id.* at 1501:15-5-05(C). This is in contrast to other rules where actual pollution must occur before the chief can issue an order. Ohio Admin. Code 1501:15-5-02 thru -04 and 1501:15-5-06 thru -12.
[300] Ohio Admin. Code 1501:15-5-19. The threshold amount is "producing, applying, or receiving in excess of three hundred fifty tons and/or one hundred thousand gallons of manure on an annual basis." *Id.* at 1501:15-5-19(A).
[301] Ohio Admin. Code 1501:15-5-20(A)(1) & (3).
[302] ODNR, *Ohio Portion of the Lake Erie-Ohio River Drainage Divide*, available at http://ohiodnr.com/Portals/7/watersheds/ohio_erie_basin.pdf. *See also*, Ohio Department of Natural Resources – New Releases, *ODNR Designates Grand Lake St. Marys Watershed Distressed*, http://ohiodnr.com/home_page/NewsReleases/tabid/18276/EntryId/2088/ODNR-Designates-Grand-Lake-St-Marys-Watershed-Distressed.aspx. Livestock operations and manure applicators do not have to develop a manure management plan in Grand Lake St. Marys until December 15, 2012, and the restrictions on manure application do not begin until January 19, 2013, so it is difficult to determine how effective the designation has been at alleviating the HAB problem in Grand Lakes St. Marys. ODNR New Release, *ODNR Designates Grand Lake St. Marys Watershed Distressed*, http://ohiodnr.com/home_page/NewsReleases/tabid/18276/EntryId/2088/ODNR-Designates-Grand-Lake-St-Marys-Watershed-Distressed.aspx.

broad mandate, to date the scope of the regulation is limited to development areas of projects involving "highways, underground cables, pipelines or railroads; or other state and federal agency projects which are required to control sediment pollution pursuant to any applicable federal or state statutory or administrative authority."[303]

If the development area is covered by the regulations, the owner or person responsible must submit an erosion and sediment control plan detailing potential erosion and sediment pollution problems and the measures to be taken to control those problems before starting any earth-disturbing activities.[304] The regulations list minimum standards for conservation planning and practices.[305] The regulations also restrict the peak runoff from the development area after development so that it can be no greater than the peak runoff before development.[306]

An owner or operator may be held liable for failure to observe BMPs that results in pollution of waters of the state.[307] However, typically the chief first must issue an order, and the owner or operator then must fail to comply with the order, before the owner or operator can be held liable for violating chapter 1511 or the regulations thereunder.[308]

The enforcement process for violations of Ohio Administrative Code 1501:15-5-01 et seq. are somewhat complex. In general, there are two enforcement pathways. The first scenario in which an owner or operator may be held liable proceeds from an investigation. After receiving a written complaint from any person about a nuisance caused by agricultural pollution, the division of soil and water conservation must conduct an investigation.[309] If the division determines that the rules have been violated, it must work with the owner or operator in developing a voluntary solution.[310] If the owner or operator fails to cooperate in a voluntary solution, the division must submit an investigative report to the chief, whereupon the chief must decide whether a violation exists and whether corrective action is needed.[311] Then the chief must develop a compliance schedule and inform the owner or operator that he has a period of time to voluntarily correct the action.[312] If the owner or operator fails to take the action in the time specified, the chief may then issue an order.[313] An owner or operator can only be held liable for

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[303] Ohio Admin. Code 1501:15-1-02(A). The regulations also explicitly exclude any development area covered by 1501:15-5-01 et seq., any surface mining or strip mining operations, development areas in municipalities with urban sediment control plans, and areas where less than 5 acres is being developed. *Id.* at 1501:15-1-02(B) and (C). Construction sites that do not fall under these regulations are regulated elsewhere, such as under Ohio Admin. Code 3745:39-03. Regulation of urban stormwater runoff falls on OEPA, and the regulations are codified in Ohio Admin. Code 3745:39-01 et. seq.

[304] Ohio Admin. Code 1501:15-1-03. The chief reviews the plans to ensure compliance. *Id.* at 1501:15-1-06(B)(6).

[305] Ohio Admin. Code 1501:15-1-04(A). The control practices used to satisfy the standards must meet specifications listed in literature available at the county soil and water conservation districts. *Id.* at 1501:15-1-04(C). The chief reviews and approves these standards, along with other state agencies. *Id.* at 1501:15-1-06(B)(4).

[306] Ohio Admin. Code 1501:15-1-05(A). There are a number of recommended strategies for achieving this, but ultimately this is a performance standard. *Id.* at 1501:15-1-05(C).

[307] Ohio Admin. Code 1501:15-5-02 thru -12

[308] Ohio Rev. Code §§ 1511.02(G) and 1511.07. Note that the chief ensures compliance with Ohio Rev. Code § 1511.02(E)(2) by reviewing and approving plans for development. Ohio Admin. Code 1501:15-1-06(B)(6).

[309] Ohio Rev. Code § 1511.021(B).

[310] Ohio Admin. Code 1501:15-5-15(C)(5).

[311] *Id.* at 1501:15-5-15(C)(6)(a).

[312] *Id*.

[313] *Id.* at 1501:15-5-15(C)(6)(b).

failing to comply with an order, not for failing to comply with the rules before an order was issued.[314] Alternatively, an owner or operator may be held liable for failure to comply with a voluntary solution proposed by a district representative. Each Ohio county has a soil and water conservation district that acts as a political subdivision of the state.[315] The district representative informs the district board of supervisors and the division of the facts established by an investigative report, the solution proposed, and the action or inaction taken by the owner or operator.[316] If the district board determines a violation exists and corrective action is needed, it must inform the owner or operator by certified mail of a period during which he can comply voluntarily.[317] If the owner or operator still fails to take corrective action in the time specified, the district board may request the chief to issue an order.[318]

After an order is issued, the recipient has a right to an adjudicative administrative hearing, [319] and a final agency order can be appealed to the Franklin County Court of Common Pleas.[320] If a person fails to comply with an order, at the chief's request the Ohio attorney general must bring an action in Franklin County.[321] The court will uphold the order so long as it was "lawful and reasonable."[322] Violation of an order is a first degree misdemeanor punishable by up to a $1,000 fine and 180 days in jail.[323] Additionally, an owner or operator may be civilly liable for repairing any damage caused by violation of the chief's order.[324] Where there is a danger to public health, the chief may issue an emergency order to cease the violation and remove the agricultural pollutant.[325]

Cost-share monies are available from the state, through ODNR's Division of Soil and Water Conservation, to assist landowners in installing BMPs.[326] In order to be eligible to receive cost-share monies, the cost of expenditures must likely be greater than economic returns to the owner or operator.[327] If an owner or operator is eligible, as much as 75% of the cost of

