

The Clean Water Rule: Clearing Up Confusion to Protect Public Health

Safe and clean water is a vital part of life. It is important for drinking, recreation, hygiene, industry and agriculture. Clean water is especially essential for limiting infectious diseases and preventing their spread — just as dirty water contributes directly to poor public health.

Advances in water cleanliness helped significantly extend Americans' life expectancy during the 20th century.¹ Despite advances in water management, however, waterborne illnesses still pose a serious threat to Americans' health. Around 10 percent of water samples from coastal beaches fail the Environmental Protection Agency's (EPA) top benchmark for water safety.²

Water-related illnesses are largely underreported since they must become severe enough to necessitate significant medical attention and require clear evidence of a causal link to go on record — but, according to official accounts, the United States still experiences a significant number of waterborne illnesses each year (around 30 outbreaks and 1,000 reported drinking water-related cases and around 24 outbreaks and 1,300 recreational water-related cases).³

⁴ Worldwide, waterborne illnesses like diarrhea, caused by inadequate drinking

water, sanitation and hand hygiene, kill an estimated 2,300 people per day.⁵

The sources of these waterborne threats can vary, from industrial dumping in rivers and lakes to improper disposal of sewage in cities. In the United States, over the past two decades, public health and water officials have been engaged in an active debate over one particular source of potential waterborne threats to public health: the streams, wetlands and tributaries, also known as “headwaters,” from which much of our freshwater supply originates. Industrial pollution, animal and human waste, and waterborne pathogens are often found in these smaller bodies of water, and addressing this source of potential public health threats is an urgent issue.

Fortunately, recent action by federal agencies will help address this situation, protect water bodies from contamination sources upstream and, in turn, improve everyone's access to the clean water we all need.



A Clearer Standard for Clean Water in the US

On May 27, 2015, the EPA and the U.S. Army Corps of Engineers signed their final Clean Water Rule. The Rule relies on copious scientific research and legal analysis, hundreds of stakeholder meetings and more than a million public comments, and it aims to clarify which bodies of water in the United States are protected under the federal Clean Water Act (CWA).⁶ The Clean Water Rule is meant to resolve more than a decade of legal uncertainty that had limited the federal government's ability to protect Americans from pollutants, pathogens and other causes of waterborne illness.

Clean water is essential to public health. As EPA notes, "about 117 million Americans — one in three people — get drinking water from streams that lacked clear protection before the Clean Water Rule."⁷ The new Rule will make protecting drinking water, along with water used for cooking, recreation and other purposes, much simpler as it "ensures that waters protected under the Clean Water Act are more precisely defined and predictably determined" and makes clean water permitting "less costly, easier, and faster for businesses and industry."⁸

For the first time in more than a decade, the streams, tributaries and other small bodies of water that contribute to the drinking water of one-third of the American population will be better protected from upstream pollution sources.

Trust for America's Health (TFAH) believes the Clean Water Rule will have real benefits for public health. This issue brief lays out why the Rule was necessary, how it will improve and protect Americans' health, and the status of the Rule moving forward.

Background: Muddying the Waters

The federal CWA was passed in 1972 "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."⁹ The CWA established the basic structure for regulating pollutant discharges into the 'waters of the United States' and gave EPA the responsibility to oversee states' water pollution control programs and the authority to protect those waters and implement pollution control programs where states did not.¹⁰

Public health and environmental advocates credit the CWA with significantly reducing waterborne pollution and the health issues it creates. As EPA and the Army Corps put it, "[the] CWA is the nation's single most important statute for protecting America's clean water against pollution, degradation, and destruction... The CWA regulates and controls pollution at its source, in part

because most pollutants do not remain at the site of the discharge, but instead flow and are washed downstream through the tributary system to endanger drinking water supplies, fisheries, and recreation areas."¹¹

However, two Supreme Court decisions and policy changes over the past several years made that authority ambiguous and difficult to enforce.

The trouble hinged on the definition of 'waters of the United States' — that is, the waters regulated under the CWA.

Two Supreme Court decisions, *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (2001) and *Rapanos v. United States* (2006), fostered uncertainty about which bodies of water were 'waters of the United States' subject to CWA protection.¹² Those rulings, coupled with policies developed

by the previous administration, added enormously to the confusion by excluding 20 percent of the wetlands in the continental United States and erecting significant hurdles to protecting small streams and the water bodies nearby them.

Based on EPA information, "this legal uncertainty has adversely affected hundreds of law enforcement actions involving suspected violations of the Clean Water Act."¹³ An investigation by the *New York Times* in 2010 found that "in a four-year period, more than 1,500 major pollution investigations of '[c]ompanies that have spilled oil, carcinogens and dangerous bacteria into lakes, rivers and other waters [were] not being prosecuted, according to Environmental Protection Agency regulators working on those cases.'¹⁴



Clearing Up the Confusion

To help resolve this situation, EPA and the Army Corps — which implement the Clean Water Act — began a process to clarify the definition of those waters.

