The Unexpected Implications of *Sackett v. EPA* on Water Quantity Allocations in the Arid West

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Water moves over the earth according to the hydrologic cycle and can be best understood as an integrated system. However, the law often artificially segregates the hydrologic cycle into its component parts for regulatory purposes. The Clean Water Act is an example of a statute which separates water quality—which is regulated jointly by the federal and state governments—from water quantity, which is regulated by the states. This distinction is especially important in the Western United States, which is experiencing enormous challenges in satisfying the water needs of a growing population during a historic drought complicated by climate change. The Supreme Court's recent decision in Sackett v. EPA*, which further restricted the scope of waters covered by the Clean Water Act, will make state management and allocation of water quantities more complex, despite the Clean Water Act's clear policy of preserving water quantity regulation for the states.*

Most legal scholarship addressing the Supreme Court's Clean Water Act jurisprudence analyzes the effect of those decisions on protecting water quality*. This article takes a unique perspective on how the recent* Sackett *decision will impact water* quantities *in the arid West. This is because the Supreme Court in* Sackett *categorically removed Clean Water Act protections for irregularly flowing ephemeral and intermittent streams. As a consequence, these streams will be exposed to development pressures without being subject to the U.S. Army Corps of Engineers' section 404 permitting program (regulating the discharge of dredge or fill material into waterways) or any other federal oversight. While the value of ephemeral and intermittent streams has been discounted by the Supreme Court, they provide much of the flow of water to*

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both groundwater aquifers and to perennial streams and rivers. Strangling these smaller streams will choke off water to larger downstream rivers and aquifers, which function as the source for most water rights claims in the arid West. This Article will discuss how the Sackett decision has made these water resources vulnerable to exploitation and, in an ironic turn of events, has transformed a decision aimed at restoring state authority to manage water resources to one that may significantly impair the states' right to allocate water quantity to their citizens.

Water, water, water. . . There is no shortage of water in the desert but exactly the right amount, a perfect ratio of water to rock. Of water to sand, insuring that wide, free, open, generous spacing among plants and animals, homes and cities, which makes the arid West so different from any other part of the nation. There is no lack of water here, unless you try to establish a city where no city should be.

– Edward Abbey, Desert Solitaire: A Season in the Wilderness[1]

INTRODUCTION

The supply of water necessary to support the modern ways of life in the American Southwest teeters on a precarious balance as the effects of climate change, human population increases, and other environmental and ecological demands for water place a strain on existing water supplies. The prior appropriation system, designed to allocate water quantities in the arid West, stands like a house of cards balancing precariously on its thin edges.[2] It would only take a slight shift in the landscape to cause the whole edifice to come tumbling down. With the landmark Colorado River Compact set to expire in 2026,[3] increasing demands will be placed on a limited supply of fresh water. The challenges of bringing this important interstate compact into the twenty-first century will be complicated under the best of circumstances. Unfortunately, the Supreme Court's recent decision in *Sackett v. Environmental Protection Agency*[4] may present additional unanticipated obstacles to water resource managers, water users, and policymakers because it will have the effect of choking off many of the small rivers and streams that provide the source water that satisfies the growing water demand in the arid West.

There undoubtedly will be much ink spilled about the consequences that the Supreme Court's recent decision in *Sackett v. Environmental Protection Agency* will have on water quality and with good reason.[5] The Supreme Court's

1. EDWARD ABBEY, DESERT SOLITAIRE: A SEASON IN THE WILDERNESS 126 (1968).

2. *See infra* note 265. The prior appropriation doctrine establishes legal rights to water based on the principle of "first in time, first in right." Those early users of a water source, having devoted capital and labor to put the water to a beneficial use have legal priority over subsequent users of that same water source. The system is under pressure due to climate change making competition for limited water resource more intense and because of other legal exceptions to the prior appropriation doctrine such as Native American *Winters* rights, federal reserved water rights, the public trust doctrine and regional water planning initiatives.

3. Anastasia Hufham, *As Federal Deadline Approaches for Colorado River Management, Western States Say They Won't Make It*, SALT LAKE TRIBUNE (Feb. 26, 2024), https://www.sltrib.com/news/environment/2024/02/26/federal-deadline-approaches.

4. Sackett v. EPA, 598 U.S. 651 (2023).

5. *See generally, e.g.*, Cale Jaffe, *Sackett and the Unraveling of Federal Environmental Law*, 53 ENVT'L L. REP. 10801 (2023); Richard J. Lazarus, *Judicial Destruction of the Clean Water Act: Sackett v. EPA*, 8/11/2023 U. CHI. L. REV. *1 (2023); James McElfish et al., *Analyzing the Consequences of Sackett v. EPA and Looking Ahead to the Future*, 53 ENVT'L L. REP. 10693 (2023); *Clean Water Act —*

narrow reading of the Clean Water Act (hereinafter CWA) will severely hamper the EPA's ability to ensure that the goals of the CWA are met. The primary objective of the CWA is to prevent, reduce, and eliminate pollution in order to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[6] This was to be accomplished through three specific national goals and policies: (1) to eliminate the discharge of pollutants to navigable waters by 1986;[7] (2) to attain the interim goal of water quality, which provides for the protection and propagation of fish, shellfish, and wildlife and for recreation in and on the water by 1983;[8] and (3) to prohibit the discharge of toxic pollutants in toxic amounts.[9] For various reasons, these goals have not yet been met.[10] The *Sackett* decision will erect another hurdle that will make it even more difficult to meet those important water quality goals. That discussion—although important—is not the subject of this article.

The foremost depiction of the American West's long struggle to ensure that its inhabitants had adequate quantities of potable water to support its growing population was chronicled by Marc Reisner in the book Cadillac Desert: The American West and its Disappearing Water.[11] The American West is climatologically and hydrologically described as the area west of the one-hundredth meridian—the imaginary line of longitude drawn on a map that bisects the states of North and South Dakota, Nebraska, Kansas, Oklahoma, and Texas. To the east of that line, annual rainfall generally exceeds twenty inches per year. To the west of that line lies the Great Plains where annual precipitation is less than twenty inches.[12] Reisner writes: "[A]ny place with less

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"Waters of the United States"—Sackett v. EPA, 137 HARV. L. REV. 390 (2023); McKoehm Tschider, *Environmental Law—Waters Protected: Geographical Scope of the Clean Water Act, Sackett v. EPA (2023)*, 99 N.D. L. REV. 177 (2024).

6. 33 U.S.C. § 1251(a) (2024).

7. *Id.* § 1251(a)(1).

8. *Id.* § 1251(a)(2).

9. *Id.* § 1251(a)(3).

10. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-14-80, CLEAN WATER ACT: CHANGES NEEDED IF KEY EPA PROGRAM IS TO HELP FULFILL THE NATION'S WATER QUALITY GOALS 63 (Dec. 2013); *see generally* Robert W. Adler, *The Decline and (Possible) Renewal of Aspiration in the Clean Water Act*, 88 WASH. L. REV. 759 (2013); Lawrence S. Bazel, *The Clean Water Act at Thirty: A Failure After All These Years?*, 18 NAT. RES. & ENV'T 46 (2003); Mark C. Van Putten & Bradley D. Jackson, *The Dilution of the Clean Water Act*, 19 U. MICH. J. L. REFORM 863 (1986).

11. MARC REISNER, CADILLAC DESERT: THE AMERICAN WEST AND ITS DISAPPEARING WATER (rev. ed. 2017)

12. *Id.* at 3; WALLACE STEGNER, BEYOND THE HUNDREDTH MERIDIAN (1954), which recounts the life and times of John Wesley Powell, the first American scientist to explore the Colorado River and its watershed comprehensively. Based on his explorations, in 1876 Powell published *A Report on the Lands of the Arid Region of the United States, with a More Detailed Account of the Lands of Utah*, which concluded that the lands to the west of the One-Hundredth Meridian, because of the lack of rainfall and unreliable water resources, could not be transformed into a verdant landscape like Illinois or Iowa, no matter how much the promoters of westward expansion wished it could be. "When all the waters running in the streams found in this region are conducted on the land, there will be but a small portion of the country redeemed, varying in the different territories perhaps by one to three percent." REISNER, *supra* note 11, at 45. Furthermore, Powell debunked the fallacious theory that westward expansion would of necessity bring increased rainfall because "rain would follow the plow." *Id.* This was the

than twenty inches of rainfall is hostile terrain to a farmer depending solely on the sky, and a place that receives seven inches or less—as Phoenix, El Paso, and Reno do—is arguably no place to inhabit at all."[13] As a result, he explains: "[e]verything depends on the manipulation of water—on capturing it behind dams, storing it, and rerouting it in concrete rivers over distances of hundreds of miles. Were it not for a century and a half of messianic effort toward that end, the West as we know it would not exist."[14]

The current demand for water—necessary to sustain agriculture, industry, household use, and environmental values—has placed the arid West and its inhabitants on a knife's edge. The margin for error will only become smaller as the unprecedented twenty-year drought continues to desiccate the landscape.[15] Moreover, the Colorado River Compact, which apportions water among the states in the Colorado River basin and provides the primary water source for seven states (Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming), is set to expire in 2026.[16] Negotiations for a new interstate compact will have to figure out how to supply more people with water from an ever-dwindling supply.

All of these challenges to maintaining adequate water supplies for growing populations in the West were a long time in the making. The Supreme Court's *Sackett* decision has injected a new complication into the search for solutions to water scarcity in the West. In *Sackett*, the Court left no doubt that certain categories of water bodies, which were historically jurisdictional under the CWA, would now be beyond the reach of federal protection.[17] The Court narrowed its prior precedent by holding that only waterbodies with relatively permanent flow, and the wetlands adjacent to those water bodies, would be subject to federal regulation. In so doing, the Court rejected Justice Kennedy's significant nexus standard in *Rapanos v. United States*,[18] which largely deferred to science in identifying the types of waters the CWA was designed to protect. The *Sackett* decision left no pathway for protecting streams with less than relatively permanent flow under the CWA, even though such waters might

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speculative belief that American settlers could induce precipitation during their expansion into the Great Plains and Intermountain West by planting crops and trees, which would somehow cause the clouds to burst forth with rain. This oft-believed folklore was the basis for Western promoters, including newspapers, railroads, and even the federal government itself, inducing millions of people to move west in an attempt to populate the unsettled territory. The idea that "rain follows the plow" was described by Henry Nash Smith in *Rain Follows the Plow: The Notion of Increased Rainfall for the Great Plains 1844-1880*, 10 HUNTINGTON LIBR. Q. 169 (1947). Though a myth, this theory helped attract approximately nine million settlers to the West by 1893 when Fredrick Jackson Turner declared that the frontier was "closed." Fredrick Jackson Turner, *The Significance of the Frontier in American History (1893*), *in* THE FRONTIER IN AMERICAN HISTORY 38 (1920).

13. REISNER, *supra* note 11, at 3.

14. *Id.*

15. A. Park Williams et al., *Large Contribution from Anthropogenic Warming to an Emerging North American Megadrought,* 368 SCIENCE 314 (2020).

16. *See* Hufham, *supra* note 3.

17. Sackett v. EPA, 598 U.S. 651, 678 (2023).

18. Rapanos v. United States, 547 U.S. 715, 753-57 (2006).

be essential to protecting water quality. The unmistakable result after *Sackett* is that all ephemeral streams (i.e., streams that only flow in response to precipitation events) and many intermittent streams (i.e., streams that only flow at irregular intervals during certain times of the year) are no longer subject to CWA jurisdiction.

However, ephemeral and intermittent streams constitute an important part of the hydrological system.[19] While perennial rivers and streams that flow continuously throughout the year are unmistakably viewed as "waters" according to the popular understanding of that term, the smaller ephemeral and intermittent streams provide the foundation that allows perennial streams to deliver reliable and consistent flows of water. In the arid West, ephemeral and intermittent streams comprise up to 94 percent of the total stream miles in some states.[20] While the ecological and hydrological effects of ephemeral and intermittent streams are not completely understood, these types of streams play an integral role in a complex and dynamic hydrological system. From a scientific perspective, these streams provide many important ecological functions, including directly contributing water to perennial streams and replenishing groundwater supplies that augment and provide base flow for perennial streams.[21] Ephemeral and intermittent streams are thus keystones to maintaining the healthy hydrological and aquatic ecosystem that is necessary to maintain water supply in the arid West.[22]

The Supreme Court's *Sackett* decision removed protection for these impermanent waters, threatening the more permanent rivers and streams vital to support water allocation regimes in the West. While the legacy of *Sackett* may not have the immediate effect of turning off the spigot to water flows in the West, over time, without CWA protection, these impermanent streams are subject to filling and destruction by developers without the need for a federal permit. This will likely have the effect of drying out the hydrological networks that are essential to water rights regimes that protect continued access to fresh water.

This Article will examine the unintended impacts that the Supreme Court's *Sackett* decision may have on water quantity and allocation. Although the primary aim of the CWA was a national one, Congress also recognized that the states had an important role to play. The ambitious goals of the CWA were to be achieved without impinging on the states' rights to protect local land and water resources.[23] Furthermore, the states have jealously guarded their exclusive authority to regulate water quantity and to allocate water among

19. EPA, EPA/600/R-08/134, THE ECOLOGICAL AND HYDROLOGICAL SIGNIFICANCE OF EPHEMERAL AND INTERMITTENT STREAMS IN THE ARID AND SEMI-ARID AMERICAN SOUTHWEST iii (2008) [hereinafter ECOLOGICAL AND HYDROLOGICAL REPORT].

20. *Id.* at 5.

21. *Id.* at 6.

22. *Id.* at 2.

23. 33 U.S.C. § 1251(b) (2024).

competing users.[24] The CWA specifically prohibits the federal government from interfering with this traditional state function.[25]

In recent years, in interpreting the scope of CWA jurisdiction, the Supreme Court has elevated concerns about states' rights to justify its narrow interpretation of the scope of federal authority over water resources. It is somewhat ironic that the Supreme Court's interpretation of the CWA in *Sackett* will likely make it more difficult for the states to allocate water quantities and potentially impair their ability to effectively manage their water rights regimes.

In Part I, this Article will first discuss the unique hydrology of the West and how it functions as a comprehensive, integrated system to provide a regular and dependable flow of water to arid landscapes. While the law draws artificial distinctions between permanent and impermanent streams, surface water and groundwater, and water quantity and water quality, many of these differences vanish when viewed through a scientific lens. Does it make sense to stovepipe these concepts for regulatory and administrative purposes when they are not necessarily distinct in the real world? As in most areas where science and law intersect, the law lags behind science. This is true with respect to water resources.[26] While the understanding of integrated hydrologic systems from a scientific perspective has been continuously progressing, the law seems to respond with oversimplifications, making the resolution of disputes over water resources more intractable.

This Article will then address the regulatory regimes established in the West for allocating water resources—in this case, the doctrine of prior appropriation and how that system was designed to address water scarcity. The prior appropriation system was adequate to address the circumstances of the time it was adopted, but a question remains about whether it will be adequate to adapt to the new pressures that now confront it.

With this important context in mind, Part II of this Article will address the history of water pollution control in the United States with a focus on the relationship between the state and federal government. Historically, pollution control, being a matter of public health and safety, was viewed as being a local concern and most appropriately regulated by state and local governments. However, as the science of water pollution control began to develop, it became clear that water pollution was a complex problem that impacted entire watersheds with no regard to state or local jurisdictional boundaries. This history demonstrates a continual and continuing struggle to establish some equilibrium between state and federal authority in regulating water resources.

In Part III, this Article will discuss the shift in Supreme Court jurisprudence regarding CWA jurisdiction. At first, the Supreme Court focused

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24. Reed D. Benson, *Deflating the Deference Myth: National Interests vs. State Authority Under Federal Laws Affecting Water Use*, 2006 UTAH L. REV. 241, 242 (2006).

25. 33 U.S.C. § 1251(g).

26. *See* Christine A. Klein, *Groundwater Exceptionalism: The Disconnect Between Law and Science*, 71 EMORY L.J. 487, 496 (2022).

on the statute's ecologic goals in interpreting the scope of federal authority over water resources. However, more recently, the Court has re-envisioned the CWA as a tool to preserve state authority rather than national water quality. This evolution culminated in the *Sackett* decision, which significantly narrowed the scope of geographic jurisdiction under the CWA and, as a result, may further burden state decision making about how to allocate water resources. Because ephemeral and intermittent streams will no longer be subject to 'dredge and fill' permits from the U.S. Army Corps of Engineers or the Environmental Protection Agency (the "EPA"), these stream networks may be compromised or eliminated without any federal oversight.

In Part IV, this Article will discuss how the *Sackett* decision could have impacts on the existing system of prior appropriation and water quantity allocation. The issue of water scarcity in the arid West is complex and involves many causes and few solutions. Adding the unknown variables presented by the *Sackett* decision, combined with climate change and human population growth makes this problem more difficult to solve. A successful outcome would be more likely if the law and the science were aligned. In this context, the law may need to be reframed to catch up to the science and the realities on the ground. This will be difficult given existing conditions that result in competing demands for a dwindling supply of water. *Sackett* has inflicted an unnecessary wound that makes this challenge even more urgent.

Finally, in Part V, the article will conclude with a discussion about how the states might respond to the new challenges to water quantity allocation imposed by *Sackett*, focusing on whether the doctrine of prior appropriation is up to the task or whether it may have to be modified to address a drying planet.

I. WATER QUANTITY ALLOCATION IN THE ARID WEST

Although this Article's main focus is on how the Supreme Court's narrow interpretation of the Clean Water Act in *Sackett* might impinge on the states' right to allocate water quantities among its residents, this issue arises on a landscape that is unique in many ways from the rest of the continental United States. Unlike the Eastern United States, the unique climatological and hydrologic features of the Southwestern United States make permanent water resources more scarce, making it more difficult for life to thrive. Therefore, before discussing the implications of the *Sackett* decision, it is necessary to have a thorough understanding of the hydrology and legal regimes which provide the foundation upon which Western, European-settler society developed. In contrast with much of the Eastern United States, which in many ways resembled the climate and hydrology of England, and was therefore able to adopt much of the English system of water rights, the Western United States was a vast unknown, and a new unique legal system was necessary to adapt to an environment where water was scarce and the landscape was seemingly boundless.

This Part will first examine the scientific principles that define the hydrology that dominates the arid West. Precipitation is scarce and when the clouds do relinquish precious drops of water, that water interacts with the environment in unique ways. Although arid landscapes may seem to lack significant water resources, the water they do contain supports a complex system capable of sustaining life. In response to these unique characteristics, a new legal regime was necessary to fairly and definitively allocate water to potential users. This system of "prior appropriation," discussed in more detail below, is essentially unchanged from the law that was developed in the early mining camps and adopted by the courts in the 1880's. Its underlying principles have provided certainty and predictability even in modern times. However, a confluence of recent events may necessitate some re-examination of the doctrine of prior appropriation to ensure that it continues to serve the public and the natural environment well into the future.

