

Maintaining a Healthy Water Supply While Growing a Healthy Food Supply: Legal Tools for Cleaning Up Agricultural Water Pollution

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I. Introduction

Although agriculture is one of the most significant and pernicious causes of water pollution in the U.S., federal environmental laws designed to protect water resources exclude or exempt most agricultural activities. State efforts to address water quality impacts from agriculture have met with little success. The challenge of finding a way to reduce agricultural water pollution without causing severe economic harm to farmers is one of the greatest environmental challenges of our time.

Large scale industrialized agriculture, with its heavy reliance on fertilizer, pesticide and water inputs, is a major contributor to water pollution. Agricultural practices can cause serious adverse impacts to the quality of both groundwater and surfacewater. Rain or irrigation water that falls on farm fields, picks up water soluble pesticides such as atrazine and nutrients such as nitrites found in fertilizers, causing them to leach into groundwater. Rain and irrigation water that is not absorbed into the soil runs off of agricultural fields carrying with it a variety of pollutants which ultimately end up in surface water bodies. Run-off from farm fields frequently contains high levels of sediments from soil erosion from tilled fields, pesticides and fertilizers. Pesticides that enter waterbodies can adversely impact aquatic life. Nutrients from fertilizers can cause waterbodies to be hyper-eutrophied, which can severely impact submersed plants and aquatic animals. Run-off of sediments from soil erosion due to tilling can clog streams and fill in shallow areas in water bodies, thereby reducing habitat and light availability to submersed plants. A report by the National Water Quality Inventory identified agricultural nonpoint source (NPS) pollution as “the leading source of water quality impacts on surveyed rivers and lakes, the second largest source of impairments to wetlands, and a major contributor to contamination of surveyed estuaries and ground water.”

The federal Clean Water Act (CWA), the primary federal authority for addressing water pollution, has been largely successful at reducing water pollution from point sources such as wastewater treatment plants and industrial discharges through the National Pollutant Discharge Elimination System (NPDES). A major shortcoming of the NPDES program, however is that it does not apply to NPS discharges, including most agricultural runoff. Although most pollutant discharges to waterbodies from agriculture are not subject to NPDES regulation, the federal CWA does require states to establish water quality standards and total maximum daily loads (TMDLs) that can be used by the states to address agricultural water pollution through regulatory or non-regulatory mechanisms. A TMDL tells you how much of

a particular pollutant a particular water body can assimilate without a violation of a water quality standard. Thus, the establishment of TMDL's is an important step in ensuring that state water quality standards are met. The greatest challenge, however, is the allocation of TMDLs among all point and nonpoint source dischargers, and the implementation of the TMDLs. For point source discharges, TMDLs are allocated and implemented through the NPDES permit program and may require pollution reductions beyond what would be required using only technology-based standards. For nonpoint sources such as agricultural, the allocation and implementation of TMDLs is much more daunting.

II. Environmental Harms of Agricultural Run-Off

Sediment, fertilizer, and pesticide runoff from farmed fields are major contributors to water quality problems.¹ Rain-induced sediment runoff from agricultural fields decreases water clarity in receiving waters, while the fertilizers, pesticides, and heavy metals attached to the transported soil particulate create contaminated algal blooms, and deplete oxygen levels in the nearby lakes, rivers, wetlands, and receiving waters.² Natural and manmade contaminants often attach to sediment runoff in-route, only further contaminating the receiving waters (e.g., rivers, lakes, wetlands, coastal waters, ground waters).³

In addition to the farm field runoff concerns, other agriculture activities—including animal feeding operations, aquaculture, and wetland conversion/agricultural development—also contribute to agriculturally related NPS pollution.⁴ According to EPA, the agricultural activities primarily responsible for NPS pollution are “poorly located or managed animal feeding operations; overgrazing; plowing too often or at the wrong time; and improper, excessive or poorly timed application of pesticides, irrigation water and fertilizer.”⁵

A wide range of normal agricultural practices contribute to water quality degradation. When land is cleared, tilled, or plowed for planting, the bare disturbed land is vulnerable to wind or rainfall driven erosion.⁶ Sediments from the erosions are washed off by rain or carried off by wind and eventually find their way into water bodies.⁷ One of the most

¹ J.B. Ruhl, *Farms, Their Environmental Harms, and Environmental Law*, 27 *ECOLOGY L.Q.* 263, 284-85 (2000).

² *Id.*

³ EPA, *What is Nonpoint Source Pollution?*, <http://water.epa.gov/polwaste/nps/whatis.cfm> (last visited July 29, 2012).

⁴ EPA, *Agriculture*, <http://water.epa.gov/polwaste/nps/agriculture.cfm> (last visited July 29, 2012). *See also* EPA, *2000 National Water Quality Inventory*, http://water.epa.gov/lawsregs/guidance/cwa/305b/2000report_index.cfm (last visited July 29, 2012).

⁵ *Id.*

⁶ Ruhl, *supra* note 1, at 277-78.

⁷ *Id.* at 278.

significant agricultural contributors to water quality problems is the use of fertilizers.⁸ Fertilizers are comprised of nutrients, primarily nitrogen and phosphorous, which are needed for plant growth.⁹ Just as fertilizers can result in rapid and hardy crop plant growth, they also can cause rapid and hardy algal growth in water bodies.¹⁰ Thus when fertilizers are applied to land and subsequently carried out in stormwater sheet flows into water bodies, they can cause the high nutrient levels in the water bodies, which ultimately can result in excessive algal growth, or what is known as eutrophication.¹¹ Eutrophication in water bodies can have a number of significant consequences: oxygen depletion, loss of cold/deeper water fish and other animals, algal blooms and a shift in algal species to toxin-producing cyanobacteria, increases in low-oxygen tolerant “trash” fish, loss of shallow water vegetation through shading and other effects,¹² taste and odor problems, and loss of aesthetic and recreational value.¹³ Fertilizers also can end up in groundwater where they can contaminate drinking water wells.¹⁴ Another significant water quality impact from agriculture is a result of the aerial or land-based application of pesticides, which are carried by stormwater runoff into water bodies. Many agricultural pesticides are harmful to aquatic life.

Finally, agriculture can impact water bodies when agricultural activities take place in the water bodies (including wetlands) themselves. Central to the ongoing NPS pollution problem is the continual degradation of the nation’s wetlands, which provide vital water quality protection by operating as a natural filter for pollutants.¹⁵ Over the course of the last four centuries, land management and development have converted over half of the United States’ wetlands to other uses (including agriculture).¹⁶ Although the conversion

⁸ *Id.* at 284.

