

# **RESTORING AND MAINTAINING THE INTEGRITY OF THE NATION'S WATER: AN ASSESSMENT OF THE CLEAN WATER ACT**

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## **Introduction**

The federal Clean Water Act is intended to “restore and maintain the chemical, physical and biological integrity of the nation’s water” (Clean Water Act, 101(a), United States Code, Vol. 33, 125 1(a)). Despite the billions of dollars that have been spent to control water pollution, the available measures of water quality present an uneven picture: improvements in some areas and deterioration in others (Conservation Foundation, 91). Some have concluded that the predominant focus on regulating the discharge of effluents from discrete sources, so-called “point source” pollution control, must be broadened to reflect the more complex nature of the factors affecting water quality. This article provides a brief overview of the evolution of the Clean Water Act and its major provisions and discusses several areas where improvements are needed.

## **Evolution of the Clean Water Act**

In a series of enactments between 1948 and 1965 Congress moved cautiously toward establishing a national strategy for water pollution control. The early strategy involved support for studies and encouragement of interstate cooperation. The 1965 act provided for the creation of water quality standards for interstate streams.

By 1972 Congress was ready to establish a comprehensive national program for water pollution control. It chose to pursue its goal of clean water primarily through technological controls on all discharges of pollutants from discrete sources such as pipes. Discharges of effluent from point sources may occur only subject to uniform control standards imposed in

a National Pollution Discharge Elimination System (NPDES) permit. Water quality standards are retained but are given a secondary role in achieving the objectives of the Act. The substantial additional amendments in 1977 aimed primarily at “fine tuning” the fundamental framework established in 1972. Considerable emphasis was placed on the control of toxic pollutants.

In 1987 Congress again responded primarily to specific concerns with the existing act and did not alter its basic approach. It did establish a stronger program for bringing municipal and industrial storm water discharges under control, and it made a move in the direction of addressing “nonpoint source” pollution. The next section summarizes the basic federal water pollution control framework now in effect.

## **The Legal Framework**

1. NPDES Permits. The federal statutory provision governing water pollution control set forth a detailed set of national requirements. At the center is the NPDES program under which every point source discharge is regulated. Permits limit discharges according to “best technology” standards of performance for particular categories of sources. The Clean Water Act invites the states to administer the NPDES program under specified minimum requirements and 37 states have accepted.

In retrospect, clearly Congress understood the water quality problem in 1972 as one of industrial and sewage pollution. Its simple remedy to

this problem was to subject industrial and municipal discharges to progressively more stringent, technologically based effluent limitations until the pollution was effectively eliminated. All similar sources of discharge would be treated equally according to standards or guidelines developed by the Environmental Protection Agency (EPA). The burden placed on municipalities would be eased through a generous grants program for construction of the necessary treatment facilities. The “command and control” technique available through requiring all point source discharges to obtain an NPDES permit would assure compliance with the law. Perhaps the stated goals of “fishable, swimmable” water by 1983 and no discharge of pollutants by 1985 even seemed realistic.

In fact, EPA has struggled mightily with establishing effluent standards. The 1972 act required EPA to establish guidelines within one year concerning the degree of effluent reduction attainable under the 1977 standard of “best practicable technology” and the 1983 standard of “best available technology economically available” for all equivalent categories of discharges. The act recognized 27 categories of industrial sources and, by 1975, EPA had distinguished 200 categories of industrial processes that required separate guidelines (Rodgers, 407). The 1977 act extended the compliance deadline in several respects and the 1987 act further extended certain compliance requirements. One basis for these extensions was the inability of EPA to develop the requisite guidelines in a timely manner.

Rodgers (447) has commented that “[p]ublically owned treatment works (POTW) are very much the soft underbelly of the federal point source cleanup program.” The compliance of these facilities with Clean Water Act requirements generally has been poor, and Congress has responded primarily by weakening the requirements. Under the 1972 act, POTW were to utilize secondary treatment by 1977 and were to operate under a “best practicable waste treatment” standard by 1983. The secondary treatment requirement has been extended up to 1988 in some cases, and the best practicable standard became important primarily in relation to the massive

construction grants program supporting new municipal treatment facilities.

