



**Children's  
Environmental  
Health  
Network**

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U.S. Environmental Protection Agency  
1200 Pennsylvania Ave., NW  
Washington, DC 20460

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The Children's Environmental Health Network appreciates the opportunity to comment on the U.S. Environmental Protection Agency's (EPA) proposal to clarify the definition of "waters of the United States" under the Clean Water Act (CWA).

Access to clean water free from pollutants is imperative given water's necessity for our livelihood, and that of other species. Contamination of water poses many problems to the health and welfare of children, especially ones living in poorer communities located in rural areas or near industrial sites. We commend the Agency for its efforts to better protect water sources and wetlands from pollution.

The Children's Environmental Health Network (CEHN) is a national multi-disciplinary organization whose mission is to protect the developing child from environmental hazards and to promote a healthier environment. The Network's Board and committee members include internationally-recognized experts in children's environmental health science and policy who serve on key Federal advisory panels and scientific boards. We recognize that children, in our society, have unique moral standing.

The Network was created to promote the incorporation of basic pediatric facts such as these in policy and practice:

- Children can be more susceptible and more vulnerable than adults to toxic chemicals.
- Children are growing. Pound for pound, children eat more food, drink more water and breathe more air than adults. Thus, they are likely to be more exposed to substances in their environment than are adults.
- Children have higher metabolic rates than adults and are different from adults in how their bodies absorb, detoxify and excrete toxicants.
- Children's systems, including their nervous, reproductive, digestive, respiratory, and

immune systems, are developing. This process of development creates periods of vulnerability. Exposure to toxicants at such times may result in irreversible damage when the same exposure to a mature system may result in little or no damage.

- Children behave differently than adults, leading to a different pattern of exposures to the world around them. For example, they exhibit hand-to-mouth behavior, ingesting whatever substances may be on their hands, toys, household items, and floors. Children play and live in a different space than do adults. For example, very young children spend hours close to the ground where there may be more exposure to toxicants in dust, soil, and carpets as well as low-lying vapors such as radon, mercury vapor or pesticides.
- Children have a longer life expectancy than adults; thus they have more time to develop diseases with long latency periods that may be triggered by early environmental exposures, such as cancer or Parkinson's disease.
- Though the process of child growth and development does not change, the world in which today's children live has changed tremendously from that of previous generations. One of these changes is the phenomenal increase in substances to which children are exposed. As reported by the EPA, 83,000 industrial chemicals are currently produced or imported into the United States. The Centers for Disease Control and Prevention's National Human Exposure Report has amply demonstrated that such chemicals often are ubiquitous, appearing in the vast majority of blood and urine samples taken at random from the general population in the U.S. Many of these are readily passed across the placenta to the fetus or to the infant via breast milk.

With the ubiquity of water sources throughout America and our reliance on it for survival, water pollution has the potential to affect the whole population, whether through drinking, swimming, bathing, or cleaning. Unborn and young children are especially vulnerable to the effects of water pollution. Pollutants absorbed by the mother during pregnancy are absorbed by the unborn child in the womb and can have drastic effects on development. Similarly, because children's bodies are still in a state of development, they require more food and water per pound of body weight than adults, so increased pollutants in water will have pronounced effects in their bodies and on their development. Children also spend more time than adults engaged in vigorous activities, which further increases their intake of water.

Thus, CEHN supports and commends the EPA for this proposed rule to define and broaden the scope of what bodies of water are protected under the CWA based on a refined version of the original definition. We believe that this new definition is justified and well-supported by a broad range of studies linking the presence of contaminated waters with poor health outcomes for unborn and young children. In defining whether other waters receive protection when not specifically covered in the proposed definition, their significant nexus to protected waters should be evaluated by looking at the hydrological landscape of the region, and specifically the potential for runoff. Waters are fundamentally connected for the most part, so pollution upstream can have an effect over a large area. We urge the Agency to act expeditiously in adopting these stronger standards.

According to the EPA, 40% of the nation's rivers, lakes, and estuaries aren't safe for swimming and fishing because of nonpoint source pollution in the form of runoff. For children, swimming is

a popular activity, and as such, certain guidelines exist dictating which bodies of water are safe for this activity. However, in a study performed two years after the passage of the CWA, researchers found that children were among the groups most likely to experience gastrointestinal issues such as vomiting and diarrhea, along with more serious symptoms like fever, after swimming at beaches with barely acceptable levels of pollution as defined by the EPA.<sup>1</sup> Pollution in the nation's oceans can be exacerbated upstream by contaminated tributaries that flow into the ocean. While this study was performed recently after enactment of the CWA, many bodies of water are still deemed unsafe for swimming or fishing, and children who swim in those considered safe may still experience sickness. Exposure to harmful algal toxins has resulted in at least one child's death.<sup>2</sup> For this reason, the EPA must enact this rule to ensure the protection of creeks, wetlands, and other tributaries that may contaminate larger sources of water used for outdoor activities.

