

Still Striving for Clean Water Forty Years Later:
Examining the Clean Water Act's Historic Developments and Current Problems

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Dedication

The author wishes to dedicate this work to the United States Environmental Protection Agency, Office of Enforcement and Compliance Assurance, Water Enforcement Division for its selfless efforts in enforcing the Clean Water Act everyday and striving to protect our nation's waters.

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Abstract

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The fortieth anniversary of the Clean Water Act is an opportunity to look back at the major advances in water pollution control that have been achieved because of the passage of the Clean Water Act. This work will examine the political and scientific developments that led to the Act's construction and passage. This work will also address the continuing problems with controlling water pollution, particularly involving nonpoint source pollution, and new steps that are being taken with the Clean Water Act to control it.

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Section 1: Introduction

This year is an important milestone in the history of United States environmental law. It marks the fortieth anniversary of the Federal Water Pollution Control Act Amendments of 1972, now referred to as the Clean Water Act (CWA), which according to William Andreen is “one of the most revolutionary statutes ever drafted.”¹ “Despite repeated claims that it is too centralized, too fixated upon governmental solutions, too rigid, and too expensive, it has endured” for forty years.² The statute has not only endured, but it continues to be one of the strongest and most comprehensive federal statutes in reducing water pollution throughout the country. The overall effectiveness of the Clean Water Act is supported by a peer-reviewed scientific study conducted by the U.S. EPA’s Office of Water and published in 2000.³ The study focused on long-term changes in water pollution on a national scale. The study compared pollutant levels in various water bodies throughout the nation before 1972 with samples taken from the same water bodies in the 1980’s and 1990’s. Loadings of harmful pollutants such as suspended solids, fecal coliform, nutrients, and heavy metals declined. The study found “unambiguous evidence that the technology- and water quality-based policies of the CWA for point source effluent controls were environmentally effective.”⁴

¹ William Andreen, *Water Quality Today—Has the Clean Water Act Been a Success?*, 55 ALA. L. REV. 537, 537 (2004).

² William Andreen, *The Evolution of Water Pollution Control in the United States—State, Local, and Federal Efforts, 1789-1972: Part II*, 22 STAN. ENVTL. L.J. 215, 287 (2003).

³ Andree, *supra* note 1, at 572 (citing Office of Water, U.S. Environmental Protection Agency, *Progress in Water Quality: An Evaluation of the National Investment in Municipal Wastewater Treatment* (2000)).

⁴ Andreen, *supra* note 1, at 572.

The Clean Water Act is considered revolutionary not only because it led to an effective reduction in water pollution nationwide, but it has been considered revolutionary for several different reasons as well. First, the statute represented a shift of regulating water pollution from the traditional responsibility of state and local governments to the federal government. The amendments created a federal command-and-control system that established technology-based effluent limitations. Under the command-and-control system, a permit was required for any discharge of a pollutant from a point source into a water of the United States. Permits required the discharger to apply a certain level of effluent limitation technology, regardless of the condition of the receiving water body. The permitting system also required states to establish water quality standards for individual water bodies, and thus dischargers had to meet more stringent limitations if the condition of a particular water body required it. This scheme “combined technology-based limits and environmental quality-based standards in an innovative” way.⁵ The permitting scheme was supported by federal funds for the construction and improvement of municipal public wastewater treatment plants, a citizen suit provision that allowed citizens to be a private attorney general and enforce violations and the EPA’s failure to execute non-discretionary duties, and specific deadlines for ratcheting up technology-based effluent limitation standards.⁶ These new amendments transformed the federal government’s ability to combat water pollution and ushered in a new phase in environmental protection.

Such a transformative environmental statute deserves periodic review and analysis as major court decisions, ecological and scientific research, and regulatory

⁵ *Id.* at 538.

⁶ *Id.*

developments change how the statute is interpreted and enforced. This fortieth anniversary is an opportunity to look back at how exactly Congress forged this radical new path in environmental pollution control and what were their goals and aspirations in the legislation they created. More specifically, how did Congressional leaders draft the Clean Water Act the way they did and how new scientific and ecological methods, public opinion, political compromises, and the rise in environmentalism, influenced their drafting processes. Although various influences helped shape the Act, and I will examine these influences, some actors had a more profound role in the Act's creation than others. Based on my research of the Act's legislative history, my argument is that Senator Muskie and his leadership as chairman of the Senate Subcommittee on Air and Water Pollution played the most significant role in crafting the Act. The Senate Subcommittee's draft bill under the leadership of Senator formed the backbone of the amendments as the bill went through the Senate and House drafting processes. Through all the political dealings between the House, Senate, and the Nixon Administration, Senator Muskie never waivered from his determination to take a bold step in water pollution control. While other congressmen submitted changes to the bill, most of these changes did not survive and the main statutory framework and the policy goals that Muskie proposed remained intact. Thus, without Senator Muskie's draft legislation and leadership, the Clean Water Act would look significantly different than it does today.

The fortieth anniversary of the Clean Water Act is also an equally important time to analyze and critically assess the critical problems with water pollution that the Act has failed to solve and to develop new strategies that may address these issues. The most outstanding problem with the Clean Water Act at the present time is the inability for the

EPA and state environmental protection agencies to reduce nonpoint source pollution, the majority of which comes from agricultural sources. While the Act has been successful in reducing point source pollution, the statute's lack of attention to control nonpoint source pollution remains a problem that still has not been resolved successfully. Thus, at this fortieth anniversary of the Clean Water Act, the EPA continues to face major challenges in controlling nonpoint source water pollution with the existing statutory tools granted to it under the Act.

Section 2: Introduction to the Clean Water Act

In order to analyze what influences and ideas led to the drafting of the Clean Water Act in the particular way it did, one must first look briefly at the major statutory provisions that make up the foundation of the Act. To begin, the congressional declaration of goals and policy demonstrates a highly ambitious objective “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”⁷ The Act’s goal is to reach a nationwide water quality “which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water” by 1983 and to eliminate the discharge of all pollutants into navigable waters by 1985.⁸ These aspirations are far-reaching and set the tone for the entire Act.

These environmental goals are supported by a federal command-and-control permitting scheme called the National Pollutant Discharge Elimination System (NPDES)

⁷ 33 U.S.C. § 1251(a).

⁸ 33 U.S.C. § 1251(a)(2).

under Section 402.⁹ Under NPDES, the discharge of any pollutant from a point source into a water of the United States is unlawful unless the discharger obtains a permit from the EPA or from a state that the EPA has approved to grant NPDES permits.¹⁰ The statutory definition of a pollutant is broad.¹¹ The definition of a point source is equally as broad.¹² The permit must contain technology-based effluent limitations, which is the first defense to combat water pollution. Technology-based effluent limitations “reflect the levels of effluent quality achievable through the use of pollution control technology.”¹³ Effluent limitations for point sources are required to contain the “best practicable control technology” (BPT) by 1977 for conventional pollutants and “best available technology economically achievable” (BAT) by 1984 for toxic pollutants and by 1987 for “nonconventional pollutants.”¹⁴ All new point source dischargers must meet “new source performance standards,” which require technology-based effluent limitations that are at least as strict as BAT.¹⁵ Publicly owned treatment works must meet secondary treatment levels, which requires “reducing oxygen demand of organic waste and total suspended solids by 85%.”¹⁶ Industrial dischargers that discharge their waste into a publicly owned

⁹ 33 U.S.C. § 1342.

¹⁰ 33 U.S.C. § 1311(a).

¹¹ 33 U.S.C. § 1362(6)(dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water).

¹² 33 U.S.C. § 1362(14)(any discernable, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged).

¹³ Theodore L. Garrett, *Overview of the Clean Water Act*, in *THE CLEAN WATER ACT HANDBOOK*, THIRD EDITION 1, 4 (Mark A. Ryan ed., 2011).

¹⁴ *Id.* 33 U.S.C. § 1311(b)(1)(A)

¹⁵ 33 U.S.C. § 1316(b)(1)(B).

¹⁶ Andreen, *supra* note 1, at 548; 33 U.S.C. § 1311(b)(1)(B).

treatment works must meet pretreatment standards for the discharge of pollutants sufficient to prevent discharge from interfering with the functioning of the treatment works or that would pass through the treatment works.¹⁷

The second line of defense is the promulgation of state water quality standards for each individual water body within a state. These standards establish the specific use for the individual water body, such as agriculture, industry, public water supply, or outdoor recreation. Once a specific use for a water body is determined, technical criteria are established such as “maximum levels of certain pollutants, minimum levels of dissolved oxygen,” and sometimes narrative criteria such as turbidity and water color that must be achieved to support the specified use.¹⁸ Thus, “while the effluent limitations focus on the composition of the waste stream as it flows out of the discharge pipe, water quality standards focus on the overall quality of the receiving water.”¹⁹ The second layer of water pollution control through state water quality standards provides for those unique circumstances such as the case when a particular water body has numerous point sources discharging pollutants, water bodies with low flow, and where technology-based effluent limitations alone will not lead to improved water quality.²⁰

While the NPDES program manages the discharge of pollutants, another critical part of the Clean Water Act is the Section 404 program, which governs the discharge of dredge and fill material into a water of the United States. This program is managed by the United States Army Corps of Engineers, while the EPA has oversight and veto authority for permitting decisions made by the Corps. The Corps and the EPA work together in

¹⁷ 33 U.S.C. § 1317.

¹⁸ Andreen, *supra* note 1, at 548; 33 U.S.C. § 1312.

¹⁹ *Id.*

²⁰ *Id.* at 549.

promulgating regulations and guidelines for the administration of the Section 404 program. Those persons intending to discharge dredge or fill material into a water of the United States must first obtain a Section 404 permit from the Corps or from a state that the Corps has authorized to administer the Section 404 program.²¹ Although the Section 404 permits apply to the discharge of dredge and fill material into all waters of the United States, it has been influential in curbing the destruction of wetlands, which serve a vital role in the hydrological, chemical, and biological maintenance of aquatic ecosystems. The EPA's 404(b)(1) guidelines, which list the requirements in the Corps' Section 404 permitting process, are designed to reduce the adverse impacts to aquatic ecosystems and to mitigate any harmful impacts caused by the discharge.²²

The Act creates a strong compliance and enforcement mechanism. The NPDES permits must list specific, quantifiable limits of certain pollutants that the permittee is authorized to discharge and the permittee is required to comply with regular monitoring and reporting requirements.²³ This requirement includes submitting a quarterly discharge monitoring report to the EPA or state environmental protection agency that shows the daily pollutant discharge levels and compares it to the authorized amount.²⁴ Congress also granted the EPA several substantial enforcement mechanisms. The most common tool that the EPA has at its disposal is the administrative compliance order. If the EPA finds that a person is in violation of the Clean Water Act or its NPDES permit, it must notify the person and the state that issued the permit. If the state fails to take any appropriate action within thirty days, the EPA may then proceed with issuing the violator

²¹ 33 U.S.C. § 1344(a).

²² 40 C.F.R. § 230.

²³ 33 U.S.C. § 1318(a).

²⁴ 40 C.F.R. § 122.41(j)-(l).

an administrative compliance order.²⁵ Thus, the EPA retains concurrent jurisdiction with the states that the EPA has authorized to administer the NPDES program. The EPA may also impose administrative penalties for violations.²⁶ The EPA is authorized to bring a civil action, including a permanent or temporary injunction, for any violation for which it is authorized to issue an administrative compliance order.²⁷ The EPA may bring criminal charges against more egregious violators.²⁸ A critical enforcement tool is the citizen suit provision. This allows citizens to act as private attorney generals, whereby they may bring a civil action against an individual who is in violation of an effluent limitation standard or an administrative compliance order issued by the EPA or a state environmental agency.²⁹ The citizen suit provision also allows citizens to bring a civil action against the EPA for failure to execute a non-discretionary duty within the Clean Water Act.³⁰ These strong statutory enforcement tools are a vital component in the effectiveness of the Act.

Although the Clean Water Act has been successful in controlling the discharge of pollutants from traditional point sources, such as from an outfall pipe at an industrial plant, “remaining water quality impairment, however, is largely attributable to nonpoint sources of pollution, such as diffuse runoff, that are not directly controlled or have not been adequately controlled” under the Act.³¹ The runoff of pollutants from agricultural fields and operations, logging areas, parking lots, and construction sites remain a problem

²⁵ 33 U.S.C. § 1319(a).

²⁶ 33 U.S.C. § 1319(g).

²⁷ 33 U.S.C. § 1319(b).

²⁸ 33 U.S.C. § 1319(c).

²⁹ 33 U.S.C. § 1365(a)(1).

³⁰ 33 U.S.C. § 1365(a)(2).

³¹ Edward B. Witte and Natalia Minkel-Dumit, *Nonpoint Source Pollution Control*, in *THE CLEAN WATER ACT HANDBOOK*, THIRD EDITION 193, 193 (Mark A. Ryan ed., 2011).

for environmental regulators.³² The statutory control mechanisms that are in place for nonpoint sources do not provide the EPA with the same amount of control compared to point sources under the NPDES program. In addition, it is easier to impose technology requirements for effluents coming out of a pipe compared to fertilizer running off a field.³³ There are several provisions in the Act that seek to help states manage nonpoint source pollution. Section 208 is a planning provision that requires each state to identify waters within its borders that are suffering from substantial water quality problems.³⁴ The state must develop an “areawide waste management plan” and a continuous planning process to identify the nonpoint sources contributing to the water quality problems.³⁵ Section 303(e) requires each state to establish a continuous planning process for all navigable waters within the state.³⁶ The continuous planning process must incorporate the areawide waste management plan under Section 208. In the 1987 Clean Water Act amendments, Section 319 requires states to develop nonpoint source pollution assessment reports³⁷ and nonpoint source management programs.³⁸ Controlling nonpoint source water pollution is one aspect that the Clean Water Act has failed to address head on compared to point source pollution. This significant issue will be discussed in later sections.

The Clean Water Act stands as an example of one of the most forward-thinking federal pollution control statutes to date. The broad aspirations of Congress can be seen

³² Andreen, *supra* note 1, at 551.

³³ Witte and Minkel-Dumit, *supra* note 31, at 194.

³⁴ 33 U.S.C. § 1288(a).

³⁵ 33 U.S.C. §1288(b).

³⁶ 33 U.S.C. §1313 (a).

³⁷ 33 U.S.C. § 1329(a).

³⁸ 33 U.S.C. §1329(b).

in the wide reach of the statute and the enthusiastic milestones it hoped the nation to meet. Historian Paul Milazzo goes so far as to state that the rise of the environmental regulatory state, to which the Clean Water Act was a major product, “ranks as one of the most far-reaching transformations in American government since World War II.”³⁹ The Clean Water Act remains the backbone of federal water pollution control forty years later. Both federal and state regulators and dischargers continue to explore the contours of the statute and try to either expand or limit its boundaries. The important significance and influence of the Clean Water Act begs the question: how did the statute come into being? As with any complex statute, the various and diverse aspects that influenced its creation are equally complex. The environmental, social, scientific, and political dynamics that came together in the early 1970’s each played a unique role in pushing for the more stringent federal water pollution controls.

