



*Santa Barbara, Calif., Jan. 30, 1969: An oil-soaked Common Murre, a kind of sea bird, gazes at an oil-slicked sea, shortly after a massive oil spill. Thanks to the media, this local accident became a national event, one that helped to set the stage for the "Environmental Decade" of the 1970s.*

# The Politics Of the Environment, 1970–1987

Twenty-five years ago, Rachel Carson warned of a “chain of evil,” the growing contamination of “air, earth, rivers, and sea” by manmade pollutants. In effect, Carson’s best-selling *Silent Spring* set the tone for Earth Day, 1970, when some 20 million Americans attended rallies in support of a cleaner environment. The federal government joined the crusade, committing billions of dollars. The overall gains have been modest. Why? David Vogel here analyzes the rise of the U.S. environmental movement; Robert Crandall discusses the complexities of environmental regulation.

## A BIG AGENDA

*by David Vogel*

“Earth Day may be a turning point in American history,” declared Senator Gaylord Nelson (D.-Wisc.). “It may be the birth date of a new . . . ethic that rejects the frontier philosophy . . . and accepts the idea that even urbanized, affluent, mobile societies are interdependent with the fragile, life-sustaining systems of the air, the water, the land.” Others were less impressed. “A Giant Step—Or a Springtime Skip?” asked *Newsweek*.

On April 22, 1970, millions of Americans around the country turned out to observe the nation’s first Earth Day. It brought together on one podium, in the shadow of the Washington Monument, Senator Edmund Muskie (D.-Maine), Old Left journalist I. F. Stone, and New Left agitator (and Chicago Seven defendant) Rennie Davis. Just the week before, the Vietnam Moratorium Committee, chief organizer of nationwide antiwar protests in 1969, had closed its doors: The Nixon administration was reducing draft calls and withdrawing U.S. troops, as “Vietnamization” of

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the war in Indochina began in earnest. (However, the short-lived U.S. "incursion" into Cambodia from South Vietnam on April 29, a week after Earth Day, momentarily revived the antiwar movement.) Earth Day dwarfed the earlier antiwar demonstrations, and, moreover, gravely offended almost no one.

In Manhattan, 100,000 festive New Yorkers thronged Fifth Avenue to listen to folk singers and speeches by environmental activists. A block-long polyethylene "bubble" of filtered, "pollution-free" air was soon filled with the unmistakable odor of marijuana smoke.

### Picnicking in the Wasteland

In Miami Beach, students wearing gas masks and brandishing bottles of sewage and pesticides staged a Dead Orange parade. At the University of Wisconsin, Madison, undergraduates at an "Earth service" greeted the dawn with incantations in Sanskrit. In Philadelphia, Chicago, and San Francisco, in New Orleans and Minneapolis, tens of thousands of demonstrators listened to speeches, frolicked, marched, and toted "Save the Earth" banners on crowded streets.

In a show of solidarity with the youthful demonstrators, both houses of Congress recessed, and legislators joined the popular agitation. "It was Earth Day," explained the *New York Times*, "and, like Mother's Day, no man in public office could be against it." Indeed, Earth Day was the brain child of Senator Nelson, one of Capitol Hill's own.

Even Big Business lined up behind the event. Ford, Mobil, and Standard Oil of New Jersey offered financial contributions to Earth Day's organizer, Environmental Action, Inc.—and were haughtily rebuffed. Scott Paper announced that it would spend \$36 million to reduce pollution at its mills in Maine and Washington; and Dow Chemical Company, under attack by the antiwar Left for producing the napalm munitions used by U.S. fighter-bombers in Vietnam, sent speakers to some of the many Earth Day "teach-ins" held on college campuses.

But, despite their festive air, the Earth Day crowds—"predominantly white, predominantly young, and predominantly anti-Nixon," as Walter Cronkite put it in a special broadcast that night—were not to be placated by soothing gestures. "Things as we know them are falling apart," declared Denis Hayes of Environmental Action. "Even if the war stopped tomorrow, we would still be destroying our planet."

"If we don't get our president's attention, this planet may soon die," novelist Kurt Vonnegut, Jr., told a rally in New York City's Bryant

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*At the base of a Sequoia tree in Yosemite National Park (1903): President Theodore Roosevelt, Columbia University President Nicholas Murray Butler (third from right), and conservationist John Muir (fourth from right).*

Park. "I'm sorry he's a lawyer; I wish to God that he was a biologist."

Richard M. Nixon turned the other cheek: Earth Day, the president said, showed "the concern of people of all walks of life over the dangers to our environment." The celebration's critics were few and far between. Among them was Georgia state comptroller James L. Bentley, who noted ominously that April 22 was also Lenin's birthday.

Earth Day seemed to mark a radical upsurge in public anxiety about the environment. Just 18 months earlier, during the bitter 1968 presidential campaign, Nixon and his Democratic rival, Hubert H. Humphrey, had said next to nothing about environmental issues. But, by 1970, a Harris poll found that Americans regarded pollution as "the most serious problem facing their communities." *Time* named protection of the environment the "issue of the year"—ahead of the Vietnam War. Within three years, almost without serious opposition, Congress voted half a dozen sweeping new environmental statutes into law.

Why did environmentalism suddenly catch fire in 1970?

In a sense, the tinder had been smoldering for years. America had a history of sporadic environmental "awareness." President Theodore Roosevelt, the great outdoorsman, founded the U.S. Forest Service in 1905 to protect selected wilderness areas from exploitation by miners, ranchers, and loggers. At the urging of Gifford Pinchot, the Forest Service's first director, federally owned national forests grew from 38 million acres to more than 172 million acres. During the New Deal, President Franklin D. Roosevelt built on his cousin's legacy, creating the

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conservation-oriented Tennessee Valley Authority and the Civilian Conservation Corps, in which 2.5 million youths eventually served.

None of these measures required—or aroused—great public support: Conservation was a preoccupation of the well-to-do and a few enlightened leaders. Nor were the conservationists animated by the holistic “ecological” theories that became popular during the 1970s. “Conservation” emphasized “multiple uses” of America’s natural resources—for preservation, recreation, and prudent use by loggers, miners, and others. “The first great fact about conservation,” declared Pinchot in 1910, “is that it stands for development [not just] husbanding of resources for future generations.”

The upper classes’ virtual monopoly on access to the nation’s wilderness parks ended with America’s growing prosperity after World War II. Harvard’s John Kenneth Galbraith greeted the coming of *The Affluent Society* (1958) and its egalitarian materialism with a snort: “The family which takes its mauve and cerise, air-conditioned, power-steered, and power-braked automobile out for a tour passes through cities that are badly paved, made hideous by litter, blighted buildings, [and] billboards . . . . They pass on into a countryside that has been rendered largely invisible by commercial art . . . . They picnic on exquisitely packaged food from a portable ice box by a polluted stream.”

Gradually, the growing American college-educated population—especially its younger members, who had crowded the back seats of those gaudy automobiles—made Galbraith’s lament their own. “The search for environmental quality was an integral part of [the] rising standard of living,” historian Samuel P. Hays later observed.

### America’s Dead Sea

A few lonely critics were already warning that air and water pollution was something more than an insult to the senses. In 1962, Rachel Carson’s best-selling *Silent Spring* caused a nationwide sensation with its contention that DDT and many other widely used pesticides and herbicides threatened to render planet Earth “unfit for all life.” She declared that “along with the possibility of the extinction of mankind by nuclear war, the central problem of our age has therefore become the contamination of man’s total environment” by chemicals.

Few Americans were ready to embrace Carson’s apocalyptic vision. But the nation’s post-World War II abundance *had* been accompanied by the creation or wider use of hundreds of new and little-understood synthetic chemicals such as DDT, as well as a marked increase in the output of certain industrial wastes.\* And all of these side effects of affluence

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\*Estimates of historical pollution levels vary widely. A conservative assessment by the U.S. Environmental Protection Agency suggests that particulate emissions fell slightly between 1940 and 1960, while the output of carbon monoxide rose by 10 percent, sulfur oxides by 11 percent, and nitrogen oxides by 91 percent.

were becoming increasingly difficult to ignore.

As *Time* reported in a cover story on "The Polluted Air," a "whisky-brown smog" often offended the residents of Los Angeles, New York, Chicago, and other big cities. The magazine's editors saw a portent of things to come in the Japanese port city of Yokkaichi, where the air was so foul that youngsters donned bright yellow face masks before playing outdoors. And America's rivers and streams were no more pure than its air was. Many served industry as open sewers, slimy with algae, laced with heavy metals and toxic compounds. In 1965, after the U.S. Public Health Service held a widely publicized series of public hearings on the deterioration of Lake Erie, the newspapers and TV evening news broadcasts spoke ominously of the "North American Dead Sea."

Reacting to such early alarms, presidents John F. Kennedy and Lyndon B. Johnson sponsored a few modest initiatives: the 1963 Clean Air Act, the 1965 Motor Vehicle Air Pollution Control Act, and the 1967 Air Quality Act. Most of the Kennedy-Johnson measures left the setting and enforcement of standards to the 50 states; in most cases, very little was actually required of industry. But the new laws did mark a turning point: Washington's attention had turned from conservation to the reduction (through regulation) of pollution.

### 'Now or Never'

By the late 1960s, however, the failings of the Kennedy-Johnson remedies were glaringly apparent. And Rachel Carson's view that pollution threatened the existence of life itself was gaining support. Another best-seller, *The Population Bomb* (1968), by Stanford's Paul Ehrlich, not only predicted that "hundreds of millions of people" would die during the 1970s in famines caused by overpopulation, but warned that "the progressive deterioration of our environment may cause more death and misery than any conceivable food-population gap." Over and over, Americans were told that the industrial society that had generated unprecedented affluence now seemed poised to destroy itself.

With increasing frequency, television brought images of ecological disaster into American homes: the 1967 wreck of the oil tanker *Torrey Canyon* off the British coast, which fouled British and French beaches; the 1968 poisoning of 1,300 Japanese on the island of Kyushu by the chemical PCB, which causes severe skin rashes and vomiting; a 1969 pesticide spill in the Rhine River that killed 40 million fish.

But the most disturbing images of all came from the beaches of Santa Barbara, California. In January and February 1969, an 11-day blowout at a Union Oil Company rig off the coast spread black goo over 40 miles of beach near the palm-shaded city, and stained 400 square miles of the blue Pacific. Thousands of sea birds and otters were smothered in the tarlike crude oil. [See box, p. 56.] Then, in June 1969, Lake Erie was featured on the front pages again when an oily, sludge-clogged

### OIL, WATER, AND POLITICS

A single doomed sea gull, mired in sticky black crude oil, flounders helplessly on a sunny stretch of California beach.

That was one of hundreds of alarming images from Santa Barbara on the TV news during the winter of 1969. For 11 days, beginning on January 28, oil gushed out of an underwater fissure beneath Union Oil Company's Platform A, staining Santa Barbara's lovely beaches with a "black tide" and suffocating thousands of grebes, loons, and cormorants. It was, said former U.S. secretary of the interior Stewart Udall, "a conservation Bay of Pigs."

Congress was impelled to enact several laws that radically altered the rules of the game for offshore oil drilling. Among them: the National Environmental Policy Act of 1969, which required an environmental impact statement (inviting lengthy court challenges) for new wells, and the 1972 Coastal Zone Management Act, which mandated that federal leasing efforts be "consistent with approved state management programs."

Only months after the Santa Barbara disaster, a University of California study concluded that the oil had inflicted no permanent damage on the local ecological system—a finding confirmed by a 1985 U.S. National Research Council study. In fact, Mother Nature spills about twice as much oil into California's waters *every year* (up to 220,000 barrels) through natural "seeps" as the accident at Platform A did.

