

THE NATIONAL POLLUTION SCANDAL

by SENATOR GAYLORD A. NELSON

THE NATURAL environment of America—the woods and waters and wildlife, the clear air and blue sky, the fertile soil and the scenic landscape—is threatened with destruction. Our growing population and expanding industries, the explosion of scientific knowledge, the vast increase in income levels, leisure time, and mobility—all of these powerful trends are exerting such pressure on our natural resources that many of them could be effectively ruined over the next ten or fifteen years.

Our overcrowded parks are becoming slums. Our birds and wildlife are being driven away or killed outright. Scenic rural areas are blighted by junkyards and billboards, and neon blight soils the outskirts of most cities. In our orgy of expansion, we are bulldozing away the natural landscape and building a cold new world of concrete and aluminum. Strip miners' shovels are tearing away whole mountains and spreading ugly wastes for miles around. America the affluent is well on the way to destroying America the beautiful.

Of all these developments, the most tragic and the most costly is the rapidly mounting pollution of our lakes and streams.

Perhaps the pain is more intense for a Senator from a state like Wisconsin, bordered on three sides by the Great Lakes and the Mississippi, blessed with 8,000 inland lakes and hundreds of rivers and trout streams. Actually, our state seems rather fortunate at the moment. A yachtsman on Lake Superior can raise a bucket of water still crystal-clear and cold enough to drink with delight. Canoeists on the St. Croix or Wolf Rivers still shoot through frothing rapids of sparkling water, and catch fish in the deep, swirling pools.

But the bell is tolling for Wisconsin

just as for all the nation. A recent survey of twelve major river basins in southeastern Wisconsin found not a single one fit even for the partial body contact involved in fishing or wading. A competent governmental agency concluded that 754 miles of rivers in this region had been turned into open sewers. Beaches along Lake Michigan, a vast blue sea with seemingly limitless quantities of fresh water, are being closed to swimmers. A sordid ocean of pollution is pouring into the Mississippi from the Minneapolis-St. Paul urban complex. The first serious signs of pollution are soiling Lake Superior, and our small inland lakes are, one by one, becoming murky and smelly and choked with algae.

Elsewhere, all across the nation, the same tragedy is being enacted, although in many areas the curtain already has come down. The waters are already ruined.

Every major river system in America is seriously polluted, from the Androscoggin in Maine to the Columbia in the far Northwest. The rivers once celebrated in poetry and song—the Monongahela, the Cumberland, the Ohio, the Hudson, the Delaware, the Rio Grande—have been blackened with sewage, chemicals, oil, and trash. They are sewers of filth and disease.

The Monongahela, which drains the mining and industrial areas of West Virginia and Pennsylvania, empties the equivalent of 200,000 tons of sulfuric acid each year into the Ohio River—

which in turn is the water supply for millions of people who use and re-use Ohio River water many times over.

National attention has been centered on once beautiful Lake Erie, the great lake which is the recreational front yard of Buffalo, Cleveland, Toledo and Detroit, and which supplies water for ten million Americans.

A Public Health Service survey of Lake Erie made the shocking discovery that, in the 2,600 square mile heart of the lake, there was no dissolved oxygen at all in the water. The lake in this vast area could support no desirable aquatic life, only lowly creatures such as bloodworms, sludgeworms, sowbugs, and bloodsuckers.

Along with the germs and industrial acids which pour into Lake Erie are millions of pounds of phosphates, a major ingredient in detergents. Each pound of phosphate will propagate 700 pounds of algae. Beneath the waters of this great lake, largely hidden from sight, a hideous, cancer-like growth of algae is forming. As algae blooms and dies, it becomes a pollutant itself. It robs the lake of still more oxygen—and it releases the phosphate to grow another crop of algae.

Lake Erie is a product of its tributaries. A Public Health Service study of these American sewers is horrifying to read.

The Maumee River flows from Fort Wayne, Indiana, through Defiance and Napoleon, Ohio, and on to Toledo, where it joins the lake. Even as far upstream as Fort Wayne, the river has insufficient oxygen to support anything but trash fish and lower organisms, and as it flows toward Lake Erie conditions get steadily worse. The count of coliform bacteria runs as high as 24,000 times the allowable maximum under Federal drinking water stan-

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dards. The concentration of carbolic acid, a byproduct of steelmaking, runs up to 137 times the allowable maximum. A packing company dumps 136 pounds of oil per day into the Maumee River. A plating company dumps thirty-eight pounds of cyanide per day. Defiance, Ohio, closes its sewage plant entirely for one to two months each year, and all its raw sewage goes directly into the Maumee.