Section 3: Historical Developments of Federal Water Pollution Control Laws

It was during the period following World War II that a “jurisdiction shift” occurred in environmental protection, demonstrated by the federal government playing an increasing role in water pollution control, a role that had traditionally been within the purview of state and local governments.⁴⁰ “Often overlooked in the seventies and even today, the 1972 act *amended* a quarter-century’s worth of existing federal laws.”⁴¹ The

³⁹ PAUL CHARLES MILAZZO, UNLIKELY ENVIRONMENTALISTS: CONGRESS AND CLEAN WATER, 1945-1972 ix (University Press of Kansas 2006).

⁴⁰ KARL BOYD BROOKS, BEFORE EARTH DAY: THE ORIGINS OF AMERICAN ENVIRONMENTAL LAW, 1945-1970 128 (University Press of Kansas 2009).

⁴¹ BROOKS, *supra* note 40, at 130.

Clean Water Act is unique in that it was not simply created from scratch in 1972. It reflected twenty-five years of federal efforts to control water pollution. However, during these years many factors in the calculus of water pollution control changed. The enforcement mechanisms under existing federal water pollution control law were not effective in combating water pollution. The federal-state relationship granted states considerable power in determining whether violations could be pursued. Lawmakers' and citizens' views of environmental resources changed as well. The environmental movement gained strength in the 1960's and citizens began feeling a duty to address the problem of pollution. Thus, a critical look at what the Clean Water Act is today requires one to look at existing environmental law because it often reveals what issues lawmakers felt needed revision and what had an impact on the lawmaking process.

The decades following World War II demonstrated unprecedented demographic change and dynamic economic growth across the nation. With a growing population and the construction of ever-expanding suburban developments, negative impacts on the environment also grew. There were increased demands for water, energy, and agriculture. There were increased pressures on municipal wastewater treatment plants and runoff containing lawn fertilizers and domestic insecticides.⁴² The chemical industry produced a number of new synthetic compounds and did not know how they would affect water quality, especially when compounded and over long periods of time.⁴³ “As the country emerged victorious from World War II, Americans pursued postwar prosperity with well-deserved optimism but soon discovered that the by-product of that prosperity befouled

⁴² *Id.* at 2.

⁴³ *Id.*

the very waterways that sustained it.”⁴⁴ While the nation’s waters might have been able to handle the wastewater before World War II, they could no longer serve as a public sewer in the face of the huge growth in population. “As the 1960’s drew to a close, the nation’s surface water resources were heavily polluted.”⁴⁵

In the face of increased water pollution across the country, the federal government did not play a significant role in trying to control it. Pollution control remained a state and local concern. Both industrial leaders and local officials “guarded their spheres of influence and resisted federal encroachment.”⁴⁶ The first major federal water pollution control legislation was the Water Pollution Control Act of 1948.⁴⁷ The federal government’s enforcement authority was limited to interstate waters and their tributaries. The Surgeon General was charged with providing technical assistance in cases where public health or welfare was impacted from a pollutant that originated in one state and crossed the border affecting another state.⁴⁸ Public hearings would take place to establish an abatement plan, but if the polluter decided not to follow the plan’s recommendations, then the Federal Security Agency, charged with protecting public health, would ask the Attorney General to bring suit in federal court. The Attorney General could not file suit, however, unless the state agreed. The statute gave considerable deference to the polluter because the abatement plan was required to be economically feasible and practical.⁴⁹

⁴⁴ MILAZZO, *supra* note 39, at 1.

⁴⁵ Robert Glicksman and Matthew 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, 99 (2010).

⁴⁶ MILAZZO, *supra* note 39, at 3.

⁴⁷ Water Pollution Control Act, Pub. L. No. 80-845, 62 Stat. 1144 (1948) (superseded 1972).

⁴⁸ MILAZZO, *supra* note 39, at 20.

⁴⁹ *Id.*

There was also a large loophole for polluters because the statute was limited to interstate pollution, and thus polluters were “immune to federal action as long as they only endangered local residents.”⁵⁰ Unfortunately, the Act’s enforcement process was complex and contingent on the cooperation of the states. “The United States could neither convene an enforcement conference nor file suit until the governor of that state (home to both the polluter and the polluted) had given consent.”⁵¹ The Act was ineffective and did little to curb water pollution. In 1955, the House Committee of Appropriations denied an increase in funding for enforcement activities under the Act and not a single abatement order had been issued in the seven years between 1948 and 1955.⁵²

In the face of ineffective federal water pollution control measures, the Department of Health, Education, and Welfare requested amendments to the 1948 Act. There was strong business opposition to additional federal water pollution control. Steel, chemical, and paper companies had a particularly strong lobbying force in Congress during the 1950’s. Minnesota Representative John Blatnik, the Chairman of the House Subcommittee on Rivers and Harbors, was instrumental in the development of the 1956 amendments.⁵³ In this political environment, Blatnik couched the amendments in terms of water supply and economic growth, whereby pollution controls would improve water quantity. Blatnik attempted to enable the Surgeon General to create water quality standards. However, Blatnik soon realized that “water quality standards... were not feasible, but passing a bill that eliminated the state veto on abatement suits would give a

⁵⁰ Andreen, *supra* note 2, at 238.

⁵¹ Andreen, *supra* note 2, at 243.

⁵² MILAZZO, *supra* note 39, at 20.

⁵³ Water Pollution Control Act Amendments of 1956, Pub. L. No. 84-660, 70 Stat. 498 (1956) (superseded 1972).

foot in the door, at least, for stronger enforcement mechanisms in the future.”⁵⁴ Thus, the amendments eliminated the state’s veto power over the Attorney General’s decision whether to file a federal action.⁵⁵ Even though the state veto power was removed, the amendments required that federal and state regulators meet in conference before a public hearing to allow state authorities to remedy the problem. This additional requirement in fact created more administrative delay, and between 1956 and 1961 only fourteen conferences were held.⁵⁶ The 1956 amendments did not grant the federal government any additional enforcement tools and failed to curb water pollution by any significant measure.

The report by the Senate Select Committee on National Water Resources in 1960 did not venture far from the longstanding assumption that one of the fundamental purposes of rivers and lakes was to be a place for wastewater to assimilate. At the same time, the Committee recognized that there was increased stress placed on the nation’s water bodies and that there was a “relationship between regional water requirements and the quality required to support them.”⁵⁷ The Committee recommended federal and state river basin development and improvements in water resource management. However, the Committee chose not to recommend placing any discharge limits on industrial polluters.⁵⁸ At this time Congress began to see the dependent relationship between water quantity and water quality, but chose not to revise the existing water pollution control scheme.

⁵⁴ MILAZZO, *supra* note 39, at 26.

⁵⁵ Andreen, *supra* note 2, at 240.

⁵⁶ *Id.*

⁵⁷ MILAZZO, *supra* note 39, at 50.

⁵⁸ *Id.* at 58.

The following year the new Kennedy Administration asked Congress to strengthen the enforcement measures under the Act. Under the 1961 amendments, the federal government's enforcement authority was extended from strictly interstate waters and their tributaries to all navigable waters.⁵⁹ With the new amendments, even though the government's jurisdiction was widened, enforcing pollution remained limited. Even with expanded federal jurisdiction, federal enforcement was weak. Only five enforcement conferences were held between 1962 and 1963.⁶⁰ Although the amendments did not lead to improved enforcement success, the move demonstrated a minor beginning towards expanded federalization of water pollution control that would grow through the 1960's.

There clearly was a need in the 1960's for stronger federal water pollution control regulation. For example, by the 1960's commercial fisheries in the Great Lakes were in significant decline and health officials were forced to close beaches across the country due to municipal and industrial water pollution.⁶¹ Although water pollution was increasing, the environmental movement was still in its infancy in the early 1960's. A mass environmental movement had not yet been established and traditional conservation organizations, such as the Sierra Club, and concerned citizens did not have enough political influence "to overcome entrenched opposition to strong pollution control laws."⁶² However, a severe and uncommon drought in the Northeast from 1963 through 1967 changed the way the public and policymakers viewed the importance of water pollution control. The main issue was that the Northeast's major cities were at risk of

⁵⁹ Federal Water Pollution Control Act Amendments of 1961, Pub. L. No. 87-88, 75 Stat. 204 (1961) (superseded 1972).

⁶⁰ *Id.*

⁶¹ Andreen, *supra* note 2, at 244.

⁶² MILAZZO, *supra* note 39, at 74.

running out of water. Large cities had used water bodies close to the urban areas, such as the Hudson River, as receptacles for sewage disposal. They never relied on these waters for drinking water. However, in the face of the drought, policymakers saw that water pollution control was the only way to ensure sufficient drinking water. Water bodies could no longer be used for direct waste disposal because there simply was not enough fresh water to meet growing urban demands. The drought pointed to the vital connection between water quality and water quantity.⁶³ In the wake of the Northeast drought, water pollution control began to be framed as a tool to protect natural resources for the public good and economic growth.

In the face of needed water pollution control, Senator Edmund Muskie of Maine, a leader in environmental stewardship, led the Senate in strengthening federal authority in water pollution. Muskie introduced a bill in January 1965 that would allow the federal government to require states to establish water quality standards for interstate waters.⁶⁴ The House and Senate conference committee agreed on a joint bill in the fall. The Water Quality Act of 1965 “was the most important legislation of its kind during the sixties. The Act provided a new rationale, a new administrative structure, and a new regulatory mechanism for protecting the nation’s lakes and rivers.”⁶⁵ The Act established a Federal Water Pollution Control Administration (FWPCA) within the Department of Health, Education, and Welfare (HEW) and charged it with making sure that states created water

⁶³ *Id.* at 76.

⁶⁴ Andreen, *supra* note 2, at 246.

⁶⁵ MILAZZO, *supra* note 39, at 73; Water Quality Act of 1965, Pub. L. No. 89-234, 79 Stat. 903 (1965) (superseded 1972).

quality standards for interstate waters by 1967 and to approve or disapprove those standards.⁶⁶

The goal of the Act was to secure a sufficient supply of clean water for “future growth and economic development” by attempting to reduce the volume of pollution.⁶⁷ Thus, the main purpose behind the Act remained economic growth and water quantity. Although some industry leaders realized that that they needed “to reduce excessive pollution loads, they still determined treatment requirements in reference to a stream’s carrying capacity... and refused to install technology they did not deem economically feasible.”⁶⁸ When President Johnson signed the bill into law, he stressed the need to preserve the nation’s waters for the public. He stated, “No one has a right to use America’s rivers and America’s waterways that belong to all the people as a sewer.”⁶⁹ At the same time, the President and members of Congress recognized that further legislation would be required to address water pollution in the future.⁷⁰

Under the 1965 Act, the states were required to establish water quality standards for interstate waters by 1967, yet they struggled with this duty. In creating water quality standards, states had to determine the use of the particular water body or stretch of water body, such as for swimming, drinking, or industrial use, establish limits for certain pollutant levels in the water bodies, and create an implementation plan to reach those water quality standards. States faced a major challenge in establishing water quality standards because “the complex relationship between pollutants and water uses made it

⁶⁶ *Id.* at 85.

⁶⁷ *Id.* at 89.

⁶⁸ *Id.* at 81.

⁶⁹ Remarks at the Signing of the Water Quality Act of 1965 1 PUB. PAPERS 1034-1035 (Oct. 2, 1965).

⁷⁰ Andreen, *supra* note 2, at 249.

extremely difficult to develop reliable water quality standards or sound basis of measurement, especially when there were many discharge sources.”⁷¹ The FWPCA was also to blame. It took the FWPCA eighteen months to produce guidelines for states on how to establish water quality standards, just six months before the deadline. The FWPCA would reject an entire state’s water quality standards application if there were dispute even over a single water body. The more significant problem involved actually enforcing the water quality standards.

The Water Quality Act simply did not have an efficient enforcement mechanism to go after violators. The enforcement mechanism was slow, cumbersome, and tilted highly in favor of the violator. The Secretary of the HEW could ask the Attorney General to file a suit against a violator of the federally approved state water quality standards, but only after giving the violator 180 days notice. In addition, the government had the burden of proving an actual endangerment to human health or welfare. This burden proved extremely difficult for the FWPCA when there was little established data relating to “the location, volume, or composition of industrial discharges” and often violations of water quality standards involved more than one polluter.⁷² The Act also allowed the courts to consider the physical and economic feasibility of the violator in complying with the state water quality standards.⁷³ This exception provided violators with a major loophole. At the same time, the scope of violations that the FWPCA could enforce was limited. “If the violation affected persons only in the state where the offending discharge occurred, the

⁷¹ HARVEY LIEBER, *FEDERALISM AND CLEAN WATERS* 21-22 (1975).

⁷² Andreen, *supra* note 2, at 253.

⁷³ *Id.* at 254.

governor of that state had to agree” to the filing.⁷⁴ This cumbersome requirement remained in place from the previous federal water pollution control statutes. “Municipal and industrial polluters and state and federal agencies spent considerable amounts of time bargaining with no apparent cleanup results.”⁷⁵ Thus, although the Water Quality Act had lofty goals and expanded federal authority over water quality standards, the application of effective federal enforcement faced an uphill challenge. The proof of the Act’s ineffectiveness can be seen in the number of violations that were filed under the FWPCA. Federal authorities issued only fourteen notices of violations under the Act between 1965 and 1971, and no case had gone to court.⁷⁶ The challenges the federal government faced in effectively enforcing water pollution laws stayed on the minds of Congressional leaders, particularly Senator Muskie.⁷⁷

In the face of major challenges in enforcing the Water Quality Act, several environmental organizations and U.S. Attorneys looked to Section 13 of the Rivers and Harbors Act of 1899 as a means of controlling water pollution from industrial sources.⁷⁸ Section 13 had been in place for over sixty years, but the statute had until the 1960’s long been interpreted as applying only in cases where waste would physically disrupt navigation in traditionally navigable waters of the United States. Two important U.S. Supreme Court cases dramatically broadened the statute’s scope and the ability for the

⁷⁴ *Id.* at 250.

⁷⁵ *Id.*

⁷⁶ *Id.* at 254.

⁷⁷ *Id.*

⁷⁸ *Id.* at 258; 33 U.S.C. § 407 (2006). Section 13 of the Rivers and Harbors Act prohibits the discharge or deposit of “any refuse matter of any kind or description whatever other than that flowing from streets and sewers and passing therefrom in a liquid state, into any navigable water of the United States, or into any tributary of any navigable water from which the same shall float or be washed into such navigable water” without a permit issued by the Secretary of the Army.

federal government to use the statute to combat water pollution.⁷⁹ In *Republic Steel* the steel mills dumped industrial waste into the Calumet River and this raised the bottom level of the river, thus limiting navigation. The Court held that “refuse matter” included industrial pollutants, not just physical structures that disrupted navigation.⁸⁰ Six years later in *Standard Oil*, the Court found that petroleum emptied into a river constituted “refuse waste” and was an impediment to navigation under the statute.⁸¹ A significant benefit of the Court’s two rulings was that under Section 13, the requirements to file suit against polluters was much easier than under the Water Quality Act.⁸² A U.S. Attorney could file suit for injunctive relief without having to go through the elaborate administrative process and “there was no need to prove a violation of stream standards or actual endangerment.”⁸³ Thus, to environmentalists, a strengthened Section 13 permit scheme appeared to be a more effective mechanism to combat water pollution violations.