Largely as a result of the 1969 and 1972 laws, annual oil production in the federally owned Outer Continental Shelf has remained virtually unchanged at some 390 million barrels since the early 1970s. And about 90 percent of that oil is pumped from sites in the Gulf of Mexico off Louisiana, Alabama, and Texas. (Next to Alaska's three billion or more barrels, California's estimated two billion barrels are the nation's largest offshore reserves.) Only 14 percent of U.S. domestic oil output is now pumped from offshore wells.

Court challenges by activists in California have slowed new leasing, and the governors of California and other states with offshore oil (e.g., Maine, Massachusetts, Alaska) have themselves often blocked development on the grounds that it might harm fisheries and tourism (due to "visual pollution"). Nor does Big Oil always want the tracts that Washington does put on the auction block. But all of this was rendered academic in 1982, when Congress, reacting to a come-and-get-it leasing proposal by Secretary of the Interior James Watt, imposed a moratorium on all new lease sales off California.

Last July, Watt's successor, Donald P. Hodel, announced a compromise authorizing new leases on a modest 18.5 million acres off the California coast. But the auctions are not scheduled to begin until 1989. That leaves the courts, Congress, or a new administration plenty of time to veto leasing again. But even the Californians' friends have run out of patience. As the *New York Times* noted recently, the threat posed to California's sea birds and scenery by drilling for more oil "if not zero, is low, and given the national need for secure sources of oil, it's a risk well worth taking."

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stretch of Cleveland's Cuyahoga River, one of the lake's tributaries, burst into flames.

"By the time 1969 was over," recalls Rice Odell of the Conservation Foundation, "the Environmental Revolution was in full swing." Wrote John C. Whitaker, an aide to President Nixon at the time: "There is still only one word, *hysteria*, to describe the Washington mood [in 1969] on the environment issue."

Ironically, the conservative Republican in the White House gave the new environmental movement perhaps its biggest push. On January 1, 1970, four months *before* Earth Day, President Richard Nixon signed the National Environmental Policy Act into law. It established an advisory Council on Environmental Quality and, in a little-noticed provision, required comprehensive "environmental impact statements" for virtually all large-scale government-sponsored construction projects. By the end of the decade, federal agencies would prepare some 12,000 environmental impact statements.

Calling attention to his "first official act of the new decade," Nixon proclaimed: "The 1970s absolutely must be the years when America pays its debt to the past by reclaiming the purity of its air, its waters, and our living environment. It is literally now or never." This, he declared, would be "the environmental decade."

In December 1970, Nixon issued an executive order creating the U.S. Environmental Protection Agency (EPA). The new agency was the result of a governmental reorganization, combining under one roof responsibilities for writing and enforcing many of Washington's new pollution regulations, as well as for conducting research. Later, Nixon named former deputy attorney general William D. Ruckelshaus as the EPA's first administrator. The EPA grew quickly. Within three years, the agency boasted a budget of more than \$500 million and a staff of some 8,200, and it was still expanding.

### **'Mr. Pollution Control'**

By all accounts, much of Nixon's apparent zeal for the environmental cause stemmed from political calculation. In an America torn by conflict over the war in Vietnam and over race relations, "the environment" promised to be a unifying cause. As the *New Republic* commented in 1970, "everyone's interested in survival." Nixon also aimed to steal the spotlight from his likely opponent in the 1972 presidential election, Senator Edmund Muskie (D.-Maine), who was known in Washington as "Mr. Pollution Control."

During the spring and summer of 1970, Nixon and Muskie competed in what amounted to a bidding war to expand Congress's 1970 amendments to the old Clean Air Act. The unintended result was an enormously expensive, complex piece of legislation which, as a government report later expressed it, mandated a cleanup "clearly beyond the



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technological capability which industry was known to possess at the time." It also marked a turning point in policy by transferring the responsibility for overseeing the cleanup from the states to Washington, with strict timetables.

As Ruckelshaus later recalled: "Congress in that era of Vietnam and general disillusionment with the existing order was in no mood to trust any administrative actors—state or federal. [It] gave EPA 90 days from the date of enactment to propose national ambient air standards for the major pollutants . . . and told us we had five years to attain them. This was done in the face of evidence that the problem in such [smog-ridden] cities as Los Angeles would take 25 years to solve."

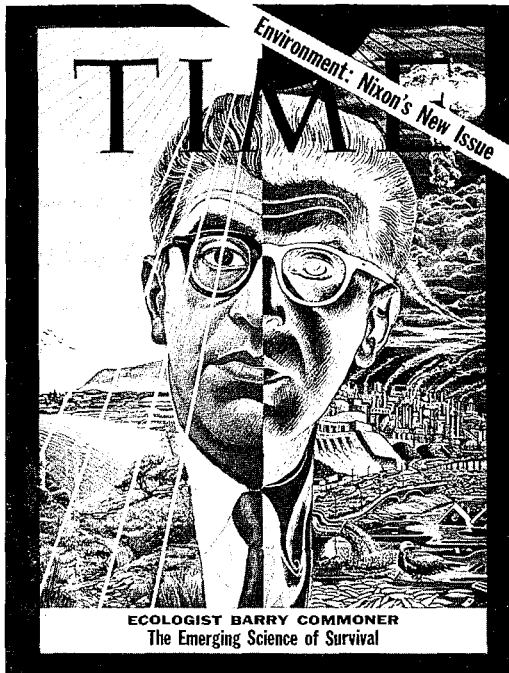
### Limits to Growth

Throughout the "environmental decade" (and beyond), the EPA was whipsawed by political demands for instant clean air and water and by the uneven, even primitive, level of scientific knowledge about major pollutants. Congressmen drafting the early statutes assumed that all hazards were easy to identify. Said Ruckelshaus: "EPA's strict enforcement mandates [from Congress] were based on the belief that we knew our targets and how to hit them." But the regulators were shooting in the dark. In 1970, for example, when the agency established its first standards for permissible automobile emissions of carbon monoxide, it could only guess the level at which the invisible gas posed a threat to human health. "The original standard," wrote Ruckelshaus, "... was based on a single study involving 12 individuals."

Although the Clean Air Act goals seemed unrealistic at the outset to scientists and some politicians, Congress was not deterred. By the end of 1972, the legislators had passed six more major pieces of legislation. *Congressional Quarterly* hailed the 92nd Congress for "the most productive record for environmental protection in the nation's history."

The 1972 Federal Water Pollution Control Act (FWPCA) Amendments (passed over Nixon's veto) called on the EPA to establish strict standards for municipal and industrial discharges into the nation's waterways. They also authorized more than \$18 billion for construction of new municipal sewage treatment plants. Governors and mayors, always keen on job-creating federally subsidized local public works projects, lobbied fiercely for the measure. Five other bills created strict requirements for ocean dumping, coastal zone management, marine mammal protection, pesticide control, and, last but not least, *noise* control.

Reviving the spirit of Lyndon Johnson's Great Society, Congress announced new antipollution goals with a near utopian optimism. Section 101 of the FWPCA, for example, called for the prompt restoration of the "natural chemical, physical, and biological integrity of the nation's waters." All of America's rivers, lakes, and streams were to be "fishable and swimmable by 1983." All hazardous municipal and industrial dis-



*Depicted on TIME's cover (Feb. 2, 1970), was Barry Commoner, then a 52-year-old biologist at Washington University, St. Louis, and the "Paul Revere of Ecology." In 1980, Commoner made an unsuccessful bid for the U.S. presidency, on the now-defunct Citizens Party ticket, gaining 234,000 votes.*

charges were to be "eliminated" by 1985. Few newsmen were skeptical.

Big Business, trying to avoid seeming "pro-pollution," lobbied quietly (and in vain) against such catchall remedies. In fact, the overall costs of the pollution measures mandated by Congress were not a significant burden on the economy. In 1973, according to the EPA, corporations, government, and consumers spent some \$13 billion on pollution-abatement measures—about one percent of the gross national product (GNP). (Such outlays have since averaged between 1.5 and two percent of the GNP.) The problem was that a few key industries (e.g., autos, steel, nonferrous metals, and electric utilities), some of them already ailing, bore the brunt of the costs.\*

As time went on, popular demand for action grew louder. During the early 1970s, biologists Paul Erlich and Barry Commoner spoke of imminent "ecocatastrophe." In *The Limits to Growth* (1972), an impressive team of researchers headed by the Massachusetts Institute of Technology's Dennis L. Meadows warned of a "sudden and uncontrollable decline in both population and industrial capacity" if "the present growth trends in world population, industrialization, pollution, food pro-

\*During the mid-1970s, the paper industry was forced to divert 17.6 percent of its capital investment to pollution control; nonferrous metal companies spent 17.2 percent, steel 15.8 percent, and electric utilities 8.7 percent. Hit hardest of all was Detroit, which spent \$38.2 billion between 1970 and 1977 to satisfy Washington. However, Japanese and other foreign cars sold in the United States were required to meet the same pollution standards as U.S.-manufactured automobiles.

duction, and resource depletion continue unchanged." Alarmed readers snapped up four million copies of the book.\*

During 1973-74, the Arab oil embargo forced Washington to confront for the first time some of the tradeoffs involved in protecting the environment: Reducing harmful fumes from auto exhausts cuts fuel economy; preserving federal lands from exploitation means less domestically produced coal and oil. As a new "energy crisis" preoccupied Washington, President Nixon asked Congress to relax scores of costly environmental regulations. Capitol Hill grudgingly made concessions. In 1974, for example, it granted Detroit the first of many delays in meeting federally mandated deadlines for reducing auto exhaust emissions.

In a curious way, however, the "energy crisis" seemed to dramatize some of the gloomy predictions of *The Limits to Growth*. Spaceship Earth was a small and fragile place: If the world was indeed running out of oil, then perhaps it might also exhaust its clean air and water, just as the doomsayers predicted. As Harvard's George Wald put it in the title of a 1975 essay, "There Isn't Much Time."

### Looking for Ecotopia

Like many activists of the era, Wald blamed the evils of capitalism for the globe's impending calamity—thus overlooking the fact that well-intentioned government agencies, such as FDR's Tennessee Valley Authority or the Army Corps of Engineers, had committed some of the most grievous assaults on the environment.

Wald was a bit more apocalyptic than most—he thought that The End might be only 10 years away, while Barry Commoner reckoned that mankind could hope to survive for another 50 years. But all of the more radical environmentalists and their followers were fond of utopian schemes, from the relatively sober "Buddhist economics" of E. F. Schumacher's *Small Is Beautiful* (1973) to Ernest Callenbach's *Ecotopia* (1975), an underground best seller that described a fictional environmentalist community of the future carved out of Northern California and the Pacific Northwest. In Callenbach's novel, San Francisco, the capital of female-ruled Ecotopia (male attitudes have been discarded as "outdated and destructive"), is practically a ghost town: Most of the residents have gone "back to the land."

But, by the mid-1970s, the environmental movement was beginning to encounter its own era of limits. The energy scare, a steep recession, and soaring inflation had distracted many Americans and dampened public ardor for the cause. In Manhattan, the celebration of Earth Day 1975 attracted only 100 of the faithful. That year, according to a Harris poll, only six percent of the citizenry continued to regard "ecology" as one of

\*In 1974, the Club of Rome, which had sponsored *The Limits to Growth*, did a nearly complete but little noticed about-face. In *Mankind at the Turning Point*, it called for *faster* economic growth in the Third World to close the gap between rich and poor countries.

the nation's top domestic problems.