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[314] Ohio Rev. Code §§ 1511.02(G) and 1511.07.
[315] Ohio Rev. Code § 1515.03.
[316] Ohio Admin. Code 1501:15-5-15(D)(5)(a).
[317] *Id.* at 1501:15-5-15(D)(5)(b).
[318] *Id.*
[319] Ohio Admin. Code 1501:15-5-16(A)(1). The hearing must be conducted in accordance with Ohio Rev. Code ch. 119, which is Ohio's general statute for administrative procedures, including hearings and appeals. Ohio Admin. Code 1501:15-5-16(A)(1)
[320] Ohio Admin. Code 1501:15-5-16(A)(3). The one exception is where the order adopts a rule. *Id.*
[321] *Id.*
[322] Ohio Rev. Code § 1511.08.
[323] Ohio Admin. Code 1501:15-5-16(A)(2). *See also*, Ohio Rev. Code § 1511.99. Each day will be considered a separate offense. *Id.*
[324] Ohio Admin. Code 1501:15-5-16(A)(2). *See also*, Ohio Rev. Code § 1511.99.
[325] Ohio Admin. Code 1501:15-5-16(B)(1). Situations where the public health is in danger include threats to drinking water supplies; threats to a primary contact recreational resource water; flooding of residential housing, commercial, or industrial property; and other situations as determined by the chief after consulting with health agencies. *Id.* This emergency order will only be effective up to 60 days, and if the operator wants to appeal the emergency order, there must be a hearing within 20 days of his application for a hearing. *Id.* at 1501:15-5-16(B)(2).
[326] Ohio Admin. Code 1501:15-5-13. The fund was established by the state treasury and depends primarily on the state for funding. Ohio Rev. Code § 1511.071.
[327] Ohio Admin. Code 1501:15-5-13.

establishing the BMP or $30,000 per person per year will be reimbursed, whichever is less.[328] A person can institute an improved plan that is more expensive than the BMP, but cost-share grants are based on the estimated cost of the least expensive acceptable practice.[329] The obligation to care for, manage, and maintain the BMP attached to the land; so if the land is sold, the new owner is responsible for maintaining the BMP. Also, if the land is converted, the state may recover a prorated amount.[330]

Although the maximum amount annually available was recently increased from $15,000 to $30,000 per person, funding for the cost-share program has actually decreased dramatically over the past decade.[331] In 2001, over $1.2M was allocated to the cost-share funds, but starting in 2005, less than $200,000 in cost-share funds has been allocated each year.[332] In 2009, Ohio reportedly ranked the lowest among all 50 states in financial support to help producers and landowners to solve agricultural pollution problems.[333]

Other Agriculture Incentive Programs

The U.S. Department of Agriculture also administers various financial incentive programs that help farmers voluntarily reduce pollution from agriculture runoff. For example, the Environmental Quality Incentives Program (EQIP) is a voluntary program, reauthorized by the 2008 Farm Bill, that provides agriculture producers with financial and technical assistance through contracts with the USDA Natural Resources Conservation Service (NRCS) of up to 10 years in duration. In short, the farmer agrees to engage in certain conservation practices (e.g., filter strips) in accordance with an approved plan of operations, and NRCS provides funding and technical assistance for the farmer to carry out the plan.[334] Separately, under the USDA Conservation Reserve Enhancement Program (CREP), farmland owners enter into contracts to convert cropland to conservation uses that would enhance water quality (e.g., restore wetlands, install riparian buffers) in exchange for payments.[335]

4. Biosolids

Biosolids are the nutrient rich solid or semisolid organic matter that results from the treatment of raw sewage.[336] Biosolids are frequently applied to land as fertilizer; in Ohio's Lake Erie basin, biosolids account for about 7% of fertilizer applied to row crop agriculture, with

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[328] *Id.* at 1501:15-5-13(A). However, the $30,000 maximum may be waived by majority vote from the commission. *Id.*
[329] *Id.* at 1501:15-5-13(C).
[330] *Id.* at 1501:15-5-13(D)(3)(b) & (c).
[331] *Id.* at 1501:15-5-13(A).
[332] Agricultural Pollution Abatement Committee, *Report and Recommendations* (June 2009), *available at* http://ohiodnr.com/Portals/12/programs/agpollutionabate/AgPollutionAbateRpt_2009.pdf.
[333] *Id*.
[334] *See* 7 C.F.R. part 1466; NRCS, Environmental Quality Incentives Program, http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip.
[335] *See* Ohio Lake Erie CREP, https://www.ohiodnr.com/soilandwater/programs/crep/lecrep/tabid/8867/Default.aspx.
[336] Introduction to Sewage Sludge (Biosolids), USEPA, http://water.epa.gov/polwaste/wastewater/treatment/biosolids/.

manure (27%) and commercial fertilizer (66%) comprising the remainder.[337] Because biosolids are often high in phosphorus content, stormwater runoff from agricultural fields where biosolids have been applied can contribute to phosphorus water pollution.

Clean Water Act § 405, and regulations promulgated thereunder, govern use and disposal of biosolids that come from "treatment works," which include POTWs and industrial wastewater treatment plants.[338] The federal regulations apply to both the producers of biosolids and whoever uses or disposes of biosolids.[339] Any use or disposal of biosolids that would result in a pollutant entering navigable waters must be permitted under the NPDES permit program.[340] The decision as to whether biosolids should be used as fertilizer or disposed of in landfills or through incineration is left to local governmental bodies.[341]

Federal regulations governing land application of biosolids are set forth at 40 C.F.R. part 503. "Class A" biosolids must meet more stringent pathogen standards,[342] and may be more broadly used as fertilizer than "Class B" biosolids.[343] Biosolids can be applied as fertilizer only if pollutant loading and application rates for selected pollutants are not exceeded;[344] however, phosphorus is not one of the pollutants regulated by loading and application rates at the federal level.[345] Unless otherwise permitted, biosolids may not be applied within 10 meters of waters of the United States.[346] Land where biosolids have been applied must be monitored for at least two years, and the frequency of monitoring activities depends on volume applied.[347] Extensive recordkeeping is required for all parties involved, from the producer of the biosolids down to the applicator.[348]

Ohio's regulations governing the use and disposal of biosolids were significantly amended, effective July 2011, and are codified at Ohio Administrative Code 3745:40-01 et. seq. Although largely consistent with the federal regulations,[349] OEPA's regulations go even further than the federal regulations in certain respects, such as phosphorus. Ohio regulations classify biosolids as either "exceptional quality" or "Class B."[350] Ohio has more stringent standards for storing biosolids near water; for example, biosolids may not be stored within one hundred feet of Ohio surface waters, within three hundred feet of a well, in low lying areas, or on slopes greater