A. Ghost Streams

The Great American Desert was a term coined for the portion of the United States that lies West of the one-hundredth meridian.[27] Not all, or even most, of these western lands are truly desert landscapes, but in general, most of the region lacks what is necessary to support current industry, agriculture, and human populations: adequate rainfall.[28] The Western United States is characterized by vast acreages of dry land with streams and rivers that are more dispersed than in the East.[29] These lands receive low and highly variable annual precipitation, where rates of evapotranspiration (a term including both evaporation, water movement from soil and water bodies to the air, and transpiration, water movement from plants to the air) exceed precipitation.[30] When rain does come it occurs in short intense bursts and unpredictable patterns.[31] Seasonal snowmelt from mountain snowpacks sustains rivers and

27. STEGNER, *supra* note 12, at 215-16. The term "Great American Desert" is the counterfactual to the optimistic belief that adequate rain would come if "patriots" would move west and till the soil, stirring Mother Nature to adequately provide for the new inhabitants. *Id.*

28. *See What Is A Desert*, U.S. GEO. SURVEY, https://pubs.usgs.gov/gip/deserts/what (last updated Dec. 18, 2001) ("There are almost as many definitions of deserts and classification systems as there are deserts in the world. Most classifications rely on some combination of the number of days of rainfall, the total amount of annual rainfall, temperature, humidity, or other factors. . . . [E]xtremely arid lands have at least 12 consecutive months without rainfall, arid lands have less than 250 millimeters of annual rainfall, and semiarid lands have a mean annual precipitation of between 250 and 500 millimeters. Arid and extremely arid land are deserts, and semiarid grasslands generally are referred to as steppes.").

29. ROBIN KUNDIS CRAIG ET AL., WATER LAW: CONCEPTS AND INSIGHTS 39 (Foundation Press eds. 2017).

30. ECOLOGICAL AND HYDROLOGICAL REPORT, *supra* note 19, at 2; *see also* W. WATER POL'Y REV. ADVISORY COMM'N, WATER IN THE WEST: CHALLENGE FOR THE NEXT CENTURY 2-3 (1998) ("Each year approximately 1.5 billion acre-feet of water is added to the western United States as precipitation, the majority of which is consumed by evapotranspiration. Roughly 500 million acre-feet constitute the measure flow of western streams and 50 million acre-feet are added annually to groundwater.").

31. ECOLOGICAL AND HYDROLOGICAL REPORT, *supra* note 19, at 13-17.

streams in adjacent valleys, resulting in historically steady, predictable flow patterns.[32] However, drier and warmer winters and drought conditions caused by global climate change have made reliance on these seasonal patterns more risky.[33] Even investment in costly water infrastructure to capture the irregular ebb and flow of Western rainfall and runoff may no longer yield consistent water supplies.[34]

The hydrology of Western rivers and streams is defined by the permanence (or, more accurately, the *impermanence*) of water. Hydrologists identify three types of rivers and streams: perennial waterbodies, intermittent waterbodies, and ephemeral waterbodies. Perennial streams and rivers are hydro-geographic features that flow continuously and have a bed that is situated below the regional water table in all seasons.[35] In the West, because water is only a temporary visitor, there are relatively few perennial streams. Instead, intermittent and ephemeral streams make up much of the landscape.

Intermittent streams are defined as streams that have water during a portion of the year, flowing during the wetter seasons or after large storm events, but which are dry during much of the year.[36] The seasonal shift in precipitation causes the water table to fluctuate up and down throughout the year. An intermittent stream flows steadily when the groundwater is high and the streambed is beneath the water table. However, when the groundwater is low due to lack of precipitation during the dry season, intermittent streams may lose much of their water.[37] At low flow, there may be dry segments alternating with flowing segments.

Ephemeral streams, like intermittent streams, don't flow year-round, but, unlike intermittent streams, have a channel that is above the regional water table at all times. Therefore, ephemeral streams contain water only in response to precipitation events[38] and are dry channels for most of the year.[39] Nonetheless, both intermittent and ephemeral streams can be considered "hydrologically challenged perennial streams" in that they serve many of the same functions as perennial streams but differ mainly in their flow regimes.[40]

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32. Beatrie L. Gordon et al., *Why Does Snowmelt-Driven Streamflow Response to Warming Vary? A Data-Driven Review and Predictive Framework*, 17 ENVT'L RES. LETTERS 5 (2022) (water input into groundwater and stream systems from snowmelt results in more consistent flow response).

33. Michael Dettinger et al., *Western Water and Climate Change,* 25 ECOLOGICAL APPLICATIONS 2069, 2078 (2015).

34. *Id.*

35. E.C. PIELOU, FRESH WATER 92-93 (Univ. of Chicago Press 1998); Tanja N. Williamson et al., *Classification of Ephemeral, Intermittent and Perennial Stream Reaches Using a TOPMODEL-Based Approach*, 51 J. AM. WATER RES. ASS'N 1739, 1740 (2015).

36. ECOLOGICAL AND HYDROLOGICAL REPORT, *supra* note 19, at 6.

37. PIELOU, *supra* note 35, at 92-93.

38. ECOLOGICAL AND HYDROLOGICAL REPORT, *supra* note 19, at 6.

39. PIELOU, *supra* note 35, at 92-93.

40. CLAIRE MAGAND ET AL., INTERMITTENT RIVERS AND EPHEMERAL STREAMS: WHAT WATER MANAGERS NEED TO KNOW 18 (2020), https://core.ac.uk/download/pdf/326023325.pdf.

In some geographic areas in the arid West, ephemeral streams alone, or a combination of ephemeral and intermittent streams functioning together, are often the only type of hydrographic feature that appears on the landscape.[41] As such, these streams "serve a critical role in the protection and maintenance of water resources, human health, and the environment."[42] Riparian areas, which are lands adjacent to a river or stream, "occupy very small portions of the landscape in arid and semi-arid regions[,]" and this magnifies their importance for local communities and the environment where they are located.[43]

Because the existence of ephemeral streams is fleeting, they are sometimes referred to as "ghost streams." In the West, these impermanent streams are scattered across vast distances, yet they constitute the predominant stream type in arid regions. Nearly 94 percent of the streams in Arizona are ephemeral or intermittent.[44] In Nevada, 89 percent, and in New Mexico, 88 percent, of the streams are ephemeral or intermittent.[45] The majority of streams in the other southwestern states also have irregular flows: Utah with 79 percent, Colorado with 68 percent, and California with 66 percent.[46]

Just as compartmentalizing the concepts of water quality and water quantity under the CWA is flawed from a scientific perspective,[47] evaluating the significance of hydrologic systems based solely on individual stream types without considering other factors is overly simplistic. Individual streams do not function in isolation but instead serve as interconnected components of a larger hydrologic system.[48] As a small stream flows downstream from its point of origin, its volume grows with the input of water from each successive tributary, gradually enhancing the system's overall flow. Eventually, the ephemeral

41. *See generally, e.g.*, Stephanie K. Kampf et al., *Rainfall Thresholds for Flow Generation in Desert Ephemeral Streams*, 54 WATER RES. RSCH. 9935 (2018) (classifying all streams in the Mohave and Yuma Washes in Arizona as ephemeral).

42. ECOLOGICAL AND HYDROLOGICAL REPORT, *supra* note 19, at 2.

43. *Id.*

44. *Id.* at 5.

45. *Id.*

46. *Id.* The statistics provided above may not accurately reflect the total extent of ephemeral and intermittent streams because they: (1) do not include streams of less than one mile in length, (2) combine ephemeral and intermittent streams and (3) are based on 1:100,000 scale topographic maps. Furthermore, "washes" which are dry streambeds that contain water after local rainfall or heavy snowmelt are not consistently included in the data. *Id.*

47. *See* Adam Schempp, *At the Confluence of the Clean Water Act and Prior Appropriation: The Challenge and Ways Forward*, 43 ENVT'L L. REP. NEWS & ANALYSIS 10138, 10138 (2013) ("The management of water is not simple. Chemistry and hydrology, physics and geology, politics and biology, and even history and sociology all play a role in managing water, and all before, during, and after the influence of law and administration. Perhaps, it is not surprising that water management is compartmentalized. No one can know everything there is to know about all of these disciplines in all places. Technical and geographic specialization can lead to a greater understanding of the various demands placed on water and of their impact. But an understanding of the whole should not be lost for the sake of its parts, lest interjurisdictional and interdisciplinary confusion and conflicts arise."); *see also* LAJUANA WILCHER, THE CONNECTION BETWEEN WATER QUALITY AND WATER QUANTITY 1-2 (1991).

48. ECOLOGICAL AND HYDROLOGICAL REPORT, *supra* note 19, at 8.

stream will deliver a portion of its flow to a larger stream or river.[49] "As flows from numerous ephemeral channels combine in larger channels, the volume and effects of those flows accumulate as they move through the river network. As a result, the incremental contributions of individual streams and wetlands accumulate in the downstream waters."[50]

Furthermore, water flowing in ephemeral and intermittent streams can percolate beneath the surface to recharge groundwater which, in turn, slows the movement of water through the basin.[51] In the EPA's 2015 Stream Connectivity Report developed to support the Obama Administration's Clean Water Rule, the EPA concluded that small headwater streams convey water into local storage systems such as "ponds, shallow aquifers, or stream banks, and into regional and alluvial aquifers," which are important sources of baseflow for larger rivers.[52] As the EPA further described:

> [Streamflow] typically depends on the delayed (i.e., lagged) release of shallow groundwater from local storage, especially during dry periods and in areas with shallow groundwater tables and pervious subsurfaces. For example, in the southwestern United States, short-term shallow groundwater storage in alluvial floodplain aquifers, with gradual release into stream channels by intermittent and ephemeral streams, is a major source of annual flow in rivers.[53]

Ephemeral streams recharge groundwater aquifers which then provide a steady reliable influx of water to more permanent rivers and streams. This baseflow maintains the flow of these rivers and streams during periods of low rainfall. In a hydrological sense, the water that fills the underground interstices and pores as groundwater is indistinguishable from the water that flows in the streams.[54] It's all one water.

A watershed is all of the land area contributing water to a single downstream point. This point may be a larger stream, a lake, or the ocean. Watersheds comprise the network of interconnecting tributaries delivering water to their ultimate destination. That destination point may be high in the

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49. *Id.* at 7.

50. EPA, EPA/600/R-14/475F, CONNECTIVITY OF STREAMS AND WETLANDS TO DOWNSTREAM WATERS: A REVIEW AND SYNTHESIS OF THE SCIENTIFIC EVIDENCE 1-10 (2015) [hereinafter CONNECTIVITY REPORT].

51. Ping Wang et al., *Estimating Groundwater-Ephemeral Stream Exchange in Hyper-Arid Environments: Field Experiments and Numerical Simulations*, 555 J. HYDROLOGY 68, 68-69 (2017); M. O. Cuthbert et al., *Understanding and Quantifying Focused, Indirect Groundwater Recharge From Ephemeral Streams Using Water Table Fluctuations*, 52 WATER RES. RSCH. 827, 836 (2016).

52. CONNECTIVITY REPORT, *supra* note 50, at ES-8.

53. *Id.*

54. *See Rivers Contain Groundwater*, U.S. GEO. SURVEY, https://www.usgs.gov/water-science-school/science/rivers-contain-groundwater (last updated June 6, 2018) ("[G]roundwater contributes to streams in most physiographic and climatic settings to a certain degree; some of the water flowing in rivers comes from seepage of groundwater into the streambed. The water flowing in rivers still originates from precipitation, but it is not all from surface runoff. This groundwater seepage is vitally important to the hydrologic settings of the world because it is responsible for keeping water in rivers during times of no rainfall (base flow conditions).").

hydrologic system, in which case the watershed is relatively small, or it can be a point like where the Mississippi reaches the Gulf of Mexico, in which case the watershed is the entire Mississippi basin and comprises other large rivers like the Ohio and the Missouri Rivers.[55]

Watershed characteristics differ based on factors such as size, climate, topography, and geology. In wetter climates with abundant vegetation, a significant portion of rainfall is absorbed by plants and trees and released directly to the air through transpiration, leading to a lower stream density within the watershed.[56] However, in arid climates where vegetation is sparse and the surface is easily erodible sand or clay, the number of drainages in a particular watershed may be orders of magnitude greater than in a wet climate.[57] This elevated drainage density allows streams in the Southwestern United States to efficiently transfer water to downstream reaches during high-flow events. Additionally, the increased stream density enhances interactions between water and the land surface, influencing both hydrological and geomorphological process. Watersheds are considered the most appropriate spatial unit for making water management decisions. Evaluating human impacts on individual ephemeral or intermittent streams, or on isolated segments of those streams, provides an incomplete understanding of the broader scientific reality. Such a narrow approach overlooks the cumulative effects of smaller impacts across a larger area. Furthermore, focusing exclusively on specific streams or segments disregards the interconnected nature of hydrologic systems and their complex interrelationships, including interactions between surface water and groundwater.[58] This includes the effects on surface waters, groundwater, and the interaction between the two.

Because science does not evaluate the functional value of streams on a segment-by-segment basis, the law likewise should view these resources as interconnected. However, like in other areas where the law and science intersect, the law is several steps behind emerging scientific understanding. Instead of incorporating new scientific thinking into legal analysis, courts and policymakers frequently attempt to stitch together outdated legal concepts to

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55. *See Watersheds*, U.S. GEO. SURVEY, https://www.usgs.gov/centers/california-water-science-center/science/science-topics/watersheds (last modified January 11, 2024) ("A watershed is an area of land that drains all the streams and rainfall to a common outlet such as the outflow of a reservoir, mouth of a bay, or any point along a stream channel. Watersheds can be as small as a footprint or large enough to encompass all the land that drains water into rivers that drain into San Francisco Bay, where it enters the Pacific Ocean. The word 'watershed' is sometimes used interchangeably with drainage basin or catchment. Watersheds consist of surface water—lakes, streams, reservoirs, and wetlands—and all the underlying groundwater."); J.E. Flotemersch et al., *A Watershed Integrity Definition and Assessment Approach to Support Strategic Management of Watersheds*, 32 RIVER RSCH. & APPLICATIONS 1654, 1655-56 (2015); *see also* Robert W. Adler, *Addressing Barriers to Watershed Protection*, 25 ENVT'L L. 973, 975, 1071 (1995) (citing COMM. ON RESTOR'N OF AQUATIC ECOSYS., NAT'L RES. COUNCIL, RESTORATION OF AQUATIC ECOSYSTEMS: SCIENCE, TECHNOLOGY, AND PUBLIC POLICY 5 (1992)).

56. PIELOU, *supra* note 35, at 86.

57. *Id.*; *see also* ECOLOGICAL AND HYDROLOGICAL REPORT, *supra* note 19, at 29.

58. ECOLOGICAL AND HYDROLOGICAL REPORT, *supra* note 19, at 7.

make them fit new scientific understandings.[59] This familiar pattern in the law continues to drive the regulation of water resources, with potentially troubling consequences.

B. Legal Regimes for Allocation of Water Resources

Like other areas of American law, some scholars believe that the origins of common law principles that governed the rights of individuals to use and benefit from surface waters were largely borrowed from England.[60] Other scholars have suggested that the roots of water law can be traced to French civil law, or that it was a uniquely American idea.[61] England is notoriously wet, has an abundance of streams, and, consequently, disputes over water rights were rare.[62] As luck would have it, the Eastern United States experienced similar climatic conditions as England. As a result, the water allocation system that developed in the East, the riparian rights system, very closely resembled its English counterpart.

The riparian rights doctrine grants specific water rights to those who own real property abutting a watercourse.[63] Those rights include the right to make reasonable use of water, subject to the equal rights to other riparian owners to

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59. Rosen v. Ciba-Geigy Corp., 78 F.3d 316, 320 (7th Cir. 1996) ("But the courtroom is not the place for scientific guesswork, even of the inspired sort. Law lags science; it does not lead it."). Nowhere is the disconnect between law and science more apparent than in the field of groundwater law. For years, the subject of groundwater was not well understood by either the scientific or legal communities. In *Houston & Texas Central Ry. Co. v. East*, 81 S.W. 279, 281 (Tex. 1904) the court wrote that the groundwater and its regulation was "so secret, occult and concealed that an attempt to administer any set of legal rules . . . would be involved in hopeless uncertainty, and would, therefore, be practically impossible." *See also* Klein, supra note 26, at 496 (suggesting that groundwater law was developed approximately fifty years before science fully understood the hydrologic cycle and a century before the development of the centrifugal pump provided access to large stores of groundwater). Nevertheless, even after scientists had developed a more complete understanding of groundwater, "factually inaccurate understandings of groundwater remained surprisingly sticky in the law." *Id.* Just as Judge Posner stated in *Rosen*, the law continued to lag behind the science, even when the scientific understanding was well established. *See* 78 F.3d at 320.

60. *See* Robert W. Adler, et al., *Water Rights and Watershed Management: Planning for the Future*, 25 WM. & MARY ENVT'L L. & POL'Y REV. 1, 1 (2000) ("[T]he riparian rights doctrine of water law inherited from England and prevalent in the east stands in sharp contrast to the prior appropriation doctrine of western water law."); DAVID H. GETCHES, WATER LAW IN A NUTSHELL, 15 (2015).

61. *See* Joseph W. Dellapenna, *The Evolution of Riparianism in the United States*, 95 MARQ. L. REV. 53, 53-64 (2011). *See,* e.g., C.E. Busby, *American Water Rights Law: A Brief Synopsis of Its Origin and Some of Its Broad Trends with Special Reference to the Beneficial Use of Water Resources*, 5 SOUTH CAROLINA L. REV. 106, 104-07. Irrespective of the original source of the riparian rights doctrine, the English and American system—at least with respect to the eastern United States—shared much of the same climatic and geographical conditions and so it is not surprising that the two nations' water law regimes would also develop similar attributes.

62. Michael Dillon, *Water Scarcity and Hydrologic Fracturing in Pennsylvania: Examining Pennsylvania Water Law and Water Shortage Issues Presented by Natural Gas Operations in the Marcellus Shale*, 84 TEMPLE L. REV. 201, 212 (2011); George A. Gould, *A Westerner Looks at Eastern Water Law: Reconsideration of Prior Appropriation in the East,* 25 U. ARK. LITTLE ROCK L. REV. 89, 89 (2002); Edward J. Eberle & Bernard Grossfeld, *Law and Poetry*, 11 ROGER WILLIAMS U. L. REV. 353, 386-87 (2006).

63. KUNDIS CRAIG ET AL., *supra* note 29, at 17.

use the water similarly.[64] Under the riparian rights doctrine, the right to use water is not fixed but instead depends on the number of other users of the same waterbody; water rights may have to yield to other riparians who use the same resource.[65] This inherent uncertainty could be tolerated where water was plentiful. Disputes were rare and water users' interests could be accommodated. Furthermore, riparianism contained several restrictions that were appropriate in a water-abundant region: (1) the water withdrawn from the watercourse must be used on the riparian parcel of land and could not be used to benefit other property that the riparian may own;[66] and (2) the riparian right to use water could not be sold or transferred separate and apart from the riparian parcel itself.[67] Although riparianism survived the long journey from England over the Atlantic Ocean to the Eastern United States, it would not fare as well in the West.

