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The Clean Water Act's 50th Anniversary

Nine Key Reforms for Clean Water Today



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Executive Summary

For a half century, the [Clean Water Act](#) has been the nation's leading water pollution control law. With its passage in 1972, Congress aimed to restore and maintain the chemical, physical, and biological integrity of the nation's waters through a regulatory and permitting regime designed to minimize, and ultimately eliminate, water pollution. While this goal has not been completely realized, the modern Clean Water Act has prevented and continues to prevent significant water pollution on a daily basis.

Prior to the passage of the Clean Water Act, the nation's waters were so polluted from industrial waste that some were catching fire. Ohio's Cuyahoga River infamously caught fire in 1969, but it had done so at least a dozen times before. These fires sparked a public movement for environmental health, safety, and protection and eventually led to the establishment of the U.S. Environmental Protection Agency (EPA) and, three years later, the landmark Clean Water Act, which has helped keep our waters clean, healthy, and safe.

Since 1972, the Clean Water Act has undergone numerous amendments, court interpretations, and varied implementation across political administrations. This policy brief aims to help policymakers and advocates prioritize necessary reforms to the law and its overall implementation in the context of its 50th anniversary year.¹ This brief is a succinct follow-up to [The Clean Water Act: A Blueprint for Reform](#), by William Andreen and Shana Campbell Jones, a 2008 report that laid the groundwork for many of the recommendations herein.

While the Clean Water Act has been *the bedrock* for water protection over the last few decades, roughly half of the nation's waters are still [impaired](#) by pollution. To ensure continued remediation and protection of our nation's waters in the face of growing pollution, this brief recommends the following:

¹ The Clean Water Act turned 50 on October 18, 2022.

- 1. Congress must direct the U.S. Environmental Protection Agency (EPA) to adequately regulate water pollution and the degradation of wetlands under a revised definition of “Waters of the United States” (WOTUS) that emphasizes science, hydrological connectivity, downstream effects, and the adverse impact of pollution on water quality.**
- 2. Congress must amend the Clean Water Act to give greater oversight authority to the EPA and states to address, monitor, and reduce nonpoint source and nutrient pollution.**
- 3. The federal government must pass laws and promulgate rules under the Clean Water Act to protect waterways in response to adverse water quality impacts of climate change.**
- 4. The federal government must strengthen pollution controls required under the Clean Water Act and ensure that technology-based limitations (effluent limits) are updated, modern, and effective. Congress and the EPA must urgently address new and emerging contaminants, like per- and polyfluoroalkyl substances (PFAS), under the National Pollutant Discharge Elimination System (NPDES) program.**
- 5. The EPA must issue comprehensive spill prevention and response regulations for aboveground chemical storage facilities, owners, and operators.**
- 6. Congress must address loopholes that allow industrial waste to be treated as fill material under Section 404 of the Clean Water Act, thereby allowing industry to avoid stricter water quality requirements in Sections 301, 306, and 402.**
- 7. State environmental agencies must enhance public participation, notice, and transparency requirements to ensure that “downstream communities” are aware of and able to provide input on the implementation of the NPDES permitting program and the regulation of nonpoint source pollution.**

- 8. Congress and state legislatures must significantly increase the budget, staffing, and resources for the EPA and state agencies charged with implementing the Clean Water Act.**
- 9. Federal and state governments must bolster and aggressively pursue enforcement measures to ensure widespread compliance with the Clean Water Act.**

These changes are critical and urgent. That said, we recognize that our polarized politics may delay reform. For this reason, we present these recommendations as aspirations for the future — and hope they are no longer needed when the act reaches its next milestone birthday.

Recommendations

Recommendation #1: Congress must direct the U.S. Environmental Protection Agency (EPA) to adequately regulate water pollution and the degradation of wetlands under a revised definition of “Waters of the United States” (WOTUS) that emphasizes science, hydrological connectivity, downstream effects, and the adverse impact of pollution on water quality.

Why it's essential:

- Language is important. How we define our nation's waters (WOTUS) determines how the Clean Water Act is applied — and which waters are protected. For decades, presidential administrations and courts have redefined WOTUS, with some doing so broadly and others narrowly, excluding groundwater, "ephemeral" streams, and other types of waters. Pollution to waters that fall outside of the WOTUS definition, however, damages those that are "hydrologically connected."
- Every year, thousands of wetlands are lost because their drainage is not subject to Clean Water Act jurisdiction unless dredged or fill materials are involved.