The process included over 400 stakeholder meetings between April and November of 2014; more than a million public comments — fully 87 percent of which favored the action;¹⁵ and the development of a detailed scientific report, *Connectivity of Streams and Wetlands to Downstream Waters*, that examined more than 1,200 peer-reviewed publications on the connections between upstream and downstream bodies of water.¹⁶ EPA's report was itself peer-reviewed by the Science Advisory Board, which issued its own report in January.¹⁷

The resulting Clean Water Rule clarifies the scope of 'waters of the United States' consistent with the CWA, Supreme Court precedent and science.¹⁸

Specifically, the Rule defines 'waters of the United States' in three groups based on how they will be regulated, including:

1. Those protected by rule in all cases, traditional navigable waterways, interstate waters, territorial seas, tributaries and adjacent waters.
2. "Those waters found after a case-specific analysis to have a significant nexus to traditional navigable waters, interstate waters, or the territorial seas, either alone or in combination with similarly situated waters in the region," so a relatively small group of waters will be examined on a case-by-case basis.¹⁹

3. Finally, the rule contains a lengthy list of features that are exempt from being considered 'waters of the United States', including things like ornamental ponds and other water features created from dry land.

By providing protection for these waters, the Clean Water Rule will "mean that fewer water bodies will be destroyed without undergoing an environmental review, and [will] mean that pollution control officials can hold industrial dumpers responsible in circumstances that they couldn't in the years prior to [the Rule's release]."²⁰

The Nexus Between Upstream Waters and Public Health

The Clean Water Rule’s resulting benefits for public health will be substantial. The public health community has long noted the direct connection between clean water and healthy populations, since “the public depends on water not only for basic survival, but for recreation, bathing, cleaning and cooking.”²¹

Water pollution affects Americans’ health on a regular basis and in a variety of ways. For example, in the summer of 2014, the country witnessed a dramatic example of the effects of contaminated waterways when a toxic algal event in Lake Erie shut off the main drinking water supply for 400,000 people in Toledo, Ohio.²² This demonstrates the urgent need to protect smaller streams and wetlands. While a number of factors contributed to the algal bloom, it is of note that that Ohio has lost more than 90 percent of its historic wetlands, the second highest loss rate in the nation. These waters provide important filters for nitrogen and phosphorus, nutrients that can fuel algae blooms. In another recent example, in Charleston, West Virginia, hundreds of thousands of people were unable to use their tap water because of toxic substances in the water supply.²³

The Clean Water Rule restores guaranteed protections for a range of waters that are critical to our nation’s freshwater supply. Consider the following facts:

- Streams, brooks and headwaters and irregularly-flowing creeks “make up more than half the river miles in the continental United States” and “about 2 million miles of the stream miles outside of Alaska, about 60 percent, do not flow year-round,” meaning they previously lacked a clear path to protection.²⁴
- “20 percent of an estimated 110 million acres of wetlands in the continental United States are considered isolated, leaving them

effectively without federal protection” prior to the issuing of the Clean Water Rule.²⁵ The agencies conservatively estimate that protections for about 17 percent of these waters will be restored, but that is an important improvement over pre-rule conditions.

EPA and the Army Corps spent a considerable amount of time and energy studying the connection between upstream and downstream waters to determine if and how upstream sources affect the pollution levels — and thus the threats to human health — in our rivers, lakes and reservoirs.

Their conclusion was clear and compelling. As EPA puts it, “[t]he science demonstrates that the protection of upstream waters is critical to maintaining the integrity of the downstream waters. The upstream waters identified in the rule... function as integral parts of the aquatic environment, and if these waters are polluted or destroyed, there is a significant effect downstream.”²⁶

What kind of public health problems can result?

EPA’s Office of Research and Development developed a peer-reviewed Science Report to consider the ways in which water bodies relate to one another.²⁷ The Science Report evaluated more than 1,200 peer-reviewed papers on the interplay between upstream and downstream waters and found extensive and compelling connections between these waters and the pathogens and

pollutants that affect human health, among other things.

The Science Report offered a range of findings that strongly reinforce both the connection between headwaters and public health, and the need to clarify the rules for protecting tributaries and other headwaters. These included:

- **Headwaters’ role in transporting pathogens from multiple sources:** “Waterborne pathogens (bacteria, viruses, protozoa) are another class of contaminants of concern because of the associated risks to human health and well-being. The principal origins of waterborne pathogens to downstream waters are as point and diffuse sources from livestock and municipal wastes via tributaries.”²⁸
- **The significant presence of wastewater contaminants in streams:** Streams “can transport to downstream waters contaminants and pathogens that adversely affect organisms and human health,” since “[m]any streams in human-dominated watersheds, particularly streams that historically have ephemeral and intermittent flows, receive a significant proportion of their base flow from municipal and industrial wastewater effluent discharges.”²⁹
- **The role of tributaries and storm drains in drinking water-related disease outbreaks:** “Rainfall events and waterborne disease outbreaks in the United States are strongly

