

Compartmentalized Thinking and the Clean Water Act

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Modern water pollution law traces back to the Federal Water Pollution Control Act of 1972.¹ Additional significant amendments followed in 1977 and 1987.² These statutory enactments, collectively known as the Clean Water Act (“CWA”), address the pollution of a single medium—water.³ Congress tackled separately the discharge of pollutants into the air and the burying of solid and hazardous wastes beneath the land through the Clean Air Act (“CAA”)⁴ and the Resource Conservation and Recovery Act, respectively.⁵ This type of compartmentalized regulation became a hallmark of federal environmental law.⁶ Congress’ methodical, medium-by-medium approach made a good deal of sense during the second half of the twentieth century because the country began to recognize the need for comprehensive, federal regulation of matters previously thought to be within the states’ purview.⁷ By compartmentalizing

various types of pollution into distinct regulatory boxes, Congress broke down the potentially overwhelming problem of pollution into manageable, bite-sized chunks. This regulatory approach—although clean and logical—unfortunately ignores the messier, on-the-ground reality of cross-media interactions among water, air, and land. For example, around 1979, refiners began to add methyl tertiary butyl ether (“MTBE”) to motor vehicle gasoline fuels to improve air quality,⁸ only to learn that MTBE was contaminating groundwater supplies.⁹ Similarly, coal-fired power plants emitted sulfur dioxide through tall stacks intended to render air pollutants harmless through dilution.¹⁰ In actual effect, sulfur dioxide combined with other pollutants and returned to the earth in the form of acid rain, which pollutes water and land.¹¹

This phenomenon of compartmentalized environmental regulation is widely recognized. As one scholar explained, “we divide environmental law into a number of pigeon holes.”¹² Three divisions are especially prominent: (1) subject matter (pollution control v. natural resources management);¹³ (2) regulatory approaches (categorical prohibitions v. utilitarian, effects-based limits);¹⁴ and (3) statutory attributes (detailed guidance v. delegation of agency discretion).¹⁵ Some worry that current practices inhibit efficient and invigorating information sharing among a variety of related subfields.¹⁶ Others have called for a variety of remedial approaches, including

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1. Federal Water Pollution Control Act Amendments, Pub. L. No. 92-500, 86 Stat. 816 (1972). The original Act was passed in 1948 and amended numerous times prior to the 1972 amendments. See HOLLY DOREMUS ET AL., ENVIRONMENTAL POLICY LAW 733 (5th ed. 2008).
2. Water Quality Act, Pub. L. No. 100-4, 100 Stat. 7 (1987); Clean Water Act (“CWA”), Pub. L. No. 95-217, 91 Stat. 1566 (1977). See WILLIAM RODGERS, ENVIRONMENTAL LAW 247 (2d ed. 1994) (“Water pollution law today begins with an intimidating 90-page Act of Congress, the Federal Water Pollution Control Act Amendments of 1972, supplemented by a 45-pager in the form of the Clean Water Act of 1977, and an 82-page follow-up called the Water Quality Act of 1987.”).
3. Since the passage of the 1977 amendments, the statute became known as the Clean Water Act. *Summary of the Clean Water Act*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/lawsregs/laws/cwa.html> (last updated Aug. 23, 2012).
4. DOREMUS ET AL., *supra* note 1, at 608 (describing the 1970 legislation as “the framework of the Modern Clean Air Act” which “calls for national uniform air quality standards primarily implemented by the states but backstopped by a variety of federal technology-based controls . . .”).
5. Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901–92k (2006).
6. Robert L. Fischman, *The Divides of Environmental Law and the Problem of Harm in the Endangered Species Act*, 83 IND. L.J. 661, 663–64 (2008).
7. See, e.g., 42 U.S.C. § 6901(a)(4) (“The Congress finds . . . that while the collection and disposal of solid wastes should continue to be primarily the function of State, regional, and local agencies, the problems of waste disposal . . . have become a matter national in scope and in concern and necessitate Federal action . . .”).

8. *Methyl Tertiary Butyl Ether (MTBE): Gasoline*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/mtbe/gas.htm> (last updated Nov. 26, 2012).
9. *Methyl Tertiary Butyl Ether (MTBE): Drinking Water*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/mtbe/water.htm> (last updated Aug. 6, 2012) (explaining that MTBE can contaminate drinking water through “leaking underground and above ground fuel storage tanks, pipe lines, refueling spills, automobile accidents damaging the fuel tank, consumer disposal of ‘old’ gasoline, emissions from older marine engines, and to a lesser degree, storm water runoff, and precipitation mixed with MTBE in the air”).
10. Lakshman Guruswamy, *Integrating Thoughtways: Re-Opening of the Environmental Mind?*, 1989 WIS. L. REV. 463, 468 n.20 (1989).
11. *Id.*
12. Fischman, *supra* note 6, at 663.
13. *Id.* at 666–70.
14. *Id.* at 670–75.
15. *Id.* at 676–81.
16. See *id.* at 665.

those that employ “longitudinal analyses,”¹⁷ “integrationist multimodality,”¹⁸ and the synthesis of “a more coherent understanding of environmental law in all its dazzling, infuriating variations.”¹⁹

Departing from such broad studies of environmental divisions, this Article focuses on the compartmentalized approach of a single statute, the CWA. Part I dissects the CWA regime and its underlying tension between holistic and compartmentalized approaches to water pollution control. This part features a schematic diagram of the “boxes” of the CWA that cleave water into constituent parts recognized by law, but not by nature. Part II undertakes a deeper examination of this segmentation instinct, and suggests that political theory and cognitive psychology may supply explanations for its force. In particular, the discussion considers four aspects of political theory—legal baggage from the New Deal, pragmatism, incrementalism, and political competition—and two tools recognized by cognitive psychology—schema and heuristics. Finally, Part III illustrates specific CWA disputes in which segmented thinking may have produced cognitive illusions that run counter to the purposes of the statute.

Commemorating the fortieth anniversary of the statute, this Article pays homage to the legislation’s impressive accomplishments. At the same time, this Article traces some of the CWA’s current limitations directly back to the era of its enactment, and suggests that such limitations were the result of unfortunate political and cognitive constraints, rather than careful legislative design. Armed with such historical insights, future Congresses should revisit and amend the CWA to reflect a more progressive, holistic approach to environmental regulation.

I. The Clean Water Act: Dissecting Integrity

A. The Holistic Impulse

“The objective of this chapter is to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

—Clean Water Act § 101(a)²⁰

17. Guruswamy, *supra* note 10, at 493 (describing “longitudinal” analyses as those that incorporate systematic environmental assessments across the media of water, air, and land).
18. Craig Anthony (Tony) Arnold, *Fourth-Generation Environmental Law: Integrationist and Multimodal*, 35 WM. & MARY ENVTL. L. & POL’Y REV. 771, 792–95 (2011) (defining “multimodal” as the use of multiple methods of protecting the environment, including a variety of policy instruments, tools, and institutions and “integrationist” as “processes that seek to connect or link multiple aspects of a system in a holistic, synthesized, or coordinated way”).
19. Fischman, *supra* note 6, at 662.
20. CWA § 101(a), 33 U.S.C. § 1251(a) (2006). See generally Christine A. Klein, *On Integrity: Some Considerations for Water Law*, 56 ALA. L. REV. 1009, 1011 (2005) (explaining that “[t]he statutory statement of purpose incorporates a sweeping acknowledgement of the relationship between water policy and integrity”); Robert W. Adler, *The Two Lost Books in the Water Quality Trilogy*:

As Congress drafted one of the seminal pieces of modern environmental legislation, it deliberately called for a broad, systemic approach to water pollution.²¹ As the House Report explained, “[t]he word ‘integrity . . . is intended to convey a concept that refers to a condition in which the natural structure and *function* of ecosystems is maintained.”²² Despite its invocation of integrity, Congress did not define the term. Instead, it simply suggested that pollution is the antithesis of integrity by defining “pollution” as “the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water.”²³

Broad, ecological thinking had captured the public spotlight in the years leading up to the passage of the CWA.²⁴ The modern science of ecology traced back to the mid-twentieth century work of Aldo Leopold, Eugene Odum, and others.²⁵ In 1953, Leopold wrote of a “land ethic” that “simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land.”²⁶ About the same time, Odum conducted work on the ecosystem, which he described as “a system composed of biotic communities and their abiotic environment interacting with each other.”²⁷ In 1962, Rachel Carson published *Silent Spring*, an exposé of the environmental and human health impacts of dichlorodiphenyltrichloroethane (commonly known as DDT) and other chemicals.²⁸ Just three years before the passage of the CWA, *Time Magazine* announced that 1969 was the “year of ecology” and predicted that pollution would “soon replace the Viet Nam war as the nation’s major issue of protest.”²⁹ Likewise, *Newsweek Magazine* proclaimed that it was the “Age of Ecology,” a time during which we were making important discoveries about the “web of life.”³⁰ Capping decades of growing environmental awareness, the first Earth Day was celebrated on April 22, 1970.³¹

The Elusive Objectives of Physical and Biological Integrity, 33 ENVTL. L. 29, 46 (2003) (discussing Congressional intent behind the CWA); Michael C. Blumm & William Warnock, *Roads Not Taken: EPA vs. Clean Water*, 33 ENVTL. L. 79 (2003) (discussing landmark cases in which EPA evaded the CWA’s fundamental objective).

21. See Adler, *supra* note 20, at 32.

22. H.R. REP. NO. 92-911, at 76 (1972) (emphasis added). The report continues, “[a]lthough man is a ‘part of nature’ and a product of evolution, ‘natural’ is generally defined as that condition in existence before the activities of man invoked perturbations which prevented the system from returning to its original state of equilibrium.” *Id.*

23. CWA § 502(19), 33 U.S.C. § 1362(19) (2006).

24. See BETTY JEAN CRAIGE, EUGENE ODUM: ECOSYSTEM ECOLOGIST AND ENVIRONMENTALIST xi–xii (2002).

25. See Klein, *supra* note 20, at 1036.

26. *Id.* (quoting ALDO LEOPOLD, A SAND COUNTY ALMANAC: WITH ESSAYS ON CONSERVATION FROM ROUND RIVER 239 (1953)).

