

Pesticides as “Pollutants” Under the Clean Water Act

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I. INTRODUCTION

Climate change and shifting weather patterns affect the development and distribution of insects and other pests.¹ Public agencies as well as private parties, such as farmers and ranchers, commonly use chemical and biological pesticides to combat the spread and entrenchment of these nuisances.² Given the ubiquitous use of pesticides, it is not surprising that pesticide regulation involves important issues of law and public policy.

Aquatic pesticide control often includes broadcast spraying of chemicals or biological materials to kill targeted pests in, near, or over waterbodies or wetlands.³ Public health officials, for example, use this approach to prevent or to respond to mosquitos carrying West Nile virus and other disease-bearing pests.⁴ Pesticide spraying is also used to combat numerous other types of invasive species that threaten valuable natural resources.

Chemicals are the main component of most aquatic pesticides.⁵ Pesticides inevitably reach beyond their immediate target, and this spillover affects the surrounding environment. For example, pesticides used to control mosquitos typically are applied to breeding habitat areas as an ultra-low-volume spray, either by truck-mounted equipment or from fixed-wing or rotary aircraft. Thermal fog applications are also used in some areas. Barrier treatments, which may be applied as high volume liquids with handheld spray equipment using compounds with residual characteristics, also are common in some U.S. locations.⁶

1. Throughout this Article, the term “pest” broadly includes any insect, rodent, nematode, fungus, weed, or other form of aquatic or terrestrial plant.

2. The term “pesticide” broadly includes any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, as well as any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant.

3. Aquatic pesticide use is distinguishable from terrestrial pesticide use. As a practical matter, however, the application of pesticides to land may affect nearby waterbodies through runoff.

4. See, e.g., County of San Diego, West Nile Virus, <http://www.sdcounty.ca.gov/deh/pests/wnv.html> (last visited Mar. 14, 2010).

5. MARVIN J. LEVINE, PESTICIDES: A TOXIC TIME BOMB IN OUR MIDST 14 (2007).

6. According to the Centers for Disease Control and Prevention, materials labeled for mosquito larviciding include:

[T]he organophosphate temephos (Abate); several biological larvicides such as *Bacillus thuringiensis israelensis* (*Bti*, a bacterial larvicide), *Bacillus sphaericus*; methoprene, an insect growth regulator (e.g., Altosid); several larvicidal oils (e.g., petroleum-based Golden Bear and mineral-based Bonide) and monomolecular surface films (e.g., Agnique, Arosurf); and in some limited habitats diflubenzuron (e.g., Dimilin, a chitin synthesis inhibitor).

In *Altman v. Town of Amherst*, the Second Circuit pressed the U.S. Environmental Protection Agency (EPA) to clarify its legal position on the regulation of aquatic pesticides.⁷ On November 27, 2006, the EPA responded by issuing its final aquatic pesticide rule.⁸ It superseded the EPA’s previously published Interim and Final Interpretative Statements.⁹ In formulating the rule, the EPA considered a wide range of comments from interested parties, including pesticide manufacturers and applicators, public health control agencies, state agricultural and environmental

CTRS. FOR DISEASE CONTROL & PREVENTION, EPIDEMIC/EPIZOOTIC WEST NILE VIRUS IN THE UNITED STATES: GUIDELINES FOR SURVEILLANCE, PREVENTION, AND CONTROL 30 (2003), <http://www.cdc.gov/ncidod/dvbid/westnile/resources/wnv-guidelines-aug-2003.pdf>. “Adulticides labeled for mosquito control include several organophosphates such as malathion and naled. Some natural pyrethrins and synthetic pyrethroids (permethrin, resmethrin and sumithrin) also hold adulticide labels.” *Id.* at 31.

7. *Altman v. Town of Amherst*, 47 F. App’x 62, 67 (2d Cir. 2002) (“Until the EPA articulates a clear interpretation of current law—among other things, whether properly used pesticides released into or over waters of the United States can trigger the requirement for NPDES permits (i.e., an SPDES permit in Amherst)—the question of whether properly used pesticides can become pollutants that violate the CWA will remain open.”).

8. Application of Pesticides to Waters of the United States in Compliance with FIFRA, 71 Fed. Reg. 68,483 (Nov. 27, 2006) (to be codified at 40 C.F.R. pt. 122). This pesticide rule was scheduled to become effective on January 26, 2007. *Id.* at 69,622 (Dec. 1, 2006). Under 40 C.F.R. § 122.3(h), the following do not require an NPDES:

The application of pesticides consistent with all relevant requirements under FIFRA (i.e., those relevant to protecting water quality), in the following two circumstances:

- (1) The application of pesticides directly to waters of the United States in order to control pests. Examples of such applications include applications to control mosquito larvae, aquatic weeds, or other pests that are present in waters of the United States.
- (2) The application of pesticides to control pests that are present over waters of the United States, including near such waters, where a portion of the pesticides will unavoidably be deposited to waters of the United States in order to target the pests effectively; for example, when insecticides are aerially applied to a forest canopy where waters of the United States may be present below the canopy or when pesticides are applied over or near water for control of adult mosquitoes or other pests.

40 C.F.R. § 122.3(h) (2009). The action was rulemaking under the Federal Administrative Procedure Act. 5 U.S.C. § 553 (2006).

9. Interim Statement and Guidance on Application of Pesticides to Waters of the United States in Compliance with FIFRA, 68 Fed. Reg. 48,385 (proposed Aug. 13, 2003); Application of Pesticides to Waters of the United States in Compliance with FIFRA, 70 Fed. Reg. 5093 (proposed Feb. 1, 2003).

agencies, environmental groups, human health advocates, farming interests, and other members of the public.¹⁰

The final rule provided that the National Pollutant Discharge Elimination System (NPDES) permit program¹¹ of the Federal Clean Water Act (CWA)¹² did not apply to chemical or biological pesticides applied to, over, or near waters of the United States so long as the pesticide application complied with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).¹³ The EPA administers both the CWA and FIFRA.¹⁴

The rule came under widespread legal attack by both industry and environmental groups. Environmental groups argued that the exemption violated the CWA requirements on the discharge of pollutants as well as the Administrative Procedure Act, which prohibits agency action that is arbitrary, capricious, or an abuse of discretion.¹⁵ Industry groups complained that the rule was too prohibitive and overreaching.

Legal challenges to the final rule were filed by interested parties in the D.C., First, Second, Third, Fourth, Fifth, Sixth, Seventh, Eighth, Ninth, and Tenth Circuits.¹⁶ In 2007, a multidistrict litigation panel consolidated the challenges in the Sixth Circuit in *National Cotton Council of America v. EPA*.¹⁷ The decision is nationally important to regulators, the pesticide industry, and environmentalists.

10. Application of Pesticides to Waters of the United States in Compliance with FIFRA, 71 Fed. Reg. at 68,487.

11. 33 U.S.C. § 1342 (2006).

12. *Id.* §§ 1251–1387.

13. See Application of Pesticides to Waters of the United States in Compliance with FIFRA, 71 Fed. Reg. at 68,485–86; see also Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. §§ 136–136y (2006). The EPA advanced a similar exemption argument in *Washington Toxics Coalition v. EPA*, 413 F.3d 1024, 1032–33 (9th Cir. 2005), which found that compliance with FIFRA did not exempt the EPA from complying with the consultation provisions of section 7(a)(2) of the Endangered Species Act with respect to the use of streamside pesticides.

14. The EPA's aquatic pesticide rule does not prevent a state from using its independent authority to limit the use of a particular pesticide to address local water quality issues, so long as the exercise does not conflict with federal law.

15. 5 U.S.C. § 706(2)(A) (2006).

16. See Karen M. Hansen & Ami M. Grace-Tardy, *Diminishing Deference: How and Why the Courts Are Increasingly Declining To Defer to EPA NPDES Decisions and Policies*, 2 E. WATER L. & POL'Y REP. 55, 58 (2007); see also Larry Pearl, *Groups File Competing Lawsuits Challenging EPA Pesticide Rule*, PESTICIDE & TOXIC CHEMICAL NEWS, Dec. 18, 2006, reprinted in PESTICIDE REP., Feb. 2007, at 5, 5–6, available at <http://pested.okstate.edu/pestrep/feb07pr.pdf>. The lawsuits were filed under the administrative procedure and judicial review provision of the CWA. 33 U.S.C. § 1369(b)(1).

17. 553 F.3d 927 (6th Cir. 2009).

In January 2009, a three-judge panel from the Sixth Circuit vacated the EPA’s final rule.¹⁸ Six months later, in June 2009, the court granted the EPA a two-year stay of its mandate to give the EPA the chance to go back to the regulatory drawing board.¹⁹ During the stay, the EPA plans to issue a general NPDES permit consistent with the court’s decision.²⁰

As a practical matter, the decision means that the regulated community will be required to apply for general permit coverage when it becomes available, and to comply with the permit’s monitoring and discharge provisions. During the stay, the EPA plans to assist those states authorized to administer the NPDES program in developing their NPDES permits and in providing outreach and education to the regulated community.²¹ Regulators, environmental interest groups, and the regulated community will be closely following the EPA’s response to the court’s decision. Given the environmental stakes and the court’s flawed reasoning, additional legal challenges are apt to follow.

In reaching its decision, the Sixth Circuit focused on the language of the CWA that regulates “any addition of any pollutant to navigable

18. *Id.* at 940.

19. *See* U.S. EPA, National Pollutant Discharge Elimination System (NPDES), Court Grants EPA 2-Year Stay (June 12, 2009), http://cfpub1.epa.gov/npdes/home.cfm?program_id=41#stay.

20. *Id.* California’s general permit for aquatic pesticides, which was suspended pending the outcome in *National Cotton Council*, may influence the EPA. *See* STATE WATER RES. CONTROL BD., FACT SHEET: WATER QUALITY ORDER NO. 2004-0008-DWQ (2004), *available at* http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0008.pdf (vector control); STATE WATER RES. CONTROL BD., FACT SHEET: WATER QUALITY ORDER NO. 2004-0009-DWQ (2004), *available at* http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0009.pdf (aquatic weed control). In January 2007, the chief counsel to the State Water Resources Control Board advised:

The State Water Board should maintain the permits pending any final judicial actions on the regulation. The State Water Board should forego taking any formal action to rescind the permits, but publicize the regulation and allow any dischargers who wish to, to file a notice of termination. This would immediately allow dischargers to terminate coverage, along with the obligation to conduct monitoring, pay fees, etc. Dischargers should also be informed that there is a legal challenge to the regulation.

Memorandum from Michael A.M. Lauffer, Chief Counsel, Office of Chief Counsel, State Water Res. Control Bd., to Tom Howard, Acting Executive Dir., State Water Res. Control Bd. 5 (Jan. 2, 2007), *available at* http://www.waterboards.ca.gov/water_issues/programs/npdes/docs/aquatic/memorandum.pdf.