In the West, initial attempts to transplant the law of riparian rights proved unsuccessful. When farmers moved to the West, their Eastern mindset led them to try to make the riparian rights doctrine work on Western lands.[68] However, the miners who settled in the West were not landowners like many of their Eastern counterparts. Most miners staked their claims on land they did not own—they were trespassers.[69] Most of these mining claims were located on property owned by the federal government.[70] As a result, a law requiring ownership of property as a precondition of obtaining legally recognized rights in water would have been useless to them.[71] Therefore, the miners imposed

64. *Id.*

65. *Id.* at 15; *see, e.g.*, Incline Vill. Bd. of Trs. v. Elder, 592 S.W.3d 334 (Mo. 2019); Dyer v. Hall, 928 N.E.2d 273 (Ind. 2010); Anchor Point Condo. Owner's Ass'n v. Fish Tale Props., LLC, 758 N.W.2d 144 (Wis. 2008); Alderson v. Fatlan, 898 N.E.2d 595 (Ill. 2008); Koch v. Aupperle 737 N.W.2d 869 (Neb. 2007); Panetta v. Equity One, Inc., 920 A.2d 638 (N.J. 2007); Portage Cnty. Bd. of Commrs. v. Akron, 846 N.E.2d 478 (Ohio 2006); Little v. Kin*,* 644 N.W.2d 375 (Mich. 2002); Kirby v. Hook*,* 701 A.2d 397 (Md. 1997); Pine Knoll Ass'n, Inc. v. Cardon, 484 S.E.2d 446 (N.C. 1997); City of Wilmington v. Parcel of Land Known as Tax Parcel No. 26.067.00.004, 607 A.2d 1163 (Del. 1992); Haynes v. Carbonell, 532 So.2d 746 (Fla. Dist. Ct. App. 1988); Wisniewski v. Gemmill, 465 A.2d 875 (N.H. 1983); Mayer v. Gruber, 138 N.W.2d 197 (Wis. 1965); Commonwealth, Marine Res. Comm'n v. Forbes, 197 S.E.2d 195 (Va. 1973); Commonwealth, Dep't of Highways v. Thomas, 427 S.W.2d 213 (Ky. 1967); Thompson v. Enz, 154 N.W.2d 473 (Mich. 1967); Harrell v. City of Conway, 271 S.W.2d 924 (Ark. 1954); McCausland v. Jerrell, 68 S.E.2d 729 (W.V. 1951); Cunningham v. Prevow, 192 S.W.2d 338 (Tenn. Ct. App. 1945); Robertson v. Arnold, 186 S.E. 806 (Ga. 1936); Bean v. Cent. Maine Power Co., 173 A. 498 (Me. 1934); Harvey Realty Co. v. Borough of Wallingford, 150 A. 60 (Conn. 1930); Stratton v. Mt. Hermon Boys' Sch., 103 N.E. 87 (Mass. 1913).

66. *See, e.g.*, In re Adjudication of Upper Guadalupe River Segment, 625 S.W.2d 353 (Tex. Civ. App. 1981); McBryde Sugar Co., Ltd. v. Robinson, 504 P.2d 1330 (Haw. 1973); Harrell v. City of Conway, 271 S.W.2d 924 (Ark. 1954); Kennebunk, Kennebunkport and Wells Water Dist. v. Maine Tpk. Auth., 84 A.2d 433 (Me. 1951); Town of Purcellville v. Potts, 19 S.E..2d 700 (Va. 1942); Sayles v. City of Mitchell, 245 N.W. 390 (S.D. 1932).

67. KUNDIS CRAIG ET AL., *supra* note 29, at 16.

68. Joseph W. Dellapenna, *Adapting Riparian Rights to the Twenty-First Century*, 106 W. VA. L. REV. 539, 568 (2004).

69. *Id.* at 567.

70. *Id.*

71. *Id.* at 565.

their own version of "vigilante law" replacing riparian rights with the frontier notion of "first in time, first in right."[72]

Because the climate and land usage of the West was so different than the East, courts soon upheld this new system of water allocation. The Colorado Supreme Court described as much in *Coffin v. Left Hand Ditch Co.*:

> The [Western United States'] climate is dry and the soil, when moistened only by the usual rainfall, is arid and unproductive; except in a few favored sections, artificial irrigation for agriculture is an absolute necessity. Water in the various streams thus acquires a value unknown in moister climates. Instead of being a mere incident to the soil, it rises, when appropriated to the dignity of a distinct usufructuary estate, or right of property . . . . [T]he soil has been cultivated and thousands of acres have been rendered immensely valuable, with the understanding that appropriations of water would be protected. Deny the doctrine of priority or superiority of right by priority appropriation and the great value of all the property is at once destroyed.[73]

Because of this reality, the court held that "the common law doctrine giving the riparian owner a right to the flow of water in its natural channel upon and over his lands, even though he makes no beneficial use thereof, is inapplicable in Colorado. Imperative necessity, unknown to the countries which gave it birth, compels the recognition [of the doctrine of prior appropriation.]"[74]

Further, the court in *Coffin v. Left Hand Ditch Co.* also acknowledged that a system of riparian rights would not incentivize industry and capital outlays necessary to move large amounts of water great distances over rugged terrain. Only the certainty provided by the prior appropriation doctrine, with its fixed rights in defined quantities of water, would ensure that water be put to the most productive uses valued by society.[75] The courts were forced to accept the reality on the ground: prior appropriation was the law in the courts because it was already the law of the miners and farmers.[76]

The prior appropriation system was designed to maximize the benefits to society from relatively scarce water resources.[77] The system of prior appropriation values the human use of water for productive purposes even at the expense of efficiency. Incidental losses of water through leaky transmission

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72. *Id.* at 568.

73. Coffin v. Left Hand Ditch Co., 6 Colo. 443, 446 (1882).

74. *Id.*

75. Teresa Richmond et al., *The Purposeful Tension Within the Doctrine of Prior Appropriation,* 58 ROCKY MOUNTAIN MN. L. FOUND. J. 33, 36 (2021) ("[T]he appropriation doctrine developed with a recognition that the ultimate goal of encouraging the fullest beneficial use of water, and the resulting economic development of the West, could not be realized unless water users were provided certainty in the holding and exercise of water rights." (quoting Charles B. Roe et al., Loss of Water Rights— Old Ways and New, 35 ROCKY MT. MIN.. L. INST. 23-1, § 23.01 (1989))).

76. CHARLES F. WILKINSON, CROSSING THE NEXT MERIDIAN: LAND, WATER, AND THE FUTURE OF THE WEST 234 (1992).

77. Lawrence J. MacDonnell, *Prior Appropriation: A Reassessment*, 18 U. DENV. WATER L. REV. 228, 230 (2015).

systems, evaporation, or outdated irrigation practices may be tolerated so that water resources can provide the greatest benefit to the greatest number of people.[78] In the West, water is not "wasted" by consuming it, however inefficiently. Water is wasted by letting it flow unused down streams and rivers.[79] Every drop of water is seen as an opportunity to fuel economic growth and necessary for human survival.

The doctrine of prior appropriation, therefore, was designed to squeeze the most utility out of a limited resource. To meet the demands of the thirsty West, all surface waters were open to appropriation.[80] Even those waters with irregular flows are important to the water balance in such a watershed.[81]

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78. *Id.* at 233.

79. REISNER, *supra* note 11, at 12. ("In the East, to 'waste' water is to consume it needlessly or excessively. In the West, to waste water is to not consume it—to let it flow unimpeded and undiverted down rivers").

80. The types of waters that are subject to prior appropriation vary by state. Of the states that are a party to the Colorado River Compact, the definition of "waters" generally includes waters that are part of the geographical feature such as a stream, river, lake or pond. COLO. REV. STAT. ANN. § 37-82-101 (West 2024) defines waters that are subject to appropriation as: "The water of every natural stream, as referred to in sections 5 and 6 of article XVI of the state constitution, includes all the water occurring within the state of Colorado which is in or tributary to a natural surface stream but does not include nontributary groundwater." ARIZ. REV. STAT. ANN. § 45-101(9) (2024) defines "surface water" as "the waters of all sources, flowing in streams, canyons, ravines or other natural channels, or in definite underground channels, whether perennial or intermittent, floodwater, wastewater or surplus water, and of lakes, ponds and springs on the surface." The waters subject to appropriation in Utah are defined in UTAH CODE ANN. § 73-1-1(1) (West 2024) as "[a]ll waters in this state, whether above or under the ground, are hereby declared to be the property of the public, subject to all existing rights to the use thereof." In Nevada, NEV. REV. STAT. § 533.025 states that "[t]he water of all sources of water supply within the boundaries of the State whether above or beneath the surface of the ground, belongs to the public." Furthermore, *id.* § 533.030.1 provides that "[s]ubject to existing rights . . . all water may be appropriated for beneficial use as provided in this chapter and not otherwise." In New Mexico, N.M. STAT. ANN. § 72-1-1 (West 2024) provides: "[a]ll natural waters flowing in streams and watercourses, whether such be perennial, or torrential, within the limits of the state of New Mexico, belong to the public and are subject to appropriation for beneficial use. A watercourse is hereby defined to be any river, creek, arroyo, canyon, draw or wash, or any other channel having definite banks and bed with visible evidence of the occasional flow of water." California's Water Code provides that: "[a]ll water flowing in any natural channel, excepting so far as it has been or is being applied to useful and beneficial purposes upon, or in so far as it is or may be reasonably needed for useful and beneficial purposes upon lands riparian thereto, or otherwise appropriated, is hereby declared to be public water of the State and subject to appropriation in accordance with the provisions of this code." CAL. WATER CODE § 1201 (West 2024). The Wyoming State Constitution states that "[w]ater of all natural streams, springs, lakes or other collections of still water are hereby declared to be the property of the State." WYO. CONST., Art. VIII, § 1. Wyoming regulations further provide: "[p]ermits to appropriate water are issued for the direct diversion of the natural flow of a stream, the storage of water in a reservoir, the secondary attachment of stored reservoir water to specific lands or service area, for instream flow use, and for the withdrawal or other use of water from an underground source." WY. CODE. R. 037.0007.1 § 4(c) (2024). Typically, diffuse surface water or run-off that has not been collected in a stream or pond is not a type of water that is subject to prior appropriation. *See* State v. Hiber, 44 P.2d 1005 (Wyo. 1935); Doney v. Beatty, 220 P.2d 77 (Mont. 1950); *see also* Paul M. Ginsburg, *The Ownership of Diffused Surface Waters in the West*, 20 STAN. L. REV. 1205 (1968).

81. Water balance or "water budget" means "the rate of change in water stored in an area, such as a watershed, is balanced by the rate at which water flows into and out of the area." U.S. GEO. SURVEY, Circular 1308, WATER BUDGETS: FOUNDATIONS FOR EFFECTIVE WATER-RESOURCES AND ENVIRONMENTAL MANAGEMENT, 1 (2007). Water budgets provide a basis for assessing how a natural

Although lacking perennial flow, ephemeral and intermittent streams constitute a large percentage of the stream network in an arid watershed, and are connected to larger streams and the groundwater system, thereby feeding more permanent sources of water.[82] When viewed in isolation, ephemeral and intermittent streams may seem to be insignificant—they are dry throughout most of the year and do not resemble "streams" as commonly understood. However, on a collective basis and when evaluated on a watershed scale, ephemeral and intermittent streams are of immense importance.

Since water rights are governed exclusively by state law with minimal federal involvement, Supreme Court jurisprudence has played a limited role in determining how water rights are allocated or how states manage water resources to support these rights. The federal government, however, does have the authority to affect state water rights when necessary to protect a federal interest. For example, the federal government can displace state water rights when necessary to further the purposes for which federal property was created[83] or for Native American reservations.[84] In general, however, the Supreme Court has been reluctant to interpret federal statutes so as to impair state water rights.[85] This principle extends to the CWA context, where the Supreme Court has sought to balance the federal government's interest in

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or human-induced change in one part of the hydrologic cycle may affect other aspects of the cycle and is fundamental to understanding the water needs of a geographic area. *Id.*

82. ECOLOGICAL AND HYDROLOGICAL REPORT, *supra* note 19, at 22-25.

83. Cappaert v. United States, 426 U.S. 128, 140 (1976) (federal water rights associated with Devil's Hole National Monument).

84. *See* Arizona v. California*,* 460 U.S. 605, 609-10 (1983) (protecting tribal reserved water rights under the Colorado River Compact).

85. *See, e.g.*, Federal Power Comm'n v. Niagara Mohawk Power Corp., 347 U.S. 239 (1954); United States v. Gerlach Livestock Co., 339 U.S. 725 (1950); Grand River Dam Authority v. Grand-Hydro, 335 U.S. 359 (1948). *But see* United States v. Twin City Power Co*.,* 350 U.S. 222, 227-28 (1956) (holding that the federal navigational servitude overrides state water rights, reasoning "[i]t is no answer to say that these [owners of private water rights] had interests in the water that were recognized by state law. We deal here with the federal domain, an area which Congress can completely preempt, leaving no vested private claims that constitute 'private property' within the meaning of the Fifth Amendment."); United States v. Chandler-Dunbar Water Power Co., 229 U.S. 53, 69 (1913) ("Ownership of a private stream wholly upon the lands of an individual is conceivable; but that the running water in a great navigable stream is capable of private ownership is inconceivable," thus the federal government had no obligation to compensate a riparian rights holder for the value of its water right because it had no right to appropriate the river to its own commercial use as against the federal government's navigation servitude.); United States v. Appalachian Elec. Power Co., 311 U.S. 377, 423-24 (1940) ("The respondent is a riparian owner with a valid state license to use the natural resources of the state for its enterprise. Consequently, it has as complete a right to the use of the riparian lands, the water, and the river bed as can be obtained under state law. The state and [a riparian owner] . . . hold the waters and the lands under them subject to the power of Congress to control the waters for the purpose of commerce. The power flows from the grant to regulate, i.e., to 'prescribe the rule by which commerce is to be governed.' This includes the protection of navigable waters in capacity as well as use. . . . Exclusion of riparian owners from its benefits without compensation is entirely within the Government's discretion."). Clearly, Congress has the power under the Commerce Clause to limit state water rights, as evidenced here. However, cases like *Niagara Mohawk*, *Gerlach Livestock*, and *Grand River Dam Authority* held that Congress did not intend to go so far, instead choosing to accommodate state water law.

maintaining water quality with the states' authority to allocate water quantities.[86]

II. THE HISTORY OF THE CLEAN WATER ACT AND THE INHERENT TENSION BETWEEN FEDERAL AND STATE AUTHORITY

The regulatory regimes necessary to protect water quality developed much more slowly than the law governing the allocation of water quantity. This may have been partly due to limited understanding of disease origins and the role of waterborne pathogens in transmitting illnesses. At the turn of the twentieth century, a polluted river or stream was viewed by some as the epitome of a fully realized economy. Rivers and streams were utilitarian,[87] and clean water was a sign that a waterbody was not being used to its full economic potential.[88]

That view gradually shifted as society began to understand the fragility of the environment and man's place in it. The CWA was not created *ex nihilo*.[89] Rather it was the result of multiple failed attempts by state and local governments, alongside the federal government, to address water pollution.[90] The history leading up to the CWA is important because it not only provides context for recent Supreme Court jurisprudence about the scope of the CWA's geographic jurisdiction, but it also illuminates the inherent tension between the federal and state governments with respect to regulating water resources. Congress attempted to address this complicated balance between federal and state roles in the CWA itself but could not provide perfect clarity in delineating the appropriate roles of each sovereign. Because of this, there remain unanswered questions and spillover effects into subject matter areas that the CWA was not intended to address. A full understanding requires a more thorough examination of the federal-state relationship in the context of environmental resource protection. The question of whether to allocate the authority for regulating water quality to the national or local government does

86. *See, e.g.*, Pub. Util. Dist. No. 1 of Jefferson Cnty. v. Wash. Dep't of Ecology, 511 U.S. 700, 720 (1994) ("Sections 101(g) and 510(2) [of the Clean Water Act] preserve the authority of each State to allocate water quantity as between users; they do not limit the scope of water pollution controls that may be imposed on users who have obtained, pursuant to state law, a water allocation.").

87. Stephen F. McCool et al., *Water, Recreation, and Society: Shifting Demands, Rising Concerns, Growing Complexity*, *in* WATER AND PEOPLE: CHALLENGES AT THE INTERFACE OF SYMBOLIC AND UTILITARIAN VALUES 4 (Stephen F. McCool et al. eds., 2008).

88. FRANÇOIS JARRIDGE & THOMAS LE ROUX, THE CONTAMINATION OF THE EARTH: A HISTORY OF POLLUTIONS IN THE INDUSTRIAL AGE 62 (Michael Egan et al. eds., 2022) ("Under the pressure of economic development, attitudes changed and policies shifted to respond to new nuisances. The only option was to make way for the great industrial transformation: in a period of revolutions, legal and political evolutions rendered pollution[] acceptable, and even desirable."); *see generally* DAVID SEDLAK, WATER 4.0: THE PAST, PRESENT AND FUTURE OF THE WORLD'S MOST VITAL RESOURCE (2014).

89. N. William Hines, *History of the 1972 Clean Water Act: The Story Behind How the 1972 Act Became the Capstone on a Decade of Extraordinary Environmental Reform*, 4 GEO. WASH. J. ENERGY & ENVT'L L. 80, 80 (2013) ("Unlike Athena, the 1972 Clean Water Act did not spring full-grown from the brow of Zeus.").

90. *Id.* at 80-81.

not always have a clear answer. Water pollution often originates from local conditions but transcends jurisdictional boundaries, creating a national issue that carries a moral imperative to protect all citizens equally from its harmful effects.[91]

A. Federalism, Accommodation, and the Pre-Clean Water Act Era

The United States Constitution was designed, in part, as a reaction to the former Articles of Confederation which gave the states broad-ranging powers at the expense of a weak federal government that had little ability to raise revenue or regulate trade.[92] Later, the Constitution rebalanced the relationship by centralizing power at the federal level, while also recognizing the historic deference given to the states. The Constitution's Tenth Amendment ensures that those powers not specifically delegated to the federal government are reserved to the states. Among those powers said to be reserved to the states are the police powers—those powers necessary to provide for or encourage the public good. In *Berman v. Parker*, the Supreme Court stated that "[p]ublic safety, public health, morality, peace and quiet, law and order. . . are some of the more conspicuous examples of the traditional application of the police power" while recognizing that "[a]n attempt to define [the police powers'] reach or trace its outer limits is fruitless."[93] Protecting the public from the deleterious effects of water pollution was naturally viewed as a public health and safety issue subject to the states' police powers.[94]

State and local control of water pollution took several forms. Initially, harms caused by water pollution were addressed through common law remedies such as nuisance[95] or trespass,[96] but this case-by-case approach to

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91. Richard B. Stewart, *Pyramids of Sacrifice? Problems of Federalism in Mandating State Implementation of National Environmental Policy*, 86 YALE L.J. 1196, 1196 (1977) (suggesting that all U.S. citizens have the right to a "safe" or "clean" environment, and that this right transcends state boundaries and requires federal regulation for its protection).

92. Douglas G. Smith, *An Analysis of Two Federal Structures: The Articles of Confederation and the Constitution*, 34 SAN DIEGO L. REV. 249, 269 (1997).

93. Berman v. Parker, 348 U.S. 26, 32 (1954).

94. *See, e.g.*, Mississippi Comm'n on Nat. Res. v. Costle, 625 F.2d 1269, 1275 (5th Cir. 1980); Vermont Woolen Corp. v. Wackerman, 167 A.2d 533 (Vt. 1961); City of Utica v. Water Pollution Control Board, 156 N.E.2d 301 (N.Y. 1959); Shirley v. New Hampshire Water Pollution Comm'n, 124 A.2d 189 (N.H. 1956); L.A. Darling Co. v. Water Res. Comm'n, 67 N.W.2d 890 (Mich. 1955); Weber City Sanitation Comm'n v. R.G. Craft, 87 S.E.2d 153 (Va. 1955); Magnolia Pipeline Co. v. State, 243 P.2d 369 (Okla. 1952); Board of Purification of Waters v. Town of Bristol, 153 A. 879 (R.I. 1931); Board of Purification of Waters v. Town of East Providence, 133 A. 812 (R.I. 1926); People v. Hupp, 123 P. 651 (Colo. 1912); Salt Lake City v. Young, 145 P. 1047 (Utah 1915); State v. Wheeler, 44 N.J.L. 88 (1882). *See also* Katheryn Kim Frierson, *Arkansas v. Oklahoma: Restoring the Notion of Partnership Under the Clean Water Act*, 1997 U. CHI. LEGAL F. 459, 464 n.39 (1997); Maria V. Marrasse, *Oklahoma v. EPA: Does the Clean Water Act Provide an Effective Remedy to Downstream States or is There Still Room Left for Federal Common Law?*, 45 U. MIAMI L. REV. 1137, 1142-48 (1991).

