

Improved EPA Guidance and Support Can Help States Develop Standards That Better Target Cleanup Efforts (United States)

Theme: Protection of Water

United States General Accounting Office Water Quality: Improved EPA Guidance and Support Can Help States Develop Standards That Better Target Cleanup Efforts

Why GAO Undertook This Audit

According to the federal Environmental Protection Agency (EPA), over 20,000 bodies of water throughout the United States are too polluted to meet water quality standards, and it will cost billions of dollars to clean them up. Under the Clean Water Act, states (which generally are responsible for implementing most water pollution programs under EPA's oversight) develop water quality standards to use as benchmarks against which pollution levels within their waters are measured. As such, the standards are critical in making accurate, scientifically based determinations as to which waters are "impaired" and therefore require attention. In recent years, however, questions have been raised as to whether water quality standards are being developed properly—and, therefore, whether the right waters are being targeted for cleanup.

Given the importance of the environmental issues at stake and the need to spend dollars devoted to water protection as efficiently as possible, a Congressional Committee asked GAO to determine whether EPA and the states are doing all they should to ensure that the two critical components of water quality standards—the "designated uses" that identify the purposes which a given body of water is intended to serve, and the "pollutant concentration thresholds" that determine whether the water's quality is sufficient to achieve these uses—can be used to make accurate determinations as to which waters are impaired and therefore require remediation. Specifically, GAO was asked:

1. To what extent are states changing designated uses when necessary to ensure their accuracy, and how well is EPA assisting the states toward that end?
2. To what extent is EPA updating its "criteria documents" and providing other assistance states need to develop the pollutant concentration thresholds that are necessary for defensible water quality standards?

Background Information

Water quality standards are comprised of two key components—designated uses and pollutant concentration thresholds. Designated uses are uses assigned to bodies of water, such as drinking water, contact recreation (e.g., swimming), and aquatic life support. Pollutant concentration thresholds specify pollutant limits that are intended to protect the designated uses of a water body (e.g., the maximum allowable concentration of a pollutant), or an important physical or biological characteristic that must be met (e.g., an allowable temperature range).

To develop pollutant concentration thresholds, states rely heavily on EPA-developed "criteria documents" containing the technical data that help states derive pollutant levels that, if not met, may preclude a water body from meeting its designated uses. States may use the thresholds recommended in the EPA criteria

documents; modify them to meet state needs; or develop their own thresholds. States generally determine if a water body's designated use is being achieved by comparing monitoring data with applicable pollutant concentration thresholds. If the water body fails to meet the applicable thresholds, the state is required to develop and implement a remediation plan.

Thus, if water quality standards (i.e., the designated uses and the thresholds that determine if these uses are achieved) are flawed, the decisions regarding which waters need remediation may be likewise flawed. Given the importance of accurate standards in making these critical decisions, states are required to review their water quality standards periodically and propose changes to EPA as appropriate.

Methodology Used to Conduct the Audit

We used a three-pronged approach for collecting the needed information for our report:

1. To obtain information from the states, we conducted a survey of all 50 states using the World Wide Web. We "pretested" the survey with state officials in two states and also obtained comments on the draft survey during a teleconference call with officials from 27 states.
2. To obtain information and perspectives from the federal government, we interviewed officials from EPA's headquarters office and its 10 regional offices throughout the country.
3. To obtain more detailed insights on how the program works, we conducted site visits in three states – Kansas, Montana, and Ohio. In selecting these states, we considered a variety of factors, most notably their experiences in changing designated uses and establishing criteria and the diversity of their geophysical characteristics. In each state, we interviewed state water quality officials as well as representatives of industry and environmental groups, and accompanied state officials as they monitored and assessed the quality of some of their waters.

Results of the Audit

Question 1: To what extent are states refining designated uses, and how well is EPA assisting the states toward that end?

- The extent to which states changed their designated uses varied. We found that while some states made no use changes from 1997 through 2001, other states made over 1,000 use changes during that same time period.
- Regardless of the wide variation in the number of use changes that states made to date, nearly all states reported waters within their states that are in need of designated use changes to improve their accuracy.
- According to the states, some of these needed designated use changes were not made because of the states' uncertainty over the circumstances in which use changes are acceptable to EPA and the evidence needed to support those changes.
- States overwhelmingly cited a need for additional EPA guidance that clarifies both the circumstances under which a designated use change is acceptable and the type of evidence needed to support those changes.

- We made a number of recommendations to EPA to help ensure that the designated uses in place under EPA's water quality standards program provide a valid basis for decisions about which of the nation's waters should be targeted for cleanup.

Question 2: To what extent is EPA updating the “criteria documents” states need to develop accurate pollutant concentration thresholds, and how well is EPA assisting states in developing such thresholds?

- While EPA has developed and published criteria documents for a wide range of pollutants, it has not developed these documents for key pollutants (sediment and nutrients) that account for a large share of the nation's most polluted waters.
- Even when EPA criteria documents have been developed, some states reported difficulty in using the documents to develop pollutant concentration thresholds in such a way that they can be compared with obtainable monitoring data.
- States also expressed difficulty in modifying the thresholds they already have in place to reflect, for example, new data or changing ecological conditions.
- More than half of the states cited EPA's approval process as a barrier that affects their ability to make necessary modifications to their pollutant concentration thresholds—noting, for example, insufficient assistance from their respective EPA regional offices in helping them understand what data are necessary to justify a modification.
- We found considerable inconsistency among EPA regional offices in the assistance provided to states; and that this inconsistency has been due, in part, to a lack of staff expertise among some offices in determining the scientific feasibility of modifying existing thresholds.
- We made recommendations to EPA to help improve the states' abilities to adopt, apply, and modify pollutant criteria thresholds so that they are more effective in accurately determining water impairments.

Overall implications for targeting polluted waters for cleanup

If states are unable to correctly identify their impaired waters, they risk focusing their limited resources on cleaning up the wrong waters and/or exposing their citizens to health and environmental risks. With this in mind, we found that poorly developed standards (both the designated uses and the pollutant concentration thresholds that determine if these uses are being met) often lead states to target the wrong waters for cleanup. As figure 1 illustrates, our analysis showed that 30 states would have identified different waters for remediation if improvements were made to the process of modifying their standards.

Figure 1: States Reporting That Different Waters Would Be Targeted for Cleanup If Improvements Were Made In The Way Standards Are Changed