21. U.S. EPA, National Pollutant Discharge Elimination System (NPDES), *supra* note 19.

waters from any point source.”²² Under the CWA, the discharge of “any” pollutant to navigable waters is prohibited unless it complies with the NPDES permit provisions of the statute.²³

The CWA defines the term “pollutant” to include, among other categories, “chemical wastes” as well as “biological materials.”²⁴ Although pesticides are not specifically identified, the term pollutant has been broadly construed by some federal courts to include “all foreign substances” not expressly exempted from coverage.²⁵

Congress intentionally defined the term pollutant broadly so as to avoid litigation over whether the discharges of particular materials are subject to NPDES requirements. Congress’s intent is revealed in the following:

For the first time, the Committee would add to the law a definition of the term pollutant. In order to trigger the control requirements over addition of materials to the navigable water, waters of the contiguous zone, and the ocean, it is necessary to define such materials so that litigable issues are avoided over the question of whether the addition of a particular material is subject to control requirements.²⁶

The intent to expansively define the term pollutant is further evidenced by the fact that the CWA contains two specific exemptions within the definition itself, one for “sewage from vessels” and the other for materials associated with the secondary recovery of oil or gas production.²⁷ Neither exemption from the definition of a pollutant includes pesticides.

According to the EPA’s final rule, those chemical pesticides applied in compliance with the “relevant requirements” of FIFRA should not be considered pollutants on the theory they are beneficial products and therefore do not fit within the category of chemical wastes.²⁸ Biological pesticides, the EPA reasoned, also should not be treated as pollutants because they do not fit within the category of biological materials.²⁹ If

22. *Nat’l Cotton Council*, 553 F.3d at 939 (quoting 33 U.S.C. § 1362(12)(A) (2006)).

23. 33 U.S.C. § 1342(a) (2006).

24. *Id.* § 1362(6).

25. *See, e.g.*, *United States v. Hamel*, 551 F.2d 107, 110 n.4 (6th Cir. 1977) (citing *United States v. Pa. Chem. Corp.*, 411 U.S. 655, 671 (1973)).

26. S. REP. NO. 92-414, at 76 (1971), *as reprinted in* 1972 U.S.C.C.A.N. 3668, 3742.

27. 33 U.S.C. § 1362(6).

28. *Application of Pesticides to Waters of the United States in Compliance with FIFRA*, 71 Fed. Reg. 68,483, 68,486 (Nov. 27, 2006) (to be codified at 40 C.F.R. pt. 122). A FIFRA labeling requirement governing application rates or dilution requirements is related to water quality, whereas the FIFRA requirement that the person mixing the pesticide wear protective clothing, while a violation, is not related to water quality. *Id.*

29. *Id.*

chemical pesticides are not pollutants, the EPA reasoned, biological pesticides should not be considered pollutants.³⁰ In its view, the two categories should be treated similarly. The EPA maintained that, as directed by Congress, it was simply interpreting the meaning of the term pollutant, and that the final rule did not violate the CWA by impermissibly exempting from regulation congressionally established categories of discharge.³¹ But others disagreed with this conclusion.

The core of the legal dispute in *National Cotton Council* was whether the term pollutant, as used by Congress in the CWA, includes chemical and biological pesticides when they are applied to waters of the United States, including wetlands.³² Although the Sixth Circuit vacated the EPA’s final rule, the important point of disagreement for purposes of this Article is the court’s position that the CWA does not apply to *all* chemical pesticides.³³ The Sixth Circuit’s conclusion is too narrow an interpretation of the law.

All aquatic chemical pesticides arguably result in “waste” because they inexorably reach beyond the intended target. This spillover effect to the environment at the time of application constitutes waste. In addition, all chemical pesticides arguably fit within the broad statutory meaning of pollutant because they necessarily change the chemical, physical, and biological integrity of the waterbody.³⁴ Impacting the aquatic environment in this manner is consistent with the view that the chemical pesticide constitutes the discharge of a pollutant.

The view that all chemical pesticides are subject to NPDES regulation is buttressed by the policy underlying the CWA. Regulating all of the chemical pesticides that enter this nation’s waters is critical to protecting water quality, which is the purpose of the CWA.³⁵ The NPDES program is potentially the only federal regulatory program for controlling, monitoring, and tracking the actual use of chemical pesticides. The intended

30. *Id.*

31. *Id.* at 68,488.

32. *See Rapanos v. United States*, 547 U.S. 715, 742 (2006). The Court in *Rapanos* was split 4–1–4. Because no one opinion commanded a majority, the corrected application of the decision is in doubt. *See, e.g., United States v. Robison*, 505 F.3d 1208, 1216–20 (11th Cir. 2007).

33. *See Nat’l Cotton Council of Am. v. EPA*, 553 F.3d 927, 936 (6th Cir. 2009).

34. *See supra* notes 24–27 and accompanying text.

35. 33 U.S.C. § 1251(a) (2006).

beneficial purpose of eradicating or controlling pests does not obviate the critical need to track the pesticides that enter this nation's waters.

II. A PERSPECTIVE ON THE ENVIRONMENT AND PESTICIDES

For the first time in the history of the world, every human being is now subjected to contact with dangerous chemicals They have been recovered from most of the major river systems and even from streams of groundwater flowing unseen through the earth. . . . They have entered and lodged in the bodies of fish, birds, reptiles, and domestic and wild animals so universally that scientists carrying on animal experiments find it almost impossible to locate subjects free from such contamination.³⁶

Broadly construed, a pesticide is any agent that is used to kill or control pests.³⁷ Numerous types of pesticides exist, including insecticides, herbicides, rodenticides, fungicides, nematocides, acaricides, fumigants, and plant growth regulators. Broad spectrum pesticides are toxic to a wide variety of species and organisms, whereas selective pesticides are directed at a narrowly defined group of pests. Notwithstanding this system of classification, all types of pesticides impact the environment.

Convincing evidence exists that climate change affects the distribution as well as the toxicity of chemical pollutants in the environment.³⁸ Biotransformation of organic pollutants both directly and indirectly affects humans. Increased water temperature can alter the biotransformation of pesticides into more bioactive metabolites.³⁹ Studies have shown a positive link between pesticide contamination and storm water runoff.⁴⁰ One study, for example, describes a fivefold increase in pesticide water contamination during extreme rainfall events.⁴¹

36. RACHEL CARSON, *SILENT SPRING* 15–16 (1962).

37. The FIFRA defines the term pesticide as “(1) any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, (2) any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant, and (3) any nitrogen stabilizer” with the exception of a “new animal drug.” 7 U.S.C. § 136(u) (2006).

38. See generally Pamela D. Noyes et al., *The Toxicology of Climate Change: Environmental Contaminants in a Warming World*, 35 ENV'T INT'L 971 (2009) (reviewing the scientific literature for data regarding the effects of climate change on the distribution and toxicity of chemical pollutants).

39. See Robie Macdonald et al., *Contaminant Amplification in the Environment*, 36 ENVTL. SCI. & TECH. 456A (2002).

40. Erica D. Chiovarou & Thomas C. Siewicki, *Comparison of Storm Intensity and Application Timing on Modeled Transport and Fate of Six Contaminants*, 389 SCI. TOTAL ENV'T 87, 99 (2008).

41. B. Burgoa & R.D. Wauchope, *Pesticides in Run-Off and Surface Waters*, in ENVIRONMENTAL BEHAVIOUR OF AGROCHEMICALS 221, 240–46 (T.R. Roberts & P.C. Kearney eds., 1995).

Common chemical pesticides include polychlorinated biphenyls (PCBs), polychlorinated dibenzo-p-dioxins (PCDDs), polychlorinated dibenzofurans (PCDFs), and organochlorine pesticides.⁴² Concentrations of these chemicals have been detected in the serum of first-time pregnant females.⁴³ Additional studies are needed to understand the potential health consequences to the fetus from exposure to persistent organic pollutants.⁴⁴

The health risk to humans from the exposure to chemical pesticides is an important concern. A cluster of birth defects in North Carolina and Florida has been reported in the offspring of agricultural workers using pesticides.⁴⁵ Exposure to the herbicide paraquat, fungicide maneb, and organochlorine pesticides, in particularly beta-hexachlorocyclohexane, has been reported to increase the risk of the chronic motor system disorder Parkinson’s disease, especially in individuals exposed at a young age.⁴⁶ Analysis of the neurotoxic properties of these pesticide compounds focused on their ability to induce oxidative stress in neural cells, which may be more vulnerable in developing brains.⁴⁷ Freya Kamel, a National Institute of Environmental Health Sciences epidemiologist, has studied the suspected link between pesticides and Parkinson’s disease. He predicts that future studies will move toward determining how genetics affect an individual’s susceptibility to environmental toxicants.⁴⁸

Aquatic pesticides, such as 2,4-D, Acrolein, copper sulfate, and Fluridone, are intentionally applied to or near the water to destroy plants,

42. Richard Y. Wang et al., *Serum Concentrations of Selected Persistent Organic Pollutants in a Sample of Pregnant Females and Changes in Their Concentrations During Gestation*, 117 ENVTL. HEALTH PERSP. 1244, 1244 (2009).

43. *Id.* at 1245–46, 1247 tbl.4.

44. *Id.* at 1249.

45. Geoffrey M. Calvert & Sheila A. Higgins, *Using Surveillance Data To Promote Occupational Health and Safety Policies and Practice at the State Level: A Case Study*, AM. J. INDUS. MED., May 28, 2009, at 2–3.

46. *See generally* Jason R. Richardson et al., *Elevated Serum Pesticide Levels and Risk of Parkinson Disease*, 66 ARCHIVES NEUROLOGY 870 (2009); *see also* Cynthia Washam, *Pesticides: Double Exposure Heightens Parkinson Disease Risk*, 117 ENVTL. HEALTH PERSP. A295, A295 (2009).

47. Miguel A. Ortiz-Ortiz et al., *Curcumin Enhances Paraquat-Induced Apoptosis of N27 Mesencephalic Cells via the Generation of Reactive Oxygen Species*, NEURO TOXICOLOGY, Aug. 4, 2009, at 2, 7, 9.

