



**Testimony for the U.S. Senate Committee on Environment and Public Works:  
*Examining the Implications of Sackett v. U.S. Environmental Protection Agency for Clean  
Water Act Protections of Wetlands and Streams***

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Thank you for the opportunity to provide testimony on the implications of *Sackett v. Environmental Protection Agency (EPA)* for federal water protection.

I have authored 81 peer-reviewed publications on aquatic ecosystems and waterbody connectivity. In my capacity as a member of the American Fisheries Society and the Society for Freshwater Science, I contributed to an amicus brief to the U.S. Supreme Court in *Sackett vs. Environmental Protection Agency (EPA)*. I was also a member of the EPA’s Science Advisory Board Panel (2013-2014) that reviewed the science around connectivity of streams and wetlands to downstream waters and the subsequent 2015 Clean Water Rule. I have included the amicus brief, as well as several relevant publications, in Appendix A of my written testimony (p. 14).

The mandate of the Clean Water Act is to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters. This objective can only be achieved with a definition of WOTUS grounded in sound science that recognizes the multiple dimensions of waterbody connectivity: physical/hydrological, chemical, and biological. More than a half century of scientific research demonstrates that the integrity of “traditionally navigable” waters fundamentally depends on tributaries – including headwater ephemeral, intermittent, and perennial streams – as well as many associated lakes, wetlands, and off-channel habitats (USEPA 2015). Aquatic ecosystems depend upon transfers of chemical components, organisms, sediment, and organic materials among waterbodies to support the life in and around their shores. Without the safeguards of the Clean Water Act for these streams and wetlands, the ability of these waters to convey nutrients, provide pathways for migrating organisms such as fish and wildlife, and mitigate floods and droughts is severely undermined.

The *Sackett* decision abandons scientific consensus at a time when protections are most needed. The United States has lost vast amounts of historic wetlands. Twenty-two states have

experienced a loss of wetland area >50%. Many midwestern states have lost >80% (Dahl 1990). Likewise, ~5 million acres of wetlands existed at the time of California's statehood in 1850. Today, only 9% of these wetlands remain owing to conversion to intensive agriculture, urbanization, and channelization of rivers (see Sulliván and Gardner 2023 and references therein). Certain types of wetlands have been particularly affected. For instance, agricultural development led to the loss of 95% of non-floodplain wetlands in the U.S. Prairie Pothole Region between 1997-2009 (Dahl 2014). The situation for streams is also concerning: USEPA (2004) assessments indicate that 42% of US stream length is in poor biological condition. The current state of impairment of U.S. waters implies we should be buttressing water protections, not removing them.

As described by Justice Alito, “*Sackett concerns a nagging question about the outer reaches of the Clean Water Act (CWA), the principal federal law regulating water pollution in the United States.*” These “*outer reaches,*” in fact, refer to our Nation's most vulnerable waters (Creed et al. 2017). The established science around smaller and often non-permanent (i.e., those that flow in response to precipitation events [ephemeral] or flow seasonally [intermittent]) streams and wetlands shows that they maintain hydrological, chemical, and biological functions that are essential in sustaining human well-being, ecological health, and the economy (Cohen et al. 2016, Colvin et al. 2019). Conservative estimates suggest that wetlands outside of floodplains such as prairie potholes provide \$673 billion USD per year, whereas headwater streams – small streams at the upper ends of watersheds – contribute \$15.7 trillion USD per year to the US economy via a suite of services including water supply and purification, climate regulation, flood control, and recreation (Creed et al. 2017).

To conform with the *Sackett* decision, the EPA has recently amended the rule it finalized earlier in 2023, replacing it with the Supreme Court's restrictive interpretation and grossly scaling back protections of our Nation's waters (USEPA et al. 2023). Without scientific backing, the Court concluded that the significant nexus standard was “inconsistent with the text and structure of the [Clean Water Act].” *Id.* at 1341. Rather, the Court “conclude[d] that the *Rapanos* plurality was correct: the [Clean Water Act]'s use of ‘waters’ encompasses ‘only those relatively permanent, standing or continuously flowing bodies of water “forming geographic[al] features” that are described in ordinary parlance as “streams, oceans, rivers, and lakes.”’ *Id.* at 1336 (quoting *Rapanos*, 547 U.S. at 739). The Court also “agree[d] with [the plurality's] formulation of when wetlands are part of ‘the waters of the United States,’” *id.* at 1340–41: “when wetlands have ‘a continuous surface connection to bodies that are “waters of the United States” in their own right, so that there is no clear demarcation between “waters” and wetlands.”’ *Id.* at 1344 (citing *Rapanos*, 547 U.S. at 742, 755).