What true reform looks like:

- Congress makes explicit findings regarding the connectivity of the nation's waterways, mimicking the preamble to the [2015 Clean Water Rule](#) and its supporting technical [documentation](#).
- Congress directs the EPA to promulgate a final definition of WOTUS that:
 1. [Incorporates lessons](#) from the U.S. Supreme Court in [County of Maui v. Hawaii Wildlife Fund](#) (2019), homing in on the act's primary goals in eliminating water pollution and ensuring fishable-swimmable waters

throughout the nation by accounting for water pollution in its hydrological totality.

2. Relies on science-based indicators reflecting hydrological connectivity of headwaters, wetlands and waterways, flow, and downstream effects of dischargers; certain waters and wetlands will be categorically covered, while others may require a case-by-case assessment.
 3. Reflects the findings (and subsequent commentary) of the 400-page peer-reviewed [scientific report](#) released by the EPA's Office of Research and Development in 2015 and addresses the concerns raised in the EPA's Scientific Advisory Board's [findings](#) on the [2020 Navigable Waters Protection Rule](#).
- Congress removes all references to “navigable” waters from the Clean Water Act to clarify the act's goals: namely, to protect and restore the chemical, biological, and physical integrity of *all* of the nation's waters, not only its navigable waters.
 - Clean Water Act Section 404 comprehensively protects wetlands by regulating activities that drain them, setting forth concrete criteria and guidance for evaluating and assessing the degree to which mitigation plans compensate for wetlands loss.
 - Clean Water Act Section 404 codifies language clarifying that discharge of dredged material includes any redeposit of dredged material into waters of the United States. This practice is incidental to mechanized land clearing, ditching, channelization, and other excavation.

Recommendation #2: Congress must amend the Clean Water Act to give greater oversight authority to the EPA and states to address, monitor, and reduce nonpoint source and nutrient pollution.

Why it's essential:

- Nonpoint source pollution, or runoff from farms, mining, construction, and other operations that do not generate pollution through a discrete conveyance, is the leading cause of water pollution today. The “self-monitoring” approach utilized by industrial end-of-pipe polluters does not work for nonpoint source pollution because it arises intermittently and from a variety of sources and is less easily quantified.
- A total maximum daily load (TMDL) is calculated for each waterway to determine the maximum amount of pollution allowed in order to maintain healthy water quality. Some refer to a TMDL as the “pollution diet” for any given waterway. To ensure the TMDL is more than an expensive exercise on paper, Congress should amend the Clean Water Act to ensure pollution reduction targets outlined in TMDLs are met. This is critical for protecting wildlife and aquatic habitats as well as public health and welfare.

What true reform looks like:

- The EPA creates a comprehensive monitoring program for stormwater and animal waste discharges under general permits.
- The EPA and states ramp up compliance efforts to identify agricultural facilities that require individual Clean Water Act permits.
- Clean Water Act Sections 303 and 319 ensure the identification of impaired waters or waters that cannot meet their designated use in a comprehensive and timely fashion.

- State water quality criteria under Section 303(c)(3) include requirements for biological criteria and minimum flows to protect wildlife and aquatic ecosystems.
- Clean Water Act Section 319 requires states to review and submit revised management plans (with enforceable conditions and requirements) to the EPA every two years, identifying best management practices to control nonpoint source pollution.
- Clean Water Act Section 319 authorizes the EPA to promulgate all or a portion of a state's nonpoint source management plan if the state (1) fails to submit a timely program, (2) does not receive EPA approval of its program, or (3) fails to implement and enforce the program.
- Clean Water Act Section 303 includes reasonable deadlines for reducing pollutant discharges and runoff to amounts consistent with TMDLs, with periodic milestones, for necessary accountability. TMDLs are issued for impaired waters due to, in whole or in part, various flow and hydrologic modifications.
- TMDLs are translated into stricter National Pollution Discharge Elimination System (NPDES) permit limits and mandatory nonpoint source controls by reasonable deadlines.