“Plutonium from [nuclear] testing fallout was readily transported to headwater streams in the upper Rio Grande basin via erosion and subsequent overland movement... Approximately 50% of the plutonium that entered the Rio Grande from 1948 to 1985 is stored in the river and its floodplain; the remaining amount is stored in a downriver reservoir.”

correlated, pointing to hydrologic connectivity through tributaries and stormwater drains as a key link in transporting pathogens downstream, where they can overwhelm treatment plants and eventually contaminate drinking water sources.”³⁰

- **The role of headwaters in transporting lead and other industrial metals to downstream waters:** “The spatial extent of metal transport has been demonstrated in the upper Arkansas River of Colorado, where the headwaters have been affected by past mining activities... Bed sediments sampled from the headwaters to approximately 250 km downstream showed an inverse relationship between sediment cadmium, lead, and zinc concentrations and downstream distance. That same spatial distribution pattern in bed sediment metal concentrations was observed from headwater streams to the downstream Clark Fork River in Montana, which has been impacted by mining and smelting activities in its headwaters... [where] bed sediment metal concentrations from river sites were inversely related to downstream distance, and predictions from those models indicated that sediments with metals originating from headwater mining and smelting areas were reaching Lake Pend Oreille, more than 550 km downstream.”³¹

- **The role of headwaters in mercury contamination in downstream waters:** “Several studies also have projected

the cumulative effect of headwater systems on downstream mercury concentrations and loads in response to land use, climate, and atmospheric deposition. The Water Quality Analysis Simulation Program and the Bioaccumulation and Aquatic System Simulator models were used to predict changes in water, sediment, and fish-tissue mercury concentrations across water bodies with varying upstream headwater drainage areas... This work suggests that headwater streams can serve a mercury storage function, and that temporally varying connectivity contributes to the transport of mercury from headwater streams to downstream waters.”³²

- **Headwaters’ role in transporting radioactive materials downstream via river sediment:** “Studies of radionuclide (e.g., plutonium, thorium, uranium) distribution, transport, and storage provide convincing evidence for long-distance chemical connections in river networks... Like metals, radionuclides adsorb readily to fine sediment; thus, the fate and transport of radionuclides in sediment generally mirrors that of fine sediment... The mountain areas [near former nuclear testing sites in New Mexico] are steep with thin soils, so plutonium from testing fallout was readily transported to headwater streams in the upper Rio Grande basin via erosion and subsequent overland movement... Approximately 50 percent of the plutonium that entered the

Rio Grande from 1948 to 1985 is stored in the river and its floodplain; the remaining amount is stored in a downriver reservoir.”³³

In addition to regulating dumping of chemicals and other pollutants in upstream waters, the Clean Water Rule will also help prevent the physical destruction and degradation of wetlands, streams and other headwaters, preserving their function in filtering pollutants including heavy metals and pesticides that otherwise flow into rivers, lakes and reservoirs.

According to EPA, “wetlands and other similar waters in floodplain areas act as buffers that are among the most effective tools for mitigating nonpoint source pollution... wetlands and other similar waters improve water quality through assimilation, transformation, or sequestration of nutrients, sediment, and other pollutants — such as pesticides and metals — that can affect downstream water quality.”³⁴

The Clean Water Rule takes a science- and legal analysis-based approach to defining which U.S. waters are most important to the physical, chemical and biological makeup of downstream waters, thereby ensuring the protection of waters that both facilitate and impede the movement of pollutants, pathogens and other threats to public health. By creating a clear, consistent means of preventing and managing that pollution, the Rule will reduce these threats to public health across the country.



Coming Around the Bend: Next Steps for the Clean Water Rule

The Clean Water Rule was published in the Federal Register on June 29 and will become effective on August 28.³⁵

In order to implement the Rule, the Army Corps and EPA will continue to develop “general permits and simplified procedures” and will “continue a transparent review of the science, and learn from on-going experience and expertise as the agencies implement the rule.” As EPA and the Army Corps note, “[i]f evolving science and the agencies’ experience lead to a need for action to alter the jurisdictional categories, any such action will be conducted as part of a rule-making process.”³⁶

TFAH believes that the Rule should be administered—without delay or further changes—to avoid putting the public’s health at further risk.

Protecting America’s upstream waters is popular across political lines. A recent

poll found that 80 percent of American voters favor the Rule, with half of voters saying they strongly favor it. Support for the rule cuts across party lines, with large majorities of Democrats, Independents and Republicans in favor.³⁷ Those numbers demonstrate American’s interest in knowing that the water they swim in, cook with and drink is free from substances that can put them and their family at risk.

The legacy of the Clean Water Act has been to ensure Americans have sustainable access to a healthy water supply. EPA and the Army Corps have now helped clarify the CWA and improved its ability to achieve its core mission. Moving forward, the Clean Water Rule will strengthen protections for that water supply even further, reducing instances of waterborne illness and fulfilling the intent of the Clean Water Act.

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