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[337] Task Force Report, *supra* note 2, at 37 fig. 19, 40-41.
[338] Clean Water Act §§ 212(2)(A) & 405(f)(1), 33 U.S.C. §§ 1292(2)(A) & 1345(f)(1). Individual septic tanks do not qualify as "treatment works."
[339] 40 C.F.R. § 503.3.
[340] 33 U.S.C. § 1345(a).
[341] *Id.* § 1345(e).
[342] *See* 40 C.F.R. § 503.32.
[343] There are restrictions on what type of land Class B biosolids may be applied to if used as a fertilizer (e.g., cannot be applied to lawns or home gardens), as well as what activities can be done on that land after the application of a Class B biosolid. *Id.* §§ 503.15(a) & 503.32(b)(5).
[344] *Id.* § 503.12(b), (c), (e)(2)..
[345] *See id.* § 503.13 Table 1-4. Total nitrogen is regulated only to the extent that the entity supplying biosolids for use as a fertilizer must notify the applicator of the concentration. *Id.* § 503.12(d).
[346] *Id.* § 503.14(c).
[347] *Id.* § 503.16(a).
[348] *Id.* § 503.17.
[349] Ohio Admin. Code 3745:40-02(A)(2) (2012).
[350] *Id.* at 3745:40-04. The Ohio regulations also differ somewhat from the federal rules in how to achieve those classifications.

than fifteen percent.[351] Ohio regulations also tighten the requirements placed on the use of biosolids as a fertilizer.[352] The application of biosolids as fertilizer must comply with the terms of an NPDES permit or an approved management plan.[353] For the explicit purpose of protecting the state's waters, biosolids may only be used as fertilizer at an agronomic rate calculated with the location-specific soil phosphorus and nitrogen concentrations.[354] Biosolids may not be applied as fertilizer during precipitation events or, for most soil types, when there is a fifty percent chance that a half-inch or more of rain will fall within twenty-four hours.[355] Further, biosolids may not be used as fertilizer within 33 feet of Ohio's surface waters.[356] Biosolids cannot be applied during winter, on frozen ground, snow-covered ground, or soon to be frozen or snow-covered ground, absent specific authorization.[357] Biosolids may not be used as fertilizer on frequently flooded sites or on certain types of sloped land unless special precautions are taken.[358] General monitoring requirements include monitoring of total phosphorus and nitrogen.[359] Ohio requires any permittee transferring biosolids to notify the recipient of pertinent nutrient content information, including total phosphorus.[360] Likewise, any entities using biosolids in agricultural production must create crop-year reports that include the concentration of total phosphorus in the biosolids used and the application rate of phosphate.[361]

5. <u>ORC § 1531.29 (Stream Litter Law)</u>

The Ohio Stream Litter Law, ORC § 1531.29, prohibits persons from placing or disposing of any garbage, waste or "anything else of an unsightly or unsanitary nature" on state land, or in any "ditch, stream, river, lake, pond or other watercourse,…or upon the bank thereof …." This prohibition, however, does not extend to substances placed pursuant to an NPDES permit issued under ORC § 6111.04 or discharges exempted by such section.[362] Runoff from agricultural activities is among the discharges exempted by ORC § 6111.04,[363] and hence is not prohibited by the Stream Litter Law.[364] Violation of the Stream Litter Law, enforced by the ODNR Division of Wildlife, is a misdemeanor.[365]

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[351] *Id.* at 3745:40-07(C)(1), (2)(a)-(c).
[352] *Id.* at 3745:40-08.
[353] *Id.* at 3745:40-03.
[354] *Id.* at 3745:40-08(A)(2). Prior to July 2011, the regulations did not address phosphorus concentrations.
[355] *Id* .at 3745:40-08(B).
[356] *Id.* at 3745:40-08(C)(1).
[357] *Id.* at 3745:40-08(D)(2).
[358] *Id.* at 3745:40-08(D)(3)-(4).
[359] *Id.* at 3745:40-09(B)(5).
[360] *Id.* at 3745:40-05(A).
[361] *Id*. at 3745:40-05(B).
[362] Ohio Rev. Code § 1531.29.
[363] *See* Ohio Rev. Code § 6111.04(F)(3).
[364] Not every discharge from a farm, though, is exempt from the Stream Litter Law and ORC § 6111.04. In *State v. Rossister*, 1990 Ohio App. Lexis 1895 (1990), the defendant dairy farmer maintained a manure lagoon to collect manure to eventually spread over fields. When the lagoon was in danger of overflowing, the defendant pumped the manure into a creek bed. The court found that the plain, ordinary meaning of "waste" includes excrement. *Id.* at *5. Since the cow manure was discharged directly into the creek bed and the discharge was not simply incidental to agricultural activities, the exemptions in ORC § 6111.04 did not apply. *Id*. at *6.
[365] Ohio Rev. Code § 1531.99(B); State v. Budd Co., 67 Ohio App.2d 23, 425 N.E.2d 935 (6th Dist. 1980).

6. Nuisance

Nuisance actions can be used to abate water pollution in Ohio.[366] Statutory defenses, though, make it difficult to maintain nuisance actions aimed at agricultural activities. For example, ORC § 3767.13(C) makes it a nuisance to render waters unwholesome or impure. But ORC § 929.04 broadly provides a defense to civil actions for nuisance involving agricultural activities, provided the activities were not in conflict with federal, state and local laws or were conducted in accordance with generally accepted agricultural practices.[367]

An incentive for owners and operators to voluntarily implement an operation and management plan under ORC § 1511.02(E)(1) is that operating under an operation and management plan approved by the chief or by the supervisors of local soil and water conservation districts is an affirmative defense in civil actions.[368]

C. MISCELLANEOUS SOURCES

1. Toledo Harbor Dredging and Open Lake Disposal

Toledo Harbor (essentially, where the Maumee River meets the western basin of Lake Erie) is dredged each year by the Army Corps of Engineers (ACOE) to maintain the navigation channel. Hundreds of thousands of cubic yards of sediments are dredged annually, and most of them are deposited in an open lake disposal area of Lake Erie.[369] The dredging and open lake disposal were considered a potential source of phosphorus in Lake Erie by the Task Force, since the phosphorus concentrations in the sediment are similar to those in agricultural soils.[370]

Ordinarily, dredging of Toledo Harbor would require a permit under section 10 of the Rivers & Harbors Appropriation Act of 1899,[371] and disposal of dredged material in Lake Erie would require a permit under section 404 of the Clean Water Act.[372] However, because both permits would be issued by the ACOE which itself is doing the dredging and disposal, instead

[366] *See, e.g.*, Ohio Rev. Code § 3767.03 (provides cause of action for government and citizens to abate nuisances).
[367] Other conditions for a complete defense under ORC § 929.04 are that the agricultural activities were conducted within an agricultural district, were established prior to plaintiff's activities or interest on which the action is based, and plaintiff was not involved in agricultural production.
[368] Ohio Rev. Code § 1511.021(C). There is no negligence per se for failing to comply with the administrative rules. There are no cases directly addressing violations of the rules enforced by the division of soil and water resources, but the clearly established rule in Ohio is that violations of administrative rules do not create a per se finding of duty and breach of duty. *See e.g.*, Lang v. Holly Hill Motel, Inc., 122 Ohio St.3d 120, 909 N.E.2d 120, 2009-Ohio-2495 (2009). Therefore, a private party or the state would still have to offer evidence of these elements in order to succeed in a negligence action resulting from a violation of regulations dealing with agricultural pollution.
[369] As for the remaining sediments, a small percentage is used for beach renourishment or other beneficial reuse alternatives and the most heavily contaminated sediments are placed in confined disposal facilities such as Grassy Island. Great Lakes Dredging Team, Case Study Series: Toledo Harbor Revisited: Changing Open Water Placement Policy for Western Lake Erie 1 (June 2005), *available at www.glc.org/dredging/case/documents/Toledo_final.pdf.*
[370] Task Force Report, *supra* note 2, at 55. Although it observed that discontinuing open lake disposal of dredged sediments could reduce the amount of phosphorus in Lake Erie, the Task Force opted not to make any recommendation regarding open lake disposal. *Id*.
[371] 33 U.S.C. § 403.
[372] 33 U.S.C. § 1344.