*Sackett* is likely to cause substantial and widespread harm to the Nation's waters. In the case of *Sackett*, the U.S. Supreme Court declared that a wetland, to be afforded CWA protection, must have a continuous surface connection with a “water of the United States” – an ocean, river,

stream, or lake – such that it is difficult to determine where the “water” ends and the “wetland” begins (i.e., adjointment). This ruling removes the majority of U.S. wetlands from federal protection. Wetlands provide essential ecosystem services such as protection of drinking water quantity and quality; provisioning of flood storage; storm damage mitigation; resilience against sea level rise and drought; and essential fish, shellfish, waterfowl, and wildlife habitat (Creed et al. 2017, Sullivan et al. 2019).

The federal government has declined to make estimates at the national scale (USEPA and USDOA 2021), but data exist that point to severe loss of protections. Nationwide, at least 16.3 million acres of non-floodplain wetlands – roughly equivalent to the size of the state of West Virginia – will not be federally protected outright (Lane and D’Amico 2016), with an uncalculated number of additional floodplain wetland acres at risk.

In many states, loss of protections for wetlands could be staggering: e.g., 61% of wetlands in Montana (USDOJ 2023) have no apparent surface water connection to any other waterbody and could lose protection (Vance 2009); up to 78% percent of headwater wetlands in coastal North Carolina could lose protection as well as the majority of basin, bog, bottomland hardwood forest, Carolina bay, floodplain pool, hardwood flat, headwater forest, non-riverine swamp forest, pine savanna, pocosin, and seep wetland types found in the state (Moffat and Nichol 2019); and more than 50% of Tennessee wetlands are potentially excluded from protection (Siedschlag et al. 2010). Modeling estimates indicate that more than 40% of wetland acres in some New Mexico watersheds will not be protected at the federal level (Meyer and Robertson 2019). Fewer than half of New York wetlands are located within 100 feet (~30 meters) of waterways (Wade et al. 2022). In the extensively drained midwestern Wabash River Basin, ~17% of current wetlands – which equates to about 3% of the historical wetland acres in the region, given that 80% have been lost since European colonization – are within 100 feet of waterways (Walsh and Ward 2002). In both the New York and Wabash River studies, 100 feet was used as the narrowest interpretation of prior CWA rules, although this interpretation was still much broader than the *Sackett* criterion for adjointment via a continuous surface connection. With the more stringent requirement, only a fraction of these wetlands would be left with federal protections, representing the largest loss of wetland protections since they have been federally regulated (Walsh and Ward 2022).

While the Court’s opinion is focused on wetlands, it also jeopardizes non-perennial streams. For context, ephemeral and intermittent streams represent 59% of all streams in the conterminous United States, and >81% of streams in the arid and semi-arid Southwest (Levick et al. 2008, Nadeau and Rains 2007). As such, ecosystem services of watersheds across the U.S. are threatened: water quality and quantity; flood protection and mitigation; and the maintenance of biodiversity, including many endangered species as well as recreationally and commercially valuable fishes like salmon and herring (Colvin et al. 2019). *Sackett* removes protections for all ephemeral streams, despite their importance and the risks associated with their impairment that have been widely recognized (Levick et al. 2008, Colvin et al. 2019) including by EPA: “*Despite*



*their seasonal or temporary appearance on the landscape, seasonal and rain-dependent streams are critical to the health of river systems, are hydrologically and biologically connected to the downstream waters, and provide many of the same functions and values as rivers and larger streams” (USEPA 2023).*

Whereas western states will experience a disproportionately greater loss in federal protection, all states will be significantly impacted. Across the nation, at least 4.8 million miles of streams will now be categorically unprotected under this ruling (Fesenmyer 2021). More than 40% of streams will not be federally protected in many watersheds of Virginia, North Carolina, South Carolina, and Georgia (Moffat and Nichol 2019). With ephemeral and intermittent streams making up over 81% of streams in the Southwest (Levick et al. 2008), loss of protections in arid and semi-arid regions will be extreme: modeling estimates indicate that greater than 85% of stream length in some New Mexico watersheds will be left without protection (Meyer and Robertson 2019).