⁹ *Id.*

¹⁰ *Id.* at 285.

¹¹ See EPA, *Water: Nutrients*,

<http://water.epa.gov/scitech/swguidance/standards/criteria/nutrients/problem.cfm#eutrophication> (last visited July 29, 2011).

¹² S.R. Carpenter et al., *Nonpoint Pollution of Surface Waters with Phosphorus and Nitrogen*, 8 *ECOLOGICAL APPLICATIONS* 559-61 (1998).

¹³ See EPA, AN URGENT CALL TO ACTION: REPORT OF THE STATE-EPA NUTRIENT INNOVATIONS TASK GROUP (2009), available at http://water.epa.gov/scitech/swguidance/standards/criteria/nutrients/upload/2009_08_27_criteria_nutrient_nitreport.pdf. See also EPA, HYPOXIA IN THE NORTHERN GULF OF MEXICO: AN UPDATE BY EPA SCIENCE ADVISORY BOARD, DOC. NO. EPA-SAB-08-003, (2007), available at <http://yosemite.epa.gov/sab/sabproduct.nsf/95eac6037dbec075852573a00075f732/c3d2f27094e03f90852573b800601d93!OpenDocument>; Donna M. Schiffer, *Hydrology of Central Florida Lakes—A Primer*, U.S. Geological Survey Circular 1137, 1998, available at http://www.sjrwmd.com/minimumflowsandlevels/pdfs/USGS_hydrology_centfla_lakes.pdf.

¹⁴ Erik Lichtenberg & Lisa K. Shapiro, *Agriculture and Nitrate Concentrations in Maryland Community Water System Wells*, 26 *J. ENVTL. QUALITY* 145, 145-47 (1997).

¹⁵ EPA, THREATS TO WETLANDS (2001), EPA 843-F-01-002D, available at <http://www.epa.gov/owow/wetlands/pdf/threats.pdf>.

¹⁶ *Id.*

of wetlands for agricultural use has slowed in recent decades, many remaining wetlands are, in large part, continually degraded by NPS pollution.¹⁷ As a direct result of NPS pollution, wetlands are less able to provide water quality protection, filtration, and floodwater storage, and also become less suitable as fish and wildlife habitat.¹⁸

III. The Clean Water Act

The origin of today's CWA dates back to the middle of the 20th century. In 1948, Congress enacted the Federal Water Pollution Control Act (FWPCA)¹⁹ as the first major U.S. law to address water pollution.²⁰ For several decades, this law primarily provided technical and financial support to states to help address water pollution. It was not until the late 1960s, when water pollution concerns became a central focus of the environmental movement, that efforts were made to amend the Act to contain more aggressive measures to reduce water pollution. In 1972, Congress adopted extensive amendments in the 1972 Federal Water Pollution Control Act, which for the first time established a comprehensive water pollution regulatory program.²¹ In 1977, Congress further amended the FWPCA, leading to what is commonly referred to today as the Clean Water Act.²² With a stated objective "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters,"²³ the CWA is the primary federal regulatory authority for addressing water pollution. Significant amendments to the CWA were adopted in 1987, but the basic structure of the regulatory programs from the 1972 Act remains intact.²⁴

a. The National Pollutant Discharge Elimination System Permitting Program

The primary regulatory program under the CWA for addressing water pollution is the National Pollutant Discharge Elimination (NPDES) permit program, which is found in CWA section 402.²⁵ Section 301 of the CWA explicitly prohibits "the discharge of any pollutant" to navigable waters from point sources unless the discharge is in accordance with an NPDES permit under section 402.²⁶ In other words, an NPDES permit is required

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ Water Pollution Control Act of 1948, Pub. L. No. 80-845, 62 Stat. 1155.

²⁰ EPA, *History of the Clean Water Act*, <http://www.epa.gov/lawsregs/laws/cwahistory.html> (last visited July 29, 2012).

²¹ Federal Water Pollution Control Act Amendments of 1972, Pub. L. No. 92-500, 86 Stat. 816.

²² Clean Water Act of 1977, Pub. L. 95-217, 91 Stat. 1566; EPA Region 6, *Clean Water Act*, <http://www.epa.gov/region6/gen/w/cwa.htm>.

²³ 33 U.S.C. §1251(a).

²⁴ Water Quality Act of 1987, Pub. L. 100-4, 101 Stat. 7. See EPA, *Clean Water Act*, <http://www.epa.gov/agriculture/lcwa.html> (last visited July 29, 2012).

²⁵ 33 U.S.C. §1342.

²⁶ *Id.* §1311(a).

for (1) any discharge (2) of a pollutant (3) from a point source (4) into navigable waters. The interpretation of each step in this four-part test for determining when an NPDES permit is required has been the subject of debate and litigation. Of particular significance to agricultural discharges are the issues of what types of discharges are considered to be point source discharges, what constitutes a pollutant, and what the reach of federal jurisdiction is (i.e., what are considered navigable waters).

1. Point Source Discharges versus Nonpoint Source Discharges

Whether a discharge is considered a point source is of major concern because NPDES permits are required only for point sources; nonpoint sources are not regulated at the federal level. Many agricultural discharges do not fall within the definition of point sources and thus are outside of the jurisdiction of the NPDES permitting program. The CWA defines the term "point source" as:

[A]ny discernable, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. *This term does not include agricultural stormwater discharges and return flows from irrigated agriculture (emphasis added).*²⁷

Congress clearly intended to exclude normal agricultural runoff from permitting requirements by explicitly excluding agricultural stormwater discharges and irrigation return flows from the definition of point source.²⁸ According to EPA, "nonpoint source" is understood to mean "any source of water pollution that does not meet the legal definition of 'point source' in section 502(14) of the Clean Water Act."²⁹ Thus, any source that is not a point source is a "nonpoint source."

In contrast to regulatory controls over point source pollution (through the NPDES permit program), the CWA does not require any regulatory control of nonpoint source discharges. NPS pollution is often addressed by the states through nonregulatory means. CWA section 208 calls for states to adopt "areawide waste management plans," which can include state controls on NPS water pollution.³⁰ However, this section does not require any form of NPS pollution control. In addition, the 1987 amendments to the CWA established the section 319 Nonpoint Source Management Program, which looked to curb NPS pollution by requiring states to prepare NPS state assessment reports, and to

²⁷ *Id.* §1362(14).

