

Executive Summary



Photo courtesy of Monty Porter

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“I started out thinking of America as highways and state lines. As I got to know it better, I began to think of it as rivers. America is a great story, and there is a river on every page of it.”

This quote by well-known journalist Charles Kuralt reflects on the central role that rivers and streams have played in shaping the history and character of our nation. Because the health and survival of U.S. families and communities are dependent on these waterbodies, their condition, as well as how they are protected, reflects our values and choices as a society.

The Wadeable Streams Assessment (WSA) provides the first statistically defensible summary of the condition of the nation’s streams and small rivers. In the 35 years since the passage of the Clean Water Act (CWA), the U.S. Congress, American public, and other interested parties have asked the U.S. Environmental Protection Agency (EPA) to describe the water quality condition of U.S. waterbodies. These requests have included seemingly simple questions: Is there a water quality problem? How extensive is the problem? Does the problem occur in “hotspots” or is it widespread? Which environmental stressors affect the quality of the nation’s streams and rivers, and which are most likely to be detrimental? This WSA report presents the initial results of what will be a long-term partnership between EPA, other federal agencies, states, and tribes to answer these questions.



Little Washita River, OK, in the Southern Plains ecoregion (Photo courtesy of Monty Porter).

The WSA encompasses the wadeable streams and rivers that account for a vast majority of the length of flowing waters in the United States. To perform the assessment, EPA, states, and tribes collected chemical, physical, and biological data at 1,392 wadeable, perennial stream locations to determine the biological condition of these waters and the primary stressors affecting their quality. Research teams collected samples at sites chosen using a statistical design to ensure representative results. The results of this analysis provide a clear assessment of the biological quality of wadeable, perennial streams and rivers across the country, as well as within each of three major climatic and landform regions and nine ecological regions, or ecoregions.

The information provided in this report fills an important gap in meeting the requirements of the CWA. The purpose of the WSA is four-fold:

- Report on the ecological (biological, chemical, and physical) condition of all wadeable, perennial streams and rivers within the conterminous United States. (Pilot assessment projects are also underway in Alaska and Hawaii.)
- Describe the biological condition of these systems using direct measures of aquatic life. Assessments of stream quality have historically relied primarily on chemical analyses of water, or sometimes, on the status of game fish.
- Identify and rank the relative importance of chemical and physical stressors (disturbances) affecting stream and river condition.

- Enhance the capacity of states and tribes to include these design and measurement tools in their water quality monitoring programs so that assessments will be ecologically and statistically comparable, both regionally and nationally.

The results of the WSA show that 42% of the nation’s stream length is in poor biological condition compared to least-disturbed reference sites in the nine ecoregions, 25% is in fair biological condition, and 28% is in good biological condition (Figure ES-1). Five percent of the nation’s stream length was not assessed for biological condition during the WSA.