Two key ecological functions that pose direct risk to human well-being are flooding and drought. In the U.S., flooding caused 4,586 fatalities from 1959-2005 (Ashley and Ashley 2008); from 1996-2015, flooding resulted in 1,563 deaths (Lim and Skidmore 2019). Floods during the 20-yr period from 1996-2015 led to more than \$167 billion USD in damages in the U.S. (Lim and Skidmore 2019), with projections pointing to increasing frequency and magnitude of extreme weather events such as severe flooding (Milly et al. 2002). People most vulnerable to floods tend to have weaker economic and social bases, lower education levels, and poor housing quality (Lim and Skidmore 2019). Wetlands are key players in reducing the number and severity of floods, as well as in storing storm-water runoff and minimizing non-point source pollution (Acreman and Ferguson 2009). On the flip side of the coin, wetlands protect against drought by storing water during times of high flows and releasing it slowly over time, returning it to the water table during periods of scarcity. Some estimates suggest that adverse changes to wetlands – such as alterations in their capacity to mitigate drought – will cost more than \$20 trillion USD in ecosystem services annually on a global scale (Costanza et al. 2014).

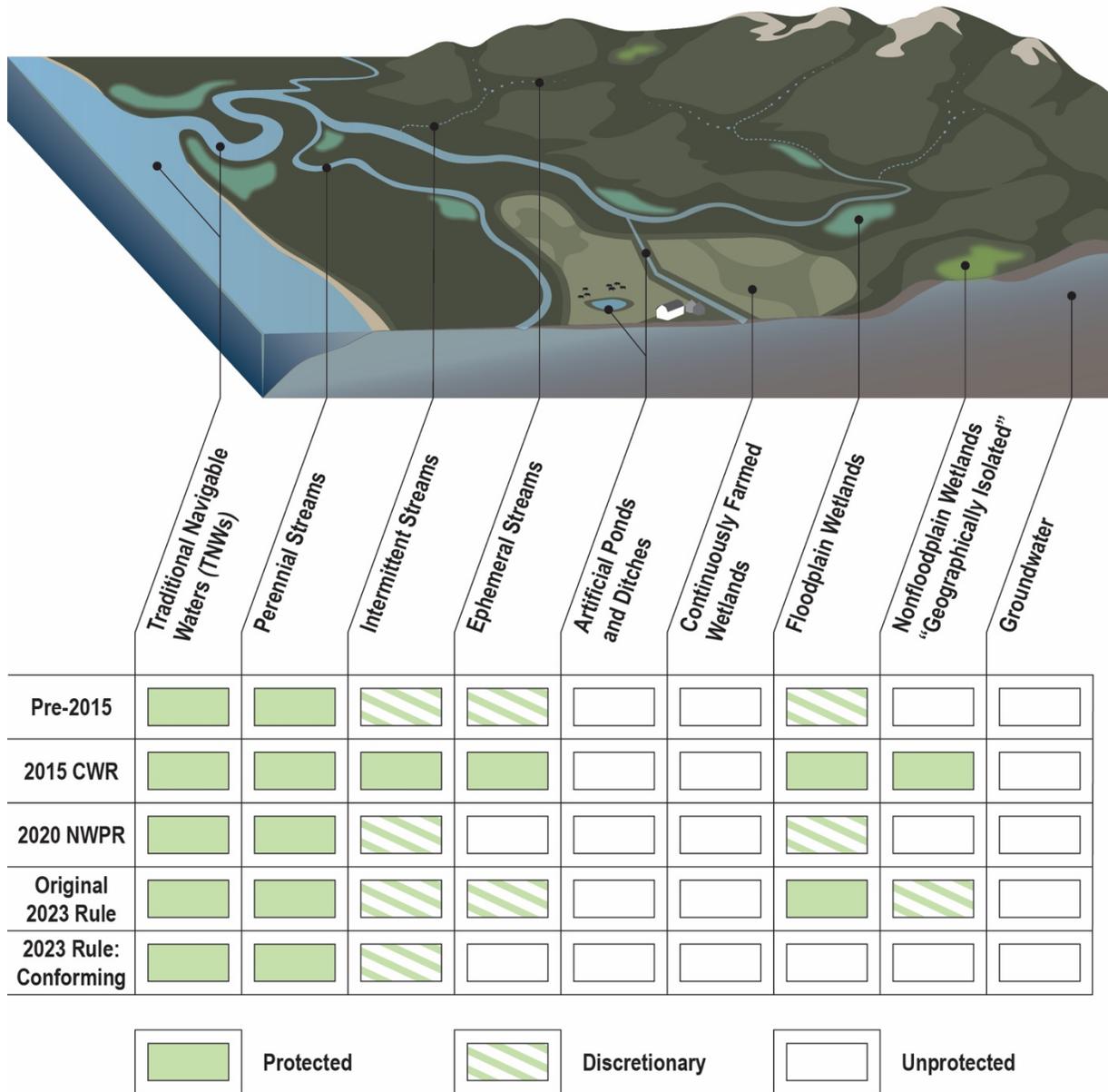
Many states and tribes rely on federal regulation for water protection, and absent comprehensive federal protection, most of their waterbodies are left unprotected or only weakly protected. Thirteen states have laws requiring that their regulations parallel federal regulations; 24 states have laws requiring proof of benefit before their regulations can be extended beyond federal requirements (USEPA and USDOA 2020). Despite the U.S. trust responsibility to protect tribal rights and resources, many tribes have found that federal protection of waters has been inadequate in providing sufficient protection, leading to impaired water quality and compromised public health on reservations (Sanders 2010). Furthermore, although tribal “treatment as a state” (TAS) provisions represent a mechanism to address these types of problems, the procedure for gaining TAS and securing appropriate funding and staffing to administer WQS programs have made pursuing this option impracticable for most tribes. As of 2018, only 54 of the roughly 330 federally recognized tribes that meet TAS eligibility requirements had received TAS status and only 44 of those had their WQS approved by the EPA (Diver 2018). *Sackett* fails to recognize