Recommendation #3: The federal government must pass laws and promulgate rules under the Clean Water Act to protect waterways in response to adverse water quality impacts of climate change.

Why it's essential:

- Climate change will result in baseline changes to water quality from increased flooding and sedimentation, extreme drought, and sea-level rise. These combined changes will affect water chemistry, biological processes, aquatic food webs, and the suitability of water bodies for certain uses.

What true reform looks like:

- The EPA issues guidance for Clean Water Act permittees (including stormwater general permits) and regulators to determine whether and how required practices are adequately adapted to present-day precipitation, natural hazard, and extreme weather risks, which are all worsening due to climate change.
- Clean Water Act Section 404 requires the U.S. Army Corps of Engineers to consider climate change in permitting and the importance and value of wetlands as natural barriers to preventing flooding in communities.
- Clean Water Act Section 319 requires states to factor climate change into their management plans, emphasizing the need for greater nonpoint source pollution controls due to increased rainfall and extreme weather events associated with climate change.
- TMDLs account for climate impacts; Clean Water Act Section 303 requires the assessment of waters that are impaired, in whole or in part, as a result of climate change.
- The EPA requires states to actively update existing use criteria for water quality standards (consistent with existing antidegradation requirements) to reflect the realities of climate change; rising air and surface water temperatures and sea-

level rise have already impaired or made it more difficult to maintain existing uses for certain water bodies.

- Congress funds comprehensive water quality monitoring to better understand and respond to local impacts on water quality from climate change.
- Enforcement, compliance, and restoration efforts account for climate change impacts, such as future precipitation changes, within the expected lifetime of the operation.
- The EPA issues guidance providing uniformity and clarity on how NPDES permittees must include conventional climate adaptation engineering practices in their best professional judgment related to the adequacy of monitoring requirements in permits and newly proposed effluent limitations.

Recommendation #4: The federal government must strengthen pollution controls required under the Clean Water Act and ensure that technology-based limitations (effluent limits) are updated, modern, and effective. Congress and the EPA must urgently address new and emerging contaminants, like per- and polyfluoroalkyl substances (PFAS), under the National Pollutant Discharge Elimination System (NPDES) program.

Why it's essential:

- Through the Clean Water Act, Congress intended to impose progressively more stringent controls on pollution of waterways, but the current pace of progress is too slow. Effluent limits, the primary mechanism to control pollution under Section 402 discharge permits, and other pollution controls under the Clean Water Act are only as good as the pollutant control technologies required. A majority of the industrywide effluent limits were created before 2000 and have either not been updated or were updated more than 20 years ago.
- In 2019, the [top 100 toxic polluters](#) in the United States released 337 billion pounds of hazardous chemicals into the environment, about a third (113 million pounds) of which went into the country's surface waters. Hundreds of billions of gallons of raw sewage and industrial waste enter the country's waterways annually from combined sewer overflows and sanitary sewer overflows. Low-wealth communities of color disproportionately located near these facilities have borne the brunt of this pollution.

What true reform looks like:

- Congressional infrastructure spending includes funding for publicly owned treatment works to update their pollution controls and technologies in response to the new and growing number of toxins, including [PFAS](#), in our waters, as well as to control excessive nutrient discharges.

- NPDES permits aim to reduce and ultimately eliminate PFAS discharges to local waterways.
- The EPA requires pretreatment programs to include source control for PFAS.
- Conventional pollutants, like fecal coliform, total suspended solids, oil, and grease, are held to the same standards as toxic and nonconventional pollutants. Clean Water Act Section 301(b) requires a “best available technology (BAT)” approach to monitoring conventional pollutants and Section 304(b) requires BAT effluent guidelines to apply to conventional pollutants.
- Clean Water Act Sections 301(d) and 304 clarify that the EPA is required to update BAT limitations whenever technological improvements meet the factors outlined in Section 304(b) to require major polluters to keep pace with technological improvements; these provisions should also include language to better incentivize the EPA and industry to update limitations on a timely basis (similar to the structure for the Resource Conservation and Recovery Act's [land disposal restrictions](#)).
- Clean Water Act Section 402(q) requires communities with combined sewer systems to incorporate green infrastructure into their long-term control plans to better manage and reduce stormwater before it enters the collection system.
- State and federal NPDES permits contain updated PFAS monitoring requirements for any facility that discharges PFAS through wastewater or stormwater, using the latest technologies and relevant data.
- Congress phases out and eliminates the use of firefighting foams that contain PFAS and ensures that replacement foams meet health and safety standards, such as those established under the eco-label certification program GreenScreen Certified Standard for Firefighting Foams.