Americans still broadly supported environmental regulation—more than half believed that the federal government should increase its outlays for environmental protection, according to opinion surveys. And the environmentalist ethos lived on, at least among the upper-middle class, in fads for natural fiber clothing, natural foods, indoor greenery, and in bumper sticker sentiments: Split Wood Not Atoms, Save the Whales. However, except during sporadic episodes, such as the 1977 Love Canal affair [see box, p. 76], most of the crusading zeal was gone. The environment, wrote Cynthia Colella of the U.S. Advisory Commission on Intergovernmental Relations, had “joined the ranks of such ‘institutionalized’ and enduring problems as education and health.”

The Sierra Club, the Friends of the Earth, and other environmentalist groups (having accomplished the nominal regulation of air and water pollution) shifted their attention to other threats, many of them newly perceived. This trend was reflected in significant congressional legislation protecting endangered species (1973), and regulating the transport of hazardous materials (1975), the production of toxic chemicals (1976), and the methods of strip mining (1977). Environmentalists also cheered when Congress established a national 55 mph speed limit (1974), mandated greater fuel economy in new cars (1975), and vastly expanded the national parks and wilderness areas.

During the 1976 presidential campaign, President Gerald Ford and candidate Jimmy Carter sparred only lightly over pollution. Environmentalists in Washington backed Carter. They were rewarded after Carter's election by his appointment of veterans of the Environmental Defense Fund and allied lobbyists to important second-echelon posts at the EPA, the Department of the Interior, and the White House. But, in his first major speech on the environment (in May 1977), Carter proposed no new programs. Instead, he called for stricter enforcement of the complex laws already on the books.

### **Saving the Snail Darter**

Increasingly, the battle over environmental regulation was to be an “inside the (Capital) Beltway” affair, waged in EPA hearing rooms and the courts in Washington, where the growing need of corporate clients for counsel led to a lawyers' boom.\*

Environmentalists were not dismayed; many of the laws passed during better days had yet to be implemented. For example, regulations had been written for only a few of the tens of thousands of chemicals included under the Toxic Substances Control Act of 1976. “Much of the initial legislation overestimated the speed with which new technologies could be developed and applied,” wrote Norman J. Vig and Michael E.

\*The Washington, D.C. bar association, established in 1972, quickly grew to 35,000 members, equivalent to about five percent of the city's population. (Of course, many of the attorneys lived in the suburbs.)

Kraft, of Carleton College and the University of Wisconsin, respectively. "The laws also underestimated the compliance costs and the difficulties of writing standards for hundreds of major industries."

As the *Federal Register* bulged (from 10,000 pages annually in 1970 to nearly 80,000 pages in 1980) with new regulations issued by the EPA and other agencies such as the Occupational Safety and Health Administration, the Fish and Wildlife Service, and the Consumer Product Safety Commission, costs that had once been vague estimates suddenly had to be paid in hard cash. In 1977, for example, the EPA, along with state and local regulators, forced U.S. Steel to agree to spend \$600 million over seven years to eliminate noxious smokestack emissions at its Clairton Coke Works in Pittsburgh. Antiregulatory sentiment grew.

"The situation we have gotten ourselves into would be ridiculous if it were not so serious," argued columnist Irving Kristol in the *Wall Street Journal* in 1977. "We have been much exercised . . . by the fact that the OPEC monopoly has cost this country well over \$30 billion in increased oil prices since 1972. But in that time we have inflicted upon ourselves much larger economic costs through environmental and other regulations."

Publicity, which had once done so much to promote the environmentalists' cause, now occasionally undermined it.

In June 1978, Americans gasped in disbelief when the Supreme Court, enforcing the Endangered Species Act, halted construction of the



The "No Nuke" rallies of the 1970s and '80s were among the offshoots of the environmental movement. Above, a 1976 protest in Madison, Wisconsin to fight the planned construction of a nuclear power plant.

Tennessee Valley Authority's \$100 million Tellico Dam to preserve the habitat of a tiny species of minnow, the snail darter.\* Few newsmen noticed, New York University's Lawrence J. White observed, when a Department of Interior cost-benefit study the next year revealed that the dam was "a losing proposition at its conception and was still a losing proposition"—a dubious product of Capitol Hill's pork barrel politics. (In 1979, Congress opened a loophole in the Endangered Species Act and authorized completion of the dam. The snail darters were transplanted to nearby rivers; later it was discovered that the fish were present all along in a creek safely distant from the Tellico Dam site.)

### Mistaking a Mandate

By 1977, as the nation's economic woes deepened, Carter and the Democrat-controlled Congress were backing away from some of the harsher provisions of federal environmental law. (The annual expense for environmental protection, paid mostly by business, had climbed to an unexpected \$38 billion, not counting conservation outlays.) That year, for example, Congress again deferred Detroit's deadline for reducing auto exhaust emissions. Quixotically, however, it stiffened penalties against cities and regions that failed to meet the 1970 Air Quality Act's extraordinarily rigorous standards for clean air.†

In 1979, as the "environmental decade" drew to a close, Americans were again lining up at the gas pumps (due to a cutoff of Iran's oil exports), and the Federal Reserve Board was struggling to cope with soaring inflation and interest rates. Japanese competition in steel, autos, and other products was battering Smokestack America. On July 15, in his famous "crisis of confidence" speech, Carter asked Congress to endow an Energy Mobilization Board with the power to override EPA (and other) regulations. Congress refused. Moreover, in 1980, by an overwhelming majority, Congress created the \$1.6 billion Superfund to clean up toxic waste dumps, such as New York's Love Canal. Capitol Hill no longer insisted on putting the environment ahead of the economy, but it was not willing to "pull the plug" on environmental protection.

That summer, at the 1980 Republican Convention in Detroit, a triumphant Ronald Reagan seemed to grasp the nation's mood. "Make no mistake," he assured his nationwide TV audience. "We will not permit the safety of our people or our environmental heritage to be jeopardized, but we are going to reaffirm that the economic prosperity of our

\*Between 1973 and 1980, the federal courts heard a total of 3,076 environmental cases, an average of 439 a year. According to Lettie M. Wenner's study *The Environmental Decade in Court* (1982), environmentalists (or the government) won only about half of their court battles. But a single lawsuit could be extremely time-consuming and costly. As early as 1973, fear of such litigation prompted Congress to bar court challenges to the Alaska oil pipeline's environmental impact statement.

†To meet those requirements, Los Angeles, for example, would have had to slow construction of new factories and shopping centers, curb driving, and even limit the use of charcoal-lighter fluid in backyard barbecues. In practice, major federal sanctions against cities have never been imposed.

## CLEANING UP THE CHESAPEAKE

Before sunrise on Chesapeake Bay, some 4,300 watermen are already offshore in their boats—raising crab pots near Annapolis, hauling nets near Solomons, dredging up mollusks off Tilghman Island. Since the 19th century—the heyday of Bay fishing—Chesapeake watermen have supplied U.S. markets with up to half the annual harvest of oysters, clams, and blue crabs.

Lately the catch is getting skimpy. This year, oystermen will bring fewer than one million bushels to market, compared to 12 million in 1880. Rockfish and shad are so scarce that fishing for them in Maryland waters is now illegal.

The culprits are overharvesting and pollution. Today, the “queen” of America’s estuaries is an ecosystem in decline.

The Chesapeake is big. Its watershed covers 64,000 square miles; it stretches 200 miles from Norfolk, Virginia, to the mouth of the Susquehanna River, and has 4,600 miles of shoreline. The Susquehanna, Potomac, James, and four other major rivers (plus 150 lesser tributaries) feed the estuary, where fresh waters mix with Atlantic tides. Though shallow, the Bay has a deep central channel that serves large ships.

But population growth has put a big strain on the Chesapeake. Today, 12.7 million people live on its watershed, up from 3.7 million in 1940. Some 200 major sewage treatment plants spew 1.6 billion gallons of phosphorus- and nitrogen-laden waste water into the Bay each day. Local



factories—e.g., steel and plastics—spill toxins and heavy metals (lead, zinc) into its waters. Rainwater run-off from soybean and tobacco fields washes pesticides and fertilizers into its tributaries.

One result of this pollution is a nutrient-rich broth that sustains “algal blooms.” Microorganisms cloud the water, block sunlight, and steal oxygen (creating “anoxia”), killing rooted underwater plants and bottom-dwelling organisms such as oysters. Meanwhile, near industrialized areas such as Baltimore, heavy metals poison the food chain, and pesticides and toxins collect in crustaceans and fish. Due to the Bay’s shape and sluggish circulation, only a small fraction of the pollution flows out into the Atlantic.

In 1983, Virginia, Maryland, Pennsylvania, and the District of Columbia launched their own

cleanup efforts—amounting to \$47 million per year. To reduce run-off, the states are stressing “no-till” farming; to lower waste discharges, they are cracking down on “point-sources”—notably treatment plants and factories. Maryland and Virginia recently banned the sale of products containing phosphates; Annapolis is regulating Maryland’s shoreline development.

Since 1983, U.S. agencies have spent roughly \$690 million in the Bay area on sewage treatment plants. Recently, Maryland began installing overdue nitrogen controls at two treatment plants, after studies by marine biologists proved sewage-borne nitrogen could be more harmful than phosphorus is to the Bay’s health.

The cleanup has made some progress: Between 1980 and 1983, the Bay’s annual phosphorus load fell nearly 20 percent, although no one knows how much phosphorus remains in the Bay’s sediments. In Maryland’s Anne Arundel County, only four creeks among hundreds are closed for health reasons. But other signs are not as encouraging. Of Maryland’s sewage treatment plants, 30 percent exceed their discharge limits. Overall, rapid suburban, urban, and industrial development is outstripping conservation efforts.

Trying to clean up the Bay, says William C. Baker, president of the Chesapeake Bay Foundation, is “like rowing three knots against a four-knot current.”



### THREE AFFLICTIONS OF THE CHESAPEAKE

The Chesapeake Bay supports an intricate web of life: Animals, plants, and insects must coexist under proper soil, water, and weather conditions. Otherwise, the ecosystem begins to break down.

Man is the chief threat to the Bay's health, as he is elsewhere. Because of extensive sewage dumping and run-off from city streets and farmlands, the Bay, in parts, has become too rich in phosphorus and nitrogen. Feeding on these nutrients, phytoplankton are breeding out of control, and mottling the waters.

Not only do these microorganisms steal oxygen from the water (especially when they decay), but they also block sunlight from rooted underwater plants. Since 1950, the amount of the Bay's water showing "anoxia" (no dissolved oxygen) during the summer months has increased 15-fold. Today, much of the water below 40 feet is anoxic from mid-May through September, along a stretch reaching from the Bay Bridge to the mouth of the Rappahannock River [see Figure 1]. Anoxic waters are especially lethal to "benthic" organisms, such as clams and oysters.

Mainly because of lost sunlight and herbicide run-off from farms, 10 species of "submerged aquatic vegetation" (SAV)—e.g., coontail, water nymph, widgeongrass, and horned pondweed—have been steadily dying off. SAV now occupies only 25 percent of the area it did two decades ago [see Figure 2]. The loss of these underwater plants has upset the Bay's ecological balance, since they provide habitats and spawning grounds for many fish and shellfish, as well as food for waterfowl. SAV also cleanses and reoxygenates the Bay's sometimes stagnant waters.

Compounding these troubles, the sediments on the Bay's bottom, close to heavily industrialized Baltimore and Norfolk, are tainted with high levels of toxins, pesticides, and metals. In Baltimore Harbor, some 480 toxic compounds have been detected. Many of the metals (e.g., cadmium, chromium, copper, iron, zinc, and lead) first enter the James, Potomac, and Susquehanna rivers before going into the Bay. In modest quantities, such metals are not harmful; but when their concentrations become too high, as they now are in certain Bay waters [see Figure 3], they can be hazardous to marine life and human beings.