Congress, however, has been increasingly tough on dischargers whose wastes go to a POTW. Such wastes must be pretreated if necessary to avoid a special burden on the normal sewage treatment process. Certain pollutants may not be included in discharges going to POTW.

2. Control of Toxic Pollutants. Congress has given special attention to the control of toxic pollutants in the Clean Water Act. The 1972 act contains a general policy that the discharge of toxic pollutants in toxic amounts be prohibited. Toxic pollutants are defined very broadly. For all listed toxics, effluents standards are to be established at a level that ensures “an ample margin of safety.”

EPA was supposed to produce proposed effluent standards for listed toxic effluents within six months following the passage of the 1972 act. With little progress apparent by 1977, Congress adopted some major changes that allowed EPA to utilize an industry-by-industry, technology based best available technology approach as an option to the pollutant-by-pollutant, health based approach.

Concern that stream water quality standards were being violated in some cases even with toxic effluents limited to the best technology standard led Congress in 1987 to establish a special program for toxics control. Areas of noncompliance due to toxics are to be identified as are the specific sources of the toxic contamination. A compliance strategy is to be formulated that will bring the area into compliance within three years.

3. Water Quality Standards. Water pollution control is not an end in itself but a means to an end that is to allow water to support valuable uses. Water quality standards are the means by which uses of water are designated and protected. Water quality criteria, essentially the levels of pollutants in a given volume of water, can be established for

a water body to protect desired uses. Congress initiated this approach in 1965 and continued it in 1972. States are required to establish designated uses for all surface water including for public water supplies, propagation of fish and wildlife, recreational purposes, and agricultural, industrial, and other purposes. The criteria established to protect the designated uses commonly reflect the guidelines prepared by EPA. States are to revisit their water quality standards every three years.

Dissatisfaction with the experience of trying to control water pollution through use of water quality standards led directly to the emphasis in the 1972 act on specific controls of discharges. Water quality standards set a goal for protecting a water body but they do not become operable until the standard is exceeded. Activities causing water quality impairment up to the standard are acceptable. The public enforcement agency carries the burden of discovering the causes of any water quality violation and then devising a control strategy. There is no generalized set of rules describing the manner in which the control burden should be allocated.

Nevertheless, as the technical and economic limits of point source water pollution control are being reached, there is renewed interest in water quality-based approaches. The Clean Water Act provides that point sources may be subjected to more stringent requirements than “best technology” if necessary to meet water quality standards (Clean Water Act, 301(b)(1)(c)). In water-quality limited stream segments, states can establish a “total maximum daily load” of pollutants that will achieve water quality standards and then assign a permissible share to individual dischargers. Another provision requires applicants for federal licenses or permits for activities involving water discharges to obtain a certification from the affected state that the discharges will comply with state water quality standards (Clean Water Act, 401(a)). EPA regulations require state water quality programs to include provisions to prevent degradation of existing water quality (1) where necessary to maintain existing uses and (2) where necessary to maintain certain high quality waters.

4. Nonpoint Source Control. In 1972, Congress certainly understood that not all pollution came from specific or discrete sources. At the same time, it might be fair to say that Congress simply did not know what to do about nonpoint source pollution. Under Section 208 it created a planning process by which states were to identify various nonpoint pollution problems and then were to devise means to control these problems “to the extent feasible.” In 1977 Congress recognized “best management practices” as the standard for controlling nonpoint pollution sources.

In 1987, Congress added Section 319 to the Clean Water Act. This section picks up the pace slightly by requiring the states to submit an assessment report to EPA that (1) identifies state waters not meeting water quality standards because of nonpoint source pollution, (2) identifies the general and specific nonpoint sources causing the problems, (3) describes processes for identifying best management practices that can address the identified problems, and (4) identifies programs for controlling nonpoint source pollution. Then states are to develop a management plan for the control of these sources.