Even with the expanded potential of Section 13 as a means of controlling water pollution, the Corps of Engineers was not interested in using it as such and “exhibited little enthusiasm for broadening its bureaucratic purview....”⁸⁴ However, Section 13 drew the attention of several Congressmen intent on improving water pollution control enforcement. In 1969, with the encouragement of Representative Henry Reuss, chairman of the House Government Operations Committee’s Subcommittee on Conservation and

⁷⁹ *United States v. Republic Steel*, 362 U.S. 482 (1960); *United States v. Standard Oil Co.*, 384 U.S. 224 (1966).

⁸⁰ *Republic Steel*, 362 U.S. at 485.

⁸¹ *Standard Oil*, 384 U.S. at 226 (“Oil is oil, and whether useable or not by industrial standards, it has the same deleterious effect on waterways. In either case, its presence in our rivers and harbors is both a menace to navigation and a pollutant.”)

⁸² *Republic Steel*, 362 U.S. at 491–493.

⁸³ Andreen, *supra* note 2, at 258.

⁸⁴ Milazzo, *supra* at 167-168.

Natural Resources, environmentalists asked several U.S. Attorneys to file suit against industrial polluters for the discharge of refuse material without a permit under Section 13.⁸⁵ The Department of Justice filed sixty-six actions between October 1969 and April 1970.⁸⁶ This change in the interpretation of Section 13 “helped precipitate... [a] fundamental transformation in the law’s regulatory approach and underlying philosophy.”⁸⁷ The FWPCA was not pleased with the filings pursued by the U.S. Attorneys because it felt that using Section 13 was somewhat backhanded when there was no effective Section 13 permit program in place.⁸⁸

The Council on Environmental Quality (CEQ) addressed the concerns of the FWPCA and prepared an executive order to establish a Section 13 permit program.⁸⁹ In December 1970, President Nixon signed an executive order prepared by the CEQ requiring the Corps to establish a Section 13 permit program for direct and indirect discharges into navigable waters or tributaries, entitled the Refuse Act Permit Program.⁹⁰ It required all dischargers to have a permit by July 1, 1971. The new program had several problems.⁹¹ First, the Corps had to confer with the EPA in issuing permits and the EPA could impose permit requirements that involved the state water quality standards for the

⁸⁵ Andreen, *supra* note 2, at 258; MILAZZO, *supra* note 39, at 169.

⁸⁶ MILAZZO, *supra* note 39, at 169.

⁸⁷ MILAZZO, *supra* note 39, at 165.

⁸⁸ Andreen, *supra* note 2, at 258-259.

⁸⁹ MILAZZO, *supra* note 39, at 173 (noting how the Council on Environmental Quality chose not to engage either Congress or interest groups in the drafting process).

⁹⁰ Exec. Order No. 11,574, 35 Fed. Reg. 19627 (Dec. 23, 1979) (administration of the Refuse Act permit program), 3 C.F.R. § 188 (1970).

⁹¹ Andreen, *supra* note 2, at 259 (Federal jurisdiction widened to include “all nonnavigable tributaries regardless of whether a direct link to the pollution of a navigable water could be established.”).

water body or veto the granting of the permit.⁹² This system of dual administration was cumbersome and this pressure was not helped by a narrow deadline of July 1971. The EPA received over 40,000 permit applications and did not have the technical information or resources necessary to process the flood of applications.⁹³ Second, the permit program did not include discharges from streets, sewers, and municipal wastewater treatment facilities even though these sources remained a significant source of water pollution.⁹⁴ Third, in December 1971, a federal district court ruled that the Corps and the EPA could not issue any more permits unless regulations were promulgated requiring an environmental assessment of the permit scheme as required under the National Environmental Policy Act (NEPA).⁹⁵ With the court's ruling, the permit program could not go forward. The Section 13 permit program provided Congressional leaders with a unique industrial discharge permit model and this temporary hiatus provided them with an opportunity to amend the Federal Water Pollution Act.

Section 4: The Rise of Environmentalism and Support for Water Pollution Control

The 1960's demonstrated a growing public concern about environmental degradation across the country. The negative impacts on the environment from a century of industrialization became more prominent in the public eye as the media captured

⁹² *Id.*; 36 Fed. Reg. 6566 (Apr. 7, 1971) (to be codified at 33 C.F.R. § 2209.131(d)(7)-(10)).

⁹³ MILAZZO, *supra* note 39, at 174.

⁹⁴ Andreen, *supra* note 2, at 259.

⁹⁵ *Id.* at 260; Kalur v. Resor, 335 F. Supp. 1 (D.D.C. 1971).

images of polluted waters and dramatic fish kills.⁹⁶ It was during this time that “local activities throughout the country brought increasing pressure to bear on pollution control officials to redress fish kills, the loss of recreational opportunities, leaking suburban septic tanks, and other aesthetic and health concerns.”⁹⁷ There was a shift in national consciousness away from limitless economic growth and industrialization. Instead of seeing rivers and lakes as exploitable natural resources, citizens began to see waters as “intrinsically valuable, delicately balanced systems under stress.”⁹⁸ The public expressed their growing concern with environmental degradation and elected officials in Washington soon took an increased notice.

In addition to the media images of polluted waters and public beach closures across the country, the rise of the study of ecology and its expanded role in the public discourse also played a large role in the shift of interpreting waters of the United States as part of ecosystems rather than simply inexhaustible public sewers.⁹⁹ “Ecology involved the study of natural systems in dynamic equilibrium and the factors disrupting that equilibrium.”¹⁰⁰ The publication of Rachel Carson’s work *Silent Spring* in 1962 dramatically pushed ecology into the public discourse and demonstrated the interconnection between human activity and the environment. The increased public interest and exposure to the study of ecology “provided a new intellectual framework and vocabulary for ordinary citizens to interpret environmental harm, assess the intrinsic

⁹⁶ MILAZZO, *supra* note 39, at 89.

⁹⁷ *Id.* at 73.

⁹⁸ *Id.* at 89.

⁹⁹ *Id.*

¹⁰⁰ *Id.* at 104.

worth of ‘pristine’ nature, and contemplate public policy options.”¹⁰¹ Not only was the public becoming more receptive to the science of ecosystems and human’s cumulative impact on those ecosystems, but Congress was becoming aware of ecology as well.

In the latter half of the 1960’s, Congress became more receptive to the principles behind ecology and was more open to the idea of using ecology as a component in developing water pollution control mechanisms. One reason why Congress was receptive to the concepts behind ecology and ecosystems was because “post-1945 ecosystems ecology relied on mathematics, thermodynamics, and certain other quantitative sciences that gained currency during wartime.”¹⁰² Congressional leaders were able to draw a parallel between ecologists’ scientific approach to administering water pollution in much the same way Congress had been required to administer major military operations, which required a scientific application to complex problems. Specifically, legislators were receptive to ecosystems ecology “because it offered a way to bring large, complex, interdependent entities under efficient control.”¹⁰³

As congressional leaders gradually connected water pollution with ecological systems, the traditional view of water quality as a means to secure economic development began to chip away. “Ecology emerged as a significant mode of thought in this contested realm of regulatory politics.”¹⁰⁴ An example of this change could be seen in hearings regarding two proposed nuclear power plants in New England in 1968. At hearings held by the Senate Subcommittee on Air and Water Pollution, Senator Muskie’s opening remarks were telling. He expressed his concern not just with pollutants entering the

¹⁰¹ MILAZZO, *supra* note 39, at 89.

¹⁰² MILAZZO, *supra* note 39, at 91.

¹⁰³ *Id.* at 92.

¹⁰⁴ *Id.* at 112-113.

water, but also with the long-term effect of the plant's thermal discharge water on the river's ecology.¹⁰⁵ Before the late 1960's, the Senate Public Works Committee and the Subcommittee on Air and Water Pollution "did not solicit, and witnesses rarely presented, testimony that asserted ecological principles as a technical or philosophical justification for water pollution control."¹⁰⁶ However, Congress became more open to ecological principles and studies. In 1970 as the Senate Public Works Committee began discussing amending the Water Quality Act of 1965, Muskie asked three prominent ecosystem ecologists at the time, Thomas Jorling, Gene Likens, and George Woodwell, to be advisors. Their advisory work demonstrated to the Committee that "the integrity of an ecosystem's biochemical cycles, as established on an evolutionary scale, could be compromised by manmade disturbances operating within a much briefer time frame."¹⁰⁷ They were able to connect the effects of water pollution on nature's various ecosystems across the country and present their findings to the Committee in an understandable way. The ecologists' findings would have an impact on the Committee as they considered how to amend the Water Quality Act.

In addition to the rise of the study of ecology, the public's interest in environmental conservation in the postwar period had an effect on the development of water pollution law. Congressional committee chairs that were involved in natural resources and pollution, such as Senator Muskie, began to take note of the public's increased concern with the health of the nation's resources. It was during this postwar period when there began to be a shift in the public's perception of the nation's resources

¹⁰⁵ *Id.* at 119.

¹⁰⁶ *Id.* at 118.

¹⁰⁷ MILAZZO, *supra* note 39, at 108.

from being simply infinite and tools for further economic development to being limited and worth protecting. While “some historians and legal academics have contended that environmental law only emerged after *Silent Spring* catalyzed a mass environmental movement in the mid-1960’s,” there is historic support that the rise of environmentalism came from other sources and earlier than the mid-1960’s.¹⁰⁸

Even before the publication of Carson’s *Silent Spring*, several cultural shifts in the postwar period had an influence on the public’s perception about environmental pollution. The increase in outdoor recreation and the increase in the population all had an influence in the growth of the public’s concern with the health of the nation’s environmental resources. After World War II there was a boom in outdoor recreational activities. Fewer Americans worked outdoors as compared to before the war and spending time outdoors became a recreational venue.¹⁰⁹ The popularity of outdoor recreational activities grew considerably. Between 1948 and 1958, the U.S. Fish and Wildlife Service found that fishing license sales increased 48%, while the U.S. population only grew by 19%. Also during this period the number of annual visitors to national forests rose from 16 million to 40 million.¹¹⁰ With the growth of outdoors recreation, “a new generation of preservationists” emerged as more citizens became concerned with the health of the nation’s resources.¹¹¹ They demonstrated growing support of more protection for national parks and wilderness areas. These “simultaneous cultural shifts challenged, then destabilized, traditional popular values that Americans

¹⁰⁸ BROOKS, *supra* note 40, at 93.

¹⁰⁹ *Id.* at 95.

¹¹⁰ *Id.* at 97.

¹¹¹ *Id.* at 99.

used to subordinate nature to society.”¹¹² This new interest in environmental preservation was critical in laying the foundation for the national concern with pollution in the 1960’s. Congressional leaders began to hear from their constituents concerns about the health of the nation’s resources. Without the development of such concern by the public, there may not have been as much impetus to push for more stringent federal pollution laws.¹¹³ The increase in outdoor recreation caused citizens to be aware of the increase in pollution and the need for better regulation to protect the environment.

The increase in postwar prosperity and population also influenced changing the public’s concern for the health of the nation’s resources. The parents in the postwar period had more time to devote to their children and expressed more concern over their health and wellbeing than previous generations. “New suburbanites inhabiting new homes in green fields soon perceived new environmental threats that menaced their families and they explored new ways to defend their hearths and progeny.”¹¹⁴ Parents had the time and money to express their demands for a safer living environment to their legislators. They expressed their concerns about water pollution and “the health and safety of all these young families began influencing lawmakers’ priorities.”¹¹⁵ Thus, suburban families’ concern about the health of the environment around them and its effect on their children demonstrated a growing constituency that demanded more stringent pollution controls and legislators were well aware of these demands.

In the 1960’s, Senator Muskie led the Senate Subcommittee on Air and Water Pollution to hearings in different locations across the country to discuss with citizens

¹¹² *Id.* at 94.

¹¹³ *Id.* at 101.

¹¹⁴ *Id.* at 109.

¹¹⁵ *Id.* at 111.

about pollution and analyze what solutions would be feasible. The hearings demonstrated legislators' response to the public's concern about water pollution. In the process, the Subcommittee gained significant knowledge about the scientific, economic, and technological aspects of water pollution and it was able to use this newfound knowledge in amendments of 1972.¹¹⁶ The Subcommittee's hearings were influential in their impact on both Congress and the public regarding the growing problems of water pollution.

During the postwar period there was a significant growth in the environmental movement and citizens' concern about the direction in which the nation was headed in terms of environmental health and pollution's impact on human health. "Americans were becoming increasingly impatient with the disgraceful condition of the nation's waters, and many began to demand action."¹¹⁷ This concern intensified in the later half of the 1960's. "By 1970, over half the respondents of a Gallup poll considered pollution an important national problem, whereas only 17 percent had in 1965."¹¹⁸ During this time, several environmental disasters had a definite impact on the public's view of environmental degradation and the law's inability to control pollution. In June 1969 the Cuyahoga River in Cleveland, Ohio caught fire. This was not the first time the river had caught fire, but the intensity and level of destruction caused by the fire "appeared to mock government pollution control efforts."¹¹⁹ The same year in California the Santa Barbara oil spill occurred. The offshore oilrig blowout released 200,000 gallons of crude

¹¹⁶ Robert F. Blomquist, *To Stir Up Public Interest: Edmund S. Muskie and the U.S. Senate Special Subcommittee's Water Pollution Investigations and Legislative Activities*, 22 COLUM. J. ENVTL. L. 1, 62 (1997).

¹¹⁷ Andreen, *supra* note 2, at 292.

¹¹⁸ BROOKS, *supra* note 40, at 145.

¹¹⁹ *Id.*

oil and impacted 30 miles of coastline.¹²⁰ April 1970 was the first Earth Day, led by Senator Gaylord Nelson of Wisconsin. What was planned to be a day of environmental teach-ins turned out to involve over 20 million citizens educating themselves about ecology and human's impact on the environment.¹²¹ Established environmental groups such as the Sierra Club and the National Wildlife Federation experienced huge increases in membership during this time. While these traditional environmental groups had in the past had been interested protecting open spaces and endangered species, they began to be concerned with pollution control as well. New environmental groups such as Friends of the Earth and Environmental Action developed and demonstrated a "commitment to fundamental environmental reform" that was not present in established environmental organization.¹²² These new organizations became politically active and began putting increased pressure on Congress to control pollution, while the established environmental groups chose to remain outside of politics.¹²³ It was during this period that there was a new and dynamic push for more stringent pollution control and more "intense political pressure" exercised by citizens and environmental organizations from different parts of the country.¹²⁴ Congress realized that the political will was in support of more stringent water pollution control, water pollution problems were growing, and that the current statutory framework was not working.

Section 5: Working Towards Creating the Clean Water Act

¹²⁰ *Id.*

¹²¹ *Id.* at 147.

¹²² *Id.* at 148.

¹²³ BROOKS, *supra* note 40, at 148.

¹²⁴ *Id.* at 6.

