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# THE DECLINE AND (POSSIBLE) RENEWAL OF ASPIRATION IN THE CLEAN WATER ACT

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*Abstract*: In the approximately four decades since Congress adopted sweeping amendments to the Federal Water Pollution Control Act—creating what is commonly known as the Clean Water Act (CWA)—the United States has made significant progress in reducing many kinds of water pollution. It is clear, however, that the United States has not attained the most ambitious of the statutory goals and objectives, including the overarching objective to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[1] Indeed, although discrete water quality improvements continue in some places and for some forms of pollution, on a national scale progress toward the CWA's goals has stalled in the past two decades. This Article explores several possible reasons for that failure. Those reasons include subversion of the statutory goals at the administrative, judicial, and legislative levels due to an imbalance in power between groups interested in how the law is implemented; the degree to which the statutory goals are perceived as unrealistic by those charged with implementation; and the potential that Congress intended those ambitious goals to serve as prods for as much progress as possible, but did not actually expect them to be achieved. The Article then proposes that significantly more progress can be made if we take advantage of available means of defining the ecological integrity of aquatic ecosystems more clearly and more precisely, using as examples biological water quality criteria, functional assessment methods for wetlands restoration and protection, and the use of real-world desired future condition definitions for watersheds. Better definition of what the somewhat imprecise statutory goals mean in the real world might help to overcome the apparent belief that those goals are impossible or infeasible to attain.



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1. 33 U.S.C. § 1251(a) (2006).

> *"It's not enough that we do our best; sometimes we have to do what's required."*[2]
>
> —Winston Churchill

## INTRODUCTION

The federal Clean Water Act (CWA)[3] is a mammoth of a statute.[4] Over the course of its long history,[5] the CWA has spawned an equally

2. Jennifer Rosenberg, *Churchill Quotes: A Collection of Quotes by Winston Churchill*, ABOUT.COM (July 21, 2013), http://www.history1900s.about.com/od/people/a/ChurchillQuotes.htm.

3. 33 U.S.C. §§ 1251–1387. Congress first passed the Federal Water Pollution Control Act, ch. 750, Pub. L. No. 80-85, 62 Stat. 1155, in 1948 and amended it several times before passing the version now known by its short name, "Clean Water Act." *See* WILLIAM H. RODGERS, JR., ENVIRONMENTAL LAW § 4.1.A.4.a (2d ed. 1994).

4. The Act, as amended, consumes 180 pages in the U.S. Code. 33 U.S.C. §§ 1251–1387. These provisions appear at pages 797–977 of the published Code.

5. This Article was inspired by the fortieth anniversary of what most CWA observers view as adoption of the "modern" version of the statute in October 1972. *See* Federal Water Pollution Control Act Amendments of 1972, Pub. L. No. 92-500, 86 Stat. 816.

impressive battery of implementing regulations[6] and guidance documents,[7] and a huge body of case law interpreting and enforcing the statute.[8]

This massive level of statutory and regulatory detail is explained, perhaps, by the reality that water pollution control is a very complex undertaking. Hundreds of thousands of municipal and industrial "point source[s]"[9] discharge a diverse array of "pollutant[s]"[10] into the "navigable waters."[11] An even larger set of human activities known somewhat inelegantly as "nonpoint sources"[12]—indeed virtually every human use of land—contributes further to the impairment of the rivers, lakes, and coastal waters that Congress enacted the CWA to protect. Efforts to control each of those pollution sources involve technical, economic, political, and other complexities. The intricate, layered set of principles Congress adopted to distinguish fairly among those sources while still providing sufficient control to protect human health and welfare and the quality of aquatic environments reflect those complications.

At times, however, this degree of complexity obscures the relatively straightforward—although admittedly ambitious—overarching objective of the CWA to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[13] Thus, while many scholars and practitioners (including me, in both capacities) have written a tremendous body of doctrinal commentary on virtually all aspects of the CWA's implementation, and offered many specific proposals for

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6. *See* 40 C.F.R. pts. 104–503 (2012).

7. For links to a lengthy set of CWA guidance documents, see *Water: Policy & Guidance*, EPA, http://water.epa.gov/lawsregs/guidance/index.cfm (last visited Aug. 3, 2013).

8. Federal case annotations alone consume more than 750 pages of the U.S. Code Annotated. *See* 33 U.S.C.A. §§ 1251–1387 (West 2013).

9. *See* 33 U.S.C. § 1362(14) (defining a point source as "any discernible, confined and discrete conveyance . . . from which pollutants are or may be discharged"). According to EPA, as of 2001 over 400,000 point source dischargers required permits under the National Pollutant Discharge Elimination System (NPDES). EPA, PROTECTING THE NATION'S WATERS THROUGH EFFECTIVE NPDES PERMITS, A STRATEGIC PLAN FY 2001 AND BEYOND 1 (2001), *available at* http://www.epa.gov/npdes/pubs/strategicplan.pdf.

10. *See* 33 U.S.C. § 1362(6) (defining a large range of materials as "pollutant[s]" covered by the CWA regulatory scheme).

11. *See id.* § 1362(7) (defining "navigable waters" as "the waters of the United States" for purposes of the statute's geographic reach).

12. Because the Act does not define "nonpoint sources" separately, by negative implication a nonpoint source is any source of "pollution" other than a point source.

13. 33 U.S.C. § 1251(1). As detailed below, this principal objective is accompanied by a series of subsidiary congressional goals and policies. *See id.* § 1251(a)(1)–(7).

improvement,[14] my purpose in this essay honoring the fortieth anniversary of the pivotal 1972 CWA amendments is far more basic, but hopefully equally important.

Most analysis of CWA implementation suggests that there has been significant progress in implementing many of the statute's discrete technical commands, although other parts of the law have been far less effective. Despite this progress, however, it is equally apparent that the principle aspirations of the statute remain unfulfilled. I explore two main questions in this Article: (1) why do the CWA's principal aspirations remain unmet?; and (2) what can be done to restore the spirit of aspiration that Congress embedded in the statute in 1972?

Part I of this essay will identify the attributes of the CWA that characterize it as a highly *aspirational* statute. Part II will demonstrate briefly that those aspirations have not been met, despite four solid decades of dedicated effort and commitment by federal, state, and local governments as well as the private sector, not to mention billions of dollars in public and private investment in water pollution control. Part III will posit three theories to explain why the law's major aspirations have not been fulfilled, and attempt to explain the Act's failures by reference to each of those theories. Part IV will suggest a new perspective on how to convert the philosophy of aspiration in the CWA to reality, supported by several brief examples of existing, uncelebrated programs that illustrate the concept. Part V will conclude that the key to restoring aspiration to the CWA—and to restoring the chemical, physical, and biological integrity of the Nation's waters—may be to focus on affirmative definitions of the future condition of aquatic ecosystems instead of simply implementing a series of negative prohibitions.

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14. For just a small sampling of this huge body of scholarship, and with due apologies to virtually all of the authors who necessarily must be omitted, see Michael C. Blumm & William Warnock, *Roads Not Taken: EPA vs. Clean Water*, 33 ENVTL. L. 79 (2003); Jamison E. Colburn, *Waters of the United States: Theory, Practice, and Integrity at the Supreme Court*, 34 FLA. ST. U. L. REV. 183 (2007); David Drelich, *Restoring the Cornerstone of the Clean Water Act*, 34 COLUM. J. ENVTL. L. 267 (2009); Victor B. Flatt, *Spare the Rod and Spoil the Law: Why the Clean Water Act Has Never Grown Up*, 55 ALA. L. REV. 595 (2004); Jeffrey M. Gaba, *Generally Illegal: NPDES General Permits Under the Clean Water Act*, 31 HARV. ENVTL. L. REV. 409 (2007); Robert L. Glicksman & Mathew 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 (2010); Kenneth M. Murchison, *Learning from More Than Five-and-a-Half Decades of Federal Water Pollution Control Legislation: Twenty Lessons for the Future*, 32 B.C. ENVTL. AFF. L. REV. 527 (2005); Mark C. Van Putten & Bradley D. Jackson, *The Dilution of the Clean Water Act*, 19 U. MICH. J.L. REFORM 863 (1986).

## I. THE CLEAN WATER ACT IS AN ASPIRATIONAL STATUTE

What do I mean by "aspirational"? To some extent, all statutes (or more precisely, those who propose and adopt them) are aspirational in that they propose to achieve specific goals, for example, to punish or to deter individual acts of homicide. An aspirational national homicide statute, however, might set a goal of "a murder-free America by 2050" rather than simply criminalizing specific actions.

### *A. Chemical, Physical, and Biological Integrity*

In this sense, the CWA is manifestly an aspirational statute, as reflected most notably in the opening words of section 101.[15] Rather than simply prohibiting specific actions that cause water pollution, Congress established an ambition-affirmative goal: "The objective of this chapter is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[16]

The degree of ambition reflected in this aspiration depends on the meaning of the word "integrity," which I have discussed in an earlier work.[17] Briefly, Congress made clear in the legislative history of the 1972 amendments, in which this language was adopted, that "chemical, physical, and biological integrity" means something approximating natural aquatic ecosystem structure and function. The 1971 Senate Report, for example, indicated that integrity "requires that any changes . . . in a pristine water body be of a temporary nature, such that by natural processes, within a few hours, days or weeks, the aquatic ecosystem will return to a state functionally identical to the original."[18] Similarly, the 1972 House Report explained that integrity "refers to a condition in which the natural structure and function of ecosystems is maintained."[19]

Congress reinforced the opening objective of the CWA in the statutory definition of "pollution" as "the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water."[20] Notably, that definition of pollution encompasses a far

15. 33 U.S.C. § 1251.

16. *Id.* § 1251(a).

17. *See* Robert W. Adler, *The Two Lost Books in the Water Quality Trilogy: The Elusive Objectives of Physical and Biological Integrity*, 33 ENVTL. L. 29, 44–46 (2003).

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

19. H.R. REP. NO. 92-911, at 76 (1972).

20. 33 U.S.C. § 1362(19).

broader range of human activities that might impair aquatic ecosystem integrity than direct discharges of pollutants.[21] The statutory definition of pollution logically includes, for example, dams that alter the flow regime and physical structure of water bodies; water withdrawals that change a river's hydrology, habitat, and temperature regime; levees or other flood control structures that modify stream bank morphology, adjacent wetlands, floodplain, and other riparian habitat; and every land use that causes erosion and sedimentation and changes to storm water discharge rate and timing. To pursue the analogy to a hypothetical aspirational national homicide statute, Congress might add, in addition to direct prohibitions on intentional killing, a definition of "unnatural deaths." That definition might include every situation in which people die from preventable causes, and an accompanying aspirational goal that all such deaths be avoided.

### *B. Subsidiary Goals and Policies*

To "achieve" the overarching statutory objective of chemical, physical, and biological integrity, Congress added a series of subsidiary goals and policies.[22] There is no clear indication in the legislative history whether Congress intended to distinguish sharply between the "objective" in the opening sentence of the CWA and the "goals" established in subsections 101(a)(1) and (2) versus the "policies" expressed in subsections 101(a)(3)–(7). Typically, courts assume that the legislature chooses different words intentionally, to indicate different meanings.[23] The statutory "objective" appears to reflect the underlying intended end result of the statutory scheme, and the sentence that follows the objective makes clear that the ensuing goals and objectives are designed as means to that end: "In order to achieve this objective it is hereby declared that, consistent with the provisions of this chapter— . . . ."[24] Moreover, the two "goals" provisions have an associated temporal deadline,[25] while the "policy" statements do not,[26] implying a specific intended result for the former and a more general intent as to methods for the latter.

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21. *See id.* §§ 1311(a), 1362(12) (prohibiting the discharge of any pollutant by any person).

22. 33 U.S.C. § 1251(a)(1)–(7).

23. *See* Bailey v. United States, 516 U.S. 137, 146 (1995) ("We assume that Congress used two terms because it intended each term to have a particular, nonsuperfluous meaning.").

24. 33 U.S.C. § 1251(a).

25. *Id.* § 1251(a)(1)–(2).

26. *Id.* § 1251(a)(3)–(7).

### *1. The Zero-Discharge Goal*

The first in the series of goals and policies, commonly referred to as the "zero-discharge goal," provides: "[i]t is the national goal that the discharge of pollutants into the navigable waters be eliminated by 1985."[27] Again returning to the hypothetical homicide statute, the analogy would be a congressional pronouncement in 1972 that all intentional acts leading to the death of a human being, whether or not the actor intended a fatal result, be eliminated by 1985.

The ambitious and aspirational nature of this goal is underscored by several factors. Congress defined the term "pollutant" broadly,[28] giving the national discharge elimination goal a very broad sweep. The term "navigable waters"[29] also reflects a broad sweep, although the Supreme Court has narrowed the statute's geographic jurisdiction through a series of recent decisions.[30] Note, however, that Congress never actually envisioned that the so-called "zero-discharge" goal would result in the complete elimination of pollutants reaching the nation's waters, notwithstanding its simultaneous creation of the "National pollutant discharge elimination system" in section 402 of the CWA.[31] The statutory goal is "that the *discharge of pollutants* into the navigable waters be eliminated by 1985."[32] The italicized phrase, however, is defined as "any addition of any pollutant to navigable waters *from any point source*,"[33] meaning that nonpoint source discharges of pollutants[34]—as well as other forms of water pollution[35]—were not included in the zero-discharge aspiration.

In historical context, the zero-discharge goal must be viewed in light of the fact that, in 1972, a combination of municipal and industrial dischargers were dumping large amounts of pollutants into the nation's

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27. *Id.* § 1251(a)(1).

28. *Id.* § 1362(6).

29. *See supra* note 11 and accompanying text.

30. *See* Rapanos v. United States, 547 U.S. 715 (2006); Solid Waste Agency of N. Cook Cnty. v. U.S. Army Corps of Eng'rs, 531 U.S. 159 (2001).

31. 33 U.S.C. § 1342.

32. *Id.* § 1251(a)(1) (emphasis added).

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

34. The statutory definition of "discharge," unadorned by the qualifier "of pollutants," is broader than "discharge of pollutants" because it includes, but is not limited to, a "discharge of pollutants." *Id.* § 1362(16); *see* S.D. Warren Co. v. Me. Bd. of Envtl. Prot., 547 U.S. 370 (2006).

35. *Compare* 33 U.S.C. § 1362(19) (defining "pollution" as "the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water"), *with id.* § 1362(12) (defining the narrower concept of "discharge of pollutants").

waters annually, yet Congress demanded that those discharges cease entirely in a scant thirteen years.[36] Despite significant progress toward reducing pollutant discharges over the past four decades, however, it is notable that we remain a long way from achieving the goal several decades after the deadline for the initial goal passed.[37]

*2. The Fishable and Swimmable Goal*

The second subsidiary goal of the CWA, commonly referred to as the "fishable and swimmable" goal, provides that "wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983."[38] This goal, which focuses on the desired condition of the water body rather than the actions of individual dischargers, is nevertheless similarly aspirational in that it articulates a long-term goal rather than simply prescribing or proscribing particular actions or conduct. A reasonable analogy in the hypothetical national homicide statute would be a goal of "safe communities by 1983," meaning that people should feel comfortable walking the streets of their communities with a reasonable expectation that violent crime is not likely, even if the risk of violence is not zero.

Despite being aspirational in nature, however, the fishable and swimmable goal seems inherently less ambitious than the zero-discharge goal. The fishable and swimmable goal is tempered by the phrase "wherever attainable," which, although construed narrowly by EPA,[39] allows some room for exception based on circumstances and therefore is less absolutist than the zero-discharge goal. The meaning of "wherever attainable . . . by July 1, 1983," however, is not entirely clear in the context of the full provision. One possible meaning, which EPA appears to have adopted by regulation, is that fishable and swimmable waters should be achieved by 1983 *wherever attainable*, meaning in those water bodies in which those goals are possible.[40] An equally plausible reading of the text is that Congress intended water bodies to be made fishable and swimmable, wherever attainable *by 1983*. This latter interpretation would allow for some flexibility in the date, but not the ultimate fact, of

36. *Id.* § 1251(a)(1) (adopted in October 1972 and requiring the complete elimination of the discharge of pollutants nationwide by 1985).

37. *See infra* Part III.A.

38. 33 U.S.C. § 1251(a)(2).

39. *See* 40 C.F.R. § 131.10(g) (2012).