ACOE is obligated by regulations to follow similar substantive and procedural requirements.[373] One of the requirements for a CWA § 404 permit is obtaining a CWA § 401 certification from OEPA.[374]

A CWA § 401 certification is "a certification from the State in which the discharge originates…that any such discharge will comply with the applicable provisions of sections 301, 302, 303, 306, and 307" of the CWA.[375] Further, the section 401 certification must set forth any limitations or requirements necessary to assure compliance with applicable standards, prohibitions, and any other provisions of state law.[376] Any such limitation or requirement imposed by the state becomes a condition on the activity,[377] and thus compliance with CWA § 303 water quality standards and state law will be ensured.[378] Ohio regulations prohibit certification if the activity will violate water quality standards.[379]

OEPA has been grudgingly providing section 401 certifications for Toledo Harbor dredging and open lake disposal for more than two decades. In 1987 OEPA determined that open lake placement of sediment from Toledo Harbor was unacceptable practice.[380] A 2004 certification contemplated a phase-out of open lake disposal within five years, which resulted in an administrative appeal by ACOE and a settlement that allowed continued open lake disposal under more restrictive conditions.[381] Under anti-degradation review, if a project will lower water quality (albeit will not violate water quality standards), OEPA may provide section 401 certification only where the discharge or activity is necessary.[382] The 2010 and 2011 certifications recognize that open lake disposal is lowering water quality in the Maumee River and Lake Erie and is not an environmentally acceptable long term alternative, but authorized the project as necessary due to social, economic, and technical considerations.[383] These most recent certifications limit the volume of open lake disposal of dredged material to 800,000 cubic yards per year and impose other terms and conditions, including limits on location and timing.[384] OEPA in 2008 draft rules proposed to restrict open lake disposal of sediment to 50,000 cubic

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[373] *See* 33 C.F.R. §§ 322.3(c), 336.1(a).
[374] Clean Water Act § 401(a)(1), 33 U.S.C. § 1341(a)(1).
[375] *Id.*
[376] *Id.* § 401(d), 33 U.S.C. § 1341(d).
[377] *Id.*
[378] *See id.* § 401(a)(2), 33 U.S.C. § 1341(a)(2).
[379] *See* Ohio Admin. Code 3745-32-05(A).
[380] *See* Great Lakes Dredging Team, Case Study Series: Toledo Harbor Revisited: Changing Open Water Placement Policy for Western Lake Erie 2 (June 2005).
[381] *Id*. at 3-4.
[382] Ohio Admin. Code 3745-1-5(C)(8)(a).
[383] OEPA, Section 401 Certification, 2010 Toledo Harbor Maintenance Dredging (April 15, 2010); OEPA, Section 401 Certification, 2011 Toledo Harbor Maintenance Dredging (May 17, 2011). The 2011 certification to ACOE was appealed as unlawful by environmental groups, but the Ohio Environmental Review Appeals Commission recently upheld OEPA's certification. National Wildlife Federation v. Korleski, Case No. 9964747 (ERAC Feb. 29, 2012).
[384] OEPA, Section 401 Certification, 2010 Toledo Harbor Maintenance Dredging (April 15, 2010); OEPA, Section 401 Certification, 2011 Toledo Harbor Maintenance Dredging (May 17, 2011). OEPA in 2011 stated that "scientific studies / investigations have found no direct link between the open lake placement of dredged material and harmful algal blooms (HABs) in the western basin of Lake Erie." OEPA, 2011 Toledo Harbor Maintenance Dredging Response to Comments, at 12 (May 17, 2011). The 2011 section 401 certification requires ACOE to quantify, via sampling or modeling, the DRP being released from the open lake disposal of dredged material. *Id*. at 4.

yards per applicant annually, but OEPA subsequently removed that provision from its proposed water quality rules amendments.[385]

2. Phosphate in Public Water Systems and Detergents

Rules promulgated pursuant to the federal Safe Drinking Water Act[386] seek to control lead and copper from leaching out of pipes in harmful levels in public drinking water systems.[387] Where levels of lead or copper exceed certain action levels, public water systems must implement an approved corrosion control treatment.[388] Adding phosphate-based agents (e.g., orthophosphate) at the public water system's treatment plant, to form a protective coating on the pipes and inhibit corrosion, is a commonly approved corrosion control treatment. The Task Force identified the addition of orthophosphate to drinking water as a low magnitude source of phosphorus in Lake Erie.[389]

Decades ago, high-phosphate laundry detergents were identified as a significant source of phosphorus entering Lake Erie. Effective in 1990, Ohio statutorily prohibited in counties in the Lake Erie basin the sale of household laundry detergents containing in excess of 0.5% total phosphorus by weight.[390] More recently, by statute effective July 2010 Ohio banned the sale of dishwasher detergents that exceed 0.5% total phosphorus by weight.[391]

III. RECOMMENDATIONS

There is no silver legal bullet that will solve the HABs problem in Lake Erie. As discussed above, HABs in Lake Erie are the result of multiple factors. Numerous different sources contribute excess phosphorus to Lake Erie, and these diverse sources implicate a complex web of multiple federal and state laws. In our view, however, there are a number of ways in which the legal regime can be improved to reduce the amount of phosphorus entering Lake Erie and its tributaries, which in turn should ameliorate the HABs problem in Lake Erie.

While Congress and USEPA certainly could make improvements in federal law,[392] the focus of our recommendations is what can be done in Ohio. Our recommendations include both the adoption of new legal tools and improved use of existing legal tools. We offer these recommendations mindful that our state and local governments have limited budgets and resources and that excessive regulation can be detrimental to aspects of our economy in these difficult economic times. However, Lake Erie is an extremely valuable – if not invaluable --

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[385] *See* Dec. 2010 interim response to comments, Ohio Admin. Code 3745-1-31.
[386] 42 U.S.C. §§ 300f et seq.
[387] 40 C.F.R. §§ 141.80 thru .91; Ohio Admin. Code 3754-81-80 thru -90.
[388] *See* 40 C.F.R. § 141.82; Ohio Admin. Code 3745-81-82.
[389] Task Force Report, *supra* note 2, at 54.
[390] Ohio Rev. Code § 6111.10. This law is derived from the Great Lakes Water Quality Agreement, Annex 3.
[391] Ohio Rev. Code § 6111.11.
[392] Examples abound: Congress could authorize more money for the Clean Water State Revolving Fund program, which provides funding for water quality projects such as upgrading POTWs and controlling nonpoint source pollution, s*ee* 33 U.S.C. §§ 1381-1387, and require farmers to employ conservation practices to reduce phosphorus runoff as a condition for receiving agricultural subsidies in the next Farm Bill. USEPA could establish a phosphorus TMDL for all of Lake Erie, s*ee* 76 Fed. Reg. 549 (Jan. 5, 2011) (TMDL for Chesapeake Bay), and issue a technology-based effluent limit for major POTWs. *See supra* Part II.A.2.

natural and economic resource for Ohio, and failure to utilize and improve our legal tools to help protect Lake Erie against the HABs scourge would be short-sighted.

