

Resources & Environment



The Clean Water Action Plan: Implications for Agriculture

An ambitious Federal proposal for improving and protecting water quality could affect the way farmers manage their land in many parts of the country. The Clean Water Action Plan, a guidepost for future national water quality policy, involves a fundamental shift in policy to emphasize control of nonpoint sources of pollution.

A basic premise of the Clean Water Action Plan (CWAP) is that, while existing approaches to water quality protection have resulted in many successes, they are inadequate for achieving the goals of fishable and swimmable water for all Americans. The plan proposes a change in the direction of water quality policy to focus on watersheds that are water-quality-impaired, and a coordinated effort to address both point and nonpoint sources of pollution. These sources include agriculture.

The centerpiece of U.S. water quality policy has been the Clean Water Act (CWA), originally passed in 1972 with several subsequent reauthorizations. While the CWA has resulted in a great number of successes, many water quality problems remain. Instead of looking for needed changes in water quality policies through a reauthorization of the CWA, the Administration decided to develop

new initiatives within the context of existing laws and programs for more complete water quality protection.

In October 1997, Vice President Gore instructed the U.S. Environmental Protection Agency (EPA) and USDA to develop a strategy for fulfilling the original CWA goal of fishable and swimmable waters for all Americans. After 4 months of work, and with assistance from other Federal agencies, the Clean Water Action Plan (CWAP) was issued and put into action.

The CWAP recognizes the accomplishments since passage of the CWA in 1972, and considers what has worked well, what can be improved, and what remains to be done. Because agriculture has been identified as a major contributor of many remaining water quality problems, any attempts to further improve national water quality will involve agriculture.

The CWAP addresses three major goals:

- enhanced protection from public health threats posed by water pollution,
- more effective control of polluted runoff, and
- promotion of water quality protection on a watershed basis.

The first goal has been an important consideration in past water quality programs, but more can be done to protect people from pathogens and toxic materials. The latter two goals, which have been less prominent in past programs, are vital for achieving further water quality improvements in a cost-effective manner. The initiatives proposed to address these goals cover the complete range of water quality issues, including improved water quality monitoring and reporting, improvements in the way industries are monitored, new approaches for protecting water resources and wetlands, improved stewardship of both public and private lands, and involvement of local citizens and other stakeholders.

An Overview of U.S. Water Policy

Some background on U.S. water quality policy may clarify the rationale for the Clean Water Action Plan. The 1972 Clean Water Act (along with reauthorizations in 1977, 1982, and 1987) established goals of fishable and swimmable water for all rivers, lakes, and streams, and put in place a regulatory structure for controlling discharges from factories, sewage treatment plants, and other "point" sources of water pollution.

Point-source pollution enters water bodies through pipes or other discrete conveyances. Such pollution is easy to observe and to measure, making regulatory approaches for control relatively easy to implement.

But point-source pollution is not the only kind. Nonpoint-source pollution enters water diffusely in the runoff or leachate from rain or melting snow, and is often a function of land use. Examples of nonpoint-source pollution include runoff from cropland, feedlots, forests, pastures, and city streets, and atmospheric deposition. Nonpoint-source pollution is very difficult and often too costly to observe and to measure and therefore much more difficult to control.

Under the CWA, the States took the lead in controlling nonpoint-source pollution, and the law did not specify the means of controlling it. States have implemented nonpoint-source pollution programs that

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are largely voluntary, relying on landowners to implement practices that reduce water pollution. States sometimes provide landowners with financial assistance for implementing alternative management practices, and commonly depend on technical assistance from conservation districts and from USDA's Natural Resources Conservation Service

The different approaches for dealing with point sources (federally based regulations) and nonpoint sources (locally based, largely voluntary) have led to improvements in some aspects of water quality, but not in others. Many problems resulting from point-source pollution have been addressed, particularly around urban areas.