Recommendation #5: The EPA must issue comprehensive spill prevention and response regulations for aboveground chemical storage facilities, owners, and operators.

Why it's essential:

- In [most of the United States](#), the public is not protected from spills or other disasters involving the storage of hazardous chemicals — including toxic and flammable substances — in aboveground storage tanks, which are largely unregulated and hold substances, including hazardous chemicals, that can pollute local waterways as a result of improper management, flooding, and other disasters. Because of climate change, more intense and frequent storms will result in more hazardous chemical releases from industrial facilities and more stormwater runoff in local waterways.
- Spills of hazardous chemicals disproportionately harm marginalized and sensitive populations and communities of color that are also overburdened by multiple, cumulative chemical hazards and pollution impacts.

What true reform looks like:

- The EPA issues [comprehensive spill prevention and response regulations](#), with broad applicability requirements, for hazardous substances from aboveground chemical storage facilities.
- The EPA's regulations include broad spill notification requirements, readily accessible to diverse populations and in languages that they speak and read, and dissemination through multiple media systems (*e.g.*, phone, text message, etc.) designed to reach all community members.
- The EPA enacts worst-case planning rules for hazardous substance storage and extends an [updated](#) list of Clean Water Act-regulated hazardous substances to aboveground storage facilities.

- The [Spill Prevention, Control, and Countermeasure](#) and [Facility Response Plan](#) rules extend to onshore hazardous substance facilities storing oil.

Recommendation #6: Congress must address loopholes that allow industrial waste to be treated as fill material under Section 404 of the Clean Water Act, thereby allowing industry to avoid stricter water quality requirements in Sections 301, 306, and 402.

Why it's essential:

- This loophole allows developers and others to hide the disposal of industrial waste by adding it to a sufficient amount of fill material. These individuals obtain Section 404 permits while avoiding stricter Section 402 discharge permits that contain effluent limitations and, in some cases, stricter limitations necessary to meet water quality standards, even if fill material includes industrial waste that ultimately pollutes local waterways.

What true reform looks like:

- Developers and others seeking to dispose of industrial waste or mining waste in fill material must obtain permits under both Sections 402 and 404 of the Clean Water Act.
- Alternatively, the EPA must coordinate with the Army Corps and states to develop effluent guidelines or similar technology-based and water quality-based control requirements to dispose of any fill material containing industrial or mining waste.
- All Section 404 permit applications require analytical data on pollutants contained in the fill material and where they originated.

Recommendation #7: State environmental agencies must enhance public participation, notice, and transparency requirements to ensure that “downstream communities” are aware of and able to provide input on the implementation of the NPDES permitting program and the regulation of nonpoint source pollution.

Why it's essential:

- Public engagement in regulatory decision-making in implementing laws like the Clean Water Act is the predominant form of democracy during periods between elections. But many federal and state public notice and comment procedures under the Clean Water Act are unreasonably siloed and inaccessible, and they are far from equitable, often excluding working people, people of color, low-income people, and others. Without fixes, communities are left in the dark about local projects that may sully the air they breathe, the water they drink, and the ecosystems they rely upon.

What true reform looks like:

- Clean Water Act Section 308(b) clarifies that notices of intent and permittee developed plans, like Stormwater Pollution Prevention Plans and Nutrient Management Plans, submitted under general permits are subject to the Clean Water Act's public availability provisions. Without access to such critical information, the public's ability to monitor permit compliance is significantly limited.
- States have real authority to vigorously regulate certain pollution and resources to pursue enforcement actions for unlawful pollution discharges.
- The EPA and states require enhanced public notification and engagement with downstream communities and public water systems.

- Under the Clean Water Act, Congress funds programs to support and engage communities affected by water pollution, as well as those that may be affected by an adjoining or upstream pollution source.