We respectfully submit for consideration the following recommendations.

A. Promulgate Numeric Water Quality Criteria for Phosphorus

For more than a decade, USEPA has been urging states to develop numeric water quality criteria for nutrients such as phosphorus.[393] Numeric water quality criteria offer several advantages over narrative criteria, which are more subjective, less precise, and more cumbersome to work with. Numeric criteria facilitate identification of impaired waters, development of TMDLs, and setting protective NPDES permit effluent limits. They also create baselines that can improve efforts to address nutrient runoff and provide targets for water quality trading programs.[394] Several states recently have adopted numeric phosphorus water quality criteria. For example, Wisconsin in 2010 finalized numeric water quality criteria for total phosphorus for lakes, rivers, streams and nearshore waters of Lakes Superior and Michigan.[395]

As discussed in Part II.A above, Ohio currently has no numeric water quality criteria for phosphorus. OEPA in recent years, however, repeatedly has promised to issue numeric phosphorus water quality criteria.[396] **We recommend that OEPA follow through with its stated intent to develop numeric water quality criteria for total phosphorus applicable to rivers, streams and lakes, and include the nearshore waters of Lake Erie.**

It should be noted that USEPA arguably could establish, or could be forced to establish, numeric water quality criteria for phosphorus for Ohio waters if the state fails to do so. Clean Water Act § 303 provides that a state's water quality standards are subject to USEPA approval, and where the state fails to submit adequate standards, USEPA must promulgate water quality standards for that state.[397] In Florida, environmental groups in 2008 initiated a citizen suit seeking to force USEPA to establish numeric nutrient water quality criteria for Florida waters. USEPA determined that Florida's narrative nutrient standard was inadequate under the Clean Water Act and entered into a consent decree with the plaintiffs that required USEPA to publish

[393] *See* USEPA Office of Water, National Strategy for the Development of Regional Nutrient Criteria 9 (June 1998).
[394] *See* USEPA Office of Water, Memorandum from Benjamin Grumbles, Assistant Administrator, to Directors of State Water Programs re Nutrient Pollution and Numeric Water Quality Standards 2 (May 25, 2007), *available at* http://water.epa.gov/scitech/swguidance/standards/criteria/nutrients/memo2007.cfm.
[395] Wis. Admin. Code NR §102.06 (2011).
[396] OEPA published draft rules in 2010 that set forth numeric phosphorus criteria for the new lake habitat subcategory of the aquatic habitat designation. OEPA, December 2010 Draft Revisions to Ohio Admin. Code 3745-1-43 tbl.43-12. The phosphorus numeric criteria for lake habitat was dropped in the proposed December 2011 rules, however, with the explanation that "[a]doption of lake nutrient criteria will proceed in a future rulemaking simultaneously with the nutrient criteria for streams and rivers." OEPA, December 2011 Summary of Comments, Response 51. *See* OEPA, December 2011 Response to Comments, Response 119. Separately, responding in December 2010 to a comment about a generally applicable narrative water quality criteria for phosphorus, OEPA stated that it "is developing numerical water quality criteria for phosphorus. Those criteria are expected to be available for public review and comment this summer." OEPA, December 2010 Water Quality Standards Interim Response to Comments, Response 44. *See also* OEPA Division of Surface Water Schedule for Adopting Water Quality Criteria for Nutrients (Aug. 31, 2009), *in* Draft Framework, *supra* note 94, at Appendix 1.
[397] 33 U.S.C. 1313(c).

numeric phosphorus and nitrogen water quality criteria, unless Florida submitted its own criteria and USEPA approved.[398] In late 2010 USEPA issued a final rule establishing numeric water quality criteria for phosphorus and nitrogen for Florida's rivers, streams, and lakes, effective in 15 months.[399] USEPA subsequently announced it would repeal its rule if Florida issued adequate numeric nutrient criteria, and in early 2012 Florida adopted its own numeric water quality criteria for phosphorus and nitrogen.[400]

B. Agricultural Activities

We recommend that ODNR designate as in distress the Lake Erie watershed, or key tributary watersheds such as the Maumee River, pursuant to Ohio Admin. Code 1501:15-5-20. The chief of the ODNR division of soil and water conservation may designate a watershed to be in distress, thus triggering restrictions on the land application of manure during winter and requirements for manure generators and users to conform to an approved nutrient management plan.[401] The rules regarding distressed watersheds were promulgated by ODNR in 2010 specifically to alleviate HABs problems, and Grand Lake St. Marys was designated a distressed watershed in January 2011 in an effort to address its severe problem with HABs.[402] The application of the distressed watershed rules across a wider geographic area should reduce phosphorus pollution in the designated watersheds and thus inhibit the formation of HABs in Lake Erie.

Among the factors the chief may consider when designating are whether the watershed is listed as impaired by nutrients or sediments from agricultural sources; water bodies within the watershed exhibit periodic evidence of HABs; and other unacceptable nuisance conditions exist including the depletion of dissolved oxygen.[403] ODNR can designate a watershed as in distress without the need to issue any new rules, although the Ohio soil and water conservation commission must consent to the designation by a majority vote.[404]

We recommend that ODNR issue new rules establishing a minimum set of mandatory best management practices (BMPs), applicable to all farming operations, designed to reduce phosphorus pollution to waters of the state. The chief of the division of soil and water conservation is authorized by ORC § 1511.02(E)(1) to adopt rules establishing "technologically feasible and economically reasonable standards" for management and conservation practices in farming operations that will abate the erosion of soil or the degradation

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[398] USEPA, Consent Decree to Establish Federal Water Quality Standards for the State of Florida, http://water.epa.gov/lawsregs/rulesregs/florida_consent.cfm.

[399] Water Quality Standards for the State of Florida's Lakes and Flowing Waters, 75 Fed. Reg. 75,762 (Dec. 6, 2010) (to be codified at 40 C.F.R. pt. 131).

[400] Fla. Admin. Code Ann. r. 62-302.530 (2012). The new state criteria have been submitted to USEPA for approval. Multiple lawsuits have been filed challenging USEPA's rule. *See* Fla. Wildlife Fed'n, Inc. v. Jackson, 2012 U.S. Dist. LEXIS 21778 (N.D. Fla. Feb. 18, 2012).

[401] *See* Ohio Admin. Code 1501:15-5-05(B),1501:15-5-05(C) and 1501:15-5-19.