²⁸ *Id.*

²⁹ *What is Nonpoint Source Pollution?*, *supra* note 3.

³⁰ Clean Water Act §208, 33 U.S.C. §1288.

establish state management programs.³¹ Unfortunately, measures to reduce NPS pollution, primarily recommending best-management practices, have proven largely unsuccessful at scaling back widespread NPS pollution.³²

In 1987, Congress amended the CWA to include certain stormwater discharges in the NPDES permit program. However, Congress once again chose to continue to exclude agricultural stormwater runoff from the definition of point source.³³ Consequently, most of the current significant quality problems with the nation's waters are caused by these unregulated nonpoint source discharges.³⁴ The two greatest contributors to NPS pollution are runoff from agriculture and runoff from urban and suburban land uses.³⁵

2. *Pollutant*

The scope of the definition of the term “pollutant” is also significant in determining whether certain agricultural practices are subject to NPDES permitting. This issue is of particular significance with regard to the application of pesticides. When rainwater picks up pesticide residues from farm fields and carries them into water bodies, it is considered a NPS discharge, which is not subject to NPDES permitting. This is not as clear, however, for pesticides applied directly to water bodies or directly adjacent to water bodies. For example, the application of pesticides to control aquatic weeds in streams, ditches, and ponds and wetlands, whether on or off the farm, can contribute to water quality degradation and harm to nontarget aquatic organisms.

Over the last ten years the CWA definition of “pollutant” has led the courts and EPA to wrestle with the issue of whether and under what circumstances EPA should require an NPDES permit for aquatic pesticides already registered and labeled under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).³⁶ The issue with regard to

³¹ See L. Allan James, *Non-Point Source Pollution and the Clean Water Act: Policy Problems and Professional Prospects*, 126 J. CONTEMP. WATER RES. & EDUC. 60, 60 (2003), available at <http://opensiuc.lib.siu.edu/jcwre/vol126/iss1/10>. Section 319 also provides for grants to states to implement management programs, which supports “a wide variety of activities including . . . technical assistance, financial assistance, education, training, technology transfer, demonstration projects, and monitoring to assess the success of specific NPS implementation projects.” EPA, *Questions and Answers on the Relationship Between the Sec. 319 Nonpoint Source Program and the Sec. 314 Clean Lakes Program*, <http://www.epa.gov/owow/NPS/Section319/qa.html> (last visited July 29, 2012); see also EPA, *Polluted Runoff (Nonpoint Source Pollution): Clean Water Act Section 319*, http://www.epa.gov/owow_keep/NPS/cwact.html#bkground (last visited July 29, 2012).

³² See James, *supra* note 31, at 60.

³³ 33 U.S.C. §1342(p)(2).

³⁴ See JACKSON B. BATTLE & MAXINE I. LIPELES, *WATER POLLUTION* 537 (3d ed. 1998).

³⁵ See *id.* at 535-36.

³⁶ For a detailed discussion of the judicial decisions and EPA's position on the issue of requiring NPDES permits for aquatic pesticide application, see Kelly C. Connelly, Case Note, *Pesticides and Permits: Clean Water Act v. Federal Insecticide, Fungicide and Rodenticide Act*, 8 GREAT PLAINS NAT. RESOURCES J. 35 (2003) and Paul Herran, Case Note, *Headwaters, Inc. v. Talent Irrigation District: Application of Aquatic*

NPDES permitting is whether applying a pesticide to water bodies to exert their pesticidal effect in the water body constitutes a discharge of a pollutant. CWA section 502 defines “pollutant” as:

dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, *chemical wastes*, *biological materials*, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water (emphasis added).³⁷

This issue is whether a pesticide applied to a water body for a particular purpose (i.e., to control aquatic weeds) is considered to be a chemical waste. The issue of whether the pesticide is a waste is important, because for biological pollutants, Congress chose to use the term “biological materials” rather than “biological wastes.” Thus it must be assumed that Congress made a conscious decision to use the word “waste” when referring to chemicals and “materials” when referring to biological matter. The first example of the difficulties both EPA and the courts have faced in understanding the intersection of the CWA definition of “pollutant” and FIFRA is the decision in 2001 by the Ninth Circuit Court of Appeals in *Headwaters, Inc. v. Talent Irrigation District*. In *Talent* the Ninth Circuit addressed the issue of whether the application of aquatic pesticides to irrigation canals in compliance with the requirements of FIFRA still required an NPDES permit under the CWA section 402 program.³⁸ The court interpreted the term “chemical waste” in the CWA to include aquatic pesticide residues. Accordingly, the court held that the aquatic pesticide residues were a pollutant subject to the NPDES permitting program.³⁹ The court did not, however, address the issue of whether FIFRA-compliant pesticides leaving no chemical residue in the water similarly qualified as a chemical waste and therefore a pollutant subject to NPDES permitting.⁴⁰ In 2005 the Ninth Circuit addressed this issue in *Fairhurst v. Hager*, in which the court ruled that FIFRA-compliant pesticides producing no residue were not chemical wastes and therefore not pollutants subject to the NPDES permit program.⁴¹

The *Talent* and *Fairhurst* cases created significant confusion and controversy. As a factual matter, it was unclear how an aquatic pesticide could leave no residue whatsoever. As a practical matter, if all or virtually all applications of aquatic pesticides fell under NPDES, thousands of farmers and local, state, and federal agencies would have the

Pesticides to Irrigation Canals, a Discharge, Which Requires a Clean Water Act Permit?, 25 HAW. L. REV. 629 (2003).

³⁷ Clean Water Act §502, 33 U.S.C. §1362(6).

³⁸ 243 F.3d 526 (9th Cir. 2001).

³⁹ *Id.* at 532-33.

⁴⁰ See *NPDES Permits Required to Spray Aquatic Pesticides*, MARTEN LAW, <http://www.martenlaw.com/newsletter/20090123-npdes-aquatic-pesticides> (last visited July 29, 2012).