Below Defiance, a foundry dumps cinders and ashes into the river. The Maumee is joined by the Auglaize River, which is even more polluted than the Maumee, and is especially rich in ammonia compounds.

At Napoleon, Ohio, the city draws its drinking water from the sordid Maumee, and a soup company draws off ten million gallons a day for soup processing. (The firm assures me that its modern water treatment plant, complete with carbon filters, can "polish the water to a high quality.")

Below Napoleon, things get really bad. Forty per cent of samples taken by the Public Health Service showed presence of salmonella, an intestinal bacteria that can cause severe illness. As the Maumee flows into Lake Erie at Toledo, it gets its final dose of pollution—the effluent from the Toledo sewage plant and what the Public Health Service describes as "oil, scum, metallic deposits, and toxic materials."

Another Lake Erie tributary—the Cuyahoga—which flows into the lake at Cleveland, is described by the Public Health Service as "debris-filled, oil-slicked, and dirty-looking throughout." It is loaded with coliform bacteria and salmonella. It is so polluted with oil that it frequently catches fire. Structures known as "fire breaks" have been built out into the river to fight these blazes. In the Cleveland harbor, the Public Health Service could find virtually no conventional aquatic life. However, the sludgeworms which thrive on organic matter were well represented—400,000 per square meter on the harbor bottom.

That is the story of Lake Erie, and although it is so shocking and disgusting as to deserve urgent national attention, it is not unique. Southern Lake Michigan, ringed with oil refineries, steel mills, and municipal sewage outfalls, may be even worse. Scientists estimate that it would take 100 years to

replace the polluted water of southern Lake Michigan, and some consider the pollution in this area irreversible.

We have our own Wisconsin pollution scandal in Green Bay, a magnificent recreational body of water in northeastern Wisconsin, widely known as a yachtsman's paradise and site of a multimillion dollar resort industry. This "Cape Cod of Wisconsin" is threatened with ruin by a tide of pollution which is moving up the bay at the rate of more than one mile per year. The pollution comes from rivers such as the Fox, the Peshtigo, the Oconto, and the Menominee, which drain large areas of Wisconsin and northern Michigan.

The experience in Lake Erie, Lake Michigan, and Green Bay has convinced many experts of this chilling fact: It is a definite possibility that the Great Lakes—the greatest single source of fresh water in the world—could be effectively destroyed by pollution in the years ahead. If this were to happen, it would be the greatest natural resource disaster in modern history.

That is the outline of this new American tragedy. The obvious question now is, what can be done about it?

First, I think we must learn what a complex and widespread problem we face in water pollution. Like crime, like death on the highway, pollution is a social problem which extends throughout our society. There is no single villain, and there is no simple answer. It must be attacked for what it is—a

sinister byproduct of the prosperous, urbanized, industrialized world in which we live.

We must take care not to ride off in pursuit of just one villain—such as city sewage, or industrial waste, or detergents, or toilet wastes from boats; this is a battle which must be fought with skill and courage on many different fronts. Nor should we be fooled by the strategy of many polluters, who argue, in effect: "The pollution which we cause is minor compared to the big, nation-wide problem. Why not leave us alone and go after the big offenders?" Even some of the lesser offenders in the pollution crisis could ruin us in time.



The primary sources of pollution are these:

MUNICIPAL SEWAGE—Despite heroic efforts and heavy investments by many cities, our municipal sewage treatment plants are woefully inadequate. Some cities have no treatment at all; others remove only part of the pollutants found in sewage. As a result, the effluent discharged by our cities today (treated and untreated) is equivalent to the *untreated* sewage from a nation of seventy-five million people.

INDUSTRIAL POLLUTION is roughly twice as big a problem as municipal sewage. Despite tremendous investments in research and treatment plant construction by some industries, the overall record is terrible. Some industries feel they cannot remain competitive if they spend heavily for treatment plants. Communities and states are reluctant to push them too far. As a result, industrial wastes (treated and untreated) now discharged into our waters are presently equal to the *untreated* sewage of a nation of 165 million people.

SEPTIC TANKS — Vast sections of the nation have no sewer collection or treatment system at all. In such areas, underground septic tanks, often poorly made and undersized, are expected to distribute wastes into the soil. They overflow into natural watercourses, they leak bacteria and detergents into underground wells, and they are destroying lakes by filling them with nutrients that foster heavy growths of algae.