40. *See id.* § 131.2.

attainment of the fishable and swimmable goal.[41]

Some believe that the CWA aspiration that all pollutant discharges must be eliminated entirely is extreme, but that the notion that waters should be unpolluted enough to support resident populations of fish and wildlife and clean enough to swim in is eminently reasonable.[42] Indeed, at the time Congress was deliberating the 1972 Amendments, the National Water Commission favored this water quality-based approach, believing the zero-discharge goal to be unpractical, unnecessary, and economically unwise.[43] On the other hand, the deadline for achieving the fishable and swimmable goal turned out to be unrealistic, at least as the CWA was actually implemented. Congress allowed only a decade to move from rivers catching on fire to rivers that were "fishable and swimmable."[44] Four decades later, a significant percentage of the nation's waters have not yet attained that status.[45]

### *3. No Toxics in Toxic Amounts*

The third subsidiary statutory aspiration, this one in the form of a congressional "policy" statement,[46] is "the national policy that the discharge of toxic pollutants in toxic amounts be prohibited."[47] As with the phrase chemical, physical, and biological integrity," the degree of aspiration reflected in this policy depends on definition. What are "toxic pollutants" and what is a "toxic amount"? The sixteenth century physician Paracelsus, often identified as the father of toxicology,[48] famously noted: "Solely the dose determines that a thing is not a poison."[49] Any substance can be toxic in sufficient amounts, and although a sixteenth century physician lacked the tools necessary to

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41. Although no court appears to have had the opportunity to pass on these competing interpretations, presumably the result would depend on whether a court found the meaning of the provision clear under step I of the *Chevron* test, or ambiguous under *Chevron* step II. *See* Chevron, U.S.A., Inc. v. Natural Res. Def. Council, Inc., 467 U.S. 837 (1984).

42. *See infra* Part III.B.2.

43. *See infra* notes 218–20 and accompanying text.

44. 33 U.S.C. § 1251(a)(2) (2006) (establishing July 1, 1983 deadline in the statute adopted in October 1972).

45. *See infra* Part III.A.2.

46. *See supra* notes 22–26 and accompanying text regarding the distinction between congressional goals and policies in the CWA.

47. 33 U.S.C. § 1251(a)(3).

48. *See* Joseph F. Borzelleca, *Paracelsus: Herald of Modern Toxicology*, 53 TOXICOLOGICAL SCI. 2, 2 (2000).

49. *Id.* at 3. I thank my former colleague Diane Cameron for bringing this quote to my attention many years ago.

understand the concept of non-threshold toxins,[50] even the most lethal substance does not necessarily cause harm in sufficiently low doses.

The term "toxic pollutant" is defined in the CWA,[51] and in the 1977 amendments to the CWA Congress later enumerated more specifically which pollutants were considered toxic for purposes of the Act.[52] What constitutes a "toxic amount," however, remains the subject of the difficult and controversial science and policy of risk assessment.[53] Thus, the degree of aspiration reflected in the "no toxics in toxic amounts" policy depends on agency scientific and value judgments regarding what is toxic.

On its face, the "no toxics in toxic amounts" policy in section 101(a)(3)[54] also seems inconsistent with the zero-discharge goal established in section 101(a)(1).[55] To be attained, the "zero-discharge goal" requires that all pollutant discharges be eliminated entirely. Fulfillment of the "no toxics in toxic amounts" policy, by contrast, requires only prohibition of the discharge of certain pollutants in certain amounts. How can the two apparently inconsistent provisions, both of which were in the original Senate bill leading to the 1972 Act,[56] be reconciled?

One possible explanation is that Congress adopted the zero-discharge goal as a statutory goal with an associated 1985 deadline, whereas "no toxics in toxic amounts" is a policy with no associated deadline. The most logical way to reconcile those otherwise inconsistent concepts is that Congress intended EPA to implement the no-toxics policy much more quickly, as an intermediate step to effectuating both the 1983 "fishable and swimmable" goal and the 1985 "zero-discharge" goal. Of course, none of the three have been implemented fully as of 2013.[57] Nevertheless, the view of the policy articulated in section 101(a)(3) as a means of implementing the first two statutory goals is consistent with the fact that the four ensuing congressional "policy" statements similarly

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50. *See* Natural Res. Def. Council, Inc. v. EPA, 824 F.2d 1146 (D.C. Cir. 1987) (en banc) (describing non-threshold pollutants).

51. 33 U.S.C. § 1362(13).

52. *Id.* § 1317(a).

53. *See, e.g.*, Mark Eliot Shere, *The Myth of Meaningful Environmental Risk Assessment*, 19 HARV. ENVTL. L. REV. 409 (1995); Wendy E. Wagner, *The Science Charade in Toxic Risk Regulation*, 95 COLUM. L. REV. 1613 (1995).

54. 33 U.S.C. § 1251(a)(3).

55. *Id.* § 1251(a)(1).

56. *See* S. REP. NO. 92-1236, at 2 (1972) (Conf. Rep.), *reprinted in* 1972 U.S.C.C.A.N. 3776, 3777. The House bill also included the zero-discharge provision. *See id.*

57. *See infra* Part III.

outline means to the statutory ends.[58]

### *C. Aspiration Versus Operation in the Clean Water Act*

Viewed from the above perspective, there is a logical hierarchy to the objective, goals, and policies Congress included in section 101(a) of the CWA. The first sentence of the statute contains Congress's ultimate objective, to restore and maintain the structure and function of the nation's waters and their associated aquatic ecosystems as measured by "chemical, physical, and biological integrity." Congress then articulated a series of "goals" and "policies" "[i]n order to achieve" that objective. The policies, however, appear to identify specific means to accomplish the deadline-driven goals of fishable and swimmable waters, wherever attainable by 1983, and zero-discharge of pollutants—at least from point sources—by 1985. Even these two time-defined goals appear to be ranked, with the earlier 1983 goal of fishable and swimmable waters identified as an "interim goal" en route to the 1985 zero-discharge goal.[59]

A logical objection to this emphasis on the statutory goals and policies of the CWA is that hortatory congressional statements typically have no independent legal force and effect, and therefore can be over-interpreted.[60] Although many courts have quoted those aspirations in interpreting the operative provisions of the CWA,[61] even referring to them as the "guiding star[s]" of the 1972 legislation,[62] similar aspirations are included in many federal environmental statutes.[63] One court

58. *See* 33 U.S.C. § 1251(a)(4) (establishing a national policy of providing federal financial assistance for publicly owned treatment works); *id.* § 1251(a)(5) (establishing a national policy to develop and implement areawide waste treatment management planning processes to ensure adequate pollution control); *id.* § 1251(a)(6) (establishing a national policy to conduct research and development necessary to develop the technology needed to eliminate pollutant discharges); *id.* § 1251(a)(7) (establishing a national policy of developing and expeditiously implementing programs to control nonpoint source pollution).

59. *Id.* § 1251(a)(2).

60. *See* Rodriguez v. United States, 480 U.S. 522, 525–26 (1987) (per curiam) ("[I]t frustrates rather than effectuates legislative intent simplistically to assume that *whatever* furthers the statute's primary objective must be the law." (emphasis in original)).

61. *See, e.g.*, United States v. Borowski, 977 F.2d 27, 30 (1st Cir. 1992); Weyerhaeuser Co. v. Costle, 590 F.2d 1011, 1025 (D.C. Cir. 1978); Am. Paper Inst. v. Train, 543 F.2d 328, 333 (D.C. Cir. 1976).

62. Kennecott Copper Corp. v. EPA, 612 F.2d 1232, 1236 (10th Cir. 1979); Am. Petrol. Inst. v. EPA, 540 F.2d 1023, 1028 (10th Cir. 1976).

63. *See, e.g.*, 16 U.S.C. § 1531(b) (2006) (Endangered Species Act provision articulating a congressional purpose "to provide a means whereby the ecosystems upon which endangered species

explained why the specific provisions of operative text in the statute must temper expectations about complete fulfillment of the statutory aspirations:

> Undeniably, Congress's strong statement of its objective must color EPA's and our interpretation of specific provisions of the Act. But, as any student of the legislative process soon learns, it is one thing for Congress to announce a grand goal, and quite another for it to mandate full implementation of that goal.[64]

Why, then, should we focus on the extent to which the aspirations contained in the hortatory opening provisions of the CWA have been achieved? First, although it is true that statements of legislative goals and policies do not have legal force and effect absent legislative indications to the contrary, courts use such statements to interpret other statutory provisions.[65] That has been true on numerous occasions in construing the CWA.[66] On the other hand, courts sometimes specifically reject the operability of lofty legislative pronouncements in environmental statutes. This is perhaps most famously the case with the National Environmental Policy Act,[67] but has also been true for the

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and threatened species depend may be conserved"); 42 U.S.C. § 4321 (2006) (National Environmental Policy Act provision establishing a "national policy which will encourage productive and enjoyable harmony between man and his environment; [and] to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man"); *id.* § 6902(b) (establishing a "national policy of the United States that, wherever feasible, the generation of hazardous waste is to be reduced or eliminated as expeditiously as feasible," and waste that is generated is "treated, stored, or disposed of so as to minimize the present and future threat to human health and the environment"); *id.* § 7401(b)(1) (Clean Air Act provision establishing congressional purpose "to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population").

64. Nat'l Wildlife Fed'n v. Gorsuch, 693 F.2d 156, 178 (D.C. Cir. 1982). The court noted that Congress intended the statutory objective to be tempered by economic, technological, and political realities, as reflected in specific exemptions or requirements of various operative provisions. *Id.* The court further stated:

> Moreover, the purposes section, in its own right, suggests that Congress recognized that the substantive provisions of the Act fall short of completely achieving the announced goals of the Act. Congress hedged the purposes section by making it apply only as "consistent with the provisions of this [Act]," and explicitly distinguished between the congressional "policy" to eliminate discharge of toxic pollutants and the presumably weaker "goal" of eliminating discharge of all pollutants.

*Id.*

65. *See* Donovan v. Dewey, 452 U.S. 594, 602 n.7 (1981) (citing statutory preamble to interpret other provisions of Mine Safety and Health Act).

66. *See, e.g.*, *Kennecott Copper*, 612 F.2d at 1236; *Am. Petrol. Inst.*, 540 F.2d at 1028.

67. *See* Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 350 (1989) (minimizing the significance of Congress's substantive policy statements in favor of the operative procedural provisions of the statute).

CWA.[68]

Second, although other federal environmental statutes contain similarly lofty rhetorical goals,[69] arguably none of them articulate affirmative aspirations as clearly, as specifically, and as unambiguously as does the CWA. For example, the purpose of the Endangered Species Act is to "provide a means" to protect endangered species and the ecosystems on which they depend,[70] and the policy of the National Environmental Policy Act is to "encourage" harmony between humans and the environment and to "promote efforts" to reduce or eliminate environmental harm.[71] Although the CWA also includes aspirations to provide a means to achieve various statutory ends, the underlying objective is not simply to provide those means, but affirmatively to restore and maintain the "integrity of the Nation's waters."[72]

Similarly, the stated goals and purposes of the Clean Air Act (CAA) and the Resource Conservation and Recovery Act (RCRA), respectively, are more qualified than are the analogous aspirations in the CWA. The CAA promises "to protect and enhance" air quality to an unspecified degree,[73] and the RCRA commits only to "reduce[] or eliminate[]" waste generation to the extent feasible, and where it is not feasible to do so to "minimize" resulting threats to human health and the environment.[74] By contrast, in addition to the overarching promise of complete restoration and maintenance of chemical, physical, and biological integrity, the 1972 CWA included more specific commitments to provide water quality sufficient to support fishable and swimmable waters by 1983 wherever attainable,[75] and to *eliminate* point source discharges of pollutants by 1985.[76]

Third, and most important, Congress included in the CWA specific operative provisions designed to implement the major aspirations in the statute's opening statement, making it more difficult to simply ignore those aspirations as the product of lofty legislative pronouncements.

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68. *See supra* note 64 and accompanying text.

69. *See supra* note 63 and accompanying text.

70. 16 U.S.C. § 1531(b) (2006).

71. 42 U.S.C. § 4321 (2006).

72. 33 U.S.C. § 1251(a) (2006).

73. 42 U.S.C. § 7401(b)(1).

74. *Id.* § 6902(b).

75. 33 U.S.C. §1251(a)(2). *But see supra* notes 39–41 and accompanying text regarding alternative interpretations of this language.

76. 33 U.S.C. § 1251(a)(1).

Section 303(c) of the CWA[77] most directly links one of the statute's key operative provisions to the statement of goals and policies by providing that state water quality standards "shall be such as to protect the public health or welfare, enhance the quality of water and *serve the purposes of this* [Act]."[78] In its water quality standards program regulations, EPA interprets this language to require state water quality standards to protect two minimum types of uses in all water bodies for which attainment of those uses is possible: (1) fish, shellfish, and wildlife, and (2) recreation involving human contact with water ("contact recreation").[79] Moreover, CWA section 301(b)(1)(C) required effluent limitations for point source discharges sufficient to meet those standards—and therefore to protect the minimum statutory uses of fishable and swimmable waters—by July 1, 1977;[80] the total "maximum daily load" (TMDL) provision requires states to develop and implement corrective measures for those waters that failed to meet those standards.[81] Thus, Congress matched the statutory aspiration of fishable and swimmable waters by 1983 with very specific provisions to effectuate that goal.

Similarly, in the 1972 legislation Congress backed up the 1985 zero-discharge goal with specific statutory-implementing requirements, although with somewhat more liberal escape provisions to account for potential infeasibility. Moreover, as discussed further below, in the 1977 and 1981 amendments Congress weakened those provisions in several significant ways.[82] With respect to both municipal sewage and industrial point source discharges, Congress in 1972 adopted two sequential series of technology-based "effluent limitations" designed to move from pollutant abatement to pollutant elimination, with express requirements to achieve the zero-discharge goal wherever possible.

For municipal sewage, Congress required publicly-owned treatment works (POTWs) to adopt "secondary treatment" technology to meet effluent standards adopted by EPA[83] by July 1, 1977.[84] However, Congress also imposed on POTWs a second round of stricter technology-based treatment requirements known as "best practicable

77. *Id.* § 1313(c).

78. *Id.* § 1313(c)(2)(A) (emphasis added).

79. 40 C.F.R. § 131.2 (2012).

80. 33 U.S.C. § 1311(b)(1)(C).

81. *Id.* § 1313(d)–(e).

82. *See infra* notes 130–40 and accompanying text.

83. EPA adopted secondary treatment standards by regulation. 40 C.F.R. § 133.102.

84. 33 U.S.C. § 1311(b)(1)(B).

waste treatment technology" (BPWTT).[85] Congress defined BPWTT in section 201(b) of the 1972 amendments as "including reclaiming and recycling of water, and confined disposal of pollutants,"[86] and in several other provisions and relevant legislative history clarified that the BPWTT standard was adopted to eliminate water disposal of sewage pollutants through wastewater recycling and reuse and land disposal of the remaining solids.[87]

Congress adopted similarly ambitious zero-discharge requirements for industrial point sources, also in two phases. By July 1, 1977, the Act required those dischargers to adopt the "best practicable control technology currently available" (BPT),[88] but the second round of industrial effluent limitations required the "best available technology economically achievable" (BAT) "which will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants," and which "shall require the elimination of discharges of all pollutants if . . . such elimination is technologically and economically achievable for a category or class of point sources."[89] Similarly, for new industrial point sources Congress demanded the "greatest degree of effluent reduction . . . achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants."[90] Thus, although qualified by concepts of feasibility, Congress specifically backed up its zero-discharge aspiration with enforceable discharge control requirements.

Likewise, in the 1972 version of the CWA, Congress sought to implement the "no toxics in toxic amounts" aspiration with specific regulatory requirements. In section 307, Congress directed EPA to publish a list of toxic water pollutants, and to promulgate pollutant-

85. Clean Water Act of 1977, Pub. L. No. 95-217, sec. 49, § 304, 91 Stat. 1566, 1588 (adding § 304(d)(3), codified at 33 U.S.C. § 1314(d)(3)); Federal Water Pollution Control Act Amendments of 1972, Pub. L. No. 92-500, sec. 2, §§ 201, 301, 86 Stat. 816, 833–34, 845, *repealed by* Municipal Wastewater Treatment Construction Grant Amendments of 1981, Pub. L. No. 97-117, § 21(b), 95 Stat. 1623, 1632 (repealing § 301(b)(2)(B)).

86. Federal Water Pollution Control Act Amendments of 1972 §§ 201, 301(b), 86 Stat. at 833–34, 844–45.

87. For a more thorough discussion, see Robert W. Adler, *Water and Wastewater Infrastructure in the United States: The Clean Water-Energy-Climate Nexus*, 4 GEO. WASH. J. OF ENERGY & ENVTL. L. __ (forthcoming Summer 2013).