⁴¹ 422 F.3d 1146, 1152 (9th Cir. 2005).

burden of obtaining permits every time they applied an aquatic pesticide, and EPA and state agencies would have the burden of issuing the permits.⁴² In 2006, EPA, through rulemaking, attempted to clarify and codify its pre-*Talent* view that FIFRA-compliant aquatic pesticides were not CWA pollutants, and did not require an NPDES permit.⁴³ Under the rule, EPA construed FIFRA-compliant aquatic pesticides as “products that EPA has evaluated and registered for the purpose of controlling target organisms . . . designed, purchased, and applied to perform that purpose” to justify that such pesticides were not chemical wastes within the CWA definition of pollutant.⁴⁴ The rule also provided that FIFRA-compliant aquatic pesticides were also not biological materials within the CWA definition of pollutant, to prevent an inconsistency between biological and chemical pesticide regulation pursuant to the CWA definition of pollutant.⁴⁵

In 2007 environmental and industry groups initiated a judicial challenge to the rule. In 2009 the Sixth Circuit Court of Appeals in *National Cotton Council, et al v. EPA* vacated EPA’s rule, finding that it was not a reasonable interpretation of the CWA.⁴⁶ The court concluded that NPDES permits were required for all biological and chemical pesticide applications leaving a residue in, over, or near waters of the United States, regardless of whether the pesticides were applied in compliance with FIFRA.⁴⁷ The court looked to the plain meaning of the word “waste,” and found that the term “chemical wastes” included “excess chemicals.”⁴⁸ Although the Sixth Circuit agreed with the Ninth Circuit’s analysis in the *Fairhurst* case that FIFRA-compliant aquatic pesticides leaving no residue were not a chemical waste, the Sixth Circuit also ruled that excess pesticide and pesticide residue could be pollutants under the CWA.⁴⁹ As to biological pesticides, the Sixth Circuit concluded that such pesticides and associated residues, when discharged into water, were subject to the NPDES permitting program as biological materials within the definition of pollutants.⁵⁰ The court observed that the NPDES requirement applies in situations where pesticides are applied on land near water bodies and their residues subsequently are carried into jurisdictional waters, as well as in situations where pesticides are directly applied to water bodies.

⁴² Claudia Copeland, *Pesticide Use and Water Quality: Are the Laws Complementary or in Conflict?*, Congressional Research Service Reports, Paper 9, Jan. 1, 2007, available at <http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1028&context=crsdocs>.

⁴³ EPA, *Background Information on EPA’s Pesticide General Permit*, http://cfpub.epa.gov/npdes/home.cfm?program_id=414#decision (last visited July 29, 2012).

⁴⁴ EPA Pesticide Rule, 71 Fed. Reg. 68,486 (Nov. 27, 2006).

⁴⁵ *Id.*

⁴⁶ 553 F.3d 927, 940 (6th Cir. 2009).

⁴⁷ *Id.* at 940.

⁴⁸ *Id.* at 938.

⁴⁹ *Id.* at 936.

⁵⁰ *Id.* at 937-38.

EPA estimated that the *National Cotton* decision to vacate the 2006 rule would subject approximately 365,000 pesticide applicators that perform 5.6 million pesticide applications annually to NPDES permitting requirements.⁵¹ Accordingly, EPA sought a two-year stay of the issuance of the court's mandate in order to provide time to develop, propose, and issue a final NPDES general permit for pesticide applications and to conduct outreach and education to the regulated community.⁵² On June 8, 2009, the Sixth Circuit granted the two-year stay of the mandate, delaying the effective date of the court's ruling until April 9, 2011.⁵³

On June 2, 2010, EPA issued a proposed pesticide general permit (PGP), which seeks to bring pesticides within the boundaries of the NPDES permit program.⁵⁴ The PGP, as proposed, authorizes certain specified discharges of pesticides to waters of the United States. However, pesticide applications not covered by the PGP would still be required to obtain an individual NPDES permit, unless covered by an alternative NPDES general permit. The PGP would cover discharges to waters of the United States from the application of biological pesticides and chemical pesticides that leave a residue.⁵⁵ The use patterns covered by the PGP include mosquito and other flying insect control, aquatic weed control, and forest canopy pest control.⁵⁶ As proposed, the PGP would not cover discharge of pesticides or their degradates to waters already impaired by these specific pesticides or degradates or discharges to outstanding national resource waters. On October 31, 2011, EPA issued the final NPDES pesticide general permit.⁵⁷ Interestingly, a pending Congressional bill, H.R. 872, looks to codify and reinstate EPA's pre-*National Cotton* view that FIFRA-compliant aquatic pesticides should be exempt from the NPDES permit program.⁵⁸

3. Navigable Waters

⁵¹ EPA Pesticide Rule, *supra* note 44.

⁵² Respondent United States Environmental Protection Agency's Motion for Stay of Mandate, National Cotton Council, et al. v. EPA, Case No. 06-4630, Doc. 00615475372, filed Apr. 9, 2009, U.S. Sixth Circuit Court of Appeals.

⁵³ Order Granting Respondent United States Environmental Protection Agency's Motion for Stay of Mandate, National Cotton Council, et al. v. EPA, Case No. 06-4630, Doc. 00615559373, filed June 9, 2009, U.S. Sixth Circuit Court of Appeals.

⁵⁴ See also Meline MacCurdy, *EPA Releases Draft General Permit for Pesticide Applications*, MARTEN LAW, June 16, 2010, available at <http://www.martenlaw.com/newsletter/20100616-pesticide-applications-draft-permit>.

⁵⁵ *Id.*

⁵⁶ *Id.*

⁵⁷ 76 Fed. Reg. 68750 (October 31, 2011).

⁵⁸ H.R. 872: Reducing Regulatory Burdens Act of 2011, <http://www.govtrack.us/congress/bills/112/hr872>. See Ashlie Rodriguez, *Pesticide Spraying Near Streams to Expand Under Congressional Bill*, L.A. TIMES, June 21, 2011, available at <http://latimesblogs.latimes.com/greenspace/2011/06/house-bill-senate-agriculture-committee-pesticide-clean-water-act-epa.html>.