48. Washam, *supra* note 46, at A295.

insects, undesired fish, and other designated pests.⁴⁹ In order to reach a critical concentration, pesticides commonly are applied over broad areas even though the target pest may not be present throughout. Thus, a notable feature of this type of application, which differs in degree but not in effect from other regulated pollutants, is their pervasive impact on nontarget organisms and the natural environment. Not surprisingly, ubiquitous spillover effects from pesticides are common.⁵⁰

Pesticides clearly have beneficial uses, such as controlling mosquito larvae. But not surprisingly, pesticides are intended, at a minimum, to be toxic to the intended target. Ideally, the pesticide is toxic only so long as it is necessary to produce the desired result at which time the pesticide is intended to degrade into nontoxic byproducts. But scientists know that pesticide disappearance does not match reality. In fact, pesticide residues have been described by some as “the world’s foremost pollution problem.”⁵¹

The general dangers from pesticides have been known for some time. In 1962, Rachel Carson sent shockwaves of awareness through the American consciousness with the publication of her book *Silent Spring*.⁵² She demonstrated how pesticides can have unexpected impacts on humans and the environment. In her chapter “Rivers of Death,” for example, Carson examined the threat to the waters of this nation from pesticides.⁵³

The environmental alarm bell that Carson rang decades ago continues to ring today.⁵⁴ Pesticides are known to have long-lasting as well as

49. See generally GEOFFREY S. SIEMERING ET AL., S.F. ESTUARY INST., AQUATIC PESTICIDE MONITORING PROGRAM FINAL REPORT 1–5 (2005), available at http://www.sfei.org/apmp/reports/392_APMP_Final%20Report.pdf.

50. WILLIAM H. RODGERS, JR., ENVIRONMENTAL LAW § 5.1, at 397–98 (2d ed. 1994).

51. *Id.* at 398.

52. CARSON, *supra* note 36.

53. *Id.* at 120–40. The danger to humans from the ubiquitous use of pesticides exists. A recent UCLA study, for example, has linked pesticides in private well water to Parkinson’s disease. Nicole M. Gatto et al., *Well Water Consumption and Parkinson’s Disease in Rural California*, 117 ENVTL. HEALTH PERSP. 1912, 1916 (2009).

54. In 2009, the EPA proposed spending at least \$36 million to clean up the world’s largest deposit of the banned pesticide DDT, which is located 200 feet underwater off the California coast of the Palos Verdes Peninsula. Montrose Chemical Corporation released 110 tons of DDT and 10 tons of toxic PCBs into the sewers from 1947 through 1971. The chemicals then flowed into the ocean, which has resulted in a seventeen-square-mile deposit of pesticide-contaminated sediment. *EPA Announces Proposed Plan, PALOS VERDES SHELF SUPERFUND SITE* (U.S. EPA Region 9, S.F., Cal.), June 2009, available at <http://www.epa.gov/region09/superfund/pvshelf/pdf/pvs-proposed-plan-Jun09.pdf>.

unintended effects both on the environment and humans.⁵⁵ According to a recent U.S. Geological Survey (USGS) on pesticides in this nation’s waters, pesticides are often transformed into degradates, which are compounds “produced from the transformation of a parent pesticide or another degradate through either abiotic or biotic processes.”⁵⁶ These degradates are commonly carried to surrounding areas and cause adverse impacts to nontarget organisms and to water-related beneficial uses.

Scientific knowledge about the effects of pesticides cannot keep up with the ability of manufacturers to create new synthetic types, which contributes to the need for accurate and comprehensive *in situ* tracking and monitoring of their use. The 2005 *Aquatic Pesticide Monitoring Program Final Report*, which was conducted by the San Francisco Estuary Institute and evaluated the potential water quality impacts associated with the application of aquatic pesticides over a three-year period, notes that “risk quotient exceedances and sediment quality triad calculations indicate that significant questions remain concerning potential localized acute impacts and chronic impacts” from aquatic pesticide applications.⁵⁷

Government studies show that a large percentage of the nation’s waterways contain environmentally destructive pesticides.⁵⁸ More than one-half of the streams sampled contained pesticide concentrations

55. CTRS. FOR DISEASE CONTROL & PREVENTION, THIRD NATIONAL REPORT ON HUMAN EXPOSURE TO ENVIRONMENTAL CHEMICALS 349, 369 (2005), available at <http://www.cdc.gov/exposurereport/pdf/thirdreport.pdf> (discussing health effects of organophosphate pesticides). Another study report calls into question the ability of spray programs to actually reduce the risk and transmission of the West Nile virus. Spraying programs may be giving communities a false sense of security. The report reemphasizes the importance of personal preventative measures in lowering disease rates. Indira B. Gujral et al., *Behavioral Risks for West Nile Virus Disease, Northern Colorado, 2003*, 13 EMERGING INFECTIOUS DISEASES 419, 424 (2007).

56. ROBERT J. GILLIOM ET AL., U.S. GEOLOGICAL SURVEY, CIRCULAR 1291, PESTICIDES IN THE NATION’S STREAMS AND GROUND WATER, 1992–2001, at 146 (rev. 2007), available at <http://pubs.usgs.gov/circ/2005/1291/pdf/circ1291.pdf>. The USGS implemented the National Water-Quality Assessment Program to support national, regional, and local information needs and decisions related to water quality management and policy. USGS, National Water-Quality Assessment (NAWQA) Program, <http://water.usgs.gov/nawqa/> (last visited Mar. 14, 2010).

57. SIEMERING ET AL., *supra* note 49, at 1.

58. GILLIOM ET AL., *supra* note 56, at 8.

exceeding the EPA guidelines for the protection of aquatic life.⁵⁹ Systemic herbicides, for example, kill plant-eating insects after being absorbed from the insect's stomach after the insect eats the plant containing the poison.⁶⁰ The bioaccumulative effect of such pesticides and their migration throughout the food chain are a concern to many scientists and citizens. The spiraling quest for newer and improved pesticides due to target pest adaptation, tolerance, and resistance is the environmental equivalent of a spiraling arms race.⁶¹

Federal as well as state studies document the ubiquity and persistence of pesticides in the environment.⁶² Not surprisingly, the USGS reports that the pesticides detected most frequently in the nation's waters are those most frequently used. Pesticides, such as simazine, prometon, 2,4-D, diazinon, and carbaryl, "were frequently found at relatively high levels in urban streams throughout the Nation."⁶³ Although some pesticides have been substantially restricted during or after the study period, pesticides or their degradates continue to pollute this nation's waters.⁶⁴

The USGS has found that "major gaps in critical information" about pesticide persistence exist, which presents a serious challenge to scientists, managers, and policymakers.⁶⁵ Among other recommendations, it urges: (1) improved tracking of pesticide use; (2) assessment of pesticides not yet studied because of budget constraints and limitations of current analytical methods; (3) improved assessment and understanding of degradates; (4) study of toxicities of pesticide mixtures; and (5) improved long-term monitoring of a broader range of geographic

59. GREGORY J. FUHRER ET AL., U.S. GEOLOGICAL SURVEY, CIRCULAR 1225, THE QUALITY OF OUR NATION'S WATERS: NUTRIENTS AND PESTICIDES 3-9 (1999), available at <http://pubs.usgs.gov/circ/circ1225/pdf/index.html>.

60. John Harte et al., *Toxics A to Z: A Guide to Everyday Pollution Hazards*, in THE REGULATION OF TOXIC SUBSTANCES AND HAZARDOUS WASTES 525, 527 (John S. Applegate et al. eds., 2000).

61. One author observes that although insecticide use has increased tenfold since the 1940s, crop losses have doubled. He argues that pesticides never kill 100% of the pest population, and repeated applications produce highly resistant pest strains. LEVINE, *supra* note 5, at 6.

62. The California Department of Pesticide Regulation maintains a Surface Water Database that contains data for various environmental monitoring studies on pesticides in California waterways. It is available online. California Department of Pesticide Regulation, Surface Water Database, <http://www.cdpr.ca.gov/docs/emon/surfwtr/surfddata.htm> (last visited Mar. 14, 2010).

63. GILLIOM ET AL., *supra* note 56, at 10.

64. For example, the uses of diazinon and chlorpyrifos have been substantially restricted since 2001. Notwithstanding the fact that some organochlorine pesticides have been discontinued, their persistence continues. *Id.*

65. *Id.* at 19.

locations and pesticides.⁶⁶ This is not the time for a crabbed construction of the CWA.

III. THE FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT (FIFRA)

A basic understanding of FIFRA is useful to appreciating the broader aspects of the pesticide controversy. In 1972, Congress established FIFRA’s current statutory framework.⁶⁷ The law was changed from just protecting consumers from adulterated or improperly labeled pesticides to one governing pesticide use as well as sale and labeling.⁶⁸ Congress also added environmental safety as a factor for pesticide registration.⁶⁹

Today, FIFRA governs the labeling, distribution, sale, and use of pesticides sold in the United States.⁷⁰ Human health and the environmental concerns are considered during the uniform system of national registration.⁷¹ The manufacturer of any pesticide used to kill any pest is required to obtain registration of the product from the EPA.⁷² No person is allowed to distribute or sell any pesticide not registered in accordance with the requirements of FIFRA.⁷³ In addition, pesticide users are required to comply with the labeling conditions.⁷⁴ Civil and criminal penalties exist for violating FIFRA.⁷⁵

66. *Id.*

67. The history of FIFRA and its evolution is outlined by Linda J. Fisher et al., *A Practitioner’s Guide to the Federal Insecticide, Fungicide and Rodenticide Act: Part I*, 24 ENVTL. L. REP. 10,449, 10,451–52 (1994).

68. *Ruckelshaus v. Monsanto Co.*, 467 U.S. 986, 991–92 (1984).

69. Fisher et al., *supra* note 67, at 10,452.

70. Under 7 U.S.C. § 136v, “[a] State may regulate the sale or use of any federally registered pesticide . . . to the extent the regulation does not permit any sale or use prohibited by [FIFRA].” 7 U.S.C. § 136v (2006). However, “[s]uch State shall not impose or continue in effect any requirements for labeling or packaging in addition to or different from those required under [FIFRA].” *See Bates v. Dow Agrosiences LLC*, 544 U.S. 431, 439 (2005) (quoting earlier version of § 136v).

71. FIFRA provides that “[t]he terms ‘protect health and the environment’ and ‘protection of health and the environment’ mean protection against any unreasonable adverse effects on the environment.” 7 U.S.C. § 136(x) (2006).

72. *Id.* § 136(u) (defining “pesticide”); *id.* § 136a(a) (requiring registration of pesticides prior to sale).

73. *Id.* § 136a(a).

74. *Id.* § 136j(a)(2)(G).

75. *Id.* § 136l.