88. 33 U.S.C. § 1311(b)(1)(A). New source performance standards adopted under this provision must be included in all discharge permits for new sources. *Id.* § 1342(a)(1)–(b)(1).

89. *Id.* § 1311(b)(2)(A).

90. *Id.* § 1316(a)(1).

specific effluent standards or prohibitions for those pollutants.[91] Congress amended those requirements in 1977 to control toxic pollutants from industrial sources largely through the technology-based effluent limitations adopted under sections 301 and 304 of the Act,[92] but in the amended version of section 307 Congress retained EPA's authority to regulate pollutants, in the alternative, based on toxicity rather than feasibility.[93]

It is significantly more difficult to evaluate the degree to which Congress adopted operative provisions designed to effectuate the overarching statutory objective to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[94] That objective requires full implementation of the entire statute in all its complexity. Clearly, Congress understood in 1972 that control of point sources alone—even to the point of zero discharge—would not suffice to attain the statutory objective given the pervasive nature of nonpoint source pollution.[95] To address this problem, however, Congress enacted a series of comprehensive planning and control provisions designed, in theory, to identify and control the full range of pollution sources.[96]

What is not so clear is whether Congress understood, at least in 1972, the breadth of reasons why the waters of the United States had lost their chemical, physical, and biological integrity, and the equally broad scope of actions needed to redress them. Although Congress adopted measures to address both point source and nonpoint source discharges of pollutants into the nation's waters, it did not focus so clearly on other forms of water "pollution," such as dams, water diversions, stream channelization, and loss or degradation of floodplains and other riparian habitats,[97] and the tools needed to address those problems are far less

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91. Federal Water Pollution Control Act Amendments of 1972, sec. 2, § 307(a), 86 Stat. at 856–57. Congress directed EPA to adopt those standards based on toxicity, persistence, degradability, presence in aquatic organisms and the importance of those organisms, and the nature and degree of impacts from those pollutants. *Id.*

92. *See* Clean Water Act of 1977, Pub. L. No. 95-217, § 53(a), 91 Stat. 1566, 1589–90 (amending 33 U.S.C. § 1317(a)).

93. 33 U.S.C. § 1317(a)(2).

94. *Id.* § 1251(a).

95. *See* S. REP. NO. 92-414, at 39 (1971), *reprinted in* 1972 U.S.C.C.A.N. 3668, 3705.

96. *See* 33 U.S.C. § 1281 (calling for adoption of comprehensive waste treatment management plans); *id.* § 1288 (calling for area-wide waste treatment programs addressing multiple pollution sources); *id.* § 1313(d) (requiring total maximum daily load calculations for impaired waters); *id.* § 1313(e) (requiring states to develop continuing planning processes to address aggregate water pollution problems).

97. *See* ROBIN A. ABELL ET AL., FRESHWATER ECOREGIONS OF NORTH AMERICA, A CONSERVATION ASSESSMENT 17–20 (2000) (identifying diverse sources of impairment to U.S.

precise. Arguably, the one provision that focuses sharply on physical destruction of aquatic ecosystems, the permitting program that governs discharges of dredged or fill material into wetlands and other waters of the United States, has been among the least effective in achieving the goals and objectives of the statute.[98]

Thus, although the operative provisions of the CWA implement the statutory goals and objectives inconsistently, it is clear that Congress adopted specific provisions designed to effectuate the goals articulated in section 101, rather than leaving them as entirely hortatory aspirations. The next section of this Article evaluates the effectiveness of each of these statutory provisions, and others, in achieving the aspirations Congress articulated for the nation's waters in section 101 of the CWA.

## II. THERE HAS BEEN A NOTABLE DECLINE OF ASPIRATION IN IMPLEMENTATION OF THE CLEAN WATER ACT

The above description of the aspirations Congress established for the nation's waters suggests three questions. First, to what degree have those aspirations been achieved in the four decades since the 1972 Act was adopted? Second, to the extent that some or all of those goals have not been attained, what might explain those failures? Third, is there any realistic hope of renewing the aspirations Congress adopted in 1972?

### *A. Relative Attainment of CWA Aspirations*

Particularly given the degree of ambition reflected in CWA section 101(a), it is not surprising that the record of attaining those aspirations is mixed. LaJuana Wilcher, EPA Assistant Administrator for Water under President George H.W. Bush, was fond of saying, "We can't honestly say that all of our waters are fishable and swimmable, but at least they're no longer flammable."[99] As aspirations go, this was a rather modest one. I do not, however, interpret Ms. Wilcher as suggesting that we should rest easy with the knowledge that rivers no longer catch on fire. She

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aquatic ecosystems); EPA, A PRIMER ON USING BIOLOGICAL ASSESSMENTS TO SUPPORT WATER QUALITY MANAGEMENT 1 (2011) [hereinafter PRIMER ON USING BIOLOGICAL ASSESSMENTS] (same).

98. *See infra* notes 181–99 and accompanying text.

99. I was a Senior Attorney and Director of the Clean Water Program at the Natural Resources Defense Council at the time I heard these speeches. I also served on the Management Advisory Committee to Ms. Wilcher. Ms. Wilcher was referring to the fact that the Cuyahoga River fire of June 22, 1969 provided some impetus for enactment of the 1972 CWA amendments. *See* Jonathan H. Adler, *Fables of the Cuyahoga: Reconstructing a History of Environmental Protection*, 14 FORDHAM ENVTL. L. J. 89, 92 (2002).

merely was indicating that significant progress had been made in cleaning up the nation's waters even if additional problems remained. There is considerable evidence to support this "glass half full" picture of the nation's clean water accomplishments since 1972.

### *1. Progress Toward Zero Discharge*

There is little doubt that significant progress has been made in reducing point source pollutant discharges since 1972. In the case of municipal sewage, as of 2008, the number of U.S. residents served by advanced wastewater treatment systems increased from less than eight million to approximately 113 million, and the population served by less than secondary treatment[100] declined from fifty million to fewer than four million.[101] That resulted in an estimated 45% reduction in major pollutants discharged to surface waters in the face of a 35% increase in sewage inflow into the nation's sewer systems.[102]

Industrial dischargers show similar progress. States or EPA issued tens of thousands of NPDES permits to industrial facilities under CWA section 402.[103] EPA estimates that the initial implementation of treatment requirements imposed under those permits reduced discharges of toxic pollutants dramatically, plus significantly larger reductions for

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100. Secondary treatment refers to the minimum level of treatment Congress deemed acceptable for municipal sewage. 33 U.S.C. § 1311(b)(1)(B). EPA defined secondary treatment more specifically by regulation. 40 C.F.R. pt. 133 (2012). *See generally* DADE W. MOELLER, ENVIRONMENTAL HEALTH 173 (3d ed. 2005).

101. EPA, EPA-832-R-10-002, CLEAN WATERSHED NEEDS SURVEY 2008 REPORT TO CONGRESS, at ix (2010) [hereinafter CLEAN WATERSHED NEEDS SURVEY]. Approximately three quarters of the U.S. population is now served by centralized wastewater collection and treatment systems. *Id.* Moreover, a large percentage of treatment facilities that do not attain secondary treatment are subject to statutory waivers for certain ocean discharges. *See* 33 U.S.C. § 1311(h); Clean Water Act of 1977, Pub. L. No. 95-217, sec. 44, § 301(h), 91 Stat. 1566, 1584.

102. EPA, EPA-832-R-00-008, PROGRESS IN WATER QUALITY: AN EVALUATION OF THE NATIONAL INVESTMENT IN MUNICIPAL WASTEWATER TREATMENT, at ES-5 (2000) [hereinafter PROGRESS IN WATER QUALITY]. EPA's forty-five percent decline estimate is based on reductions in the traditional measure of five-day biological oxygen demand ($BOD_5$) used in EPA's secondary treatment definition. *See* 40 C.F.R. § 133.102.

103. 33 U.S.C. § 1342. According to data reported by EPA on NPDES permit backlogs, as of March 2013 there were 5082 permits for major industrial facilities out of 6699 facilities total, *National Pollutant Discharge Elimination System (NPDES), Backlog Reduction*, EPA.GOV, http://www.epa.gov/npdes/pubs/grade_2013.pdf (last visited Sept. 16, 2013); 32,890 permits for minor industrial facilities out of 39,459 total, *id.* http://www.epa.gov/npdes/pubs/grade_minor_2013.pdf; and non-storm water general permits covering 73,483 out of 80,279 facilities, *id.* http://www.epa.gov/npdes/pubs/grade_all_2013.pdf. Overall, EPA estimates that more than 500,000 facilities require NPDES permits. EPA, EPA-833-R-01-001, PROTECTING THE NATION'S WATERS THROUGH EFFECTIVE NPDES PERMITS, A STRATEGIC PLAN FY 2001 AND BEYOND 1 fig.1 (2001).

"conventional pollutants."[104]

Those reductions, however, bring us nowhere close to meeting the zero-discharge goal of the CWA. The obvious conclusion from a 45% reduction in sewage discharges is that 55% of those discharges continue nearly three decades after the statutory goal elapsed. Moreover, future population growth is likely to overwhelm past gains if we continue our current funding and other policies. EPA estimates that by 2016, total discharges of biological oxygen demanding pollutants from sewage[105] will be similar to what they were in the mid-1970s, and by 2025 they will approximate those that occurred before the 1972 CWA.[106]

The same is true for industrial pollutant discharges. A large majority of the roughly 45,000 industrial NPDES permits allow discharges to continue, even if treatment requirements have reduced those releases in volume and toxicity. According to EPA's Toxics Release Inventory (TRI),[107] industries continued to discharge nearly a quarter of a billion pounds of toxic pollutants into U.S. surface waters in 2011,[108] and those numbers have not changed significantly in nearly a decade.[109]

### *2. Progress Toward Fishable and Swimmable Waters*

Although the strict zero-discharge goal epitomizes the overall statutory objective of full chemical, physical, and biological integrity of the nation's waters, most people probably care more about progress toward the fishable and swimmable goal of the CWA. As is true for zero-discharge, the record in meeting this goal is mixed. Within two decades of the Act's passage, many more waterways were safer for swimming, many more fish were safer to eat, and many more populations of fish and aquatic life recovered.[110]

We are a long way, however, from fully meeting the fishable and swimmable aspirations of the CWA. According to EPA's most recent National Water Quality Inventory, 53% of the nation's assessed river miles, 67% of its assessed estuarine surface area, 66% of its assessed

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104. *See* ROBERT W. ADLER ET AL., THE CLEAN WATER ACT 20 YEARS LATER 16 (1993).

105. *See* MOELLER, *supra* note 100, at 202–03 (explaining oxygen demanding pollutants and methods of measuring them).

106. PROGRESS IN WATER QUALITY, *supra* note 102, at ES-6.

107. *See* 42 U.S.C. § 11023 (2006) (establishing a comprehensive reporting system for releases of identified toxic chemicals to the environment above prescribed reporting levels).

108. EPA, 2011 TOXICS RELEASE INVENTORY, NATIONAL ANALYSIS OVERVIEW 4 (2013).

109. *See id.* at 6 fig.4 (depicting roughly constant releases to surface waters).

110. *See* ADLER ET AL., *supra* note 104, at 22–29.

lake acreage, and 82% of its assessed wetlands acreage remain impaired in at least one respect.[111] Similarly, a recent EPA assessment of the biological health of small streams, the first in a series of EPA biological assessments of different classes of water bodies,[112] found that 42% were in poor condition, 25% were in fair condition, 5% were not assessed, and only 28% were in good condition.[113]

Much, but not all, of this remaining water quality impairment is due to nonpoint sources, and so is independent of our failure to meet the zero-discharge goal of the CWA. According to one recent comprehensive analysis, large portions of the country remain at significant impairment risk due to nonpoint sources.[114] Thus, not only have we failed to meet the ultimate statutory objective of restoring the chemical, physical, and biological integrity of more than half of the nation's waters, we have not even met the "interim" 1983 goal of fishable and swimmable waters.

### *3. No Toxics in Toxic Amounts*

Arguably the most pressing, but also perhaps the most reasonable, of the aspirations Congress articulated in the 1972 legislation was "no toxics in toxic amounts." Even if point source discharges could not be eliminated by 1985, at a minimum it may have been more realistic to expect that those discharges could be treated to the point that they were no longer toxic.[115] Even that more modest goal, however, clearly has not

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111. EPA formerly published biennial reports entitled the "National Water Quality Inventory, [Year] Report to Congress," based on state reporting pursuant to CWA § 305(b), codified at 33 U.S.C. § 1315(b) (2006). *See, e.g.*, EPA, EPA 841-R-00-001, NATIONAL WATER QUALITY INVENTORY: 1998 REPORT TO CONGRESS (2000), *available at* http://water.epa.gov/lawsregs/guidance/cwa/305b/98report_index.cfm. Now, EPA publishes and analyzes the most recent data online. *See* EPA, WATERSHED ASSESSMENT, TRACKING, & ENVIRONMENTAL RESULTS: NATIONAL SUMMARY OF STATE INFORMATION, http://ofmpub.epa.gov/waters10/attains_nation_cy.control (last visited Sept. 2, 2013) [hereinafter NATIONAL WATERSHED ASSESSMENT]. The percentages were derived by dividing the threatened and impaired waters by the total number of assessed waters. The Assessment indicated that not all waters have been assessed for water quality attainment, so I base this analysis only on assessed waters.

112. *See* EPA, EPA-822-R-02-048, SUMMARY OF BIOLOGICAL ASSESSMENT PROGRAMS AND BIOCRITERIA DEVELOPMENT FOR STATES, TRIBES, TERRITORIES, AND INTERSTATE COMMISSIONS: STREAMS AND WADEABLE RIVERS (2002).

113. *See* EPA, EPA-841-F-06-001, THE WADEABLE STREAMS ASSESSMENT: A COLLABORATIVE SURVEY OF THE NATION'S STREAMS (2006).

114. Thomas C. Brown & Pamela Froemke, *Nationwide Assessment of Nonpoint Source Threats to Water Quality*, 62 BIOSCIENCE 136, 140–43 (2012); *see also* NATIONAL WATERSHED ASSESSMENT, *supra* note 111.

115. Admittedly the issue of determining what concentrations of pollutants meet the definition of

been met. For example, U.S. Geological Survey monitoring has detected at least one pesticide in 97% of surface water samples and over 90% of fish samples.[116] According to the National Water Quality Inventory, approximately 10,000 river miles and 500,000 acres of lakes have advisories against consuming fish by at least some population groups due to toxicity of that food source.[117] Likewise, states reported 78,339 river miles impaired by polychlorinated biphenyls (PCBs), 63,837 impaired by mercury, 75,770 by other toxic metals, 16,819 by pesticides, 4321 by dioxin, and 4474 by other toxic organic chemicals.[118]

### *B. Possible Reasons for Failure of Aspiration*

It is extremely important to take stock of the progress made under the CWA in the past forty years. Arguably one reason for current anti-regulatory sentiment is collective societal amnesia. Perhaps many people simply do not remember (or, in case of younger people, never experienced) the rivers catching fire, the massive fish kills, or the beaches filled with raw sewage that inspired Congress to pass the 1972 CWA.[119] Failing to celebrate those successes contributes to collective societal amnesia, which further fuels anti-regulatory rhetoric and contributes to the argument that aspirations in the CWA and other environmental statutes cost a lot of money but accomplish little more than making us feel self-righteous.

At the same time, it is worth exploring potential reasons why the original aspirations Congress set forth in 1972 have not been met, and based on that analysis, whether new strategies can be devised to overcome the remaining gaps between aspiration and reality. I suggest three perspectives on why the aspirations set forth in the 1972 CWA have not been achieved to date. Rather than arguing that any one of these three explanations is "correct," I suggest that each explanation is true to some degree, and in some contexts.

The most "political" explanation is that the original statutory goals

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"toxic" is no easy task. *See supra* note 53 and accompanying text.

116. U.S. GEOL. SURVEY, FACT SHEET 2004-3098, STUDIES BY THE U.S. GEOLOGICAL SURVEY ON SOURCES, TRANSPORT, AND FATE OF AGRICULTURAL CHEMICALS (2004).

117. *See* NATIONAL WATERSHED ASSESSMENT, *supra* note 111.