95. David Drelich, *Restoring the Cornerstone of the Clean Water Act*, 34 COLUM. J. ENVT'L L. 267, 268 (2009).

96. *See generally* Anthony Z. Roisman & Alexander Wolff, *Trespass by Pollution: Remedy by Mandatory Injunction*, 21 FORD. ENVT'L L. REV. 157 (2010).

remedying widespread water problem was ineffective.[97] To the extent that any governmental regulation of water pollution was countenanced at all, it "was almost universally believed to be a state or local responsibility."[98] Later, as states began to take a more active role in regulating water pollution, local efforts proved unsuccessful because water pollution did not respect state boundaries and was caused by complex interactions which often arose outside a particular jurisdiction. Moreover, instead of strengthening protections for clean water, many states began to lower water quality standards in order to reduce costs and attract new business, thereby leading to declining water quality as states competed in a "race to the bottom."[99] The system was inherently flawed, as states tended to prioritize their own interests and adopted insular approaches, while water pollution ignored state boundaries and demanded a more coordinated response.[100]

Recognizing that local regulation of complex problems like water pollution required a more comprehensive approach, Congress enacted the Federal Water Pollution Control Act (FWPCA) of 1948, which was subsequently amended in 1956, 1961 and 1965.[101] The FWPCA provided funding and technical assistance to the states to fight water pollution and encouraged cooperation between the federal government and the states. However, the FWPCA did not require the states to implement uniform national water quality standards to prevent a "race to the bottom." As a result, the FWPCA was largely ineffective and did not improve the quality of the nation's waters.[102] Furthermore, as the FWPCA lacked any credible enforcement mechanisms, the federal oversight role was advisory rather than action-forcing.[103]

The federal government's reluctance to regulate water pollution within and amongst the states was not due to a lack of legal authority to do so. In fact, Congress clearly had the authority under the Commerce Clause, which had

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97. Thomas C. Buchele, *State Common Law Actions and Federal Pollution Control Statutes: Can They Work Together?*, 1986 U. ILL. L. REV. 609, 619-20 (1987).

98. Hines, *supra* note 89, at 81.

99. A "race to the bottom" suggests that the states will "adopt suboptimally lax environmental protections in a futile effort to attract off-setting levels of economic investment. As commonly explained, this competition creates downward pressure as each state seeks to attract business by reducing its environmental safeguards below the levels maintained by competing jurisdictions." Jonathan H. Adler, *Jurisdictional Mismatch in Environmental Federalism*, 14 N.Y.U. ENVT'L L. J. 130, 151 (2005); *see also* Kirsten H. Engel, *State Environmental Standard Setting: Is There a "Race" and is it "To The Bottom"?*, 48 HASTINGS. L. J. 271, 274 (1997) (explaining that some scholars believe "the effects of state competition upon state environmental standard-setting are welfare-enhancing, rather than welfare-reducing" (emphasis omitted)).

100. Victor B. Flatt, *A Dirty River Runs Through It (The Failure of Enforcement in the Clean Water Act)*, 25 B.C. ENVT'L AFF. L. REV. 1, 2-4 (1997).

101. Hines, *supra* note 89, at 84-85.; Keith G. Wagner, *State NPDES Programs and the ESA: Protecting Listed Species under the Clean Water Act*, 23 ENVIRONS 3, 6 n.13 (1999).

102. William L. Andreen, *Beyond Words of Exhortation: The Congressional Prescription for Vigorous Enforcement of the Clean Water Act*, 55 GEO. WASH. L. REV. 202, 210-11 (1987).

103. Hines, *supra* note 89, at 85.

been expanded and strengthened during the New Deal, to address water pollution on a national scale.[104] Federal authority to regulate waterways extends beyond Congress' traditional power over navigation, and the Commerce Clause authorizes Congress to regulate the myriad economic uses of water resources that affect interstate commerce.[105] Instead, Congress's decision to restrain its legislative authority could be viewed as an accommodation to the states.[106] Thus, the deference given to state and local authorities in regulating water pollution may be better attributed to Congress's recognition that local governments would be better situated to address such issues, rather than to concerns about state sovereignty under the Tenth Amendment.[107] During this era, the federal government's forbearance had grave consequences for the environment, as many of the nation's rivers caught fire due to excessive water pollution.[108]

B. Clean Water Act and Continued Respect for State Authority

Because the various iterations of the FWPCA were wholly inadequate to address water pollution in a comprehensive way, Congress decided that a more centralized national approach was necessary. Unsurprisingly, this shift aligned with the emergence of a new environmental consciousness in the United States, driven by increased awareness of the causes and effects of pollution, a more

104. The Rivers and Harbors Act of 1899, which prevented obstructions to navigable waters and prohibited the discharge of refuse material into navigable waters, was based on Congress' power to regulate commerce. *See* United States v. Cent. Soya, Inc., 697 F.2d 165, 167-68 (7th Cir. 1982); Chotin Transp., Inc. v. United States, 819 F.2d 1342, 1354 (6th Cir. 1987).

105. *See, e.g.*, United States v. Standard Oil, 384 U.S. 224 (1966) (holding that the discharge of fuel to river did not impair navigation but nevertheless violated section 13 of the Rivers and Harbors Act which prohibited discharge of waste); Fed. Power Comm'n v. Union Elec. Co., 381 U.S. 90, 96 (1965) (finding that Federal Power Commission's jurisdiction based on general commerce power and not navigation); Sporhase v. Neb. *ex rel.* Douglas, 458 U.S. 941, 949-55 (1982) (finding that water is an article of commerce within the meaning of the Commerce Clause); Kaiser Aetna v. United States, 444 U.S. 164, 173-74 (1979) ("Reference to the navigability of a waterway adds little if anything to the breadth of Congress' regulatory power over interstate commerce. . . . [A] wide spectrum of economic activities 'affect' interstate commerce and thus are susceptible of congressional regulation under the Commerce Clause irrespective of whether navigation, or, indeed, water, is involved. The cases that discuss Congress' paramount authority to regulate waters used in interstate commerce are consequently best understood when viewed in terms of more traditional Commerce Clause analysis than by reference to whether the stream in fact is capable of supporting navigation or may be characterized as 'navigable water of the United States.'").

106. This accommodation or deference is also known as "comity," which is a regime of intergovernmental courtesy, and it is principally motivated by a desire to preserve and promote harmony among nations." Gil Seinfeld, *Reflections on Comity in the Law of American Federalism,* 90 NOTRE DAME L. REV. 1309, 1309 (2015).

107. Adler, *supra* note 99, at 134-37. In the federal system, the preference is that problems should be addressed at the lowest (or least centralized) level of government at which they can practically be addressed. "The failure to take into account local environmental conditions—let alone local tastes, preferences, and economic conditions—leads to 'one size fits all' policies that fit few areas well, if at all." *Id.*

108. Jonathan H. Adler, *Fables of the Cuyahoga: Reconstructing a History of Environmental Protection*, 14 FORD. ENVT'L L. J. 89, 105 (2002).

affluent society that had more free time to devote to issues of general welfare, and heightened media coverage that brought environmental issues to the forefront of public attention.[109] Key turning points in this emerging environmental consciousness included the 1969 Santa Barbara oil spill and the 1969 Cuyahoga River fire, both of which highlighted the urgent need for more stringent environmental regulation[110] The CWA, signed into law in 1972, was not created in a vacuum but was shaped by the shortcomings of prior regulatory efforts.[111]

The design of the CWA created a muscular role for the federal government. No longer would the states alone be responsible for setting and enforcing water quality standards. Instead, the federal government would take a two-pronged approach: technology-based effluent limitations[112] reinforced by more stringent water quality-based effluent limits if the technology standards were insufficient alone to meet water quality standards.[113] All of this was backed up by a credible enforcement program.[114] States could operate their own state-based CWA programs if they met minimum federal standards.[115] In contrast to earlier approaches to water pollution control, the CWA did not allow states to set their own standards tailored to the unique characteristics of their local environments or economic conditions. Recognizing that it was "hopeless to expect the states to develop sufficiently tough regulatory controls on water pollution to make real progress on cleaning up the nation's rivers and lakes," the CWA assigned the federal government a dominant role in addressing water pollution; states were granted significantly less autonomy and discretion.[116]

To encourage states to collaborate with the federal government in the fight against water pollution, the CWA was intended to be a model of cooperative federalism.[117] Cooperative federalism refers to a system of intergovernmental relations that recognizes the overlapping responsibilities of national and state governments, whereby the federal government induces cooperation from state and local governments.[118] It incorporates the constitutional principle of federalism—which establishes that the federal government possesses only those

109. *Id.* at 138-45.
110. *Id.* at 91.
111. Hines, *supra* note 89, at 80.
112. 33 U.S.C. § 1311; 40 C.F.R. § 425.71.
113. 33 U.S.C. §§ 1311(b)(1)(c), 1311(e)(3)(a).
114. *Id.* § 1319.
115. *Id.* § 1332(b).
116. Hines, *supra* note 89, at 82; William L. Andreen, *The Evolution of Water Pollution Control in the United States—State, Local and Federal Efforts, 1789-1972: Part II*, 22 STAN. ENVT'L L. J. 215, 286 (2003).
117. Robin Kundis Craig, *Beyond SWANCC: The New Federalism and Clean Water Act Jurisdiction*, 33 ENVT'L L. 113, 122-23 (2003).
118. Robert L. Fischman, *Cooperative Federalism and Natural Resources Law*, 14 N.Y.U. ENVT'L L.J. 179, 180 (2005).

powers expressly granted by the Constitution, while all remaining powers are reserved to the states. However, the use of the term "cooperative" implies that there is something more to the relationship, such as "the value obtained when one level of government *does* have the constitutional authority to act, but nevertheless recognizes that its policies would be better served by inviting *other* levels of government to participate in regulation."[119]

Whether stemming from the historical relationship between the states and the federal government in water pollution control or from concerns that expansive federal legislation might infringe upon states' police powers protected by the Tenth Amendment, Congress included section 101(b) in the Clean Water Act titled "Congressional Recognition, Preservation, and Protection of the Primary Responsibilities and Rights of States." This provision states:

> It is the policy of the Congress to recognize, preserve, and protect the primary responsibilities and rights of States to prevent, reduce, and eliminate pollution, to plan the development and use (including restoration, preservation, and enhancement) of land and water resources….[120]

One interpretation of this Congressional policy statement is that it serves as a reaffirmation of the federalism principles embedded in the Constitution, acknowledging the division of powers between the federal government and the states. That is, the Tenth Amendment prohibits the federal government from intruding into the states' traditional responsibilities in regulating land and water resources under their police powers. However, the statement of policy in section 101(b) appears to extend beyond the foundational principles of constitutional federalism. It reflects prudential concerns, emphasizing the importance of accommodating and respecting state autonomy, rather than being strictly constrained by the limits of the Tenth Amendment.[121] This reflects a more nuanced form of "statutory federalism," one which seeks to balance state and federal interests while recognizing the practical limitations of federal oversight in areas requiring local expertise.[122] For example, Congress chose not to regulate nonpoint source pollution under the CWA not because it would violate the Tenth Amendment, "but simply [due] to its recognition that the control of nonpoint source pollution was so dependent on such site-specific factors as topography, soil structure, rainfall, vegetation, and land use that its uniform federal regulation was virtually impossible."[123] Section 101(b) and its deference to state prerogatives has become an increasingly important factor in

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119. Damien Schiff, *Keeping the Clean Water Act Cooperatively Federal—Or Why the Clean Water Act Does Not Directly Regulate Groundwater Pollution*, 42 WM. & MARY ENVT'L L. & POL'Y REV. 447, 456 (2018).

120. 33 U.S.C. § 1251(b) (2024).

121. Craig, *supra* note 117, at 127-28.

122. *Id.* at 122-23.

123. Shanty Town Assocs. Ltd. P'ship v. EPA, 843 F.2d 782, 791 (4th Cir. 1988) (citing 117 CONG. REC. S38,825 (1971) (statement of Sen. Muskie)); S. REP. NO. 92-414, at 39-40 (1971), *reprinted in* 1972 U.S.C.C.A.N 3668, 3705-06.

the Supreme Court's recent push towards limiting federal authority under the CWA.[124]

In a similar vein, Congress also included in a "savings clause" in the CWA to ensure that the EPA would not interfere with state authority over the allocation of water resources within their borders.[125] Section 510(2) states:

> [e]xcept as expressly provided in this chapter, nothing in this chapter shall . . . be construed as impairing or in any manner affecting any right or jurisdiction of the States with respect to the waters (or boundary waters) of such States.[126]

This subsection was part of a larger section that preserved state authority to adopt and enforce state water pollution standards as long as they are at least as stringent as the federal standard.[127] The meaning of subsection 510(2) is not entirely clear from its text, and Congress provided little guidance or indication of its intent in enacting this savings clause. The courts have not clearly articulated the precise contours of section 510(2), although, in *Riverside Irrigation District v. Andrews*, a Colorado District Court held that this section was not merely a statement of Congressional policy but constituted a substantive statement of the law.[128] At any rate, the phrase "[e]xcept as expressly provided in this chapter" suggests that the CWA provisions designed to protect water quality may, in certain circumstances, override state authority over water resource allocation. [129]

On May 23, 1977, President Carter, in his environmental message to Congress, directed the Secretary of the Interior, as chairman of the Water

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124. In *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers*, 531 U.S. 159 (2001) and *Rapanos v. United States*, 547 U.S. 715 (2006), the Supreme Court began its drift away from a more purposive understanding of the CWA as articulated in *United States v. Riverside Bayview Homes*, 474 U.S. 121 (1985), shifting from an interpretation based upon the goals of protecting the chemical, physical and biological integrity of the nation's waters towards a focus on preserving the delicate balance of the state and federal relationship embodied in section 101(b). It was almost as if the primary aim of the CWA was to preserve concepts of federalism and not the protection of the nation's water resources. *See generally* Stephen A. Johnson, *From Protecting Water Quality to Protecting States Rights: Fifty Years of Supreme Court Clean Water Act Statutory Interpretation*, 74 SMU L. REV. 359 (2021).

125. James Palmer, Jr., *Sorry, The Pollywogs and Your Crops Lose*, AM. COLL. ENVT'L LAWS. (Feb. 3, 2015), https://acoel.org/sorry-the-pollywogs-win-and-your-crops-lose/.

126. 33 U.S.C. § 1370(2).

127. *Id.* § 1370(1).

128. Riverside Irrigation Dist. v. Andrews, 568 F. Supp. 583, 589 (D. Colo. 1983), *aff'd*, 758 F.2d 508 (10th Cir. 1985). Between section 510(2)'s enactment in 1972 and its amendment in 1977 to add section 101(g), there were no federal court decisions that interpreted the meaning of section 510(2). However, once section 101(g) was added, the courts did consider the scope and effect of section 510(2) but only in conjunction with section 101(g). That is, the courts never separately interpreted the meaning of section 510(2) and section 101(g), but instead read them together as if both sections were intended to accomplish the same or similar purposes.

129. Memorandum from Thomas Jorling, Assistant Administrator for Water and Waste Management to Regional Administrators, State Authority to Allocate Water Quantities—Section 101(g) of the Clean Water Act (Nov. 7, 1978), https://19january2017snapshot.epa.gov/sites/production/files/2015-01/documents/waterquantities-section101.pdf.

Resources Council, to "conduct a comprehensive review of federal water resources policy."[130] President Carter declared that the nation needed "comprehensive reform of water resources policy with conservation as its cornerstone."[131] The study was focused on water quantity rather than water quality. However, recognizing that water quality is an integral characteristic of all water supplies and uses, the study addressed water quality wherever it was deemed appropriate.[132] This study raised concerns in some states because water quantity and the right to allocate water among users was the exclusive prerogative of the states.[133] The states were concerned that water quality regulation would impair this important state function.[134]

After disclaiming an interest in water quality, the study confronted the issue of the interrelationship between water quality and water quantity head-on:

> [P]roblems may result in stringent regulation of discharges of pollutants into a watercourse while no attention to quality is given to permitting a diversion from that same watercourse even though the diversion may have a greater quality impact by reducing the assimilative capacity of the stream or further concentrating existing pollutants in the stream than does the discharge of pollutants.[135]

In other words, withdrawing water from a river system to satisfy existing water rights directly impacts water quality by reducing the water volume needed to dilute pollutants to acceptable levels. This illustrates the inherent connection between water quality and water quantity.

The study proposed various options to address the concern that water policy did not sufficiently integrate water quantity and water quality. The study suggested that the federal government could use its existing legal powers to ensure that relationships between water quantity and water quality are considered together where appropriate. "Legal authority for Federal action could be constitutionally derived under the Commerce Clause in cases involving navigation and water quality . . . as it relate[s] to public land and resources."[136] Apparently, the limitations set forth in CWA section 101(b) would not preclude federal regulation of local water resources in all cases, particularly where regulation of water quantity was necessary to protect water

130. Water Res. Council, Water Policy Study: Issue and Option Paper, 42 Fed. Reg. 36787, 36788 (July 15, 1977).

131. *Id.*

132. *Id.*

133. *Id.*

134. Gregory J. Hobbs & Bennett W. Raley, *Water Rights Protections in Water Quality Law*, 60 U. COLO. L. REV. 841, 857 (1989); Benson, *supra* note 24, at 242 ("The states, particularly in the West, have jealously guarded their water allocation authority against real or imagined federal interference.").

135. Water Res. Council, *supra* note 130, at 36793.

136. *Id.*

quality.[137] As such, the Water Resource Policy Study introduced the specter of an insatiable federal role in the future management of water quantities.

In 1977, the CWA was amended primarily to grant the EPA Administrator greater flexibility in addressing complex water pollution problems while preserving the CWA's "overall pollution control capability."[138] In response to the proposal in the Water Resource Policy Study, and in keeping with the CWA's tradition of respecting state autonomy, Senator Malcolm Wallop of Wyoming sponsored a successful amendment to limit the federal government's role in allocating water quantity.[139] Section 101(g) of the CWA, known as the "Wallop Amendment" states:

> It is the policy of Congress that the authority of each State to allocate quantities of water within its jurisdiction shall not be superseded, abrogated or otherwise impaired by this chapter. It is the further policy of Congress that nothing in this chapter shall be construed to supersede or abrogate rights to quantities of water which have been established by any State. Federal agencies shall co-operate with State and local agencies to develop comprehensive solutions to prevent, reduce and eliminate pollution in concert with programs for managing water resources.[140]

The Conference Report to the 1977 amendments stated that the effect of section 101(g) "was not intended to change existing law" but only to clarify existing law to assure its effective implementation.[141] Unlike section 510(2), which, according to the courts,[142] was a substantive legal requirement, section

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137. The States had historically claimed that they had exclusive authority to regulate the allocation of water quantities within their jurisdictions primarily to "protect the public's interest in achieving maximum benefit from the use of a public resource." David H. Getches, *The Metamorphosis of Western Water Policy: Have Federal Laws and Local Decisions Eclipsed the States' Role?*, 20 STAN. ENVT'L L.J. 3, 8 (2001). This was based on their state constitutions and statutes which "included claims to 'ownership' of all the water within their boundaries in their constitutions and statutes." *Id.*

138. Edmund S. Muskie, *The Meaning of the 1977 Clean Water Act*, EPA J. (July-Aug. 1978), https://www.epa.gov/archive/epa/aboutepa/meaning-1977-clean-water-act.html.

139. Gregory J. Hobbs, Jr., *Federal Environmental Law and State Water Law: Accommodation or Preemption?*, 1 NAT. RES. & ENV'T 23 (1986). In the debates over section 101(g), Senator Wallop said stated:

[The amendment] will reassure the State that it is the policy of Congress that the Clean Water Act will not be used for the purpose of interfering with State water rights systems. . . . This amendment came immediately after the release of the Issue and Option Papers for the Water Resource Policy Study now being conducted by the Water Resources Council. Several of the options contained in that paper called for the use of Federal water quality legislation *to affect Federal purposes that were not strictly related to water quality.* Those other purposes might include, but were not limited to, Federal land use planning, plant siting and production planning purposes.