At the end of the 1960's, Congress realized that the Federal Water Pollution Control Act needed revision in order for it to become effective and enforceable. The CEQ's 1971 report noted a decrease in water quality across the country. In 1970, 27 percent of the waters of the United States were polluted, while in 1971 this number inched up to 29 percent.¹²⁵ This was confirmed by a series of reports by the General Accounting Office.¹²⁶ At the same time, there was disagreement on how to improve upon previous legislation. The Nixon Administration supported maintaining the Federal Water Pollution Control Act's existing federal-state relationship, whereby the federal government would provide grants to state environmental agencies and more money for the construction of municipal wastewater treatment plants. The Administration argued that local authorities knew local problems better than the EPA and that increased federal administration of water pollution control would involve a more cumbersome approach compared with state and local agencies managing the compliance and enforcement mechanism.¹²⁷ The contrary view, held by most Democrats, involved more federal control over water pollution control. Important Democratic leaders involved in the water pollution debate, such as Senator Muskie, felt that a stronger federal role in water pollution control was necessary if any progress was to be achieved. They believed that state environmental agencies were understaffed, suffered from limited resources, and had failed to perform their duties. Enforcement was difficult because "it was often virtually impossible to determine which particular polluter was responsible for violating ambient

¹²⁵ LIEBER, *supra* note 71, at 15.

¹²⁶ *Id.*

¹²⁷ *Id.* at 2.

standards in a specific water body.”¹²⁸ More importantly, they worried that states were competing against one another to have the least stringent water pollution controls so that they could attract industry. Democrats worried about this race to the bottom among the states. Many legislators “were dubious about the willingness and ability of the states to pull their share of the load” in reducing water pollution.¹²⁹

With the Section 13 Refuse Act program on hold and little progress in controlling water pollution being made under existing federal law, legislators agreed that the Federal Water Pollution Control Act needed to be revised. Senator Muskie criticized the 1965 Water Quality Act, stating, “The water quality standards program is limited in its success... Officials are still working to establish relationships between pollutants and water uses. Time schedules for abatement are slipping away because of failure to enforce, lack of effluent controls, and disputes over Federal-State standards.”¹³⁰ In February 1971, Senator Muskie introduced a bill that would increase federal funding for the construction of municipal wastewater treatment plants, would expand state water quality standards to include intrastate waters and their tributaries, and would provide the EPA with new and additional enforcement tools.¹³¹ The 1965 Act only covered water quality standards for interstate waters and their tributaries, and this change represented a significant jurisdictional expansion. The structure of the water quality standards was altered. While water quality standards under the 1965 Act had been based on ambient water quality characteristics, Muskie proposed a different approach whereby water quality standards

¹²⁸ Andreen, *supra* note 2, at 293.

¹²⁹ LIEBER, *supra* note 71, at 14.

¹³⁰ *Federal Water Pollution Control Act Amendments of 1972, Senate Debate on S. 2270, 92nd Cong. (1971) (remarks of Sen. Muskie), reprinted in 2 LEGIS. HIST. 1254.*

¹³¹ LIEBER, *supra* note 71, at 34-35.

would be supported by effluent restrictions. Thus, water quality standards would no longer be obtained based on how much a water body could assimilate, but rather all dischargers would be forced to meet effluent limitations based on technological controls.

Senator Muskie expressed considerable frustration with the current enforcement mechanism and he chose to streamline the process. The conference procedure, where federal and state officials would meet with suspected polluters, was inefficient. Muskie proposed granting the EPA the authority to issue a compliance order or bring a civil action against polluters. He also proposed a citizen suit provision, whereby citizens could act as private attorney generals and bring suits against polluters if the EPA or state had not already done so or against the EPA Administrator for failure to act.¹³² Later that month, Senator John Sherman Cooper introduced a bill prepared by the Nixon Administration. The bill was similar to Senator Muskie's in most respects. The only significant differences between the two bills was that Muskie's bill would have Congress contribute \$2.5 billion per year for the next five fiscal years to the construction of municipal wastewater treatment plants, while Nixon's bill would only grant \$2 billion for the next three fiscal years and Nixon limited the citizen's suit provision against the EPA Administrator to apply only to failure to execute nondiscretionary duties.¹³³ There was a significant hole in both Muskie and Nixon's bills: a permitting scheme. Both proposals made no mention of a permitting scheme, now the backbone of the Clean Water Act.¹³⁴

¹³² Andreen, *supra* note 2, at 261-262.

¹³³ *Id.*; LIEBER, *supra* note 71, at 32-33.

¹³⁴ MILAZZO, *supra* note 39, at 195.

The following month, the Subcommittee on Air and Water Pollution chaired by Senator Muskie, held hearings on the two draft proposals.¹³⁵ At the hearings, both state representatives and industrial executives expressed concern about both Muskie and the Nixon Administration's bill. The states were not pleased with the notion of increased federal government interference in an area that they considered to be within state authority.¹³⁶ Industry leaders strongly opposed the Muskie bill's provision that would require new facilities to implement the latest available control technology.¹³⁷ Environmental groups, such as the Sierra Club and Friends of the Earth, expressed their concern that the two bills were not stringent enough. They recommended establishing specific deadlines for compliance, a stronger and more efficient enforcement mechanism, and requiring closed-cycle wastewater treatment when available.¹³⁸ Soon after the hearings, Muskie's Subcommittee began revising the two proposed bills based on the input it received during the hearings.

The Act's legislative history shows that Senator Muskie's imprint was in every part of the Act's movement through the various congressional committees. As the Subcommittee chair, Muskie had significant control over the drafting process and the political maneuvering that went on during the spring and summer of 1971.¹³⁹ Senator Muskie created the Subcommittee in 1963 under the appointment of the chairman of the Senate Public Works Committee, Senator Pat McNamara, and quickly became the most experienced legislator in pollution law. The Subcommittee became a forum for discussing

¹³⁵ LIEBER, *supra* note 71, at 35.

¹³⁶ *Id.* at 37.

¹³⁷ *Id.* at 38.

¹³⁸ *Id.*

¹³⁹ *Id.*

pollution control and it held hearings around the country, stirring up public interest and concern about the state of the nation's natural resources.¹⁴⁰ With Muskie's experience and the overall complexity of water pollution law, many senators "deferred to his mastery of this subject area."¹⁴¹ In addition, Muskie worked well with the second ranking minority member of the Subcommittee, Senator John Sherman Cooper, and thus the two were able to foster a sense of bipartisanship and productivity. With extensive experience in drafting the Clean Air Act of 1970, Muskie was skilled in his "control of the legislative machinery" to move the bill through the Subcommittee.¹⁴²

Once the hearings were over, Muskie kept much of the drafting dialogue behind closed doors. The senators paid little attention to industry lobbyists, and only slightly more attention to state leaders during the drafting process.¹⁴³ As a leader in pollution legislation, Muskie was able to imbue his own views into the pollution control dialogue. He grew up in Maine along the Androscoggin River, which was heavily polluted from the discharge released from paper mills. At the same time, he understood that Maine's economy depended on industry and the government could not simply shut down the mills.¹⁴⁴ He recognized that establishing a balance between industry and environmental protection was critical.¹⁴⁵ He knew that in 1972 the pollution problems were only

¹⁴⁰ EDMUND MUSKIE, *JOURNEYS* 79 (Doubleday 1972).

¹⁴¹ LIEBER, *supra* note 71, at 39.

¹⁴² *Id.* at 40.

¹⁴³ *Id.* at 50.

¹⁴⁴ MUSKIE, *supra* note 141, at 80.

¹⁴⁵ *Id.* at 93 ("The obvious and simple answer to the dangers of environmental collapse would be to restrict growth and to halt pollution, but to take these steps without counting the human costs would be as great a wrong as to continue the headless exploitation of the planet.").

increasing and significant measures were needed to curb them.¹⁴⁶ Muskie's experience and technical knowledge in pollution control law and his determination to push through an effective water pollution control law impressed other senators and he was able to win over significant bipartisan support.¹⁴⁷ Muskie's leadership allowed him to control the draft proposal as it was discussed in the Subcommittee and as I will examine the legal framework that he established, built around technology-based effluent limitations, remained intact as the draft bill went through Congress.

The Subcommittee's draft bill, which was released in early August, demonstrated several changes that the Subcommittee members made to the draft bill that Senator Muskie presented in February. Although these changes were made, Senator Muskie had significant oversight in their passage and approved of the changes. Thus, he effectively maintained control over the Subcommittee's drafting process. The first major change was that the bill would require the establishment of a minimum national water quality standard, whereby all waters would have "to be clean enough to protect indigenous populations of fish and wildlife and to permit recreational activities in and on the water."¹⁴⁸ The deadline for this new minimum water quality standard would be 1981.¹⁴⁹ This fishable/swimmable requirement reflected a merging of "ecological and comprehensive planning" and the Subcommittee's shift towards looking to ecology as a

¹⁴⁶ *Id.* at 94.

¹⁴⁷ LIEBER, *supra* note 71, at 40.

¹⁴⁸ Andreen, *supra* note 2, at 263-264; 33 U.S.C. § 1251(a)(2) ("it is the national goal 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.").

¹⁴⁹ MILAZZO, *supra* note 39, at 196.

basis for water pollution control.¹⁵⁰ This new standard had never been considered before, and was proposed by Senator John Tunney of California during the summer debates within the Subcommittee. Senator Tunney argued that the fishable/swimmable standard would “focus national effort, provide an easily understandable measure of commitment, and encourage rational cost-effective program decisions.”¹⁵¹ Tunney based his proposal on the notion that unless the statute provided a specific goal and deadline to achieve that goal water pollution control would continue to flounder.¹⁵² Senator Muskie had reservations about whether it was possible to create a nationwide standard for a water to be considered “swimmable,” and if so, whether it was possible for all waters of the United States to be in fact swimmable within nine years.¹⁵³ Muskie expressed his concern over the vague terms of Tunney’s provision, stating at a Subcommittee drafting session, “When you talk about setting a standard against which you can prosecute people, apply enforcement procedures against.... you have to have something that is pretty precise.”¹⁵⁴ Tunney defended his provision, stating that state regulations in several states and the Delaware River Basin Commission had adopted a provision with similar language and the terms were not overly vague.¹⁵⁵ Muskie understood the political importance of having the Tunney provision in the bill, but he worried about its feasibility.

Muskie’s solution to the Tunney provision came to him in July from George Woodwell, a scientific advisor to the Senate Public Works Committee from the Brookhaven National Laboratories. Woodwell had reviewed the Subcommittee’s bill and

¹⁵⁰ *Id.* at 190.

¹⁵¹ *Id.* at 197.

¹⁵² *Id.* at 199.

¹⁵³ *Id.* at 201.

¹⁵⁴ MILAZZO, *supra* note 39, at 204.

¹⁵⁵ *Id.*

expressed his concern that there was no technical objective in the bill for controlling water pollution. He suggested that the bill include a provision whereby the objective would be the “maintenance of the chemical, physical, and biological integrity of all waters, including lakes, streams, river, estuaries, and oceans.”¹⁵⁶ The notion of maintaining the “integrity” of a water body was flexible, achievable, and “provided a quantitative, scientifically based alternative to Tunney’s vague swimmable/fishable language.”¹⁵⁷ The new concept of water body integrity did not replace Tunney’s standard, but instead subsumed it. Muskie realized that in order to maintain a water body’s integrity, the water body would have to be “at or close to pristine natural condition.”¹⁵⁸ The Subcommittee staff proposed a deadline of zero-discharge by 1985, instead of Tunney’s fishable/swimmable standard.¹⁵⁹ There was some technological support for this ambitious deadline. In Muskegon, Michigan, a wastewater treatment plant designed a closed-cycle pilot program where sewage waste was piped into an aeration lagoon, purified, and the clean water was absorbed into the water table.¹⁶⁰ Muskie supported this deadline over Tunney’s proposal, stating, “[N]o-discharge is a clearer expression of the ultimate intent than a lesser standard [fishable/swimmable waters] that can be said to rely on assimilative capacity.”¹⁶¹ Thus, Muskie’s guidance and approval led to the adoption of the no-discharge deadline.

¹⁵⁶ *Id.* at 206.

¹⁵⁷ *Id.* at 207.

¹⁵⁸ *Id.* at 219.

¹⁵⁹ *Id.*

¹⁶⁰ LIEBER, *supra* note 71, at 42.

¹⁶¹ MILAZZO, *supra* note 39, at 221.

The Nixon Administration and the EPA were displeased with the no-discharge deadline.¹⁶² The EPA argued that no-discharge was simply impossible to reach because of the lack of the necessary technology, while the Office of Management and Budget felt that the costs of trying to achieve no-discharge would be too high.¹⁶³ The Republican members of the Senate Public Works Committee, citing the high costs, were able to persuade Muskie to change the no-discharge by 1985 requirement into a non-enforceable policy.¹⁶⁴ Even though the no-discharge deadline was weakened to a statement of policy, it still was significant in that it would serve “to provide the EPA administrator and the states with a direction toward the development of the necessary technology needed to obtain a policy of no-discharge.”¹⁶⁵

After the Subcommittee presented its draft bill in the summer of 1971, the bill went to the full Senate Public Works Committee for discussion. The most significant change that occurred in the Committee discussion was the adoption of the NPDES permit program in the Committee’s draft bill. Although the NPDES permit program is now the backbone of the Clean Water Act, during the winter and spring of 1971, the Subcommittee had no intention of including such a permit program in the amendments. In September 1971, Russell Train, Chairman of the CEQ, proposed to include the Refuse Act program into bill.¹⁶⁶ Before Train’s proposal, Senator Muskie did not want to interfere with the Section 13 Refuse Act permit program, even though its future remained uncertain. It had always remained distinct from the 1965 Water Quality Act. Muskie’s

¹⁶² Andreen, *supra* note 2, at 268.

¹⁶³ LIEBER, *supra* note 71, at 44.

¹⁶⁴ MILAZZO, *supra* note 39, at 223.

¹⁶⁵ LIEBER, *supra* at 43-44.

¹⁶⁶ *Id.* at 45-46.

concern was that the Refuse Act permit program was “being applied only to industrial polluters, and authority is divided between two Federal agencies [the Corps and the EPA].”¹⁶⁷ If the program was going to be incorporated into the amendments, Muskie demanded that the program “restore the Federal-State balance to the permit system” where the states would play the primary role in the process.¹⁶⁸ In addition, the program must be expanded to include municipal dischargers as well as industrial discharges. Senator Muskie soon realized that a permit scheme under the Clean Water Act would provide a more efficient method of control and he was able to include the federal-state relationship in the permit program.

The Committee adopted the “broad permit requirement” from Section 13 of the Rivers and Harbors Act of 1899, whereby it would be unlawful to discharge a pollutant into a water of the United States without a valid permit. The bill would require both industrial and municipal dischargers of pollutants to obtain from the EPA a permit to discharge, or from a state with a permit program approved by the EPA.¹⁶⁹ Each permit would require “federally promulgated, industry-specific, technologically defined limits on the volume and type of emissions discharged by polluters.”¹⁷⁰ Under the permit program, Phase I would require existing industrial facilities to meet effluent limits based on “best practicable technology” by 1976. Municipal wastewater treatment plants would need to have EPA-approved secondary treatment systems in place by 1974.¹⁷¹ Phase II would require elimination of all discharge of pollutants into waters of the United States

¹⁶⁷ *Federal Water Pollution Control Act Amendments of 1972, Senate Debate on S. 2270, 92nd Cong. (1971) (remarks of Sen. Muskie), reprinted in 2 LEGIS. HIST. 1257.*

¹⁶⁸ *Id.* at 1255.