In order to register and market a pesticide product, the manufacturer must submit a proposed label and supporting data on the probable adverse effects of the product.⁷⁶ The final rule contains the following information about FIFRA data submission:

EPA requires a pesticide company to submit a substantial body of data in support of an application for registration. EPA then supplements this required database with information obtained through a systematic search of the open literature on the ecotoxicity of environmental substances. EPA compares the estimated environmental concentrations expected to result from use of a pesticide with toxicity values observed in required studies and studies from the open literature. This database provides sufficient information to conduct assessments of potential ecological and human health risks, including the identification of toxicologically significant degradation products and/or metabolites.⁷⁷

The EPA will register the pesticide if it “will perform its intended function without unreasonable adverse effects on the environment,”⁷⁸ which is defined as “any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide.”⁷⁹

The registration process combines consumer protection through truth-in-labeling with an “unreasonable-risk” balancing test that evaluates product performance and cost-benefit considerations. When the EPA registers a pesticide, it has balanced the pesticide’s benefits against its accompanying risks. But regulatory gaps exist. For example, many of the older pesticides used today and previously approved for use have not been subject to the full range of tests required for new pesticide products entering the market today.⁸⁰

76. *Id.* § 136a(c)(1)(C), (F).

77. Application of Pesticides to Waters of the United States in Compliance with FIFRA, 71 Fed. Reg. 68,483, 68,489 (Nov. 27, 2006) (to be codified at 40 C.F.R. pt. 122).

78. 7 U.S.C. § 136a(c)(5)(C) (2006); *accord id.* § 136a(c)(5)(D); *see also id.* § 136a(a) (registration requirement); *id.* § 136(bb) (defining “unreasonable adverse impacts on the environment”).

79. FIFRA provides:

The term “unreasonable adverse effects on the environment” means (1) any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide, or (2) a human dietary risk from residues that result from a use of a pesticide in or on any food inconsistent with the standard under section 346a of title 21. The Administrator shall consider the risks and benefits of public health pesticides separate from the risks and benefits of other pesticides. In weighing any regulatory action concerning a public health pesticide under this subchapter, the Administrator shall weigh any risks of the pesticide against the health risks such as the diseases transmitted by the vector to be controlled by the pesticide.

Id. § 136(bb).

80. LEVINE, *supra* note 5, at 16.

The EPA is now reviewing this shortcoming and is requiring additional testing as part of the reregistration process. Nevertheless, testing and reregistration is not expected to be completed for years.⁸¹ With respect to these older pesticides, one can confidently say that water quality is not adequately addressed by FIFRA.

A pesticide is considered “misbranded” if its label does not contain adequate instructions for its use or if the label omits the necessary warnings or cautionary statements.⁸² Manufacturers have additional obligations beyond labeling.⁸³ The EPA specifies the following with the submission of water quality data for FIFRA pesticide registration:

The Office of Pesticide Programs (OPP), working with the Office of Water, EPA regions, and state partners, developed the “OPP Standard Operating Procedure: Inclusion of Water Quality & Impaired Water Body Data in OPP’s Registration Review Risk Assessment & Management Process.” The SOP [Standard Operating Procedure] is intended to encourage submission and use of water quality data during registration review.

To ensure that such data can be used quantitatively or qualitatively in pesticide risk assessments, data should conform as much as possible to the quality standards in Appendix A of the SOP. Voluntary submission of these data to OPP for pesticide cases beginning the registration review process will insure that Clean Water Act Section 303(d) impaired waterbody listing data, and other relevant information for these and other water bodies, can be obtained and considered during the registration review process.

Data may be submitted in advance of opening a pesticide case docket or during the public comment period on the initial docket. While data may be submitted later, EPA’s ability to adequately consider late-submitted data will be limited.⁸⁴

The FIFRA registration process is not a satisfactory proxy to regulation under the CWA. FIFRA does not provide a water quality monitoring system. Thus, it fails to provide the necessary regulatory structure to ensure that local water quality standards and implementation plans, which are required expressly by the CWA, are not compromised or otherwise jeopardized.⁸⁵ Without an effective system of monitoring, the effects of the primary toxicant, the “inert” or other stabilizing chemicals, and the interaction with other pesticides and pollutants in the ambient or receiving water are unknown. For example, surfactants,

81. *Id.*

82. 7 U.S.C. § 136(q)(1)(F)–(G) (2006).

83. *Id.* § 136j(a).

84. U.S. EPA, Water Quality Data Submissions for Registration Review (June 19, 2008), http://www.epa.gov/oppsrd1/registration_review/water_quality.htm.

85. *See* 33 U.S.C. § 1313 (2006).

which may be added to a pesticide by the applicator immediately before being applied, may be of an order of magnitude more toxic than the active ingredient pesticide.⁸⁶

IV. THE CLEAN WATER ACT (CWA)

The CWA is the principal federal statute dealing with the protection of water quality.⁸⁷ Since 2000, the United States Supreme Court has grappled with eight cases involving the CWA.⁸⁸ These cases illustrate the importance of the CWA as well as the controversy surrounding its application. The *National Cotton Council* decision is simply another chapter in this continuing controversy over its application.

The objective of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”⁸⁹ One of its goals is to achieve a “water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water.”⁹⁰ The widespread use of chemical pesticides potentially threatens the realization of this national objective.

The CWA contains various regulatory programs aimed at realizing Congress’s objective. The NPDES point source (PS) program prohibits

86. SIEMERING ET AL., *supra* note 49, at 1. A surfactant is any substance that when dissolved in an aqueous solution reduces the surface tension between it and another liquid. MERRIAM-WEBSTER’S COLLEGIATE DICTIONARY 1186 (10th ed. 1997) (defining “surfactant” and “surface-active”).

87. 33 U.S.C. §§ 1251–1387 (2006). The other important statute dealing with water quality is the Safe Drinking Water Act. 42 U.S.C. §§ 300f to 300j-26 (2006). It directs the EPA to set primary and secondary maximum levels for contaminants in public drinking water systems. *Id.* § 300g-1.

88. *Entergy Corp. v. Riverkeeper, Inc.*, 129 S. Ct. 1498, 1502–03 (2009) (dealing with cooling water intake structures under section 316(b) of the CWA); *Coeur Alaska, Inc. v. Se. Alaska Conservation Council*, 129 S. Ct. 2458, 2467 (2009) (considering the regulatory relationship between sections 402 and 404 of the CWA); *S.D. Warren Co. v. Me. Bd. of Env’tl. Prot.*, 547 U.S. 370, 373 (2006) (dealing with section 401 of the CWA discharge of a pollutant to “navigable waters”); *Rapanos v. United States*, 547 U.S. 715, 731–32 (2006) (construing section 404 of the CWA requirement of “navigable waters” of section 502(7)); *S. Fla. Water Mgmt. Dist. v. Miccosukee Tribe of Indians*, 541 U.S. 95, 102–05 (2004) (construing the “addition of pollutants” requirement of section 502(12) of the CWA); *Borden Ranch P’ship v. U.S. Army Corps of Eng’rs*, 537 U.S. 99, 100 (2002) (per curiam) (addressing section 404 of the CWA discharges), *aff’g* 261 F.3d 810 (9th Cir. 2001); *Solid Waste Agency of N. Cook County v. U.S. Army Corps of Eng’rs*, 531 U.S. 159, 167 (2001) (considering the Corps’s section 404 of the CWA jurisdiction over “isolated wetlands” under the Migratory Bird Rule); *Friends of the Earth, Inc. v. Laidlaw Env’tl. Servs., Inc.*, 528 U.S. 167, 173 (2000) (interpreting the “citizen-suit” provisions of section 505 of the CWA).

89. 33 U.S.C. § 1251(a).

90. *Id.* § 1251(a)(2).

the discharge of pollutants⁹¹ into navigable waters unless authorized by a properly issued NPDES permit that specifies discharge limits and imposes affirmative obligations such as monitoring and reporting.⁹²

The NPDES program employs two water quality control strategies to regulate pollutant discharges: nationally based effluent limits⁹³ and locally based water quality standards (WQSs).⁹⁴ Water quality based effluent limitations set the amount of chemicals and other pollutants allowed in a defined receiving waterbody,⁹⁵ whereas nationally based effluent limits set the amount of chemicals and other pollutants that can be discharged from a regulated PS,⁹⁶ which includes any device used to spray or discharge the pesticide.⁹⁷

For the NPDES program to apply, the “discharge of a pollutant,” which is broadly defined as “any addition of any pollutant to navigable waters from any point source,”⁹⁸ is required.⁹⁹ When a pesticide is applied to, over, or near navigable waters, the “addition” requirement is satisfied because something is being added that otherwise would not be present.

The CWA contains several definitions important to correctly applying the law:

The term “pollutant” means 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.¹⁰⁰

91. The term “discharge of a pollutant” means the “addition of any pollutant to navigable waters from any point source.” *Id.* § 1362(12).

92. *Id.* §§ 1311, 1342. NPDES permit dischargers are required to monitor their discharges and report the results in Discharge Monitoring Reports submitted to the EPA or state agency administering the NPDES program. 40 C.F.R. § 122.41(l)(4) (2009). These reports are the backbone to many enforcement actions. *See Fairhurst v. Hagener*, 422 F.3d 1146, 1151–52 (9th Cir. 2005).

93. 33 U.S.C. § 1311.

94. *Id.* § 1313.

95. *See id.* § 1312(a).

96. *See id.* § 1311(a), (e); *see also* 40 C.F.R. § 122.2 (2009) (defining “point source”).

97. 33 U.S.C. § 1362(14) (2006). *See also League of Wilderness Defenders v. Forsgren*, 309 F.3d 1181, 1192–93 (9th Cir. 2002) (holding that the aerial spraying of pesticides required an NPDES permit).

98. 33 U.S.C. § 1362(12) (2006).

99. *See id.* § 1342.

100. *Id.* § 1362(6).

If the term pollutant was comprehensively defined by those identified categories, the legal inquiry might be limited to whether pesticides fit within either the category of chemical wastes or biological materials. But the phrase “any addition of *any* pollutant”¹⁰¹ suggests that Congress intended the term pollutant to include any contaminant affecting the natural integrity of the nation’s waters.¹⁰² This broader view of the term was the position historically taken by the EPA. For nearly thirty years prior to the adoption of the final rule, the EPA took the position that pesticides could not be discharged into “lakes, streams, ponds or public waters unless in accordance with an NPDES permit.”¹⁰³

Because pesticides are toxic, the meaning of the term “toxic pollutant” also is relevant. It is defined as:

[T]hose pollutants, or combinations of pollutants, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will, on the basis of information available to the Administrator, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring.¹⁰⁴

The focus in this definition is on the effect of the contaminant. Included within the meaning of toxic pollutant are “agents, which after discharge” will cause adverse effects to any organism.¹⁰⁵

The toxic pollutant category is intended to be dynamic and to adapt based on advances in science. For example, section 307 of the CWA, which deals with toxic and pretreatment effluent standards, provides:

On and after December 27, 1977, the list of toxic pollutants or combination of pollutants subject to this chapter shall consist of those toxic pollutants listed in table 1 of Committee Print Numbered 95-30 of the Committee on Public Works and Transportation of the House of Representatives, and the Administrator shall publish, not later than the thirtieth day after December 27, 1977, that list. From time to time thereafter, the Administrator may revise such list and the Administrator is authorized to add to or remove from such list any pollutant. The Administrator in publishing any revised list, including the addition or removal of any pollutant from such list, shall take into account toxicity of the pollutant, its persistence, degradability, the usual or potential presence of the affected organisms in any waters, the importance of the affected organisms, and the nature and extent of the effect of the toxic pollutant on such organisms. A determination of the Administrator under this paragraph shall be final except that if, on judicial

101. *Id.* § 1362(12) (defining “discharge of a pollutant”).