123 CONG. REC. 39,211 (1977) (emphasis added).

140. 33 U.S.C. § 1251(g).

141. H.R. REP. NO. 95-830, at 52 (1977) (Conf. Rep.), *reprinted in* 1977 U.S.C.C.A.N. 4424, 4426. "Existing law" at the time of the 1977 CWA amendments included section 510(2), which provides: "Except as provided in this [Act], nothing in this [Act] shall. . . be construed as impairing or in any manner affecting any right or jurisdiction of the States with respect to the waters (including boundary waters) of such States." 33 U.S.C. § 1370(2).

142. Riverside Irrigation Dist. v. Andrews, 758 F.2d 508, 513 (10th Cir. 1985).

101(g) was only a statement of policy.[143] Senator Wallop explained his intent in remarks made in Congress: "This 'State jurisdiction' amendment reaffirms that it is the policy of Congress that this Act is to be used for water quality purposes only."[144] However, Senator Wallop clarified that federal regulation of water quality authorized under the CWA, which incidentally impacted water quantity, would not be prevented from this amendment:

> Legitimate water quality measures authorized by this act may at times have some effect on water usage. . . . It is not the purpose of this amendment to prohibit such incidental effects. It is the purpose of this amendment to insure that State allocation systems are not subverted, and effects on individual rights, if any, are prompted by legitimate and necessary water quality considerations. This amendment is an attempt to recognize the historic allocation of rights contained in State constitutions. It is designed to protect historic rights from mischievous abrogation by those who would use an act, designed solely to protect water quality and wetlands, for other purposes. It does not interfere with the legitimate purposes for which the act was designed.[145]

However, water quality regulation that would deprive the owner of a water right an essential element of the right, including its source of supply, would not be considered an incidental effect but would "go to the heart of the right itself" and be prohibited by the Wallop Amendment.[146]

In a 1978 guidance memo, the EPA interpreted section 101(g) to mean that "Congress did not intend to prohibit EPA from taking such measures as may be necessary to protect water quality" but that 101(g) "reinforces 510(2)'s proscription against unnecessary federal interference with State water rights."[147] Therefore, the guidance memo concluded, the EPA should impose requirements that affect water usage "only where they are clearly necessary to meet the [CWA's] requirements."[148]

Taken as a whole, it appears that the balance between federal and state authority outlined in section 101(g) mirrors the equilibrium established in section 101(b), particularly concerning state control over local land use and water resource decisions. That is, the deference accorded to the states was not mandated by the Tenth Amendment but instead functioned as an accommodation to the states.[149] The protection of water quality is not

143. *Id.*
144. 123 CONG. REC. 19,677 (Dec. 15, 1977).
145. *Id.*
146. Hobbs & Raley, *supra* note 134, at 862.
147. *Id.*
148. *See* Memorandum from Thomas Jorling, *supra* note 129, at 3.
149. *See* Benson, *supra* note 24, at 254 (noting that the Supreme Court has never held states have exclusive constitutional authority over water resources which would preclude the exercise of federal power); *see also* Riverside Irrigation Dist. v. Andrews, 758 F.2d 508, 513 (10th Cir. 1985) ("A fair reading of the statute as a whole makes clear that, where both the state's interest in allocating water and the federal government's interest in protecting the environment are implicated, Congress intended an accommodation."); S. Fla. Water Mgmt. Dist. v. Miccosukee Tribe, 541 U.S. 95, 108 (2004) (stating

necessarily inconsistent with the states' right to regulate water quantity and to determine how best to allocate water rights to its citizens.[150] However, the states' right to preserve water quantity should not be impeded by an interpretation of the CWA that would interfere with those rights if such an interpretation is motivated by anything other than protecting water quality. When interpreting the provisions of the CWA in light of Congressional policy, the Wallop Amendment and section 510(2) should be understood as reflecting a long-standing deference to states' independent authority to regulate local water resources.[151]

In all, the accommodation of local interests in protecting water resources has been a common thread that has run through the government's approach to water pollution concerns even before the modern administrative state began regulating environmental issues on a national scale. The respect afforded to state expertise and knowledge of local geography and conditions is particularly critical in the arid West where water is scarce and the margin for error is slim.

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that requiring NPDES permits for water transfers may raise the price of water and prohibitively impinge on Congress' statement of policy in section 101(g)); Catskill Mountain Chapter of Trout Unlimited, Inc. v. City of New York, 451 F.3d 77, 83-84 (2d Cir. 2006) (finding concerns for water quantity allocations due to protection of water quality goals could be accommodated through the NPDES permitting process); Alameda Water & Irrigation Dist. v. Reilly*,* 930 F. Supp. 486, 493 (D. Colo. 1996) (finding that the EPA's veto of the Two Forks project under CWA Subsection 404(c) did not violate the Wallop Amendment); United States v. Akers, 785 F.2d 814, 821 (9th Cir. 1986), *cert. denied,* 479 U.S. 828 (1986) (stating water allocation is only relevant in the permitting process if it is clear that federal environmental concerns conflict with state law water allocation; in such instances, accommodation between the federal and state interests is to be obtained through the permitting process); Nat'l Wildlife Fed'n. v. Gorsuch, 693 F.2d 156, 179 (D.C. Cir. 1982) ("[I]n light of its intent to minimize federal control over state decisions on water *quantity,* Congress might have decided to leave control of dams [in this case, pollutant discharge], insofar as they affect water *quality,* to the states."); Water Works & Sewer Bd. v. United States, 983 F. Supp. 1052, 1079 (N.D. Ala. 1997) (prohibiting the Corps from using its individual permitting process to reallocate water resources that would otherwise be appropriate under state law); Ga. River Network v. U.S. Army Corps of Eng'rs, 334 F. Supp. 2d 1329, 1344-46 (N.D. Ga. 2003) (allowing the Corps, in conducting a NEPA analysis, to consider the indirect impacts of population growth surrounding a reservoir because it might affect the state's right to allocate water quantity); James City Cnty. v. EPA*,* 12 F.3d 1330, 1132 (4th Cir. 1993) (finding no violation of the Wallop Amendment where EPA vetoed the Ware Creek dam and reservoir under CWA Subsection 404(c)).

150. *See* Pub. Util. Dist. No. 1 of Jefferson Cnty. v. Washington Dept. of Ecology*,* 511 U.S. 700, 719 (1994) (holding the state's regulation of water quantities discharged from a dam in order to preserve water quality is consistent with the CWA). The Court held that in many cases water quantity is closely related to water quality and that "diminishment of water quantity can constitute water pollution." *Id.*; *see also* Eric G. Davis, *Interstate Compacts That Are For the Birds: A Proposal For Reconciling Wetlands Protection With State Water Rights Through Federal-Interstate Compacts*, 10 BYU J. PUB. L. 325, 336 (1996) ("While encouraging cooperation between federal and state agencies, the Wallop Amendment, as currently understood by the courts, does not prevent federal agencies from interfering with state water allocation if the agency can show a legitimate regulatory purpose for its action.").

151. Getches, *supra* note 137, at 8 (arguing that state control of water quantity allocation is a "myth" based on "a precarious. . . congressional forbearance in the exercise of federal preemption") (citing California v. Fed. Energy Regul. Comm'n, 495 U.S. 490 (1990); Arizona v. California, 373 U.S. 546 (1963); City of Fresno v. California, 372 U.S. 627 (1963); Ivanhoe Irrigation Dist. v. McCracken, 357 U.S. 275 (1958)). The implication is that the federal government clearly has the authority under the Commerce Clause to regulate water quantity and allocation, but Congress has chosen not to do so.

III. THE SUPREME COURT'S SHIFTING JURISPRUDENCE ON "WATERS OF THE UNITED STATES"

The CWA defines "navigable waters" as "waters of the United States, including the territorial seas."[152] The interpretation of "navigable waters" has been the subject of a contentious legal debate over the last forty years. Because Congress provided little guidance on the precise meaning of this term, its scope has been left to judicial determination. Judicial interpretation has focused on two main issues. First, to what extent does Congress have the authority under the Commerce Clause to regulate water bodies located wholly within a state's geographical territory? Second, even if Congress possesses this authority, did it intend to exercise it under the CWA? The first issue raises questions of constitutional interpretation, while the second concerns policy—specifically, whether extending such authority aligns with the statute's goals and purposes.

Since the end of the New Deal, the Supreme Court has consistently reaffirmed Congress' sweeping authority under the Commerce Clause to regulate activities with even a tangential connection to interstate commerce.[153] From 1937 to 1995, for example, the Supreme Court did not strike down a single federal statute on the grounds that Congress had exceeded its authority under the Commerce Clause.[154] Beginning in 1995, however, the Supreme Court took a more conservative view of the Commerce Clause, which limited Congresses' authority to legislate in matters of national concern, including the environment.

A. Riverside Bayview Homes v. United States

The Supreme Court's initial interpretation of Congress' Commerce Clause authority to regulate the nation's water under the CWA was similarly expansive. In 1984, in the case of *United States v. Riverside Bayview Homes*, the Court considered, for the first time, the scope of federal authority to regulate wetlands adjacent to traditionally navigable waters.[155] In deciding whether federal authority extended to wetlands, the Court took a "purposive" approach, focusing on how best to achieve the CWA's ecological goals of protecting water quality.[156]

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152. 33 U.S.C. § 1362(7).

153. *See, e.g.*, Wickard v. Filburn, 317 U.S. 111 (1942) (finding congressional authority under the Agricultural Adjustment Act to impose a quota on wheat grown by a single farmer primarily for personal consumption because the cumulative impact of the individual farmer's activity may affect the price of wheat on a national scale, thereby affecting interstate commerce).

154. The Commerce Clause in Article I Section 8 of the Constitution provides that Congress shall have the power to "regulate commerce with foreign nations, and among the several states, and with the Indian tribes[.]" U.S. CONST. art. I, § 8. Congress' Commerce Clause authority is understood to extend to three separate spheres: (1) the use of the channels of interstate commerce; (2) the instrumentalities of interstate commerce, or persons or things in interstate commerce; and (3) those activities having a substantial relation to interstate commerce. United States v. Lopez*,* 514 U.S. 549, 558-59 (1995).

155. United States v. Riverside Bayview Homes, Inc., 474 U.S. 121, 126 (1985).

156. Johnson, *supra* note 124, at 362; 33 U.S.C. § 1251(a).

In *Riverside Bayview Homes*, the Court reasoned that the purpose of the CWA was to protect the environmental integrity of the nation's waters. It upheld the U.S. Army Corps of Engineer's determination that wetlands were "inseparably bound up" with other waters of the United States was a valid exercise of the federal government's ecological judgment.[157] Protection of aquatic ecosystems, Congress recognized, demanded broad federal authority to control pollution, for "[w]ater moves in hydrologic cycles and it is essential that discharge of pollutants be controlled at the source."[158]

While recognizing that the CWA's jurisdiction was limited to "navigable waters," the Court declined to narrowly interpret the term "navigable," observing that "Congress intended the CWA to regulate some waters beyond the traditional definition of navigability."[159] The Court was not concerned that the regulation of wetlands would impinge on principles of federalism or on a state's right to control its land or water resources as Congress cautioned in section 101(b), 101(g), or 510(2) of the CWA.[160] "Purged of its spurious constitutional overtones," the Court held that Congress intended to repudiate limits that had been placed on federal regulation by earlier water pollution control statutes.[161] The Court concluded that the Corps' ecological judgment about the relationship between waters and adjacent wetlands provided an adequate legal basis to define wetlands as "waters" under the CWA.[162]

B. Solid Waste Agency of Northern Cook County v. United States

During the twenty years following *Riverside*, the Court began to take a "more textualist approach" to interpreting the CWA, focusing on preserving state authority.[163] In *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers* (*SWANCC*), the Supreme Court held that an abandoned gravel pit filled with water was not a "navigable water" under the CWA even though it was used by migratory birds.[164] The federal government argued that the use of isolated intrastate waters by migratory birds established a sufficient connection to interstate commerce to justify the Corps' exercise of

157. *Riverside Bayview Homes*, 474 U.S. at 134.
158. *Id.* at 133.
159. *Id.*
160. 33 U.S.C. § 1251(b).
161. *Riverside Bayview Homes*, 474 U.S. at 129.
162. *Id.* at 134.
163. Johnson, *supra* note 124, at 376-77 ("A review of the Supreme Court's Clean Water Act opinions from 1972 through April of 2020 revealed a pronounced shift in the Court's statutory interpretation from the Burger Court through the Rehnquist and Roberts Courts. While the Court focused heavily on legislative history and the Clean Water Act's water quality protection purpose during the Burger Court, the Roberts Court rarely examined those sources when interpreting the law. To the extent that the Court has discussed the purpose of the law over time, it is also significant to note that while the Burger Court frequently focused on the water quality protection goals of § 101(a), the Rehnquist and Roberts Courts have increasingly cited the protection-of-states'-rights policy of § 101(b) in lieu of, or in addition to, the water quality purposes of § 101(a).").
164. Solid Waste Agency of N. Cook Cnty. v. United States, 531 U.S. 159, 162 (2001).

regulatory authority. However, in rejecting the Corps' "Migratory Bird Rule," the Court reasoned that Congress' use of the term "navigable" in 'navigable waters' reflected an intent to maintain a connection to the traditional concept of navigability—a waterway that could be used for commercial transportation.[165] The isolated pond at issue in *SWANCC* lacked any relationship to navigable waters in the traditional sense. The Court concluded that Congress did not intend for the definition of "waters of the United States" to extend to water bodies whose only connection to interstate commerce was their use by migratory birds.[166]

The Court further held that interpreting the term "navigable waters" to include intrastate waters used by migratory birds would raise potential constitutional questions.[167] In the Court's view, the Migratory Bird Rule stretched Congressional authority under the Commerce Clause to its outermost limits. In refusing to grant the agency the deference owed under *Chevron v. National Resources Defense Council* (which had not yet been overturned),[168] the Court reasoned:

> Permitting respondents to claim federal jurisdiction over ponds and mudflats falling within the "Migratory Bird Rule" would result in a significant impingement of the States' traditional and primary power over land and water use. Rather than expressing a desire to readjust the federal-state balance in this manner, Congress chose to "recognize, preserve, and protect the primary responsibilities and rights of States . . . to plan the development and use . . . of land and water resources . . . ." 33 U.S.C. § 1251(b). We thus read the statute as written to avoid the significant constitutional and federalism questions raised by respondents' interpretation, and therefore reject the request for administrative deference.[169]

Notably, the Supreme Court never analyzed the potential constitutional issues that might arise if the federal government had based CWA jurisdiction on the use of isolated waters by migratory birds, leaving those concerns undefined.[170] This decision marked the first time the Court elevated the narrower policy objectives of section 101(b) over the more relevant ecological

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165. *Id.* at 172-73.

166. *Id.* at 173-74.

167. *Id.* at 174.

168. Chevron v. Nat. Res. Def. Council, 467 U.S. 837 (1984), *overruled by* Loper Bright Enters., Inc. v. Raimondo, 603 U.S. 369 (2024). This fundamental doctrine of administrative law that required courts to give deference to agency interpretations of statutes that were ambiguous or where Congress left a "gap" to be filled in by subsequent agency rulemaking was overruled by the Supreme Court on the grounds that deferring to agency interpretations of ambiguous statutes constitutes an abdication of the federal courts' authority under Article III to "say what the law is." In overruling *Chevron*, the Court made clear that previous cases that were decided using the *Chevron* framework were not "call[ed] into question" by *Loper Bright* and were still valid under principles of *stare decisis*. *Loper Bright*, 603 U.S. at 376.

169. *Solid Waste Agency*, 531 U.S. at 174.

170. Paul Boudreaux, *Federalism and the Contrivances of Public Law*, 77 ST. JOHNS L. REV. 523, 571 (2003).

goals articulated in section 101(a).[171] As time would tell though, the *SWANCC* decision was not an outlier; subsequent Supreme Court rulings would demonstrate a continued emphasis on preserving state authority within the federal framework of the CWA.

C. Rapanos v. United States

The Supreme Court revisited the scope of federal regulatory authority over "waters of the United States" five years later in *Rapanos v. United States*.[172] From a present-day perspective, the significance of the Rapanos decision is both more and less important than it initially appeared. While the decision set important precedents at the time, it has since been modified, and portions of its reasoning have been overruled by the Court's subsequent decision in *Sackett v. Environmental Protection Agency*, which will be discussed later in this Article. However, as this Article discusses, Justice Scalia's plurality opinion limiting which waterways are covered by the CWA has taken on increasingly more importance.

The facts of *Rapanos* fell between those of *Riverside Bayview Homes* and *SWANCC*. In *Riverside Bayview Homes*, the Court addressed a wetland that was "inseparably bound up" with a traditional navigable water, whereas *SWANCC* addressed an isolated water geographically distant from any traditional navigable water and lacking any meaningful connection to interstate commerce. *Rapanos* involved a series of wetlands that were connected by ditches and drains which flowed long distances to a traditional navigable water.[173] While these wetlands had some hydrological connection to a navigable water, the central question was whether this connection was sufficient to justify federal regulatory authority under the Commerce Clause.[174]

The *Rapanos* decision was fractured, consisting of a four-justice plurality opinion, a concurring opinion by Justice Kennedy, and a dissent authored by the remaining four justices. No one opinion commanded a majority of the Court. Apart from the confusion surrounding how the fractured decision should be applied to future cases concerning the scope of the CWA's jurisdiction,[175]

171. Johnson, *supra* note 124, at 376-77.

172. Rapanos v. United States, 547 U.S. 715 (2006) [hereinafter *Rapanos*].

173. *Id.* at 729.

174. *Id.* at 730-31.