In addition to the point source and pollutant elements of the test to determine whether an NPDES permit is required for a particular discharge, the discharge must be to a water body within the jurisdictional reach of the CWA. The CWA defines the term “discharge of a pollutant” to mean any addition of any pollutant into navigable waters from any point source.⁵⁹ The term “navigable waters” is defined as the “waters of the United States, including the territorial seas.”⁶⁰ Due to Congress’s failure to include specific definitions or guidance regarding exactly what waters are meant to be considered navigable waters or waters of the United States, there has been much debate about how far the jurisdiction of the CWA extends. This is particularly true with regard to waters that are not clearly “navigable in fact”—i.e., waters such as wetlands, streams, and tributaries that cannot be navigated by boats,. Historically, the regulatory agencies responsible for implementing the CWA—EPA and the U.S. Army Corps of Engineers (the Corps)—have interpreted the term “waters of the United States” very broadly to include not only navigable-in-fact waters, but also to include, among other things, all interstate waters and “[a]ll other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce.”⁶¹ This broad interpretation of the statute has been subject to a number of legal challenges.

The seminal decision upholding a broad interpretation of the term “navigable waters” is the 1985 Supreme Court case *Riverside Bayview Homes*.⁶² In that case, the Court, citing *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.*,⁶³ articulated that EPA’s interpretation of the CWA was entitled to deference provided it was reasonable. Consequently, the Court held that the Corps’ interpretation of the term “waters of the U.S.” as including “adjacent wetlands” was reasonable. After this decision, EPA and the Corps continued to assert broad jurisdiction under the CWA, even in some cases over wetlands without an obvious physical connection or proximity to navigable-in-fact waters. For example, in 1986, EPA and the Corps adopted what is commonly referred to as the “migratory bird rule,”⁶⁴ which asserted federal jurisdiction over isolated *and*

⁵⁹ 33 U.S.C. §1362 (12).

⁶⁰ 33 U.S.C. §1362 (7).

⁶¹ 33 C.F.R. §328.3(a)(3).

⁶² *United States v. Riverside Bayview Homes, Inc.*, 474 U.S. 121 (1985).

⁶³ *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.* (1984). The Chevron case established a two-part test for judicial review of an agency’s interpretation of a statute it is charged with implementing or enforcing. Part requires that the court look to see if Congress has directly spoken to the precise question at issues. If the answer is yes, the court must give effect to Congress’ unambiguously expressed intent and may not engage in any further analysis. If Congress has not directly spoken to an issue, either because the statute is silent on that issue or because the language of the statute is ambiguous, the court must defer to the agency interpretation provided that interpretation is a permissible construction of the statute. The court is not free to impose its own interpretation.

⁶⁴ Migratory Bird Rule, 51 Fed. Reg. 41,216 (Nov. 13, 1986).

intrastate wetlands pursuant to the CWA, provided the wetlands served as a habitat for migratory birds.⁶⁵ In 2001 the Supreme Court, in *Solid Waste Agency of Northern Cook County (SWANCC) v. U.S. Army Corps of Engineers*,⁶⁶ rejected this broad interpretation and struck down the migratory bird rule as exceeding the scope of jurisdiction under the CWA.⁶⁷ The *SWANCC* Court declined to expand the CWA's definition of "navigable waters" to include "isolated ponds, some only seasonal, . . . [just] because they serve as habitat for migratory birds."⁶⁸ In rejecting the broad interpretation of CWA jurisdiction, the Court emphasized the "independent significance" of the term "navigable,"⁶⁹ stating that "[t]he term 'navigable' has at least the import of showing us what Congress had in mind as its authority for enacting the CWA: its traditional jurisdiction over *waters that were or had been navigable in fact or which could reasonably be so made*" (emphasis added).⁷⁰ The Court further stated that "Congress intended that the [CWA's] jurisdiction be limited to navigable waters and non-navigable waters that have a 'significant nexus' to navigable waters, such as wetlands adjacent to navigable waters"⁷¹

The most recent Supreme Court case addressing the proper interpretation of "navigable waters" was the 2006 case of *Rapanos v. United States*,⁷² in which the Court granted certiorari on the question of whether the CWA's jurisdiction extends to wetlands that are adjacent to tributaries of navigable-in-fact water bodies.⁷³ A majority of the court could not agree on the proper interpretation of CWA jurisdiction, and the case resulted in a 4-1-4 vote. The four dissenting justices would have upheld the Corps' broad exercise of jurisdiction over the wetlands at issue, finding that the interpretation should be afforded *Chevron* deference.⁷⁴ The four justices joining in the plurality opinion, as well as Justice Kennedy, who wrote his own concurring opinion, concluded, however, that the case should be remanded for "proper" evaluation of whether the wetlands at issue are "waters of the United States."⁷⁵ The plurality and Justice Kennedy provided different reasoning for reaching that conclusion. They set forth a two-part test for determining whether the wetlands are subject to CWA jurisdiction: (1) the channel adjacent must be a relatively permanent body of water connected to traditional interstate navigable waters; and (2) the

⁶⁵ *Id.*

⁶⁶ 531 U.S. 159 (2001).

⁶⁷ *Id.* at 171-72.

⁶⁸ *Id.*

⁶⁹ *Id.* at 172 (quoting Transcript of Oral Argument at 28, *Solid Waste Agency of N. Cook County (SWANCC) v. U.S. Army Corps of Eng'rs*, 531 U.S. 159 (2001) (No. 99-1178)).

⁷⁰ *Id.* at 172 (emphasis added).

⁷¹ Bradford C. Mank, *The Murky Future of the Clean Water Act After Swancc: Using A Hydrological Connection Approach to Saving the Clean Water Act*, 30 *ECOLOGY L.Q.* 811, 813 (2003) (quoting *SWANCC*, 531 U.S. at 167).

⁷² 547 U.S. 715 (2006).

⁷³ *Id.* at 740.

⁷⁴ *Id.* at 788 (Stevens, J., dissenting).