¹⁶⁹ Andreen, *supra* note 2, at 264.

¹⁷⁰ MILAZZO, *supra* note 39, at 191.

¹⁷¹ Andreen, *supra* note 2, at 267.

by 1981, if it was “attainable at a reasonable cost” and if not attainable, effluent limits would need to be based on the “best available technology.”¹⁷² Under Phase II, municipal wastewater treatment plants would have “to apply best practicable waste treatment technology that would go beyond secondary treatment.”¹⁷³ Technology-based effluent limitations replaced state water quality standards as the primary pollution control mechanism. With water quality standards as the primary focus, the question had long been how much of a pollutant or combination of pollutants can the receiving water body hold and both scientists and policymakers struggled to reach such an answer. Muskie realized that “technology remained the only variable Congress could reasonably manipulate, industry could feasibly upgrade, and the administration could reliably monitor.”¹⁷⁴ This laid the foundation for an ambitious technology-driven approach, while state water quality standards remained in place as a secondary source of water pollution protection in the event that the existing technology could not sufficiently reduce the pollutant discharge into a particular water body. This core statutory framework that Muskie established still remains the backbone of the Clean Water Act today.

Muskie was aware that the new effluent control mechanisms would only be as strong as the EPA could enforce them and they swept away the slow and ineffective conference procedures of the past. The adoption of the Refuse Act permitting scheme “transformed the Act’s requirements into specific numeric limits.”¹⁷⁵ Under the draft bill, “No longer would the Act limit enforcement to instances in which public health or welfare was endangered or where the government could show proof that a particular

¹⁷² *Id.* at 268.

¹⁷³ *Id.*

¹⁷⁴ MILAZZO, *supra* note 39, at 221.

¹⁷⁵ Andreen, *supra* note 2, at 286.

discharge had caused a particular violation of water quality standards.”¹⁷⁶ If the permittee’s discharged amounts of pollutants greater than its permit allowed, there would be a prima facie violation and the EPA or the state environmental authority could enforce it. Section 309 provided the EPA with broad authority to issue an administration compliance order or bring a civil action to obtain injunctive relief, civil penalties, or criminal penalties.¹⁷⁷

Senator Muskie’s efforts made a lasting impact on the creation of the amendments, and this fact is strengthened when one looks at how little of what the Nixon Administration wanted made it into the Act.¹⁷⁸ While Nixon objected to the bill, the Administration’s efforts to stall it or influence it in some way were poorly planned. The White House failed to arrange an agreement between the EPA and the CEQ regarding the draft bill when it was in both the Subcommittee and the full Senate Public Works Committee.¹⁷⁹ In addition, the Administration chose not to establish any kind of relationship with the minority Republican staff members that were working on the bill. Thus, the Administration did not influence its fellow Republican senators in any significant way.¹⁸⁰ The Nixon Administration was concerned about the large cost of \$12 billion dollars over the next three fiscal years for the construction and improvement of municipal wastewater treatment plants, while at the same time the EPA and the CEQ would not support the Administration’s objections. The Administration was also

¹⁷⁶ *Id.* at 270.

¹⁷⁷ *Id.*; 33 U.S.C. § 1319

¹⁷⁸ J. BROOKS FLIPPEN, *NIXON AND THE ENVIRONMENT* 156 (University of New Mexico Press 2000).

¹⁷⁹ LIEBER, *supra* note 71, at 50.

¹⁸⁰ *Id.* at 51.

unsupportive of the no-discharge goal.¹⁸¹ However, any effort of influencing the Subcommittee and the Committee failed and the Administration realized that its next step was to work with the House Public Works Committee to weaken the bill, such as limiting the definition of the term “pollutant” or the no-discharge policy in the bill. While Administration hoped that working with the House effort might mitigate the some of the bill’s more pro-environmentalist provisions, this hope quickly floundered in the face of Senator Muskie’s bold leadership.¹⁸²

By October 1971 the Senate Public Works Committee released the bill to the full Senate for review.¹⁸³ During the Senate floor debates, there were few objections. Senator Muskie, who introduced the bill to the floor, explained the rationale for more stringent water pollution control, stating that if more serious measure were not taken then “the quality of our environment will continue to deteriorate.”¹⁸⁴ While the bill represented a major increase in federal authority over water pollution control, there was little objection during the Senate floor debates regarding state’s rights. Only one senator, Senator Robert Byrd, raised concern about the amendment’s shift in power from the states to the federal government. Muskie was able to present the bill in a convincing and clear manner and laid out the urgent need for the Senate to adopt the bill and tackle national water pollution.¹⁸⁵

During the Senate floor debates, there was one change in the Section 404 program that has had an impact on the structure of the Clean Water Act, but even though Muskie

¹⁸¹ *Id.*

¹⁸² FLIPPEN, *supra* note 179, at 155.

¹⁸³ LIEBER, *supra* note 71, at 41, 54.

¹⁸⁴ *Id.* at 55.

¹⁸⁵ *Id.* at 56.

was forced to compromise here, he did not back down entirely. This change involved the Section 404 program and the role that the Corps of Engineers plays in the program's administration. Under the Committee's bill, the EPA or a state agency would issue permits for the discharge of dredge or fill material into waters of the United States, while the Corps' authority would be limited to a veto if a permit would interfere with navigation. Senator Allen Ellender, a Democrat from Louisiana, wanted the Corps to retain its authority for issuing permits for the discharge of dredge and fill material. Senator Muskie opposed the amendment, stating that the Corps' function is navigation, not environmental protection and felt that granting it permitting authority would "not adequately protect environmental values."¹⁸⁶ The Committee had previously voted against this change, but during the floor debate Muskie and Ellender agreed to a compromise whereby the Corps would retain its permitting authority for the discharge of dredge and fill material, but the EPA would have final veto authority over the Corps.¹⁸⁷ Thus, Muskie retained the final veto authority for the EPA to exercise. The Senate approved the bill on November 2 by a vote of 86-0.¹⁸⁸

After the Senate's passage of the bill, the Nixon Administration, state representatives, and industry leaders were eager to pressure the House Public Works Committee to open hearings so they could voice their opposition.¹⁸⁹ Representative John Blatnik of Minnesota, the Committee chairman, was well aware that the House Public Works Committee was more closely connected to local industrial interests than the Senate Public Works Committee. He realized that Senator Muskie had led the way in the

¹⁸⁶ Andreen, *supra* note 2, at 272.

¹⁸⁷ LIEBER, *supra* note 71, at 56.

¹⁸⁸ *Id.* at 41.

¹⁸⁹ *Id.* at 59.

passage of important pollution control laws in the past decade and he did not want Muskie to take all the credit for improving the nation's waters and have his House Committee portrayed as holding back much needed water pollution control legislation.¹⁹⁰ Blatnik stated, "It has long been evident to those of us who have been close to this problem that a new and comprehensive approach was urgently needed but it was not until the opening of this 92d Congress that the public support that such a program requires finally made it possible for us to move forward."¹⁹¹ Thus, with a strong Senate bill in place, Blatnik had refused to reopen the hearings and give opponents an opportunity to voice their objections. Unfortunately, Representative Blatnik suffered a heart attack on November 16. Still, there was enough bipartisan support in the Committee to hold hearings, and Representative Robert Jones of Alabama took over temporary chairmanship of the Committee and voted to open the hearings.¹⁹²

There was an overall feeling in the Committee that the Senate's bill failed to "take into account many of the socioeconomic and cost factors that would be dramatically affected" by the passage of the Senate's version of the bill.¹⁹³ The Committee expressed concern between the bold national goal of attaining no-discharge by 1985 and the tremendous costs for both industries and governments that would be required to achieve such a goal. There was also concern about the costs and feasibility of shifting from a water pollution control statute that had been structured around state water quality standards to a statute based on technology-based effluent limitations. With these concerns

¹⁹⁰ *Id.* at 60; Andreen, *supra* note 2, at 274.

¹⁹¹ *Federal Water Pollution Control Act Amendments of 1972, House Debate on H.R. 11896, 92nd Cong. (1972)* (remarks of Rep. Blatnik), *reprinted in* 1 LEGIS. HIST. 352.

¹⁹² MILAZZO, *supra* note 39, at 227.

¹⁹³ LIEBER, *supra* note 71, at 60.

in mind among the Committee members, Representative Jones held Committee hearings from December 7 to 10, 1971 and heard statements from the Nixon Administration, state representatives, industry leaders, and environmental groups.¹⁹⁴

Each of the various interest groups understood that if there was any chance of chipping away some of the more stringent provisions in the Senate bill this was the only opportunity to do so. The Nixon Administration held meetings with Republican Committee members before the hearings and stressed their mutual concern with the no-discharge goal and the effluent limitations.¹⁹⁵ At the hearings, Russell Train, chairman of the CEQ, questioned the effluent limitations and stressed the established state water quality standards as the appropriate mechanism. The water quality standards, Train stated, “allowed for an appropriate balancing of the nation’s economic needs with those of the environment, a balancing which technology-based effluent limitations would disrupt.”¹⁹⁶ On the other hand, William Ruckelshaus, the EPA Administrator, did not completely reject the notion of technology-based effluent standards. Instead, Ruckelshaus suggested that effluent limitations should be used when state water quality standards were not being met and only if it was economically achievable.¹⁹⁷ Paul McCracken, chairman of the Council of Economic Advisors emphasized that obtaining no-discharge would cost over \$316.5 billion over the span of twenty-five years, while reaching 95% of effluent reduction would cost only \$200 billion.¹⁹⁸ Thus, the additional 5% to reach no-discharge would not be worth the marginal cost. Industry leaders, not surprisingly, supported the

¹⁹⁴ *Id.*

¹⁹⁵ *Id.* at 61.

¹⁹⁶ Andreen, *supra* note 2, at 275.

¹⁹⁷ LIEBER, *supra* note 71, at 63.

¹⁹⁸ MILAZZO, *supra* note 29, at 228.

notion that the no-discharge goal would cause economic harm among various industries.¹⁹⁹ The state representatives at the hearings stressed their concern with the expanded EPA authority over the states under the Senate bill.²⁰⁰ The common thread among the House hearings was that the Senate's bill would cost too much and would lead to economic hardship.

The House Public Works Committee considered during the drafting process some of the concerns that the various interest groups voiced at the hearings. The Committee made several changes to the Senate bill that weakened the EPA's authority in relation to the states and the House bill turned out to be less stringent against industrial polluters compared to the Senate bill. The Committee made a charge that required a National Academy Study by the National Academy of Sciences to be completed to determine whether there was existing technology in place to impose BAT and to analyze the economic and social effects of either achieving or not achieving the standard.²⁰¹ After the submission of the National Academy Study, additional legislative action would be required to impose BAT.²⁰² This delay would give opponents the time needed to set up a stronger defense to show that the economic costs of BAT would be prohibitive.²⁰³ The Committee also took into consideration the concern expressed by many of the states in which the Senate bill granted the EPA Administrator the authority to veto individual state-issued permits. The Committee modified the Senate's plan by limiting the EPA Administrator's authority to revoke only a state's entire permitting plan and not

¹⁹⁹ LIEBER, *supra* note 71, at 67.

²⁰⁰ *Id.*

²⁰¹ *Id.* at 68.

²⁰² Andreen, *supra* note 2, at 278.

²⁰³ LIEBER, *supra* note 71, at 68.

individual permits, except in the case of when the downstream state objected to the upstream state's granting of the individual permit.²⁰⁴ The EPA Administrator's authority would also be limited in that the EPA could not enforce discharge or permit violations under Section 309²⁰⁵ except when local or state authorities failed to act.²⁰⁶ These two changes significantly limited the EPA Administrator's authority in enforcing the statute.

The Committee did not support the notion of having effluent limitations as the primary mechanism, and instead chose to strengthen the state water quality standards that were a part of the 1965 Water Quality Act. The state water quality standards remain a vital part of the Clean Water Act program today.²⁰⁷ The Committee incorporated the state water quality standards into Section 303, which had been lacking in the Senate bill, requiring states to designate uses of both intrastate and interstate waters,²⁰⁸ to review these standards every three years,²⁰⁹ to establish total maximum daily loads for waters failing to meet the specific water quality standards,²¹⁰ and to develop a continuing planning process so that water quality standards were achieved.²¹¹ This decision used state water quality standards as a backup in case BPT failed to solve water pollution for a particular water body. Blatnik defended the House's position, stating that his bill "requires that if the application of 'best practicable control technology currently available' is not sufficient to meet water quality standards, further and more stringent controls must be imposed. This is more restrictive than the requirement of the other body

²⁰⁴ *Id.*

²⁰⁵ 33 U.S.C. § 1319.

²⁰⁶ LIEBER, *supra* note 71, at 70.

²⁰⁷ Andreen, *supra* note 2, at 275.

²⁰⁸ 33 U.S.C. §1313(c)(2).

²⁰⁹ 33 U.S.C. §1313(c)(1).

²¹⁰ 33 U.S.C. 1313(d).

²¹¹ 33 U.S.C. § 1313(e).

[the Senate], and it should be recognized as such.”²¹² Thus, although the Committee demonstrated apprehension in having effluent-limitations being the primary control mechanism, in the process it significantly strengthened the role of state water quality standards.²¹³

The House Public Works Committee presented its bill to the full House in March and there were floor debates from March 27 to 29, 1972. The Committee stressed that its bill was more effective than that of the Senate and that water quality standards would be a more sound approach than technology-based effluent limitations.²¹⁴ During the floor debates, Representative Henry Reuss, a Wisconsin Democrat, expressed his concern with the Committee’s change of the fishable/swimmable and no-discharge policies to goals.²¹⁵ He also felt that the Committee’s decision to strip the EPA Administrator’s authority to veto individual state permits would limit the effectiveness of the statute because of the reduced federal oversight. Reuss explained that one of the major problems with the existing 1965 Act was a lack of federal oversight authority and the Committee’s alteration would simply further the existing problem instead of solving it.²¹⁶ However, Reuss’s fellow House members were not receptive to his proposed amendment and voted it down. On March 29 the House approved the Committee’s bill with only a few minor changes by a vote of 380-14.²¹⁷ While the House overwhelmingly approved the

²¹² *Federal Water Pollution Control Act Amendments of 1972, House Debate on H.R. 11896*, 92nd Cong. (1972) (remarks of Rep. Blatnik), reprinted in 1 LEGIS. HIST. 352

²¹³ Andreen, *supra* note 2, at 276.

²¹⁴ LIEBER, *supra* note 71, at 71.

²¹⁵ *Id.*

²¹⁶ *Id.* at 72.

²¹⁷ *Id.* at 75.

Committee's bill, the next challenge would be to work with the Senate to reach a compromise bill.