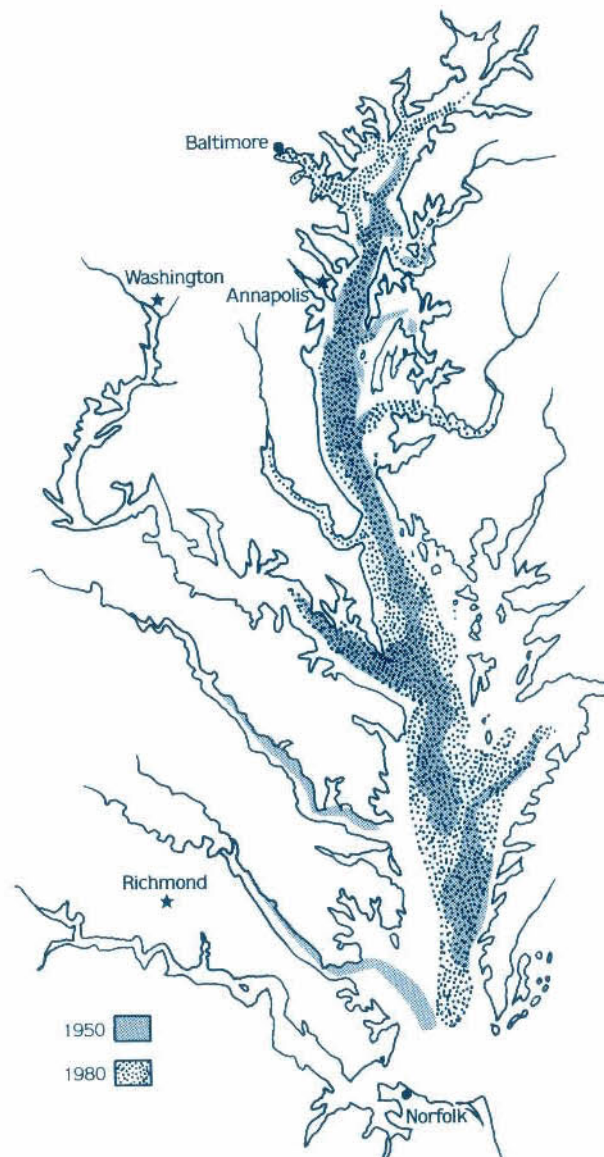


Fig. 1: Areas of the Bay with little or no dissolved oxygen in the water, 1950 vs. 1980.

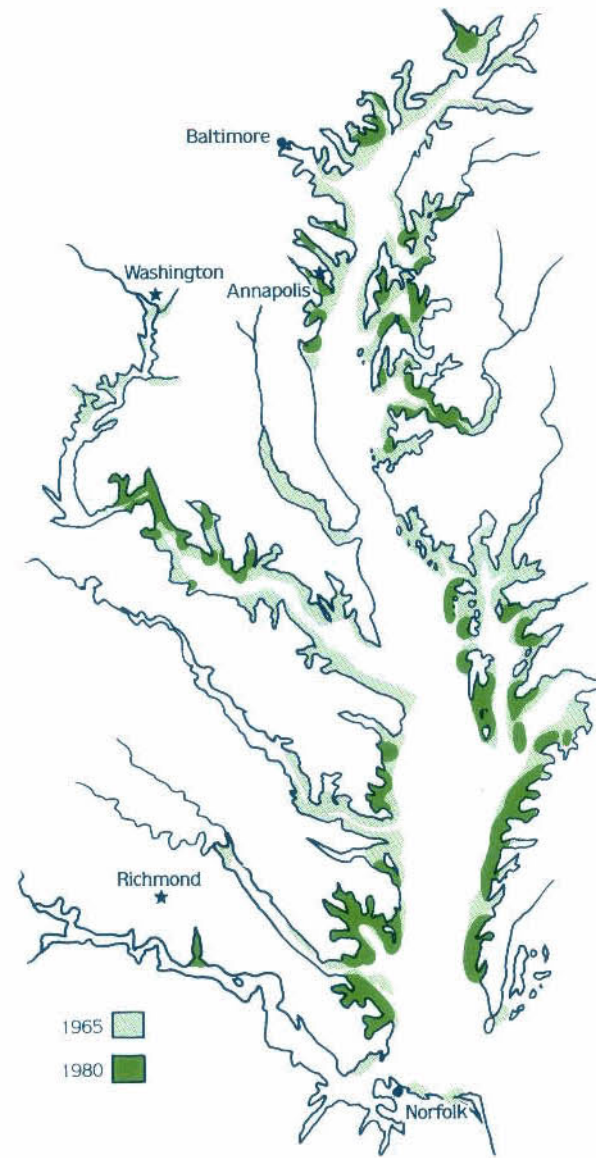


Fig. 2: Areas of the Bay where submerged aquatic vegetation still grows, 1965 vs. 1980.

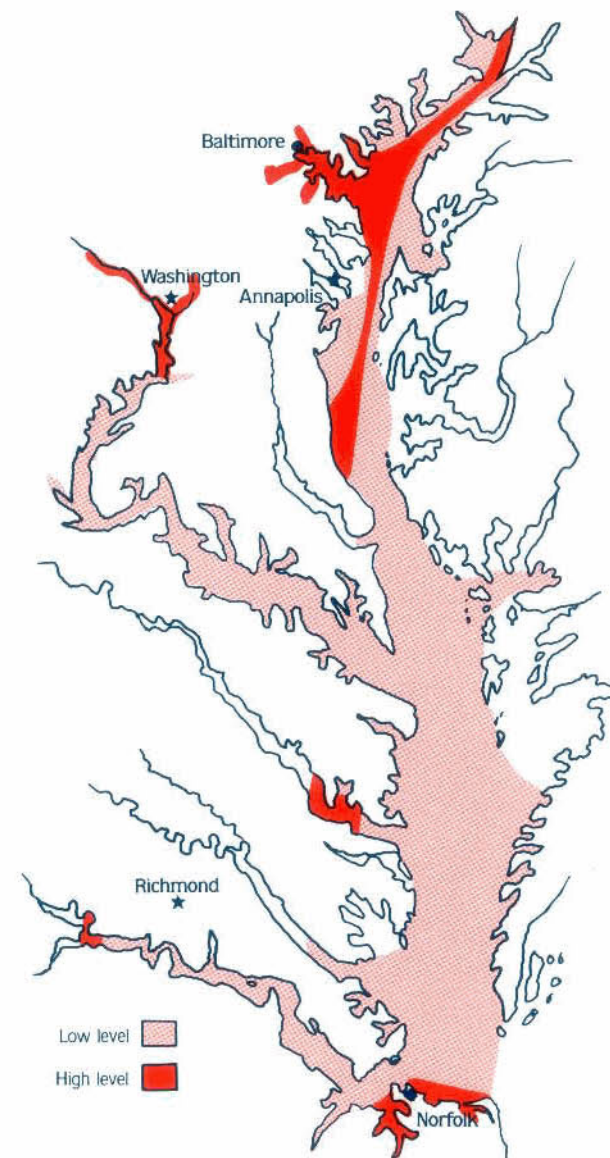
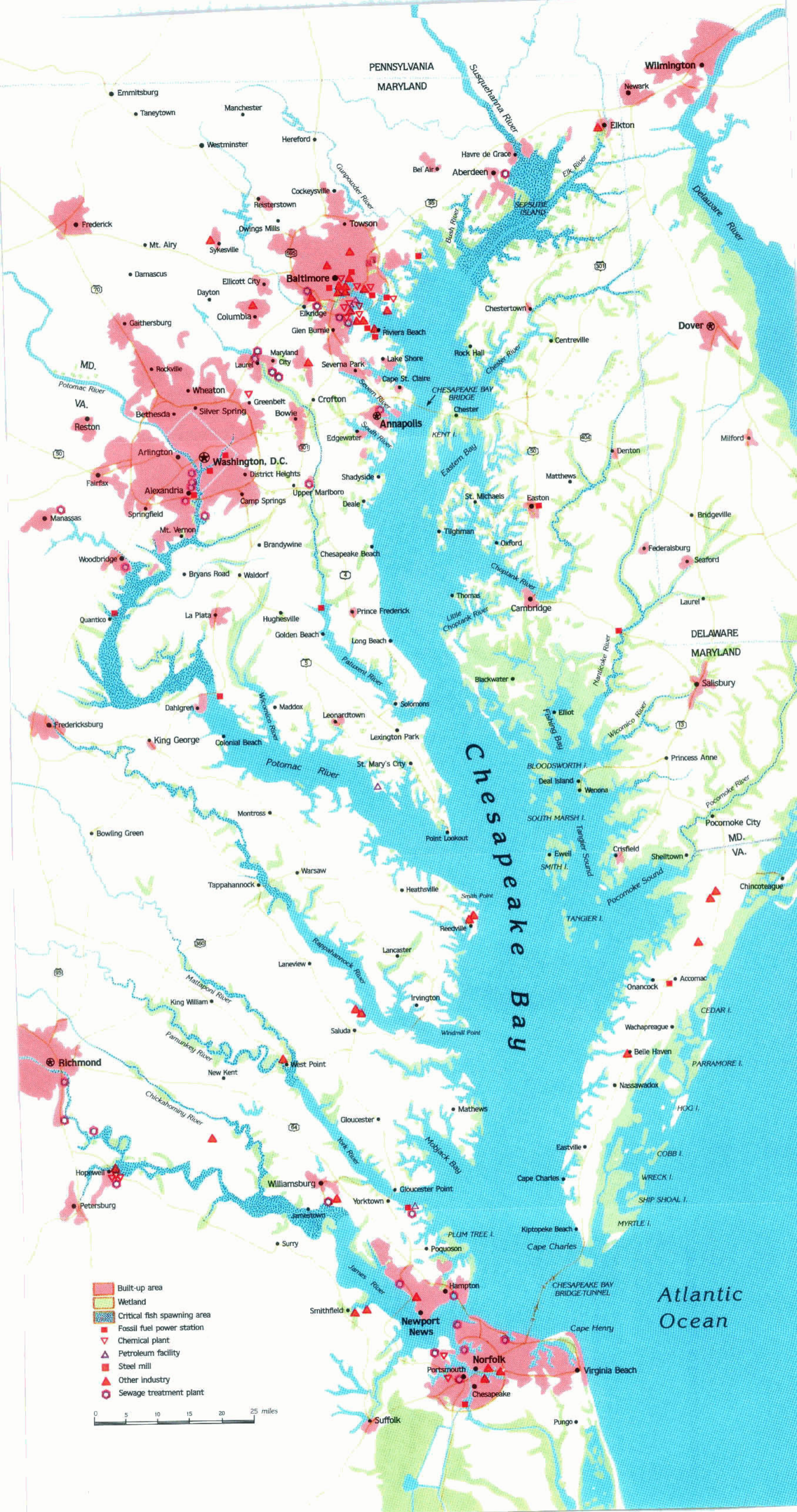


Fig. 3: Areas of the Bay now contaminated by metals, based on the EPA's contamination index.





- Built-up area
- Wetland
- Critical fish spawning area
- Fossil fuel power station
- Chemical plant
- Petroleum facility
- Steel mill
- Other industry
- Sewage treatment plant



# Chesapeake Bay

Atlantic Ocean



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people is a fundamental part of our environment.”

Reagan's stray remarks—e.g., “80 percent of air pollution comes not from chimneys and auto exhaust pipes, but from plants and trees”—hinted that he took a more radical view. But, as political scientist Michael E. Kraft later recalled, environmental issues were seldom discussed during the campaign; none of Reagan's statements point “with any clarity to a well-defined environmental policy agenda.”

As William Ruckelshaus was to note, the new administration misinterpreted Reagan's stunning 44-state electoral sweep in 1980. The White House mistook the public's apparent wish to streamline environmental regulations for a desire to change course altogether.