102. *See* S. REP. NO. 92-414 (1971), *as reprinted in* 1972 U.S.C.C.A.N. 3668, 3743.

103. U.S. EPA, Pesticide Regulation (PR) Notice 93-10, Effluent Discharge Labeling Statements (July 29, 1993) (quoting U.S. EPA’s Policy and Criteria Notice 2180.1 (June 26, 1977)), *available at* http://www.epa.gov/PR_Notices/pr93-10.pdf.

104. 33 U.S.C. § 1362(13) (2006).

105. *Id.*

review, such determination was based on arbitrary and capricious action of the Administrator, the Administrator shall make a redetermination.¹⁰⁶

The determination by the Administrator is to be based on a variety of considerations, including the toxicity of the agent, its persistence and degradability, the affected organisms in the water and their importance, and the nature and extent of the effect of the toxic pollutant on such organisms.¹⁰⁷

Two general considerations predominate in section 307.¹⁰⁸ The first—persistence and degradability—focuses on the temporal fate of the toxic agent. The second—the presence of affected organisms and the effect on them—broadly focuses on the environmental consequences of the toxic agent. In addition, this language is similar to the language, “after discharge and upon exposure, ingestion, inhalation or assimilation into any organism,” that appears in the definition of toxic pollutant.¹⁰⁹

In the 1987 amendments to the CWA, Congress directed the EPA to identify categories of sources discharging toxic pollutants that had not been previously published.¹¹⁰ It also required the development of numerical water quality criteria for toxic pollutants.¹¹¹ Congress clearly did not intend the term toxic pollutant to be static. Moreover, Congress, which focused on the adverse effect to organisms, did not require consideration be given to whether the toxic agent serves a beneficial purpose or is registered in accordance with FIFRA. These considerations apply to the analysis of chemical pesticides.

V. COMPARING FIFRA AND THE CWA

Under the CWA, discharges of pollutants are prohibited without a permit.¹¹² Neither the purpose of the discharge nor cost-benefit considerations are relevant to whether an NPDES permit is required. Under FIFRA, however, these are relevant considerations.¹¹³ The CWA mandates consideration of local WQSs, which include considerations of

106. *Id.* § 1317(a)(1).

107. *Id.*

108. *Id.*

109. *Id.* § 1362(13) (emphasis added).

110. *Id.* § 1314(m)(1)(B).

111. *Id.* § 1313(c)(2)(B).

112. *See supra* notes 91–92 and accompanying text.

113. *See supra* notes 78–80 and accompanying text.

chemical constituency,¹¹⁴ whereas FIFRA does not. Finally, complying with application labeling requirements of FIFRA¹¹⁵ does not protect against the adverse consequences to local WQSSs.

The NPDES program includes a monitoring and reporting program to ensure compliance with the law.¹¹⁶ In contrast, FIFRA, apart from providing that the user must comply with label warnings,¹¹⁷ lacks effective control mechanisms to ensure compliance. The CWA authorizes citizen suits to promote compliance,¹¹⁸ whereas FIFRA lacks a similar authorizing provision. Finally, the FIFRA registration process also does not consider the potential cumulative toxic effect of separately applied pesticides and their synergistic interaction.¹¹⁹ In short, FIFRA does not provide an adequate method of protecting local water quality.

VI. PRINCIPLES OF STATUTORY INTERPRETATION AND JUDICIAL REVIEW

The EPA administers the NPDES permitting program. Section 402(b) provides, however, that the EPA “shall approve” transfer of permitting authority to a state upon application and the showing that the state has met the specified criteria.¹²⁰ Most states are authorized to administer the NPDES program but are subject to continuing administrative oversight by the EPA.

The Federal Administrative Procedure Act (APA) sets out the grounds for the judicial review of agency action. A federal court may overturn the EPA’s final rule if it is determined to be contrary to the CWA,¹²¹ “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law,”¹²² or unconstitutional.¹²³

114. *See supra* notes 94–95 and accompanying text.

115. *See supra* notes 76, 82 and accompanying text.

116. *See supra* note 92 and accompanying text.

117. *See supra* note 74 and accompanying text.

118. 33 U.S.C. § 1365 (2006).

119. *See supra* notes 85–86 and accompanying text.

120. 33 U.S.C. § 1342(b) (2006). The following states have approved programs: Alabama; Arizona; Arkansas; California; Colorado; Connecticut; Delaware; Florida; Georgia; Hawaii; Illinois; Indiana; Iowa; Kansas; Kentucky; Louisiana; Maine; Maryland; Michigan; Minnesota; Mississippi; Missouri; Montana; Nebraska; Nevada; New Jersey; New York; North Carolina; North Dakota; Ohio; Oklahoma; Oregon; Pennsylvania; Rhode Island; South Carolina; South Dakota; Tennessee; Texas; Utah; Vermont; Virginia; Washington; West Virginia; Wisconsin; Wyoming. U.S. EPA, National Pollutant Discharge Elimination System (NPDES): State Program Status (Apr. 14, 2003), <http://cfpub2.epa.gov/npdes/statestats.cfm>.

121. 5 U.S.C. § 706(2)(C) (2006).

122. *Id.* § 706(2)(A) (2006). *See also* JAMES SALZMAN & BARTON H. THOMPSON, JR., ENVIRONMENTAL LAW AND POLICY 58 (2003).

A predominant feature of federal administrative law is judicial deference to agency decisionmaking. It is based on considerations such as judicial economy, political accountability, and agency expertise on technical matters. This principle of judicial deference is anchored in the often cited Supreme Court decision of *Chevron U.S.A., Inc. v. Natural Resources Defense Council*.¹²⁴

In *Chevron*, the Supreme Court set forth the general principles applicable to the judicial review of agency rulemaking. The first step involves the court’s determining whether Congress has clearly spoken to the issue. If it has, the court will give effect to the clearly expressed intent of Congress absent some overriding constitutional deficiency. If Congress’s intent is not clear, the second step involves the court’s determining whether the agency’s determination is a reasonable interpretation of the statute.¹²⁵

As a general matter, an agency’s interpretation is less likely to be sustained under step one than under step two. One empirical study found, for example, that agencies’ decisionmaking prevailed 42% of the time under step one and 89% of the time under step two.¹²⁶ These findings reveal that if the issue is reasonably debatable, a court is more likely to defer to the agency’s determination under step two. The larger point is that important practical consequences accompany whether a court undertakes the judicial review under step one or step two.

The methodological difficulty in applying *Chevron* may be traced to determining whether Congress has clearly spoken to the issue. The language used by Congress may be inherently ambiguous, or the ambiguity may be revealed only after consulting the various interpretations associated with the language employed, the context of the words when considered with other parts of the statute, the purpose of the statute, or Congress’s intent as expressed in the legislative history to the statute. Therefore, it is not surprising that statutory language is often the slippery slope to competing constructional arguments advanced by lawyers.

With respect to step two inquiries, courts are assisted by the application of the principle that an agency is held to a high standard of articulation.

123. 5 U.S.C. § 706(2)(B).

124. 467 U.S. 837, 843–44 (1984).

125. *Id.* at 842–43.

126. Orin S. Kerr, *Shedding Light on Chevron: An Empirical Study of the Chevron Doctrine in the U.S. Courts of Appeals*, 15 YALE J. ON REG. 1, 31 (1998).

In an early decision dealing with the application of FIFRA, Judge Leventhal emphasized this point:

We recognize that EPA's functions are difficult and demanding and are impressed by the thoughtfulness and range of EPA's general approach; nor have we any reason to doubt the wisdom and validity of its specific decisions. But the demand of functions so difficult of decision are accompanied by demands, equally difficult to meet, for attentive consideration and careful exposition. Our own responsibility as a court is as a partner in the overall administrative process—acting with restraint, but providing supervision. We cannot discharge our role adequately unless we hold EPA to a high standard of articulation. The EPA is charged with profoundly important tasks; reclamation and preservation of our environment is a national priority of the first rank. It is not an agency in the doldrums of the routine or familiar. The importance and difficulty of subject matter entail special responsibilities when the EPA undertakes to explain and defend its actions in court.¹²⁷

VII. PRE-NATIONAL COTTON COUNCIL V. EPA CASE LAW

Several courts considered the relationship between pesticides, the CWA, and FIFRA prior to *National Cotton Council*. In 2001, for example, the Ninth Circuit decided *Headwaters, Inc. v. Talent Irrigation District*.¹²⁸ In this case, the Talent Irrigation District applied an acutely toxic herbicide, Magnacide H, to an irrigation canal to control weeds and vegetation. Due to a leaking irrigation gate, the herbicide was released into a nearby creek where it caused an unintended fish kill of 92,000 juvenile steelhead.¹²⁹

A nonprofit group brought a citizen suit under the CWA arguing that the irrigation district had discharged a pollutant without an NPDES permit. The court agreed. It found that the herbicide was a “pollutant” within the meaning of the CWA, and thus an NPDES permit was required.¹³⁰ It reasoned:

The active ingredient in Magnacide H is acrolein, a toxic chemical that is lethal to fish at a concentration at and below the level required to kill weeds in the irrigation canals, and which takes at least several days to break down into a nontoxic state. Although it would seem absurd to conclude that a toxic chemical directly poured into water is not a pollutant, we need not decide that issue because we agree with the district court that the residual acrolein left in the water after its application qualifies as a chemical waste product and thus as a “pollutant” under the CWA.¹³¹

127. *Envtl. Def. Fund v. EPA*, 465 F.2d 528, 540–41 (D.C. Cir. 1972) (footnote omitted) (citation omitted).

128. 243 F.3d 526 (9th Cir. 2001).

129. *Id.* at 528.

130. *Id.* at 532–34.

131. *Id.* at 532–33.

The fish kill resulted from the residual chemical waste. The fact that the pesticide was intended for a beneficial purpose, killing aquatic weeds, was not controlling.¹³² Left undecided by the court was whether the initial application, irrespective of any lingering residue, would require an NPDES permit. This unanswered question would resurface in *National Cotton Council*.