5. Dredge and Fill Permits. Under Section 404, the Secretary of the Army (Corps of Engineers) issues permits for any discharge of dredged or fill material into navigable waters. The primary thrust of this provision is to regulate activities that affect wetland areas but the reach is much more broad. Major amendments in 1977 narrowed the scope of the 404 requirement by excluding a variety of activities including farming and timber cutting. A general or “nationwide” permit mechanism was introduced to cover activities with “minimum adverse environmental effects.” The courts have interpreted “navigable waters” very liberally to include all waters of the U.S. including wetlands.

In deciding whether to issue a permit the Corps engages in a “public interest” review process involving a balancing of the benefits against the

detriments. A curious and uneasy relationship with EPA is mandated with EPA given the authority to establish “guidelines” concerning protection of ecological values that the Corps must follow. EPA also is given a final veto authority if it determines that the discharge “will have an unacceptable adverse effect on municipal water supplies, shellfish beds and fishery areas (including spawning and breeding areas), wildlife, or recreational areas” (404(c)).

### **An Assessment of the Clean Water Act**

According to Pederson (70), “[n]inty-six percent of streams and 64% of lakes meet the water quality standards that have been set for them, almost all of which call for water quality sufficient to support fish and wildlife.” While there have been only limited improvements in water quality, the overall level of quality appears to be good. This suggests that the primary tasks of water quality law should be to maintain existing water quality while bringing about improvements in those areas not meeting desired quality standards.

The point source program is now well implemented and, at least for industrial sources, appears to be working well. There appears to be room, however, for improvement in the operation of municipal sewage treatment facilities. The use of uniform, technology-based effluent standards very likely is economically inefficient but is unlikely to be changed at this point.

It is increasingly evident that water quality improvement will depend on control of nonpoint source pollution. Gould (463) states that “[n]onpoint sources cause the predominant amount of pollution in sixty-five percent of streams and rivers in the United States not meeting water quality standards.” Agriculture is the major cause of nonpoint source problems, causing loadings of sediment, nutrients, pesticides, and other contaminants to move into surface and groundwater sources.

Particularly in the western U.S. it will also be necessary to come to grips with the

manner in which water use itself affects water quality. Getches, MacDonnell, and Rice (1990) have characterized these effects as depletion degradation, physical alteration, pollution migration, and incidental pollution. Some of these effects are considered nonpoint source problems, but many are completely outside the reach of the Clean Water Act.

The Clean Water Act’s “fishable/swimmable” goal could be given real meaning by making that a national requirement. In fact, apparently most water in the U.S. already meets this standard. Making this a requirement would force states to focus their programs on those areas in greatest need of improvement. The states should be given considerable flexibility in how they bring problem waters into compliance. Solutions should be tailored to meet the needs of individual situations. Recognizing that there are situations in which the fishable/swimmable standard is not feasible, there should be a process by which states can set alternative standards.

Congress should adopt EPA’s antidegradation policy and firmly incorporate this requirement into the Clean Water Act. The object should be to protect the existing and achievable uses of water. Special protection should be afforded very high quality waters.

The nature and extent of nonpoint source problems should become better understood as a consequence of the state assessments required under Section 319. Effective action seems unlikely, however, since the provision requires little more than had previously been required. The simple expedient of making the fishable/swimmable standard a requirement would force the states to deal with nonpoint sources that keep water from meeting this standard.

### **Conclusion**

The United States has invested hundreds of billions of dollars in water pollution control since 1972. “Clean water” continues to be an important national priority. We have committed ourselves to

a basic regulatory strategy that is unlikely to change in a major way in the foreseeable future.

The goal of the Clean Water Act is to restore and maintain the integrity of the nation's waters and to make these waters usable at a level that supports fisheries and recreation. It is time to take the next step and make this goal a requirement.

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