Taking office in January 1981, Reagan chose a conservative activist, James Watt of Colorado, as secretary of the interior. He picked a little-known Watt protégée, former Colorado state legislator Anne Gorsuch (later, Burford), to head the EPA. As president of the Denver-based Mountain States Legal Foundation, Watt had spearheaded the Sagebrush Rebellion's courtroom attacks against restrictions on the uses of federally owned lands in the West.

In Washington, the abrasive new secretary of the interior pledged to “unlock” more than 500 million acres of protected federal lands to ranchers, coal miners, and loggers, and to lease up to one billion acres of offshore tracts for oil exploration. To promote “administrative efficiency,” Gorsuch slashed \$300 million from the EPA's \$1.3 billion budget, forced out dozens of senior staffers, and slowed the flow of new regulations and lawsuits against polluters to a trickle. In the *Washington Post*, Russell E. Train, EPA administrator under Nixon and Ford, deplored the EPA's “demoralization and institutional paralysis.” Gorsuch, he suspected, was actually trying to destroy the EPA.

### Washington's Green Giant

In March 1982, the leaders of 10 environmental and conservation groups—the so-called green lobby—issued a much-publicized 227-count “indictment” of the president. They charged that he had “broken faith with the American people” and “veered radically away from the broad bipartisan consensus” in favor of strict environmental protection.

Many Americans seemed to agree. The actions of Watt and Burford revived the sagging fortunes of the National Audubon Society, the Environmental Defense Fund, and their allies. The Sierra Club's membership nearly tripled (reaching 310,000) during the two years after Reagan's election. (All told, the national organizations claimed more than five million members.) Opinion surveys showed that public sentiment in favor of environmental regulation “regardless of cost” was soaring—hitting 58 percent by 1983.

In 1981, lobbying on Capitol Hill, a coalition of Washington-based groups scuttled Reagan-backed efforts to eviscerate the Clean Air and

### WHO WILL STOP THE RAIN?

"Right as rain" and "pure as the driven snow" are the expressions of a sweeter, bygone era, laments Harvard's Roy Gould. "Now the storms that sweep across eastern North America carry an acid rain—a rain gone sour."

The debate over the nature and menace of acid rain—what former Environmental Protection Agency (EPA) administrator William D. Ruckelshaus calls "the most difficult, complex public policy issue" of his career—is flavored by all the rhetorical excesses (on both sides) of an earlier era. It has also divided scientists, deadlocked Congress, embarrassed the Reagan White House, and strained U.S. ties with the conservative government of Canada's Prime Minister Brian Mulroney. "You can't continue to dump on us the garbage that you are producing on your own property," warned Canada's former environment minister, Charles Caccia.

A decade ago, few Americans had heard of acid rain. It was a local phenomenon, barely noticed until long after Congress passed the Clean Air Act in 1970. In response to the act's strict local air quality standards, utility companies in the industrial Midwest built "tall stacks" (up to 1,200 feet) to shoot soot and smoke high into the air, where it would be swept away by the jet stream. By the end of the decade, scientists in upstate New York and in Ontario were puzzled by the gradual acidification and "death" of hundreds of freshwater lakes. They began to target the tall stacks after they learned that Scandinavian scientists had linked similar problems in Sweden to rising sulfur dioxide emissions from the factories of Great Britain and Central Europe.

In 1984, Sweden persuaded nine other nations to join a "30 Percent Club," whose members pledged to cut their sulfur dioxide output by almost one-third within 10 years. Notable nonmembers: the United States and Great Britain.

President Reagan has been reluctant to endorse sweeping controls. Instead, he has proposed a five-year, \$2.5 billion research effort, even though most researchers (including Reagan's own blue-ribbon advisory panel) agree that coal-burning industrial plants are the chief source of the problem. But then uncertainty sets in. Is acid rain responsible for all of the ills blamed on it? The charges, says the Hudson Institute's William M. Brown, range "from reasonably convincing to far-fetched."

Endangered Species acts. When Watt attempted to win congressional approval of oil and gas leasing in some federal wilderness areas after the year 2000, the "green lobby" persuaded the House of Representatives to vote overwhelmingly for a perpetual ban on such leasing. The Senate demurred, but Watt nevertheless had to retreat. Washington, said *Fortune*, was "in the grip of the Green Giant."

But even Ronald Reagan showed little grief when Burford and Watt were forced to resign in 1983. Burford departed under a cloud after being cited for contempt for refusing to release documents to a congressional committee investigating EPA mismanagement of the Superfund.

Scientists have pinned the blame firmly on acid rain for the "death" of some 400 alpine lakes in New York's Adirondack Mountains. These "dead" lakes are now as acid as vinegar, devoid of plant life, trout, bass, and many bacteria. From the air, the lake surfaces are an unnaturally beautiful shade of blue, "like flowers at a funeral," as one naturalist expressed it. Lakes in Vermont, New Hampshire, and Ontario are probably also victims of acid rain.

But environmentalists have also contended, less plausibly, that acid rain is stunting or killing off forests, corroding city skyscrapers and other structures to the tune of \$5 billion annually in damage, and driving 50,000 to 200,000 Americans with respiratory ailments to early graves.

Congress seems eager to do *something*, but the peculiar politics of acid rain has tied lawmakers in knots.

An obvious solution to the acid rain problem would be to have utility companies use low-sulfur Western coal. But that would cost some 30,000 coal mining jobs in the Eastern high-sulfur coal mines that now supply the Midwestern utilities. Congress could require all existing utilities to install smokestack "scrubbers"—at a cost of \$100 million to \$300 million apiece—but who would pay? The Edison Electric Institute claims that some consumers might see their electricity bills jump by 50 percent. Proposals for various national acid rain "taxes" also founder: Why should Georgia pay to clean up the Midwest's dirty utility plants and the Northeast's lakes?

Any remedy is expensive. The price for U.S. membership in the 30 Percent Club would be high: \$10 to \$20 billion, or up to "\$6,000 per pound of fish" saved, in the pithy summary of former budget director David Stockman.

Science provides no easy answers to the cost-benefit quandary. "The benefits of a properly functioning ecosystem are much more than matters of dollars and cents," concluded President Reagan's advisory panel in 1983. Only one thing is certain. If Washington delays, and if acid rain is as destructive as many specialists suspect, it may never be possible to correct the damage.



*Mulroney and Reagan*

Watt was tripped up by his own offhand remarks about the "balanced" makeup of an Interior Department advisory commission. The panel, he said, included "a black . . . a woman, two Jews, and a cripple."

When Reagan put William Ruckelshaus back at the helm of the EPA, and a Reagan confidant, William P. Clark, at the Department of the Interior, the storm over environmental policy suddenly ended. The *status quo ante* was restored. In 1984, even a Sierra Club "report card" awarded Ruckelshaus "a gentleman's 'C.'"

Perhaps the most significant legacy of the Reagan years may be the complete absence of any fresh regulatory initiatives. Reagan's election

wrote *finis* to the exuberance of the "environmental decade." "The major role of the Reaganites," concluded Samuel P. Hays, "was to retard or halt emerging action on such matters as acid rain, toxic air emissions, indoor air pollution, and hazardous waste."

Reagan's "wrecking ball," as environmentalists termed it, never did much permanent damage. "Deregulation" did not progress very far at the EPA, though Reagan has carried forward some reforms (e.g., a requirement that all new regulations pass a cost-benefit test) planned by the Carter administration.

Seventeen years after Earth Day, on the eve of a presidential election year, virtually none of the ambitious goals set by Capitol Hill during the "environmental decade" have been met. The nation's air quality remains spotty at best; its rivers and streams are, with a few happy exceptions, little cleaner than they were in 1970.

A few dangerous toxic chemicals, such as 2, 4, 5-T and EDB, have been identified and banned, but thousands more have not even been studied. Ironically, the clearest gains have been recorded in the area of traditional conservation: Congress, for example, has nearly tripled the size of the National Park System since 1970, mostly by the addition of lands in Alaska (in 1980). Private groups have bought and preserved wetlands and wildlife reservations.

Yet, by any conceivable measure, the outlook for the nation's environment is far brighter than it was in 1970—if only because Americans, by all accounts, are now firmly committed to curbing *additional* despoilation of the air, land, and water. The nation's overreaction to the much publicized environmental "crisis" of the early 1970s may have been a necessary spur to awareness; the Reagan "counter-revolution" was an overreaction to the excesses of environmentalism.

Next on the environmentalist agenda are, among other items, control of acid rain and indoor "air pollution," and tighter regulation of toxic wastes and air pollutants (the Clean Air Act is due for revision by next year). As the nation seeks continued improvement in the quality of the environment, its politicians must find rational ways to accommodate scientific realities, ideological visions, and the needs of the economy.

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## LEARNING THE LESSONS

*by Robert W. Crandall*

"It's one of the greatest success stories in American history," said Russell E. Train, former administrator of the U.S. Environmental Protection Agency (EPA).

Train's enthusiasm in 1976 over the cleanup of the Great Lakes may have been excessive, but it was not wholly unwarranted. In 1965, Lakes Erie, Michigan, and Huron were so polluted that hundreds of beaches were closed. Fish perished in waters choked with algae, and raw sewage washed up on the shores.

Today, Erie's surface is blue again. Lake trout and walleye dart through its waters. Most beaches have reopened. And, while serious difficulties remain—notably, high levels of dangerous PCBs (polychlorinated biphenyls), mercury, lead, and various pesticides in certain areas—most scientists agree that all five of the Great Lakes are healthier than they were 20 years ago.

There are other success stories. The northern tributaries of the Mississippi, such as the Mauneha River—whose waters once swirled with discharges from a sauerkraut and pickle cannery, a cheese factory, and a slaughterhouse—are all cleaner, now that a treatment plant processes the industrial wastes. New York's Hudson River, Virginia and Maryland's Potomac River, and Wisconsin's Fox River were once among the most polluted in the country. But today anglers pull bass, pike, or salmon from the rivers. Twenty miles south of the nation's capital, the Potomac is now clean enough to swim in. Hudson River boaters and water-skiers no longer joke about the health hazards of a fall into the river's murky waters.

In the skies over the Northeast and Northwest, many rare birds that were once nearly extinct because of DDT and other pesticides (e.g., the peregrine falcon, bald eagle, and brown pelican), are now increasing in number. And in New York, Pittsburgh, Chicago, and Denver, city dwellers are literally breathing easier. The number of "unhealthful" days in many cities, according to the EPA, has dropped.

But these successes do not tell the whole story. Overall, the national trends in pollution abatement are not encouraging.

Between 1972 and 1985, U.S. industries spent \$395 billion, federal and state governments spent \$154 billion, and consumers spent \$83 billion (mostly for catalytic converters and other auto-pollution-control devices). Total: \$632 billion, to clean up America's air and water, improve solid waste disposal, control the harmful effects of pesticides, and pursue other environmental objectives. But those sizable outlays have

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yielded only modest gains [see "Report Card," p. 74]. For example, air quality throughout the United States has improved only marginally. Despite the costly 17-year regulatory effort to control motor vehicle exhaust emissions, photochemical smog is nearly as bad in most places as it was on Earth Day 1970. Nationwide, the average airborne concentration of particulate matter, sulfur dioxide, and carbon monoxide fell by about one-third between 1976 and 1985.

After reviewing the latest research on water pollution in 1986, the U.S. General Accounting Office (GAO) came to the less than glowing conclusion that, overall, "water quality probably improved in particular streams but, in general, the nation's water quality did not significantly change" between 1972 and 1982. According to the U.S. Council on Environmental Quality's report *Environmental Quality* (1984), the "average" U.S. stream or lake showed only limited improvement between 1972 and 1983. In fact, out of approximately 350,000 miles of streams evaluated, only 47,000 improved in quality, while 11,000 declined in quality, and the remaining 292,000 miles showed no change. Of roughly 16 million acres of lakes evaluated, only 390,000 acres showed gains in quality, while 1.65 million acres actually declined.