118. *See id.*

119. *See* ADLER ET AL., *supra* note 104, at 5–6. As just one telling example, a recent news story compared the annual swim in Boston's Charles River to the time when people were advised to get tetanus shots if they fell in the river. *Living on Earth: Love That Dirty Water, Swimming in Boston's Charles River* (radio broadcast week of June 7, 2013), *available at* http://www.loe.org/shows/segments.html?programID=13-P13-00023&segmentID=3.

have been subverted at the administrative, judicial, and legislative levels, in whole or in part because of an imbalance of power between the interest groups involved in CWA implementation (particularly industry, state and local governments, and environmental or resource user groups). In other words, Congress meant what it said, but political forces have made full implementation difficult. A second, somewhat related explanation is that the aspirations Congress articulated in 1972 were so ambitious that those charged with implementing them never believed them to be achievable, and instead substituted what they viewed as more "realistic" goals. Congress meant what it said, but the implementing agencies chose to substitute their own policies in place of the stated legislative aspirations. The third possibility is that Congress intentionally established such ambitious aspirations without expecting that they would actually be achieved, instead hoping that they would prod more aggressive implementation than would otherwise occur. Congress meant what it said, but not literally. Each potential explanation is explored further below.

### *1. Subversion Due to Imbalance of Power*

The cynical but perhaps realistic view is that the aspirations set forth in the CWA were subverted over time due to an imbalance in political and legal power among the parties interested in the statute's implementation. This might be explained by agency capture theory or other factors.[120] The common sense explanation is that the entities who would bear the costs of implementing the ambitious statutory aspirations had far more resources and political power to monitor, influence, and challenge in court the numerous steps necessary to effectuate the CWA than did the nonprofit organizations such as the Natural Resources Defense Council and Environmental Defense Fund[121] who carried the banner on those issues on behalf of the public.[122] Entities that had incentives to advocate for reduced compliance costs included most notably industrial point sources (a "who's who" of major U.S.

120. *See* Richard J. Lazarus, *The Tragedy of Distrust in the Implementation of Federal Environmental Law*, 54 LAW & CONTEMP. PROBS. 311, 315–21 (1991) (describing the effect of agency capture on EPA); Joel A. Mintz, *Has Industry Captured the EPA?: Appraising Marver Bernstein's Captive Agency Theory After Fifty Years*, 17 FORDHAM ENVTL. L. REV. 1, 7–9 (2005).

121. I say this with all due respect to the effectiveness of those organizations, particularly given that I headed NRDC's Clean Water Program for seven years.

122. Case captions bearing the names of these organizations as lead plaintiffs are legion. *See, e.g.*, Natural Res. Def. Council, Inc. v. EPA, 656 F.2d 768 (D.C. Cir. 1981); Envtl. Def. Fund, Inc. v. Costle, 636 F.2d 1229 (D.C. Cir. 1980).

manufacturing and resource extraction industries[123]) and the country's large and small municipalities.

There are many examples of this power imbalance in the history of CWA implementation at the legislative, administrative, and judicial levels of action. Although the large body of academic literature evaluating CWA implementation and effectiveness addresses many of these issues in significant detail,[124] several examples at each level of activity illustrate the point adequately.

### *a. Legislative Changes to Implementing Tools*

Congress has not changed the 1972 CWA from a broad structural perspective in the ensuing four decades.[125] The principal aspirations described above remain in place verbatim, although Congress added other policy guidance, primarily to clarify the relative roles of the states and the federal government in areas of land and water policy.[126] The basic dualities of the CWA statutory scheme remain in place: the technology-based and water quality-based approach to point source permitting,[127] and the combined efforts to control point source and nonpoint source pollution[128] with comprehensive planning and

123. Captions from major lawsuits challenging early CWA implementation illustrate this point. *See, e.g.*, E.I. du Pont de Nemours & Co. v. Train, 430 U.S. 112 (1977) (challenging EPA's practice of establishing enforceable effluent limitations for industrial sources by industry-wide regulation rather than individual facility permits); Weyerhaeuser Co. v. Costle, 590 F.2d 1011 (D.C. Cir. 1978) (challenging stringency of effluent limitations for paper industry); U.S. Steel Corp. v. Train, 556 F.2d 822 (7th Cir. 1977) (challenging regulation of heat in effluent discharges); Am. Petrol. Inst. v. EPA, 540 F.2d 1023 (10th Cir. 1976) (challenging general applicability of effluent limitations for existing sources); Appalachian Power Co. v. Train, 545 F.2d 1351 (4th Cir. 1976) (challenging EPA application of CWA variance provisions); Am. Frozen Food Inst. v. Train, 539 F.2d 107 (D.C. Cir. 1976) (challenging EPA authority to adopt effluent limitations guidelines for potato processing industry); Am. Meat Inst. v. EPA, 526 F.2d 442 (7th Cir. 1975) (challenging stringency of effluent limitations guidelines for slaughterhouses and meat packing facilities).

124. *See supra* note 14 for examples.

125. Congress did amend numerous important details of statutory implementation described below, in 1977, 1981, and 1987, with less comprehensive amendments at other times. *See* Water Quality Act of 1987, Pub. L. No. 100-4, 101 Stat. 7, 7–90; Municipal Wastewater Treatment Construction Grant Amendments of 1981, Pub. L. No. 97-117, 95 Stat. 1623, 1623–34; Clean Water Act of 1977, Pub. L. No. 95-217, 91 Stat. 1566, 1566–612. The major CWA reauthorization originally scheduled for 1992, however, has yet to occur more than two decades after that deadline.

126. *See* Clean Water Act of 1977, sec. 5(a), § 101(g), 91 Stat. at 1567 (amendment clarifying the relationship between CWA and state water rights and allocations).

127. *See* 33 U.S.C. §§ 1311(a), 1314, 1316 (2006) (imposing effluent limitations on industrial and municipal point sources based on both "best technology" obligations and water quality needs).

128. *See id.* (establishing point source control requirements); *id.* §§ 1288, 1319 (establishing nonpoint source control programs).

accountability measures to ensure that the sum of the parts was at least as large as necessary to achieve the statutory goals.[129]

Details always matter, of course, and in 1977 and 1981 Congress amended the statute in ways that effectively changed "zero-discharge" from reality to aspiration with respect to the majority of point source discharges. In the 1977 amendments, Congress added an intermediate level of industrial pollution treatment requirements known as "best conventional treatment" (BCT)[130] for the most common water pollutants by volume.[131] Although zero-discharge requirements technically remain in the statute for toxic and nonconventional pollutants[132] and for new sources,[133] given the large volumes of conventional pollutants that remain in industrial waste streams, BCT arguably signaled the death knell for zero-discharge requirements for many industrial sources.[134]

Similarly, in the 1981 amendments that focused largely on the municipal wastewater program,[135] Congress eliminated the second, stricter round of technology-based treatment requirements for publicly-owned treatment plants.[136] In doing so, Congress effectively abandoned its original vision of requiring municipal wastewater recycling and reuse as a path to zero-discharge.[137] In addition, Congress added a series of variance provisions to the otherwise uniform program of technology-

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129. *See id.* § 1281 (establishing requirements for area-wide waste treatment planning); *id.* § 1288 (establishing requirement for comprehensive water pollution control plans); *id.* § 1313(d)–(e) (establishing requirements for TMDLs and continuing state planning programs); *id.* § 1329 (requiring state nonpoint source pollution control plans).

130. *See id.* §§ 1311(b)(2)(E), 1314(b)(4) (establishing requirements for effluent limitations based on the best conventional pollution control technology).

131. The statute identifies conventional pollutants as biological oxygen demand, suspended solids, fecal coliform, and pH, and authorized EPA to identify additional conventional pollutants by regulation. *Id.* § 1314(a)(4).

132. *See id.* § 1311(b)(2)(A) (requiring elimination of discharges of toxic and nonconventional pollutants wherever technologically and economically achievable).

133. *See id.* § 1316(a) (requiring zero-discharge from new sources where practicable).

134. As discussed below, EPA did adopt zero-discharge requirements for a relatively small number of industrial point source categories. *See* Coeur Alaska, Inc. v. Se. Alaska Conservation Council, 557 U.S. 261, 268–71 (2009).

135. Municipal Wastewater Treatment Construction Grant Amendments of 1981, Pub. L. No. 97-117, 95 Stat. 1623, 1623–34.

136. *Id.* sec. 21(b), § 301(b)(2)(B), 95 Stat. at 1632.

137. For cases discussing the tension between the more ambitious recycling and reuse goals for POTWs and the practicalities of addressing raw sewage discharges in the short term, see Montgomery Environmental Coalition v. Costle, 646 F.2d 568 (D.C. Cir. 1980); Environmental Defense Fund v. Costle, 439 F. Supp. 980 (E.D.N.Y. 1977); City of North Miami v. Train, 377 F. Supp. 1264 (S.D. Fla. 1974).

based treatment controls,[138] thereby allowing even further divergence from zero-discharge as EPA and state agencies wrote individual NPDES permits. Finally, Congress ultimately adopted a much more flexible set of control requirements for contaminated storm water discharges,[139] although those pollution sources arguably fall somewhere in between traditional point sources and nonpoint sources because they channel pollution from large urban areas or industrial sites into surface waters through pipes or other point sources.[140]

Some history is necessary to put these legislative changes in perspective, because these seemingly large changes in legislative policy just five years apart were not quite as abrupt as might appear. When the 1972 amendments were being debated, the National Water Commission raised serious doubts about the wisdom and cost-effectiveness of a zero-discharge goal.[141] In the 1972 Act, Congress commissioned a "mid-course review" study to evaluate this and other issues.[142] The Senate Committee explained that the mid-course study might provide it with the information necessary to evaluate, and if necessary to modify, the zero-discharge goal:

> That information will assist the Nation in any decision on the proper enforcement mechanism to be established to support the goal, if appropriate, or a decision to refine the date for the attainment of the goal with greater precision, if required, or the extent of the exceptions to that goal, if any, or whether the costs associated with reaching this ultimate standard, in some instances, may far outweigh the benefits derived. In the interim, the goal set forth in Section 101 should provide the Administrator and the States with the direction and the mandate to direct research efforts toward developing the technology to

138. *E.g.*, Water Quality Act of 1987, Pub. L. No. 100-4, sec. 306, § 301, 101 Stat. 7, 35–37 (authorizing modifications of industrial effluent limitations based on "fundamentally different factors" from those used in promulgating categorical effluent limitations); Clean Water Act of 1977, Pub. L. No. 95-217, sec. 43, § 301(g), 91 Stat. 1566, 1583 (providing modifications of effluent limitations for certain pollutants); *id.* sec. 44, § 301(h), 91 Stat. at 1584 (providing secondary treatment modifications for ocean discharges).

139. 33 U.S.C. § 1342(p) (2006).

140. This legislative change responded in part to EPA's administrative strategy of exempting large categories of point source discharges from the NPDES program. *See infra* notes 159–164 and accompanying text.

141. NAT'L WATER COMM'N, WATER POLICIES FOR THE FUTURE: FINAL REPORT TO THE PRESIDENT AND TO THE CONGRESS OF THE UNITED STATES BY THE NATIONAL WATER COMMISSION 70–71 (1973) [hereinafter NAT'L WATER COMM'N].

142. Federal Water Pollution Control Act Amendments of 1972, Pub. L. No. 92-500, sec. 2, § 305, 86 Stat. 816, 853–54 (adding CWA § 305).

> apply a no-discharge standard. Without a clearly set goal of natural water quality achieved through application of a no-discharge policy, it is not likely that resources will be applied to develop the means necessary to achieve an environmentally and ecologically sound water quality goal.[143]

Congress also appointed a National Commission on Water Quality "to study the implications of achieving or not achieving the 1983 requirements."[144] In the 1977 and 1981 amendments, Congress acted on the information provided by adopting the intermediate BCT standard and eliminating stricter technology-based controls for POTWs.[145] It is more difficult to reconcile why Congress retained the zero-discharge aspiration while weakening the statutory implementing tools necessary to achieve the goal. Apparently, Congress elected to retain the overall aspiration[146] in the hopes that technology would improve over a longer period of time, while bowing to practicality and cost concerns in short-term practice. If that were the case, at least in theory technology-based standards should continue to be tightened over time, but as discussed below, that has rarely been the case.[147]

Congress also backed off on its initially bold policy pronouncements in the area of nonpoint source pollution control. In the 1972 Act, Congress designed nonpoint source control provisions that were not nearly as stringent as those it adopted for point sources.[148] In large part, Congress chose this strategy out of deference to state and local land use policy and the hope that the states would take aggressive action to control this half of the water pollution problem on their own.[149] However, Congress also suggested strongly that stricter provisions would be forthcoming if state programs proved insufficient.[150]

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143. S. REP. NO. 92-414, at 11–12 (1971), *reprinted in* 1972 U.S.C.C.A.N. 3668, 3678.

144. S. REP. NO. 95-370, at 1 (1977), *reprinted in* 1977 U.S.C.C.A.N. 4326, 4327; *see also* NAT'L COMM'N ON WATER QUALITY, REPORT TO THE CONGRESS BY THE NATIONAL COMMISSION ON WATER QUALITY 13 (1976).

145. *See supra* notes 130–137 and accompanying text.

146. In 1977, the Senate Committee indicated its view that "[l]ittle contained in the study of the [National Commission on Water Quality] could be construed as justifying major changes in the direction established in 1972." S. REP. NO. 95-370, at 1, *reprinted in* 1977 U.S.C.C.A.N. at 4327.

147. *See infra* notes 172–173 and accompanying text.

148. *See* 33 U.S.C. § 1288 (2006) (providing for state water quality management plans to address, inter alia, nonpoint source pollution, but with no specific mandates).

149. *See* S. REP. NO. 95-370, at 9, *reprinted in* 1977 U.S.C.C.A.N. at 4335 (indicating that the 1977 committee continued to believe "that these matters were appropriately left to the level of government closest to the sources of the problem").

150. In 1971, Congress expressed its strong expectation that state controls "will be applied as soon as possible." S. REP. NO. 92-414, at 39 (1971), *reprinted in* 1972 U.S.C.C.A.N. 3668, 3706.

Unfortunately, Congress failed to make good on this implicit promise to strengthen controls on polluted runoff (nonpoint sources) if states failed to do so themselves. The congressional response in the 1977 amendments was to give states more time to tackle an admittedly difficult set of issues.[151] A decade later, Congress finally stepped in with new requirements governing state nonpoint source pollution control programs.[152] Those requirements, however, while more specific than those adopted in the 1972 law, continued to defer almost entirely to state prerogatives, and lacked the kind of federal backup provisions that were built into the point source and water quality standards programs.[153] As a result, progress in controlling nonpoint source pollution—which is clearly essential to achieving the overarching statutory goal of chemical, physical, and biological integrity of the nation's waters—continues to lag significantly behind efforts to regulate point source discharges.[154]

*b. Administrative Tempering of Statutory Goals*

Administrative agencies often face the daunting task of implementing statutes with ambitious goals in the face of practical reality. Given the degree of aspiration Congress pronounced in the CWA relative to the magnitude of the task, that was certainly the case for EPA, the U.S. Army Corps of Engineers,[155] and state and interstate water quality agencies. Nevertheless, in a number of significant respects, the failure of aspiration in the CWA might be attributed to excessive timidity in agency administration of the Act in the face of pressure from those who would bear the costs of implementation. It may be legitimate for an agency to interpret ambiguous statutory commands under a lens of pragmatism,[156] but that practice is more questionable when the effect is to substantially temper the goals and purposes Congress set forth in the

151. *See* S. REP. NO. 95-370, at 9, *reprinted in* 1977 U.S.C.C.A.N. at 4335.

152. 33 U.S.C. § 1329.

153. *Compare id.* (authorizing federal efforts to identify waters impaired by nonpoint source pollution but not federal control programs), *with id.* § 1313(c) (authorizing federal adoption of water quality standards in states that failed to do so adequately), *and id.* § 1342(c)–(d) (authorizing federal veto of deficient state NPDES permits or federal NPDES programs in states that fail to administer the point source control program adequately).

154. *See* William L. Andreen, *Water Quality Today—Has the Clean Water Act Been a Success?*, 55 ALA. L. REV. 537, 593 (2004); Glicksman & Batzel, *supra* note 14, at 132–33; David Zaring, Note, *Agriculture, Nonpoint Source Pollution, and Regulatory Control: The Clean Water Act's Bleak Present and Future*, 20 HARV. ENVTL. L. REV. 515, 521–28 (1996).

155. As discussed *infra* notes 181–199, Congress delegated to the Secretary of the Army the task of implementing section 404 of the CWA, 33 U.S.C. § 1344, in conjunction with EPA.

156. *See* Chevron, U.S.A., Inc. v. Natural Res. Def. Council, Inc., 467 U.S. 837, 864–66 (1984).

law.[157] Although the full history of CWA implementation at the administrative agency level would be voluminous, and would require an extensive analysis of implementation by the states as well,[158] a few key examples illustrate the point.