⁷⁵ *Id.* at 724, 757, 759 (Kennedy, J., concurring).

wetland adjacent to the channel must have a continuous surface connection with that water, making it difficult to determine where the water ends and the wetland begins.⁷⁶

Justice Kennedy, in his concurring opinion, set forth a different test. He concluded that the proper evaluation of whether wetlands are waters of the United States depends on whether there is a “significant nexus” with traditional navigable waters.⁷⁷ Justice Kennedy explained that in his view, a significant nexus includes ability to affect “the chemical, physical, and biological integrity” of the traditional navigable water.⁷⁸ He also stated that adjacent wetlands do not necessarily need a direct surface water connection and that the term “adjacent wetlands” does not necessarily extend to wetlands adjacent to tributaries.⁷⁹ Instead, he asserted, such determinations must be made on a case-by-case basis.⁸⁰

Since the *Rapanos* decision there has been considerable confusion about whether the plurality test or Justice Kennedy’s test governs and, if Justice Kennedy’s test governs, how the case-by-case determinations of jurisdiction should be made. In 2007, in an attempt to clear up some of the confusion, the Corps and EPA issued a guidance document stating that the agencies believe that because there was no majority opinion in *Rapanos*, CWA jurisdiction over a water body exists if either the plurality’s or Justice Kennedy’s standard is met.⁸¹ The agencies indicated that they would consider waters to fall within CWA jurisdiction if the waters would be considered jurisdictional under the reasoning of a majority, meaning five or more, of the justices.⁸² Accordingly, in the view of the agencies, CWA jurisdiction exists in any of the following situations: (1) under the reasoning of *Riverside Bayview* for traditional navigable waters and their adjacent wetlands;⁸³ (2) under the *Rapanos* plurality test, for relatively permanent nonnavigable tributaries of traditional navigable waters and adjacent wetlands that have a continuous surface connection to relatively permanent nonnavigable tributaries; and (3) under the *Rapanos* Kennedy concurrence on a case-by-case basis under the significant nexus standard.⁸⁴ The courts have also struggled with this issue, with some finding that CWA

⁷⁶ *Id.* at 732-42.

⁷⁷ *Id.* at 779 (Kennedy, J., concurring).

⁷⁸ *Id.*

⁷⁹ *Id.* at 784-85 (Kennedy, J., concurring).

⁸⁰ *Id.*

⁸¹ EPA & ACOE, *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States and Carabell v. United States*, EPA, June 5, 2007, available at <http://www.epa.gov/owow/wetlands/pdf/RapanosGuidance6507.pdf>.

⁸² *Id.*

⁸³ Adjacency does not require a continuous surface connection between the wetland and traditional navigable water.

⁸⁴ EPA & ACOE, *supra* note 81.

exists only where the Kennedy test has been met, and others finding jurisdiction where either the Kennedy or plurality test has been met.⁸⁵

In 2011, EPA and the Corps released the “Draft Guidance on Identifying Waters Protected by the Clean Water Act”⁸⁶ to clarify how the agencies will interpret CWA jurisdiction in light of *Riverside Bayview*, *SWANCC*, and *Rapanos*.⁸⁷ In the document, the agencies explain that they:

continue to believe, as expressed in previous guidance, that it is most consistent with the *Rapanos* decision to assert jurisdiction over waters that satisfy either the plurality or the Justice Kennedy standard, since a majority of justices would support jurisdiction under either standard. However, after careful review of these opinions, the agencies concluded that previous guidance did not make full use of the authority provided by the CWA to include waters within the scope of the Act, as interpreted by the Court. This draft guidance provides a more complete discussion of the agencies’ interpretation, including of how waters with a “significant nexus” to traditional navigable waters or interstate waters are protected by the CWA. In addition, this guidance explains the legal basis for coverage of waters by the CWA in cases that were not addressed by the previous guidance (for example, interstate waters).⁸⁸

Because most agricultural discharges are considered to be NPS and thus do not require NPDES permits, the reach of CWA jurisdiction is not generally an important issue when considering agricultural water pollution. However, as described in more detail below, the reach of CWA jurisdiction becomes very significant for agricultural discharges, such as those from concentrated animal feeding operations (CAFOs) that do require NPDES permits and for certain agricultural activities that require CWA section 404 permits for discharge of dredged or fill material to wetlands.

⁸⁵ See, e.g., *United States v. Gerke*, 464 F.3d 723 (7th Cir. Sept. 22, 2006) (explaining the import of the various opinions in the *Rapanos* case and the likelihood of their significance in future cases). For a summary of CWA jurisdiction including the lower court cases decided since *Rapanos*, see Mark A. Chertok, *Federal Regulation of Wetlands*, SS042 ALI-ABA 965 (2011).

⁸⁶ EPA, *Draft Guidance on Identifying Waters Protected by the Clean Water Act*, http://www.epa.gov/indian/pdf/wous_guidance_4-2011.pdf. See also EPA and Army Corps of Engineers Guidance Regarding Identification of Waters Protected by the Clean Water Act, 76 Fed. Reg. 24,479-02 (May 2, 2011).

⁸⁷ *Draft Guidance on Identifying Waters Protected by the Clean Water Act*, *supra* note 86.

⁸⁸ *Id.*

b. Standards for Effluent Limitations and Water Quality

Once it is determined that an NPDES permit is required for a particular discharge, permits must contain limitations that both comply with specified technology-based standards and assure compliance with state water-quality standards. The NPDES permitting agency, either EPA or a state to which EPA has delegated the authority to implement the program, must ensure that permitted discharges meet both types of standards.⁸⁹ Technology-based standards are established on an industry-wide basis to ensure that polluters are treating discharges to the extent feasible.⁹⁰ There are different types of technology-based standards that apply with varying levels of stringency and differences in the extent to which economic considerations are taken into account. The technology-based standard that applies to a particular discharge will depend on a number of factors, including the type of pollutants being discharged and whether the source is considered a new source or whether it existed prior to the implementation of the CWA.

1. Water Quality Standards

Water quality standards are generally established by a state for each water body within its jurisdiction. Water quality standards are comprised of (1) determination of designated use; (2) water quality criteria; and (3) antidegradation standards.⁹¹ Each state determines the designated use of each water body within the state.⁹² For example, states may determine that a particular water body should be designated for drinking water, for shellfish harvesting, for fishing and swimming, for agricultural use, or for industrial use. Then, numerical, or in some cases narrative, criteria are established for particular pollutants to protect such uses.⁹³ In theory, all NPDES permits must ensure that these water quality criteria are met and the designated uses are protected. Water quality standards were intended to serve as a backstop to technology-based standards as a means of protecting designated uses in situations where technology-based standards were not sufficient to protect a designated use of a particular water body.⁹⁴

⁸⁹ Ruhl, *supra* note 1, at 294. *See also* 33 U.S.C. §§1311-17, 1342.

⁹⁰ Three different technology-based standards exist under the CWA. The applicable technology is determined based on the type of pollutant discharged and whether the discharging source is new or existing. BATTLE & LIPELES, *supra* note 34, at 167. “Best available technology” is the technology-based standard applied to existing sources of nonconventional and toxic pollutants. 33 U.S.C. §1311(b)(2)(A). “Best conventional technology” is applied to existing sources of conventional pollutants. *Id.* “Best available demonstrated control technology” is the technology-based standard applied to new sources of water pollutants. *See* 33 U.S.C. §1316(a)(1); *see also* BP Exploration & Oil, Inc. v. EPA, 66 F.3d 784, 789-90 (6th Cir. 1995) (explaining the different standards EPA uses to control pollutants under the CWA). For an extensive overview of water law, *see* BATTLE & LIPELES, *supra* note 34.