SHIPS AND MARINE TERMINALS—In



Mauldin in Chicago Sun-Times

"It's not so bad if you don't inhale"

selected areas, the discharge of toilet wastes, oil, garbage, and rubbish from ships and shoreline installations is a major problem. For some reason, this form of pollution is widely tolerated and enforcement of laws forbidding it is virtually nonexistent.

PESTICIDES—The terrifying prospect of spreading poison all over the globe confronts us. We now use more than 700 million pounds a year of synthetic pesticides and agricultural chemicals of 45,000 varieties. This volume is expected to increase tenfold in the next twenty years. Many of these poisons persist forever in the environment, and their concentration builds up geometrically as they progress through the food chain (water, seaweed, fish, birds, mammals). DDT residue has been discovered in penguins in Antarctica, in reindeer in Alaska, in seals, and in fish caught in remote areas of the Pacific Ocean. One part of DDT in one billion parts of water will kill blue crabs in eight days.

SILT—One of the most serious pollutants all over the world is the dirt which washes into our waters from off the land. This somewhat natural problem is disastrously aggravated by contemporary trends—widespread clearing of land for subdivisions and shopping centers; construction of highways and parking lots (which cause rapid runoff) and the intensive development of lake-shores and riverbanks. Controlling surface runoff and the siltation which it causes is complicated by our patchwork of political boundaries and the lack of coordinated government planning.

DETERGENTS, FERTILIZERS, AND OTHER CHEMICALS—Some of these commonly used substances pass through even good waste treatment systems and become persistent pollutants. Such pollution can be eliminated only by changing the composition of such substances, regulating their use, or devising new removal techniques.



Obviously, any nation-wide problem made up of so many elements is extremely difficult to attack. Yet I believe that the rapidly accelerating destruction of our natural resources is our number one domestic problem, and the greatest of all our resource problems is



Burck in Chicago Sun-Times

"—from sea to shining sea—"

water pollution. If we are to meet this pollution threat, if we are to save the waters of America and preserve this most indispensable part of our natural environment, we must make the war on pollution a high priority matter at every level of government—local, state and Federal—and we must insist that private industry do likewise.

Baffling and complicated as the pollution problem is, it is not insoluble. There is no reason in the world why a great and prosperous nation, with the money and know-how to shoot man to the moon, cannot prevent its lakes and rivers from being destroyed and its life-giving water supplies endangered.

Just as there is no single cause of pollution, so is there no single solution to the problem.

Consider the question of what to do about municipal sewage and industrial wastes. Why do we tolerate a situation where these two sources alone pour into our waters each year the equivalent of the completely untreated sewage of a nation of 240 million persons?

In the case of municipal sewage, it is largely a matter of lack of money, aggravated in some cases by a shocking lack of public concern. There are now more than 1300 communities which have sewer systems but discharge their wastes into the waters without any treatment at all. These communities have a population of more than eleven million people. How such a condition could exist in the year 1966 — when it

is generally illegal to throw a gum wrapper out of a car window — is inconceivable.

We have another 1300 communities — with almost seventeen million population — which treat their wastes but in a completely inadequate manner. In most cases, these are communities which use what is known as "primary" treatment. They screen their sewage and let the solids settle out, but they do not remove dissolved solids, salts, chemicals, bacteria, and special problems such as detergents. Every community should have what is known as "secondary" treatment, under which sewage — after primary treatment — is held in holding tanks, brought into contact with air and biologically active sludge, so that bacteria have a chance to consume the pollutants.

The Conference of State Sanitary Engineers estimates that it would cost \$1.8 billion to provide adequate sewage collection and treatment for these communities which now have no treatment or completely inadequate treatment.

But even this would still leave us with a massive municipal pollution problem. Even good secondary treatment removes only eighty per cent to ninety per cent of the pollutants. Chicago, for instance, with a good secondary treatment plant, discharges treated effluent which is equivalent to the untreated, raw sewage of one million people. It dumps 1,800 tons of solids per day into the Illinois waterway. At the rate the pollution load is increasing it is estimated that even if all communities have secondary treatment plants by 1980, the total amount of pollutants reaching watercourses would still be the same as today. Obviously, we need a massive program to build highly effective city sewage treatment plants.

It is also obvious that local property taxes cannot support such a gigantic investment, and that if we wait for communities to do this on their own, it will never be done. Most state budgets also are severely strained, so much of this burden is going to have to be borne by the Federal government — if we want the job done early enough to be effective.