The House and Senate Public Works Committees demonstrated "significant differences in legislative content and philosophy."²¹⁸ It was at the committee conference that Muskie exerted his leadership and role as a pollution control expert, and he effectively dismantled most of the House bill. The conference meeting between the Senate and House Public Works Committees demonstrated two opposing views on the role of the federal government in enforcing the amended statute and whether technology-based effluent limitations would be the primary tool in controlling the discharge of pollutants. The two sides worked significantly over the summer of 1972, meeting thirty-nine times.²¹⁹ The House wanted water quality standards to be the primary mechanism, and opposed the Senate's technology-based effluent limitations.²²⁰ The House's objection was centered around the concern that effluent limitations would impose regulations on polluters, even in those cases where the receiving water body was not impaired or the discharge would not harm the water's specifically designated use.²²¹ On the other hand, the Senate refused to back down from its technology-based effluent standards.²²² The issue of which regulatory framework to use "inspired nearly intractable discord" amongst the House and Senate members of the conference committee.²²³

²¹⁸ MILAZZO, *supra* note 39, at 232.

²¹⁹ LIEBER, *supra* note 71, at 77.

²²⁰ MILAZZO, *supra* note 39, at 233.

²²¹ *Id.*

²²² *Id.* at 234 ("Ambient standards and maximum daily loads assumed that the assimilative capacity of a stream remained a legitimate variable in the control process, a practice they had concluded was unreliable and ecologically unsound.")

²²³ *Id.* at 233.

The Senate and House members not only disagreed on what role effluent limitations would play in the new regulatory framework, but the two sides battled over what factors would be allowed in determining what constituted “best practicable control technology” (BPT) and “best available technology” (BAT). The Senate felt that in establishing the regulatory definition for BPT and BAT, cost would only be considered in regard to “internal production processes” as applied to a class of industry and not to an individual facility.²²⁴ On the other hand, the House felt that economic and social factors should be considered in determining BPT and BAT. Allowing economic and social factors would involve an individual evaluation of what constitutes BPT and BAT for each facility. The senators saw this method as limiting uniformity across industries and requiring additional time and resources to evaluate each individual facility.²²⁵ The two sides were able to come to a compromise, whereby the socioeconomic costs and internal production processes would be considered in establishing BPT, but a permit applicant could only challenge the BPT effluent standard in regard to the class of industry as a whole and not in regard to its own facility.²²⁶ Factors used to determine BPT include “the total cost of application of technology in relation to the effluent reduction benefits to be achieved from such application.”²²⁷ On the other hand, socioeconomic factors would not be considered in determining BAT.²²⁸ But, the Senate agreed to allow permit applicants to challenge the BAT effluent standard on an individual facility basis. The senators made sure that the burden of proof was on the permit applicant, who would be required to

²²⁴ *Id.* at 234.

²²⁵ *Id.* at 235.

²²⁶ *Id.* at 236.

²²⁷ 33 U.S.C. § 1314(b)(1)(B).

²²⁸ 33 U.S.C. § 1314(b)(2)(B).

prove to the EPA Administrator that a modified BAT requirement for its facility “will represent the maximum use of technology within the economic capability of the owner or operator” and “will result in reasonable further progress toward the elimination of the discharge of pollutants.”²²⁹ Thus, the Senate was satisfied making modifications of BAT effluent limitations difficult for a permit application to establish and hoped that this compromise with the House would still protect the BAT from being stalled by industry leaders.²³⁰

During the conference committee, Senator Muskie’s experience and the superior technical expertise of the Senate Public Works Committee compared to its House counterpart secured the passage of a bill that was in many aspects the Senate’s bill. After the conference committee agreement, Muskie stated, “In my own eyes, the conference agreement is not perfect; it does not retain everything from the Senate bill that we had hoped it would, but it was evident after review in the conference committee that there were aspects of the House-passed legislation that improved upon provision of the Senate bill.”²³¹ Thus, Muskie not only pushed through the Senate bill but adopted some of the pro-environmental House provisions, such as Section 303 water quality standards and TMDLs. The Senate’s technology-based effluent limitations provision was established as the primary mechanism to control water pollution, but the senators agreed to extend the deadlines. Thus, the deadline for BPT was extended from January 1, 1976 to July 1, 1977

²²⁹ 33 U.S.C. § 1311(c).

²³⁰ MILAZZO, *supra* note 39, at 236.

²³¹ *Federal Water Pollution Control Act Amendments of 1972, Senate Consideration of the Report of the Conference Committee*, 92nd Cong. (1972) (remarks of Sen. Muskie), reprinted in 1 LEGIS. HIST. 162-63 (Muskie also pointed out that “the House did not provide enforceable effluent control requirements other than those to be achieved by January 1, 1976.”).

and the deadline for the BAT was extended from January 1, 1981 to July 1, 1983.²³² The conference rejected the House bill's requirement that BAT would be conditioned on the study conducted by the National Academy of Science and would require additional legislation.²³³ The Senate's victory on this point was critical because it ensured the future implementation of BAT effluent limitation standard. At the same time, the senators agreed to keep the House's water quality standards and total maximum daily loads in Section 303 as a secondary measure in those cases where the effluent limitations are not enough to control the discharge of pollutants into a particular water body, such as when there are multiple dischargers.²³⁴ This secondary pollution control measure remains fundamental to the achievement of the Clean Water Act goals. Thus, Muskie was able to preserve much of the Senate's bill and even was able to strengthen it with some of the House's provisions.

The most significant barrier between the House and the Senate's position involved issues of federalism and how large a role the EPA should play in the implementation of the amendments. While the House favored a more limited role for the EPA in the NPDES permitting program compared to the Senate, the two sides were able to come to a compromise. The conference committee decided that once the EPA had authorized a state to administer the NPDES program, the EPA would still retain oversight authority. "Actual EPA approval was no longer a condition precedent to the effectiveness of any state-issued permits."²³⁵ The states have a duty to send the EPA a copy of every

²³² LIEBER, *supra* note 71, at 78.

²³³ Andreen, *supra* note 2, at 282.

²³⁴ LIEBER, *supra* note 71, at 78.

²³⁵ Andreen, *supra* note 2, at 281.

proposed permit.²³⁶ EPA is allowed to veto an individual permit issued by a state within 90 days of receiving the proposed permit from the state, but under certain limiting conditions. The EPA cannot veto a permit or a state's permitting program unless the permit fails to meet the Section 402(b) requirements or guidelines promulgated under Section 402(b).²³⁷ This compromise between the two sides provided a balanced approach to the permitting scheme in that it did not require the EPA to approve every state-issued permit, but it still allowed the EPA authority to reject a permit under certain circumstances.

With the major differences between the two bills solved, what came out of the conference committee was fundamentally the bill drafted by Senator Muskie and the Senate Subcommittee on Air and Water. The fundamental principals of the technology-based effluent limitations and robust enforcement authority granted to the EPA under Section 309, constituted the bill that Muskie envisioned. On October 4, 1972, Congress resoundingly passed one of the most significant amendments to federal water pollution control, with the Senate approving the bill by a vote of 74-0 and the House by a vote of 366-11.²³⁸ The only remaining impediment to a fundamentally new water pollution statute was President Nixon, who did not share the same enthusiasm towards environmental protection as many of the members of Congress did.

Although the bill passed with almost universal support in both chambers, Nixon found himself on the wrong side. During the House Public Works Committee's drafting period, Nixon worked to influence Republican Committee members to weaken the bill, in

²³⁶ 33 U.S.C. § 1342(d)(1).

²³⁷ 33 U.S.C. § 1342(d)(2).

²³⁸ LIEBER, *supra* note 71, at 80.

spite of the fact that he had supported the Refuse Act permit program.²³⁹ After the House passed its version of the amendments, Nixon worked to deadlock the conference committee, but these efforts failed to significantly change the major provisions of the amendments when the conference committee met to merge the House and Senate bills.²⁴⁰ Nixon calculated wrongly and erred by “persisting in a fight that not only appeared hopeless but was sure to wreck his reputation” in terms of environmental protection.²⁴¹ In fact, “most observers thought Nixon would swallow hard and sign a bill that was politically very popular.”²⁴² In the weeks before the 1972 presidential election, the issue of water pollution and the need for Congress to do something about it was on the news and clearly visible as a top priority in the eyes of the electorate. Massachusetts banned the sale of shellfish because of poor water quality and New Jersey asked some of its citizens to boil their drinking water because of contamination.²⁴³ EPA Administrator Ruckelshaus wrote to the Office of Management and Budget stating that Nixon ought to sign the bill and outlined the political fallout that would occur if he vetoed it. If Nixon refused to sign the bill, which would bring new life to the Refuse Act permit program, then it would be destroying an environmental program that he had supported. Ruckelshaus stated, “The Administration will be embarrassed for having initiated a highly publicized and initially controversial program which ended up in total failure and we will in effect simply throw

²³⁹ FLIPPEN, *supra* note 141, at 156.

²⁴⁰ *Id.* at 180.

²⁴¹ *Id.* at 156-157.

²⁴² Andreen, *supra* note 2, at 285.

²⁴³ FLIPPEN, *supra* note 141, at 180.

away 20,000 permit applications prepared at great expense and effort by industry.”²⁴⁴ Nixon’s support for environmental protection was on the line.

After Congress passed the amendments, the executive branch did not agree uniformly on whether Nixon should sign or veto the bill. While the EPA, the CEQ and the Department of State and the Department of Interior supported the bill, the Office of Management and Budget, the Council of Economic Advisors, and the Department of Treasury opposed it.²⁴⁵ Despite disagreement within the executive branch, Nixon refused to sign a bill that he felt would cost too much and result in higher taxes. The final bill authorized up to \$18 billion for the 1973 to 1975 fiscal years for the construction of municipal wastewater treatment plants, three times as much as the Administration proposed when it submitted its bill in 1971.²⁴⁶ In Nixon’s veto message on October 17, he expressed his efforts to improve environmental protection, but at the same time he stressed that prudent government spending must be taken into consideration. He chose not to address the new costs that industries would face to comply with new effluent limitations, but simply addressed the \$18 billion in grants to municipalities for wastewater treatment plant construction. Nixon argued that there must be a way to “attack pollution in a way that does not ignore the other very real threats to the quality of life, such as spiraling prices and increasingly onerous taxes.”²⁴⁷ He agreed to work with the next Congress on a clean water bill that would be more “prudent” in terms of cost. At the same time, Nixon made no mention about his dissatisfaction about any of the

²⁴⁴ LIEBER, *supra* note 71, at 81.

²⁴⁵ FLIPPEN, *supra* note 141, at 182.

²⁴⁶ LIEBER, *supra* note 71, at 82.

²⁴⁷ *Id.* at 82; Veto of the Federal Water Pollution Control Act Amendments of 1972, 4 PUB. PAPERS 992 (Oct. 17, 1972).

provisions of the bill, including the major increase in authority granted to the EPA compared to the 1965 Water Quality Act it was amending.

The day following Nixon's veto, Congress quickly proceeded to override the president's veto by a vote of 52 to 12 in the Senate and by 247 to 23 in the House, "where not a single congressman rose to the president's defense."²⁴⁸ Senator Muskie challenged Nixon's concern about the higher costs, stating, "Can we afford clean water? ... And those who say that raising the amounts of money called for in this legislation may require higher taxes, or that spending this much money may contribute to inflation simply do not understand the language of this crisis."²⁴⁹ With strong bipartisan support, Congress's clean water legislation became one of the most innovative and far-reaching federal pollution control statutes to date.²⁵⁰

At the same time, the innovative bill that passed through Congress was in many respects the Senate bill that Muskie produced in the Subcommittee. Although minor changes occurred during the conference committee, Muskie's leadership and position as an expert in pollution control allowed him to win the respect of his fellow legislators and to protect the statutory framework that he envisioned. Muskie had the technical and practical experience from working throughout the 1960's on important water pollution legislation that enabled him to push through his bill in 1971. While some statutes are a

²⁴⁸ LIEBER, *supra* note 71, at 84.

²⁴⁹ *Federal Water Pollution Control Act Amendments of 1972, Senate Consideration of the Report of the Conference Committee*, 92nd Cong. (1972) (remarks of Sen. Muskie), reprinted in 1 LEGIS. HIST. 164.

²⁵⁰ Andreen, *supra* note 2, at 286 ("No longer could an industry so effectively block state pollution control efforts by threatening to relocate to a more lenient jurisdiction. And no longer could discharge limitations be based solely upon the assimilative capacity of the receiving waterway and its ability to meet a designated use – which might well be only industrial or agricultural usage.").

soup of political dealings and closed-door machinations, the Clean Water Act's legislative history presents a statute that is in most aspects Muskie's bill that he presented before the Senate Subcommittee. Thus, the Clean Water Act is truly a genuine product of Senator Muskie's water pollution control vision.

Section 6: Nonpoint Source Pollution Issues and Current Limitations with the Clean Water Act

While the Clean Water Act has been effective in reducing water pollution across the country, there is still significant progress to be made in this area. In the EPA's 2003 *Water Quality Trading Policy*, the EPA reported that 40 percent of rivers, 45 percent of streams, and 50 percent of lakes are impaired, which means that the specific water body is not meeting its intended use that was established in the state's water quality standards.²⁵¹ Although Senator Muskie's bill created a strong framework to combat water pollution from point sources, the Act left a large hole that excluded controlling nonpoint source pollution in the same way as point source pollution. The causes of continued water pollution problems can be accurately discerned and "nonpoint sources have overtaken point sources as the largest contributors of impairments in the nation's waters."²⁵²

In the Act's definitions section, it defines a point source, but fails to define a nonpoint source. Under the definition of a point source, it simply states that point sources do not include "agricultural stormwater discharges and return flows from irrigated

²⁵¹ Witte and Minkel-Dumit, *supra* note 31, at 204.

²⁵² JOHN A. HOORNBECK, *WATER POLLUTION AND THE AMERICAN STATES* 35 (SUNY Press 2011).

agriculture.”²⁵³ Thus, a nonpoint source is anything that conveys a pollutant into a water of the United States that is not a point source, such as diffuse runoff.²⁵⁴ Nonpoint sources can come from a wide variety of activities. The most common nonpoint source is agriculture. Crop farming can lead to soil erosion and runoff containing nutrients and pesticides that are applied to the fields. Animal operations can lead to water contamination through waste that enters a nearby water body.²⁵⁵ Hydromodification, such as dredging to improve navigation and dam construction and operation, alters the flow of water and sediment that in time may adversely affect the biological integrity of a water body.²⁵⁶ Forestry practices and mining operations can lead to soil erosion, and various chemicals that are used in such operations are transported into water bodies in addition to soil.²⁵⁷ Water bodies have become also polluted from air deposits, such as sulfur dioxide from acid rain.²⁵⁸ At the same time, nonpoint sources are more difficult to control compared to point sources. While the technology is there to reduce and control point sources, dealing with nonpoint sources are more challenging. For example, managing runoff from a cornfield is highly site-specific and more complex than controlling that comes out of a discharge pipe at a municipal wastewater treatment plant. “In contrast to traditional point sources, there are limited technological controls that can be applied to

²⁵³ 33 U.S.C. § 1362(14).

²⁵⁴ Witte and Minkel-Dumit, *supra* note 31, at 194.

²⁵⁵ HOORNBECK, *supra* note 253, at 36.

²⁵⁶ *Id.*

²⁵⁷ *Id.* at 37.

²⁵⁸ *Id.* at 38.

diffuse runoff sources, even if the sources can be easily identified.”²⁵⁹ This challenge has made controlling nonpoint sources particularly difficult.