Recommendation #8: Congress and state legislatures must significantly increase the budget, staffing, and resources for the EPA and state agencies charged with implementing the Clean Water Act.

Why it's essential:

- Without a significant increase in resources, the EPA and state agencies will continue to have difficulty fulfilling the goals of the Clean Water Act and will be unable to meet the demands necessary to achieve the above recommendations.

What true reform looks like:

- The EPA receives a substantial budget increase for additional staffing and resources to engage in important actions like:
 - Thoroughly reviewing existing BAT limitations and permit revisions when necessary, as well as setting BAT limitations and reviewing permit revisions for conventional pollutants.
 - Forming a commission to conduct a comprehensive study of existing watershed management institutional structures.
 - Providing direct federal grants to municipal treatment facilities for construction and upgrades and expanding funding for the [State Revolving Fund](#).
 - Enforcing important water pollution rules to cultivate a culture of compliance.
- State agencies have adequate funding to expand the scope and accuracy of water quality monitoring efforts, increase inspection of water pollution sources, and strengthen enforcement of Clean Water Act regulations.

- The Army Corps has additional staff so it can thoroughly analyze Section 404 permit applications and monitor and aggressively enforce consequences for illegal fills and violations of approved permits.

Recommendation #9: Federal and state governments must bolster and aggressively pursue enforcement measures to ensure widespread compliance with the Clean Water Act.

Why it's essential:

- Inspections demonstrate sweeping noncompliance with the Clean Water Act. Environmental enforcement activities and data are rarely advertised, making both state and federal enforcement vulnerable to administrative and political whims and budget cuts. Without adequate enforcement and needed tools, the Clean Water Act amounts to little more than good advice.

What true reform looks like:

- Federal and state authorities have explicit authority to regulate broad swaths of pollution and adequate resources to vigorously pursue enforcement actions for unlawful pollution discharges. Every state has a dedicated environmental justice enforcement division to prioritize the most underserved and overburdened communities.
- The EPA requires states to follow the [Next Generation Compliance Model](#), which helps states integrate compliance and enforcement data in the EPA's [Enforcement and Compliance History Online](#).
- Clean Water Act Section 505 enables citizen suits for “wholly past” violations when evidence exists of repeated infringement and authorizes an award of 10 percent of any assessed penalty to the citizen or citizens who bring suit as compensation for injuries suffered.
- Clean Water Act Section 309 requires the EPA to report annually and consistently (with the same indicators and variables) on its enforcement achievements and those of the states from the prior year.

- Clean Water Act Section 303 creates watershed-level institutions that better coordinate and manage the wide range of activities that adversely affect the biological, physical, and chemical integrity of the country's waters. This approach reflects how our water resources work and promotes the broad action and cooperation needed to protect our waters.

Conclusion

The health of the nation's waterways depends on the successful implementation and enforcement of an updated and upgraded Clean Water Act.

The nation's waters and the people that drink from them, swim in them, and fish on them have greatly benefitted from the Clean Water Act's passage more than five decades ago. However, half of the country's waterways are still impaired from pollution, continued destruction of the nation's wetlands, the realities of climate change, and the introduction of new and emerging pollutants like PFAS and various pharmaceuticals. As such, Congress and EPA must act ambitiously and swiftly to strengthen and modernize the law.

Water pollution most acutely impacts overburdened and underserved communities near industrial waste streams, which are more likely to comprise low-wealth people and people of color. Moving forward, environmental health and awareness must be prioritized for such "downstream communities," especially as climate change increases the severity and intensity of extreme weather events that can lead to toxic floodwaters and hazardous chemical spills. The Clean Water Act's permitting regime must be improved to enhance public participation and involvement of these and all impacted communities.

Likewise, enforcement of the Clean Water Act must be prioritized in areas with the greatest number of polluters, where communities are most at risk. To effectively address these priorities, Congress and state legislatures must significantly increase the budgets of the EPA and state environmental protection agencies. This would also allow these agencies to achieve their broader water protection goals at a time when water pollution continues to grow. Given the political reality of federal and state governments, these challenges become ever more difficult to overcome.

With these steps and the policies proposed in this policy brief, environmental agencies at the state and federal levels can move our nation closer to meeting the goal of clean, safe, and healthy water for all people.