Achieving the goal of zero-discharge from point sources turned on two categories of implementing actions. First, the agencies needed to identify all point sources and require them to obtain NPDES permits so that the combination of treatment obligations set forth in the statute could be implemented and enforced. Second, the agencies had to promulgate treatment regulations designed to achieve zero-discharge over time as technology improved, and to implement those obligations through NPDES permits. In both respects, there was a significant failure of implementation, and hence of aspiration.

First, arguing administrative infeasibility, EPA defined the term "point source" by regulation in ways that exempt large categories of dischargers from the permit program, or subject them to less specific control obligations pursuant to general permits that cover large groups of dischargers categorically.[159] Categories of point sources EPA thereby excluded from the full sweep of the NPDES program, or in some cases from any permit requirement at all, include concentrated agricultural feeding operations (CAFOs),[160] concentrated aquatic animal production facilities,[161] aquaculture facilities,[162] municipal storm water discharges,[163] and silvicultural operations.[164] Exempting large groups of dischargers from the permitting program might make it *more* feasible to achieve the congressional zero-discharge goal for those sources that

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157. *See* David M. Driesen, *Purposeless Construction*, 48 WAKE FOREST L. REV. 97 (2013) (critiquing the Supreme Court's increasing tendency to construe statutes without considering statutory purposes).

158. States have the authority to implement numerous CWA programs. *See, e.g.*, 33 U.S.C. § 1313(c) (state review of water quality standards); *id.* § 1342(b) (state NPDES permitting program); *id.* §1344(g) (state administration of the section 404 dredge and fill program); *see also supra* note 125 and accompanying text (discussing various state planning programs).

159. *Compare* Decker v. Nw. Envtl. Def. Ctr., __U.S.__, 133 S. Ct. 1326, 1337–38 (2013) (upholding EPA's decision to exempt from NPDES permit requirement channelized discharges from logging roads), *with* Natural Res. Def. Council, Inc. v. Costle, 568 F.2d 1369, 1379, 1381–82 (D.C. Cir. 1997) (overruling EPA's decisions to exclude categories of point sources form NPDES program based on principles of feasibility, but authorizing use of general or area-wide permits).

160. *See* 40 C.F.R. § 122.23 (2012); Nat'l Pork Producers Council v. EPA, 635 F.3d 738, 750–51 (5th Cir. 2011).

161. *See* 40 C.F.R. § 122.24.

162. *See id.* § 122.25.

163. *See id.* § 122.26.

164. *See id.* § 122.27.

remain regulated. Equally clearly, however, that practice weakens the overall statutory goal of eliminating as many pollutant discharges as possible.

Second, even for those large categories of dischargers that EPA included in the NPDES program, very few have been subject to enforceable zero-discharge requirements. A quick perusal of the detailed regulations EPA adopts to define effluent limitations for various categories of industrial point sources demonstrates that the vast majority allow significant ongoing discharges.[165] In the legislative history of the 1972 amendments, Congress expressed that it understood the limitations of end-of-pipe treatment technology, and its accompanying expectation that the first round of BPT regulations would reduce, but rarely eliminate, pollutant discharges.[166] However, Congress also communicated a clear expectation that recycling and reuse of waste materials and other process changes—in lieu of end-of-pipe waste treatment—would allow the elimination of discharges of pollutants to surface waters from industrial processes in the BAT and NSPS rounds of rulemaking for industrial sources.[167]

Third, the entire system of industrial technology-based standards arguably has ossified to a significant degree. Implementation of industrial effluent limitations has reduced surface water discharges significantly,[168] and EPA continues to adopt new standards for industries previously subject only to facility-by-facility analysis.[169] The congressional expectations for zero-discharge, however, have not been met. Even the initial expectation that BAT requirements would exceed BPT did not always materialize, and in many effluent limitations guidelines the two sets of standards are identical or nearly so.[170] When Congress added BCT to the mix of industrial treatment standards, it

165. *See id.* pts. 405–17.

166. *See* S. REP. NO. 92-414, at 42–44 (1971), *reprinted in* 1972 U.S.C.C.A.N. 3668, 3710–11.

167. *See id.* at 45–46, *reprinted in* 1972 U.S.C.C.A.N. at 3711–12.

168. *See supra* Part III.A.1.

169. In section 402(a) of the CWA, Congress authorized permits "prior to the taking of necessary implementing actions . . . [based on] such conditions as the Administrator determines are necessary to carry out the provisions of this chapter." 33 U.S.C. § 1342(a)(1) (2006). Known more colloquially as "best professional judgment" or "BPJ" effluent limitations, Congress intended individual permit writers to estimate the applicable effluent limitations for facilities until EPA promulgated the intended categorical regulations for that category of facility. *See* 40 C.F.R. § 122.44(a)(1). However, EPA still has not promulgated regulatory effluent limitations for all industrial point sources, despite additional urging from Congress in the 1987 amendments. *See* 33 U.S.C. § 1314(m) (requiring EPA to complete the task of adopting industrial effluent limitations guidelines).

170. *See, e.g.*, 40 C.F.R. §§ 410.12, 410.13 (BPT and BAT effluent limitations identical).

became even less likely that the second round of treatment standards would result in zero-discharge, despite the continued zero-discharge preference in BAT and NSPS standards for toxic pollutants.[171]

Moreover, EPA has not followed through with Congress's expectation that treatment technology would improve over time, leading to increasingly stringent effluent limitation requirements over time until the ultimate goal of zero-discharge was achieved. Although EPA has adopted relatively small changes to some industrial standards over time, many effluent limitations regulations remain identical to those promulgated decades ago.[172] It is certainly possible that Congress simply over-estimated the potential for innovation in water pollution control methods from 1972 forward, but advances in many other areas of engineering and technology suggest otherwise. By analogy, if telephone technology were dictated by similar federal regulatory standards, we would be stuck with the same fixed location telephones that existed in the mid-1970s, perhaps having advanced from rotary dial to push tone technology but nowhere close to modern smart phones. In the case of pollution controls, that tendency has generated a robust academic debate about the relative technology-forcing characteristics of prescriptive or proscriptive regulation compared to effluent fees or other economic incentives.[173] For purposes of this Article, however, the fact remains that the system of technology-based standards Congress hoped would drive steadily toward zero-discharge remains stuck in the world of end-of-pipe treatment, nowhere close to the intended statutory goal.

EPA's track record in implementing the water quality standards side of the CWA implementation scheme, in particular the effort to achieve fishable and swimmable waters wherever attainable by 1983, is similarly mixed. EPA's regulations governing state water quality standards are admirably firm in some respects. For example, EPA interprets the term "wherever attainable" quite strictly. States may adopt water-body-use

171. *See supra* notes 89–90 and accompanying text.

172. *See, e.g.*, 40 C.F.R. pt. 405 (Dairy Products Processing Point Source Category, promulgated 1974 and amended once in 1995); *id.* pt. 406 (Grain Mills Point Source Category, last amended 1995); *id.* pt. 407 (Canned and Preserved Fruits and Vegetables Processing Point Source Category, last amended 1995).

173. *See, e.g.*, Bruce A. Ackerman & Richard B. Stewart, *Reforming Environmental Law: The Democratic Case for Market Incentives*, 13 COLUM. J. ENVTL. L. 171 (1988) (arguing that economic incentives would generate more innovation than technology-based regulations); D. Bruce La Pierre, *Technology-Forcing and Federal Environmental Protection Statutes*, 62 IOWA L. REV. 771 (1977) (critiquing the degree of innovation generated by Clean Air Act automobile standards). *But see* Wendy A. Wagner, *The Triumph of Technology-Based Standards*, 2000 U. ILL. L. REV. 83 (lauding the effectiveness of technology-based standards in generating innovation and leveling the playing field among dischargers).

designations and accompanying water-quality criteria less stringent than necessary to protect fishable and swimmable waters only under narrowly confined circumstances that amount largely to physical impossibility due to natural conditions.[174] States are required to adopt and implement standards for a wide range of contaminants and to protect a range of typical water-body uses.[175]

On the other hand, progress toward actual attainment of those water quality standards remains largely stuck in the same place it has been for several decades: large percentages of U.S. surface waters continue to exceed applicable water quality standards or otherwise fail to attain designated uses.[176] One obvious explanation for this status, discussed elsewhere in this Article, is the ineffective approach to the nonpoint source pollution responsible for a large percentage of water body impairment nationally.[177] From an administrative perspective, however, EPA delayed for several decades implementation of the comprehensive accounting and control regimen (TMDLs) designed to attain water quality standards in those waters for which the first round of technology-based effluent limitations were insufficient to do so.[178] Even after EPA began to take the TMDL program seriously, goaded in large part by a rash of citizen suits,[179] it declined to adopt a firm requirement that TMDLs include implementation plans similar to those designed to address the analogous problem of aggregate pollution in the CAA.[180]

The section 404 permitting program[181] is another key example of a major statutory program that has arguably been subverted in ways that contravene the basic aspirations Congress set forth in the 1972 CWA. Technically, section 404 simply provides a second permitting mechanism (in addition to NPDES permits) through which the Secretary

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174. *See* 40 C.F.R. § 131.10(g).

175. *See id.* §§ 131.10, 131.11.

176. *See supra* note 111 and accompanying text.

177. *See supra* notes 148–154 and accompanying text.

178. 33 U.S.C. § 1313(d) (2006). For an excellent, detailed history of the reasons for this delay and the ensuing battle over TMDL program implementation, see OLIVER A. HOUCK, THE CLEAN WATER ACT TMDL PROGRAM: LAW, POLICY AND IMPLEMENTATION (2d ed. 2002). *See also* Kelly Seaburg, *Murky Waters: Courts Should Hold That the "Any-Progress-Is-Sufficient-Progress" Approach to TMDL Development Under Section 303(d) of the Clean Water Act Is Arbitrary and Capricious*, 82 WASH. L. REV. 767 (2007).

179. *See, e.g.*, Sierra Club v. Hankinson, 939 F. Supp. 865 (N.D. Ga. 1996); Natural Res. Def. Council, Inc. v. Fox, 909 F. Supp. 153 (S.D.N.Y. 1995); Alaska Ctr. for the Env't v. Reilly, 796 F. Supp. 1374 (W.D. Wash. 1992), *aff'd*, 20 F.3d 981 (9th Cir. 1994).

180. *See* Robert W. Adler, *Integrated Approaches to Water Pollution: Lessons from the Clean Air Act*, 23 HARV. ENVTL. L. REV. 203 (1999).

181. *See* 33 U.S.C. § 1344.

of the Army (in practice through the U.S. Army Corps of Engineers) can authorize discharges of certain limited categories of pollutants, specifically "dredged or fill material" into navigable waters at "specified disposal sites."[182] The Corps is supposed to issue only those permits that are in compliance with guidelines promulgated by EPA, designed to protect the integrity of the nation's waters from a wide variety of adverse effects,[183] and subject to EPA's authority to prohibit disposal at certain sites when necessary to prevent "unacceptable adverse effects" to the nation's waters.[184]

Initially, the Corps of Engineers exempted from the section 404 permitting program any discharges to wetlands by defining the "waters of the United States" as waters that were navigable in fact.[185] But wetlands comprise ecologically critical portions of the nation's waters and are essential to fulfill the statutory goal of restoring the chemical, physical, and biological integrity of those waters.[186] The agencies amended the program to include wetlands only after environmental groups successfully challenged that practice in court,[187] and that regulatory effort, in turn, has generated a running legal battle over which wetlands are properly covered by the program.[188]

Even after those regulations went into effect, however, the program has not been implemented in a way that has effectively promoted the statutory objective of restoring and maintaining the physical, chemical, or biological integrity of the nation's waters. For perspective, NPDES permits typically allow limited discharges of pollutants into flowing water bodies, where the resulting impairment must be limited by the combination of technology-based and water quality-based control requirements.[189] Section 404 permits, by contrast, often allow discharges of dredged and fill material that can fill water bodies entirely, thus resulting in their complete destruction.[190] It is difficult to conceptualize a

182. *Id.* § 1344(a).

183. *Id.* § 1344(b).

184. *Id.* § 1344(c).

185. *See* United States v. Riverside Bayview Homes, 474 U.S. 121, 123 (1985).

186. *See* NAT'L RESEARCH COUNCIL, WETLANDS: CHARACTERISTICS AND BOUNDARIES 42 (1995).

187. *See* 40 C.F.R. § 230.3(s) (2012) (defining "waters of the United States" as including wetlands for purposes of the section 404 permit program); 40 Fed. Reg. 31,320 (July 25, 1975) (describing regulatory history in the wake of Natural Res. Def. Council, Inc. v. Callaway, 392 F. Supp. 685 (D.D.C. 1975)).

188. *See infra* notes 212–215 and accompanying text.

189. *See* 33 U.S.C. § 1342.

190. 33 C.F.R. § 323.3 (2012). Indeed, the definition of "fill material" is material that "has the

program that is *less* consistent with the overall statutory aspiration of the CWA than one that allows entire water bodies, or significant portions of them, to be destroyed entirely.

EPA's section 404(b) regulations[191] include a long series of constraints designed to guard against this perverse result to some extent. Two of those constraints are most pertinent here. First, by prohibiting the issuance of section 404 permits when "a practicable alternative[s] to the proposed discharge" would accomplish the same project purpose,[192] particularly for projects that do not depend on access to water,[193] EPA's intent is to eliminate unnecessary wetland fills and thereby to maintain the integrity of those waters. In practice, the vast majority of section 404 permits are issued, with what some have decried as a highly ineffective evaluation of alternatives,[194] resulting in what appears to be more of a presumption that wetlands can be destroyed rather than the opposite. Nevertheless, the filling of America's wetlands slowed following application of the section 404 permitting program to wetland fills, and although scientists remain cautious about comparing the functional values of wetlands as opposed to raw acreage, some net gains in wetlands acreage have been reported more recently.[195]

Second, the EPA and Corps of Engineers regulations governing the section 404 program attempt to offset any ecological harm resulting from wetland fills by mandating the implementation of "compensatory mitigation" sufficient to replace the wetlands values and functions lost or damaged because of the fill.[196] Restoring or replacing wetlands values and functions is no easy task, however, and the efficacy of compensatory mitigation has been questioned from a scientific perspective.[197] In 2008,

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effect of . . . (i) [r]eplacing any portion of a water of the United States with dry land; or (ii) [c]hanging the bottom elevation of any portion of a water of the United States." *Id.* § 323.2(e)(1).

191. 40 C.F.R. pt. 230.

192. *Id.* § 230.10(a).

193. *Id.* § 230.10(a)(3).

194. *See, e.g.*, Oliver A. Houck, *Hard Choices: The Analysis of Alternatives Under Section 404 of the Clean Water Act and Similar Environmental Laws*, 60 U. COLO. L. REV. 773 (1989).

195. *See* T.E. DAHL, U.S. FISH AND WILDLIFE SERVICE, STATUS AND TRENDS OF WETLANDS IN THE CONTERMINOUS UNITED STATES 1998 TO 2004, at 43–46 (2006) (reporting modest net gains in wetlands acreage from 1998–2004 but noting predominant gains in freshwater ponds relative to other wetland types, and declining to evaluate wetland quality); COMM. ON MITIGATING WETLAND LOSSES, NAT'L RESEARCH COUNCIL, COMPENSATING FOR WETLAND LOSSES UNDER THE CLEAN WATER ACT 16–20 (2001) [hereinafter COMPENSATING FOR WETLAND LOSSES] (reporting trend of historical wetland losses that the Corps of Engineers reports will be reversed due to compensatory mitigation, but reserving judgment on the efficacy of mitigation due to insufficiency of data).

196. *See* 40 C.F.R. pt. 230, subpt. J (Compensatory Mitigation for Loss of Aquatic Resources).

197. *See* COMPENSATING FOR WETLAND LOSSES, *supra* note 195, at 22–45, 70–73 (concluding

EPA and the Corps revised their regulations governing compensatory mitigation in response to legislation requiring greater accountability in the program.[198] Although the new regulations include significantly stricter standards and procedures for compensatory mitigation,[199] it is probably too early to evaluate how much better the new program will be in fulfilling CWA aspirations.

Finally, no statutory or regulatory regime is likely to fulfill its goals absent adequate enforcement against parties who fail to comply with statutory or regulatory obligations. The CWA confers on EPA the authority to prosecute violations through administrative, civil, and criminal processes,[200] and further provides for citizen suits as a supplementary enforcement tool.[201] Evaluating the effectiveness of statutory enforcement is difficult, but at least some commentators have argued persuasively that some of the aspirations of the CWA have been subverted by inadequate enforcement as well as insufficient administrative implementation.[202]

*c. Judicial Deference*

The judicial branch arguably has also played a role in subverting the aspirations of the CWA in two separate respects. First, courts routinely uphold EPA's decisions to construe the statute narrowly in the face of political or pragmatic considerations. Second, the judicial branch itself—led by the Supreme Court—has at times interpreted the statute in ways that appear to run afoul of the key aspirations that Congress set forth in the opening provisions of the law.