27. *Id.*

28. See RACHEL CARSON, SILENT SPRING 20–23 (25th anniversary ed. 1987); see also *id.* at 7 (asserting that almost five hundred new chemicals were used in the United States each year, many created “for use in killing insects, weeds, rodents, and other organisms described in the modern vernacular as ‘pests’ . . .”).

29. CRAIGE, *supra* note 24, at xii.

30. *Id.*

31. *Id.*

Although broad ecosystem awareness undergirds the CWA, Congress chose to carry out its sweeping goals through a compartmentalized approach.³² As a result, although the statutory purpose pays homage to the *function* of aquatic ecosystems, in practice, important decisions turn on narrow linguistic interpretations of individual words, including “addition,” “navigable,” “point source,” “pollution,” and “fill.”³³ The next section dissects compartments of the CWA, setting the stage for Part II’s discussion of the motivating factors that may have prompted the segmentation impulse.

B. The Compartmentalizing Impulse

One can envision Congress separating water droplets into a series of regulatory boxes as it drafted the CWA. The statute’s first line of defense protects a specific type of water—“navigable” surface waters. Further, it protects those waters from a specific type of harm—the degradation of quality caused by the addition of pollutants from point sources.³⁴ In addition to creating this new pollution control program administered by the Environmental Protection Agency (“EPA”),³⁵ the CWA incorporates a second regulatory scheme that draws on the historic authority of the Army Corps of Engineers to regulate the deposit of “dredge and fill” materials into the nation’s waters.³⁶ The CWA gives less or no attention to the protection of other types of waterbodies (including non-navigable waters and groundwater) and other types of activities (including water diversions, wetland draining, and pollution through diffuse runoff). As considered in Part III, there are good reasons why Congress took such a compartmentalized approach, including rationales supplied by political theory and cognitive psychology. As illustrated in Part IV, however, the compartmentalized thinking of the CWA can lead to what psychologists refer to as “cognitive illusions.”

The CWA’s statutory scheme can be illustrated with a decision tree that shows whether or not CWA jurisdiction extends to a particular activity or water body.³⁷ In the decision tree, a series of boxes represents important decisions that determine whether the CWA can regulate activities that threaten aquatic integrity.³⁸ This jurisdictional maze tracks the text of the statute, which requires a permit for the “discharge of any pollutant.”³⁹ Congress defined that all-important jurisdictional threshold as “any addition of any pollutant to navigable waters from any point source.”⁴⁰ As explained in the text below and illustrated in Figure 1, the

statute regulates water quality (but does not allocate specific quantities to particular water users), the addition of pollutants (but not the subtraction of water, which may have the same result, as in the case of draining wetlands), and the deposit into navigable (but not non-navigable) waters, from a point source (but not from diffuse runoff, for example). In addition, during legislative negotiations, Congress modified a bill that would have protected both watercourses and wetlands under a single permitting program, resulting in the two distinct regulatory programs.

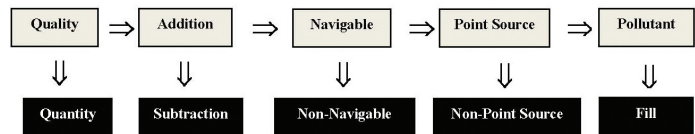


Figure 1

I. Water Quality v. Water Quantity

The boxes. The CWA has been hailed as an example of cooperative federalism, with its careful delineation of roles for both state and federal governments.⁴¹ Section 101 proclaims that “[i]t is the policy of the Congress to recognize, preserve, and protect the primary responsibilities and rights of States to prevent, reduce, and eliminate pollution”⁴² Other sections of the law amplify this theme of federal and state cooperation. Section 402, for example, establishes a permit system for the discharge of pollutants, first granting permitting authority to the EPA Administrator, and then setting forth procedures for the approval of state permit programs.⁴³

Beyond this sharing of authority to regulate water *quality*, the Act carves out a province related to water *quantity* solely within the jurisdiction of the states: the allocation of water rights.⁴⁴ Section 101(g) assures the states that “i[t] is the policy of Congress that the authority of each State to allocate quantities of water within its jurisdiction shall not be superseded, abrogated or otherwise impaired by this chapter.”⁴⁵

The background. Just as the CWA does not federally regulate water allocation, state water allocation laws, for the most part, do not regulate pollution.⁴⁶ For more than a century before the passage of the 1972 CWA, states had been allocating the right to use water within their jurisdictions.⁴⁷ In the eastern states, the early “natural flow” doctrine entitled

32. See *infra* Part I.B.

33. See *infra* Part I.B.

34. See generally *Summary of the Clean Water Act*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/lawsregs/laws/cwa.html> (last updated Aug. 23, 2012).

35. See *infra* Part I.B.5 (discussing the section 402 program).

36. See *infra* Part I.B.5 (discussing the section 404 program).

37. See *infra* Figure 1.

38. In Figure 1, the top row lists waterbodies and activities subject to the CWA, and the bottom row lists waterbodies and activities not regulated under the CWA or those that receive secondary attention. Although the discharge of “fill” material is regulated under the Act, in certain cases it may receive more lenient treatment than the discharge of pollutants. See *infra* Part III.B.

39. CWA § 301(a), 33 U.S.C. § 1311(a) (2006).

40. *Id.*; CWA § 502(12), 33 U.S.C. § 1362(12) (2006).

41. See, e.g., CWA § 101(b), 33 U.S.C. § 1251(b) (2006) (delegating the role of running the construction grants program to the states).

42. *Id.*

43. CWA § 402(a), 33 U.S.C. § 1342(a) (2006) (establishing national pollutant discharge elimination system).

44. CWA § 101(g), 33 U.S.C. § 1251(g).

45. See *id.*

46. See generally Anne W. Squier, *Water Quality, Water Quantity: The Reluctant Marriage*, 21 ENVTL. L. 1081, 1082–83 (1991) (noting the propensity of “western water interests [to view] the prior appropriation doctrine as creating legal claims unrelated to water quality considerations,” but noting that such view “is not shared by economists, by municipalities, by Indian nations, by EPA, or by environmentalists”).

47. See, e.g., *Irwin v. Phillips*, 5 Cal. 140, 141–42 (Cal. 1855) (applying prior appropriation doctrine in California).

waterfront landowners to make use of the adjacent stream, but only to the extent that such use would not diminish the quantity of the natural flow or impair its quality.⁴⁸ In most eastern states, this restrictive doctrine proved unworkable⁴⁹ and gave way to the “reasonable use” doctrine, which governs the type and volume of permissible water use, but does not directly regulate water pollution.⁵⁰ Likewise, the water law of the western states gives scant, if any, attention to matters of water quality.⁵¹

The challenges. The traditional bifurcation of water quality and water quantity makes little hydrologic sense. The purported distinction poses numerous challenges, including the question of whether water diversions should be discouraged in order to maintain higher volume flows capable of assimilating pollution—an inexpensive, but limited, method of pollution control sometimes described as “pollution dilution.”⁵² As Justice Sandra Day O’Connor asserted in the context of a dispute under section 401 of the CWA, however, “[t]his is an artificial distinction. In many cases . . . a sufficient lowering of the water quantity in a body of water could destroy all of its designated uses, be it for drinking water, recreation, navigation or . . . as a fishery.”⁵³

The quality/quantity distinction goes to the heart of the CWA’s cooperative federalism scheme.⁵⁴ But for all its importance, the distinction is surprisingly difficult to discern in practice.⁵⁵ As considered in the next section, this critical determination turns on the interpretation of a single word—addition.

2. Addition v. Subtraction

The boxes. The Act’s core prohibition against unregulated pollution is expressed in section 301.⁵⁶ That provision aims squarely at “the discharge of any pollutant.”⁵⁷ That phrase, in turn, means “any addition of any pollutant” into protected

waters.⁵⁸ The word “addition” is not defined by statute or agency regulation.⁵⁹

The background. When Congress tackled the problem of water pollution, it used the word “discharge” as a shorthand description of the types of undesirable behavior it wished to target.⁶⁰ This single-minded focus on acts of discharge creates tension with the CWA’s results-oriented objective—to restore and maintain aquatic integrity and the functionality of ecosystems.⁶¹ In most cases, the tension is resolved by treating the statutory goal as mere aspiration, and discharge as the operational trigger for regulation.⁶² Thus, in the absence of an action that fits the definition of “discharge,” agencies and the courts will tolerate the destruction of aquatic resources, or at least cast them as outside the scope of federal regulation.⁶³

The challenges. A variety of activities may result in the impairment of water quality, but the challenge is to determine whether or not the activity constitutes an “addition.”⁶⁴ Courts have struggled with related questions, including whether the term encompasses: (1) the artificial movement of polluted water from one place to another (water transfers);⁶⁵ (2) the removal of pollutants followed by the addition of those same pollutants (redeposit);⁶⁶ and (3) the removal of water from wetlands when the result is the functional equivalent of filling them in (draining).⁶⁷

Hard cases arise where a pipe, pump, or other artificial structure moves water from a polluted waterbody to an area of relatively clean water.⁶⁸ Does that constitute pollution that the CWA can regulate as an “addition”? Alternatively, such movement of water might constitute a water “transfer” rather than an “addition”—the type of activity routinely addressed by state water allocation law.⁶⁹ The federal circuit courts resolved that ambiguity, generally in favor of federal regulation.⁷⁰ For example, in a dispute that reached the

48. See Robert H. Abrams, *Charting the Course of Riparianism: An Instrumentalist Theory of Change*, 35 WAYNE L. REV. 1381, 1392 (1989) (“Natural flow riparianism required that water be left to flow down to each lot owner, ‘undiminished as to quantity and quality.’”); see also Harrell v. Conway, 271 S.W.2d 924, 926–27 (Ark. 1954) (discussing the natural flow doctrine).