175. The federal courts were split about which opinion in *Rapanos* provided the controlling legal standard. Fractured Supreme Court opinions are interpreted through the framework established in *Marks v. United States*, 430 U.S. 188, 193 (1977) ("When a fragmented Court decides a case and no single rationale explaining the result enjoys the assent of five Justices, 'the holding of the Court may be viewed as that position taken by those Members who concurred in the judgments on the narrowest grounds.'" (*citing* Gregg v. Georgia, 428 U.S. 153, 169 n.15 (1976) (opinion of Stewart, Powell, and Stevens, JJ.))). Determining which opinion is *Rapanos* constituted the "narrowest grounds" was not obvious, and the lower court disagreed about how *Marks* should apply to *Rapanos*. This resulted in diverging opinions among the lower courts. *See* United States v. Gerke Excavating, 464 F.3d 723, 724-25 (7th Cir. 2006) (finding that Justice Kennedy's significant nexus standard was the narrower test); N. Cal. River Watch v. City of Healdsburg, 496 F.3d 993, 995 (9th Cir. 2007) (same); United States v. Robison, 505 F.3d

the *Rapanos* decision highlighted two different perspectives of statutory interpretation. Justice Kennedy, in his concurring opinion, adopted an interpretive framework focused on the ecological goals of the CWA, which aims "to restore and maintain the chemical, physical and biological integrity of the Nation's waters."[176] To determine whether a wetland qualified as a "water of the United States," Justice Kennedy devised the "significant nexus" standard. This standard, built upon the foundations of *Riverside Bayview Homes*, recognized that certain wetlands may be "inseparably bound up" with other navigable waters, making them indistinguishable. Justice Kennedy drew upon language from *SWANCC*, which recognized that a "significant nexus" between wetlands and navigable waters was central to the *Riverside Bayview Homes* decision.[177] Under Kennedy's standard, wetlands would fall under federal jurisdiction if they "significantly affect the chemical, physical and biological integrity of other covered waters readily understood as 'navigable.'"[178]

Justice Kennedy's significant nexus standard is much less important today as a result of the Supreme Court's subsequent *Sackett* decision and is no longer considered to be binding precedent.[179] Today, it is remembered only as the last dying gasp of the Supreme Court's purposive approach to CWA jurisprudence. In contrast, Justice Scalia's plurality opinion in *Rapanos* has assumed new and singular importance. At the outset of the *Rapanos* plurality opinion, Justice Scalia telegraphed his disagreement with the federal government's historic approach to the CWA:

> In the last three decades, the Corps and the Environmental Protection Agency (EPA) have interpreted their jurisdiction over "the waters of the United States" to cover 270–to–300 million acres of swampy lands in the United States—including half of Alaska and an area the size of California in the lower 48 States. And that was just the beginning. The Corps has also asserted jurisdiction over virtually any parcel of land containing a channel

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1208, 1221 (11th Cir. 2007) (same). *But see* United States v. Johnson, 467 F.3d 56, 64 (1st Cir. 2006) (holding that neither the plurality opinion nor the Justice Kennedy opinion constituted the "narrowest grounds" jurisdiction can be established under either standard); United States v. Bailey, 571 F.3d 791, 799 (8th Cir. 2009) (same); United States v. Donovan, 661 F.3d 174, 181 (3d Cir. 2011) (same). In the Fourth, Fifth and Sixth Circuits, the courts have avoided determining which test controls either by accepting the parties' stipulation that the Justice Kennedy standard applies or finding that the parties met both tests, leaving for another day a decision about which standard is controlling. *See* United States v. Cundiff, 555 F.3d 200, 208-12 (6th Cir. 2009) (both tests were met); United States v. Lucas, 516 F.3d 316, 325-27 (5th Cir. 2008) (either standard); Precon Dev. Corp. v. Army Corps Eng'rs, 633 F.3d 278, 288 (4th Cir. 2011) (parties stipulated the Justice Kennedy's standard would control). Perhaps the clearest statement from any court capturing the confusion experienced by the federal judiciary regarding how to interpret the *Rapanos* decision was provided by Judge Probst in *United States v. Robison*, 521 F. Supp. 2d 1247, 1249 n.5 (S.D. Ala 2007) where he stated in reference to the Supreme Court's *Rapanos* analysis: "I will not compare the 'decision' to making sausage because it would excessively demean sausage makers." *Id.*

176. 33 U.S.C. § 1251(a).

177. Solid Waste Agency of N. Cook Cnty. v. United States, 531 U.S. 159, 167 (2001).

178. *Rapanos*, 547 U.S. at 780.

179. *See infra* text accompanying notes 219-24.

> or conduit—whether man-made or natural, broad or narrow, permanent or ephemeral—through which rainwater or drainage may occasionally or intermittently flow. On this view, the federally regulated "waters of the United States" include storm drains, roadside ditches, ripples of sand in the desert that may contain water once a year, and lands that are covered by floodwaters once every 100 years. Because they include the land containing storm sewers and desert washes, the statutory "waters of the United States" engulf entire cities and immense arid wastelands. In fact, the entire land area of the United States lies in some drainage basin, and an endless network of visible channels furrows the entire surface, containing water ephemerally wherever the rain falls. Any plot of land containing such a channel may potentially be regulated as a "water of the United States."[180]

The plurality found that the definition of "waters of the United States" cannot "bear the expansive meaning that the Corps would give it."[181] Based principally on the definition of "waters" found in Webster's New International Dictionary, the plurality held that "the waters of the United States" include only "relatively permanent, standing or flowing bodies of water."[182] According to the plurality, commonsense requires that the CWA exclude channels containing only ephemeral or intermittent flows.[183] By asserting CWA jurisdiction over ephemeral streams, drain tiles, man-made drainage ditches, transitory puddles, and dry arroyos in the middle of the desert, Scalia argued that "the Corps has stretched the term 'waters of the United States' beyond parody. "[184] Thus, "[t]he plain language of the statute simply does not authorize this 'Land Is Waters' approach to federal jurisdiction."[185]

The plurality opinion took its cues from section 101(b) of the CWA, elevating Congress's policy statement about state authority into a guiding principle of statutory construction instead of using the goals in section 101(a) to advance the broader purposes of the CWA. The plurality justified its focus on state authority by arguing that "[t]he extensive federal jurisdiction urged by the Government would authorize the Corps to function as a *de facto* regulator of immense stretches of intrastate land—an authority the agency has shown its willingness to exercise with the scope of discretion that would befit a local zoning board."[186] Finally, the plurality reasoned that even if the definition of "waters of the United States" were ambiguous when applied to channels with ephemeral and other irregular flows, the Court would expect a clearer statement from Congress to authorize a theory of CWA jurisdiction that presses the outer boundary of the Commerce Clause.[187]

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180. *Rapanos*, 547 U.S. at 722.
181. *Id.* at 732.
182. *Id.*
183. *Id.* at 733-34.
184. *Id.* at 734.
185. *Id.*
186. *Rapanos*, 547 U.S. at 738.
187. *Id.*

While not garnering enough votes to be considered binding precedent, the result of the plurality opinion was that "waters of the United States" do not include channels through which water flows intermittently or ephemerally, or channels that periodically provide drainage for rainfall.[188] The plurality clarified that it did not intend to "exclude streams, rivers, or lakes that might dry up in extraordinary circumstances, such as drought."[189] Moreover, the plurality did "not necessarily exclude *seasonal* rivers, which contain continuous flow during some months of the year but no flow during dry months."[190] However, the plurality opinion placed a severe limitation on the definition of streams, ruling out "streams whose flow is '[c]oming and going at intervals . . . [b]roken, fitful,'" or "existing only, or no longer than, a day; diurnal . . . short-lived."[191] This definition would seem to write off the vast majority of streams located in the arid West.[192]

The problems with the plurality's analysis are severalfold. First, the *Chevron* doctrine was intended to remove federal courts from the process of second-guessing scientific and technical decisions made by federal agency experts.[193] Federal agencies, with their superior subject matter expertise regarding technical and complex regulatory issues, are better positioned than federal judges, who lack the technical expertise to second-guess an agency's decision making.[194] The plurality disagreed that the definition of "navigable waters" was ambiguous and held that the interpretation of that term as including waters that flowed intermittently or ephemerally was not a "permissible construction of the statute" thereby allowing the Court itself to make policy choices.[195]

Instead of using science to aid in the definition of the term "navigable waters," the plurality used Webster's dictionary to substitute a layman's

188. *Id.* at 739.

189. *Id.* at 732 n.5.

190. *Id.* In guidance issued by the EPA and the Corps following the *Rapanos* decision, the federal government took the position that seasonal flow meant that there must be water flowing in a stream for a continuous period of three months, i.e. a "season." EPA & U.S. ARMY CORPS OF ENG'RS, CLEAN WATER ACT JURISDICTION FOLLOWING THE U.S. SUPREME COURT'S DECISION IN RAPANOS V. UNITED STATES & CARABELL V. UNITED STATES 5-6 (2008).

191. *Rapanos*, 547 U.S. at 732 n.5 (2006).

192. The plurality goes further and states that the Corps' use of scientific terms "intermittent streams" or "ephemeral streams" are "useful oxymora." *Id.* at 733 n.6. Such geographic features can only constitute streams while they are "continuously flowing," but in that portion of the year that they are not continuously flowing the "dry channels that contain them are never 'streams.'" *Id.* However, the plurality argues that "no one contends that federal jurisdiction appears and evaporates along with the water in such regularly dry channels." *Id.* Apparently, a stream must always be jurisdictional or it is never jurisdictional.

193. Chevron v. Nat. Res. Def. Council, 467 U.S. 837, 865 (1984), *overruled by* Loper Bright Enterprises, Inc. v. Raimondo, 603 U.S. 369 (2024). Although *Chevron* has been overruled by *Loper Bright*, the Supreme Court was clear that all previous cases decided using the *Chevron* framework were still valid and binding. *Loper Bright*, 603 U.S. at 376.

194. *Chevron*, 467 U.S. at 865.

195. *Rapanos*, 547 U.S. at 739.

understanding of the term.[196] The plurality acknowledged that there were more "scientifically precise" definitions of "perennial" and "intermittent" flows but said that it had no "occasion in this litigation" to use such precise terms to more clearly identify the gradations in flow patterns and hydrologic regimes that would be necessary to make a waterbody jurisdictional.[197] It sufficed, for the purposes of this case, that streams that had perennial flow fit the dictionary definition and streams with less frequent flow typically do not.[198]

Second, such unsophisticated analysis is at odds with the science of hydrology which determines how stream systems function. The Court's deconstruction of complex scientific issues has been referred to as a "law-science trainwreck."[199] The plurality's willingness to disregard these complexities in the name of certainty diminishes the integrity of the law and provides a refuge for judges to hide their policy preferences.[200] Because the *Rapanos* plurality opinion has gained new prominence as a result of the *Sackett* decision, the effect has been to ossify the concept of "waters of the United States" with little regard for the more nuanced understanding that will be developed over time as science of hydrology in arid regions continues to progress.[201] In this sense, the *Rapanos* decision is even more important than it was when it was originally decided.

The plurality's unscientific reinterpretation of "waters of the United States" was also facilitated by its application of the "canon of constitutional avoidance." This canon states that courts should "avoid an interpretation of a statute that engenders constitutional issues if a reasonable alternative interpretation poses no constitutional question."[202] In *Rapanos*, the plurality was concerned that if the CWA was read to include intermittent and ephemeral streams, it could exceed Congress' Commerce Clause authority and impinge on states' rights.[203] Clearly, non-relatively permanent streams are less likely to be navigable in the traditional sense. Presumably, the irregular flow regimes in these water bodies may make them less likely to function as channels of commerce or to have significant effects on interstate commerce.

However, there is a difference between interpreting a statute to avoid an *unconstitutional result* and simply using the canon to avoid deciding *constitutional questions*. The former is said to be justified to preserve the courts' role in the constitutional system and to prevent conflict with the

196. *See id.* at 732-33.
197. *Id.* at 732 n.5.
198. *Id.*
199. Barbara Cosens, *Resolving Conflict in Non-Ideal Complex Systems: Solutions for the Law-Science Breakdown in Environmental and Natural Resource Law*, 48 NAT. RES. J. 257, 273 (2008).
200. *See* Klein, *supra* note 26, at 496.
201. *See id.* at 494.
202. Gomez v. United States, 490 U.S. 858, 864 (1989).
203. *Rapanos*, 547 U.S. at 737.

political branches of government.[204] Using the canon to avoid addressing difficult constitutional questions—especially those that might not require a determination that a statute is unconstitutional—may lead to distortions in the law.[205] In some cases where a court sees potential questions about the constitutionality of a statute, avoiding the constitutional question may result in a "bad interpretation" of the statute.[206] In the legislative history of the CWA, Congress made it clear that it intended jurisdiction to apply broadly to waters beyond those that were considered navigable in the traditional sense. Congress stated that the definition of "navigable waters" was intended to "be given the broadest possible constitutional interpretation."[207] Courts interpreting statutes like the CWA "will regularly have to confront hard questions of constitutional law, but the constitutionality of the statute itself will not be in doubt" because Congress specifically intended to limit the reach of the statute to the outer bounds of the Commerce Clause.[208] In cases such as *SWANCC* and *Rapanos*, the Supreme Court refrained from defining the outer limits of Congress' Commerce Clause authority. Instead, it took the safer approach by using the avoidance canon to justify a simplistic and non-scientific definition of navigable waters. The isolated pond in *SWANCC* may, or may not, have been beyond the reach of Congress's authority under the Commerce Clause, but that remains unknown because the Court declined to address the issue head-on.

D. Sackett v. Environmental Protection Agency

The confusion created by the fractured decision in *Rapanos* was resolved in 2023 when the Supreme Court issued its decision in *Sackett v. Environmental Protection Agency*.[209] By further narrowing the definition of "navigable waters" under the CWA, the *Sackett* decision excluded a significant portion of waters that had historically been protected by the CWA.

The *Sackett* case involved an Idaho couple who filled wetlands on their property without a section 404 permit from the U.S. Army Corps of Engineers.[210] Their property, located near Priest Lake, connected to the lake through a series of small streams and ditches.[211] The Corps asserted jurisdiction over the wetlands, citing a significant nexus to Priest Lake.[212] It based this determination on three key factors: the wetlands' proximity to the

204. ALEXANDER M. BICKEL, THE LEAST DANGEROUS BRANCH: THE SUPREME COURT AT THE BAR OF POLITICS 70 (1962); Alexander M. Bickel, *Foreword: The Passive Virtues*, 75 HARV. L. REV. 40, 45-47 (1961).

205. Caleb Nelson, *Avoiding Constitutional Questions Versus Avoiding Unconstitutionality*, 128 HARV. L. REV. 331, 332-33 (2015).

206. *Id.*

207. S. REP. NO. 92-1236, at 144 (1972) (Conf. Rep.), *reprinted in* 1972 U.S.C.C.A.N. 3776, 3822.

208. Nelson, *supra* note 205, at 334.

209. Sackett v. EPA, 598 U.S. 651 (2023).

210. *Id.* at 661-62.

211. *Id.* at 662-63.

212. *Id.* at 662.

lake (300 feet), its role as part of a larger wetland complex supporting trout migration upstream from the lake, and substantial groundwater flow linking the wetlands to the lake.[213] The Sacketts disputed the Corps' determination, prompting the Supreme Court to reconsider the scope of federal jurisdiction under CWA.[214]

Writing for the majority, Justice Alito started by reviewing the evolution of the Supreme Court's jurisprudence concerning the definition of "waters of the United States." This account focused on the historical excesses of the federal government attempting to expand its authority under the CWA despite the Supreme Court's repeated efforts to restrain federal overreach. The themes in *Sackett* were all familiar—a primary focus on state authority and a disregard for the ecological purposes of the CWA.[215]

The Court affirmed Justice Scalia's standard from *Rapanos*, holding that the CWA only protects streams with relatively permanent flow and wetlands that are, as a practical matter, "indistinguishable from waters of the United States."[216] Streams with non-relatively permanent flow do not meet the definition of navigable waters and were excluded from CWA jurisdiction.[217] The Court did not specifically hold that it was adopting all of Justice Scalia's legal analysis in *Rapanos*. For instance, the Court did not clarify how continuous a stream's flow must be to qualify as "relatively permanent." While Justice Scalia largely avoided that issue in *Rapanos*, he did opine that a stream or river must contain water on at least a seasonal basis before its flow may be considered permanent enough to meet the threshold for jurisdiction.[218] Because the *Sackett* decision focused on the jurisdictional status of wetlands rather than streams, it remains unclear whether Justice Scalia's metrics for determining the necessary flow frequency in streams will govern future cases.

Once the relatively permanent standard was reestablished as the benchmark for determining CWA jurisdiction, the Court set about dismantling Justice Kennedy's "significant nexus" standard from *Rapanos*. The Court held that the concept of significant nexus was inconsistent with the text and structure of the CWA and would potentially impinge on a state's regulation of private property which "lies at the core of traditional state authority."[219] To avoid this

213. Jaffe, *supra* note 5, at 10803.

214. *Id.*

215. *See Sackett*, 598 U.S. 651.

216. *Id.* at 678.

217. *Id.* at 671. While the Court did not explicitly state that intermittent and ephemeral streams were no longer covered by the CWA, it did conclusively hold that the *Rapanos* plurality opinion, which asserted that only relatively permanent streams were covered by the CWA, accurately defined the outer limits of CWA jurisdiction over flowing waters. *Id.* Because the majority of intermittent streams and all ephemeral streams do not have relatively permanent flow, *Sackett* can only be read as concluding that these streams are not covered by the CWA.

218. Rapanos v. United States, 547 U.S. 715, 732 n.5 (2006).

219. *Sackett*, 598 U.S. at 679. Citing to CWA section 101(b), the Court stated "[i]t is hard to see how the States' role in regulating water resources would remain 'primary' if the EPA had jurisdiction over anything defined by the presence of water." *Id.* at 674.

result, the Court reasoned that the significant nexus standard conflicted with "background principles of construction" that apply to statutory interpretation.[220] Specifically, the Court cited the interpretive canon known as the "clear statement" rule.[221] Applied to the *Sackett* case, the Court noted, Congress would have had to "enact exceedingly clear language if it wishes to significantly alter the balance between federal and state power and the power of the Government over private property."[222] The Court explained:

> The area covered by wetlands alone is vast—greater than the combined surface area of California and Texas. And the scope of the EPA's conception of "the waters of the United States" is truly staggering when this vast territory is supplemented by all the additional areas, some of which is generally dry, over which the Agency asserts jurisdiction. Particularly given the CWA's express policy to "preserve" the States' "primary" authority over land and water use, § 1251(b), this Court has required a clear statement from Congress when determining the scope of "the waters of the United States."[223]

Because the CWA "never mentions the 'significant nexus' test, . . . the EPA has no statutory basis to impose it."[224] All nine justices in *Sackett* coalesced around Justice Scalia's relatively permanent standard and agreed that Justice Kennedy's significant nexus standard was no longer applicable in determining the scope of CWA jurisdiction.

The "clear statement rule" is a "judicial presumption that courts should not interpret a statute in a certain way unless Congress made a 'clear statement' regarding that outcome."[225] This doctrine is considered to be anti-textualist because it allows courts to shift focus from the text of a statute in order to determine legislative intent.[226] The doctrine may be used to overcome the statutory meaning that the text might otherwise suggest in order to give effect to other value judgments.[227] Clear statement rules are sometimes "deployed to give legal weight to extra-textual values like the separation of powers, sovereign immunity and federalism."[228] While the CWA itself does not use the words "significant nexus" in defining the scope of "navigable waters," the term "significant nexus" as used in *Riverside Bayview* and *SWANCC* was a short-hand way of capturing the ecological concerns that were at the heart of the CWA and were clearly expressed in section 101(a). Ignoring the central purpose of the CWA arguably allowed the Supreme Court to portray the statute

220. *Id.* at 679.
221. *Id.* at 680.
222. *Id.* at 679.
223. *Id.* at 680.
224. *Id.*
225. BENJAMIN M. BARCZEWSKI & VALERIE C. BRANNON, CONGRESSIONAL RESEARCH SERVICE LEGAL SIDEBAR, CLEAR STATEMENT RULES, TEXTUALISM AND THE ADMINISTRATIVE STATE 1 (2023).
226. *Id.* at 3.
227. *Id.*
228. *Id.* at 1, 3.

as one primarily concerned with preserving state authority instead of water quality.

Justice Kagan, in her concurring opinion, argued that the majority's use of the clear statement rule in this context had the effect of putting a "thumb on the scale for property owners—no matter that the Act (*i.e.*, the one Congress enacted) is all about stopping property owners from polluting."[229] Justice Kagan viewed the use of the clear statement rule in *Sackett* as a "reflexive response to Congress' enactment of an ambitious scheme of environmental regulation. It is an effort to cabin the anti-pollution actions Congress thought appropriate."[230] The Court appointed itself as the "national decision-maker on environmental policy" instead of leaving that role to Congress.[231]

The trilogy of *SWANCC*, *Rapanos*, and *Sackett* share many common themes, the most prominent of which is the shift from interpreting the CWA based on its ecological purpose of protecting the "chemical, physical, and biological integrity of our Nation's waters"[232] to focusing instead on the secondary policy objective of protecting the rights of States to plan the development and use of local property and water resources.[233] This shift in perspective was not subtle. It had the effect of elevating Congress' secondary policy of preserving local land regulation above the CWA's primary objective of protecting water quality. In doing so, the Court's shift transformed the statute into one that seemed more concerned with protecting the states' right to regulate land and water use than advancing the ecological goals of the statute.