One important question in looking back at the development of the Clean Water Act is why Congress chose to make a distinction between point sources and nonpoint sources and to exclude nonpoint sources from the strong command-and-control NPDES program. Glicksman and Batzel argued that during the early 1970’s there was considerable knowledge among the members of the Senate and House Public Works Committees that nonpoint source pollution was significant and there is explicit testimony in the Act’s legislative history to support their argument.²⁶⁰ During the Senate debates, Senator Robert Dole of Kansas recognized that “the present situation and the outlook for future developments in livestock and poultry production show that waste management systems are required to prevent wastes generated in concentrated production areas from causing serious harm to surface and ground waters.”²⁶¹ Instead of a lack of awareness or scientific knowledge, there were technical and political impediments that prevented nonpoint sources from being included in the NPDES program. The first limitation was that there was not the technical expertise to control runoff, while there was sufficient knowledge about controlling point sources. At the same time, without the ability to place technological controls on nonpoint sources, the solution that Congress chose to control runoff was to have states establish plans to manage nonpoint sources. Even though the amendments would greatly increase the federal government’s authority to manage point

²⁵⁹ Witte and Minkel-Dumit, *supra* note 31, at 194 (“Stream buffers, crop rotations, harvest limitations, and other practices are often implemented through land use controls, such as zoning and land use planning....”).

²⁶⁰ Glicksman and Batzel, *supra* note 45, at 115.

²⁶¹ *Federal Water Pollution Control Act Amendments of 1972, Senate Debate on S. 2270*, 92nd Cong. (1971) (remarks of Sen. Dole), reprinted in 2 LEGIS. HIST. 1295.

sources, lawmakers did not feel comfortable extending federal authority over what is in effect a type of land use control, which has traditionally been under state and local control.²⁶² Thus, lawmakers left the responsibility to the states to identify various nonpoint sources that were causing water pollution in the waters within their borders and to establish plans to control them. At the same time, Congress required the EPA to conduct scientific studies regarding the most significant nonpoint source, agricultural runoff, and solutions to control it.²⁶³ During the drafting process, Congress failed to establish any type of robust provision that would have enabled states to create best management practices to control nonpoint source pollution and then actually enforce those practices.²⁶⁴ Thus, planning provisions and research were the routes that Congress chose to go in combating nonpoint sources when they drafted the amendments.

One of the main issues today with nonpoint source pollution is how the Act is structured that makes controlling nonpoint sources difficult. On one hand, the Act has an organized command-and-control regulatory framework for point sources, where it is unlawful to discharge a pollutant from a point source into a water of the United States without a valid NPDES permit.²⁶⁵ At the same time, there is no comparable framework for nonpoint sources. When lawmakers were drafting the Clean Water Act, their main concern was the discharge from industries and municipal wastewater treatment plants. These facilities mainly discharged pollutants at the end of a pipe and the technology existed to control and reduce the discharges. The command-and-control scheme under the NPDES program did not fit easily when dealing with complex nature of nonpoint

²⁶² *Id.*

²⁶³ 33 U.S.C. § 1254(p); 33 U.S.C. § 1255(e).

²⁶⁴ Glicksman and Batzel, *supra* note 45, at 35.

²⁶⁵ 33 U.S.C. § 1311(a).

sources. Instead, the House Public Works Committee proposed adding Section 208, which requires the governor of each state to identify areas that have substantial water quality control problems and to establish continuing areawide waste management plan for each area.²⁶⁶ The continuing planning process must address nonpoint sources from agricultural, forestry, and mining and the cumulative effects from these non-point sources.²⁶⁷ In addition to Section 208, Section 303(e) requires states to create a continuous planning process for all navigable waters within the state, and to incorporate the areawide management plans that address nonpoint sources under Section 208 into a statewide plan.²⁶⁸ Under EPA regulations, “the results of the continuous planning process under sections 208 and 303(e) are required to be incorporated into an overall Water Quality Management Plan and the plan must address best management practices for controlling non-point sources.”²⁶⁹ In the latest Clean Water Act amendments in 1987, Congress added Section 319 that required states to develop state assessment reports that identify waters that are impaired due to nonpoint sources, sources of nonpoint pollutants, and best management practices to address the problems.²⁷⁰ The states must also develop state management plans that list specific methods to control nonpoint source pollution, called Best Management Plans (BMPs).²⁷¹ In addition, Section 319(h) allows the EPA to give states grants for implementing its nonpoint source management plans once the EPA

²⁶⁶ Witte and Minkel-Dumit, *supra* note 31, at 195; 33 U.S.C. § 1288(a); 33 U.S.C. § 1288(b).

²⁶⁷ 33 U.S.C. § 1288(b)(F); 33 U.S.C. § 1288(b)(G).

²⁶⁸ 33 U.S.C. § 1313(e)(3)(B).

²⁶⁹ Witte and Minkel-Dumit, *supra* note 31, at 195; 40 C.F.R. §130.6.

²⁷⁰ 33 U.S.C. § 1329(a).

²⁷¹ 33 U.S.C. § 1329(b).

has approved them.²⁷² Thus, the Clean Water Act’s approach to combating nonpoint sources has been based on various planning provisions and the states instead of the EPA has the authority to implement these provisions.

Another important tool in controlling nonpoint sources is the Total Maximum Daily Load (TMDL) program under Section 303(d).²⁷³ The TMDL program is designed to regulate those “waters that fail to meet water quality standards despite the use of effluent limitations and other pollution control requirements.”²⁷⁴ The EPA, or states that have been granted authority to administer the NPDES program, must first establish a list, called a 303(d) list, of “those waters failing to meet water quality standards in spite of full compliance by dischargers with all conditions and limitations in NPDES permits and all applicable nonpoint source controls.”²⁷⁵ Once the EPA or the state creates a list of impaired waters, it must establish a TMDL for each pollutant that prevents each impaired water body from attaining water quality standards. The TMDLs are the maximum quantity of a pollutant from point sources, nonpoint sources, and air deposits that may be added to a water body. There are two parts that make up a TMDL: the wasteload allocation and the load allocation. The wasteload allocation is the maximum quantity of a pollutant from current and future point sources and the load allocation is the maximum quantity of a pollutant from current and future nonpoint sources.²⁷⁶ Under the TMDL program, point sources are “often prohibited from discharging levels of pollutants that they otherwise would have been permitted to discharge prior to a state’s consideration of

²⁷² 33 U.S.C. § 1329(h).

²⁷³ 33 U.S.C. § 1313(d).

²⁷⁴ Steven Miano and Kelly Gable, *Total Maximum Daily Loads: Section 303(d)*, in *THE CLEAN WATER ACT HANDBOOK, THIRD EDITION 207, 207* (Mark A. Ryan ed., 2011).

²⁷⁵ *Id.* at 209.

²⁷⁶ *Id.* at 208.

impairments caused by nonpoint source pollution and calculation of TMDLs.”²⁷⁷ The EPA must approve the state’s TMDLs and the states must then implement the TMDL into its continuing planning processes and any future NPDES permits they issue for point sources.²⁷⁸

The TMDL program plays a significant role in water pollution control under the Clean Water Act because it applies to both point and nonpoint sources. The District Court of Northern California emphasized the scope of the TMDL program in controlling nonpoint source pollutants in *Pronsolino v. Marcus*.²⁷⁹ The plaintiffs, who owned forested land along the Garcia River in California, challenged the TMDL report that the EPA established on the Garcia River. To meet the TMDL requirements, the California Department of Forestry imposed restrictions on the plaintiffs’ timber harvesting permit. The plaintiffs argued that a TMDL could not be established for an impaired water where the impairment was caused solely by nonpoint sources. The court disagreed, stating that establishing TMDLs “without taking any nonpoint sources into account” would be “impossible.”²⁸⁰ At the same time, the court stated that the Clean Water Act does not grant the EPA the authority to directly regulate nonpoint sources, and it entirely is up to the states to implement load allocations.²⁸¹ Thus, states may use TMDLs to control nonpoint source pollutants affecting impaired waters. Establishing TMDLs for impaired

²⁷⁷ Witte and Minkel-Dumit, *supra* note 31, at 199.

²⁷⁸ Miano and Gable, *supra* note 275, at 209.

²⁷⁹ *Id.* at 211; *Pronsolino v. Marcus*, 91 F. Supp. 2d 1339 (N.D. Cal. 2000), *aff’d sub nom.* *Pronsolino v. Natri*, 291 F.3d 1123 (9th Cir. 2002), *cert. denied*, 539 U.S. 926 (2003).

²⁸⁰ *Id.*; *Pronsolino*, 91 F. Supp. 2d at 1346-47.

²⁸¹ *Id.*; *Pronsolino*, 291 F.3d at 1140.

water bodies that are caused in part or in whole by nonpoint sources is a strong tool for states to use in managing nonpoint source pollution.

While the TMDL program has been an effective tool in addressing nonpoint source pollution, developing TMDLs for individual water bodies is lengthy, expensive, and research-intensive.²⁸² An alternative approach to creating TMDLs for individual water bodies is creating TMDLs for watersheds. In developing a watershed-based TMDL, scientists and regulators look at “all stressors within a hydrologically-defined drainage basin” and establish TMDLs for those pollutants from the various point and nonpoint sources.²⁸³ A major benefit of creating a watershed-based TMDL plan is that it “allows states to further address the impact of point and nonpoint sources of pollution on water quality impairment in a more efficient and comprehensive manner.”²⁸⁴ The Chesapeake Bay Program serves as a model for watershed-based TMDLs. Developed by the EPA in December 2010, the Chesapeake Bay TMDL lists the amount of pollutants from sections of New York, Pennsylvania, Delaware, Maryland, West Virginia, Virginia, and the District of Columbia that must be reduced to meet water quality standards for the bay.²⁸⁵ These pollutants include phosphorus, nitrogen, and sediment.²⁸⁶ The TMDL limits the level of discharge to 185.9 million pounds nitrogen, 12.5 million pounds of phosphorus, and 6.45 million pounds of sediment per year.²⁸⁷ “The pollution limits are further divided by jurisdiction and major river basin” and all limits must be in place by

²⁸² Witte and Minkel-Dumit, *supra* note 31, at 200.

²⁸³ Miano and Gable, *supra* note 275, at 212

²⁸⁴ Witte and Minkel-Dumit, *supra* note 31, at 200.

²⁸⁵ *Id.*

²⁸⁶ Miano and Gable, *supra* note 275, at 217.

²⁸⁷ See Chesapeake Bay TMDL, *available at*

http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/BayTMDLFactSheet8_6.pdf.

2025.²⁸⁸ The Chesapeake Bay TMDL program pollution limits are divided in such a way that “allocates each state a pollution budget, which each state will implement through Watershed Implementation Plans (WIPs).”²⁸⁹ With the various states working together with the EPA, the 92 TMDLs that were created for the tributaries that lead to Chesapeake Bay were joined together under a strong accountability framework to ensure compliance and meet established deadlines. “The accountability framework includes the WIPs, two-year milestones, EPA’s tracking and assessment of restoration progress and, as necessary, specific federal actions if the jurisdictions do not meet their commitments.”²⁹⁰ The potential effectiveness of the Chesapeake Bay TMDL program would encourage the development of other major watershed-based TMDL programs such as for the Long Island Sound. The Chesapeake Bay TMDL project demonstrates that by working together, various federal agencies, states, and local governments can develop a more inclusive and comprehensive approach to addressing nonpoint source pollution that is supported by a strong accountability mechanism.

Another program that the EPA has considered in strengthening nonpoint source pollution control is the development of a water quality trading program. While traditional command-and-control measures that typify the NPDES program for point sources, a water quality trading program would create economic incentives for nonpoint source to reduce their discharges. The Clean Air Act’s sulfur dioxide cap-and-trade scheme has been successful in providing polluters with economic incentives to reduce their emissions

²⁸⁸ *Id.*

²⁸⁹ Miano and Gable, *supra* note 275, at 217.

²⁹⁰ See Chesapeake Bay TMDL, *available at* http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/BayTMDLFactSheet8_6.pdf.

and thus there is hope that a similar trading program may be created on a large scale for water pollution control. The water quality trading program “entities with high pollution control costs can achieve their regulatory obligations by purchasing equivalent or superior pollution reductions from other entities at a lower cost...”²⁹¹ The water quality trading program would be flexible in that point and nonpoint sources could trade with one another. Thus, a “nonpoint source can implement management measure to achieve a discharge reduction and can market that reduction to other sources in the same watershed.”²⁹² While such a program offers promise to reduce nonpoint source pollution, the EPA found that only 100 facilities have entered into such a program, and 80 percent of the trades have been in the Long Island Sound watershed.²⁹³ The 2008 *Water Quality Trading Evaluation: Final Report* conducted by the Industrial Economics, Incorporated for the EPA stated that “institutional changes” need to be made to encourage the development of more water quality trading programs and closer cooperation with the U.S. Department of Agriculture would help in the development process since agricultural runoff plays a large role in nonpoint source pollution.²⁹⁴

The current approach to address nonpoint sources has failed to make a significant impact on the reduction of water pollution discharged from nonpoint sources across the country, such as agriculture, mining, forestry, and urban sprawl.²⁹⁵ “In 2002, EPA reported that nonpoint source pollution was the leading cause of the siltation, nutrients, bacteria, metals (primarily mercury), and oxygen-depleting substances that are

²⁹¹ Witte and Minkel-Dumit, *supra* note 31, at 202.

²⁹² *Id.*

²⁹³ *Id.* at 203.

²⁹⁴ *Id.*

²⁹⁵ ROBERT ADLER, JESSICA LANDMAN & DIANE CAMERON, *THE CLEAN WATER ACT 20 YEARS LATER* 241 (Island Press 1993).

responsible for continued impairment of our surface waters.”²⁹⁶ The contrasting approach between managing point sources compared to nonpoint sources has led to an “unbalanced regulatory system” that “results in an irrational system of water pollution control.”²⁹⁷ In 1972, lawmakers perceived the provisions addressing non-point sources to be “the first step in establishing an overall water pollution control system.”²⁹⁸ Unfortunately, apart from the strengthening of the planning provisions through Section 319, Congress has not significantly moved forward in addressing nonpoint sources. One of the main problems with the Section 319 program is that the EPA has no enforcement authority over nonpoint source violations and the EPA has few tools to hold states accountable in cases where they are failing to follow their non-point source control management plans. The only real control the EPA has over states under the Section 319 program is to withhold federal grant money if the EPA does not approve of a state’s non-point source management plan. Thus, the EPA “is placed in the uncomfortable position of withholding the very funds that would otherwise allow the state to make at least some progress.”²⁹⁹ In one sense, even if the EPA took a more hardline approach in approving state non-point source management plans and required more stringent plans, this change would be of little use if states or the EPA cannot enforce those plans. In addition, the EPA may not impose a federal nonpoint source management plan in place of a state plan. This statutory framework places almost all of the responsibility on the states to regulate nonpoint source pollution within their borders. Even if the EPA has approved a state’s management plan

²⁹⁶ Glicksman and Batzel, *supra* note 45, at 132.

²⁹⁷ HOORNBECK, *supra* note 253, at 258.