culturally-distinct uses of waters and account for place-based Indigenous knowledge. The inadequate protection of water resources on tribal lands leaves vast swaths of reservation streams and wetlands unprotected, threatening indigenous cultural, spiritual, and subsistence practices (Sulliván et al., *In press*).

Climate change will only exacerbate the situation. Aquatic resources in many states, particularly in the western U.S., are already stressed by overuse of water and extreme weather patterns. This reduction in groundwater has greatly impacted flow regimes, causing many streams to shift from perennial to intermittent or even ephemeral. Under *Sackett*, streams that were historically perennial, but may exhibit degraded flow conditions in the future, will fall out of protection. Although water rights and use largely fall outside the jurisdiction of the Clean Water Act, the negative impacts of unregulated dredge and fill within these streams would be additive to the current stressors faced by aquatic ecosystems and could further reduce potential for habitat recovery. Such cumulative impacts increase the likelihood of future species listings and risk of extinctions, further jeopardizing the ecological integrity and function of our waters (Sulliván et al. 2019).

The Court bludgeons science to render an opinion that is catastrophic for water protection across the United States. For example, the Court's primary conclusion requiring a permanent hydrological surface connection demonstrates a fundamental lack of understanding of how natural waters function and connect across space and time. Further, the Court perpetuates a sole reliance on physical connectivity of surface waterbodies and ignores chemical and biological connections in determining jurisdiction. The limited protections precipitated by *Sackett* threaten highly valued fishes, fisheries, ecosystem services, and the communities that rely on them (Colvin et al. 2019). *Sackett* eliminates protections for millions of miles of headwater streams and millions of acres of wetlands and could result in severe ecological and economic losses and cause irreparable cultural and social damage (Cohen et al. 2016; Fesenmyer et. al. 2021; Creed et. al. 2017; Sulliván Declaration 2020).

The standard established in *Sackett* establishes stricter protection than those in rules proposed by the Obama, Trump, and Biden administrations (Ward and Amos 2023) (Figure 1). In no prior agency rule, scientific report, opinion from a scientific agency, or Science Advisory Board recommendation has the notion of adjoinment been proposed (Jacobs 2020).



**Figure 1.** Multiple rule-making iterations have led to variable definitions of waters of the United States (WOTUS). The 2015 Clean Water Rule offered the most protection and was most aligned with scientific understandings of waterbody connectivity, permanence, and conservation. On the other hand, the 2023 *Sackett v. EPA* U.S. Supreme Court decision and subsequent Conforming Rule leaves most wetlands and non-permanent streams unprotected. CWR = Clean Water Rule;



NWPR = Navigable Waters Protection Rule. Discretionary = federal protection/jurisdiction of Clean Water Act determined on a case-by-case basis. From Sulliván et al. (*In preparation*).