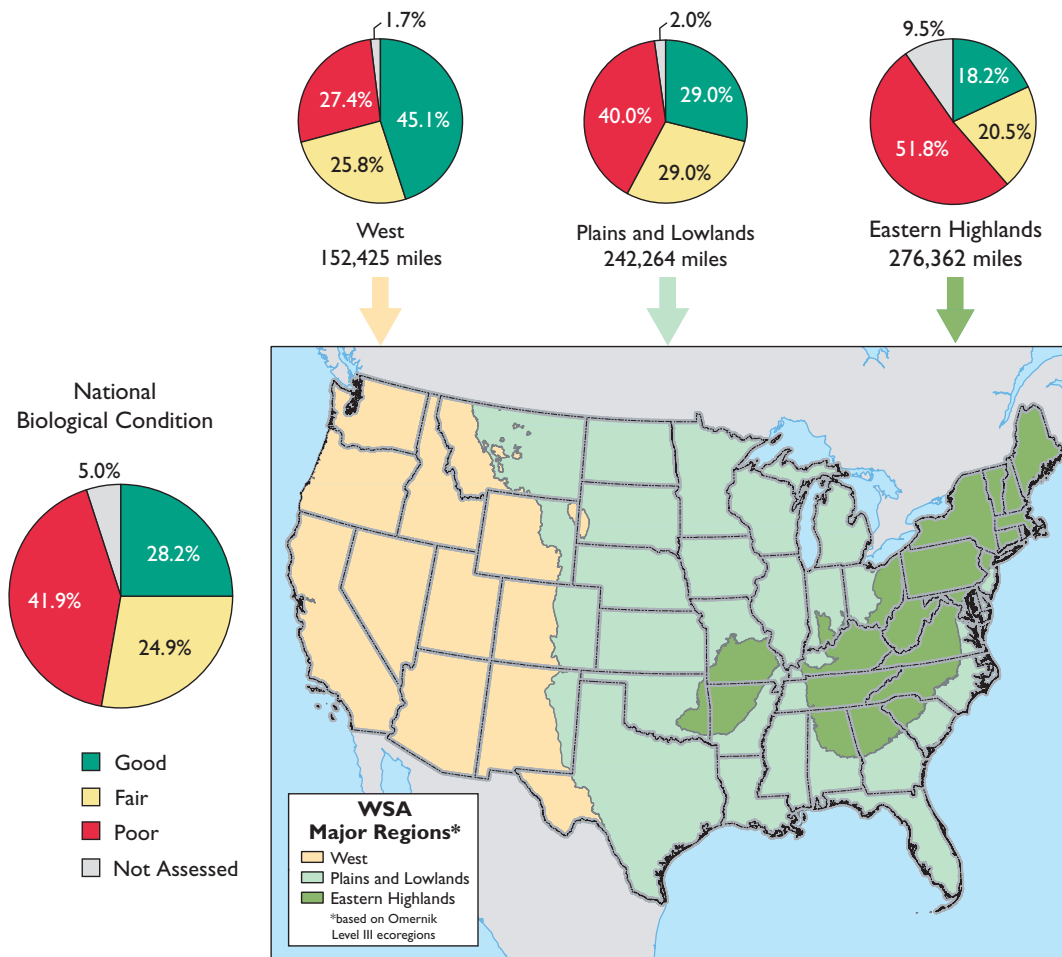


Figure ES-1. Biological condition of wadeable streams (U.S. EPA/WSA).

Of the three major regions discussed in this report, the West is in the best biological condition, with 45% of stream length in good biological condition. The Plains and Lowlands region has almost 30% of stream length in good biological condition and 40% in poor biological condition. The Eastern Highlands region presents the most concerns, with only 18% of stream length in good biological condition and 52% in poor biological condition.

The WSA also examines the key factors most likely responsible for diminishing biological quality in flowing waters, as determined by aquatic macroinvertebrate communities. The most widespread stressors observed across the country and in each of the three major regions are nitrogen, phosphorus, riparian disturbance, and streambed sediments. Increases in nutrients (e.g., nitrogen and phosphorus) and streambed sediments have the highest impact on biological condition; the risk of having poor biological condition was two times greater for streams

scoring poor for nutrients or streambed sediments than for streams that scored in the good range for the same stressors (Figure ES-2).

Understanding the current condition of the nation’s wadeable streams and rivers is critical to supporting the development of water quality management plans and priorities that help maintain and restore the ecological condition of these resources. This report provides a primary-baseline assessment to track water quality status and trends. The results of the WSA and similar assessments in the future will inform the public, water quality managers, and elected officials of the effectiveness of efforts to protect and restore water quality, as well as the potential need to refocus these efforts.

Readers who wish to learn more about the technical background of the WSA are directed to literature cited in the References section at the end of this report and to material posted on the EPA Web site at <http://www.epa.gov/owow/streamsurvey>.

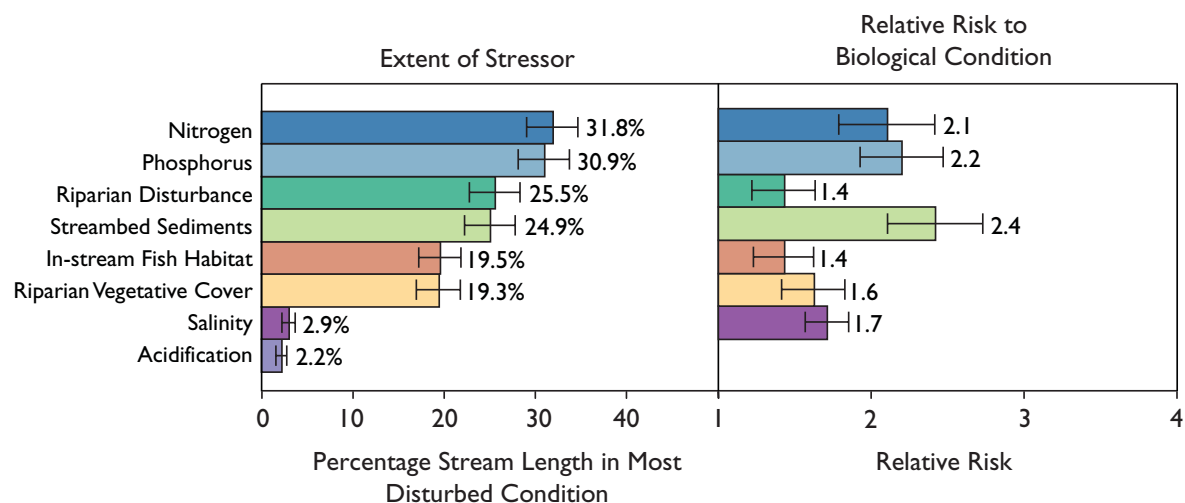


Figure ES-2. Extent of stressors and their relative risk to the biological condition of the nation’s streams (U.S. EPA/WSA).