Notwithstanding the court’s observation in *Headwaters* that “it would seem absurd to conclude that a toxic chemical poured into the water is not a pollutant,”¹³³ the EPA subsequently argued that the final rule was consistent with *Headwaters* on the theory that the irrigation district “failed to comply with a FIFRA registration requirement to contain the herbicide-laden water in an irrigation canal for a specified number of days.”¹³⁴

The EPA’s noncompliance claim under FIFRA misses the point that pesticide toxicity and its effect on water quality are not dependent on complying with the FIFRA labeling and containment instructions. The use of a toxic chemical pesticide necessarily affects the surrounding aquatic environment. Complying with the application requirements of FIFRA does not ensure, nor is it intended to ensure, the protection of locally determined water quality standards.

In 2002, the Ninth Circuit decided *League of Wilderness Defenders v. Forsgren*.¹³⁵ The court found that the aerial spraying of a pesticide over tree covered waters from an airplane fitted with tanks and a mechanical spraying apparatus was a discharge from a PS.¹³⁶ The insecticide being sprayed was used to combat the Douglas Fir Tussock Moth (Tussock Moth), which kills Douglas Fir trees.¹³⁷ The court rejected the U.S. Forest Service’s claim that the aerial spraying should be treated as nonpoint source pollution (NPS), which does not require an NPDES

132. *Id.* at 533 (citing *Hudson River Fishermen’s Ass’n v. City of New York*, 751 F. Supp. 1088, 1101–02 (S.D.N.Y. 1990), *aff’d*, 940 F.2d 649 (2d Cir. 1991)).

133. *Headwaters*, 243 F.3d at 532–33.

134. Application of Pesticides to Waters of the United States in Compliance with FIFRA, 71 Fed. Reg. 68,483, 68,489 (Nov. 27, 2006) (to be codified at 40 C.F.R. pt. 122).

135. 309 F.3d 1181 (9th Cir. 2002).

136. *Id.* at 1185.

137. *Id.* at 1182.

permit.¹³⁸ This case is distinguishable from *Headwaters* in that the focus of analysis was on the method of delivery.

The Ninth Circuit found that the aerial deposition of a pesticide that drifts into the waterbody is from a PS.¹³⁹ The argument that it was not discharged from a PS, or that it did not involve an “addition,” was rejected by the court. Spraying a pesticide aurally over water and discharging the same pesticide directly onto or into the water were treated as functionally equivalent. Otherwise, the CWA easily could be avoided simply by attaching an airborne sprayer to a PS to avoid regulation.

Although the court stated that the parties did not dispute the fact that the insecticide was a pollutant,¹⁴⁰ the EPA subsequently challenged this conclusion. The EPA stated in the final rule, which was issued after *Forsgren*, that “the United States expressly reserved its arguments on that issue [whether the insecticide was a pollutant] in its brief to the District Court.”¹⁴¹ Therefore, the EPA sought to finesse the court’s statement on procedural grounds.

Notwithstanding the EPA’s procedural argument, the court had a sound basis for its view that the insecticide was a pollutant. This conclusion is evident in the court’s analysis of the harmful spillover effects associated with the insecticide:

The record reveals a number of harmful side effects associated with the aerial spraying program. Insecticide will drift outside of the area targeted for spraying and may kill beneficial species, including butterflies. Because aircraft conducting the spraying discharge insecticides directly above streams, stoneflies and other aquatic insects may be affected, reducing food supplies for salmon and other fish. The spraying could also adversely affect birds and plants.¹⁴²

The fact that the pesticide might have had some intended beneficial purpose, such as eradicating the Tussock Moth, did not forestall the court from also recognizing that the pesticide had other recognizable adverse environmental consequences.

138. *Id.* at 1184–85. NPSs may be brought within the NPDES permit program through the storm water provisions of section 402(p). 33 U.S.C. § 1342(p) (2006).

139. *Forsgren*, 309 F.3d at 1185; *see also* *Weinberger v. Romero-Barcelo*, 456 U.S. 305, 308 (1982) (holding that airplanes accidentally or deliberately dropping bombs into the sea, as well as Navy ships firing at marine targets, are PSs within the meaning of the CWA).

140. *Forsgren*, 309 F.3d at 1184 n.2.

141. Application of Pesticides to Waters of the United States in Compliance with FIFRA, 71 Fed. Reg. 68,483, 68,485 (Nov. 27, 2006) (to be codified at 40 C.F.R. pt. 122).

142. *Forsgren*, 309 F.3d at 1183.

In 2005, the Ninth Circuit decided *Fairhurst v. Hagener*.¹⁴³ It suggested that the chemical pesticide antimycin, when applied intentionally in accordance with the FIFRA label, *might* require an NPDES permit.¹⁴⁴ The court noted that the parties did not assert that any residual chemicals were left in the water. The parties did not contest that following the application of the pesticide, the antimycin dissipated rapidly and left no residue.¹⁴⁵

The court constructed several conditions that must be met to avoid NPDES regulation. The pesticide must (1) be applied for a beneficial purpose, (2) be applied in compliance with FIFRA, (3) produce no pesticide residue, and (4) produce no unintended effects.¹⁴⁶ Should any of these identified conditions fail to be met, the chemical pesticide user would be subject to NPDES regulation.

The court focused on a “plain meaning analysis of the phrase ‘chemical waste.’”¹⁴⁷ Because the pesticide antimycin was not, in the court’s view, a chemical waste, its use was not subject to an NPDES permit.¹⁴⁸ The court did not explain why the term “any pollutant” should not be more broadly controlling.

The *Fairhurst* test leaves important questions unresolved. For example, the court provides no guidance on how or when these technical decisions, such as the existence of a residue, the time frame for dissipation, or unintended effects, should be determined. This leaves pesticide users, regulators, and the public without sufficient guidance. One point, however, is clear. The court gave short shrift to the defendant’s argument that an NPDES permit was unnecessary solely “because he was in compliance with the requirements of FIFRA.”¹⁴⁹ In response to this stand-alone FIFRA compliance contention, the court skeptically noted that “this argument is explicitly foreclosed by *Headwaters*.”¹⁵⁰

143. 422 F.3d 1146, 1152 (9th Cir. 2005) (holding that a pesticide applied to a river aimed at eliminating pestilent fish species is not a pollutant for purposes of the CWA).

144. *See id.* at 1150–51.

145. *Id.* at 1149.

146. *Id.* at 1150.

147. *Id.* at 1149; *see also id.* at 1151 (noting parties stipulated the application was in accordance with the FIFRA label).

148. *Id.* at 1150–51.

149. *Id.* at 1151.

150. *Id.*

Under the *Fairhurst* test, any part of a pesticide that reaches beyond the intended target may be considered to result in a “residue.” Moreover, any pesticide affecting the water quality needed to support nontarget organisms would produce “unintended effects.” Viewed through this lens of interpretation, all chemical pesticides are potentially subject to CWA regulation.

VIII. NATIONAL COTTON COUNCIL V. EPA

In *National Cotton Council*, the Sixth Circuit endorsed the broad meaning of the term pollutant.¹⁵¹ It reasoned that the plain language of “chemical waste” and “biological materials” unambiguously applies to pesticides, and that *Chevron* deference to the EPA’s rulemaking did not apply.¹⁵² Consequently, the court vacated the EPA’s final rule. It did not, however, consider the challenge based on the APA or base its decision on the relationship between the CWA and FIFRA.¹⁵³

The court reasoned that “[t]he EPA properly argues that excess chemical pesticides and chemical pesticide residues, rather than all chemical pesticides, are pollutants.”¹⁵⁴ It accepted the EPA’s claim that not all chemical pesticides are pollutants. The court relied on the plain meaning analysis of the word “waste” as reflected in commonly used dictionary definitions: “We cannot conclude that all chemical pesticides require NPDES permits” because only waste is covered by the category “chemical waste.”¹⁵⁵

According to the court, chemical pesticides are treated as chemical waste in two instances. One occurs when there is either an excessive or over application of the pesticide to the land, which finds its way to the waterbody, or when there is an airborne application over or near the water. The court described these circumstances:

[A] chemical pesticide is initially applied to land or dispersed in the air—these pesticides are sometimes referred to as either “terrestrial pesticides” or “aerial pesticides” and include applications “above” or “near” waterways. At some

151. *Nat’l Cotton Council of Am. v. EPA*, 553 F.3d 927, 937 (6th Cir. 2009).

152. *Id.* at 936.

153. *Id.* at 940.

154. *Id.* The court accurately states the EPA’s position that residues are pollutants. This statement is, however, potentially misleading of the EPA’s regulatory position. The EPA also claimed that the residues were not subject to NPDES regulation. Thus, residues may be pollutants, but they are not subject to the NPDES permit program because of the PS requirement.

155. *Id.* at 936. The court cites the definitions of waste found in BLACK’S LAW DICTIONARY 1621 (8th ed. 2004) and THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE 1447 (1981).

point following application, excess pesticide or residual pesticide finds its way into the navigable waters of the United States. Pesticides applied in this way and later affecting the water are necessarily “discarded,” “superfluous,” or “excess” chemical. Such chemical pesticide residuals meet the Clean Water Act’s definition of “chemical waste.”¹⁵⁶

Although this situation is fact dependent, it is apt to encompass many situations.

The second occurs when there is a lingering pesticide residue after the pesticide’s intended purpose has been completed:

In the second circumstance, a chemical pesticide is applied directly and purposefully to navigable waters to serve a beneficial purpose—such pesticides are often referred to as “aqueous” or “aquatic” pesticides. As contemplated by the EPA, if residual aquatic pesticide “remain[s] in the water after the application and [the pesticide’s] intended purpose has been completed,” then the residue would likewise qualify as a “chemical waste.” As such, these chemical wastes would unambiguously fall within the ambit of the Clean Water Act.¹⁵⁷

The argument that pesticides applied in compliance with FIFRA were not “pollutants” was rejected by the Sixth Circuit.¹⁵⁸ If a pesticide residue exists, the CWA applies regardless of FIFRA compliance.

The court’s rejection of the idea that all chemical pesticides are not subject to regulation is problematic. It fails to recognize that the chemical components reaching beyond the targeted organism are waste. Aquatic pesticides, it should be recalled, are broadly applied over a wide area.¹⁵⁹ Chemicals that affect nontargeted organisms fit within a plain meaning definition of waste.

These waste chemicals or byproducts also fit within the meaning of the CWA’s definition of pollution.¹⁶⁰ This approach to broadly conceptualizing chemical waste takes into consideration the common meaning of the term pollutant and is consistent with the purpose of the CWA. In *Sierra Club v. Cedar Point Oil Co.*, for example, the Fifth Circuit observed:

156. *Nat’l Cotton Council*, 553 F.3d at 936–37.

157. *Id.* at 937 (alterations in original) (citation omitted).

158. *Id.* at 929–30. A FIFRA labeling requirement governing application rates or dilution requirements is related to water quality, whereas the FIFRA requirement that the person mixing the pesticide wear protective clothing, while a violation is not related to water quality. Application of Pesticides to Waters of the United States in Compliance with FIFRA, 71 Fed. Reg. 68,483, 68,486 (Nov. 27, 2006) (to be codified at 40 C.F.R. pt. 122).