The Senate Air and Water Pollution subcommittee estimates that it will cost \$20 billion to provide secondary treatment in plants serving eighty per

cent of the population and more advanced treatment in plants serving the other twenty per cent. We have had a Federal program to assist communities in building such treatment plants for the past ten years, but it has been inadequate. It has recently been greatly improved, but it is still inadequate. In the past it has provided grants of up to thirty per cent within the limits of available funds. The most recent act—the Clean Waters Restoration Act of 1966—authorizes a total of about \$3.6 billion over the next five years (150 million in 1967, \$450 million in 1968, \$700 million in 1969, \$1 billion in 1970, and \$1.25 billion in 1971). A community can get a grant for up to fifty per cent of the cost of a project, provided the state pays twenty-five per cent and provided water quality standards have been established.

New York needs an estimated \$1.7 billion for new sewage plants. The new law would give it a total of only \$307 million. Ohio needs \$1 billion and would get \$180 million. Wisconsin needs \$286 million and would get \$75 million.

If we are serious about the Federal government paying fifty per cent of the cost of eliminating municipal pollution, then Washington must provide \$10 billion—not \$3.6 billion—and even then we will be expecting our hard pressed states and communities to come up with another \$10 billion.

Personally, I think it is unrealistic to expect the states and localities to assume a burden of this size. And I do not think the nation can sit by and wait while its communities struggle to build up the financial resources and the political courage needed to do the job. I think we should get sewage treatment plants built the way we are getting interstate highways built—by offering ninety per cent Federal financing. I have introduced legislation which would establish such a program.

The municipal sewage problem is complicated by another problem—combined storm and sanitary sewers. By combining storm water and human wastes in one sewer system, many cities build up such a tremendous load during rainstorms that their sewage treatment plants cannot handle it. They have had to install automatic devices which divert the combined sewer load directly into lakes or streams whenever

it gets above a certain level. In this manner, sixty-five billion gallons of raw, untreated sewage goes into our lakes and rivers each year.

Most cities are separating storm and sanitary sewers in new subdivisions, but the task of separating the sewers in the older areas is a staggering one. Complete separation would cost an estimated \$30 billion. It would cost \$160 per resident in Washington, D.C., \$215 in Milwaukee, \$280 in Concord, New Hampshire. It would cost Wisconsin an estimated \$186 million, Indiana \$496 million, Michigan \$970 million, New York and Illinois about \$1.12 billion each. These are only general estimates of the direct costs and they do not take into account the disruption of traffic and the local economy caused by ripping up miles of underground sewers.

In the hope of avoiding such costs, the Federal government has underwritten several research projects to see if this problem cannot be met in some other way—through temporary underground storage of sewer overflows, for instance, or by building smaller sanitary sewer pipes inside existing storm sewers.

The staggering problem of *industrial* pollution is virtually untouched today by our Federal anti-pollution programs, even though industry contributes twice as much pollution to our waters as do municipalities. If we do not step up our industrial waste treatment plant

construction, the pollution effect of industrial wastes alone by 1970 will be equal to the untreated, raw sewage from our entire population.

Industries are widely criticized for dumping wastes into our waters, and this criticism is often justified. They are pressured by local, state, and Federal officials. But some industries are able to avoid a serious crackdown against them by threatening to move. Most industries argue—sometimes effectively—that they cannot be expected to make massive investments in treatment plants if their competitors—often in different parts of the country—are not forced to do so.

I have come to the conclusion that the threat of enforcement alone is not going to solve our industrial pollution problem. We must provide direct financial assistance to see to it that the plants are built. I have introduced legislation to provide both loans and grants of up to fifty per cent to industries whose size and economic circumstances prevent them from assuming the full burden of providing their own facilities. I think such assistance should be carefully limited and should be for a short period, but I do not think we can avoid it. We are going to pay the cost of industrial pollution in one way or another—in the cost of the manufactured product, in taxes, or in ruined water resources.

But massive construction programs alone are not going to solve our municipal and industrial pollution problems. We need a tremendous expansion of Federally supported research to find completely new answers. Our whole waste disposal system, from the household toilet to the municipal sewage treatment plant, is a holdover from another era. The system should be studied and redesigned, using the latest scientific techniques, and fitted into a coordinated, nation-wide system of waste disposal. Research grants should be made to private industry and universities to develop new methods and devices to refine, use, neutralize, or destroy pollutants. We should compute what our present waste disposal systems are costing us—including the loss in natural resources destroyed—and what alternative systems would cost.