49. See Abrams, *supra* note 48, at 1392–93.

50. Conway, 271 S.W.2d at 926 (discussing the “reasonable use” doctrine under which “each landowner is entitled to make any reasonable use of the water, provided that such use does not unreasonably interfere with the beneficial use of the stream by others”).

51. See generally Squier, *supra* note 46, at 1082–83 (noting that the “western water interests have viewed the prior appropriation doctrine as creating legal claims unrelated to water quality considerations”).

52. *Id.* at 1083; see also Tex. Mun. Power Agency v. U.S. Envtl. Prot. Agency, 836 F.2d 1482, 1488–89 (5th Cir. 1988) (“Congress explicitly recognized that reduction of the amount of effluents—not merely their dilution or dispersion—is the goal of the CWA.”).

53. PUD No. 1 v. Wash. Dep’t of Ecology, 511 U.S. 700, 719 (1994) (upholding states’ authority under CWA section 401 to condition state certification of hydroelectric power plant on the maintenance of minimum stream flow conditions, even though the requirement is not a water quality limitation related specifically to a discharge); CWA § 301, 33 U.S.C. § 1311(a) (2006).

54. See CWA § 101(b), 33 U.S.C. § 1251(b) (2006).

55. See *infra* Part I.B.2.

56. CWA § 301, 33 U.S.C. § 1311(a).

57. See *id.*

58. CWA § 501(12), 33 U.S.C. § 1362(12) (2006) (emphasis added) (defining “discharge of a pollutant” as “any addition of any pollutant to navigable waters from any point source . . .”).

59. Blumm & Warnock, *supra* note 20, at 88; see also Catskill Mountains Chapter of Trout Unlimited, Inc. v. City of New York, 273 F.3d 481, 486 (2d Cir. 2001) (recognizing that the act does not define “addition.”).

60. See U.S. GOV’T ACCOUNTABILITY OFFICE, GAO-04-297, WATERS AND WETLANDS: CORPS OF ENGINEERS NEEDS TO EVALUATE ITS DISTRICT OFFICE PRACTICES IN DETERMINING JURISDICTION 4 (2004).

61. See CWA § 101(a), 33 U.S.C. § 1251(a) (2006); see also Adler, *supra* note 20, at 47 (Congress may have lost the distinction between “pollutant” and “pollution” because “EPA and state implementation of the Act had focused almost entirely on the discharge of pollutants, and very little on broader sources of water pollution”); Blumm & Warnock, *supra* note 20, at 107–09 (discussing landmark cases in which EPA evaded the Clean Water Act’s fundamental objective).

62. Adler, *supra* note 20, at 34–47.

63. See *id.* at 32–37.

64. See Klein, *supra* note 20, at 1022.

65. Miccosukee Tribe of Indians v. S. Fla. Water Mgmt. Dist., 280 F.3d 1364, 1367 (11th Cir. 2002), *vacated & remanded*, 541 U.S. 95 (2004).

66. Blumm & Warnock, *supra* note 20, at 88 n.56, 89; Miccosukee Tribe of Indians, 280 F.3d at 1368.

67. See Blumm & Warnock, *supra* note 20, at 88 n.56, 88–89.

68. See Klein, *supra* note 20, at 1032–35.

69. See Christine A. Klein, *Water Transfers: The Case Against Transbasin Diversions in the Eastern States*, 25 UCLA J. ENVTL. L. & POL’Y 249, 260–61 (2007).

70. Dubois v. U.S. Dep’t of Agric., 102 F.3d 1273, 1297, 1299 (1st Cir. 1996) (holding where “the discharge is through a point source and the intake water contains pollutants, an NPDES permit is required”); see also Catskill Moun-

First Circuit Court of Appeals, a New Hampshire ski resort pumped water from a polluted river through its snowmaking pipes, and then discharged the excess into a pristine pond high in the White Mountains.⁷¹ Because the transfer of polluted water into the pond “would not occur naturally” and because the source and receiving waters were “distinct,” the court held that the transfer was an addition of pollutants that required a CWA permit.⁷²

Likewise, the Second Circuit determined that New York City needed a federal permit for the operation of its drinking water system, which transmits pure water through pipes from the upstate Catskill Mountains.⁷³ In moving water around through natural and artificial structures, the City introduced silt and clay into a clear stream renowned for its trout fishery.⁷⁴ The Second Circuit concluded that such water transfers required a CWA permit because they introduced pollutants from “any place outside” the receiving water body.⁷⁵

Developing a slightly different test, the Eleventh Circuit held that the transfer of already-polluted water into clean water constitutes the addition of a pollutant whenever “a point source is the cause-in-fact of the release of pollutants into navigable waters.”⁷⁶ Conversely, departing from the federal courts’ willingness to find CWA jurisdiction over water transfers, a 2008 EPA regulation determined that the CWA does not authorize the regulation of water transfers, which are defined as “an activity that conveys or connects waters of the United States without subjecting the transferred water to intervening industrial, municipal, or commercial use.”⁷⁷ Subsequent to these opinions by the First, Second, and Eleventh Circuits supporting regulatory jurisdiction, however, EPA enacted a rule that provided a more limited interpretation of its own authority.⁷⁸

A second challenging issue arises when materials are successively removed from, and then “redeposited” into, jurisdictional waters. This sequence of events can take place, for example, when a developer excavates and levels a wetland to prepare it for construction or cultivation, but the developer permits more than a trivial amount of the excavated material (defined as a pollutant under CWA section 502 after removal from its original source) to fall back onto the land.⁷⁹

In one prominent case, landowners cleared 20,000 acres of forested wetlands using a bulldozer with a special blade that sheared off trees and vegetation at ground level.⁸⁰ Next, they raked the trees into rows, burned them, mixed the stumps and ashes into the ground, and then dug a ditch to drain the wetland so that it could be planted with soybeans.⁸¹ When a plaintiff group sought to enjoin the defendants from additional clearing without a CWA permit, the reviewing court agreed with the plaintiffs.⁸² On appeal, the Fifth Circuit upheld the injunction, and noted that the land clearing activities also involved the “redeposit” of materials, including logs and vegetation, that would not burn.⁸³ The Fifth Circuit concluded that “the term ‘discharge’ covers the redepositing of materials taken from the wetlands,”⁸⁴ particularly under the facts of the case where “the landowners’ redepositing activities would significantly alter the character of the wetlands and limit the vital ecological functions served by the tract.”⁸⁵

Courts, however, draw the line where redeposits are so small in volume, and redeposited so close to their original location, that they comprise what is known as “incidental fallback.”⁸⁶ In such cases, according to the D.C. Circuit, “the straightforward statutory term ‘addition’ cannot reasonably be said to encompass the situation in which material is removed from the waters of the United States and a small portion of it happens to fall back.”⁸⁷ Such incidental fallback, the court reasoned, “represents a net withdrawal, not an addition, of material” and cannot be considered to be a discharge that triggers CWA jurisdiction.⁸⁸ Subsequently, the Army Corps of Engineers, which implements the dredge and fill permit program, amended its regulatory definition of “discharge of dredged material” to exclude incidental fallback.⁸⁹ Beyond that narrow concession to the D.C. Circuit, however, the regulation explicitly maintained regulatory authority over “any addition of dredged material . . . including redeposit of dredged material other than incidental fallback”⁹⁰

The removal of wetland materials, unaccompanied by redeposit, poses yet another interpretative challenge. Suppose a landowner destroys the functionality of a wetland by draining it. Should that be treated the same as the filling of a wetland with soil, an activity that is clearly regulated under the CWA?⁹¹ That question has rarely been addressed, but

tains Chapter of Trout Unlimited, Inc. v. City of New York, 273 F.3d 481, 484–85, 491 (2d Cir. 2001) (finding that an NPDES permit is required for any “transfer of water containing pollutants from one body of water to another, distinct body of water”).

71. *Dubois*, 102 F.3d at 1277–78.

72. *Id.* at 1299 (holding where “the discharge is through a point source and the intake water contains pollutants, an NPDES permit is required”).

73. *Catskill Mountains Chapter of Trout Unlimited*, 273 F.3d at 489–93. See generally Klein, *supra* note 20, at 1028–31 (discussing the Second Circuits decision in *Catskill Mountains Chapter of Trout Unlimited*).

74. *Catskill Mountains Chapter of Trout Unlimited*, 273 F.3d at 484–85.

75. *Id.* at 491.

76. *Miccossukee Tribe of Indians v. S. Fla. Water Mgmt. Dist.*, 280 F.3d 1364, 1368 (11th Cir. 2002), *vacated & remanded*, 541 U.S. 95 (2004).

77. National Pollutant Discharge Elimination System (NPDES) Water Transfers Rule, 73 Fed. Reg. 33697, 33704 (June 13, 2008) (to be codified at 40 C.F.R. pt. 122), *upheld*, *Friends of the Everglades v. S. Fla. Water Mgmt. Dist.*, 570 F.3d 1210, 1218–19 (11th Cir. 2009), *cert. denied*, 131 S. Ct. 643 (2010).

78. See U.S. GOV’T ACCOUNTABILITY OFFICE, *supra* note 60, at 2–3.

79. CWA § 502(6), 33 U.S.C. § 1362(6) (2006) (defining “pollutant” as including, *inter alia*, dredged spoil, rock, and sand).

80. *Avoyelles Sportsmen’s League, Inc. v. Marsh*, 715 F.2d 897, 901 (5th Cir. 1983).

81. *Id.*

82. *Avoyelles Sportsmen’s League, Inc. v. Alexander*, 511 F. Supp. 278, 292 (W.D. La. 1981) *aff’d in part, rev’d in part sub nom. Avoyelles Sportsmen’s League, Inc. v. Marsh*, 715 F.2d 897 (5th Cir. 1983).

83. *Avoyelles Sportsmen’s League*, 715 F.2d at 923.