No longer are there news stories of the Cuyahoga River catching fire, or of Lake Erie being biologically dead. Instead there are reports of increasing recreational use of major rivers such as the Potomac, Delaware, and Hudson, even near major urban areas. While the number of people served by municipal sewage treatment plants has more than doubled since 1972, discharge standards have reduced the discharge of toxic materials by billions of pounds per year. Today, 60 to 70 percent of assessed waters meet State water quality goals (measured by miles for rivers, and by area for lakes and estuaries).

However, water quality problems remain, most attributed to pollution from nonpoint sources. According to the most recent EPA Water Quality Inventory, 36 percent of surveyed rivers, 39 percent of surveyed lakes, and 38 percent of surveyed estuaries are impaired for one or more uses. About half of the Nation's 2,000 watersheds are in need of restoration or protection. Recent, well-publicized incidents include microbe-related fish kills in nutrient-enriched waters; the closing of shellfish beds due to bacterial contamination; the presence of pesticides in drinking water; degradation by nutrients of national resources such as the Gulf of Mexico, Chesapeake Bay, and the Everglades; and the deaths of more than 100 people in Milwaukee when the city's water supply became contaminated with the microorganism *Cryptosporidium*.

Nationally, agriculture is believed to be a source of the pollutants in 70 percent of

impaired river and stream miles, and 49 percent of impaired lake acres. A U.S. Geological Survey (USGS) study of agricultural land in watersheds with poor water quality estimated that, in the watersheds where 71 percent of U.S. cropland (nearly 300 million acres) is located, concentrations of at least one of four common surface-water contaminants (nitrate, phosphorus, fecal coliform bacteria, and suspended sediment) are above instream criteria for supporting water-based recreation activities.

Well-water sampling by EPA and USGS found widespread evidence of pesticides and nitrogen from agriculture entering groundwater resources, possibly threatening water supplies in some areas. Comprehensive estimates of damages from agricultural pollution are lacking, but soil erosion alone is estimated to cost water users \$2-\$8 billion annually.

The Role of Agriculture

The CWAP lays out 10 principles to guide clean water protection efforts:

- strong standards for clean water
- stronger efforts to protect human health
- watershed management as the basis for water quality policy
- restoration of watersheds not meeting CWA goals
- links between water quality and natural resource programs
- response to growth pressures on sensitive coastal waters
- prevention of polluted runoff
- stewardship of Federal lands and resources
- improvement of water information for citizens
- ensuring compliance, and fair protection of all citizens.

The principles are to be carried out through 111 key action items that represent the issues to be addressed by Federal agencies over the next year. To the extent that they are carried out, these principles have important implications for agriculture.

Among the 10 CWAP principles, those with particular importance for agriculture are watershed management, setting strong standards for cleaner water, preventing polluted runoff, and improving citizen awareness and involvement by providing information on water quality. The principle of watershed management presupposes the other three.

Watershed management is important because the effects of water pollution are generally felt within the watershed in which pollutants originate. The management process begins by determining and setting appropriate water quality standards or goals for the region. Water quality standards (numeric, instream limits on pollutants) have been important tools for guiding policies aimed at point sources. However, standards for agricultural pollutants such as nitrogen and phosphorus have never been set. The CWAP proposes the use of water quality standards for nitrogen and phosphorus to protect human and ecological health. Such standards provide a means for identifying watersheds that are in need of protection, as well as the level of improvement required to achieve water quality goals.

Watershed management will likely foster the identification of water bodies most affected by pollution, and the sources of those pollutants within the watershed. Sources that can be controlled at least cost can then be addressed first.

The CWAP principle of preventing polluted runoff focuses on the most important source of remaining water quality problems in the U.S. Given the extent to which point-source discharges have been reduced over the past 25 years, it would be difficult and costly to further improve water quality in impaired watersheds solely by imposing tighter controls on point sources. Research suggests that further water quality improvements can be achieved at least cost by focusing efforts on controlling polluted runoff, since nonpoint sources of pollution have not been strongly controlled in the past. Agriculture is likely to be a primary focus in many watersheds with impaired waters because it is a major source of polluted runoff and remaining water quality problems.