159. See *supra* notes 3–6 and accompanying text.

160. 33 U.S.C. § 1362(19) (2006).

Despite the absence of an indisputable catch-all (e.g., “any other waste whatever”), there is little doubt that the recitation of categories in the definition of “pollutant” is designed to be suggestive not exclusive. In the 1972 amendments, Congress meant to carry on the tradition of the Refuse Act, and that tradition was to construe the word “refuse” as condemning each and every variation of damage-inducing wastes that changing technologies could invent. This interpretation is endorsed by *United States v. Hamel*, [551 F.2d 107 (6th Cir. 1977),] which condemns a discharge of gasoline as within a generic understanding of “pollutant,” rather than stretch the less inclusive “biological materials” to cover organically-based petroleum compounds.

That the definition of “pollutant” is meant to leave out very little is confirmed by the statutory definition of “pollution,” which means nothing less than the “man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water.”¹⁶¹

As a result, the discharge of any chemical pesticide that affects the water quality of the waterbody fits the plain meaning of a damage-inducing waste. The statutory laundry list of “bads,” which includes chemical wastes and biological materials, is more encompassing than the two situations identified by the Sixth Circuit in *National Cotton Council*.¹⁶²

The view that all chemical pesticides should be subject to CWA regulation also derives support from the definition of toxic pollutant, which focuses on adverse effects. A toxic pollutant is considered to “cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions . . . or physical deformations” in any organism.¹⁶³

The CWA clearly states that the “discharge of any pollutant by any person shall be unlawful” unless the discharge is in compliance with various sections of the CWA.¹⁶⁴ The reference to “any pollutant,” when paired with the meaning of “toxic pollutant,” means that the term pollutant should be broadly conceptualized to include all chemical pesticides.¹⁶⁵ Pesticides are not specifically exempted by any provision of the CWA.

A reliable system of monitoring is essential to enforcing and substantiating CWA violations. The potential exposure to liability may

161. *Sierra Club v. Cedar Point Oil Co.*, 73 F.3d 546, 565–66 (5th Cir. 1996) (alteration in original) (quoting 2 WILLIAM H. RODGERS, JR., ENVIRONMENTAL LAW: AIR AND WATER 144 (1986)).

162. 33 U.S.C. § 1362(6) (defining “pollutant”).

163. *Id.* § 1362(13).

164. *Id.* § 1311(a) (emphasis added) (effluent limitations); *see also id.* § 1312 (water quality effluent limitations); *id.* § 1316 (national standards of performance); *id.* § 1317 (toxic and pretreatment effluent standards); *id.* § 1328 (aquaculture); *id.* § 1342 (NPDES); *id.* § 1344 (permits for dredge and fill material).

165. *See United States v. Hamel*, 551 F.2d 107, 110 & n.4 (6th Cir. 1977) (concluding that the CWA covers, at a minimum, those pollutants covered under the Refuse Act, which applies to “all foreign substances” not explicitly exempted from coverage); *see also, e.g., Sierra Club*, 73 F.3d at 565 (finding that “the breadth of many of the items in the list of ‘pollutants’ tends to eviscerate any restrictive effect”).

encourage many pesticide users to secure the necessary permitting, but this result is not ensured. Bringing all chemical pesticides within the permitting program in the first instance is consistent with the goal of controlling pollution at the source. It is also consistent with Congress’s definition of “pollution,” which broadly consists of “man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water.”¹⁶⁶ Given the persistent nature of pesticides in this nation’s waters, chemical pesticides properly fit within this definition.

A. *Pesticides and Point Sources*

In the final rule, the EPA argued that when a pesticide is transformed over time from a beneficial product into a chemical waste, the transformed pollutant should be treated as being from an NPS and not from a PS.¹⁶⁷ As a result, the EPA argued that the transformed pollutant should not be subject to the NPDES program, “[e]ven though the pesticide may become a ‘pollutant’ at a later time . . . a[n NPDES] permit is not required for its application because it did not meet both statutory prerequisites ([being a] pollutant and [from a] point source) at the time of its discharge into the water.”¹⁶⁸

According to the EPA, the transformed pollutant problem should be dealt with as a “nonpoint source pollutant” under the Total Maximum Daily Load (TMDL) program, which is a remedial program designed to rectify a water pollution problem after the fact.¹⁶⁹ The focus of a TMDL is on correcting a specific water pollutant problem after it has been identified through a technical study. From a policy perspective, controlling the sources of pollution before they become or add to a pollution problem is the preferable water quality strategy rather than dealing with the problem after the fact through the TMDL program.

To be effective, the TMDL program requires regulators to identify the sources of pollution contributing to the water quality impairment. This determination is administratively difficult without an effective monitoring program to identify the pesticide users who have discharged the

166. 33 U.S.C. § 1362(19) (2006).

167. Application of Pesticides to Waters of the United States in Compliance with FIFRA, 71 Fed. Reg. 68,483, 68,487 (Nov. 27, 2006) (to be codified at 40 C.F.R. pt. 122).

168. *Id.*

169. *Id.*; see 33 U.S.C. § 1313(d) (2006).

pesticides to the impaired water quality segment. Finger pointing amongst potentially responsible discharging pesticide parties is likely. The refrain “I’m not the source of the chemical pollution impairment, it’s someone else” is inevitable.

Relying on the TMDL program suffers another shortcoming. NPDES permits generally are not available to implement TMDLs when the NPS contributes or is the sole source of the water quality impairment for a straightforward reason: only a PS is subject to NPDES permitting requirements.¹⁷⁰

Other regulatory strategies must be used to plug this regulatory gap.¹⁷¹ The EPA argued the NPDES storm water program is available.¹⁷² It maintained:

[P]esticides are waste materials, and therefore pollutants under the [CWA], when contained in a waste stream, including storm water regulated under section 402(p) or other industrial or municipal discharges. In those circumstances, an NPDES permit may be required if the pesticides are discharged into a water of the United States from a point source.¹⁷³

Discharges are considered as being either from a PS or an NPS.¹⁷⁴ The CWA defines PS as “any discernible, confined and discrete conveyance” from which “pollutants are or may be discharged.”¹⁷⁵ Anything not within the meaning of a PS is by definition considered an NPS.¹⁷⁶

The definition of PS says “pollutants are or may be discharged.”¹⁷⁷ The fundamental idea underlying the meaning of a PS is that the source is susceptible to control by an identifiable and responsible party.¹⁷⁸

170. See *supra* notes 91–92 and accompanying text.

171. See John H. Minan, *The San Diego River: A Natural, Historic, and Recreational Resource*, 41 SAN DIEGO L. REV. 1139, 1171–75 (2004).

172. See 33 U.S.C. § 1342(p)(3) (2006). In 1987, Congress made storm water discharges from Municipal Separate Storm Sewer Systems (MS4s) and industrial storm water PSs for purposes of NPDES regulation. See generally John H. Minan, *Municipal Storm Water Permitting in California*, 40 SAN DIEGO L. REV. 245, 248–52 (2003).

173. Application of Pesticides to Waters of the United States in Compliance with FIFRA, 71 Fed. Reg. at 68,487.

174. See generally U.S. EPA, NONPOINT SOURCE PROGRAM AND GRANTS GUIDANCE FOR FISCAL YEAR 1997 AND FUTURE YEARS (1996), available at <http://www.epa.gov/owow/nps/guide.html>.

175. 33 U.S.C. § 1362(14) (2006). Expressly excluded from the definition of PS are agricultural storm water discharges and return flows from irrigated agriculture.

176. *Id.*

177. *Id.*

178. See, e.g., *United States v. Earth Scis., Inc.*, 599 F.2d 368, 370–74 (10th Cir. 1979) (holding leaching overflow from a gold mine operation that caused a fish kill was a PS on the theory of controllability).

Pesticide applications clearly are controllable at the source by the discharger.

The Sixth Circuit properly rejected the portion of the final rule that placed a temporal or timing requirement on the discharge. A pesticide that transmogrifies into a chemical waste or leaves a residue with the passage of time is subject to NPDES permitting. The court correctly reasoned:

The EPA’s attempt at temporally tying the “addition” (or “discharge”) of the pollutant to the “point source” does not follow the plain language of the Clean Water Act. Injecting a temporal requirement to the “discharge of a pollutant” is not only unsupported by the Act, but it is also contrary to the purpose of the permitting program, which is “to prevent harmful discharges into the Nation’s waters.” If the EPA’s interpretation were allowed to stand, discharges that are innocuous at the time they are made but extremely harmful at a later point would not be subject to the permitting program. Further, the EPA’s interpretation ignores the directive given to it by Congress in the Clean Water Act, which is to protect water quality. As the EPA itself recognizes, “Congress generally intended that pollutants be controlled at the source whenever possible.”¹⁷⁹

Although the court refused to go so far, its reasoning about harmful discharges applies with equal force to all chemical pesticides that reach beyond the immediate target.

B. Biological Materials

The EPA argued that the statutory category of “biological materials” excluded biological pesticides from the NPDES permit program that are applied consistently with FIFRA requirements.¹⁸⁰ Several threads to the argument can be isolated. First, the EPA maintained that treating biological pesticides differently from chemical pesticides “[was] not warranted.”¹⁸¹ The two types of pesticides should be treated similarly on the theory that this result was consistent with Congress’s intent. The EPA also argued that as matter of policy biological materials applied according to the labeling instructions of FIFRA “are generally reduced-risk products” when compared to many chemical wastes.¹⁸²

179. Nat’l Cotton Council of Am. v. EPA, 553 F.3d 927, 939 (6th Cir. 2009) (citations omitted).

180. Application of Pesticides to Waters of the United States in Compliance with FIFRA, 71 Fed. Reg. 68,483, 68,486–87 (Nov. 27, 2006) (to be codified at 40 C.F.R. pt. 122).

181. *Id.* at 68,486.

182. *Id.*

Of course, to the extent that the exemption for chemical pesticides is unavailable, the EPA's similar treatment argument for the exemption largely collapses. The claim is further weakened by the EPA's admission that it is "not surprising that Congress failed to discuss whether biological pesticides were covered by the [CWA]."¹⁸³

At its core, the argument assumes that pairing the statutory term "biological materials" with the term "chemical wastes" effectively shrinks the meaning of biological materials to mean that only biological waste is subject to NPDES regulation. This view defies the plain meaning of the text.