⁹¹ BATTLE & LIPELES, *supra* note 34, at 182.

⁹² *See id.* at 182-83.

⁹³ *See id.* at 183-84.

⁹⁴ *See id.* at 181-82.

2. Total Maximum Daily Loads

An important, but until fairly recently long-ignored, standard for implementing water quality standards is the total maximum daily load (TMDL).⁹⁵ The CWA defines a TMDL as the sum of allocated loads of pollutants set at a level necessary to implement the applicable water quality standards, including waste-load allocations from point sources, load allocations from nonpoint sources, and natural background conditions.⁹⁶ The CWA further provides that a TMDL must contain a margin of safety and a consideration of “seasonal variations.”⁹⁷ In other words, a TMDL can be described as the amount of a particular pollutant that a particular water body can assimilate without resulting in a violation of a water quality standard.

Once TMDLs are established by states and approved by EPA, the next challenge is the allocation of TMDLs among all point and nonpoint source dischargers, and the implementation of the TMDLs. For point source discharges, TMDLs are allocated and implemented through the NPDES permit program and may require pollution reductions beyond what would be required using only technology-based standards.⁹⁸ For nonpoint sources,⁹⁹ which include agricultural runoff as well as urban and suburban runoff, and which are not addressed by the NPDES permit program, the allocation and implementation of TMDLs is much more challenging. In most places it is likely that a multifaceted, watershed-based approach will be needed. Components of such an approach would most likely have to include, among other things, some or all of the following pollution reduction approaches: state regulation of urban, suburban, and agricultural runoff; adoption of best management practices to reduce pollutant loadings in stormwater and agricultural discharges; retrofitting existing urban areas to treat stormwater; land acquisition programs to protect riparian areas that provide the function of filtering pollutants from runoff; wetland and water body restoration programs; and public education.¹⁰⁰ To meet TMDLs in areas with significant agriculture, a variety of regulatory and nonregulatory mechanisms will need to be imposed. These could include voluntary, incentive-based, or mandatory best-management practices, state permitting programs to limit agricultural discharges, farmer education and technical support, and preservation of riparian vegetated buffers along water bodies running through or near agricultural lands.

⁹⁵ For an historical perspective on TMDLs, see OLIVER HOUCK, *CLEAN WATER ACT TMDL PROGRAM: LAW, POLICY, AND IMPLEMENTATION* (2002).

⁹⁶ See 33 U.S.C. §1313(d)(1)(C); see also Ruhl, *supra* note 1, at 300-05 (discussing TMDLs).

⁹⁷ 33 U.S.C. §1313(d)(1)(C).

⁹⁸ See BATTLES & LIPELES, *supra* note 34, at 184.

⁹⁹ The term “nonpoint source” is defined to mean any source of water pollution that does not meet the legal definition of “point source” as defined in section 502(14) of the Clean Water Act. See *What is Nonpoint Source Pollution?*, *supra* note 3.

¹⁰⁰ See Oliver A. Houck, *TMDLs III: A New Framework for the Clean Water Act's Ambient Standards Program*, 28 ENVTL. L. REP. NEWS & ANALYSIS 10415, 10423 (1998).

c. Animal Feeding Operations (AFOs) and/ Concentrated Animal Feeding Operation (CAFOs)

Animal Feeding Operations (AFOs) are a major component of the problems associated with addressing agricultural runoff. In general, AFOs are agricultural operations involving the farming of animals in confined situations or small land areas, where feed is brought to the animals in lieu of pasture grazing.¹⁰¹ By definition, an AFO is “a lot or facility (other than an aquatic animal production facility)” that (1) confines and feeds animals for 45 or more days per year, and (2) does not have sustained vegetation during the growing season over any portion of the facility.¹⁰² In contrast to most agricultural runoff, AFOs are not always exempt from the NPDES permit program. Specifically, EPA designates certain AFOs as “concentrated” Animal Feeding Operations (CAFOs), which allows for potential NPDES regulation, as CAFOs are expressly listed within the definition of “point source” in the CWA.¹⁰³

As recognized by EPA, CAFO-generated manure and wastewater have the potential to contribute “pollutants, such as nitrogen and phosphorus, organic matter, sediments, pathogens, heavy metals, hormones and ammonia, to the environment.”¹⁰⁴ Accordingly, such CAFO discharges (e.g., manure, litter, or process wastewater) do not qualify for an agricultural stormwater discharge exemption to point source regulation.¹⁰⁵ As regulated by EPA, an AFO becomes a CAFO based upon the actual number and type of animals at the operation.¹⁰⁶

EPA, or an authorized state authority, also reserves the right to “designate any AFO as a CAFO upon determining that [the AFO] is a significant contributor of pollutants to waters of the United States.”¹⁰⁷ Of the approximately 450,000 AFOs in the U.S,¹⁰⁸ over

¹⁰¹ 40 C.F.R. §122.23(b); EPA, *National Pollutant Discharge Elimination System (NPDES): Animal Feeding Operations*, http://cfpub.epa.gov/npdes/home.cfm?program_id=7 (last visited July 29, 2012).

¹⁰² See 40 C.F.R. §122.23(b).

¹⁰³ 33 U.S.C. §1362(14); 40 C.F.R. §401.11(d).

¹⁰⁴ EPA, *Region 7 Concentrated Animal Feeding Operations (CAFOs): How Do CAFOs Impact the Environment*, http://www.epa.gov/region7/water/cafo/cafo_impact_environment.htm (last visited July 29, 2012).

¹⁰⁵ 40 C.F.R. §122.23(e); EPA, *Implementation Guidance on CAFO Regulations—CAFOs That Discharge or Are Proposing to Discharge*, 1-2 (2010), EPA-833-R-10-006, available at http://www.epa.gov/npdes/pubs/cafo_implementation_guidance.pdf.

¹⁰⁶ 40 C.F.R. §122.23. For a brief summary of how EPA regulates CAFOs by size, see EPA, *Regulatory Definitions of Large CAFOs, Medium CAFOs, and Small CAFOs*, http://www.epa.gov/npdes/pubs/sector_table.pdf.