84. *Id.*

85. *Id.*

86. *Nat’l Mining Ass’n v. U.S. Army Corps of Eng’rs*, 145 F.3d 1399, 1405 (D.C. Cir. 1998).

87. *Id.* at 1404.

88. *Id.*

89. Revisions to the Clean Water Act Regulatory Definition of “Discharge of Dredged Material,” 64 Fed. Reg. 25120, 25120–21 (May 10, 1999) (codified at 33 C.F.R. pt. 323, 40 C.F.R. pt. 232).

90. 33 C.F.R. § 323.2(d)(1) (2012).

91. See *infra* Part I.B.5.

the limited case law treats draining as the “mere removal” of water, rather than as the equivalent of filling.⁹² As a result, the draining of wetlands remains unregulated, creating a loophole in the protective net of the CWA.⁹³

3. Navigable v. Non-Navigable

The boxes. The CWA limits its regulation of pollutants to those that are discharged into “navigable waters.”⁹⁴ Section 502 defines navigable waters to mean “the waters of the United States, including the territorial seas.”⁹⁵

The background. The CWA’s inclusion of the term “navigable” hearkens back to the Rivers and Harbors Act of 1899 (also known as the Refuse Act), which sought to keep the nation’s navigational channels free from refuse and other impediments.⁹⁶ Before the passage of the CWA, federal officials pressed the old Refuse Act into service as a pollution control statute.⁹⁷ In the CWA, a draft of section 502 defined navigable waters as “the *navigable* waters of the United States,” but struck out the word “navigable” before the provision was enacted into law.⁹⁸ The Conference Report stated that the term “navigable waters” should be given “the broadest possible constitutional interpretation unencumbered by agency determinations which have been made or may be made for administrative purposes.”⁹⁹ It is widely accepted that the CWA covers waters that are used, or susceptible to use, in interstate or foreign commerce, as well as interstate waters and wetlands.¹⁰⁰ But beyond that, the courts and federal agencies have struggled for decades to delineate the jurisdictional scope of “navigable waters,” particularly in the context of wetlands and so-called isolated waterbodies.¹⁰¹ The courts have also struggled to determine whether the Act regulates groundwater.¹⁰²

The challenges. In an early interpretation of the CWA, the U.S. Supreme Court interpreted “navigable waters” broadly in order to protect the functioning of aquatic ecosystems.¹⁰³ In *United States v. Riverside Bayview Homes, Inc.*, the Court supported the Corps’ assertion of jurisdiction over *wetlands* that are *adjacent* to navigable waters and their tributaries.¹⁰⁴ Although the Court acknowledged that, “[o]n a purely linguistic level, it may appear unreasonable to classify ‘lands,’ wet or otherwise, as ‘waters,’” it concluded that in order to determine the limits of its jurisdiction, “the Corps must necessarily choose some point at which water ends and land begins.”¹⁰⁵

Sixteen years later, the Court took up a question left open¹⁰⁶ by *Riverside Bayview Homes*—whether the Corps’ regulatory authority extends to “wetlands that are not adjacent to bodies of open water.”¹⁰⁷ Retreating from *Riverside*’s generous jurisdictional interpretation, *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (“*SWANCC*”) struck down a regulation of intrastate waters “[w]hich are or would be used as habitat by . . . migratory birds which cross state lines”¹⁰⁸ In an attempt to reconcile *Riverside* and *SWANCC*, the Court asserted,

We said in *Riverside Bayview Homes* that the word ‘navigable’ in the statute was of ‘limited import’. . . and went on to hold that § 404(a) extended to nonnavigable wetlands adjacent to open waters. But it is one thing to give a word limited effect and quite another to give it no effect whatever. The term “navigable” has at least the import of showing us what Congress had in mind as its authority for enacting the CWA: its traditional jurisdiction over waters that were or had been navigable in fact or which could reasonably be so made.¹⁰⁹

In 2006, the Supreme Court took up the jurisdictional question yet again.¹¹⁰ In *Rapanos v. United States*, the Court invalidated the Corps’ assertion of jurisdiction over wetlands located at least eleven miles from the nearest navigable watercourse.¹¹¹ In a fragmented decision, a four-justice plurality held that the CWA regulates wetlands only if they are (1) adjacent to a “relatively permanent body of water connected to traditional interstate navigable waters” and (2) have a “continuous surface connection with that water, making it difficult to determine where the ‘water’ ends and the ‘wetland’ begins.”¹¹² In concurrence, Justice Kennedy asserted that wetlands fall within the Act’s jurisdiction if they pos-

92. See *infra* Part III.A.

93. OFFICE OF TECH. ASSESSMENT, U.S. CONG., NTIS ORDER NO. PB84-175918, WETLANDS: THEIR USE AND REGULATION 168 (1984), available at http://gov-info.library.unt.edu/ota/Ota_4/DATA/1984/8433.pdf.

94. CWA § 502(12), 33 U.S.C. § 1362(12) (2006).

95. CWA § 502(7), 33 U.S.C. § 1362(7).

96. Rivers and Harbors Act, 33 U.S.C. § 407 (2006).

97. See *Env’t. Prot. Agency v. State Water Res. Control Bd.*, 426 U.S. 200, 203 (1976) (explaining that “to strengthen the [pollution] abatement system federal officials revived the Refuse Act of 1899, which prohibits the discharge of any matter into the Nation’s navigable waters except with a federal permit”).

98. See CHRISTINE A. KLEIN, FEDERICO CHEEVER & BRET C. BIRDSONG, NATURAL RESOURCES LAW: A PLACE-BASED BOOK OF PROBLEMS AND CASES 958–60 (2d ed. 2009); see also S. REP. NO. 92-1236 (1972) (Conf. Rep.), reprinted in 1972 U.S.C.C.A.N. 3776, 3821 (emphasis added) (amending the definition of “navigable waters” and providing, “[t]he term ‘navigable waters’ means the waters of the United States, including the territorial seas”).

99. S. REP. NO. 92-1236, reprinted in 1972 U.S.C.C.A.N., at 3821.

100. See 33 C.F.R. § 328.3(a)(1)–(2) (2012) (defining “waters” of the United States).

101. See, e.g., *Solid Waste Agency of N. Cook Cnty. v. U.S. Army Corps of Eng’rs* (*SWANCC*), 531 U.S. 159, 168–73 (2001) (discussing congressional and regulatory jurisdictional provisions and declining to hold that isolated ponds fall under § 404(a)’s definition of “navigable waters” because they serve as habitat for migratory birds).

102. See, e.g., *Idaho Rural Council v. Bosma*, 143 F. Supp. 2d 1169, 1180 (D. Idaho 2001) (recognizing jurisdiction over groundwater, but only if it is hydrologically connected to surface water); *Wash. Wilderness Coal. v. Hecla Mining Co.*, 870 F. Supp. 983, 989–91 (E.D. Wash. 1994) (noting that discharges that migrate through groundwater constitute “discharges of pollutants into navigable waters” within the meaning of the CWA).

103. *United States v. Riverside Bayview Homes, Inc.*, 474 U.S. 121, 138–39 (1985) (upholding unanimously Corps’ regulations asserting jurisdiction over wetlands adjacent to navigable waters).

104. *Id.* at 132.

105. *Id.*

106. *Solid Waste Agency of N. Cook Cnty. v. U.S. Army Corps of Eng’rs* (*SWANCC*), 531 U.S. 159, 159–60 (2001) (striking the Corps’ so-called Migratory Bird Rule, 51 Fed. Reg. 41217 (1986)).

107. *Riverside Bayview Homes*, 474 U.S. at 131 n.8.

108. *SWANCC*, 531 U.S. at 164.

109. *Id.* at 172.

110. *Rapanos v. United States*, 547 U.S. 715, 730 (2006).

111. *Id.* at 720, 757.

112. *Id.* at 742.

sess a “significant nexus” to traditional navigable waters.¹¹³ Linking the nexus requirement closely to the statute’s goal of integrity, he explained, “wetlands possess the requisite nexus . . . if [they] . . . significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as ‘navigable.’”¹¹⁴ The remaining four justices dissented. They asserted that wetlands fall within the CWA’s jurisdiction if they satisfy either the test articulated by the plurality or the test set forth by Justice Kennedy.¹¹⁵

In 2007, EPA issued a jurisdictional guidance document.¹¹⁶ In contrast to the *Rapanos* plurality, the document claimed potential jurisdiction over adjacent wetlands—including those without a continuous surface connection to open waters¹¹⁷—provided that fact-specific analyses revealed that such wetlands possess a “significant nexus” with traditional navigable waters.¹¹⁸ Thus, as Justice Roberts predicted in a separate concurrence, “[i]t is unfortunate that no opinion commands a majority of the Court . . . Lower courts and regulated entities will now have to feel their way on a case-by-case basis.”¹¹⁹

4. Point Source v. Nonpoint Source Pollution

The boxes. Section 502(12) limits the CWA’s reach to pollutants discharged through a “point source,”¹²⁰ which the Act defines as “any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, [or] tunnel”¹²¹ Nonpoint sources are generally unregulated by the CWA.¹²² The definition of “point source” specifically excludes “agricultural stormwater discharges and return flows from irrigated agriculture.”¹²³ In 1987, Congress amended the statement of goals to mention nonpoint source pollution: “it is the national policy that programs for the control of nonpoint sources of pollution be developed and implemented in an expeditious manner”¹²⁴ Congress left the realization of that goal, however, to the states—to be addressed primarily through the development of best management practices.¹²⁵

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

114. *Id.* at 780.

115. *Id.* at 810 (Stevens, J., dissenting).

116. U.S. ENVTL. PROT. AGENCY & U.S. DEP’T OF THE ARMY, CLEAN WATER ACT JURISDICTION FOLLOWING THE U.S. SUPREME COURT’S DECISION IN RAPANOS V. UNITED STATES & CARABELL V. UNITED STATES 1 (2008), available at http://water.epa.gov/lawsregs/guidance/wetlands/upload/2008_12_3_wetlands_CWA_Jurisdiction_Following_Rapanos120208.pdf.