### Too Much, Too Soon

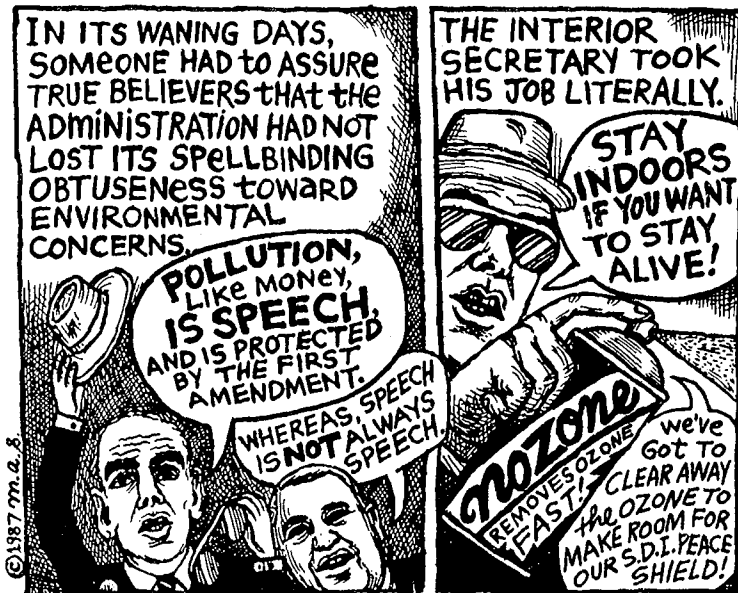
Looking beyond the fundamentals of air and water pollution, Jay D. Hair of the National Wildlife Federation concludes that Washington made "only limited progress in controlling [such problems as] soil erosion and nonpoint pollution, and in protecting wildlife habitat."

Furthermore, not all of the credit for reducing air and water pollution belongs to EPA regulators. The decline of the U.S. steel industry in the Midwest, price hikes for gasoline, oil, and coal during the mid-1970s, and two steep economic recessions have all helped to ease pollution, variously by depressing industrial production, forcing energy conservation, and putting a crimp in Americans' driving habits.

Recently, a disillusioned Barry Commoner reviewed the "course of environmental improvement" after more than a decade of sometimes draconian regulatory efforts. The veteran environmentalist and one-time presidential candidate found progress "spotty, gradual, and now [under the Reagan administration] diminishing . . . . There is a consistent explanation for the few instances of environmental success," he argued. "They occur only when the relevant technologies of production are changed to eliminate the pollutant." That implies a truly radical (and, in most cases, unworkable) solution to most of the nation's environmental

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*In May, Reagan administration aides reportedly suggested that Americans use sun lotion rather than worry about the ozone layer's decay. Above, Mark Alan Stamaty slaps U.S. Interior Secretary Donald Hodel in "Washington."*

difficulties. Commoner proposes, for example, a near-total ban on the production of plastics, pesticides, and detergents.

Such conclusions lead to the obvious question: After all the furor, all the money spent, and all the effort, why has U.S. environmental policy not been more effective?

The answer begins with the creation of the Environmental Protection Agency in December 1970, shortly after Earth Day's premier.

In brief, Congress gave the EPA too much to do in too little time. Trying to eliminate as many environmental hazards as possible, and acting in great haste, the legislators on Capitol Hill instructed the EPA to set standards for *all* major air pollutants (1970) and water pollutants (1972), to regulate pesticides (1972), to control solid waste disposal (1976), and to eliminate the toxic substances among the thousands of industrial chemicals (1976).

It was like asking a five-year-old boy to split an atom.

Even at the time, EPA scientists thought it was "difficult, if not impossible, to meet these needs within the generally recognized standards of scientific validity," according to William D. Ruckelshaus, the first EPA administrator. Politics also hampered the new agency. In the Clean Air Act of 1970 (as in many other environmental laws), Congress did not allow the EPA to assign higher priorities to the greatest known threats to human health. Congress considered the reduction of bother-



some but relatively less harmful photochemical smog, for example, to be just as important as lowering levels of much more dangerous airborne lead, arsenic, and acid sulfates.

Congressional pressure on the EPA (abetted by the environmentalist "green lobby") to solve all problems at once merely diminished the agency's ability to solve any of them. Today, struggling with an awesome workload, the EPA is five years or more behind schedule in setting standards for many pollutants. And it is often so busy devising new rules that it cannot properly enforce the old ones.\*

### A Piece of the Pie

On grounds of efficiency alone, the best way to curtail pollution is to make the expense of abatement (per pound of pollutant) the same for all plants. In practice, this would mean closing many antiquated factories, while leaving newer, "cleaner" plants in production. But for Congress, that would be too painful politically. It would concentrate the loss of jobs and corporate profits in a few highly visible industries and regions, notably the Frost Belt. By using vague standards—e.g., requiring the use of the best "reasonably available" pollution control technology—Congress has passed the hot potato to the EPA. Without a clear mandate to pursue efficiency, the EPA must weigh the political costs of its actions. As a result, corporations that operate old, dirty, inefficient plants generally pay *less* to control pollution (per pound) than do more prosperous firms with new facilities.

Often, the direct influence of Frost Belt legislators can be seen in the way laws are written. In 1977, for example, congressmen from Pennsylvania, West Virginia, and other Eastern and Midwestern coal mining states joined forces with environmentalists on Capitol Hill to push through a curious amendment to the Clean Air Act. It requires, in effect, the installation of expensive smokestack "scrubbers" that remove harmful sulfur dioxide emissions from all new coal-fired factories and utility plants, regardless of the sulfur content of the coal they burn.† The Easterners thus rigged the Clean Air Act to encourage Midwestern utilities not to switch from high-sulfur Eastern coal to the cleaner, low-sulfur coal mined in the Western plains. Thousands of Eastern coal mining jobs were saved. The practical effects of the amendment were twofold: It discouraged the replacement of aging, inefficient "dirty" plants

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\*In 1979, the GAO found that the EPA had actually tested smokestack emissions at only 498 of 19,973 plants and factories that were supposedly in full compliance with Clean Air Act regulations. When the GAO audited 921 of the "clean" firms, it found that 200 (22 percent) were not, in fact, meeting federal standards.

†Congress's track record in choosing pollution abatement technologies is not flawless. In 1970, it mandated that automakers use the "best available technology" to cut auto and truck emissions, effectively forcing Detroit to install catalytic converters in its vehicles. Yet, doing so not only raised the price of each car by roughly \$150, but also discouraged owners of older, "dirtier" cars from purchasing newer, "cleaner" ones—not to mention the catalytic converters' tendency to break down.

by new ones, and it substituted a costly and uncertain remedy (scrubbers) for a sure-fire solution (low-sulfur coal).

Washington's water-pollution-control programs have their own set of expensive incongruities. Few taxpayers realize that the EPA's popular subsidies for municipal sewage treatment grants (the Construction Grants Program) are now one of the nation's biggest public works "pork barrels." Since 1972, Washington has spent \$44 billion to help finance local sewage treatment facilities.

There is no solid evidence to show that this massive public works outlay has produced markedly cleaner lakes and streams. As the *Washington Post* observed in 1981, "after nine years of massive federal investment to build or upgrade sewage treatment works in 18,000 communities, about 2,000 of the projects have been completed, and most are small plants in small communities where pollution threats are often the least serious."

Yet, while the Reagan administration made deep cuts in the EPA's regulatory budget during the early 1980s, federal outlays for sewage treatment plants have remained at more than \$2 billion per year.

Such "pork barrels" are all too common in Washington's War Against Pollution. The Superfund program is another example. In 1980, Congress created the Superfund amid a great hue and cry over the threat from toxic waste dumps such as New York's Love Canal. The cost to clean up 419 sites: \$1.6 billion, raised chiefly by relatively painless (for Congress) and obscure new levies on industry. The scramble to get a piece of the Superfund pie created the spectacle of congressmen and mayors competing fiercely to have dumps in their communities certified by the EPA as "threats to public health."

### Risk Assessment

Not surprisingly, when the Superfund legislation came up for renewal in 1986, Congress expanded the national priority list to 850 sites, and put another \$8.5 billion into the Superfund. Seldom criticized, Superfund is not the product of careful risk analysis, but of public hysteria over the toxic waste threat—"an environmental problem," says Elizabeth Whelan of the American Council on Science and Health, "turned into an environmental fiasco."

The EPA, observes Fred L. Smith, a former agency official, "finds itself selecting projects based on their political and public relations value.... The EPA has made Superfund [clean-up] monies available whenever penalizing the real polluters... would be politically difficult. As a result, Superfund's 'priority' list now includes a number of sites operated by viable companies [which could be forced to pay the cleanup costs] and even by the Department of Defense."

Assessing the risk of any pollutant is a tedious, uncertain process. The exact cause-and-effect relationship between a toxin and the mala-

### REPORT CARD, 1970-87

On Earth Day 1970, few Americans guessed that the War Against Pollution would be so difficult. Assessing environmental change is no simple matter; many of the official statistics cited below are rough estimates. Items:

**AIR** U.S. industry's \$58.3 billion investment in smokestack "scrubbers" and other devices (plus \$12.8 billion from Washington) since 1972 has reduced emissions of most major air pollutants, such as sulfur dioxide and particulates. More than 2,600 (of 3,151) U.S. counties now meet air quality goals. Problems still to be fully defined and addressed: "acid rain," depletion of ozone in the Earth's upper atmosphere, and rising levels of carbon dioxide, a contributor to the "greenhouse" effect.

**WATER** Results are mixed. Only 11 percent of U.S. streams and two percent of lakes evaluated in 1982 were cleaner than they were in 1972. Overall, sewage-borne bacteria and certain nutrients (e.g., phosphates) have been cut by 46 percent nationwide, thanks to some 10,000 federally subsidized water-treatment plants (cost: \$44 billion). Perhaps 65,000 industrial polluters, large and small, are still virtually uncontrolled, as is "run-off" from farms and city streets, which accounts for more than half of all water pollution.

**TOXICS** Since 1976, the Environmental Protection Agency (EPA) has registered more than 70,000 chemical compounds for commercial use: Fewer than 1,500 have been fully tested; only six have been banned. Outlawed compounds linger in landfills, in rivers, and in the fat cells of humans, fish, and game. The EPA, with 951 abandoned hazardous waste dumps on the \$8.5 billion Superfund National Priority List, has begun cleanup work on roughly half of those sites. Also troublesome: growing quantities of nuclear waste.

**PESTICIDES** Of the 50,000 products registered since 1972, the EPA has banned 812 and suspended 3,200 for further testing. Production of U.S. pesticides dropped from 1.6 billion pounds in 1975 to one billion pounds in 1986. (Production of agri-chemicals reflects the farm economy's ups and downs.)

**WASTE** America now produces 26,000 pounds of solid waste (garbage) per person per year. Space for garbage dumps (landfill) is scarce. But new recycling techniques can recapture 40 percent of discarded aluminum and eight percent of glass. And 70 federally subsidized "waste-to-energy" plants now burn refuse to generate electricity.

**LAND CONSERVATION** Since 1970, U.S. national parks have grown in size by 50 million acres, wildlife reserves by 60 million acres, and national forests by 4 million acres (cost: \$3 billion). Yet the loss of four million acres of private wetlands to farmers and developers has offset some of these gains.

**ENDANGERED SPECIES** Since 1973, five species (e.g., blue pike) have become extinct and three have recovered, leaving 973 species "endangered" or "threatened," by official count.

dies it causes is often obscure. There are other thorny questions: How many people will be exposed to a pollutant? What will their dosage be? How much exposure is harmful?