[402] ODNR, *Distressed Watershed Designation Analysis Grand Lake St. Marys Watershed* 15 (Jan. 18, 2011), http://ohiodnr.com/portals/12/water/watershedprograms/GLSM/Distressed_Watershed_Designation_Analysis_Grand_Lake_St_Marys.pdf.

[403] Ohio Admin. Code 1501:15-5-20(A).

[404] *Id.* at 1501:15-5-20(C).

of state waters by animal waste or soil sediment.[405] However, under current regulations, except for distressed watersheds, no specific pollution-prevention practices are mandated for farming operations. Rather, specific BMPs must be implemented only after the chief determines that the farmer has caused pollution to waters of the state, the chief advises the farmer of specific BMPs to implement, and the farmer fails to implement the specific BMPs.[406] Specific BMPs that all farmers are required to implement likely would reduce uncertainty in the regulated community, ODNR's burden of establishing BMPs on a case-by-case basis, and phosphorus pollution from agricultural activities.[407]

Exactly what the mandatory BMPs should be is beyond the scope of this paper. However, generally applicable BMPs for reducing phosphorus pollution could include timing restrictions on the application of fertilizer or manure (e.g., not during the winter, not immediately before predicted precipitation events); limiting the rate of fertilizer or manure to be applied based on soil tests; restricting how close fertilizer or manure may be applied to waters of the state; mandating that manure and fertilizer be incorporated into the soil; prohibiting plowing near waters of the state; and requiring installation and maintenance of buffer strips between crop fields and watercourses.[408]

Contemporaneously, ODNR also should issue a new rule that would allow for streamlined enforcement of the generally applicable minimum BMPs. The chief, subject to the approval of the ODNR director, has the statutory power to issue orders requiring compliance with any rule adopted under ORC § 1511.02(E)(1).[409] Section 1511.02(G) also provides that the chief must give each owner or operator an adjudicative hearing before issuing such an order.[410] Enforcement under the current regulations, however, is relatively cumbersome. Currently (with a limited exception for emergency orders),[411] an order can only be issued if an investigation reveals an owner or operator is violating the rules and the owner or operator fails to comply with a voluntary solution.[412] Where the regulations already articulate the BMPs, there is no need to advise the farmers of the BMPs and provide an opportunity for voluntary compliance. A rule

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[405] Ohio Rev. Code § 1511(E)(1).
[406] Ohio Admin. Code 1501:15-5-01 thru -12.
[407] These minimum, mandatory BMPs would not apply to AFOs subject to the permitting requirements of ORC chapter 903 (CAFFs subject to ODA permits) or OEPA (CAFOs subject to NPDES permits). *See* Ohio Admin. Code 1501:15-5-01(B)(4).
[408] *See, e.g.***,** Ohio Admin. Code 1501:15-5-05(B) (restricting application of manure on frozen or snow-covered ground and during precipitation event for watersheds designated as in distress); Ohio Admin. Code 3745:40-08 (restrictions on land application of biosolids). *See also*, Whatcom Conservation District, *Information Factsheet # 22: Farm Practices & Drainage Management* 1-2 (2009), http://www.whatcomcd.org/sites/default/files/docs/publications/dmg/factsheets/22-FarmPractices.pdf; SAI Platform, *Water Conservation Technical Briefs: TB11 – Use of Conservation Riparian Buffer to Preserve Water Quality* 6-8 (July 2010), http://www.saiplatform.org/uploads/Library/Technical%20Brief%2011.%20Use%20of%20conservation%20riparian%20%20buffer%20to%20preserve%20water%20quality.pdf.
[409] Ohio Rev. Code § 1511(G).
[410] *Id.* This is typical under Ohio administrative law. *See* Ohio Rev. Code § 119.06. The Ohio Administrative Procedure Act contemplates a notice setting forth the facts giving rise to the action, the law involved, and the relief sought. *Id.* at § 119.07. Following an adjudication hearing, the agency may issue the order. *Id.* at § 119.09. A party adversely affected by the order may appeal to a court of common pleas. *Id.* at § 119.12.
[411] Ohio Admin. Code 1501:15-5-16(B)(1) (2012).
[412] Ohio Admin. Code 1501:15-5-15(C)-(D).

allowing enforcement of the generally applicable BMPs without such unnecessary preliminary steps should enhance the efficiency and effectiveness of enforcement, which in turn should enhance compliance and reduce phosphorus pollution.

We recommend that the General Assembly amend the definition of "concentrated animal feeding facility" (CAFF) under ORC § 903.01 to include medium CAFOs as well as large CAFOs. CAFFs must, pursuant to ORC §§ 903.02 & .03, obtain and comply with permits to install and to operate. These permits, and accompanying regulations, impose many requirements aimed at preventing manure and other pollutants from entering waters of the state (e.g., siting and construction requirements, approved manure management plan, specific BMPs). A CAFF, however, currently is defined by ORC § 903.01(E) as equivalent to a large CAFO (e.g., 700 or more cows).[413] Animal feeding operations with fewer animals, unless they require an NPDES permit, currently are governed by ORC chapter 1511 and its mostly voluntary provisions administered by ODNR.[414]

Only a small percentage of animal feeding operations in Ohio are permitted under the Clean Water Act or ORC chapter 903. These many, smaller, unpermitted AFOs, because they often lack the engineering and manure storage and handling required of larger permitted CAFOs/CAFFs, are more likely to contribute nutrients to nearby waterways.[415] Revising the definition of CAFF under ORC § 903.01(E) to include medium CAFOs (e.g., 200-699 cows)[416] would extend to more AFOs the phosphorus pollution prevention requirements now only applicable to large CAFOs.[417]

C. Develop Phosphorus TMDLs for More Impaired Waters in Lake Erie Watershed

OEPA over the past decade has made substantial progress in developing TMDLs for impaired waters, including phosphorus TMDLs for such major Lake Erie tributaries as the Cuyahoga River and the Upper Sandusky River. However, a number of waters within the Lake Erie basin impaired by phosphorus still lack TMDLs, including such major contributors of phosphorus to Lake Erie as the Maumee River and the Lower Sandusky River.[418]

We recommend that OEPA complete development of phosphorus TMDLs for all of the waters within the Lake Erie basin that are impaired due to phosphorus. As discussed in Part II.B.1.c supra, the calculation of TMDLs for impaired waters is required by Clean Water Act § 303(d), and a TMDL can be a valuable tool for achieving water quality standards and controlling point and nonpoint sources of phosphorus.

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[413] Ohio Rev. Code § 903.01(E)(defines CAFF as an AFO with a design capacity of at least as many animals as specified at Ohio Rev. Code § 903.01(M)(defining large CAFO).
[414] *See* Ohio Admin. Code 1501:15-5-01(B)(4).
[415] *See* Draft Framework, *supra* note 94, at 32.
[416] *See* Ohio Rev. Code § 903.01(Q)(defining medium CAFO).
[417] *See* Ohio Admin. Code 901:10-2.
[418] *See* OEPA, 2010 Integrated Water Quality Monitoring and Assessment Report § L4, available at http://www.epa.ohio.gov/dsw/tmdl/index.aspx#Ohio's%20303(d)%20List%20and%20Schedule.

