

•Overview of the Clean Water Act
and Its Economic Ramifications"

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Civil judicial actions are formal lawsuits filed in court against persons or entities that have failed to: comply with statutory or regulatory requirements, comply with an administrative order, pay the EPA the costs for cleaning up a Superfund site or commit to doing the cleanup work (EPA). These lawsuits are filed by the United States Department of Justice on behalf of EPA if the enforcement is under federal jurisdiction.

(EPA).

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (EPA). CERCLA provides the funding for the cleanup and remediation of hazardous

responsible parties pay for cleanup work, involve communities in the Superfund process, and return Superfund sites to productive use (EPA).

Enforcement under the Clean Water Act is divided into two main categories: civil enforcement and criminal enforcement. Most cases of enforcement fall under the civil protocol. Civil enforcement can result in settlements, civil penalties, injunctive relief, or supplemental environmental projects (EPA). Settlements are agreed upon resolutions that often contain consent agreements or administrative orders on consent (EPA). For judicial actions, consent decrees must be signed by all parties to the action and filed in court (EPA). Civil penalties are monetary assessments paid by a person or regulated entity as a result of a violation or noncompliance. These act as an incentive for persons to come into compliance or remain in compliance. Civil penalties are designed to recover the economic benefit of noncompliance as well as to compensate for the

violation (EPA). Injunctive relief requires a regulated entity to perform or stop performing a designated action in order to bring them into compliance. Supplemental environmental projects (SEPs) and mitigation can be included as part of a settlement. SEPs are environmental improvement projects that a violator voluntarily agrees to perform (EPA). SEPs are in addition to actions required to corren

governments are given the rights to permit and enforce aspects of the program (). At this time, forty-six states and one territory are authorized to carry out the NPDES program ().

Pretreatment ensures that industries and municipalities pre-treat pollutants to protect local sanitary sewers and wastewater treatment plants (). Pretreatment allows for the problem, the discharge of pollutants, to be addressed before they enter treatment facilities. Wastewater treatment plants could be damaged by the pollutants, or the pollutants may pass through the treatment facility unnoticed, leading to their discharge into waterways. The last aspect of the pretreatment program handles various recycling options for municipal sludge and wastewaters.

Storm water pollution is most often a result of storm water runoff. The runoff most often occurs after heavy rainfalls or periods of prolonged precipitation. The primary concern with storm water runoff is a result of storm water picking up debris and pollutants as it travels into a municipal water system or a natural body of water. The EPA has granted permitting privileges to local and state authorities to oversee storm water runoff and implement best management practices to prevent degradation of resources. These agencies inspect construction sites, industrial plants, and city streetways to ensure best management practices are being utilized.

Another consideration of the Clean Water Act is concentrated animal feeding operations (CAFOs). CAFOs are defined as a facility where animals will be confined for a 45 day or more period within a twelve-month span or a facility containing crops or vegetation which is not sustained during the normal growing season (). CAFOs are monitored under the Clean Water Act because they are

considered a point source for pollution. Wastewater from CAFOs pose a dangerous threat to water quality if the facility and its runoff is not properly maintained.

Oil and hazardous waste spills frequently come to mind when one imagines threats to water quality. Therefore, it follows that such spills are very closely monitored , prepare

(EPA). The Deepwater Horizon oil spill, which occurred in 2010, led to the largest environmental settlement in United States history (*Deepwater Horizon oil spill settlements: Where the money went: National Oceanic and Atmospheric Administration 2017*). Civil and criminal cases were pursued under the Clean Water Act. The civil and criminal cases resulted in more than \$20.8 billion in fines. Most of the money from the lawsuits was directed to funds to restore the Gulf of Mexico, where the oil spill occurred, as well as to national entities like the U.S. Fish and Wildlife Service to reallocate resources to reduce the risk of a future disaster (*Deepwater Horizon oil spill settlements: Where the money went: National Oceanic and Atmospheric Administration 2017*).

Lastly, the discharge of dredge and fill material into wetlands is monitored by the EPA. Discharge into the wetlands is strictly forbidden unless there is a specific permit issued by the Army Corps of Engineers. The EPA closely monitors wetlands to ensure proper measures are being followed. If violations occur, the EPA will intervene with the necessary enforcement action.

Most policy decisions are made with insight given through cost-benefit analyses. Environmental policies are different because a cost-benefit analysis is not as

straightforward as in other cases. Benefits reaped from environmental regulations are difficult to evaluate monetarily. How can one quantify the monetary value of clean drinking water? Even more difficult, the value of a clean stream for recreational fishing? Thus, there are many externalities to consider when evaluating the cost of clean water. This is the problem faced by environmental economists worldwide. A few solutions have been proposed for remedying this problem.

A prolonged study is required to evaluate the costs of the Clean Water Act. It takes 2 to 10 years from the time a grant is received until the construction is complete per the EPA.

miles downstream, and these benefits last for around 30 years, (Keiser & Shapiro). Therefore, any cost benefit analysis must take into account factors over the span of at least 10 years.

One of the chief goals of the Clean Water Act was to make waterways fishable. It was found that between 1972 and 2001 the amount of waterways that met standards for fishing increased by 12 percentage points (Keiser & Shapiro). Analyses found that it costs approximately \$1.5 million (\$2014) yearly to make one mile of river fishable (Keiser & Shapiro). To expand upon the value of fishable rivers as well as the value of clean waterways to nearby residences, a survey was conducted by Keiser and Shapiro. They found the largest estimated benefit to cost ratios are for locations where outdoor fishing or swimming is common, high-amenity urban regions, and in the South (Keiser & Shapiro). Larger benefits are also obtained from more populated areas. This information could provide insight into where grants should be given to maximize benefits.

A main concern by environmentalists and economists alike is the lack of regulation for nonpoint sources in the CWA. The CWA does not regulate nonpoint pollution, rather it leaves it to the discretion of the states (Salzman & Thompson). Nonpoint pollution is the main problem in waterways today, so it stands to reason that leaving water pollution regulation to the states is not beneficial. Nonpoint pollution surpassed point source pollution as the largest contributor to water pollution in the United States by the mid 1980s (Salzman & Thompson). Congress attempted to enforce the regulation nonpoint source pollution by adding a provision to the CWA in 1987. However, the provision does little to actually require states to monitor nonpoint source pollution and has therefore been ineffective.

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employees can be studied as a means of measuring the changes in government involvement. The Clean Water Act is certainly not the only policy or concern of the EPA, but it does warrant a significant

the United States from 1972 to 2020, it is more meaningful to study the number of employees. Since 1972 the number of employees has raised from around 8,000 to approximately 14,000 (EPA). Yet the number of employees has been fairly stable since 1990. This makes sense as the majority of environmental legislation was passed in the 1970s and 1980s.

The ultimate challenge created by the Clean Water Act, as well as any other national policy, is determining how much government intervention is necessary. Pundits will argue on either side of this issue for ages. However, a careful analysis of the facts

allows one to reasonably

Figure 2. & KDUW RI WKH (3\$¶V RSHUDWLRQ) Employee Growth from 1970 to 2019 in nominal dollars ³(3\$¶V %XGJHW DQG 6SHQGGLQJ´



Figure 3. Water pollution trends with a red line indicating the creation of the Clean Water Act (Keiser & Shapiro).

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