Compared with municipal and industrial pollution, the other pollution problems I have mentioned are statis-



Long in The Minneapolis Tribune

Ah, Wilderness!

tically small. For that reason, they are often ignored. But we cannot safely do that. Even if we managed to contain the flood of municipal and industrial pollution, the other sources could do fatal damage to our environment.

Septic tanks must be controlled at the state and local level, and in many areas I think we must forbid new installations and work to replace existing ones with sewer systems. For instance, once an inland lake is ringed with cottages with septic tanks, it is doomed. Septic tanks must drain somewhere and in most lakeshore settings the natural drainage flow is into the lake. At the very least, this drainage will fertilize the lake, cause the rapid growth of algae, and turn the lake into a murky, foul smelling mess.

Ship pollution is certainly serious enough to justify Federal action, even though such suggestions cause howls of protest from those who insist it "isn't practical." Why is it practical to install retention facilities on buses, house trailers, and aircraft but not on boats and ships? Obviously, we are willing to allow wastes to be dumped into our water supplies which we would never tolerate being dumped onto the land. We need Federal laws to require suitable facilities on all vessels using our navigable waters, and we need a better enforcement system to crack down on such disgraceful practices as dumping oil and pumping out oily ballast tanks on the Great Lakes and in our rivers.

The siltation problem can be controlled only through strict zoning and land use controls. We have got to prevent intensive development of our shorelines if we are to save our waters. Once a large portion of the natural vegetative cover is destroyed, the water resource is in danger. I believe that the Federal government should provide financial assistance to those willing to carry out soil conservation practices along our lakes and streams on a scale large enough to be meaningful.

Pesticides, detergents, and exotic new chemicals will plague us for years to come. New treatment systems may offer some hope for removing these substances, but I think they must be controlled directly. Those which cannot be removed safely in normal treatment processes, and those which have chemical structures which cause them to persist in our environment and to

threaten fish, wildlife, and human health, should be banned or their use strictly regulated.

In speeches in some twenty-three states in the past four years, I have called for an emergency, crash program to fight water pollution. I have offered my estimate of the cost of conquering water pollution as \$50 to \$100 billion over the next decade. It now appears I may have been conservative. The Public Health Service now estimates that it will cost some \$20 billion to clean up the Great Lakes alone, and the total national cost is now estimated at \$100 billion.

But everywhere I have gone I have found the public willing to pay this cost to save their waters. In fact, I think the public is far ahead of local, state, and Federal officials in facing up to this crisis. I think that citizens in

most communities would support a sharp crackdown on local polluters of every variety. I think they want their states to establish high water quality standards, and then enforce them. I think they can be shown the need for bold regional action to deal with those vast interstate pollution problems (such as on the Mississippi and the Great Lakes) which obviously are too big for any community or any state to handle.

And I think that the citizens of America now recognize that the destruction of the major river networks of the nation, the threatened destruction of the Great Lakes, and the slow ruination of our treasured inland lakes and trout streams is a calamity of such gigantic proportions as to deserve the urgent attention of all citizens and prompt action by the national government.

Lyndon Johnson in Trouble

by JAMES A. WECHSLER

"All one can say with certitude now is that, as of the first two years, Mr. Johnson's place in history, alas, depends on history; there can be no one brash or prescient enough at this juncture to predict what the world will look like even a year from now if the mutual escalation accelerates in Vietnam. It would be an injustice to Mr. Johnson to suggest that this morose thought has not occurred to him; all his visions of the Great Society are imperiled by a war he inherited. . ."

I WROTE those lines for the January, 1966, issue of *The Progressive*; they have been more plainly sustained by events than other prophesy I have produced.

Now, with the passage of another

year, any assessment of the Johnson era must begin and end with the Vietnam entrapment.

It has become fashionable in some ultra-left circles to depict the President as a bloody warmonger who derives some thrills from the reports of combat and envisages himself as the master of Asia. Whatever else may be said about him, such stuff is fantasy. If there is any matter on which I can write with a measure of confidence, it is this one. I have heard him talk too long and too eloquently about the shadow this war has cast on his Administration; no one will persuade me that these were spurious elocution exercises.

But the war drags on, and now it is even clearer than it was a year ago that the resolution of this wretched conflict is the crucial matter in the