To achieve this shift in focus, the Supreme Court abandoned any fidelity to the *Chevron* doctrine, still valid law at the time, opting to reinterpret scientific and technical terms independently rather than deferring to the expertise of agency specialists. Instead, following the plurality opinion in *Rapanos*, the Court relied on simplistic dictionary definitions to provide alternate interpretations that would further the Court's overriding concerns about preserving state authority. This anti-scientific approach is a reason for concern because the law is no longer a reflection of what is happening in the real world. Furthermore, the implications of the Supreme Court's decision

229. *Sackett*, 598 U.S. at 713 (Kagan, J., concurring). Justice Kagan, along with the other eight Justices, all agreed that the significant nexus test was no longer an appropriate way to determine CWA jurisdiction. *Id.* at 681 (majority opinion), 715-16 (Kavanaugh, J., concurring), so her criticisms of the clear statement rule do not appear to be directed at its use by the majority as a basis for rejecting the significant nexus test. However, the majority opinion also used the clear statement rule to support a narrower interpretation of the term "adjacent wetlands," holding that adjacent wetlands are only jurisdictional when they are "as a practical matter indistinguishable from waters of the United States." *Id.* at 678 (citing *Rapanos*, 547 U.S. at 755). Justice Kagan in a separate concurring opinion argued that the majority's definition of "adjacent" strayed too far from the text of the statute and that the term should be given its ordinary meaning so as to include wetlands that are nearby. *Id.* at 710 (Kagan, J., concurring).

230. *Id.* at 714 (Kagan, J., concurring).

231. *Id.* at 715 (Kagan, J., concurring).

232. 33 U.S.C. § 1251(a).

233. 33 U.S.C. § 1251(b).

extend beyond the anticipated negative effects on water quality. One potential consequence could be unintended effects on state water quantity allocation.

IV. EFFECTS OF *SACKETT* ON WATER QUANTITY

Surface water systems and their interactions with other hydrologic regimes in the same geographic area are complex and evade simplistic categorizations favored by the law. On the one hand, the law must be clear and precise so that the public can understand and reliably comply with its mandates. On the other hand, while it is understandable that lawmakers strive for certainty in defining the contours of the law, the law must reflect society's present state of scientific knowledge. Otherwise, the law will regulate a state of affairs that is different from that which it purports to regulate. Unfortunately, when lawyers and judges attempt to draw bright lines around scientific terms to simplify the law or make its administration more manageable, they are advancing neither law nor science. This is particularly true with respect to the regulation of water quality and its potential impacts on water quantity.

The CWA does not directly regulate water quantity allocation, but its implementing regulations are designed to consider non-water quality related values, including water supplies.[234] In certain cases, if there is no CWA hook to regulate water quality values for particular waterways, as is increasingly likely after *Sackett*, "a wide array of harms might never be evaluated if a developer fails to seek a CWA permit to begin with."[235] This concern is particularly true with respect to section 404 of the CWA which regulates hydromodifications to streams that may prevent them from delivering flows of water to perennial rivers and underground aquifers.

The discharge of "dredged or fill material" into the waters of the United States requires a section 404 permit from the U.S. Army Corps of Engineers. Before issuing a section 404 permit, the Corps must engage in a public interest review, which is the Corps' "careful weighing" of the "benefits which may reasonably be expected to accrue" from a proposed discharge of fill material against its "reasonably foreseeable detriments."[236] This includes a review of water quality and non-water quality considerations including:

> conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs,

234. Jaffe, *supra* note 5, at 10808. Reviews under other federal statutes like the National Environmental Policy Act, Endangered Species Act and the National Historic Preservation Act are often prompted by permits issued under CWA section 404. *Id.* "[T]he interconnectivity of the Clean Water Act and other federal statutes reflects the interconnectedness of the things they regulate." *Id.*

235. *Id.*

236. 33 C.F.R. § 320.4(a).

> safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people.[237]

One of the key non-water-quality values to be considered during public interest review is the protection of "[w]ater supply and conservation."[238] The Corps' regulations provide that:

> Water is an essential resource, basic to human survival, economic growth, and the natural environment. Water conservation requires the efficient use of water resources in all actions which involve the significant use of water or that significantly affect the availability of water for alternative uses including opportunities to reduce demand and improve efficiency in order to minimize new supply requirements. Actions affecting water *quantities* are subject to Congressional policy as stated in section 101(g) of the Clean Water Act which provides that the authority of states to allocate water quantities shall not be superseded, abrogated, or otherwise impaired.[239]

Under these regulations, the Corps is required to consider water supply so that any regulatory decision will not affect the states' ability to allocate water quantities.[240]

In many cases, the water quality goals of the CWA can be synchronized with state water quantity allocation.[241] However, if an interpretation of the CWA were to completely deprive the holder of a vested water right of an adequate supply of water, then "irresolvable conflicts" may "arise because the prior appropriation doctrine cannot function as intended."[242] These types of impacts can be considered by the Corps during its public interest review. With non-relatively permanent streams no longer covered by the CWA, the Corps will lose its authority to assess the impact of fill activities in impermanent streams will have on water supplies.

In addition to the public interest review, before issuing a section 404 permit, the Corps must consider the section 404(b)(1) guidelines, which are designed to ensure that no discharges will be authorized that would have an unacceptable adverse impact on the aquatic ecosystem.[243] The guidelines for determining compliance with section 404(b)(1) require "the permitting authority to consider factors related to water quantity, including the effects of the discharge on water velocity, current patterns, water circulation, and normal

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237. *Id.*

238. *Id.* § 320.4(m).

239. *Id.* (emphasis added).

240. *See generally* Water Works & Sewer Bd. v. United States, 983 F. Supp. 1052 (N.D. Ala. 1997) (prohibiting the Corps from using its individual permitting process to reallocate water resources that would otherwise be appropriate under state law); North Carolina v. Hudson, 665 F. Supp. 428 (E.D.N.C. 1987) (appropriate for Corps to consider water allocation impacts of permitting decision as part of public interest review).

241. Hobbs & Raley, *supra* note 134, at 863-64, 869.

242. *Id.*

243. 40 C.F.R. § 230.1(c) (providing that unacceptable adverse impacts include both individual and cumulative impacts).

water fluctuations."[244] The reduction of water flows that may result from a proposed discharge of dredged or fill material to a water of the United States is a factor that the Corps should consider before issuing a section 404 permit. In particular, the Corps is required to consider whether a discharge "may also affect the quantity of water available for municipal and private water supplies."[245] As a result, it may be appropriate to deny a section 404 permit if the permitted activity would cause a reduction in downstream water flow or otherwise limit the scope of a discharge to minimize adverse effects.[246] In some cases, the impacts to water quantity may implicate CWA section 101(g), but not all impacts would necessarily rise to that level.[247]

The *Sackett* decision not only eliminates federal control over intermittent and ephemeral streams but also undermines states' ability to independently manage their water resources effectively. Under the CWA, all section 404 permits issued by the Corps of Engineers must also receive state certification under section 401, ensuring that the discharge associated with the permit will not adversely affect state water quality.[248] As the Supreme Court explained in *PUD No. 1 of Jefferson County v. Washington Dept. of Ecology*, it is appropriate for the state to consider water quantity (in addition to water quality) concerns in deciding whether to issue a section 401 certification.[249] By exempting intermittent and ephemeral streams from CWA protections, the *Sackett* decision also strips states of their authority to evaluate whether impacts to these non-relatively permanent streams warrant state-level protection. This removal further diminishes the tools available to states for safeguarding their water resources. The categorical exclusion of all ephemeral tributaries from

244. Riverside Irrigation Dist. v. Andrews, 758 F.2d 508, 512 (10th Cir. 1985); *see also* United States v. Akers, 785 F.2d 814, 821 (9th Cir. 1986), *cert. denied,* 479 U.S. 828 (1986) ("A fair reading of the [CWA] as a whole makes clear that, where both the state's interest in allocating water and the federal government's interest in protecting the environment are implicated, Congress intended an accommodation. Such accommodations are best reached in the individual permit process."); 40 C.F.R. § 230.23(b) (requiring consideration of how a discharge of "dredged or fill material can modify current patterns and water circulation by obstructing flow, changing the direction or velocity of water flow, changing the direction or velocity of water flow and circulation, or otherwise changing the dimensions of a water body").

245. 40 C.F.R. § 230.50(b).

246. *Id.* § 230.70–230.77; *see* Sierra Club v. Van Antwerp, 709 F. Supp. 2d 1254, 1256 (S.D. Fla. 2009) (finding unacceptable adverse impacts on municipal water supplies are sufficient grounds for denial of 404 permit); Sierra Club v. Strock, 495 F. Supp. 2d 1188, 1188 (S.D. Fla. 2007) (finding the Corps failure to consider water supply issues not consistent with section 404(b)(1) guidelines); Sierra Club v. Flowers, 423 F. Supp. 2d 1273, 1273 (S.D. Fla. 2006) (holding that the Corps did not adequately consider impacts on water supply).

247. *See* Black Warrior River-Keeper, Inc. v. Ala. Dep't of Transp., 2016 WL 233672, at *55 (M.D. Ala. Jan. 19, 2016) (finding Corps properly considered water supply issues in granting a section 404 permit); Town of Norfolk v. U.S. Army Corps of Eng'rs, 968 F.2d 1438, 1438 (1st Cir. 1992) (holding that the Corps adequately considered effect on water supplies in issuing section 404 permit).

248. 33 U.S.C. § 1341.

249. Pub. Util. Dist. No. 1 of Jefferson Cnty. v. Wash. Dep't of Ecology, 511 U.S. 700, 719-20 (1994) (finding States have authority to regulate water quantity by preserving instream flows where necessary to preserve water quality standards).

CWA jurisdiction and the elimination of most intermittent tributaries from protection will harm downstream water quantity in several important ways. First, to the extent that section 404 permits are no longer required to discharge dredged or fill material into these streams, the Corps will no longer have a hook to consider the effects that the discharge of fill material into streams would have in reducing the flow of water available for human uses. More importantly, without this regulatory hook, developers will be able to fill ephemeral and intermittent streams without any federal government oversight whatsoever. This will likely result in the extensive destruction of these delicate water resources, which indirectly serve surrounding communities, and will choke off flows to more substantial perennial rivers located downstream.[250]

Most perennial rivers receive "the majority of their water from tributaries rather than from direct precipitation or ground-water input to river segments."[251] In arid regions, ephemeral streams are efficient in transporting water to downstream tributaries.[252] According to a recent study, ephemeral streams have a greater influence on perennial streams and rivers than previously thought.[253] On average in the United States, 55 percent of the annual discharge of water from larger watersheds containing one or two mainstem rivers is sourced from ephemeral streams.[254]

In the arid Upper Colorado River basin, 61 percent of the total drainage area consists of smaller first-order streams.[255] First-order streams are those which are located higher up in the watershed and flow on an irregular basis. These streams provide water flow to larger second-order streams, which in turn provide flows to third and higher-order streams. These small non-relatively permanent streams provide 41 percent of the water flow to the Colorado River.[256] This "strongly suggests that small streams, even where seasonally dry, cumulatively generate a large fraction of the nation's perennial stream and river flows."[257] Similar data show that ephemeral streams contribute nearly 76 percent of the flow in the Rio Grande River in New Mexico[258] and 69 percent of the flow in the Green River in Utah.[259]

Non-relatively permanent streams also provide water to groundwater aquifers. The channels of ephemeral tributaries are composed of unconsolidated

250. *See* Dave Owen, *Little Streams and Legal Transformations*, 2017 UTAH L. REV. 1, 7 (2017).
251. CONNECTIVITY REPORT, *supra* note 50, at 3-5.
252. *Id.* at 5-8; Claire Yuan, *Federally Unprotected Streams Deliver Most of the Water to U.S. Rivers*, SCI. NEWS (July 8, 2024), https://www.sciencenews.org/article/unprotected-streams-most-river-water.
253. Craig B. Brinkerhoff et al., *Ephemeral Stream Water Contributions to United States Drainage Networks*, 384 SCIENCE 1476, 1476 (2024).
254. *Id.*
255. CONNECTIVITY REPORT, *supra* note 50, at 3-7.
256. *Id.*
257. *Id.*
258. *Id.* at 3-7 to 3-8.
259. Brinkerhoff, *supra* note 253, at 1477.

alluvial materials, which are porous and allow water to infiltrate into the groundwater.[260] This groundwater, in turn, provides base flow to relatively permanent streams and rivers where the stream channel intersects with the groundwater table. For example, groundwater, which is recharged by ephemeral tributaries such as Walnut Gulch in Arizona, supplies over half of the baseflow to the San Pedro River.[261] The San Pedro is the only significant free-flowing river in Arizona and "the last remaining stream in southern Arizona with long perennial reaches."[262]

Human alterations, which may become more widespread and frequent because non-relatively permanent streams are no longer subject to CWA jurisdiction, will result in the elimination of ephemeral and intermittent streams in the arid southwest. When the soil is compacted or covered with impermeable surfaces, surface water runoff and flow velocity increases and causes more erosion of stream channels and less groundwater infiltration, resulting in more erosion and reduced infiltration to groundwater.[263] Furthermore, the destruction of ephemeral and intermittent streams will reduce the amount of flow that is delivered directly to relatively permanent waters located downstream.[264]

An increase in unregulated human impacts on non-relatively permanent streams is a legitimate concern given population trends in the Southwest, which is one of the fastest-growing regions of the United States. The population of the United States has grown by 225 percent over the last ninety years, whereas the population of the Southwest has grown by approximately 1,500 percent over the same period of time.[265] Arizona and Nevada have seen the most growth with increases of 2,880 percent and 2,840 percent, respectively.[266] In the future, it is expected that the Southwest will continue to grow more rapidly than the nation as a whole.[267]

Because the *Sackett* decision is relatively new and the EPA has not yet developed regulations to implement the Supreme Court's mandate, the full consequences of the decision and its effect on water resources are somewhat speculative. However, the continued destruction of non-relatively permanent waters now allowed under the *Sackett* interpretation of the CWA will

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260. *See* USGS, Quantity and Source of Baseflow in the San Pedro River Near Tombstone, Arizona: U.S. Geological Survey Scientific Investigations Report 2010-5200,1 (20210) ("Based on environmental isotope data, the composition of base flow in the upper San Pedro River at the gaging station near Tombstone is 74±10 percent regional groundwater and 26±10 percent summer storm runoff stored as alluvial groundwater for the 2000 to 2009 period.")

261. *Id.* at B-47.

262. *Id.* at B-42.

263. *Id.* at 5-8.

264. U.S. DEPT. AGRIC., *Walnut Gulch Experimental Watershed: Tombstone, Arizona,* 26 (2003). *See supra* text accompanying notes 47-54.

265. ECOLOGICAL AND HYDROLOGICAL REPORT, *supra* note 19, at 66.

266. *Id.*

267. ASSESSMENT OF CLIMATE CHANGE IN THE SOUTHWEST UNITED STATES: A REPORT PREPARED FOR THE NATIONAL CLIMATE ASSESSMENT 45 (Gregg Garfin et al. eds., 2013), https://swccar.arizona.edu/sites/default/files/2022-05/ACCSWUS_Ch3.pdf.

exacerbate the already intense competition over dwindling water resources in the West, further complicating efforts to manage these critical resources effectively.[268]

More specifically, the dilemma for Western states will be how to maintain the integrity of the prior appropriation system with potentially reduced flows of water. This will be compounded by the fact that in most Western states, many of the streams and rivers are already over-appropriated. A stream is over-appropriated when "quantities set forth in decreed water rights exceed the amount of water a stream can give, even in wet years."[269] In some watersheds, the cumulative volume of legal water entitlements far exceeds the average annual flow of the river.[270] Over-appropriation is caused by, among other things, "wishful thinking" by water managers, speculation, or simply because the data used to estimate flow volumes is inaccurate or outdated.[271] Because over-appropriation is so common, "stream-drying can occur on a regular basis."[272] Over-appropriation defeats the purpose of the prior appropriation doctrine because it is difficult to enforce the priority of water rights when those rights are essentially meaningless.[273]

For instance, water law scholar Christine Klien described the long-term over-appropriation of the Colorado River:

> The Colorado River, which serves as the lifeblood of seven states, has been overappropriated since 1922, when an inflated estimate of its flow was the basis of an interstate water allocation. In Colorado, most surface streams are overappropriated. Likewise, in Idaho . . . water supplies have been over-allocated so severely that in 2007, almost three thousand junior water users worried that their water rights would be curtailed unless nature provided snowpack at 105% of normal. California has also fully appropriated and over-appropriated many of its watersheds.[274]

The unregulated filling of non-relatively permanent streams will likely reduce flows to streams and rivers that form the foundation of the prior appropriation system. This will place additional pressure on water managers to make politically difficult assessments of future stream flows, meaning an increasing number of water rights will be compromised. There will be less water in the system and as a result, water managers will have little margin for error.

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268. *See id.*; *Sackett*, 598 U.S. at 684.

269. Burke W. Griggs, *Beyond Drought: Water Rights in the Age of Permanent Depletion*, 62 U. KAN. L. REV. 1263, 1274 (2014); Three Bells Ranch Assocs. v. Cache La Poudre Water Users Ass'n., 758 P.2d 164, 171 n.9 (1988).

270. Christine A. Klein, *Water Bankruptcy*, 97 MINN. L. REV. 560, 570-71 (2012).

271. Rhonda Skaggs et al., *Response to Mr. Peter Balleau: The Convergence of Water Rights, Structural Change, Technology, and Hydrology: A Case Study of New Mexico's Lower Rio Grande*, 52 NAT RES. J. 523, 524 (2012).

272. Griggs, *supra* note 269, at 1297.

273. Kait Schilling, *Addressing Prior Appropriation in the Shadow of Climate Change and the Paris Climate Agreement*, 8 SEATTLE J. ENVT'L L. 97, 101-02 (2018).

274. Klien, *supra* note 270, at 571.

In many communities in the arid West, public water systems rely principally on ephemeral and intermittent streams to provide drinking water to its residents.[275] In Maricopa County, Arizona, ephemeral or intermittent streams account for 70 percent of the stream miles that supply public drinking water to over three million residents.[276] In Salt Lake City, Utah, 62 percent of drinking water comes from intermittent or ephemeral streams.[277] Similarly, in Denver, Colorado, ephemeral or intermittent streams supply 60 percent of the drinking water.[278] Communities relying on water withdrawals from non-relatively permanent streams will likely face reduced flows and increased water pollution, as discharges into these streams will no longer require a NPDES permit.[279] The Corps will no longer be able to consider the effects that discharges will have on non-relatively permanent streams even though they may impact downstream, relatively permanent waters that serve as a source of drinking water.

Likewise, the complete elimination of non-relatively permanent streams from CWA jurisdiction will likely have a significant impact on individual water rights holders in the arid West. Because these small streams will no longer be subject to federal review before they are subject to hydromodification, state water allocations made under the prior appropriation system will be upended. A review of water rights claims in the southwestern states—Arizona, New Mexico, Colorado, and Utah—indicates that thousands of water rights are likely tied to diversions from non-relatively permanent streams.[280] These water

275. EPA, ANALYSIS OF SURFACE DRINKING WATER PROVIDED BY INTERMITTENT, EPHEMERAL AND HEADWATER STREAMS IN U.S. (2009), https://www.epa.gov/sites/default/files/2015-04/documents/wetlands_science_surface_drinking_water_surface_drinking_water_results_county.pdf.

276. *Id.* at 2.

277. *Id.* at 27.

278. *Id.* at 4.