The standards of review articulated by the Supreme Court in the field of federal administrative law admittedly suggest judicial deference to agency interpretation of ambiguous statutes.[203] The problem, as Professor Driesen has suggested, is that goals provisions are a part of

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that restoration is easier for some wetland types relative to others, and that it is difficult to track mitigation success).

198. Compensatory Mitigation for Losses of Aquatic Resources, 73 Fed. Reg. 19,594 (Apr. 10, 2008) (to be codified at 33 C.F.R. pts. 325 and 332; 40 C.F.R. pt. 230).

199. *See* 40 C.F.R. § 230.93 (establishing general requirements for compensatory mitigation); *id.* § 230.95 (establishing ecological performance standards for wetland mitigation).

200. 33 U.S.C. § 1319 (2006).

201. *Id.* § 1365.

202. *See, e.g.*, Drelich, *supra* note 13; Flatt, *supra* note 13.

203. *See* Chevron, U.S.A., Inc. v. Natural Res. Def. Council, Inc., 467 U.S. 837 (1984); Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 41 (1983); Citizens to Pres. Overton Park, Inc. v. Volpe, 401 U.S. 402, 416 (1971).

statutes.[204] They should mean something, and agencies and courts alike should consider them in interpreting statutory provisions that might be ambiguous in isolation, but are not when read in conjunction with the statutory goals.

I certainly do not mean to suggest that the federal executive is always wrong in its interpretation of ambiguous CWA provisions, or even that it is wrong most of the time. As is true with respect to all of the complex environmental statutes Congress has entrusted EPA with administering, the job is difficult and fraught with delicate balancing acts. However, there are several important examples of cases in which the courts have deferred to agency interpretations of the CWA that arguably contravene the statutory goals.[205]

One prominent example is *Coeur Alaska, Inc. v. Southeast Alaska Conservation Council*,[206] in which the Supreme Court upheld a joint decision by EPA and the Corps of Engineers that subverted the zero-discharge aspiration of the CWA. The case involved one of the rare instances in which EPA's effluent limitations guidelines for a category of discharger mandated zero discharge.[207] The agencies, however, allowed the discharger to circumvent the zero-discharge requirement by authorizing the discharge pursuant to a section 404 permit rather than a section 402 permit, thus allowing entirely untreated discharges of mine tailings into a pristine Alaskan lake.[208] The federal district court in Alaska upheld the agency's action but the Court of Appeals for the Ninth Circuit reversed in an opinion that focused strongly on the statutory goals and purposes.[209] The Supreme Court reversed the Court of Appeals, deferring to the agencies despite the rather clear divergence between the agency decision and the statutory aspiration of zero-

204. *See* Driesen, *supra* note 157.

205. *See* Mark A. Latham, *(Un)restoring the Chemical, Physical, and Biological Integrity of Our Nation's Waters: The Emerging Clean Water Act Jurisprudence of the Roberts Court*, 28 VA. ENVTL. L.J. 411 (2010); Mark Squillace, *The Judicial Assault on the Clean Water Act*, FED. LAW., July 2012, at 33.

206. 557 U.S. 261, 291 (2009). In the interest of full disclosure, I co-authored an amicus brief urging the Supreme Court, unsuccessfully, to uphold the decision of the Ninth Circuit below. *See* Brief for the Honorable G. Tracy Meehan, Former Assistant Administrator for Water at the EPA as Amicus Curiae in Support of Respondent, Coeur Alaska, Inc. v. Se. Alaska Conservation Council, 557 U.S. 261 (2009) (Nos. 07-984 and 07-990).

207. 40 C.F.R. § 440.104(b)(1) (2012) (prohibiting discharges of process wastes from new source mines using the froth flotation treatment process).

208. *Coeur Alaska*, 557 U.S. at 268–71.

209. Se. Alaska Conservation Council v. U.S. Army Corps of Eng'rs, 486 F.3d 638, 644–45 (9th Cir. 2007).

discharge wherever possible.[210]

The Supreme Court has also acted more affirmatively to curtail the reach of the CWA in a series of cases narrowing the potential geographic reach of the statute.[211] The details and potential impact of those decisions, in which the Court specifically declined to defer to agency interpretations of the CWA and instead relied on other modes of statutory construction,[212] have been reviewed extensively elsewhere.[213] For purposes of this analysis, those cases are noteworthy because they arguably contravene the principles of judicial review the courts have relied on not only to uphold the agency's own subversion of CWA aspirations, but to justify independent judicial subversion of those goals as well. In particular, by excluding from CWA jurisdiction wetlands that provide essential ecological and hydrological functions to the nation's water systems and aquatic ecosystems,[214] and by potentially narrowing the scope of what discharges of pollutants into water bodies require permits, the Court has jeopardized the overarching statutory aspiration of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters.

### *2. The Pathology of Excessive Aspiration?*

A second, far less complicated but equally viable, reason for the failure of aspiration in the CWA may be that we fail to meet the kinds of aspirations Congress sometimes embeds into statutes *because* they are written with so much aspiration. Although seemingly counter-intuitive, this theory suggests that the agency officials and others charged with

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210. *Coeur Alaska*, 557 U.S. at 291; *see also* Chantz Martin, Comment, *The Clean Water Act Suffers a Crushing Blow: The U.S. Supreme Court Clears the Way for the Mining Industry to Pollute U.S. Waters [*Coeur Alaska, Inc. v. Southeast Alaska Conservation Council*, 129 S. Ct. 2458 (2009)]*, 49 WASHBURN L.J. 933 (2010).

211. Rapanos v. United States, 547 U.S. 715 (2006) (split opinions interpreting the relative degree of nexus required between isolated waters and navigable waters to warrant CWA jurisdiction); S. Fla. Water Mgmt. Dist. v. Miccosukee Tribe of Indians, 541 U.S. 95 (2004) (holding that discharges must be to "meaningfully distinct" bodies of water to require NPDES permits); Solid Waste Agency of N. Cook Cnty. v. U.S. Army Corps of Eng'rs, 531 U.S. 159 (2001) (invalidating regulatory interpretation justifying CWA jurisdiction based on use by migratory birds).

212. *See Rapanos*, 547 U.S. at 739 (relying on dictionary definition of "waters" rather than agency's regulatory definition in order to read the statute narrowly); *Solid Waste Agency*, 531 U.S. at 172–73 (reading CWA narrowly to avoid constitutional interpretation rather than employing traditional principles of deference).

213. *See* THE SUPREME COURT AND THE CLEAN WATER ACT: FIVE ESSAYS (L. Kinvin Wroth ed., 2007); Colburn, *supra* note 14.

214. *See* PATRICK COMER ET AL., NATURESERVE, BIODIVERSITY VALUES OF GEOGRAPHICALLY ISOLATED WETLANDS IN THE UNITED STATES (2005).

implementation of the statute believe that the goals are so ambitious that they cannot possibly be met. As a result, no one actually tries, or even takes the goals very seriously. Instead, the entities that implement the law (agencies, courts, etc.) set their own more "realistic" goals that effectively become the real goals of the statute. Collectively, we either ridicule the aspirations set forth in the statute as political posturing by members of Congress, or give them a "wink and a nod" but ignore them in practice. Others have explained this phenomenon by arguing that ambitious statutory aspirations allow Congress to act virtuous while leaving the agencies with the difficult task of implementing those goals.[215] Instead of consuming the entire statutory banquet and paying the full bill, the agencies go on a diet, or perhaps order *a la carte*.

This theory is supported by the generally negative reaction of the professional water resources community to the aspirations in the CWA, as reflected in the final report of the National Water Commission to the President and to Congress submitted in June 1973, just eight months after the 1972 legislation.[216] With respect to the overall objective and definition of pollution, the Commission candidly reported: "This is not a good standard on which to base the definition of pollution."[217] The report was even more critical of the zero-discharge goal: "The Commission believes adoption of 'no discharge' as a national goal for water quality management is no more sound than would be the establishment of a 'no development' goal for controlling land use."[218] More specifically, the Commission expressed the view that the zero-discharge aspiration was not attainable given available technology, and that Congress assumed without proper justification that water was more valuable than other resources that might be impaired in meeting the zero-discharge goal, in an "imputation of an extravagant social value to an abstract concept of water purity."[219]

By contrast, the National Water Commission expressed a more favorable—if qualified—view of the fishable and swimmable waters aspiration: "Standards based on present and proposed water uses not only represent the most rational national water quality policy from a cost-benefit standpoint, they also permit maximum adaptability of

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215. *See* John P. Dwyer, *The Pathology of Symbolic Legislation*, 17 ECOLOGY L.Q. 233 (1990).

216. NAT'L WATER COMM'N, *supra* note 141.

217. *Id.* at 69.

218. *Id.* at 70.

219. *Id.* The Commission, by contrast, feared that the costs of attaining the zero-discharge goal might vastly exceed the benefits. *Id.*

national goals to local situations."[220] This more favorable view of the water quality-based aspirations of the CWA is qualified because the Commission believed that the uses to be protected "should be determined by responsible public authorities."[221] This perspective differs from the statutory aspiration in two significant ways. First, the Commission apparently believed that individual states or localities should make the value-based determinations of which uses were appropriate in which water bodies, in contrast to the national goal of fishable and swimmable waters articulated by Congress. Second, the Commission did not endorse the idea that the fishable and swimmable goal should apply presumptively to all waters "wherever attainable."[222] Rather, the Commission believed that some water bodies could be designated for agricultural use, industrial use, or even "disposal and transport of wastes."[223] Thus, even though the Commission endorsed water quality aspirations in concept, its version of the concept was far more flexible and less ambitious than that expressed by Congress in the 1972 law.[224]

In other words, perhaps those more modest goals were what "the experts" in the water quality arena expected from the start. In their view, it was possible to reduce the volume and toxicity of water pollution discharges through adoption of the best available technology, but it would be a waste of society's resources to eliminate those discharges entirely, if that goal was attainable at all. Likewise, it was reasonable and pragmatic to establish targets for improved water quality based on

220. *Id.* at 71.

221. *Id.* at 70.

222. 33 U.S.C. § 1251(a)(2) (2006).

223. *Id.* Even under the current CWA system as implemented by EPA regulations states must adopt designated uses that include agricultural and industrial purposes. *See* 40 C.F.R. § 131.10(a) (2012). However, states still must designate waters for fishable and swimmable uses wherever attainable. *See id.* § 131.2. States may not designate waters for "waste transport or waste assimilation" uses. *Id.* § 131.10(a). Moreover, because the most stringent applicable water quality criterion governs in any water body, *id.* §§ 131.11, 131.12, it is quite different to allow less protective uses as part of a suite of designated uses than to allow them as the only use that dictates the stringency of water quality criteria that apply to that water body.

224. An anecdote based on personal recollection suggests that similar views persisted long after the 1972 legislative debate, and undoubtedly to this day. I served as Vice Chairman of Water Quality 2000, a multi-interest group policy forum on national water pollution control issues convened by the Water Environment Federation and others. *See* WATER QUALITY 2000, WATER ENVIRONMENT FEDERATION, A NATIONAL WATER AGENDA FOR THE 21ST CENTURY, FINAL REPORT (1992). At the opening meeting of that set of policy discussions, I recall an industry representative expressing the opinion that the goal of restoring the complete chemical, physical, and biological integrity of the nation's waters would require a return to Pre-Columbian conditions in the United States, and that the zero discharge goal violated the second law of thermodynamics.

the actual desired beneficial uses of various water bodies, but not reasonable to expect that each water body should be treated the same. The uses and values of water bodies differ, as do the costs and feasibility of the improvements needed to attain other uses. If this view is accurate, one might argue that it is what was realistic all along; it is what we got out of the CWA in its first four decades; and we should be happy with the result—waterways that are far cleaner and more usable than they were in 1971, without having exhausted limited resources to tilt at the windmills of zero-discharge or complete restoration of the nation's waters regardless of context or cost.

The fundamental problem with this perspective of realism over aspiration is one of political legitimacy. Although this possible explanation for the failure to achieve the aspirations in the 1972 CWA may seem similar to the "balance of power" explanation, it actually differs in one important respect. The balance of power theory can be explained—although not justified—as a form of slow "policy creep," a series of discrete decisions on individual regulatory issues influenced by the effective and well-funded or politically powerful advocacy of interest groups trying to minimize their implementation costs. As such, it does not necessarily reflect an intentional or considered policy to subvert the aspirations Congress set forth in the statute. The end result might be the same or similar, but at least it would not represent an intentional effort by the administrative or judicial officials, or both, to refute the will of the elected legislature.

If the "excessive aspiration" explanation for the failure of CWA aspiration is correct, that reflects a far more serious and illegitimate subversion of the democratic process. Congress adopted, and the President signed into law, the aspirations set forth in section 101(a) of the CWA.[225] Neither the National Water Commission nor the Administrator of EPA—or even the President of the United States—possesses the authority to supplant those policy aspirations with less ambitious ones, however unwise they think them to be. If Congress intended those aspirations to be interpreted and implemented literally, the only legitimate remedy is to convince Congress to temper those aspirations by amending the statute. The conclusion may be different, however, as suggested in the following subsection, if Congress included such ambitious aspirations in the CWA for a different reason.

225. 33 U.S.C. § 1251(a).

*3. Aspiration as Asymptote*

The third potential explanation for the failure of aspiration in the CWA, somewhat counter-intuitively, is that Congress never actually believed that the ambitious aspirations in the statutory goals provisions would be met. Rather, Congress's strategy was to set such an extremely high goal in the hope that the goal itself will induce the implementing agencies and others to achieve the highest standard possible, or at least a standard higher than otherwise would be attained. If this theory is correct, we should not worry too much when we fail to achieve the ultimate statutory aspirations. Rather, we should just keep trying harder in a continuous, asymptotic quest to get closer and closer to the statutory goals. Again, this "asymptotic" explanation sounds quite similar to the excessive aspiration theory, but with a very important difference. Under the latter theory, those entrusted with implementation of the CWA ignore the statutory aspirations or replace them with others they believe to be more realistic. Under the asymptotic theory, the agencies may adopt individual regulations or policies based on pragmatic realities, but they do not give up on the aspirations entirely. Instead, they continue to search for improved solutions in an effort to achieve the statutory aspirations wherever feasible, or as closely as possible.

There are two main ironies to this explanation for the aspirations Congress incorporated into the CWA. First, it is the most difficult to prove because it is really a poker bluff theory. A poker bluff cannot work if you signal that you are "just kidding." Likewise, pronouncing a statutory aspiration as a tool used to prod us to do more will not work if Congress (or EPA) says publicly that they are "just kidding." There is not, therefore, and could not be, any clear indication to that effect in the legislative history. If the authors of the 1972 legislation intended their lofty aspirations simply as a means to prod the most aggressive implementation possible of the operative provisions of the law, clearly they would not have said so explicitly in either the statutory text or the legislative history.[226] It does, however, make sense as a potentially legitimate justification for ambitious aspirations in the CWA and in other statutes.

If this theory regarding Congress's purpose in establishing lofty statutory aspirations is correct, it raises somewhat different questions about legitimacy. Is it appropriate for Congress to set aspirational goals that Congress itself views as unattainable? Does this lead to inefficient

226. In the passage quoted above, the 1972 Senate Committee at least hinted that prodding was one function of the ambitious statutory goals. *See supra* note 143 and accompanying text.

use of scarce resources, and to frustration with the administrative process if not downright cynicism and a loss of faith in government? Other commentators have taken varying positions in this debate. Professor Doremus argued that the Endangered Species Act (ESA)[227] is not a "failure" because so few species have successfully been recovered; rather, the recovery aspiration in the ESA serves as a source of continuing and essential protection for threatened and endangered species and the habitat that supports them.[228] Similarly, Professor Sinden argues that absolute aspirations in environmental statutes provide a necessary counter-balance to powerful interests who seek to subvert statutory implementation.[229]

Professor Schoenbrod, however, critiqued the legislative practice of establishing broad statutory goals with accompanying orders for an administrative agency to write complex rules to implement those aspirations rather than simply adopting rules of conduct directly in the statute.[230] Similarly, Professor Dwyer criticized Congress's practice of adopting "symbolic" legislation to sound virtuous without considering administrative feasibility and implementation, thus leaving the implementing agencies to pick up the pieces.[231]

To some extent, this debate may turn on the issue discussed above regarding the legal force and effect of statutory goals and aspirations.[232] If Congress uses purely aspirational language in the provisions that establish statutory goals and objectives, and intends them to serve as asymptotic targets that may never be met but nevertheless prod us to achieve more than we otherwise would, it would appear less appropriate to consider that text as having enforceable meaning,[233] at least absent clear indications to the contrary. Those provisions, however, may continue to serve as general guides to the interpretation of other statutory provisions. If, on the other hand, Congress "means what it says" in establishing ambitious statutory goals, and intends them actually to be

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227. 16 U.S.C. §§ 1531–1544 (2006).