D. NPDES Permits

In the successful fight against HABs in Lake Erie decades ago, establishing a total phosphorus effluent limit for major POTWs was perhaps the single most effective legal tool adopted.[419] For many years Ohio has required POTWs in the Lake Erie basin with a design flow of at least 1 million gpd to meet a TP discharge limit of 1 mg/L.[420] Today we need to reduce phosphorus in Lake Erie again, and major POTWs as a category remain one of the largest contributors of phosphorus to Lake Erie.[421] **We recommend that OEPA establish by rule a more stringent TP effluent limit for POTWs in the Lake Erie basin with a design flow of 1 million gpd or more, by amending Ohio Admin. Code 3745-33-06(C)(1).**

Most POTWs in the Lake Erie basin have design flows of less than 1 million gpd, and most of these smaller POTWs do not have any phosphorus effluent limits in their NPDES permits.[422] **For smaller POTWs that are discharging significant amounts of TP in the Lake Erie basin, we recommend that the director of OEPA, pursuant to his authority under Ohio Admin. Code 3745-33-06(C)(1), designate them as "major dischargers," thus subjecting those POTWs to the 1 mg/L effluent limit. Alternatively, we recommend that OEPA establish by rule TP effluent limits for a broader class of POTWs in the Lake Erie basin.**

Phosphorus effluent limits are included in the NPDES permits of only a fraction of POTWs and industrial wastewater treatment plants in the Lake Erie basin, and less than 1/3 of POTWs and industrial wastewater treatment plants in the Lake Erie basin are even required to monitor their permitted discharges for phosphorus.[423] **We recommend that OEPA require more NPDES permit holders in the Lake Erie basin to at least monitor for phosphorus.** This additional monitoring data about phosphorus entering waters in the Lake Erie basin should facilitate TMDL waste load allocations for point and nonpoint sources, imposing or tightening phosphorus effluent limits in NPDES permits where appropriate, and more informed decision-making regarding use of other legal tools to attain or maintain water quality standards and combat the formation of HABs.

"Green" infrastructure practices and technologies (e.g., grassed swales, green roofs, permeable pavement) sometimes can help achieve reductions in phosphorus runoff with less cost and more environmental benefits than traditional stormwater runoff solutions heavy on concrete and piping.[424] **We recommend that OEPA include more green infrastructure requirements in NPDES permits within the Lake Erie basin,** as controls for CSOs and as BMPs for MS4s.

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[419] *See* Task Force Report, *supra* note 2, at 12.
[420] Ohio Admin. Code 3745-33-06(C)(1) (based on 30-day average).
[421] Task Force Report, *supra* note 2, at 34.
[422] Draft Framework, *supra* note 94, at 22.
[423] *Id.* at 22, 27.
[424] *See* USEPA, Office of Water & Office of Enforcement and Compliance Assurance, Protecting Water Quality with Green Infrastructure in EPA Water Permitting and Enforcement Programs (April 20, 2011), *available at* http://water.epa.gov/infrastructure/greeninfrastructure/gi_support.cfm; American Rivers et al, Banking on Green: A Look at How Green Infrastructure Can Save Municipalities Money and Provide Economic Benefits Community-wide (April 2012), *available at* http://www.americanrivers.org/library/reports-publications/going-green-to-save-green.html.

E. Home Sewage Treatment Systems

OEPA estimates that more than 140,000 unpermitted HSTSs are discharging in Ohio.[425] As discussed above, discharges from HSTS to waters of the state without an NPDES permit are prohibited and constitute a public nuisance.[426] Ohio state agencies do not have the resources, nor would it be a cost-effective way to reduce HABs, to bring enforcement actions against all such unpermitted dischargers. **We recommend that OEPA more aggressively use its enforcement authority under ORC chapter 6111 against property owners whose HSTSs are contributing significant pollution to waters of the state without an NPDES permit.** This would include seeking injunctive relief to compel compliance and civil penalties for past and ongoing violations.[427]

We also recommend that OEPA develop a general NPDES permit applicable to older HSTS that are not eligible for the current general NPDES permits governing new and replacement HSTS.

Further, we recommend amendment by the General Assembly of ORC § 3718.023(B) so that the board of health is obligated to assure that *all* HSTS, even those installed before the effective date of ORC chapter 3718, do not discharge to waters of the state without an NPDES permit.

F. Expand Implementation of Water Quality Trading

OEPA water quality trading rules took effect January 1, 2007, setting forth the requirements for a voluntary water quality trading program in Ohio.[428] In short, water quality trading as contemplated by the Ohio rules allows an NPDES permit holder to help meet its permit obligations for total phosphorus or nitrogen by purchasing pollution reduction credits generated by another point source or nonpoint source. The purposes of the program include improving water quality cost-effectively, providing economic incentives for voluntary pollution reductions, and facilitating a watershed approach to achieving and maintaining water quality.[429]

Nationally, some pollution credit trading programs have been quite successful. A classic example is the Clean Air Act cap-and-trade program for sulfur dioxide emissions enacted by Congress in 1990 to address the acid rain problem.[430] By incentivizing voluntary reductions of pollution by some sources (allowing them to earn and sell pollution credits) and allowing other sources to purchase those pollution credits at a lower price than the cost of actually reducing their pollution discharges to required limits, pollution credit trading programs can reduce overall pollution more cost-effectively than traditional command-and-control regulation. USEPA has

[425] *Id.* at 28.
[426] Ohio Rev. Code § 6111.04(A); *see also* Ohio Rev. Code § 3718.011(A).
[427] *See* Ohio Rev. Code §§ 6111.07, .99.
[428] Ohio Admin. Code 3745-5-01 et seq.
[429] *Id.* at 3745-5-03.
[430] 42 U.S.C. §§ 7651 et seq.

encouraged states to develop and implement water quality trading programs for nutrients (including total phosphorus), sediments and other pollutants.[431] Several states have implemented nutrient trading programs.[432]

In Ohio, two water quality trading programs are operating within the Ohio River watershed, and both are focused on reduction of nutrient loading through nonpoint-source-to-point-source trades.[433] The Great Miami Watershed Water Quality Trading Program is a pilot program that allows NPDES permit holders in the Great Miami River watershed to purchase total phosphorus and nitrogen pollution credits generated by farmers in the same watershed who voluntarily reduce nutrient loading from their agricultural lands. The program incentivizes farmers to engage in voluntary efforts to reduce phosphorus and nitrogen runoff, and the credit buyers can achieve compliance with phosphorus and nitrogen effluent limits in their NPDES permits more cost effectively than spending money to upgrade their treatment plants. Administered by the Miami soil and water conservation district, farmers submit proposals for reducing pounds of phosphorus or nitrogen runoff, and the most efficient cost-per-pound proposals are selected for funding via reverse auctions (i.e., sellers bid prices down, whereas in a traditional auction buyers bid prices up). Payments from credit buyers and USDA grants fund the farmers' implementation of the BMPs.[434] Pursuant to the phosphorus nutrient trading plan incorporated into its NPDES permit, the Alpine Cheese Company purchases credits toward meeting its NPDES permit phosphorus effluent limit from farmers who voluntarily adopt BMPs to reduce phosphorus runoff in the same watershed of Sugar Creek. The trading program is administered pursuant to a joint agreement between OEPA and the Holmes soil and water conservation district.[435]