279. The *Sackett* decision addressed only the jurisdictional reach of the CWA for section 404 permitting purposes. The court did not explicitly hold that its decision applied equally to NPDES permits issued under section 402 of the CWA. However, there is no logical reason that geographical jurisdiction would have one meaning under section 404 and a separate meaning under section 402. Therefore, it is likely that a section 402 permit would not be required for discharges into non-relatively permanent streams. *See* Robert L. Glicksman*, Sackett v. EPA: The Court Delivers Another Massive Blow to Federal Environmental Law*, GEO. WASH. L. REV. ON THE DOCKET (May 27, 2023), https://www.gwlr.org/sackett-v-epa-the-court-delivers-another-massive-blow-to-federal-environmental-law; *see also* Samantha Bingaman, *Nothing at Stake But Life's Essentials: How Sole Reliance on New Textualism Endangers Clean Water, Environmental Justice Communities, and Environmental Law (and a Judicial Framework to Fix It*), 83 MD. L. REV. 1313, 1336 (2024).

280. The author reviewed water rights claims in the states of Arizona, New Mexico, Colorado, Utah and Nevada using publicly available databases which indicated the identities of water rights holders, the location of the water right, the stream associated with that water right, and other pertinent information. This review of data was not comprehensive, and is not statistically significant, but was intended to provide general sense for the extent to which water rights claims in the arid Southwest were associated with non-relatively permanent streams. *See Statement of Claimant Locator*, ARIZ. DEP'T OF WATER RES., https://experience.arcgis.com/experience/dccd34942e394028860e7505bd52fc8a/#data_s=id%3AdataSource_1-Claimant_Data_1852%3A42790 (last visited June 30, 2024); *Point of Diversion Locator,* N.M. OFF. OF STATE ENG'R, https://gis.ose.state.nm.us/gisapps/ose_pod_locations/ (last visited June 30, 2024); *Division of Water Resources Map Viewer*, COLO. DEP'T OF NAT. RES.,

rights could be readily extinguished if the streams are filled or destroyed, which is more likely now that these streams are no longer subject to CWA protection. Because these water rights are derived from streams with irregular and lower volume flows, the individual water rights associated with most of these claims involve relatively small quantities of water. Thus, the impairment of these individual water rights may be viewed as inconsequential. Collectively, however, there may be more significant concerns for preserving water quantities.

Evaluating the effects of the *Sackett* decision on individual water rights, or discrete stream segments in isolation, will not provide a complete picture of the repercussions that the decision will have on state water quantity management.[281] As discussed in Part II, the significance of ephemeral and intermittent streams must be assessed as integral parts of the larger watershed in which they function as a component part. Non-relatively permanent streams are the dominant stream type in the arid West, and one of their principal values is that they transport water to more permanent water sources such as groundwater and perennial streams. Assuming that the *Sackett* decision will result in increased human-caused disturbance of ephemeral and intermittent streams, this may result in the strangulation of more permanent waters. This will occur because these smaller non-relatively permanent streams will no longer channel water flows directly to downstream perennial surface waters or recharge groundwater upon which relatively permanent streams rely.

More importantly, human development typically replaces natural vegetation and soils, which absorb water, with artificial impervious surfaces, that inhibit absorption and lead to large volumes of run off.[282] These impervious surfaces block the recharge of groundwater and stormwater that tends to flow over the ground surface rather than entering the ground.[283] This is important because, only in areas where water is concentrated, such as in ephemeral stream channels, "can [water] penetrate otherwise moisture-starved soils and percolate down to the water table."[284] If ephemeral streams are filled or otherwise removed from the watershed due to development, during

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https://maps.dnrgis.state.co.us/dwr/Index.html?viewer=mapviewer (last visited June 30, 2024); *State of Utah Map*, UTAH DIV. OF WATER RTS, https://maps.waterrights.utah.gov/EsriMap/map.asp?layersToAdd=State (last visited June 30, 2024); *Nevada Water Rights Mapping Application*, NEV. DIV. OF WATER RES., https://webgis.water.nv.gov/Html5Viewer/Index.html?configBase=http://webgis.water.nv.gov/Geocortex/Essentials/REST/sites/NDWR_Water_Rights/viewers/NDWR_Water_Rights1/virtualdirectory/Resources/Config/Default (last visited June 30, 2024).

281. Brian Caruso & Joshua Haynes, *Biophysical-Regulatory Classification and Profiling of Streams Across Management Units and Ecoregions*, 47 J. AM. WATER RES. ASS'N 386, 401-02 (2011). Even though a single ephemeral or intermittent stream may be hydrologically important to a downstream relatively permanent water, it may be insignificant from a regulatory perspective. *See id.*

282. Dave Owen, *Law, Land Use and Groundwater Recharge*, 73 STAN. L. REV. 1163, 1174 (2021).

283. *See id.* at 1188.

284. *Id.*

precipitation events water will be distributed as run-off across the landscape and be subject to increased losses through evaporation.[285]

As a result, groundwater withdrawals for human use may not be sufficiently replenished by precipitation, impacting water availability in two significant ways. First, there will be less groundwater available in aquifers for human consumption which will increase reliance on surface flows. Second, those surface flows will be diminished because there will be less groundwater to provide baseflow to support relatively permanent waters. The precise quantity of water that will be affected by the filling of ephemeral and intermittent streams cannot be predicted, so this conclusion is somewhat speculative. However, when combined with the near certainty of increasing water losses due to climate change and an ever-growing human population in the Southwest, it would be irresponsible to ignore the potential complications introduced by the *Sackett* decision.

The rationale supporting the Supreme Court's jurisprudence interpreting the scope of "navigable waters" under the CWA has deliberately shifted over the past forty years from protecting the environmental integrity of the nation's waters to the less environmentally-centered objective of preserving states' rights over land and water resources. In doing so, the Court overlooked the Wallop Amendment, codified in section 101(g) of the CWA, which represents an equally important policy statement by Congress designed to preserve the states' authority over allocating water quantities.[286]

It is ironic, indeed, that one potential outcome of the *Sackett* decision would be to further thwart states' ability to preserve and protect water quantities, thereby making the management of this critical resource more difficult. The Court's disregard of section 101(g) is not necessarily remarkable given that this section is only a statement of policy and not a stated goal of the CWA itself. The Wallop Amendment expresses Congress' preferences rather than codifying core principles of federalism.[287] On one hand, courts have been willing to ignore the concerns expressed in 101(g) where, for instance, effects on state water quantity were incidental and necessary to protect water

285. Peter Lehmann, et al., *Surface Evaporation in Arid Regions: Insights from Lysimeter Decadal Record and Global Application and Global Application of a Surface Evaporation Capcitor Model*, GEO. RES. LETTERS, 9648, 9648 (2019). *See id.* at 1172-73; *see also* Kaitlin Sullivan, *Learn How Changes to the Clean Water Act Can Hurt Your Region Before It's Too Late*, POPULAR SCI. (Apr. 12, 2019), https://www.popsci.com/new-clean-water-act-changes/. Without the protection of the Clean Water Act, "urban developers or mining companies. . . could cover temporarily dry streambeds without a permit. The severed streams wouldn't make it to natural recharge pools that deposit water into aquifers. Losing federal protections for ephemeral streams would disproportionately affect southwestern states such as Arizona and Nevada, where the temporary waterways are a significant portion of the states' hydrology." *Id.*

286. 33 U.S.C. § 1251(g).

287. *Id.*; *see also* Craig, *supra* note 117, at 122-23 (explaining cooperative federalism and state participation in the CWA).

quality.[288] On the other hand, the courts may be more reluctant to ignore preferences established in section 101(g) if the effects on water quantity allocation were caused by regulatory activity unrelated to preserving water quality.[289]

In analyzing the effects of the *Sackett* decision on water quantity, it is arguable that the Supreme Court's decision to roll back the scope of the CWA's geographic jurisdiction had nothing at all to do with preserving water quality. Restricting the definition of "waters of the United States" may have had the effect of harming water quality because, for instance, NPDES permits will no longer be required for discharges of pollutants into non-relatively permanent waters. In addition, hydrologic modifications of non-relatively permanent streams without a section 404 permit may impair water quality by restricting flow volumes in ephemeral and intermittent streams thereby reducing their assimilative capacity.

Moreover, the Supreme Court in *Sackett* never considered the impact that its decision could have on state water quantity allocations. The impairment to water quantity caused by the *Sackett* decision was not an incidental effect of regulatory actions to improve water quality but instead was the result of an interpretation of the CWA that would actually impair water quality.

The Court's failure to consider section 101(g) in the *Sackett* case was not necessarily improper as a matter of law. However, the more significant issue lies in the Court's forty-year shift from interpreting the CWA as a tool to protect the ecological integrity of the Nation's waters to framing it primarily as a mechanism for preserving state autonomy. This shift underscores the irony that the *Sackett* decision may have a profoundly adverse impact on state water allocation systems, despite its emphasis on states' rights. While at the time of this writing, the scope and extent of these impacts are difficult to quantify, it is at least worth considering whether the Supreme Court's reductionist approach to CWA jurisdiction might have other unintended consequences.

Water policy is fragmented along artificial lines, including the distinction between water quality and water quantity, and even though waters and their importance to humans and the environment do not respect federal, state, or local jurisdictional boundaries, they are nevertheless regulated by many governmental authorities which might not share similar policy goals. In

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288. See Pub. Util. Dist. No. 1 of Jefferson County v. Washington Dep't of Ecology, 511 U.S. 700, 720-21 (1994) (finding that section 101(g) "preserve(s) the authority of each State to allocate water quantity as between users" but does not "limit the scope of water pollution controls that may be imposed on users who have obtained, pursuant to state law, a water allocation").

289. Water Works & Sewer Bd. v. United States, 983 F. Supp. 1052 (N.D. Ala. 1997) (prohibiting the Corps from using its individual permitting process to reallocate water resources that would otherwise be appropriate under state law); s*ee also* Hobbs & Raley, *supra* note 134, at 860 (providing examples of federal restrictions on water quantity that would be prohibited by the Wallop Amendment including a decision by a state to allocate "the available water in the stream to white-water boating instead of municipal water supply, or to fish and wildlife propagation instead of crop production, or that the state should have established a different priority among water uses, such as preferring a municipal use over a mining use, or an instream use over an agricultural use").

addition, the science of hydrology and how water systems function as a part of the natural environment has been separated from the law, which in many cases is concerned more with simplicity and clarity than ensuring seamless integration between the two disciplines. The diversity of approaches to intergovernmental and interstate cooperation and the continuing tensions and barriers that inhibit this coordination demonstrate that there is no single "right" way to bridge the various divides in water law and policy.[290] However, the status quo will leave water resource managers with difficult choices.

Although these predictable effects have not yet been measured or quantified, they logically follow from the Supreme Court's narrow interpretation of the term "waters of the United States" as the scientific literature clearly presages the more widespread harmful effects on water resources as a whole.[291] Policymakers tasked with slicing up the water rights pie into more numerous and smaller pieces have little margin for error. Unlike the Supreme Court, they cannot rely on simplistic understandings of complex subjects such as hydrology, groundwater-surface water interactions, and climate change when deciding how to apportion shrinking supplies of water to human populations that depend on it for survival.

CONCLUSION

In a 1991 article, Professor Charles Wilkinson wrote a fictitious eulogy claiming that prior appropriation (referred to in the article by its given name "Prior"), after having a successful run of 152 years, had "passed away."[292] Professor Wilkinson's account of Prior's untimely passing cited various injuries inflicted on Prior over the course of a lifetime, including the *Winters* doctrine, federal reserved water rights, the dam-building era coming to an end, environmentalism, the public trust doctrine, and water planning, among others reasons.[293] Prior survived all of these indignities, but, in Wilkinson's account, a heart attack caused by the City of Denver's acceptance of EPA's veto of the Two Forks dam officially caused the death.[294] Other scholars argued that reports of Prior's death were premature.[295] However, even this more realistic view of prior appropriation recognized that the system has lost much of its practical relevance and is in need of reform.

Perhaps the additional strain placed on the prior appropriation system by the *Sackett* decision will be the "final nail in the coffin" or, more optimistically,

290. *See generally*, Robert Adler, *Watersheds and the Integration of U.S. Water Law and Policy: Bridging the Great Divides*, 25 WM. & MARY ENVT'L L. & POL'Y REV. 1 (2000).

291. *See supra* text accompanying notes 27-59.

292. Charles F. Wilkinson, *In Memoriam: Prior Appropriation, 1848-1991*, 21 ENVT'L L. (1991).

293. *See generally id.*

294. *Id.* at xvi.

295. Reed D. Benson, *Alive But Irrelevant: The Prior Appropriation Doctrine in Today's Western Water Law*, 83 U. COLO. L. REV. 675, 678 (2012); Gregory J. Hobbs, Jr., *Priority: The Most Misunderstood Stick in the Bundle*, 32 ENVT'L L. 37, 38-41 (2002); Dan A. Tarlock, *Prior Appropriation: Rule, Principle, or Rhetoric*, 76 N.D. L. REV. 881, 894 (2000).

may serve as the impetus for much-needed reform. The instinctive response to concerns that the *Sackett* decision may upend state water quantity allocation will be that the states need to adopt their own state-level stream protection regulations to fill the void created by the Supreme Court. This is easier said than done.[296]

States do have the independent legal authority to enact laws to protect waters that are beyond the reach of the CWA and can be more environmentally protective than the CWA otherwise requires. Unfortunately, states can be slow to act. Moreover, many states in the arid West are subject to obstacles that may prevent them from protecting non-relatively permanent streams. Arizona, Nevada, and Utah, for example, have statutes that restrict or prohibit the states from regulating waters more stringently than the federal government.[297]

These "no more stringent requirements" laws are based on concerns that more comprehensive regulation of state waters would threaten the states' economic competitiveness.[298] State legislatures fear that state regulations that exceed federal standards "will raise the cost of doing business in the state, leading to a flight of industry and jobs."[299]

Other Western states, like Wyoming, have attempted to address the decline in federal CWA jurisdiction by adopting requirements for "[p]oint source discharges of dredged or fill material into isolated wetlands which are . . . [n]ot subject to regulation by the Army Corps of Engineers under Section 404."[300] In 2021, Arizona enacted the Arizona Surface Water Protection Program, which offers some protection to some non-waters of the United States from discharges of pollutants from point sources but does not apply to discharges of dredged or fill material to these waters.[301]

Even more on point, Colorado recently adopted HB-24-1379 titled "Regulate Dredge & Fill Activities in State Waters" to authorize state permitting for discharges of dredged and fill material to some waters that are excluded from federal protection due to the *Sackett* decision. The new

296. *See* Owen, *supra* note 282, at 1189-91.

297. ENVT'L L. INST., STATE CONSTRAINTS: STATE IMPOSED LIMITATIONS ON THE AUTHORITY OF AGENCIES TO REGULATE WATERS BEYOND THE SCOPE OF THE FEDERAL CLEAN WATER AACT 2 (2013), https://www.eli.org/sites/default/files/eli-pubs/d23-04.pdf; *see also* Ariz. Rev. Stat. Ann. § 49-104(A)(16) (Arizona Department of Environmental Quality shall ensure that state laws and rules are "no more stringent than the corresponding federal law."); Nev. Rev. Stat. Ann. § 233B.0609(1)(g) (requiring explanation for stringency if regulations are more stringent than federal regulations regulating the same activity); *id.* § 233B.066(1)(j) (requiring summary of more stringent provisions if regulations are more stringent than federal regulations regulating the same activity); Utah Code Ann. § 19-5-105 (prohibiting rules for administering the Clean Water Act that are more stringent than the corresponding federal regulations which address the same circumstances unless it is demonstrated that the federal rules are not adequate to protect public health or the environment).

298. Andrew Hecht, Obstacles to the Devolution of Environmental Protection: States' Self-Imposed Limitations on Rulemaking, 15 DUKE ENVT'L L. & POL'Y F. 105, 113 (2004).

299. *Id.*

300. 020-2 Wyo. Code R. § 2-2(a)(iii).

301. James McElfish, *State Protection of Nonfederal Waters: Turbidity Continues*, 52 ENVT'L L. REP. 10679, 10683 (2022).

legislation covers "waters of the state" which include "any and all surface and subsurface waters that are contained in or flow in or through this state, including wetlands." The full scope of this purported expansion of state regulatory authority will not be fully understood until the state promulgates regulations implementing this legislation, which are expected to be finalized by December 2025.[302]

However, this much is certain: to the extent that state authority is used to fill the gaps left by *Sackett*, it will be accomplished by "stitching and fitting" sometimes imperfect state authorities to address environmental problems that are national in scope.[303] As previously discussed, this state-by-state approach was so ineffective that it resulted in certain rivers becoming the ecological equivalent of "crime scene[s]."[304]

As discussed in this article, the CWA was designed to protect water quality. An incidental effect of that water quality regulation may also impair water quantity, both positively and negatively. Rather than using the CWA as a surrogate to protect water quantity, it might be more effective for states to protect water quantity directly through other legislative or regulatory programs that would protect flows of water necessary to preserve the integrity of the prior appropriation system. Historically, however, the states have been reluctant to take on the role of independently protecting streams and rivers from the impacts of dredged and fill material. Since the inception of the CWA, only three states have been authorized to assume the section 404 permitting program. There are many reasons for this, including the costs and resources necessary to operate a section 404 program, the lack of technical expertise, the administrative complexity of coordinating regulatory decisions with the federal government, and the lack of political will to deal with the challenges of assuming a potentially controversial regulatory program that frequently pits the government against private property owners.[305] Further evidence that the states are unlikely to take a more expansive approach to regulating small, non-relatively permanent waters is that, in 2015, thirty-two states challenged the Obama administration's Clean Water Rule in court, arguing that its expansion of jurisdiction to include non-relatively permanent waters would impose

302. H.B. 24-1379, 74th General Assembly, Second Reg. Sess. (Colo. 2024).

303. Robert Haskell Abrams, *Prior Appropriation and the Commons*, 37 UCLA J. ENVT'L L. & POL'Y 141, 148 (2019).

304. DOUGLAS BRINKLEY, SILENT SPRING REVOLUTION: JOHN F. KENNEDY, RACHEL CARSON, LYNDON JOHNSON, RICHARD NIXON, AND THE GREAT ENVIRONMENTAL AWAKENING 83 (2022).

305. See David Evans, Clean Water Act §404 Assumption: What Is It, How Does It Work, and What Are The Benefits?, 39 ENVT'L L. REP. NEWS & ANALYSIS 10359, 10360 (2009); see, e.g., Lance D. Wood, The ECOS Proposal for Expanded State Assumption of the Clean Water Act §404 Regulatory Program: Unnecessary, Unwise, and Unworkable, 39 ENVT'L L. REP. NEWS & ANALYSIS 10209 (2009); Why States Don't Assume (or What Challenges Would They Face With) the Section 404 Program, NAT'L ASS'N OF STATE WETLAND MANAGERS, https://www.nawm.org/pdf_lib/why_states_don't_assume_the_section_ _404_program.pdf (last visited Mar. 29, 2025).

excessive costs.[306] These states are unlikely to self-impose more stringent protections for non-relatively permanent waters that they have fought to deregulate.

Designing an effective solution to the water quantity-related issues inherent in the *Sackett* decision will have to wait until these problems manifest themselves and there is a clearer understanding of how water quantity allocation has been impacted. There is little doubt that allocating water quantity in the arid West will become more challenging due to climate change, population growth, and the increasing demands being made on a shrinking resource. The *Sackett* decision may create additional unanticipated pressures on a system that is already overstressed and present opportunities to reshape the regulation of water resources toward a more sustainable path.

306. David A. Keiser et al., *A Water Rule That Turns a Blind Eye to Transboundary Pollution*, 732 SCIENCE 241, 242 (2021).