Furthermore, the increased presence of agrichemicals from fertilizers and pesticides poses a special problem for our nation's waters. This past summer Lake Erie experienced a toxic algae bloom that left many residents near Toledo, OH without clean water for drinking or other household activities. Nitrogen and phosphorous, components of many types of fertilizer, are necessary nutrients for the growth of this algae, and the bloom that happened was fueled by runoff that carried fertilizer into the lake from contaminated tributaries and surrounding farms. Toxic blooms like this one will become increasingly common and leave more individuals and children without clean water unless tributaries are better protected and nonpoint pollution from agrichemicals controlled.

These agrichemicals can also have pronounced effects on unborn children and infants. As related by a study performed in India, a 10% increased presence of agrichemical fertilizers in water, as seen at the start of the growing season, is linked to a 6.2% increase in neo-natal mortality (death of child between 0-11 months of age) for children conceived during this time. In addition, these children are more likely to have reduced height and weight compared to those conceived at other times.<sup>3</sup> Though lower height and birth weight are not problematic on their own, exhibiting these traits as an infant or child is associated with a higher likelihood of developing other health problems later in life, such as coronary heart disease.

Similar effects can be seen in the US when children are conceived during the growing season. Increased exposure to atrazine, pesticides, and nitrates from water sources during the month of conception is correlated with a higher chance of the infant having a birth defect. This study performed in the US found that when conception occurs at a time with increased use of agrichemicals the following specific birth defects were found more frequently: "spina bifida, circulatory/respiratory anomalies, tracheo-esophageal defects, gastrointestinal defects, urogenital defects, cleft lip, adactyly, clubfoot, musculoskeletal anomalies, Down's syndrome" and others.<sup>4</sup>

Our children, including those still in womb, are at great risk from pollutants in the nation's waters. According to a New York Times investigative report, roughly 117 million Americans receive their drinking water from a source fed by waters that are in danger of losing protection from the CWA given its current definition. That means about 37% of the population could be affected from increasingly polluted waters due to recent Supreme Court cases which weakened protection to certain waters. Health costs from sickness caused by polluted waters will only increase in the future

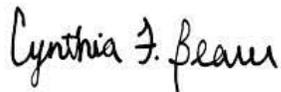
if this current definition is not refined to restore protection to tributaries, seasonal waters, and wetlands.

This proposed rule to broaden the protection for water sources will help limit the amount of water pollution experienced in the future. The new definition takes into account the need to protect tributaries and seasonal waters that flow into larger sources used for drinking, along with our nation's wetlands. We urge the Agency to use the surrounding hydrological landscape as a way to determine protection for other waters not explicitly mentioned in the rule because of the threat of nonpoint pollution, specifically runoff, to contaminate waters and cause dangerous algae blooms. It is also vital that the EPA resist efforts to weaken or delay this proposal. Every day of delay means that more waters are allowed to be polluted with impunity.

Thank you for the opportunity to comment on the proposed ruling. The Network commends the Agency for its efforts to address this issue and urges expeditious action. It is vital that the EPA resist efforts to weaken or delay the implementation of this proposed ruling. The adoption of these standards would have positive effects on air quality, environmental health, and the health and future of all of our children.

If you have questions or comments on this statement, please contact Nsedu Obot Witherspoon at the Children's Environmental Health Network, 202-543-4033 x14.

Sincerely,



Cynthia Bearer, M.D., Ph.D.  
Board Chair  
Children's Environmental Health Network

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<sup>1</sup> Cabelli, Victor J., et al (July 1979). "Relationship of Microbial Indicators to Health Effects at Marine Bathing Beaches." *American Journal of Public Health*. 69(7):690-696.

<sup>2</sup> Weirich, Chelsea A. and Miller, Todd R (January 2014). "Freshwater Harmful Algal Blooms: Toxins and Children's Health." *Current Problems in Pediatric and Adolescent Health Care*. 44: 2-24.

<sup>3</sup> Brainerd, Elizabeth and Nidhiya Menon (March 2014). "Seasonal Effects of Water Quality: The Hidden Costs of the Green Revolution to Infant and Child Health in India." *Journal of Development Economics*. 107: 49-64.

<sup>4</sup> Winchester, Paul D (2009). "Agrichemicals in surface water and birth defects in the United States." *Acta Paediatrica*. 98: 664-669.