Nutrient runoff results from both crop and livestock production. The CWAP places particular emphasis on the management of animal waste. Recent trends in the livestock industry have resulted in larger, more concentrated operations. The huge amount of animal waste generated by these facilities has raised concerns at the local level over environmental quality and health. Problems arise when waste is improperly handled at the site, or when it is spread on land at rates that exceed agronomic standards. Improper management can result in risk of ecological damage to streams and threats to human health.

Public concerns about animal waste have prompted some States to focus efforts on reducing environmental threats from animal feeding operations (AFO's). On the Federal level, the CWAP includes two items that address these concerns. Under the first, EPA will use current regulatory authority to address standards and permits for the larger animal operations. The second calls for EPA and USDA to develop a unified national strategy to minimize the environmental risk and public health impacts of AFO's.

On September 21, the draft unified strategy was published in the *Federal Register* to solicit public comment for a period of 120 days. The draft strategy covers voluntary programs under USDA as well as regulatory efforts by EPA through State agencies for larger operations.

The CWAP is not specific as to how runoff from crop production will be addressed; however, improved management of both commercial fertilizer and animal waste applied to cropland may become a major program goal in many areas. Nutrient management can be encouraged through a variety of means, including education, financial incentives, and regulation. The approach that provides the most cost-effective level of control depends on the presence of other sources of nutrients (including point sources) as well as the characteristics of agriculture (e.g., crops grown, soil resource base) and of farmers (e.g., income, management skills). If EPA and the States believe that regulatory policies are necessary, controls will have to be carefully designed and based on factors

that are easily observable, such as input use or management practices.

Cost-effective control of runoff on a watershed basis requires coordination between programs and policies offered by all levels of government. Existing water pollution control programs are not well coordinated. Currently, these programs exist at the Federal, State, and local levels and include the point-source permit program under the Clean Water Act, the individual State nonpoint-source management programs developed under the Clean Water Act, coastal zone nonpoint-source programs under the Coastal Zone Management Act, and separate State programs to deal with unique local problems.

In addition, USDA and State departments of agriculture currently provide financial, technical, and educational assistance for nonpoint-source pollution control through a variety of conservation programs as resources permit. Examples are USDA's Environmental Quality Incentive Program and the Conservation Reserve Program.


Coordinating and integrating existing programs managed by State and local governments could increase the effectiveness of the programs and reduce administrative costs by pooling resources, ensuring consistency, and eliminating redundancies in authority. The CWAP recognizes a need for enforceable authority as part of a watershed management program to ensure that adequate pollution controls are in place if voluntary efforts are not fully successful.

The Clean Water Action Plan acknowledges USDA's key role in national water quality policy. USDA has considerable experience in working with farmers, and has a long history of working on a watershed basis. Specifically, USDA will play a role in developing watershed protection goals and water quality protection strategies along with EPA.

In addition, USDA will be a major source of education, technical assistance, and financial assistance to landowners developing comprehensive management plans to protect water quality. Current USDA programs such as the Environmental Water Quality Incentive Program, Conservation Reserve Program, Wetland Reserve Program, and Wildlife Habitat Incentive Program can all provide incentives to farmers for addressing water quality concerns. The CWAP proposes increased funding for USDA to support water quality efforts.

Finally, in keeping with the concept of watershed management, the CWAP suggests that citizens take a more active role in water quality protection so that program agencies and responsible parties may react to local concerns. To promote such involvement, the plan calls for improvements in water quality monitoring and reporting of water quality information to keep citizens informed of the quality of the water they drink or come into contact with through recreation. The knowledge that water contains undesirable materials will likely increase citizen demand for additional protection of water quality. Recent actions to reduce the impacts of animal waste are a reflection of effectively communicated grassroots concerns.

The Clean Water Action Plan portends greater scrutiny of agricultural production practices in the future. While all its components may not be carried out, farm operators can expect to see increased use of financial, technical, and educational assistance, and enforceable mechanisms to reduce polluted runoff in watersheds that are impaired by agricultural pollutants.

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For more news, information, text, and background on the CWAP:

Go to www.nhq.nrcs.usda.gov/cleanwater/ on the Internet. Click on "What's New" for the draft unified strategy for animal feeding operations.