¹⁰⁷ 40 C.F.R. §122.23(c).

¹⁰⁸ EPA, *Agriculture: Animal Feeding Operations*, <http://www.epa.gov/agriculture/anafoidx.html> (last visited July 29, 2012).

20,000 are considered to be CAFOs.¹⁰⁹ AFOs falling outside of the NPDES permit program (i.e., non-CAFOs) may still be regulated by state programs.¹¹⁰

The Natural Resources Conservation Service (NRCS) of the U.S. Department of Agriculture (USDA) and EPA encourage both AFO and CAFO owners and operators to take voluntary actions to minimize impacts.¹¹¹ Conservation plans known as comprehensive nutrient management plans (CNMPs) are required for CAFOs and encouraged for AFOs, and are designed to help provide AFO operators with a plan to control soil erosion and eliminate polluted runoff by managing manure and organic by-products through conservation practices and management activities.¹¹²

In 2003, EPA revised the CWA regulations for CAFOs by expanding the number of CAFOs needing NPDES permits to operate in compliance with the statute, and by adding requirements to the land application of manure by CAFOs.¹¹³ Following legal challenges to the rule, the Second Circuit Court of Appeals in 2005 issued *Waterkeeper Alliance v. EPA*,¹¹⁴ which directed EPA to (1) lift the requirement that all CAFOs apply for NPDES permits, and to (2) require nutrient management plans (NMPs) for CAFO permit applications.¹¹⁵ In response to the *Waterkeeper* decision, EPA issued a 2008 rule that now requires only discharging CAFOs, as well as CAFOs proposing to discharge, to apply for NPDES permits.¹¹⁶ Specifically, the 2008 rule calls upon the CAFO owner or operator to decide whether the CAFO does or will discharge from its production area or land application area.¹¹⁷ According to EPA, this case-by-case analysis is to be “based on an objective assessment of the CAFO’s design, construction, operation, and maintenance.”¹¹⁸

Another substantive change in the 2008 rule is that it adds new NMP requirements for permitted CAFOs.¹¹⁹ In addition to the requirement for CAFOs to develop and

¹⁰⁹ EPA, *Civil Enforcement: CWA National Enforcement Initiatives*, <http://www.epa.gov/oecaerth/civil/cwa/cwaenfpriority.html> (last visited July 29, 2012).

¹¹⁰ EPA, Agricultural Counselor Office of the Administrator, *Summary of Major Existing EPA Laws and Programs That Could Affect Agricultural Producers*, June 2007, at 5, available at <http://www.epa.gov/agriculture/agmatrix.pdf>.

¹¹¹ NRCS, *Animal Feeding Operations (AFO) and Confined Animal Feeding Operations (CAFO)*, http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/programs/?&cid=nrcsdev11_000330 (last visited July 29, 2012).

¹¹² *Id.*

¹¹³ EPA, *Concentrated Animal Feeding Operations Final Rulemaking—Fact Sheet*, http://www.epa.gov/npdes/pubs/cafo_final_rule2008_fs.pdf. [hereinafter *CAFO Fact Sheet*].

¹¹⁴ 399 F.3d 486 (2d Cir. 2005).

¹¹⁵ *CAFO Fact Sheet*, *supra* note 113, at 1.

¹¹⁶ *Id.*

¹¹⁷ *Id.*

¹¹⁸ *Id.*

¹¹⁹ *Id.*

implement NMPs under the 2003 rule, the 2008 rule requires them to submit NMPs with the NPDES permit application so that such NMPs become enforceable elements of the permit (for both individual and general permits).¹²⁰ The application review also allows an opportunity for public review and comment on the proposed plans.¹²¹ In assessing the 2008 rule's impacts to CAFOs and the environment, EPA claims that the rule effects only minor changes in the administrative burden for discharging CAFOs, and preserves the beneficial environmental benefits of the 2003 rule by leaving the technical requirements for discharging CAFOs intact.¹²²

Several agricultural interests challenged EPA's 2008 rule, and on March 15, 2011 the Fifth Circuit Court of Appeals issued *National Pork Producers Council v. EPA*, granting the agricultural interests' petitions in part, denying them in part, and dismissing them in part.¹²³ Of greatest significance, the court held that EPA had authority to impose the duty to apply for NPDES permits on CAFOs that were discharging pollutants, but lacked the authority to issue a regulation requiring CAFOs that merely proposed to discharge pollutants to apply for an NPDES permit. In response to the decision in *National Pork Producers Council*, on July 30, 2012, EPA promulgated a final rule amending its regulations to eliminate the requirements that and owner or operator of a CAFO "proposing to discharge" must apply for an NPDES permit.¹²⁴

IV. Conclusion

The Clean Water Act provides a comprehensive regulatory scheme for many discharges of pollutants to waters of the United States. Through the primarily regulatory NPDES permitting program, significant improvements have been made to the quality of the country's water bodies. However, the NPDES permitting program only applies to point sources discharges, thus most agricultural discharges are not subject to permitting or other federal regulatory control. Nonpoint sources, including those from agriculture, remain the most significant water quality challenge facing the nation.¹²⁵ Moreover, the CWA's exemption from section 404 permitting for normal farming practices continues to allow many wetlands to be degraded by agricultural activities.

Because the CWA does not provide direct federal authority for regulating many agricultural sources of water pollution and wetlands degradation, the responsibility for

¹²⁰ *Id.* at 1-2.

¹²¹ *Id.* at 2.

¹²² *Id.*

¹²³ 635 F.3d 738 (2011).

¹²⁴ National Pollutant Discharge Elimination System Permit Regulation for Concentrated Animal Feeding operations: Removal of Vacated Elements in Response to 2011 Court Decision, 77 Fed. Reg. 44494 (July 30, 2012).

¹²⁵ See Ruhl, *supra* note 1, at 288 (stating that nonpoint source pollution is the most significant form of pollution affecting water bodies in 33 states).

addressing water quality degradation from agricultural activities has fallen largely to the states. To date, most programs designed to address agricultural water pollution have been voluntary or incentive-based programs designed to encourage farmers to implement best-management practices. These programs have been only minimally successful, and agricultural pollution continues to be one of the most significant sources of water quality degradation in the United States, meaning that there is a need for a more comprehensive regulatory system to address the water impacts of farming.