117. *Id.* at 4.

118. *Id.* at 8.

119. *Rapanos v. United States*, 547 U.S. 715, 758 (2006) (Roberts, C.J., concurring).

120. CWA § 502(12), 33 U.S.C. § 1362(12) (2006).

121. CWA § 502(14), 33 U.S.C. § 1362(14).

122. See, e.g., Ronald L. Glicksman & Matthew R. Batzel, *Science, Politics, Law, and the Arc of the Clean Water Act: The Role of Assumptions in the Adoption of a Pollution Control Landmark*, 32 WASH. U. J. L. & POL’Y 99, 115–16 (2010) (discussing Congress’ decision making process behind excluding nonpoint sources from mandatory federal regulation).

123. *Id.*

124. Water Quality Act, Pub. L. No. 100-4, 100 Stat. 7, 60 (1987) (codified as amended at CWA § 101(a)(7), 33 U.S.C. § 1251(a)(7)).

125. See CWA § 319, 33 U.S.C. § 1329(a)(1)(C) (2006) (calling on states to develop best management practices to reduce pollutant loads from nonpoint sources causing violations of water quality standards); see also CWA § 208, 33 U.S.C.

The background. To address water pollution, Congress reached first for the low-hanging fruit: industrial and municipal point source polluters.¹²⁶ These polluters were undoubtedly foremost in the congressional consciousness,¹²⁷ especially when considering that just three years before the passage of the 1972 CWA, oil and chemical pollution in Cleveland’s Cuyahoga River reached such levels that the river itself burst into flames.¹²⁸ As the Second Circuit noted, “[t]his emphasis was sensible, as ‘[i]ndustrial and municipal point sources were the worst and most obvious offenders of surface water quality. They were also the easiest to address because their loadings emerge from a discrete point such as the end of a pipe.’”¹²⁹

The challenges. Forty years after the passage of the CWA, agricultural and urban runoff remain among the most intractable, and important, unaddressed sources of pollution.¹³⁰ On the eve of the CWA’s twenty-fifth anniversary in 1997, EPA asserted that although the nation had made impressive advances in controlling pollution discharged from factories and sewage treatment plants, the control of runoff from diffuse nonpoint sources lagged behind.¹³¹ The agency explained, “[t]oday, nonpoint source (NPS) pollution remains the Nation’s largest source of water quality problems. It’s the main reason that approximately 40 percent of our surveyed rivers, lakes, and estuaries are not clean enough to meet basic uses such as fishing or swimming.”¹³² By 2010, the situation remained serious and EPA described nonpoint source pollution as the most challenging remaining source of water pollution.¹³³

5. Pollutants v. Fill

The boxes. The CWA establishes two types of permit programs. First, EPA administers the National Pollutant Dis-

§ 1288(a)(2) (2006) (encouraging the development by the states of “areawide waste treatment management plans” to identify and address nonpoint source pollution). See generally SENATE COMM. ON ENV’T & PUB. WORKS, NONPOINT SOURCE POLLUTION MANAGEMENT ACT OF 1983, S. REP. NO. 98-282, at 7 (1983) (leaving states with broad discretion to establish categories of nonpoint sources and define best management practices).

126. Glicksman & Batzel, *supra* note 122, at 115–16 (arguing that Congress declined to enact mandatory federal regulation of nonpoint sources because point source pollution was more readily controlled and measured, and because regulation of nonpoint sources threatened to impinge on the states’ traditional authority over land use regulation); see also *United States v. Plaza Health Labs., Inc.*, 3 F.3d 643, 646 (2d Cir. 1993) (recognizing that the CWA “generally targets industrial and municipal sources of pollutants”).

127. See *Plaza Health Labs.*, 3 F.3d at 646.

128. Press Release, U.S. Env’t. Prot. Agency, EPA Celebrates Cuyahoga River 40th Anniversary (June 22, 2009), available at <http://yosemite.epa.gov/opa/admpress.nsf/0/3246CA6D2C45D3FF852575DD004BB9C2> (describing “the infamous fire that galvanized the nation’s environmental movement”).

129. *Plaza Health Labs.*, 3 F.3d at 646 (quoting David Letson, *Point/Nonpoint Source Pollution Reduction Trading: An Interpretive Survey*, 32 NAT. RESOURCES J. 219, 221 (1992)).

130. *Wetlands and Runoff*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/owow/wetlands/facts/fact25.html> (last updated Oct. 26, 2012).

131. *Nonpoint Source Pollution: The Nation’s Largest Water Quality Problem*, U.S. ENVTL. PROT. AGENCY, <http://water.epa.gov/polwaste/nps/outreach/point1.cfm> (last updated Aug. 22, 2012).

132. *Id.*

133. *Polluted Runoff (Nonpoint Source Pollution): Basic Information*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/owow/keep/NPS/whatis.html> (last updated Feb. 10, 2010).

charge Elimination System (“NPDES”) of section 402.¹³⁴ In addition, the Army Corps of Engineers administers the dredge and fill permit program of section 404,¹³⁵ subject to oversight by the Administrator of EPA.¹³⁶ Although section 404 is recognized widely as governing the fill of wetlands, the CWA does not include the word “wetland” in its text.¹³⁷

The background. During the drafting of the 1972 CWA, the Senate bill would have included the permitting of dredge and fill material in the section 402 NPDES program.¹³⁸ An amendment passed by the House of Representatives, however, transformed that provision into a separate dredge and fill permit program to be administered by the Secretary of the Army, acting through the Chief of Engineers.¹³⁹ The legislative history suggests that the new section 404 program was not aimed at the protection of wetlands.¹⁴⁰ Rather, it drew from the Corps’ authority under the Rivers and Harbors Act to maintain clear passage for waterborne commerce.¹⁴¹ The Senate Conference Report states that the “Secretary and the Administrator shall act promptly on dredging permits essential for the maintenance of interstate commerce because of the seasonal nature of dredging and the need to preschedule scarce dredging equipment.”¹⁴² Beyond maintaining open channels of commerce, the disposal of dredged material appeared to be an afterthought.¹⁴³ As the Conference Report explained, “[i]t is expected that until such time as feasible alternative methods for disposal of dredged or fill material are available, unreasonable restrictions shall not be imposed on dredging activities essential for the maintenance of interstate and foreign commerce.”¹⁴⁴

The challenges. The section 404 permit program remains the primary line of defense for the protection of wetlands; the program, however, seems ill-equipped for the task.¹⁴⁵ The jurisdictional obstacles alone are daunting. The courts have struggled with the counterintuitive notion that wetlands are susceptible to regulation as *waters* of the United States.¹⁴⁶ As the Supreme Court acknowledged, “[o]n a purely linguist-

tic level, it may appear unreasonable to classify ‘lands,’ wet or otherwise, as ‘waters.’”¹⁴⁷ Further, particularly in cases involving the disposal of mining byproducts, the courts have found it difficult to distinguish between the “pollutants” regulated by EPA and the “fill” material regulated by the Corps.¹⁴⁸ As some Justices of the Supreme Court worry, this may create a regulatory loophole that threatens to swallow important CWA protections.¹⁴⁹

II. Compartmentalized Thinking

Although the CWA pays homage to the notion of water integrity,¹⁵⁰ the statute tackles the problem of water pollution box by hydrologic box.¹⁵¹ As suggested in the previous discussion, some of the distinctions can lead to an unnecessarily fragmented and incomplete approach to the protection of water quality. This juxtaposition of wholeness and atomism within a single statute can be explained, in part, by political theory and by cognitive psychology.

A. Political Theory

In a relatively forgotten chapter of environmental history, President Nixon’s administration developed cautious plans to integrate five environmental programs: air pollution, water pollution, pesticide management, solid waste and radiation, and noise control.¹⁵² Under that plan, the fledgling EPA would exercise its authority along functional, rather than programmatic, lines.¹⁵³ That is, regardless of the medium impacted by pollution (air, water, or land), EPA would channel its efforts into the tasks of management planning, enforcement of standards, and research and monitoring.¹⁵⁴ That plan never came to fruition, however, and today’s EPA continues to divide its authority along media-specific lines.¹⁵⁵

In a similar defeat of environmental integration, some pollution control statutes contain explicit exemptions from the duty imposed on federal agencies by the National Environmental Policy Act (“NEPA”) to assess the environmental impacts of various federal actions.¹⁵⁶ As Professor Lakshman Guruswamy lamented in 1989, such exemptions and other statutory provisions “overran the integrative thrust of NEPA and EPA.”¹⁵⁷ Overall, he argues that the late 1960s and the early 1970s witnessed a “dialectic interaction between frag-

134. CWA § 402, 33 U.S.C. § 1342 (2006).

135. CWA § 404, 33 U.S.C. § 1344 (2006).

136. CWA § 404(c), 33 U.S.C. § 1344(c).

137. Glicksman & Batzel, *supra* note 122, at 117–18 (asserting that “[j]udicial interpretations of the scope of the program have exacerbated rather than resolved the . . . confusion” that results from the statute’s failure to use the term wetlands).

138. S. REP. NO. 92-1236 (1972) (Conf. Rep.), *reprinted in* 1972 U.S.C.C.A.N. 3776, 3818 (reporting that section 402(m) of the Senate bill included procedures for the issuance of permits for the discharge of dredged spoil).

139. *Id.* at 3818–19.

140. *See id.*

141. *Coeur Alaska, Inc. v. Se. Alaska Conservation Council*, 557 U.S. 261, 300 (2009) (Ginsburg, J., dissenting) (“Section 404 hews to the Corps’ established expertise in matters of navigability and construction.”).

142. S. REP. NO. 92-1236, 1972 U.S.C.C.A.N. at 3819.

143. *Id.*

144. *Id.*

145. *See* Alyson C. Flournoy, *Section 404 at Thirty-Something: A Program in Search of a Policy*, 55 ALA. L. REV. 607, 635 (2004) (stating that the scope of activities regulated under section 404 are “inadequate to achieve wetland conservation”).