The 2015 Clean Water Rule (CWR; USEPA et al. 2015) was based on the demonstrated importance of the many physical, chemical, and biological connections of headwaters to the ecological condition of downstream and downslope navigable waters and their biota. The 2015 CWR was informed by the best scientific information available as set forth in the comprehensive scientific report that accompanied the rule, i.e., the “*Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of the Scientific Evidence*.” The Connectivity Report synthesized over 1,200 peer-reviewed publications and provided the technical basis for the 2015 CWR. In the intervening years, interdisciplinary scientific efforts have further demonstrated the importance of protecting non-permanent waterbodies, including intermittent and ephemeral headwater streams and wetlands that are hydrologically and biologically connected to navigable waters (e.g., Cohen et al. 2016, Rains et al. 2016, Fritz et al. 2018, Harvey et al. 2018, Leibowitz et al. 2018, Schofield et al. 2018, Colvin et al. 2019).

In contrast, the 2020 Navigable Waters Protection Rule (NWPR; USEPA et al. 2020) was not based on current science and reversed decades of protections that were put in place to ensure clean water would be available for future generations (Sulliván et al. 2019, Sulliván et al. 2020). The 2020 NWPR focused only on hydrological surface connections to establish jurisdiction. It ignored many key biological and chemical connections that are critical for fully functioning aquatic ecosystems. It only recognized a limited subset of connectivity conditions, and it relied on flow permanence and physical abutment as measures of jurisdiction. Hence, it arbitrarily ignored other ecologically critical aspects of physical connectivity such as bed, banks, and high-water marks, and chemical, biological and ecological connectivity that were incorporated in the 2015 CWR. The 2020 NWPR eliminated protections for a staggering number of headwater streams, which are broadly defined as portions of a river basin that contribute to the development and maintenance of downstream navigable waters including rivers, lakes, and oceans. Under the Court’s reasoning, even the 2020 NWPR, which misinterpreted science and ignored the CWA’s goals (Sulliván et al. 2019, Sulliván et al. 2020), protected *too* many waters.

The Court’s description of the vast population of non-navigable wetlands and streams as “*outer reaches*” is akin to minimizing the importance of the network of capillaries and small veins to the functioning of our circulatory systems and overall condition. The Court’s decision has significantly weakened water protection and gambled with environmental, human, and economic health at a time when protections should be strengthened. In addition to massive losses and impairment of aquatic resources nationwide, warmer temperatures and altered precipitation regimes associated with global climate change are expected to further accelerate wetland loss (Colvin et al. 2019, Millett et al. 2009). The impacts of this decision will ripple through our nation’s waters with yet to be quantified, but assuredly long-lasting, detrimental effects (Sulliván and Gardner 2023).



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I have worked extensively at the interface of science and policy, and recognize the need to protect water while still allowing for reasonable uses. However, science cannot be side-stepped in the process. There are numerous options available for a durable WOTUS rule grounded in science that strikes the appropriate balance between conservation and effective use of water. For example, instead of simple binary (i.e., “protect or not”) management of non-perennial headwaters and wetlands, a graded system dependent on the frequency of surface inundation, ecosystem services, and socioeconomic values should be, but has not, been considered (Sulliván et al., *In preparation*). The *Sackett* decision is not grounded in science, short-sighted, and runs counter to the intent of the CWA. I urge Congress to remedy this situation.

Thank you for the opportunity to comment. I am willing to assist should you need additional information or consultation.

Sincerely,

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## **Appendix A: Supporting Documents**

- A.** Colvin, S. A. R., S. M. P. Sullivan, P. D. Shirey, R. W. Colvin, K. O. Winemiller, R. M. Hughes, K. D. Fausch, D. M. Infante, J. D. Olden, K. R. Bestgen, R. J. Danehy, and L. Eby. 2019. Headwater streams and wetlands are critical for sustaining fish, fisheries, and ecosystem services. *Fisheries* 44:73-91.
- B.** Creed, I. F., C. R. Lane, J. N. Serran, L. C. Alexander, N. B. Basu, A. J. K. Calhoun, J. R. Christensen, M. J. Cohen, C. Craft, E. D'Amico, E. DeKeyser, L. Fowler, H. E. Golden, J. W. Jawitz, P. Kalla, L. K. Kirkman, M. Lang, S. G. Leibowitz, D. B. Lewis, J. Marton, D. L. McLaughlin, H. Raanan-Kiperwas, M. C. Rains, K. C. Rains, and L. Smith. 2017. Enhancing protection for vulnerable waters. *Nature Geoscience* 10:809-815.
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