228. Holly Doremus, *Delisting Endangered Species: An Aspirational Goal, Not a Realistic Expectation*, 30 ENVTL. L. REP. 10,434, 10,435 (2000).

229. Amy Sinden, *In Defense of Absolutes: Combating the Politics of Power in Environmental Law*, 90 IOWA L. REV. 1405, 1487–511 (2005).

230. David Schoenbrod, *Goals Statutes or Rules Statutes: The Case of the Clean Air Act*, 30 UCLA L. REV. 740 (1983).

231. *See* Dwyer, *supra* note 215, at 233–35.

232. *See supra* Part II.C.

233. *See supra* notes 77–79 and accompanying text (discussing the fact that EPA interpreted the fishable and swimmable goal in CWA section 101(a)(2) as having enforceable effect pursuant to specific language in section 303(c) of the Act).

attained, it seems illegitimate for administrative agencies and courts to simply ignore them in construing, implementing and enforcing the rest of the statutory scheme.

## III. WE MIGHT RESTORE ASPIRATION TO THE CWA BY ADOPTING MORE PRECISE AND MORE MEANINGFUL DEFINITIONS OF GOALS FOR WATER BODIES

Regardless of which of the three explanations (or combinations thereof) evaluated in Part III are more correct, it remains disturbing that efforts to attain the broadest aspirations set forth in the CWA appear to have been "stuck" in largely the same place for several decades. Just as there are several possible explanations for our collective failure to attain the aspirations set forth in the CWA over the past four decades, there are several possible responses to that state of affairs.

First, if we accept the balance of power theory discussed above,[234] we might simply accept that Congress writes aspirational goals that are always subject to legal and political push and pull, and can thereby be subverted to varying degrees. Those interest groups that bear the costs of CWA implementation (industrial dischargers, municipalities, landowners subject to the section 404 permitting program, etc.) will continue to advocate for less expensive—or more cost-effective—implementation. Environmental groups and other non-governmental organizations representing user groups (fishing interests, recreationists, waterside landowners, etc.) will continue to push for more protective CWA implementation. Taken together, if the political power is balanced in a reasonable way, this "system" of participatory democracy will, in theory, produce the best balance under the circumstances. We can accept this as the reality of statutory implementation in a pluralistic society that provides opportunities for all affected interests to comment on administrative actions, challenge them in court if they do not like the final agency action, or lobby Congress to amend the statute if they do not like the judicial response. If there is a significant power disparity, however, one side or the other is likely to shift the fulcrum point, and the above analysis suggests that the balance has remained on the side of incomplete CWA implementation taken as a whole.

Second, we could accept the view offered by the National Water Commission from the outset that the goals Congress set in 1972 were overly ambitious, and either implicitly (as we arguably have done to

234. *See supra* Part III.B.1.

date) or more explicitly (through statutory amendments) revert to a more "realistic" set of goals we can more reliably meet.[235] Perhaps the zero-discharge goal Congress adopted was unrealistic (if not naïve) from the outset, although it remains viable to retain the more specific statutory commands to eliminate certain types of discharges wherever "technologically and economically achievable"[236] without insisting on zero-discharge in all cases. Similarly, perhaps we need to conduct a form of triage with respect to the fishable and swimmable goal Congress adopted in the CWA. For many water bodies that goal has been attained, and for many others it still may be feasible. For other water bodies, however, for example those in very heavily urbanized areas or beset by pervasive nonpoint source pollution or physical and hydrological modifications, under this approach we should settle for "no longer flammable."[237]

There are several potential advantages to the approach of backing away from the most ambitious of the 1972 aspirations. It would probably be less expensive, although there is considerable evidence that strategies to eliminate rather than treat waste streams through pollution prevention strategies such as materials substitution and recycling or reuse can reduce rather than increase production costs and conserve valuable resources.[238] It would probably be less controversial and less divisive, potentially allowing all of the parties responsible for CWA implementation to focus on effective implementation of the remaining aspirations. Arguably, people prefer realistic goals for which we can work reasonably hard and then actually declare success to goals that are frustratingly difficult if not impossible to attain, thus increasing the likelihood of actual success.

The problem with these first two potential reactions, however, is that they prematurely foreclose the possibility that we might achieve the aspirations Congress adopted in 1972—however impressively ambitious they may seem to some—by thinking more creatively about approaches to achieve our initial goals. Perhaps the problem is not with the goals, but with limitations in the range of strategies we adopted to achieve the aspirations. Some of those strategies clearly have worked well, and we

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235. *See supra* notes 216–23 and accompanying text.

236. *See* 33 U.S.C. § 1311(b)(2)(A) (2006) (requiring BAT effluent limitations for industrial point sources of certain pollutants).

237. *See supra* note 99 and accompanying text. Again, I am not asserting that Assistant Administrator Wilcher was advocating that policy, and I am quite confident she was not.

238. *See* MARK H. DORFMAN ET AL., ENVIRONMENTAL DIVIDENDS: CUTTING MORE CHEMICAL WASTES (1992).

should retain and continue to improve them. Others have been far less successful, and might be revised significantly or replaced entirely. The most obvious example is the strategies adopted thus far to address nonpoint source pollution, and much has been written about those failures.[239]

Here, however, I highlight and propose the expansion of a somewhat different shift in approach, which has been suggested by ongoing initiatives in CWA implementation. The basic proposed shift in our overall philosophy of CWA implementation is that the solution to excessive aspiration is more aspiration, or perhaps more accurately, a refined approach involving a more site-specific articulation of the aspirations for particular water bodies, accompanied by more targeted efforts to meet those redefined aspirations.

### *A. Alternative Definitions of CWA Aspirations*

One common problem with broad aspirations is that they tend to be ambitious but vague. As a result, there is little clarity about what the real goal is, and even less clarity in determining the extent to which they have been met. How can we determine whether the ultimate aspiration of the 1972 CWA, to restore and maintain the chemical, physical, and biological integrity of the nation's waters, has been met, for individual water bodies much less the "nation's waters" as a whole? Even with respect to some of the subsidiary goals of the CWA, it can be difficult to define and measure relative success. The zero-discharge goal is relatively clear, at least as applied to point sources, but when have we achieved the goal of "fishable and swimmable waters," or "no toxics in toxic amounts"? Although more useful definitions of the statutory aspirations will not in and of themselves magically produce attainment, as explained further below it is a useful first step in doing so.

There are at least three existing efforts to expand on the CWA statutory goals in a more precise and specific way. Two of those initiatives have been only weakly recognized, and the third has been the subject of considerable analysis but not usually for the reasons I address.

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239. *See, e.g.*, Robert W. Adler, *Controlling Nonpoint Water Source Pollution: Is Help on the Way (From the Courts or EPA)?*, 31 ENVTL. L. REP. 10,270 (2001); Douglas R. Williams, *When Voluntary, Incentive-Based Controls Fail: Structuring a Regulatory Response to Agricultural Nonpoint Source Water Pollution*, 9 WASH. U. J. L. & POL'Y 21 (2002); Zaring, *supra* note 154, at 521–28.

### *1. Biological Water Quality Criteria*

I have written previously about the degree to which biological water quality criteria, or "biocriteria," have both theoretical and practical advantages in implementing the fundamental statutory aspiration to restore and maintain the chemical, physical, and biological integrity of the nation's waters.[240] Rather than repeating those points here, my goal is to underscore how biocriteria can serve as one tool to define in a more robust and useful way what the basic statutory aspiration means for individual waters, and serve as a better measuring tool for determining the extent to which that aspiration has been met. That tool can reduce the frustration inherent in what has been a somewhat variable, ill-defined, and moving target in ascertaining whether the water quality goals of the CWA have been met in various regions.[241]

By way of background, water quality standards are comprised, inter alia, of designated uses and water quality criteria to define the water quality conditions necessary to support and protect those uses.[242] The minimum uses prescribed in CWA section 101(a)(2) establish the fishable and swimmable goal of the statute,[243] and for purposes of this analysis it is important to understand that the use of biocriteria does nothing to subvert that basic requirement, and arguably can do a much better job of defining it and measuring its attainment than existing forms of water quality criteria do alone.

States use several forms of water quality criteria to measure use attainment in water bodies. Narrative water quality criteria like "no toxics in toxic amounts" establish vague, tort-like standards for water body conditions.[244] Narrative criteria have the advantage of flexibility

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240. *See* Robert W. Adler, *Filling the Gaps in Water Quality Standards: Legal Perspectives on Biocriteria*, *in* BIOLOGICAL ASSESSMENT AND CRITERIA, TOOLS FOR WATER RESOURCE PLANNING AND DECISION MAKING 345, 358 (Wayne S. Davis & Thomas P. Simon eds., 1995); Robert W. Adler, *The Two Lost Books in the Water Quality Trilogy: The Elusive Objectives of Physical and Biological Integrity*, 33 ENVTL. L. 29, 70–75 (2003).

241. *See* Steven F. Hayward, 2011 ALMANAC OF ENVIRONMENTAL TRENDS, at x, 129, 131–32 (2011) (bemoaning the lack of consistent, reliable data on water quality and other environmental trends in the United States); V. Kerry Smith & Carlos Valcarcel Wolloh, *Has Surface Water Quality Improved Since the Clean Water Act?* (Nat'l Bureau of Econ. Research, Working Paper No. 18,192, 2012), *available at* http://www.nber.org/papers/w18192 (concluding that water quality has not changed markedly since the CWA was passed, but that insufficient monitoring systems and data are available to draw firm conclusions).

242. 33 U.S.C. § 1313(c)(2)(A) (2006); 40 C.F.R. § 131.6 (2012). Depending on some semantics of definition, an anti-degradation program can also be considered a component of a state's water quality standards. *See* 40 C.F.R. § 131.12.

243. 33 U.S.C. § 1251(a)(2).

244. *See* EPA, EPA-823-B-94-005a ,WATER QUALITY STANDARDS HANDBOOK, 3-2, 3-24 to 3-

because they are not bound by particular numeric limits. For example, a state might prove that the combination of toxic pollutants in a water body cause harm even if numeric criteria for individual contaminants are met. Narrative criteria beg the question on issues such as "how toxic is toxic," however, and therefore require the kinds of difficult evidence typically required of tort-like standards. That limitation is particularly important in implementing the CWA's process for identifying and developing remedial action plans for impaired water bodies under CWA section 303(d) (TMDLs). That is true particularly because states arguably have a disincentive to list more impaired waters because of both the additional workload it generates, and the stigma of having a higher percentage of water body impairment.

To address this inherent uncertainty in narrative water quality criteria, states also employ numeric criteria that establish precise, measurable, and enforceable benchmarks of water quality.[245] The advantage of numeric criteria is that they articulate a bright line for identifying water body impairment and the resulting listing of waters in the TMDL process. The disadvantages, however, cut in the direction of both potential under- and over-inclusiveness. Numeric criteria alone might under-identify impaired waters because they address the effects of only one pollutant at time. They might over-identify impaired waters because a moderate exceedance of a single numeric criterion might not cause any real harm, depending on other factors.

To address the potential issue of under-inclusiveness, states also use whole effluent toxicity (WET) criteria, which are methods to address the cumulative and synergistic impacts of multiple pollutants in a water body.[246] In theory, the WET process can be used to assess the toxicity of discharges from individual facilities,[247] but also to measure toxicity in a water body itself as a result of aggregate sources of pollution.[248] Because

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26 (2d ed. 1994) [hereinafter WATER QUALITY STANDARDS HANDBOOK], *available at* http://water.epa.gov/scitech/swguidance/standards/handbook/index.cfm.

245. *See* 40 C.F.R. § 131.11(b)(1); WATER QUALITY STANDARDS HANDBOOK, *supra* note 244, at 3-24. In the 1987 CWA amendments, Congress required states to adopt numeric water quality criteria for all toxic pollutants that could "reasonably be expected to interfere with" designated uses in the state. Water Quality Act of 1987, Pub. L. No. 100-4, § 308(d), 101 Stat. 7, 39 (codified as amended at 33 U.S.C. § 1313(c)(2)(B)).

246. *See* Natural Res. Def. Council, Inc. v. EPA, 859 F.2d 156, 189–91 (D.C. Cir. 1988); WATER QUALITY STANDARDS HANDBOOK, *supra* note 244, at 3-26.

247. *See Natural Res. Def. Council*, 859 F.2d 156; Adler, *supra* note 240, at 350–51, 356–58 (discussing use of whole effluent toxicity for both individual permits and in assessing water body conditions).

248. *See* Adler, *supra* note 240, at 354–55.

conditions in a particular water body can change so frequently, however, a WET sample can only measure a snapshot of water quality toxicity.

With the possible exception of WET criteria, these forms of water quality criteria are inherently generic in nature, and are developed first by EPA on a national scale pursuant to CWA section 304(a).[249] By rule, EPA encourages states to adopt those criteria or to modify those criteria to suit their own conditions, but typically on a statewide basis.[250] Therefore, they do not establish water body-specific goals and requirements. Second, none of those forms of water quality criteria, even when taken together, address the full aspiration of the CWA to restore the chemical, physical, and biological integrity of the nation's waters. That requires a more holistic assessment of overall aquatic ecosystem health.[251]

To address this gap in our ability to measure attainment of the CWA's overriding goal in a more functional and comprehensive manner, aquatic ecologists began to develop biocriteria beginning in the late 1970s and early 1980s.[252] Biocriteria use protocols designed to assess the relative structural and functional integrity of an aquatic ecosystem by statistically characterizing the degree of difference between the system being assessed and the characteristics of a relatively unimpaired system, known as reference water body.[253] An increasing number of states, interstate water quality agencies, and tribes are using biocriteria to better define and determine whether the aspirations of the CWA are being met.[254] EPA explained in summary how biological methods can be used

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249. 33 U.S.C. § 1314(a); *see also* WATER QUALITY STANDARDS HANDBOOK, *supra* note 244, app. I (listing EPA's Water Quality Criteria Documents for various pollutants).

250. *See* 40 C.F.R. § 131.11(b) (authorizing states to adopt EPA's recommended water quality criteria or to adopt more specific criteria where justified scientifically).

251. *See* PUD No. 1 of Jefferson Cnty. v. Wash. Dep't of Ecology, 511 U.S. 700, 717 (1994) (noting that "water quality requirements generally sufficient to protect designated uses" cannot always measure water body impairment in specific water bodies).

252. *See* James R. Karr, *Assessment of Biotic Integrity Using Fish Communities*, FISHERIES, Nov.–Dec. 1981, at 21; James R. Karr & Daniel R. Dudley, *Ecological Perspective on Water Quality Goals*, 5 ENVTL. MGMT. 55 (1981). For an early history of biocriteria development, see Wayne S. Davis, *Biological Assessment and Criteria: Building on the Past*, *in* BIOLOGICAL ASSESSMENT AND CRITERIA, TOOLS FOR WATER RESOURCE PLANNING AND DECISION MAKING, *supra* note 240, at 15.

253. More precisely, biocriteria "are numeric values or narrative expressions that describe the reference biological integrity of aquatic communities inhabiting waters that have been given a designated aquatic life use." EPA, EPA-440/5-91-003, BIOLOGICAL CRITERIA: STATE DEVELOPMENT AND IMPLEMENTATION EFFORTS, at v (1991).

254. *See* EPA, EPA-822-F-03-005, STATES AND TRIBES EMBRACE BIOASSESSMENT AND BIOCRITERIA FOR PROTECTING STREAMS AND SMALL RIVERS (2003); EPA, SUMMARY OF BIOLOGICAL ASSESSMENT PROGRAMS AND BIOCRITERIA DEVELOPMENT FOR STATES, TRIBES,

to assess the biological integrity of aquatic ecosystems:

> Biological assessments can be used to directly measure the overall biological integrity of an aquatic community and the synergistic effects of stressors on the aquatic biota residing in a waterbody where there are well-developed biological assessment programs . . . . This increases the likelihood of detecting the effects of episodic events (e.g., spills, dumping, treatment plant malfunctions), toxic nonpoint source (NPS) pollution (e.g. agricultural pesticides), cumulative pollution (i.e., multiple impacts over time or continuous low-level stress), nontoxic mechanisms of impact (e.g. trophic structure changes due to nutrient enrichment), or other impacts that periodic sampling might not detect.[255]

Biocriteria thus serve as more precise and more holistic benchmarks for aquatic ecosystem health because they assess the degree to which those systems have the ecological structure and functions that characterize biological integrity. Unlike other forms of water quality criteria, which describe what is bad, or those characteristics of water bodies we want to avoid, they describe more precisely and scientifically the characteristics of ecosystem health we aspire to achieve.