146. *See id.* at 617–18 (discussing generally that a limitation on section 404’s effectiveness “is that it seeks to protect wetlands as a category of water”); *see, e.g., United States v. Riverside Bayview Homes, Inc.*, 474 U.S. 121, 132 (1985) (“Our common experience tells us that this is often no easy task: the transition from water to solid ground is not necessarily or even typically an abrupt one.”).

147. *Riverside Bayview Homes*, 474 U.S. at 132.

148. *See* Robert B. Moreno, *Filling the Regulatory Gap: A Proposal for Restructuring the Clean Water Act’s Two-Permit System*, 37 *ECOLGY* L.Q. 285, 299–305 (2010).

149. *Coeur Alaska, Inc. v. Se. Alaska Conservation Council*, 557 U.S. 261, 302–03 (2009) (Ginsburg, J., dissenting).

150. *See* discussion *supra* Part I.A.

151. *See* discussion *supra* Part I.B.

152. Guruswamy, *supra* note 10, at 488 (discussing the planned reorganization of environmental regulation along functional lines).

153. *See id.* at 476–77 (discussing the establishment of EPA in 1970).

154. *Id.* at 488.

155. *Id.* at 489–90 (discussing EPA’s “virtual rejection of an integrated approach”).

156. *Id.* at 477–78 (discussing express statutory exemptions under the Federal Water Pollution Control Act and the Clean Air Act).

157. *Id.* at 476.

mentation and integration” and “fragmentation emerged as the more powerful policy stream.”¹⁵⁸

What can account for the segmentation of the CWA and other modern pollution control statutes? At least three aspects of political theory can explain such a result. First, the 1972 CWA reflects the historical baggage of the New Deal era.¹⁵⁹ During Franklin D. Roosevelt’s presidency, Congress enacted numerous laws designed to rescue the nation from the Great Depression.¹⁶⁰ In its 1936 opinion, *Carter v. Carter Coal Co.*, the U.S. Supreme Court struck down the Bituminous Coal Conservation Act and held that it exceeded the scope of the Commerce Clause.¹⁶¹ After, tensions escalated between the executive and judicial branches over the appropriate scope of the constitutional commerce power. In 1937, the Court backed away from its narrow view in *National Labor Relations Board v. Jones & Laughlin Steel Corp.*,¹⁶² thereby paving the way for the President to suggest, and Congress to enact, broad-ranging legislation aimed at helping the nation emerge from the depression. The Court continued to permit an expansive interpretation of the Commerce Clause until well after the 1972 passage of the CWA.¹⁶³

But this expansive view of federal authority was not unlimited. As a counterweight to broad legislative action, the Court insisted, under the so-called nondelegation doctrine, that Congress retain final control over broad delegations of legislative authority to the executive branch.¹⁶⁴ The co-equal branches of government soon reached an accommodation: the Court would not invalidate legislation, even if it delegated vast authority to executive branch agencies, as long as Congress articulated an “intelligible principle” to limit the exercise of agency discretion.¹⁶⁵

As a result of such unsettling constitutional debates and the practical limitations imposed by the nondelegation doctrine, Congress may have been discouraged from passing broad, non-compartmentalized legislation that would have regulated water, air, and land pollution under a unified, holistic regime. As Professor Guruswamy posits,

serious doubts about whether the New Deal belief in independent and expert administrative agencies could creatively regulate a complex social problem in the public interest affected the approaches taken to environmental problems. . . . An integrated approach [to pollution control] called for a broad delegation of power. Arguments for integration based on ecological thinking, however, were countered by others which resisted the granting of wide discretionary power.¹⁶⁶

The federal environmental legislation that emerged later in the century took a segmented, media-specific approach. In response to doubts about agencies’ ability to regulate pollution, statutes articulated specific mandates, obligations, and deadlines to guide agency discretion.¹⁶⁷

Beyond the reaction against the idealism of the New Deal era, sheer pragmatism may have dictated the compartmentalized approach of the CWA and contemporaneous legislation.¹⁶⁸ As one scholar argued, “precisely because everything is interconnected, the environmental problem is beyond our capacity to control in one unified policy. The very enormity of the interconnected environment makes it impossible to treat it as a whole.”¹⁶⁹ As an early response to complexity, some political theorists called for “incrementalism”¹⁷⁰ and “muddling through” complex problems piece by piece.¹⁷¹ The Clean Air and Clean Water Acts took this cautious, step-by-step approach through provisions that regulated pollution medium by medium, pollutant by pollutant, pipe by pipe.¹⁷² Later in the century, incrementalism would be supplemented by the more holistic strategy of adaptive management.¹⁷³ But

158. *Id.*

159. *See id.* at 480–82.

160. President Roosevelt, the thirty-second President of the United States, served from 1933–45. *Franklin D. Roosevelt*, THE WHITE HOUSE, <http://www.whitehouse.gov/about/presidents/franklinroosevelt> (last visited Oct. 30, 2012).

161. *Carter v. Carter Coal Co.*, 298 U.S. 238, 239 (1936). The Bituminous Coal Conservation Act of 1935, sought, among other things, to regulate the industry in the name of the national public interest. *Id.* at 278; *see* Bituminous Coal Conservation Act of 1935 § 1, Pub. L. 74-402, 49 Stat. 991, 991 (1935).

162. *See Nat’l Labor Relations Bd. v. Jones & Laughlin Steel Corp.*, 301 U.S. 1, 2 (1937) (upholding against Commerce Clause challenge the National Labor Relations Act).

163. *See* *United States v. Lopez*, 514 U.S. 549, 554–58, 567–68 (1995) (striking as beyond the scope of the Commerce Clause the Gun-Free School Zones Act of 1990).

164. *See* *Panama Refining v. Ryan*, 293 U.S. 388, 432–33 (1935) (striking a provision of the National Industrial Recovery Act as delegating to the President legislative discretion unconstrained by congressional control); *Schechter Poultry Corp. v. United States*, 295 U.S. 495, 495 (1935) (striking down the national Industrial Recovery Act as unconstitutional under the Nondelegation Doctrine and Commerce Clause).

165. *See* *Mistretta v. United States*, 488 U.S. 361, 372 (1989); *see also* *Whitman v. Am. Trucking Ass’n, Inc.*, 531 U.S. 457, 458 (2001) (reversing appellate court’s invalidation under the Nondelegation Doctrine of National Ambient Air Quality Standards set by EPA for ozone and particulate matter section).

166. Guruswamy, *supra* note 10, at 480.

167. *Id.* at 476.

168. *See id.* at 482–83 (discussing “New Deal dissatisfaction with expert solutions to complicated problems”).

169. *Id.* at 482–84 (recounting doubts expressed by Charles Lindblom in 1973). *See generally* Charles E. Lindblom, *The Science of “Muddling Through,”* 19 PUB. ADMIN. REV. 79, 84–85 (1959) (explaining that is “impossible to take everything important into consideration unless ‘important’ is so narrowly defined that analysis is in fact quite limited”).

170. Guruswamy, *supra* note 10, at 482–84; *see also* Lindblom, *supra* note 169, at 84–85 (“every administrator faced with a sufficiently complex problem must find ways to drastically simplify”). *See generally* HANS BLOKLAND, PLURALISM, DEMOCRACY AND POLITICAL KNOWLEDGE: ROBERT A. DAHL AND HIS CRITICS ON MODERN POLITICS 76 (2011) (explaining that Dahl and Lindblom identified incrementalism—the process of investigating alternatives that only deviate slightly from each other—as a way to rationally evaluate alternatives in the face of scarcity).

171. *See* Guruswamy, *supra* note 10, at 482–84.

172. *See generally* J.B. Ruhl & James Salzman, *Climate Change, Dead Zones, and Massive Problems in the Administrative State: A Guide for Whittling Away*, 98 CALIF. L. REV. 59, 97–98 (2010) [hereinafter Ruhl & Salzman, *Climate Change*] (discussing the late 1970s origins of adaptive management which placed a premium on “collecting information, establishing measurements of success, monitoring outcomes, using new information to adjust existing approaches, and possessing a willingness to change”).

173. Holly Doremus, *Adaptive Management as an Information Problem*, 89 N.C. L. REV. 1455, 1455 (2011) (arguing that “enthusiasm for adaptive management has outrun evaluation of its usefulness” and that it should be used as a natural resource management tool “only when it promises to improve management outcomes sufficiently to justify the additional costs it imposes”); *see also* J.B. Ruhl & Robert L. Fischman, *Adaptive Management in the Courts*, 95 MINN. L. REV. 424, 426 (2010) (“At each step forward in the emergence of adaptive management something has been lost in the translation. The end product is something we call ‘a/m-lite,’ a watered-down version of the theory that resembles ad hoc contingency planning more than it does planned ‘learning while doing.’”); Ruhl & Salzman, *Climate Change*, *supra* note 172, at 66–67 (consid-

by then, the segmented approach of the Clean Air and Clean Water Acts would have been firmly established.

Congressional and presidential politics also influenced the structure of the CWA.¹⁷⁴ To a powerful degree, individual personalities and rivalries from nearly a half-century ago continue to circumscribe the modern approach to pollution.¹⁷⁵ In the 1960s, Senator Edmund Muskie, chair of the Subcommittee on Air and Water Pollution Control within the Senate Public Works Committee, played a prominent role in drafting legislation that pre-dated the modern Clean Water and Clean Air Acts.¹⁷⁶ When early legislative attempts began to fail, it threatened his aspiration to become the Democratic nominee to challenge President Nixon's reelection bid in 1972.¹⁷⁷ As some have suggested, Senator Muskie likely tailored his proposals so that their drafting and presentation to Congress would remain entirely within the control of his subcommittee. The ambitious bill that emerged from Muskie's subcommittee to become the Clean Air Act of 1970¹⁷⁸ divided the air pollution problem into a number of categories, including ambient and emission standards,¹⁷⁹ new source emissions,¹⁸⁰ and motor vehicle emissions.¹⁸¹ Soon thereafter, Muskie's subcommittee adapted aspects of the compartmentalized template of the CAA as it drafted the bill that would become the CWA of 1972.¹⁸² With both proposals, Muskie resisted attempts to broaden them to fit within an integrated environmental framework because political authority over such proposals would be shared with the Committee on Interior and Insular Affairs (which drafted the bill that led to the NEPA).¹⁸³ To this day, most actions under the Clean Air Act¹⁸⁴ and the CWA¹⁸⁵ remain exempt from the holistic approach of NEPA.

ering strategies for whittling away at massive problems and arguing that "agencies whittling away at massive problems must be empowered to pool resources with other similarly charged agencies in loosely linked 'weak ties' networks that connect both institutions and people within the institutions").