²⁹⁸ *Federal Water Pollution Control Act Amendments of 1972, Senate Debate on S. 2270, 92nd Cong. (1971) (remarks of Sen. Dole), reprinted in 2 LEGIS. HIST. 1293.*

²⁹⁹ William Andreen and Shana Campbell Jones, *The Clean Water Act: A Blueprint for Reform*, 802 CENTER FOR PROGRESSIVE REFORM 28 (July 2008).

under Section 319, most states have “adopted non-regulatory approaches, including voluntary BMPs” to address nonpoint source pollution.³⁰⁰ Thus, since the BMPs are voluntary, states do not have an ability to enforce them. As Andreen and Jones pointed out, “planning without accountability is not enough” to combat nonpoint source pollution.³⁰¹

The existing programs and policies in place to combat nonpoint source pollution provide too much freedom for states to ignore nonpoint sources and there are no enforcement mechanisms for the EPA to use to actually hold nonpoint source polluters accountable. There are several changes that could be put in place that would work towards addressing nonpoint source pollution in a more effective way. First, the current Section 319 program needs to be revised and made more stringent. Under the Section 319 program, a state needs to submit to the EPA a list of water bodies within its borders that have failed to meet water quality standards because of nonpoint source pollution in order to receive federal grant funds. The states must also submit management plans to reduce the nonpoint source pollution. However, there is no requirement that states update these lists and plans. These plans should be subject to review by the EPA on a regular basis, such as every two years, so that the states and the EPA can be more engaged and informed about nonpoint source pollution problems and management plans.³⁰² In addition, there is currently no enforcement mechanism to bolster the Section 319 program. The program does not require states to enforce their management plans, the states do not need to show the EPA that the management plans are in fact being

³⁰⁰ *Id.* at 27.

³⁰¹ *Id.* at 29.

³⁰² *Id.*

implemented, and the “EPA has not authority to require that specific conditions be included as part of a state’s management plan.”³⁰³ While it looks good on paper that states have listed water bodies that are not meeting water quality standards because of nonpoint source pollution and have developed management plans to address the various pollution problem, there is no enforcement mechanism in place to give the Section 319 program any teeth. Congress should alter the Section 319 program to require states to enforce the management plans and to grant the EPA more authority over states that are failing to enforce their management plans. Another failing of the Section 319 program is that when a state submits its management plan to the EPA, the EPA has few options in the event that the state’s management plan is poorly devised. The EPA may reject the entire plan and thus deny the state federal grant funding, or it may simply approve the entire plan. Denying a state federal grant funds to address nonpoint source pollution problems simply because of a poorly developed management plant does nothing to actually reduce nonpoint source pollution. The EPA should have the authority to impose its own management plan in whole or in part when a state’s management plan is not acceptable. The EPA has such authority to do so in regard to a state’s water quality standards³⁰⁴ and NPDES program.³⁰⁵ This would allow the EPA to raise the bar on the quality of the states’ management plans and would provide a more effective tool than simply deny a state federal grant funds.³⁰⁶

At the same time, Hoornbeek has suggested taking a different approach at addressing nonpoint source pollution by looking beyond the Section 319 program and

³⁰³ *Id.*

³⁰⁴ 33 U.S.C. § 1313(i)(2)(A).

³⁰⁵ 33 U.S.C. § 1342(c).

³⁰⁶ Andreen and Campbell, *supra* note 278, at 30.

simply eliminating the division between point and nonpoint source pollution under the NPDES program. Thus, the EPA would be required to develop technology-based controls for nonpoint sources and have them be enforceable. This approach, which would create uniform nonpoint source controls, “might add yet another federal-state policy fence post that would effectively diminish the ability of states to manage the overall set of controls in a cost-effective fashion.”³⁰⁷ At the same time, as discussed above, the development of further watershed TMDLs and more robust water quality trading mechanisms may provide an alternative to addressing nonpoint source water pollution within the existing Clean Water Act framework. The need to solve nonpoint source pollution and to develop innovative solutions is there, but these ideas need to be put into further action. Only by addressing nonpoint source pollution will there be any chance that the goal of reaching no-discharge will ever possibly be attained.

Section 7: Revising Technology-Based Effluent Limitations

The technology-based effluent limitations are the backbone of the Clean Water Act. The Act requires that “all dischargers comply with effluent limitations based on available pollution control technology.”³⁰⁸ Effluent limitations are the “quantities, rates, and concentrations of” pollutants that are permitted to be discharged from a point source granted under an approved NPDES permit.³⁰⁹ “The specific effluent limitations contained in each NPDES permit are determined by the terms of more general ‘effluent limitation

³⁰⁷ HOORNBECK, *supra* note 253, at 262.

³⁰⁸ Karen McGaffery and Kelly Moser, *Water Pollution Control under the NPDES*, in *THE CLEAN WATER ACT HANDBOOK, THIRD EDITION* 27, 34 (Mark A. Ryan ed., 2011).

³⁰⁹ *Waterkeeper Alliance v. EPA*, 399 F.3d 486, 491 (2d Cir. 2005).

guidelines,’ which are separately promulgated by the EPA.”³¹⁰ “A technology-based approach to water quality focuses on the achievable level of pollutant reduction given current technology....”³¹¹ Conventional pollutants must be regulated using the “best practicable control technology currently available,”³¹² while toxic and nonconventional pollutants are held to a higher standard, the “best available technology economically achievable.”³¹³

Muskie intended that technology-based standards would be updated over time to reflect newfound technologies and processes in pollution control. Section 301(d) of the Clean Water Act requires that the EPA review the technology-based effluent limitation standards under Section 301(b)(2) and make changes “if appropriate.”³¹⁴ Section 304(b) requires that the EPA revise effluent limitation guidelines annually, if appropriate, and Section 304(m) requires the EPA to publish every two years a schedule for the annual review and revision of the effluent guidelines in accordance with Section 304(b).³¹⁵ The Ninth Circuit Court of Appeals has found that the “EPA has an obligation to review effluent guidelines and limitations for possible revision, and that such a review is mandatory.”³¹⁶ At the same time, the “EPA’s ultimate decision *whether* to revise the guidelines and limitations is discretionary, as ‘appropriate.’”³¹⁷ Thus, whether to revise an effluent limitation guideline based on newfound technology is up to the EPA’s discretion and is not mandatory.

³¹⁰ Our Children’s Earth Foundation v. EPA, 527 F.3d 842, 848 (9th Cir. 2008).

³¹¹ Our Children’s Earth Foundation v. EPA, 527 F.3d at 845.

³¹² 33 U.S.C. § 1311(b)(1)(A).

³¹³ 33 U.S.C. § 1311(b)(2)(A).

³¹⁴ 33 U.S.C. § 1311(d).

³¹⁵ 33 U.S.C. § 1314(b); 33 U.S.C. § 1314(m).

³¹⁶ Our Children’s Earth Foundation v. EPA, 527 F.3d at 849.

³¹⁷ *Id.*

The fact that the EPA has the discretion of whether to adopt a new, more stringent effluent limitation guideline based on new technology raises the concern of whether the EPA is in fact keeping up to date with the “best practicable control technology currently available” and the “best available technology economically available.” “Technology can only take us so far, however, if the technology-based limitations are outdated.”³¹⁸ Andreen and Jones raised the question of whether the EPA is in fact revising effluent limitation guidelines efficiently, or is the EPA stuck in a “technology freeze.” Blais and Wagner conducted an empirical study, looking through the Federal Register to count the number of times that each technology-based standard in the Code of Federal Regulations were revised from 1972 to 2008. Their findings show that only one out of every three technology-based standard has been revised since 1972 and thus “72% of the 1,122 standards have never been revised” at all since their original promulgation.³¹⁹ Blais and Wagner’s findings demonstrate that the EPA has not effectively revised the technology-based standards since the Clean Water Act’s inception and this lack of agency action is standing in the way of incorporating more advanced technologies. According to Blais and Wagner, if the EPA continues to “neglect to revise these standards to keep pace with significant changes in technology, the regulatory program will not accomplish the types of pollution reductions envisioned by Congress in the statutory framework.”³²⁰

Blais and Wagner propose three suggestions to encourage the EPA to revise the technology-based standards. The first suggestion is what they call “contemporaneous

³¹⁸ William Andreen and Shana Campbell Jones, *The Clean Water Act: A Blueprint for Reform*, 802 CENTER FOR PROGRESSIVE REFORM 15 (July 2008).

³¹⁹ Lynn E. Blais and Wendy E. Wagner, *Emerging Science, Adaptive Regulation, and the Problem of Rulemaking Ruts*, 86 TEX. L. REV. 1701, 1721 (2008).

³²⁰ *Id.* at 1716.

revision rulemaking.” This regime would require the EPA to “incorporate future revisions into the original rulemaking process.”³²¹ Thus, the agency would include in the original effluent limitation guideline “a projected default standard for the next several rounds of revisions – based on the projected capabilities of emerging technologies.”³²² Blais and Wagner provide a concrete example, stating that in promulgating the effluent limitation guidelines for iron-making companies, the EPA would limit the discharge of cyanide to 0.05ml/hour for the first five years and then 0.035ml/hour for the following five years and so on over a twenty to thirty year period, taking into consideration projected technological advances and costs for the industry.³²³ Establishing specific and predictable technology-based standards into the future would ensure improved pollution reduction and “provide a revived market for innovation in pollution-control technologies.”³²⁴

Blais and Wagner also suggest “revision rulemaking” to improve technology-based standards. Revision rulemaking would “provide a special petition process that triggers revisions in a one-way, more stringent direction when a petitioner establishes that there is a clearly available and reasonably affordable pollution-control device that accomplishes more dramatic reductions than the existing standard.”³²⁵ In this case, competitors could petition the EPA to establish more stringent technology-based standards to win a competitive advantage “over their dirtier competitors.”³²⁶ Blais and Wager point out that revision rulemaking would be more cost- and resource-effective on

³²¹ *Id.* at 1731.

³²² *Id.*

³²³ *Id.* at 1732.

³²⁴ *Id.* at 1734.

³²⁵ Lynn E. Blais and Wendy E. Wagner, *Emerging Science, Adaptive Regulation, and the Problem of Rulemaking Ruts*, 86 TEX. L. REV. 1701, 1734 (2008).

³²⁶ *Id.*

the EPA's budget since the industry competitors would do much of the research proposing and defending the revision.³²⁷ Revision rulemaking would allow competitors to compete against one another to raise the technology-based standards and encourage technological innovation.

The third suggestion would be to require "a periodic review of ... technology-based standards by an expert panel on a regular basis, such as every five years." This would require the EPA to confront the panel's finding of the availability of new technology and decide whether to include it in the technology-based standards. Requiring independent review would "provide a more accurate barometer for the point at which revisions are needed to keep pace with changing technical knowledge and, to some extent, hold the agency's feet to the fire to make the needed revisions."³²⁸

Because the technology-based standards are the underpinning of the Clean Water Act, they cannot remain static and lead to a major technology freeze. A technology freeze would run counter to the Clean Water Act's intention of imposing BPT or BAT in NPDES permits. Based on the study by Blais and Wagner, it appears that many of the effluent limitation guidelines have not been updated since their original rulemaking. Greater pollution reduction cannot be achieved unless the EPA requires dischargers to implement new technology and processes, and the first step must be to revise the technology-based standards to reflect those new technologies.

Conclusion

³²⁷ *Id.* at 1736.

³²⁸ *Id.* at 1737.

Forty years have passed since the passage of the Clean Water Act and today the nation's lakes, rivers, and coastal waters are cleaner and healthier. "Protecting our nation's waters may seem like common sense today, but the idea of nationally uniform, tough standards against polluters was both original and radical."³²⁹ The Act remains one of the strongest and most effective U.S. environmental protection laws today. The Clean Water Act changed the way water pollution is managed in many ways. There was a significant shift away from state and local control towards federal regulation of water pollution, a shift from ambient water quality standards to technology-based effluent limitations as the main tool to regulate water pollution, and the development of a broad permitting program for the discharge of pollutants. The Clean Water Act as we know it today is the product of the technical expertise and leadership of Senate Muskie and his Senate Subcommittee on Air and Water Pollution, who tirelessly led the amendment process and set the structure and tone of the Act. Muskie's goal of using technology-based effluent limitations as the primary tool to reduce water pollution instead of the existing mechanism of ambient water quality standards and a robust federal enforcement program became the backbone of the Act. These guiding principles survived opposition from the House and the Nixon Administration and withstood the struggles within the conference committee. The Clean Water Act remains today, at its core, Muskie's draft proposal and innovative approach toward water pollution control.

The Clean Water Act has been successful in controlling the discharge of pollutants from point sources. "By many measures, the Clean Water Act has fulfilled the

³²⁹ James Salzman, *Why Rivers No Longer Burn*, SLATE, Dec. 10, 2012, http://www.slate.com/articles/health_and_science/science/2012/12/clean_water_act_40th_anniversary_the_greatest_success_in_environmental_law.html.

ambition of its drafters. The sewage discharges that were commonplace in the 1960s are rare. The number of waters meeting quality goals has roughly doubled. Once a convenient dumping ground for all manner of filth, rivers now represent an urban gem.”³³⁰ At the same time, the EPA has declared that half of the nation’s rivers and streams, one-third of the lakes and ponds, and two-thirds of bays and estuaries remain unsuitable for fishing and swimming.³³¹ Thus, there is significant work still ahead to reaching the water quality goal of fishable/swimmable. While the discharge from point sources has been controlled, agricultural and stormwater runoff that does not fall under the definition of a “point source” remains a significant roadblock in achieving better water quality.

Even though the Clean Water Act has significantly improved water quality across the country and greatly reduced point source pollution, the Act has failed to control nonpoint source pollution in any meaningful way. Nonpoint source pollution remains a glaring hole in the Act, and although Congress has tried to patch this hole with Section 319 in the 1987 amendments, nonpoint source pollution remains problematic. Salzman points out, “These nonpoint sources can be addressed, but they require enhanced authority to regulate farm practices and major funds to overhaul storm-water infrastructure. Neither seems an easy option in an era of a divided Congress and tight budgets.”³³² Forceful amendments to the Clean Water Act that would expand the scope of “point sources” would be highly effective in addressing nonpoint source pollution in a real and meaningful way. As long as nonpoint source pollution is outside the bounds of

³³⁰ *Id.*

³³¹ *Id.*

³³² *Id.*

the NPDES program, there is only so much control that the EPA can exert over reducing such pollutants.

At the same time, any congressional action to amend the Clean Water Act at present does not seem likely. In light of the current political paralysis on Capitol Hill, the EPA must look to other alternatives within its power to address nonpoint sources under the existing statutory framework. There are solutions under the existing statutory framework, such as watershed TMDLs and water quality trading programs that may serve to limit nonpoint source pollution without requiring congressional action. The EPA should further invest in these alternative regulatory programs to combat nonpoint source pollution. The fortieth anniversary of the Clean Water Act has provided an opportunity to examine the influences that helped shape the Act and to examine its successes, particularly in the area of effectively reducing point source pollution. At the same time, the nation's waters are still not clean and nonpoint source pollution control remains a thorn in the EPA's side. Further development and enforcement of nonpoint source pollution control must be the primary focus of the EPA's implementation of the Clean Water Act going forward. If nonpoint source pollution is not controlled in a meaningful way, as has been the case with point source pollution, then the Clean Water Act's goal of no discharge will never be attained.