Water quality trading programs are not panaceas and they pose challenges, including difficulties in calculating credits for nonpoint source phosphorus reductions and in verifying such reductions. But nonpoint-source-to-point-source water quality trading programs for phosphorus within the Lake Erie watershed offer innovative opportunities for significant, cost-effective reductions of phosphorus loading, as well as a flexible alternative or complement to mandatory pollution control requirements upon nonpoint sources. **We recommend that OEPA and local soil and water conservation districts encourage the development and implementation of water quality trading programs within the Lake Erie basin** (e.g., by establishing phosphorus TMDLs, by promulgating numeric phosphorus water quality criteria, by providing grant funding for a portion of the costs of developing and implementing a pilot water quality trading management plan).

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[431] *See* USEPA Office of Water, Water Quality Trading Policy (Jan. 2003); USEPA, Water Quality Trading Toolkit for Permit Writers (2007).

[432] *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, 535 (2011); Sarah Brull, *An Evaluation of Nonpoint Source Pollution Regulation in the Chesapeake Bay*, 13 U. Balt. J. Envtl. L. 221, 245 (2006).

[433] Although both programs were developed prior to the effective date of Ohio's water quality trading rules, they are specifically provided for in the rules. Ohio Admin. Code 3745-5-04.

[434] *See* OEPA Division of Surface Water, Water Trading program (last visited Mar. 8, 2012), http://www.epa.ohio.gov/dsw/WQ_trading/index.aspx.

[435] *Id.*

G. Restrict Phosphorus Lawn Fertilizer

Phosphorus is a significant ingredient in many lawn fertilizer products, and stormwater runoff can carry the phosphorus from lawns into Lake Erie and its tributaries.[436] Phosphorus-free lawn fertilizers are now available. Several states, including Minnesota, Wisconsin and most recently Michigan, have enacted statutes that largely prohibit the application of fertilizer containing phosphorus to residential and commercial lawns and other types of managed turf such as parks and golf courses. The bans do not extend to agricultural purposes and typically feature a few exceptions. For example, Michigan's new statute allows phosphorus-containing fertilizer to be applied on new lawns in the first growing season; on soil shown by testing within the previous 36 months to be deficient in available phosphorus; and on golf courses whose staff has completed an approved training program regarding best management practices for use of fertilizer containing phosphorus.[437] **We recommend that the Ohio General Assembly enact similar legislation restricting the application of phosphorus-containing fertilizer on lawns.**

H. Further Restrict Open Lake Disposal of Toledo Harbor Dredged Material

OEPA has acknowledged that open lake disposal of sediment dredged from Toledo Harbor by the Army Corps of Engineers (ACOE) lowers water quality in the Maumee River and Lake Erie and is not an acceptable long-term alternative.[438]

We recommend that OEPA issue a new rule restricting open lake disposal of sediment in Lake Erie. OEPA included such a rule in its 2008 draft rules revising the Lake Erie water quality standards: pursuant to that draft rule, open lake disposal of sediments in Lake Erie would be restricted to 50,000 cubic yards per year, per applicant.[439] However, that revision was removed from the water quality rulemaking package by OEPA in 2010.[440] Minnesota and Wisconsin severely restrict open lake disposal.[441]

We also recommend that OEPA place stricter conditions on its CWA § 401 certification of the ACOE's dredging and disposal of Toledo Harbor sediment. For years ACOE has been exploring beneficial use projects as an alternative to open lake dumping, and at some point the ACOE should proceed with such alternatives rather than continuing the environmentally detrimental practice of open lake dumping.

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[436] *See* Task Force Report, *supra* note 2, at 51-54.
[437] Mich. Comp. Laws Ann. § 324.8512b (2012). *See also* Minn. Stat. §18C.60 (2011); Wis. Stat. § 94.643 (2011).
[438] *See supra* Part II.C.1.
[439] *See* OEPA, 2008 Draft Rules, Ohio Admin. Code 3745-1-31(C).
[440] *See* OEPA December 2010 interim response to comments, at 18. At the time of removal, OEPA said that the revisions would proceed through the rulemaking process independently. *Id*.
[441] *See* Wis. Stat. § 30.12 (prohibits deposit of material on beds of navigable waters without a permit); Minn. R. 6115.0200 subpart 5(2) (2011) (redeposition of excavated sediments permitted only if in public interest).

I. Limit Addition of Phosphate in Public Water Systems

Where levels of lead or copper exceed certain action levels, federal Safe Drinking Water Act regulations require public drinking water systems to implement an approved corrosion control treatment.[442] Although addition of phosphate-based agents is a common corrosion control treatment, it is not the only viable corrosion control treatment. **We recommend that OEPA, for public water systems in the Lake Erie basin, limit approval of addition of phosphate-based agents as a corrosion control treatment to situations where no other optimal corrosion control treatment is practicable.**

J. Attain Final Approval of Ohio's Coastal Nonpoint Pollution Control Program

The 1990 Coastal Zone Act Reauthorization Amendments (CZARA) to the Coastal Zone Management Act (CZMA) require a state to develop an approved Coastal Nonpoint Pollution Control Program (CNPCP) in order to stay eligible for federal CZMA grants.[443] Ohio's CNPCP was conditionally approved by USEPA and NOAA in 2002, but no final approval has been made. Failure to obtain final approval of Ohio's CNPCP risks loss of federal funding for efforts to control nonpoint source pollution to Lake Erie, including phosphorus.[444] **We recommend that ODNR take the necessary steps to secure federal CZMA funding to combat nonpoint source pollution by attaining final approval of Ohio's CNPCP.**

K. Prioritize Grant Funding

Multiple federal and state programs provide financial incentives to promote voluntary practices to reduce phosphorus runoff from nonpoint sources. Examples include the Agricultural Pollution Abatement Program under ORC chapter 1511; Clean Water Act § 319 program; Coastal Nonpoint Pollution Control Program under the CZMA; and USDA programs such as EQIP and CREP. Although increased funding for these programs would be desirable, governmental budget constraints make it unlikely that more grant dollars will be available in the foreseeable future. **We recommend that OEPA, ODNR, ODA and local agencies prioritize for grant funding those projects that will have the biggest phosphorus loading reduction bang for the buck.**

This white paper was partially funded by a grant from the National Sea Grant Law Center. For more information about legal tools and best practices for reducing HABs in Lake Erie, see http://law.utoledo.edu/ligl/habs.

[442] *See supra* Part II.C.2.
[443] *See* 16 U.S.C. § 1455(d)(16).
[444] *See supra* Part II.B.2.