"Like most human endeavors, risk assessment is as much art or philosophy as science," observed the Conservation Foundation in its report *Risk Assessment and Risk Control* (1985).

A 1981 study of perchloroethylene (PCE), a solvent used by neighborhood dry cleaners, reveals the degree to which arbitrary decisions can affect risk estimates. Researchers Gregory L. Campbell and D. Warner North considered three crucial choices that scientists made in assessing the risk of liver cancer posed by PCE: the kind of test animals to use (rats or mice), the method of translating the results from animal to human terms (body surface area or weight), and the "dose-response" model (linear or quadratic) with which to estimate the effects of low doses that humans are exposed to based on data about high test doses.

There are no absolute scientific guidelines favoring one test method over another. But depending on the method chosen, the risk assessment can vary by a factor as large as 35,000—at current levels of exposure, that means that the risks of PCE use range from 347 human cancer cases per year in one scenario, to only .01 cases in another.

### **\$250,000 Per Day**

Even when the EPA has accurate risk estimates in hand, it still faces a dilemma: What level of risk is "acceptable?" At what price? Although some environmentalists argue otherwise, zero-risk is not an option in an industrialized society. To demand that automobiles pose no risks—to passengers or to those exposed to tail-pipe emissions—is, essentially, to forbid anyone from starting a car engine. And then what? Even walking or riding a bicycle entails risks.

In the case of air pollution, the 1977 Clean Air Act amendments required the EPA to set its national ambient air quality standards by using as a yardstick the susceptibilities of the most sensitive segment of the population—generally Americans suffering from respiratory or heart disease (e.g., asthma or angina pectoris).

As a result, the health benefits of reduced levels of carbon monoxide, for example, have been very costly indeed. In 1980, President Carter's Regulatory Analysis and Review Group compared two carbon monoxide standards, the EPA's nine parts per million (ppm), and a less stringent 12 ppm. Each "man-day" of sickness among those with cardiovascular disease averted by EPA's stricter standard, the group calculated, costs U.S. taxpayers and industry as much as \$250,000.

Consider another example. To reduce arsenic emissions from a copper smelter, the EPA now fixes a level of control that lowers the risk of premature death for everyone in the area by five percent. The cost: \$20 million per year.

### FLEEING THE LOVE CANAL

"Everybody's come to town,/Those left we all do pity;/For we'll have a jolly time/At Love's new model city."

With this 1890s advertising jingle, set to the tune of "Yankee Doodle," William T. Love hoped to lure factories and 600,000 Americans to his new town near Niagara Falls, New York. There, the visionary entrepreneur planned to build a new canal, diverting part of the Niagara River around Niagara Falls to supply hydroelectric power to industry at no cost.

Love never completed his dream city. During the 1940s, the Hooker Electrochemical Company chose the partially completed canal as a dump for dioxin, chlorobenzene, and other wastes from its Niagara Falls factory. A decade later, Hooker was compelled to sell the site to the local school board, which parceled off plots to housing developers. By the late 1970s, William T. Love's ill-fated canal was front page news again. It had become, said *Newsweek* in 1978, a national symbol of America's "Faustian" bargain: "the products and by-products of industrial efforts to improve consumers' standards of living are threatening those same people with disease and death."

Since the 1940s, people living near the canal had complained on and off of nauseating vapors, black sludge seeping into their basements, and, on a few occasions, burns and blisters from contact with the wastes. In 1976, amid growing national publicity about industrial "poisons," the issue caught the attention of Michael Brown, an enterprising reporter for the *Niagara Gazette* (circ.: 33,000). Brown ferreted out reports of alarming ills. Most ominously of all, he hinted, the Love Canal chemicals might be causing cancer.

A 1978 study by the New York State commissioner of health did not encourage calm. Its title: "Love Canal: Public Health Time Bomb." Governor Hugh Carey announced that the state would relocate, at taxpayers' expense, some 240 families living nearest the old canal site. Meanwhile, investigators seemed to find more horrors: an abnormally high incidence of nervous breakdowns, miscarriages, and birth defects.

President Jimmy Carter's Environmental Protection Agency (EPA) stepped in early in 1980, commissioning a quick "pilot" study to search for evidence of chromosome damage among Love Canal residents. On Saturday, May 17, before scientists could scrutinize the survey, its frightening results appeared on page one of the *New York Times*—leaked by an unnamed government source.

"It did not take long for the [media] hysteria to manifest itself," wrote Harvard's Martin Linsky. On Wednesday, the EPA announced the emergency evacuation of some 2,500 Love Canal residents from their homes. Later, Carter ordered the abandonment of all the Love Canal homes; the U.S. government paid the residents more than \$30 million for their property.

But the very morning of the EPA press conference, an outside panel of scientists presented their review of the pilot study to EPA officials. They found

"inadequate basis for any scientific or medical inferences . . . concerning exposure to mutogenic substances because of residence in Love Canal." Later studies confirmed that Love Canal residents had not suffered abnormal rates of cancer, miscarriage, chromosome damage, or other serious ills.

The following year, a rueful *New York Times* concluded that "it may well turn out that the public suffered less from the chemicals there than from the hysteria generated by flimsy research irresponsibly handled."

Yet alarm over the possible "poisoning of America" set the tone for the disposition of other hazardous waste sites. Late in 1980, Congress established the \$1.6 billion Superfund to begin cleaning up the most dangerous dump sites.

Another ghost town was born in 1983, after the EPA found traces of a suspected carcinogen, dioxin, in the soil of Times Beach, Missouri, and ordered the evacuation of all 2,000 residents. Yet, as the editors of *Science* wrote, there was no "basis for believing that [dioxin] is a dangerous carcinogen in humans."

By 1987, the EPA had concluded that hazardous waste dumps represented "relatively low risks." While certain chemicals caused burns or other injuries, scientists studying hundreds of suspected carcinogens had so far proved that only a few (notably, chromium) caused cancer in humans. The EPA said it

would rather spend less on Superfund, more on urgent problems (e.g., "global warming," caused by carbon dioxide emissions). But Congress had other ideas: In October 1986, it added \$8.5 billion to the Superfund.

Critics of Superfund, such as Murray Weidenbaum, former chairman of President Reagan's Council of Economic Advisers, favor more emphasis on economic incentives, such as taxes on hazardous waste producers and cash bonuses for communities that accept new dumps—"a birth control approach to pollution." Even critics agree that some cleanup efforts are necessary; none, as far as is known, have volunteered to buy homes near the Love Canal.

Still, seven years after Congress created the Superfund, notes Weidenbaum, "the hazardous waste dump problem is little improved." Only 13 of 951 target sites have been completely cleaned up. Since the Love Canal panic, no major new dumps have been built. "Midnight dumping" is likely to increase as hazardous wastes pile up on old sites and in "temporary" storage.



A cartoonist's response to Love Canal (1980).

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Should the EPA require such an expensive degree of control if only one person is exposed? Or 100? Or 1,000? On the other hand, if a million people are exposed, should the EPA require the copper firm to spend millions of dollars more just to reduce the risk to human health by another one or two percent?

There is no "correct" answer to this kind of dilemma. Regulators must decide subjectively what each life is "worth"—or how much to spend to prevent another death. While such decisions typically evoke angry responses ("How can you put a dollar value on a human life!"), the fact is that every regulatory decision involves such money-versus-safety calculations; they cannot be avoided.

### Cancer Scare

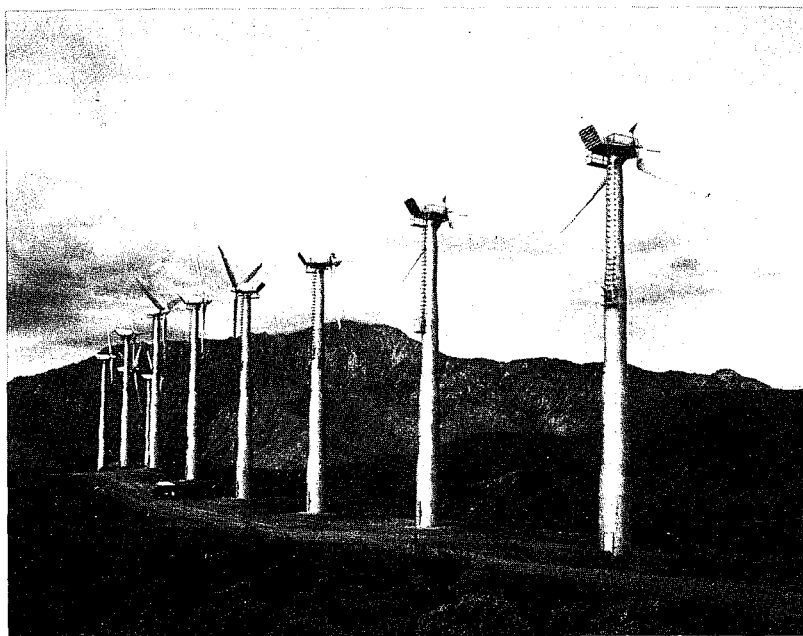
Indeed, the EPA and other U.S. regulatory agencies assign different values to life in every decision they make. The EPA's 1979 regulation of trihalomethanes (a hazardous by-product of chlorine in drinking water) calls, in theory, for the spending of \$300,000 to save one life; by contrast, its 1986 rules on arsenic emissions require outlays of \$19.2 million per life saved. (The all-time high is the U.S. Occupational Safety and Health Administration's [OSHA] 1985 formaldehyde regulation, which, in effect, demands expenditures of \$72 billion, mostly by U.S. industry, for each life saved.)

In part because of the nation's "cancer scare," Washington regulators are willing to force industry to spend, on average, 75 times as much to save someone from cancer as they are to prevent the accidental on-the-job death of a blue-collar factory worker. Overall, according to John F. Morrall III, an economist with the White House's Office of Management and Budget, the median cost-per-life-saved by cancer regulation is \$37.6 million. But the average cost-per-life-saved by OSHA's workplace safety regulations is only \$500,000.

To a certain extent, such discrepancies are created as each standard is set. The most difficult part of the risk assessment process is estimating what dosage of a pollutant, or toxin, or carcinogen is "acceptable" for an average individual.

The EPA takes the position that, when faced with risk uncertainties, one should "err on the side of safety." Yet Albert L. Nichols and Richard J. Zeckhauser, both Harvard economists, have shown that such "conservatism" in risk assessment can lead to regulatory decisions that actually jeopardize public health.

The debate surrounding the EPA's 1985 decision to require further reductions in the lead content of gasoline is one example. The agency had based its decision on, among other things, an estimate that such reductions would spare 150,000 children each year from exposure to "potentially hazardous levels of lead in their blood" (which can cause neurological damage). Critics of the decision argued that cracking down



*The "Environmental Decade" spurred development of "alternative" methods of energy production. Above, the Painted Hills Wind Project, in Palm Springs, Calif., where 66 turbines each generate 65 kilowatts of electricity.*

on lead would probably increase exposure to benzene, a lead substitute in gasoline, and a known carcinogen.

But, as Nichols and Zeckhauser note, early risk assessments for benzene had erred too much on the side of safety and greatly exaggerated benzene's dangers relative to those posed by lead, implying that lead levels in gasoline should not be lowered. Fortunately, the EPA did go ahead with a lead-reduction program, although it came uncomfortably close to making a very wrongheaded decision that would have *increased* the U.S. population's risk of illness.

Despite such pitfalls, the EPA is moving, albeit slowly, in the direction of rational, cost-efficient regulation of air and water pollution. For example, it is attempting to use market-oriented financial incentives to control pollution discharges.