174. See generally Guruswamy, *supra* note 10, at 484–87 (describing to competition between President Nixon and Senator Muskie for credit for legislation that would assure "the public of a cleaner world.").

175. See *id.*

176. See Guruswamy, *supra* note 10, at 484–87.

177. See *id.* Richard M. Nixon was elected President in 1968 and reelected in 1972. Richard M. Nixon, THE WHITE HOUSE, <http://www.whitehouse.gov/about/presidents/richardnixon> (last visited Oct. 30, 2012). Senator Edmund Muskie unsuccessfully sought the Democratic Party nomination in 1972. Edmund Muskie, U.S. SENATE, http://www.senate.gov/artandhistory/history/common/image/ME_Muskie_Edmond_1972.htm (last visited Dec. 18, 2012).

178. Clean Air Act ("CAA") of 1970, Pub. L. No. 91-604, 84 Stat. 1676 (codified as amended at 42 U.S.C. §§ 7401–515 (2006)).

179. CAA § 109, 42 U.S.C. § 7409 (2006).

180. CAA § 111, 42 U.S.C. § 7411 (2006).

181. CAA § 177, 42 U.S.C. § 7507 (2006).

182. Guruswamy, *supra* note 10, at 476, 484–87 (describing the central role played by Sen. Muskie in developing environmental legislation including the Clean Air Act and the Federal Water Pollution Control Act of 1972).

183. *Id.*

184. Energy Supply and Environmental Coordination Act of 1974 § 7(c), 15 U.S.C. § 793(c) (2006) ("No action taken under the Clean Air Act . . . shall be deemed a major Federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act of 1969.").

185. CWA § 511(c)(1), 33 U.S.C. § 1371(c)(1) (2006) (asserting that, with certain specified exceptions, "no action . . . taken pursuant to this chapter shall be deemed a major Federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act of 1979").

B. Cognitive Psychology

Humans have developed cognitive tools to navigate the complicated, information-laden, fast-paced modern world.¹⁸⁶ As scholars have noted, the "complexity of many tasks exceeds the brain's capacity to process information," a situation that calls for adaptive strategies to use "scarce cognitive resources efficiently."¹⁸⁷ The members of Congress likely benefitted from such tools, particularly as they took on the potentially overwhelming goal of managing the air, water, and land pollution generated by an increasingly industrialized society.¹⁸⁸ This section examines two cognitive tools that may be particularly helpful in explaining why Congress took a compartmentalized approach to the elimination of water pollution.

1. Schema

Cognitive psychologists tell us that humans make sense of their world with the help of organizing principles known as "schema."¹⁸⁹ These schema assist us, for example, in separating relevant from irrelevant information when we make decisions.¹⁹⁰ The sorting impulse may have prompted Congress to pour the nation's waters into a succession of analytical boxes. The top-level boxes attracted the most statutory muscle, which took aim at *additions, navigable waters, point sources, and pollutants*.¹⁹¹ In contrast, Congress relegated *removal, diffuse runoff, isolated ponds and wetlands, and fill material* to second-tier status, assigning them lesser importance, at least for purposes of federal regulation.¹⁹²

2. Heuristics

A second set of cognitive tools, known as "heuristics," provide reflexive, default "rules of thumb" that enable humans to process information rapidly.¹⁹³ The so-called *availability heuristic*¹⁹⁴ may be particularly relevant to environmental decision-making and lawmaking. This cognitive habit amplifies the importance of information that is well-known and familiar to the subject.¹⁹⁵ For example, in the years leading up to the passage of the 1972 CWA, the plight of the flaming

186. See Jeffrey Rachlinski & Cynthia Farina, *Cognitive Psychology and Optimal Government Design*, 87 CORNELL L. REV. 549, 555 (2002).

187. *Id.* at 555; see also JAMES SALZMAN & BARTON H. THOMPSON JR., ENVIRONMENTAL LAW AND POLICY 24–26 (3d ed. 2010) (discussing the cognitive limitations and biases that effect how humans assess the environment and environmental policy).

188. See generally Rachlinski & Farina, *supra* note 186, at 555–58 (discussing strategies that humans use to process information).

189. *Id.* at 555.

190. *Id.* at 555–56.

191. These elements are regulated under the federal Clean Water Act. See Clean Water Act, 33 U.S.C. §§ 1251–1387 (2006).

192. These elements are not regulated under the Clean Water Act. See *supra* Part I.B.

193. Rachlinski & Farina, *supra* note 186, at 555.

194. *Id.* at 556 (asserting that "when making judgments about the frequency of events, people often rely on the ease with which an instance of a target event can be called to mind").

195. See *id.*

Cuyahoga River was widely publicized.¹⁹⁶ As a result, when lawmakers turned their attention to the abatement of water pollution, they likely conjured up the images of burning rivers and industrial pollution that had been seared into the public consciousness.¹⁹⁷ This, perhaps, motivated Congress to target end-of-the-pipe pollution and sewage, rather than less visible forms of pollution (such as groundwater contamination), through the CWA.¹⁹⁸

III. The Cognitive Illusions of the Clean Water Act

Despite the importance of schema, heuristics, and other cognitive tools, they can also lead to over-generalizations, unexamined conclusions, and pervasive errors—known as “cognitive illusions.”¹⁹⁹ In the words of one scholar, “our cognitive limitations inhibit us from grasping completely the seamless whole of environmental law.”²⁰⁰ Cognitive illusions can also permeate media-specific thinking, such as that reflected by the CWA.²⁰¹ Two potential cognitive illusions incorporated into the CWA are discussed in the following sections. Each case illustrates some of the practical consequences of the CWA’s fundamental tension—the struggle to protect the integrity of aquatic ecosystems while at the same time respecting the narrow linguistic boxes set up by the statutory text.²⁰²

A. What Wetland?

The CWA has been interpreted as regulating the destruction of wetlands through *filling* (adding soil), but not through *draining* (removing water).²⁰³ Filling and draining may produce identical environmental harms, but receive inconsistent legal treatment.²⁰⁴ This creates a potential regulatory loophole that can undermine the CWA’s effectiveness.²⁰⁵

In *Save Our Community v. EPA*,²⁰⁶ a group of citizens and the city of Ferris, Texas, challenged a waste management company’s unpermitted draining of a wetland in preparation for the expansion of an adjacent landfill into

the newly drained area. Over the course of about two years, the company had used a mechanical pump to remove the surface water from over half of a twenty-one acre pond.²⁰⁷ It intended to drain the entire pond, but the district court issued a preliminary injunction to remain in effect until the company obtained a section 404 permit from the Corps.²⁰⁸ The district court admitted that “the [CWA] and its accompanying regulations are reasonably interpreted as focusing primarily on discharges,”²⁰⁹ but found a functional interpretation of the Act more compelling than a narrow linguistic interpretation.²¹⁰ Finding that continued operation of the pump threatened “significant alteration or destruction of a wetland,”²¹¹ the district court grounded its injunction in pragmatic concerns. Refusing to believe that the CWA “permits the wanton destruction of wetlands through draining activities,”²¹² the court explained that “[i]t would seem to stand logic on its head . . . to permit a landowner to avoid the § 404(b) process by completely draining a wetland and then claiming ‘Permit for what wetland?’”²¹³ The court expressed outrage that the defendant had drained the wetlands for the express purpose of circumventing the CWA, and that the defendant’s clear goal was to fill in the wetland—the very evil that the statute seeks to prevent.

On appeal, the Fifth Circuit dissolved the district court’s injunction²¹⁴ and recognized a clear distinction between draining (which did not trigger the jurisdiction of the CWA) and filling (which satisfied the jurisdictional trigger of a “discharge”).²¹⁵ Rejecting the district court’s functional approach, the Fifth Circuit explained, “[t]he conclusion is inescapable. The existence of discharge is critical.”²¹⁶ Despite the reality that many acres of wetlands are destroyed through draining, as well as filling, the Fifth Circuit’s strict adherence to the textual requirement of a “discharge” appears to be representative of the few cases that have considered the issue.²¹⁷ At the time of the *Save Our Community* litigation, the nation was losing its wetlands at a rate of about 300,000 acres each year.²¹⁸

196. *Cuyahoga River Fire*, OHIO HISTORY CENT., <http://www.ohiohistorycentral.org/entry.php?rec=1642> (last visited Dec. 18, 2012).

197. See Rachlinski & Farina, *supra* note 186, at 556.

198. See *id.* (describing tendency, when relying on a heuristic, to overestimate frequency of an event).

199. See *id.* (“Reliance on heuristics and schema allows people to process an amazing array of complex stimuli efficiently. These devices serve people well most of the time, but can lead to systematic errors in judgment, which psychologists often refer to as ‘cognitive illusions.’”).

200. Fischman, *supra* note 6, at 664.

201. See generally Rachlinski & Farina, *supra* note 186, at 562–63, 572–75, 579–80 (presenting a novel psychological model of governmental error as a supplement to the familiar public choice model; discussing the impact of cognitive illusions on Congress; and explaining the effect of cognitive illusions on regulatory agencies).

202. See *id.* at 580–81.

203. See *Save Our Cmty. v. U.S. Envtl. Prot. Agency (SOC I)*, 741 F. Supp. 605, 609 (N.D. Tex. 1990), *rev’d*, 971 F.2d 1155 (5th Cir. 1992).