### *2. Hydro-Geomorphic Method of Wetland Assessment*

The second example of a more aspirational approach to assessing aquatic ecosystem health that embodies a very similar idea is the "hydrogeomorphic method" (HGM) of wetlands assessment.[256] The HGM does the same thing for real-world wetlands functions and values as biocriteria do for rivers and other flowing water bodies, by comparing the values and functions provided by reference wetlands of the same or similar types to those in a wetland sought to be protected or restored.[257]

The HGM process addresses common problems with implementation of the CWA section 404 permitting program. When the U.S. Army

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TERRITORIES, AND INTERSTATE COMMISSIONS: STREAMS AND WADEABLE RIVERS 1–2 (2002).

255. EPA, A PRIMER ON USING BIOLOGICAL ASSESSMENTS TO SUPPORT WATER QUALITY MANAGEMENT 1 (2011).

256. *See* The National Action Plan to Implement the Hydrogeomorphic Approach to Assessing Wetland Functions, 62 Fed. Reg. 33,607 (June 20, 1997); MARK M. BRINSON, U.S. ARMY CORPS OF ENG'RS, A HYDROGEOMORPHIC CLASSIFICATION FOR WETLANDS (1993); R. DANIEL SMITH ET AL., U.S. ARMY CORPS OF ENG'RS, AN APPROACH FOR ASSESSING WETLAND FUNCTIONS USING HYDROGEOMORPHIC CLASSIFICATION, REFERENCE WETLANDS, AND FUNCTIONAL INDICES (1995).

257. *See* The National Action Plan to Implement the Hydrogeomorphic Approach to Assessing Wetland Functions, 62 Fed. Reg. at 33,609.

Corps of Engineers grants a permit to fill wetlands, in theory the developer must provide compensatory mitigation to more than offset the harm by restoring or enhancing degraded wetlands elsewhere, or by creating artificial wetlands.[258] Absent that requirement, permits issued under section 404 allowing dischargers to fill entire water bodies—as distinct to section 402 permits allowing more limited pollutant releases—could not possibly meet the ultimate statutory goal.

For much of the history of the section 404 program, however, compensatory mitigation has been demonstrably inadequate to replace the lost ecological, hydrological, and other values and functions once provided by filled wetlands.[259] Until recently, the Corps has measured the sufficiency of compensatory mitigation through the simple calculus of counting acres. Permits allowed destruction of X acres of natural wetlands in return for compensatory mitigation on Y acres of restored or created ones, and so long as Y is greater than X, the permit was approved. Little effort was even taken to confirm that the compensatory mitigation had successfully been achieved after the initial fill was allowed, by which time it is too late to recover the lost benefits from the filled wetland.

Compensatory mitigation policy has improved, at least in concept, under revised regulations adopted by EPA and the Corps of Engineers in response to additional Congressional direction.[260] Wetland mitigation arguably has improved as well through the use of wetland mitigation banks in which mitigation credits cannot be made available for new permits until creation or restoration of wetland values and functions is successfully demonstrated.[261]

Successful implementation of a compensatory mitigation program, for wetlands or any other ecosystem, requires the ability to answer the fundamental question of "what was really lost and what was really gained in return?" How much wildlife habitat was lost, and of what type? How much nutrient-filtering capacity was lost? How much flood-retention potential was lost?

The HGM is designed to measure those real-world wetlands values and functions through a process quite similar to that used in establishing biocriteria. Because there are so many different types of wetlands, and

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258. *See supra* notes 197–200 and accompanying text (describing compensatory mitigation requirements for section 404 permits); 40 C.F.R. pt. 230, subpt. J (2012).

259. *See* COMPENSATING FOR WETLAND LOSSES, *supra* note 195, at 113–22.

260. *See supra* note 199 and accompanying text.

261. *See* Royal C. Gardner, *Banking on Entrepreneurs: Wetlands, Mitigation Banking, and Takings*, 81 IOWA L. REV. 527 (1996).

because wetlands vary significantly in the specific values and functions they provide,[262] ensuring compensatory mitigation cannot be as simple as counting acres. A diverse natural mosaic of wetland habitat will provide far more biodiversity benefits than a similar amount of homogenous, artificially created wetlands. A relatively narrow linear system of riparian wetlands provides more flood-control benefits than a single large pond. To account for those variables, the HGM classifies wetlands by type, and delineates and quantifies the values and functions they each provide. This process thereby generates a system of metrics through which the values and functions provided by restored or created wetlands can be measured and compared to the values and functions lost through the permitted fill.[263]

Like biocriteria, therefore, the HGM provides a more water body-specific method of analyzing whether the fundamental aspirations of the CWA are achieved in the section 404 program. However, as with biocriteria, analysis suggests that HGM is not being adopted rapidly in the field,[264] and that the process does not measure all wetland values and functions adequately absent more intensive data.[265] As such, HGM may still have untapped potential in improving the extent to which wetland values and functions are protected or restored under the section 404 program.

### *3. Desired Future Conditions for Watersheds*

The third example of metrics designed to define more precisely the CWA aspirations with respect to individual water bodies is a little more vague and variable, and comes from the world of watershed restoration and management. Although the watershed restoration and management concept itself is inherently diverse and has been received with varying

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262. *See* SMITH ET AL., *supra* note 256, at 11.

263. *See* The National Action Plan to Implement the Hydrogeomorphic Approach to Assessing Wetland Functions, 62 Fed. Reg. 33,607, 33,609–10 (June 20, 1997); SMITH ET AL., *supra* note 256, at 1–5.

264. *See* Charles Andrew Cole & James G. Kooser, *HGM: Hidden, Gone, Missing?*, WETLAND SCI. & PRAC., June 2003, at 9; Jon Kusler, *Recommendations for Reconciling Wetland Assessment Techniques*, ASSOCIATION OF STATE WETLAND MANAGERS (Apr. 2006), http://www.aswm.org/pdf_lib/reconciling.pdf (finding problems with HGM implementation).

265. *See* Thomas Hruby, *Testing the Basic Assumption of the Hydrogeomorphic Approach to Assessing Wetland Functions*, 27 ENVTL. MGMT. 749 (2001) (questioning assumption that modified wetlands provide fewer values and functions than unimpaired wetlands); Emilie K. Stander & Joan G. Ehrenfeld, *Rapid Assessment of Urban Wetlands: Do Hydrogeomorphic Classification and Reference Criteria Work?*, 43 ENVTL. MGMT. 725 (2009) (finding problems with HGM assessment of nitrogen cycling).

levels of favor,[266] one common characteristic of watershed management is a collaborative effort to identify the "desired future conditions" of a water body.[267] A desired future condition, of course, can be just as vague as "no toxics in toxic amounts." When applied most effectively, however, a statement of desired future conditions identifies watershed restoration and protection goals much more precisely, and in a manner appropriate to the particular system at issue.

Although the Chesapeake Bay Program has had significant implementation and attainment issues in its long history,[268] it is a good example of a collaborative effort to establish specific, measurable watershed restoration targets. Rather than simply defining regulatory standards of conduct or pollution reduction targets, the program defines more functional ecosystem restoration goals:[269] How many acres of submerged aquatic vegetation are necessary to support healthy populations of waterfowl? What population of blue crabs is necessary for a sustainable population and healthy economy?[270] Those measures

266. *See* Robert W. Adler & Michele Straube, *Watersheds and the Integration of U.S. Water Law and Policy: Bridging the Great Divides*, 25 WM. & MARY ENVTL. L. & POL'Y REV. 1 (2000); Jon Cannon, *Choices and Institutions in Watershed Management*, 25 WM. & MARY ENVTL. L. & POL'Y REV. 379 (2000); A. Dan Tarlock, *Putting Rivers Back in the Landscape: The Revival of Watershed Management in the United States*, 14 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 1059 (2008); Annecoos Wiersema, *A Train Without Tracks: Rethinking the Place of Law and Goals in Environmental and Natural Resources Law*, 38 ENVTL. L. 1239 (2008).

267. A "desired future condition" refers to the "social, economic, and ecological attributes" expected from adoption of a particular resource management regime, and derives from federal ecosystem management policy. *See* Robert E. Bennetts & Bruce B. Bingham, *Comparing Current and Desired Conditions of Resource Values for Evaluating Management Performance: A Cautionary Note on an Otherwise Useful Concept*, 24 GEORGE WRIGHT F. 108, 108 (2007).

268. *See* Robert W. Adler, *Priceline for Pollution: Auctions to Allocate Public Pollution Control Dollars*, 34 WM. & MARY ENVTL. L. & POL'Y REV. 745, 796–807 (2010) (providing history and status of Bay cleanup efforts); William L. Andreen et al., *White Paper 11-02, Missing the Mark in the Chesapeake Bay: A Report Card for the Phase I Watershed Implementation Plans*, CENTER FOR PROGRESSIVE REFORM (Jan. 2011), http://www.progressivereform.org/articles/ChesBay_WIPs_1102.pdf; *State of the Bay 2010*, CHESAPEAKE BAY FOUNDATION (2010), http://www.cbf.org/document.doc?id=596 (reporting limited progress in overall Bay restoration efforts and failing or near-failing grades in most aspects of the Bay's water pollution control programs).

269. *See* EPA, STRENGTHENING THE MANAGEMENT, COORDINATION, AND ACCOUNTABILITY OF THE CHESAPEAKE BAY PROGRAM: REPORT TO CONGRESS (2008); Carl Hershner et al., *Assessment of Chesapeake Bay Program Selection and Use of Indicators*, 4 ECOHEALTH 187, 189 (2007).

270. These program goals and commitments are formally recognized in an agreement entitled Chesapeake 2000, signed on June 28, 2000. *Chesapeake 2000*, CHESAPEAKE BAY PROGRAM, http://www.chesapeakebay.net/content/publications/cbp_12081.pdf (last visited Aug. 22, 2013). Specific goals in the agreement include a tenfold increase in native oysters in the Bay relative to a 1994 baseline; restoring fish passage for migratory to more than 1357 miles of blocked river habitat; protecting and restoring 114,000 acres of submerged aquatic vegetation; restoring 25,000 acres of wetlands; and reducing nutrient loadings by 40%. *Id.*

are similar to the concept of minimum viable population size common in ESA implementation,[271] and support the restoration component of the CWA aspiration. More important, like both biocriteria and HGM, they help to define and provide a more specific set of criteria by which to ascertain whether the CWA aspirations are being achieved.

### *B. Moving from Aspiration to Attainment*

Articulating more specific goals for individual water bodies has two important conceptual advantages. First, it is often easier to achieve specific, clearly defined goals than a lofty but vague concept such as "physical, chemical, and biological integrity." Second, principles of bioregionalism suggest that individuals and communities are more willing to accept costs—including both economic costs and volunteer work—designed to restore and maintain special local or regional places than to implement generic programs with a huge national price tag and less clearly defined benefits to local communities.[272] The three examples discussed above illustrate this kind of effort and how it can operate within, rather than replace, the existing construct of the CWA. These programs all require more time and effort to more precisely define what the generic aspirations in the CWA actually mean for individual water bodies and watersheds, but have the potential to cost-effectively improve the degree to which those aspirations are actually attained.

Defining CWA aspirations more precisely for individual water bodies, however, absent implementing actions in the real world, does not ensure that those aspirations will be attained. So why might these ideas be helpful in renewing the spirit of aspiration in the CWA? I am not suggesting that these methodologies, individually or collectively, constitute the "silver bullet" that will generate full attainment of the CWA aspirations absent other reforms. There are at least three reasons to believe, however, that re-defining aspirations in this way can at least generate some progress toward than end.

First, particularly given the increasingly prevalent anti-regulatory sentiment in the United States, perhaps fueled in part by the "societal

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271. *See* Notice of Availability of Recovery Goals for Four Endangered Fishes of the Colorado River Basin, 67 Fed. Reg. 55,270 (Aug. 28, 2002); Mark Shaffer, *Minimum Viable Population Goals: Coping with Uncertainty*, *in* VIABLE POPULATIONS FOR CONSERVATION 69 (Michael E. Soulé ed., 1987).

272. *See* Robert W. Adler, *Addressing Barriers to Watershed Protection*, 25 ENVTL. L. 973, 1000–03 (1994) (describing place-based incentives for watershed protection). *See generally* BIOREGIONALISM (Michael McGinnis ed., 1998).

amnesia" discussed earlier,[273] it is possible that the individuals and organizations responsible for CWA implementation will respond better to affirmative goals than to prohibitions. Each of the ecosystem restoration and protection measures described above is stated in affirmative rather than negative terms. The first time I wrote about biocriteria in a book chapter published 1995, I described them in this regard as "aims to achieve, not ills to avoid."[274]

As explained earlier, the CWA is an aspirational statute, but most of the actual implementation mechanisms are "ills to avoid" rather than "aims to achieve." Section 301(a) prohibits any discharge of a pollutant absent a permit that implements various substantive requirements.[275] No such permit may be issued absent the imposition of effluent limitations governing the allowable discharges.[276] Any violation of those permit limitations can generate administrative, civil, or criminal penalties.[277] As a result, there is a significant disconnect between the aspirational goals and the prohibitive implementation tools.

To be clear, I am not suggesting that we abandon any of those essential regulatory or enforcement tools for the most fundamental operative requirements of the CWA. If we did, we would almost certainly backslide from the past progress we have made in CWA implementation to date. Perhaps the chief lesson from the past forty years, however, is that to move *beyond* that existing progress we need to inspire people that there are affirmative aims to achieve. With the hope that this does not seem like a trivial analogy, my strong impression is that there is far less littering today than when I grew up, and certainly less than in many parts of world. Did we succeed in reducing littering by imposing hefty fines, or because of the "Keep America Beautiful" campaign[278] that captured public imagination?

A second and related reason why the above means of redefining the aspirations in the CWA might also help to promote better attainment is that people and communities respond better when they have a role in defining the aims to achieve. That is particularly true for place-based watershed programs that assemble diverse group of community participants to define the "desired future conditions" of the watershed. In

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273. *See supra* note 119 and accompanying text.

274. Adler, *supra* note 240, at 346.

275. 33 U.S.C. § 1311(a) (2006) (prohibiting any discharge absent compliance with §§ 302, 306, and 307, and pursuant to permits issued under either § 402 or § 404).

276. *Id.* §§ 1311(b), 1342.

277. *Id.* § 1319.

278. KEEP AMERICA BEAUTIFUL, http://www.kab.org (last visited Aug. 11, 2013).

rural watersheds, maybe farmers will be more willing to achieve an affirmative result than to stop doing something because EPA said so. In urban watersheds, maybe individuals will be more willing to volunteer in local stream restoration projects if they understand exactly what flood control, aesthetic, and ecosystem benefits they will enjoy, and once they support those efforts will be less opposed to increased sewerage and storm water collection and treatment fees to protect their personal investments in the health of their local waterways.

Third, perhaps by more clearly defining the aims to achieve in CWA implementation, we can transcend the philosophy of "we have done the best we can," which is fairly pervasive in the "best technology" aspects of the CWA.[279] Although best-technology principles arguably are responsible for much of the progress we have made in achieving the CWA's aspirations, the converse argument is that once we have done the best we can, what else is there? Perhaps more specific, affirmative statements of water body-specific aspirations will induce more innovation than is traditionally inherent in best technology requirements, which some scholars have argued actually provide a disincentive for innovation because once developed, they must be adopted across the board.[280]

## CONCLUSION

Four decades after Congress set forth ambitious aspirations for the nation's waters, we have made significant progress in some aspects of water pollution control, but far less in others. More important, progress seems to have peaked a decade or two after statutory enactment and then reached a plateau in many respects. This Article explored possible reasons for that stagnation, and potential new strategies to try to reinvigorate the statutory aspirations. If we renew our attention to the fundamental aspirations of the CWA and try to define what they mean more precisely and more pragmatically, they may help us to do what is required.

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279. *See supra* note 127 and accompanying text.

280. *See supra* note 173. My point here is not to take sides in this longstanding debate, although historically I have advocated continued and improved implementation of best technology principles, and even expanding them to nonpoint source pollution control efforts. *See* Robert W. Adler, *Water Quality and Agriculture: Assessing Alternative Futures*, 25 ENVIRONS 77 (2002).