Under the 1970 Clean Air Act amendments, Congress rashly outlawed the construction of new smokestack factories in cities and towns that violated Washington's air quality guidelines. But by 1976, it became clear that this policy was politically and economically foolhardy. Thus, the EPA devised a scheme to allow industrial growth without increasing the total level of pollution. That scheme was an "offset" policy. It permits the owners of, say, a new plastics plant to buy pollution "credits"



from local factory owners whose smokestacks spew forth *fewer* pollutants than the law allows.

Recent studies by economists Robert W. Hahn, Gordon L. Hester, and Thomas Tietenberg suggest that, so far, these market approaches to pollution abatement work only moderately well. For a variety of reasons, few "clean" businesses are actually selling pollution credits. One reason: The EPA has made it difficult to secure clear titles to the credits. And corporate executives fear that if they profit from selling their credits, public pressure will force the EPA to tighten the air quality rules.

Nonetheless, the market approach appears to be gaining support. In time, no doubt, it will prove itself to be a more effective way to reduce pollution than the command-and-control style of federal regulation dominant throughout the 1970s.

Where does that leave the nation's \$73.8 billion-per-year environmental effort undertaken by business, government, and consumers?

It is making slow headway. It costs too much. It needs a legislative overhaul. Among other things, the EPA should continue to expand and improve its system of tradable air pollution credits, and extend the scheme to water pollution as well. Congress should revise the environmental statutes to eliminate *uniform* "technology-based" standards for all air pollutants throughout the nation. In other words, it should give up the unrealistic notion that the air in cities such as Los Angeles can ever be as clean as the air in cities like Cheyenne.

Have we learned anything since the first Earth Day? Ironically, as the nation has prospered, and Americans enjoy ever longer, healthier lives, anxieties about the "invisible" threats to health have increased. Every freshly perceived hazard summons forth a new Rachel Carson to warn, in apocalyptic terms, of a grave danger to humanity, and to denounce the technological society that produced it. Toxic chemical waste—proclaimed the harbinger of a "carcinogenic century" by consumer advocate Ralph Nader—is only the latest example. In reality, for all of the anxiety and discomfort that pollution causes, it is *directly* responsible for relatively few deaths. When compared to other modern hazards (each year, automobile accidents kill approximately 46,000 people, smoking causes 150,000 cases of lung cancer, and exposure to asbestos induces 136 cases of fatal lung disease) the discernable effects of pollution on human health are minor.

Today, as legislators ponder action on acid rain, indoor air pollution, toxic waste, and other items on the environmentalist agenda, thoughtful Americans must aim for realistic goals. Seventeen years after Earth Day, the nation must move, as Winston Churchill once said in another context, "from the wonderful cloudland of aspiration to the ugly scaffolding of attempt and achievement."

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## BACKGROUND BOOKS

### THE ENVIRONMENT

The "invasion of Nature by Trade with its Money, its credit, its Steam, its Railroads, threatens to upset the balance of Man, and establish a new, universal Monarchy more tyrannical than Babylon or Rome."

Ralph Waldo Emerson's *cri de coeur* in his **Journals** (1840) reflected the fear among 19th-century naturalists that the rise of industry was threatening the American wilderness.

By the late 19th century, a new breed of "conservationists," notably George Perkins Marsh, author of **Man and Nature** (1864), was beginning to worry about the practical effects of overfarming, irrigation, and the lumber industry's "clear cutting" of virgin forests. At the same time, as Joseph M. Petulla observes in **An American Environmental History** (Boyd & Fraser, 1977), Emerson's spiritual heirs still looked to nature as "the ultimate restorer and purifier of a humanity corrupted by civilization."

These two traditions merged in the person of America's first great conservationist, John Muir (1838-1914). A Wisconsin farm boy turned inventor, Muir abandoned a career in industry after a factory accident nearly cost him an eye. He founded the Sierra Club in 1892, and penned polemics against, for example, the evil effects of overgrazing by sheep ("hoofed locusts") in the West. An 1876 essay in the Sacramento *Record-Union* asked: "God's First Temples: How Shall We Preserve Our Forests?"

Early triumphs, such as creating the Yosemite and Sequoia national parks in 1890, were largely the results of Muir's campaigns. But the preservation-oriented Muir broke with Theodore Roosevelt and other conservationists who favored some public works in the parks.

Petulla sees conservation as a populist cause, but many scholars disagree.

In **Conservation and the Gospel of Efficiency** (Harvard, 1959), Samuel P. Hays argues that the conservation movement "grew out of the political implications of applied science." The leading conservationists came from such new fields as hydrology, forestry, geology, and anthropology. "Loyalty to [their] professional ideals," says Hays, "not close association with the grass-roots public, set the tone of the Theodore Roosevelt conservation movement."

That tone was essentially optimistic. Even as they advocated wise "stewardship" of the nation's waters and forests, the conservationists "emphasized expansion, not retrenchment; possibilities, not limitations . . . They were not Malthusian prophets of despair and gloom."

As chief of the U.S. Forest Service under Roosevelt, Gifford Pinchot, a Yale-educated Bull Moose Progressive, brought 194 million acres of Western land under the federal umbrella. Both Pinchot and Roosevelt, born to wealth, exemplified the "noblesse oblige tradition," notes Martin L. Fausold in **Gifford Pinchot** (Syracuse Univ., 1961). They were passionate about the Great Outdoors and the "vigorous life." Thanks to their advocacy, conservation for the first time took a top position on Washington's domestic agenda, adds Paul Russell Cutright in **Theodore Roosevelt: The Making of a Conservationist** (Univ. of Ill., 1985).

What prompted the shift in outlook, from optimistic conservationism to the pessimistic environmentalism of the 1970s?

In a sense, argues journalist William Tucker in **Progress and Privilege: America in the Age of Environmentalism** (Anchor/Doubleday, 1982), the shift represents the triumph of a "romantic" strain of conservationism.

Present-day environmentalists, he

says, are America's college-educated "nouveau aristocracy." Having gained upper-middle-class status during America's post-World War II prosperity, they became "far more concerned with preventing others from climbing the ladder behind them, than in making it up a few more rungs themselves." Support for environmental causes, he notes, is greatest among those earning between \$30,000 and \$70,000 a year.

Virtually every environmental measure, from local suburban zoning laws to costly federal pollution controls on factories or automobiles, hits the lower-middle class hardest.

In **Beauty, Health, and Permanence: Environmental Politics in the United States 1955-1985** (Cambridge, 1987), Samuel Hays suggests that postwar affluence freed many Americans from the need to scramble for life's necessities, permitting them a certain level of self-indulgence; they could dwell on their "quality of life," their health, and their general sense of well-being. Also, the eradication of many viral diseases (e.g., polio, typhoid) by vaccines, antibiotics, and improved sanitation (all, ironically, the fruits of the modern technological society that some environmentalists deplore) shifted public attention to threats posed to the public health by industrial growth.

The first, and perhaps most significant, of the books sounding the alarm was Rachel Carson's **Silent Spring** (Houghton, 1962). Carson, a biologist, detailed the dangers of DDT and other pesticides to human beings and to the "biosphere." Noting that the U.S. production of synthetic pesticides soared from 124 million pounds to 638 million pounds between 1947 and 1960, she maintained that these "Elixirs of Death" were now stored "in the bodies of the vast majority of human beings, regardless of age. They occur in the mother's

milk, and probably in the tissues of the unborn child."

During the mid-1970s, after Congress had targeted the more obvious forms of pollution, environmentalists again turned their attention to unseen threats, such as radioactivity and toxic chemicals, putative breeders of a new cancer epidemic. A new spate of disaster-on-the-horizon books followed: **The Politics of Cancer** (Sierra Club, 1978) by Samuel Epstein; **Who's Poisoning America?** (Sierra Club, 1981), edited by Ralph Nader, Ronald Brownstein, and John Richard; **America the Poisoned** (Acropolis, 1982) by Lewis Regenstein; and **The Poison Conspiracy** (Permanent, 1983) by Karl Grossman.

**The Apocalypitics** (Simon & Schuster, 1984), and their allies in the scientific community, argues Edith Efron, are guilty of "a complex corruption of science and a prolonged deception of the public." Many scientists and regulators have abandoned objectivity, she asserts, and are rigging their statistical data to suit their political agendas. One of her chief targets: scientists who assume that human exposure to even a single molecule of a carcinogen may trigger a malignancy.

A good case study of one regional struggle over federal resource regulation is William H. MacLeish's **Oil and Water** (Atlantic/Little, Brown, 1985). In 1979, Mobil Oil sought to obtain offshore drilling rights on New England's Georges Bank, a 20,000-square-mile stretch of sea off the coast of Cape Cod. There, in waters Macleish calls "a ship-killer, a man-killer, and one of the richest fisheries in the world," Massachusetts fishermen harvest haddock, flounder, scallops, and lobster. For four years, the Conservation Law Foundation fought Mobil in court—and eventually won.

Europeans are often baffled by Americans' pitched battles over environmental controls, observes David Vogel in **National Styles of Regulation: Envi-**

**ronmental Policy in Great Britain and the United States** (Cornell, 1986). Britain's environmental regulations, he writes, are much less draconian—yet ultimately no less effective—than those in the United States.

One reason, says Vogel, is that scientists from government and business formulate standards together. As a result, the British environmental effort is rarely marred by the drawn-out struggles that afflict the United States.

The British are also far more tolerant of risks. After laboratory tests of the organic pesticides aldrin and dieldrin showed evidence of carcinogenicity in mice, but not in rats, monkeys, or dogs, British authorities decided not to ban the chemicals. Looking at the same evidence, the U.S. Environmental Protection Agency did. The inflexible mandate of the 1972 Federal Environmental Pesticide Control Act says that "suspension is to be based upon potential or likely injury and need not be based upon demonstrable injury or certainty of future public harm."

The Soviet Union has adopted ambitious pollution control laws. And, as Charles E. Ziegler concludes in **Environmental Policy in the USSR** (Univ. of Mass., 1987), the Kremlin has been no more successful than the United States in making them work.

Noncompliance in the USSR is widespread. Violators "frequently ignore environmental rules, confident that their case will probably not make it to the courts." Moreover, adds Ziegler, because it has ignored "the economics of environmental protection," the Soviet

Union is saddled with many statutes that are "unrealistically strict" and "unenforceable."

The best overall assessment of the War Against Pollution in the United States is **State of the Environment** (Conservation Foundation, 1987), which provides an evenhanded summary and a wealth of data on everything from U.S. production of benzene to duck populations in North America. Walter A. Rosenbaum's **Environmental Policy and Politics** (Congressional Quarterly, 1985) analyzes the political battles over the environment during the early Reagan era.

What next? The inventory of hazards in **An Environmental Agenda for the Future** (Island/Agenda, 1985), a joint effort by the leaders of 10 major U.S. environmental and conservation organizations, suggests no end of environmental threats to human welfare.

Many of the hazards are familiar: the population "explosion," the dangers of genetic engineering, the depletion of the Earth's ozone layer, damage to the world's rain forests. The authors also spy fresh dangers. Even the average American home contains perils. Indoor air pollution, the authors warn, may be even more hazardous than smog, since most Americans spend more than 80 percent of their time indoors.

But, in the broadest sense, the authors argue, America's environmental ills are really world ills that require "global foresight" to overcome.

"As Americans become increasingly aware of the plight of those who live elsewhere . . . moral values will motivate citizens to seek solutions for the problems of others who share the planet."

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EDITOR'S NOTE: Readers may wish to consult titles from the WQ's earlier Background Books essay on the Environment (Summer 1977), as well as its essays on such related subjects as Energy: 1945-1980 (Spring 1981), Agriculture in America (Summer 1981), and Nuclear Power in America (Winter 1985).