204. See *id.* at 615.

205. See *id.*

206. *Id.* at 607.

207. *Id.* at 609.

208. *Id.* at 607–09.

209. *Id.* at 613.

210. *Id.* at 615.

211. *Id.* at 611.

212. *Id.* at 615 (internal citations omitted).

213. *Id.*

214. *Save Our Cmty. v. U.S. Envtl. Prot. Agency (SOC II)*, 971 F.2d 1155, 1155 (5th Cir. 1992).

215. *Id.* at 1165.

216. *Id.* at 1163.

217. WILLIAM L. WANT, LAW OF WETLANDS REGULATION § 4:35, 4-42 (2012) (noting a 1990 Corps guidance memorandum “which attempts to narrow the exemption for drainage”); see also *Borden Ranch P’ship v. U.S. Army Corps of Eng’rs*, 261 F.3d 810, 815 (9th Cir. 2001) (finding that deep ripping, which results in soil being “wrenched up, moved around, and redeposited somewhere else” can constitute a discharge), *aff’d*, 537 U.S. 99 (2002); *Am. Mining Cong. v. U.S. Army Corps of Eng’rs*, 951 F. Supp. 267, 273 (D.D.C. 1997) (finding that Congress’ definition of “discharge” has a “definite meaning” that is not meant to include incidental fallback).

218. *Save Our Cmty. v. U.S. Envtl. Prot. Agency (SOC I)*, 741 F. Supp. 605, 612 n.9 (N.D. Tex. 1990), *rev’d*, 971 F.2d 1155 (5th Cir. 1992).

B. Good Cop, Bad Cop

Would a rational legislature order exacting pollution limits, yet call all bets off if the pollutant, discharged into a lake, will raise the water body's elevation?

—*Coeur Alaska, Inc. v. Southeast Alaska Conservation Council* (Ginsburg, J., dissenting)²¹⁹

Both the Corps and EPA play a role in the regulation of surface mining for coal, gold, and other minerals, with the former regulating *fill material* and the latter regulating *pollutants*.²²⁰ The distinction between those two materials, however, is not always clear. In cases of ambiguity, which agency should regulate, and why does it matter? In the case of a gold mine in Alaska, the U.S. Supreme Court developed a hierarchy under which EPA has authority only if the Corps does not.²²¹ As a result, the Corps' more lenient section 404 permitting requirements may displace EPA's more stringent exercise of authority.²²²

In *Coeur Alaska, Inc. v. Southeast Alaska Conservation Council*, the Court considered the petitioner's plans to reopen the Kensington Gold Mine, located about forty-five miles north of Juneau, Alaska.²²³ The mining waste, known as "slurry," would be generated by a process known as "froth-flotation" and would be composed of crushed rock (about thirty percent), water, and chemicals.²²⁴ The company intended to dispose of the slurry in a natural lake about three miles from the mine.²²⁵ In the words of the dissent,

Petitioner . . . proposes to discharge 210,000 gallons per day of mining waste into Lower Slate Lake, a 23-acre sub-alpine lake in Tongass National Forest. The 'tailings slurry' would contain concentrations of aluminum, copper, lead and mercury. Over the life of the mine, roughly 4.5 million tons of solid tailings would enter the lake, raising the bottom elevation by 50 feet. It is undisputed that the discharge would kill all of the lake's fish and nearly all of its other aquatic life.²²⁶

The majority described the facts in more benign terms: "[t]hrough the slurry will at first destroy the lake's small population of common fish, that population may later be replaced. After mining operations are completed, Coeur Alaska will help reclaim the lake by capping the tailings with about four inches of native material."²²⁷

The dispute raised the issue of whether the slurry should be regulated by the Corps or by EPA. On the one hand, section 404 provides that the Corps "may issue permits . . . for

the discharge of dredged or fill material[s] . . ." ²²⁸ Regulations issued jointly by the Corps and EPA define "fill material" to include "slurry . . . or similar mining-related materials" that have the "effect of . . . [c]hanging the bottom elevation" of water.²²⁹ On the other hand, section 402 asserts that "[e]xcept as provided in . . . [Section 404, EPA] . . . may . . . issue a permit for the discharge of any pollutant . . ." ²³⁰ The Act defines the term broadly to include, "dredged spoil, solid waste, . . . sewage, garbage, chemical wastes, biological materials, radioactive materials, heat, . . . and industrial, municipal, and agricultural waste discharged into water."²³¹ Further, under CWA section 306, EPA had promulgated a new source performance standard that specifically forbade froth-flotation gold mines, such as the Kensington Gold Mine, from discharging process wastewater: "there shall be no discharge of process wastewater to navigable waters from mills that use the froth-flotation process . . . for the beneficiation of . . . gold."²³²

The Court acknowledged that the statute is ambiguous as to whether section 306 applies to fill material that falls within the scope of section 404.²³³ But anxious to avoid creating "numerous difficulties for the regulated industry,"²³⁴ the Court concluded that the CWA is "best understood to provide that if the Corps has authority to issue a permit for a discharge under § 404, then EPA lacks authority to do so under § 402."²³⁵ As a result, the more stringent EPA performance standards did not apply to the mine.²³⁶

To supplement the majority's careful separation of the CWA's "fill" box from its "pollutant" box, the dissent would have taken a functional approach.²³⁷ Although it agreed that the section 402 and section 404 permitting schemes are mutually exclusive, it would have concluded that the subject discharge fell within the scope of section 402 and its related performance standards.²³⁸ The implications of making the wrong choice, the dissent feared, were "weighty."²³⁹ In particular, it worried that the majority's interpretation would provide an "escape hatch" for polluters who added solid matter to their discharges:²⁴⁰ "[t]he Court's reading . . . strains

219. *Coeur Alaska, Inc. v. Se. Alaska Conservation Council*, 557 U.S. 261, 304 (2009) (Ginsburg, J., dissenting) (quoting *Whitman v. Am. Trucking Ass'ns*, 531 U.S. 457, 467–68 (2001)).

220. *See id.* at 287–88.

221. *See id.* at 274.

222. *See id.* at 273.

223. *See id.* at 267.

224. *See id.*

225. *See id.*

226. *Id.* at 296–97 (Ginsburg, J., dissenting).

227. *Id.* at 269 (majority opinion) (internal quotations and citations omitted).

228. CWA § 404(a), 33 U.S.C. § 1344(a) (2006). EPA has the authority to veto the Corps' issuance of a permit under section 404(c) but has exercised that authority rarely. As of 2009, EPA exercised its veto "only a dozen times over 36 years encompassing more than 1 million permit applications." *Coeur Alaska, Inc. v. Se. Alaska Conservation Council*, 557 U.S. 261, 303 n.5 (2009) (Ginsburg, J., dissenting). EPA issued another withdrawal of specification in 2010, but in 2012 a federal district court invalidated that action as beyond the statutory authority of EPA. *See Mingo Logan Coal Co. Inc. v. U.S. Envtl. Prot. Agency*, 850 F. Supp. 2d 133, 134 (D.D.C. 2012).

229. 40 C.F.R. § 232.2 (2012).

230. CWA § 402(a)(1), 33 U.S.C. § 1342(a)(1) (2006).

231. CWA § 502(6), 33 U.S.C. § 1362(6) (2006).

232. 40 C.F.R. § 440.104(b)(1) (2012); *see Coeur Alaska, Inc.*, 557 U.S. at 266, 270–71, 278 (majority opinion); *id.* at 297, 301 (Ginsburg, J., dissenting); *see also* CWA § 306, 33 U.S.C. § 1316 (2006) (mills must be included as a new source category, for which the administrator must establish federal regulations creating performance standards).

233. *Coeur Alaska, Inc.*, 557 U.S. at 281–82.

234. *Id.* at 276.

235. *Id.* at 274.

236. *Id.* at 277.

237. *Id.* at 296–304 (Ginsburg, J., dissenting).

238. *Id.* at 297, 301, 304.

239. *Id.* at 300.

240. *Id.* at 302–03.

credulity. A discharge of a pollutant, otherwise prohibited by firm statutory command, becomes lawful if it contains sufficient solid matter to raise the bottom of a water body, transformed into a waste disposal facility.”²⁴¹ The dissent concluded that the majority’s opinion ran counter to the “text, structure, and purpose” of the CWA.²⁴²

IV. Conclusion: Thinking Outside the Box

The CWA has achieved much success in improving water quality. In part, these triumphs have been facilitated by the statute’s clearly-defined, step-by-step plan for cleaning up the nation’s waters.²⁴³ But the statute is also limited by its compartmentalized structure. As this Article reveals, many of the

CWA’s limitations resulted from unfortunate political and cognitive constraints at the time of the legislation’s enactment, rather than careful legislative design. Moving into the twenty-first century, EPA has called for implementation strategies that go beyond the statute’s rigid, compartmentalized origins and for “a shift from a program-by-program, source-by-source, pollutant-by-pollutant approach to more holistic watershed-based strategies.”²⁴⁴ Congress must join EPA in this effort to strengthen and modernize the CWA. In particular, armed with historical insights such as those provided by this Article, Congress should revisit and amend the CWA to reflect a more progressive and holistic approach to environmental regulation.

241. *Id.* at 302.

242. *Id.* at 297–98. The distinction between “pollutants” and “fill” is also relevant in the context of so-called “mountaintop removal mining” common in the Appalachian region. See Jason Rappa, *Coal and Water: Reclaiming the Clean Water Act for Environmental Protection*, 25 TUL. ENVTL. L.J. 99, 101–05, 108 (2011).

243. See Glicksman & Batzel, *supra* note 122, at 130–31.

244. U.S. ENVTL. PROT. AGENCY, INTRODUCTION TO THE CLEAN WATER ACT 2, 29 (n.d.), available at <http://cfpub.epa.gov/watertrain/pdf/modules/IntrotoCWA.pdf>.