As recognized by the EPA, the term "biological materials" was not defined by Congress.¹⁸⁴ To the extent that meaning is to be ascertained, the constructional principle *noscitur a sociis*—"it is known by its associates"—may be consulted.¹⁸⁵ In *Association to Protect Hammersley, Eld, and Totten Inlets v. Taylor Resources, Inc.*, the Ninth Circuit recently concluded:

[T]he more specific items in the illustrative list of pollutants, such as "radioactive materials," "wrecked or discarded equipment," "garbage," "sewage sludge," "solid waste," and "incinerator residue" support an understanding of the more general statutory term, "biological materials," as waste material of a human or industrial process.

... But it must also be acknowledged that the phrase "biological materials" could literally embrace the emissions at issue. For this reason, the statute is ambiguous on whether "biological materials" means *all* biological matter regardless of quantum and nature and regardless of whether generated by living creatures, or whether the term is limited to biological materials that are a waste product of some human process. In light of this ambiguity, we consider the congressional intent in passing the Clean Water Act.¹⁸⁶

The constructional principle *noscitur a sociis* is no help absent some common features to extrapolate.¹⁸⁷ The claim that the term pollutant ought to be applied only to wastes is at odds with the fundamental purposes of the CWA. The term pollutant is not consistent in its references to waste. In some instances the term waste is used as a noun—"chemical waste." Other times waste is not used in the definition

183. *Id.*

184. *See Ass'n to Protect Hammersley, Eld & Totten Inlets v. Taylor Res., Inc.*, 299 F.3d 1007, 1015–16 (9th Cir. 2002) (interpreting the ambiguous term biological materials when applied to mussel shells and mussel byproducts).

185. BLACK'S LAW DICTIONARY 1087 (8th ed. 2004).

186. *Ass'n to Protect Hammersley*, 299 F.3d at 1016.

187. *S.D. Warren Co. v. Me. Bd. of Env'tl. Prot.*, 547 U.S. 370, 379–80 (2006).

of pollutant, but may be implied as a noun—“sewage.” Other times it is not clear that waste has any relevance—“rock” and “sand.”¹⁸⁸

The constructional guide *expressio unius est exclusio alterius*—the expression of one excludes others—may also be consulted.¹⁸⁹ Congress provides two specific exclusions from the term pollutant: sewage from vessels and certain materials associated with oil and gas production.¹⁹⁰ Sewage is arguably a waste, but materials to facilitate oil and gas production may or may not be a waste.

One inference is that Congress limited the other exclusions from the term pollutant, and the identified exclusions ought to be strictly construed. Based on this reasoning, biological pesticides, regardless of beneficial use and regulation under FIFRA, should be treated as biological materials and not be exempt.¹⁹¹

The constructional principle *in pari materia*—part of the same material—counsels that legislation should be interpreted by the courts so that the respective parts of the law are construed in an internally consistent manner.¹⁹² Congress defined the term toxic pollutant. Because pesticides are clearly toxic, this term is relevant. It includes the following pollutants, or combinations of pollutants:

[D]isease-causing agents, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will, on the basis of information available to the Administrator, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring.¹⁹³

As previously discussed, the emphasis is on the effect of the agent on any organism, and not on whether the agent has a beneficial purpose.¹⁹⁴

The final rule considered several federal court decisions in which biological materials were treated as “pollutants.”¹⁹⁵ One case, for

188. See 33 U.S.C. § 1362(6) (2006).

189. BLACK’S LAW DICTIONARY 620 (8th ed. 2004).

190. 33 U.S.C. § 1362(6).

191. A “biological pesticide” is “[a] chemical which is derived from plants, fungi, bacteria, or other non-man-made synthesis.” U.S. EPA, Pesticides: Glossary (June 6, 2007), <http://www.epa.gov/pesticides/glossary/>.

192. BLACK’S LAW DICTIONARY 807 (8th ed. 2004).

193. 33 U.S.C. § 1362(13) (2006).

194. See *supra* notes 104–11 and accompanying text.

195. Application of Pesticides to Waters of the United States in Compliance with FIFRA, 71 Fed. Reg. 68,483, 68,487 (Nov. 27, 2006) (to be codified at 40 C.F.R. pt.

example, was *Concerned Area Residents for the Environment v. Southview Farm*.¹⁹⁶ The EPA argued the biological materials “were waste materials discharged from a point source.”¹⁹⁷ The liquid manure or “biological material” was being used as a fertilizer, and the excess applications of the manure were treated as a pollutant under the CWA.¹⁹⁸

Nevertheless, a paradox exists with respect to the EPA’s treatment of a “concentrated animal feeding operation” (CAFO), such as the one being regulated in *Southview Farm*. The EPA has promulgated its rule for the regulation of CAFOs, including the requirement that they apply for an NPDES permit as point sources.¹⁹⁹ The EPA treats the use of biological materials—fertilizers—by CAFOs as a pollutant for purposes of NPDES regulation. One might arguably classify the fertilizer as agricultural waste to escape the paradox, but based on the EPA’s reasoning, it ought not to be treated as a waste because the fertilizer is being applied for a beneficial purpose.

The court in *National Cotton Council* rejected the EPA’s reasoning that biological pesticides were exempt. It reasoned:

The plain, unambiguous nature of [biological materials] compels this Court to find that matter of a biological nature, such as biological pesticides, qualifies as a biological material and falls under the Clean Water Act if it is “discharged into water.”

... Congress purposefully included the term “biological materials,” rather than a more limited term such as “biological wastes.” Congress could easily have drafted the list of pollutants in the Clean Water Act to include “chemical wastes” and “biological wastes.” But, here, the word “waste” does not accompany “biological materials.” Thus, if we are to give meaning to the word “waste” in “chemical waste,” we must recognize Congress’s intent to treat biological and chemical pesticides differently.²⁰⁰

122). The rule considered, among others, *United States v. Plaza Health Laboratories, Inc.*, 3 F.3d 643, 645 (2d Cir. 1993) (finding glass vials of human blood placed into a river were “biological materials”), and *National Wildlife Federation v. Consumers Power Co.*, 862 F.2d 580, 583 (6th Cir. 1988) (determining that “live fish, dead fish[,] and fish remains” discharged into Lake Michigan after live fish were pulled through dam’s turbines “are pollutants within the meaning of the CWA, since they are biological materials”).

196. 34 F.3d 114, 117–19 (2d Cir. 1994) (focusing on the meaning of point source and the exemption of storm water agricultural discharges under 33 U.S.C. § 1362(14)).

197. Application of Pesticides to Waters of the United States in Compliance with FIFRA, 71 Fed. Reg. at 68,487 (citing *Southview Farm*).

198. *Southview Farm*, 34 F.3d at 116, 117–19.

199. National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitation Guidelines and Standards for Concentrated Animal Feeding Operations (CAFOs), 68 Fed. Reg. 7176, 7176 (Feb. 12, 2003) (to be codified at 40 C.F.R. pts. 9, 122, 123, 412). *But see* *Waterkeeper Alliance, Inc. v. EPA*, 399 F.3d 486, 524 (2d Cir. 2005) (vacating key parts of the regulation).

200. *Nat’l Cotton Council of Am. v. EPA*, 553 F.3d 927, 937, 938 (6th Cir. 2009).

In the end, the court treated biological and chemical pesticides differently based on its view of Congress’s intent. The court states that a biological pesticide “undeniably alters” the biological integrity of the water.²⁰¹ But, of course, the same can be said about chemical pesticides undeniably altering the chemical integrity of the water.

IX. CONCLUSION

Aquatic pesticides are used to eradicate or control pests in, near, or over waterbodies or wetlands. The principal federal law regulating the discharge of pollutants to this nation’s water is the Clean Water Act (CWA), which is administered by the U.S. Environmental Protection Agency (EPA). The statute defines the term pollutant to include, among other listed categories, chemical wastes and biological materials. Although pesticides are not specifically mentioned, the term pollutant has been broadly construed by some courts to include “all foreign substances” not expressly exempted from coverage. In addition, the term pollutant is sufficiently broad to include all chemical pesticides.

In 2006, the EPA issued its final aquatic pollutant rule. It provided that the National Pollutant Discharge Elimination System (NPDES) permit program of the CWA did not apply to chemical or biological pesticides so long as the pesticide application complied with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

The EPA’s rule set off a tsunami of legal challenges in the federal circuits that were consolidated in the Sixth Circuit in *National Cotton Council v. EPA*. In January 2009, the Sixth Circuit vacated the EPA’s final rule. In June 2009, the court granted the EPA a two-year stay of its mandate to give the EPA the chance to revise its rule to make it consistent with the court’s opinion. During the stay, the EPA plans to issue a general NPDES permit for covered pesticide applications.

The question of statutory construction in *National Cotton Council* is whether the term pollutant, as used by Congress in the CWA, includes chemical and biological pesticides when they are applied to waters of the United States, including wetlands. The issue is not whether chemical pesticides should or should not be used. Rather, it is whether they should be regulated as pollutants under the CWA.

201. *Id.* at 938.

As argued in this Article, the Sixth Circuit's reasoning that the CWA does not apply to *all* chemical pesticides is flawed. The court's view that the CWA applies only to situations involving over applications and lingering pesticide residues is too narrow a construction of the CWA. As a result, the EPA's revised rules will be misguided by the court's decision. As a result, additional legal challenges are sure to follow.

At the time of application, all aquatic chemical pesticides inherently contain waste because they inexorably reach beyond the intended target in the same way that air pollution inevitably impacts air quality. Broad spectrum, narrowly designed, and systemic pesticides have ubiquitous spillover effects. These spillovers to the aquatic environment are immediate and satisfy the plain meaning of the term waste. In addition, all chemical pesticides also fit within a broad meaning of the discharge of a pollutant because they necessarily affect the chemical, physical, and biological integrity of the waterbody. Impacting the aquatic environment in this manner is consistent with the view that all chemical pesticides constitute the discharge of a pollutant.

Congress intentionally defined the term pollutant broadly so as to avoid litigation over whether the discharge of chemicals would be subject to NPDES regulation. Congress's goal is to protect the aquatic environment. Yet the Sixth Circuit's decision encourages exactly the type of litigation that Congress intended to forestall. Under the court's reasoning, the focus will be on after-the-fact inquiries, which is the type of technically complicated proof-based inquiry Congress wanted to avoid.

Congress's broad approach to defining the term pollutant is evidenced by the fact that the CWA contains only two specific exemptions within the definition itself, one for sewage from vessels and the other for materials associated with the secondary recovery of oil or gas production. These limited exceptions forcefully indicate that Congress did not intend a narrow interpretation of pollutant.

Finally, the view that all chemical pesticides are subject to the CWA is supported by sound policy considerations. Regulating the chemical pesticides that enter this nation's waters is critical to protecting water quality. The existence of legacy pesticide pollutants in this nation's waters is well documented. The NPDES program is potentially the only federal regulatory program for controlling, monitoring, and tracking the discharge of all chemical pesticides. The intended beneficial purpose of eradicating or controlling pests does not alter the need to regulate their use under the CWA.