

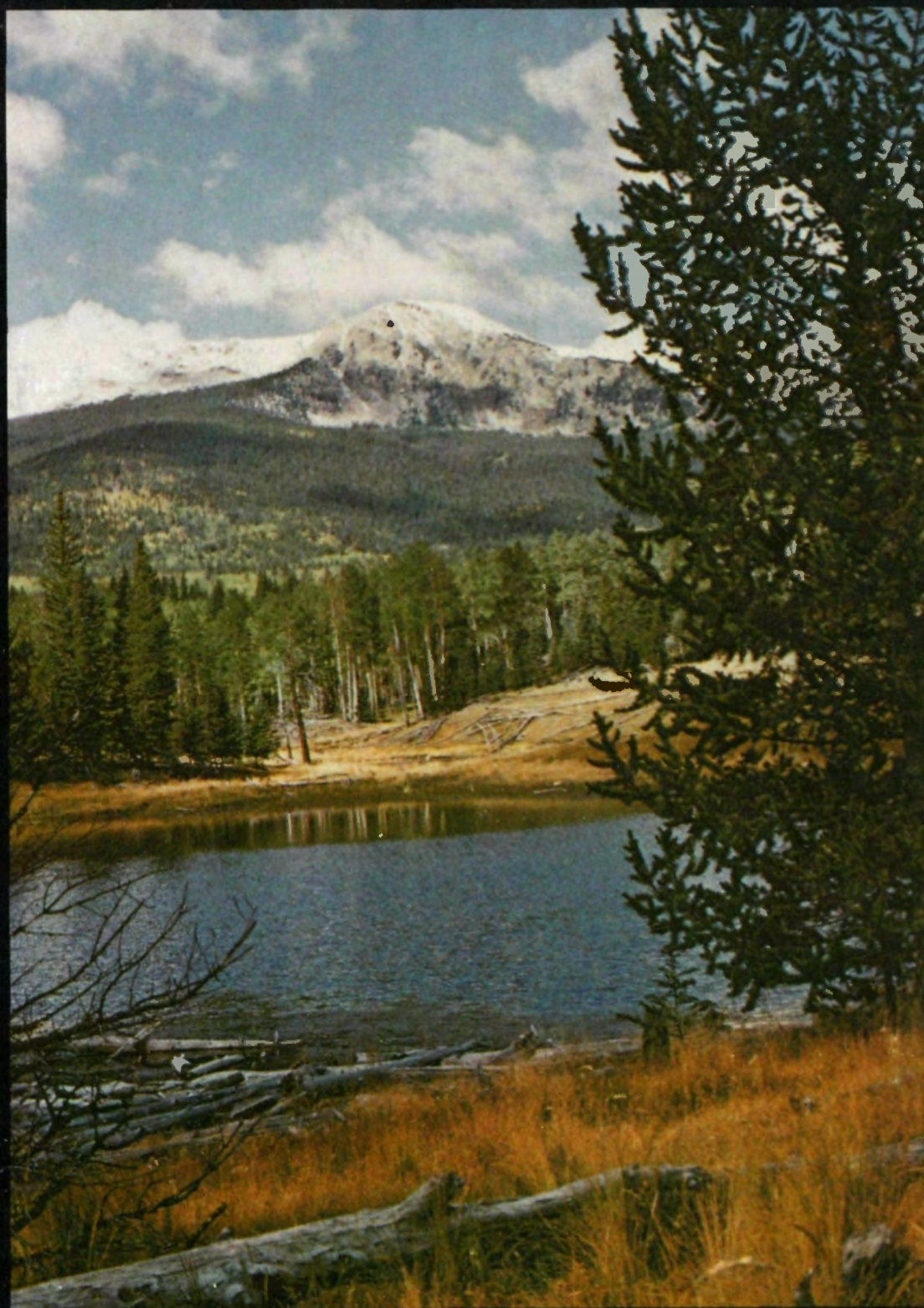
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EPA JOURNAL

Recreation and the Environment



Environmental Rewards

In addition to the many intangible benefits, a clean environment also offers many tangible improvements which are helping to stimulate major growth in the Nation's recreation industry.

Administrator Douglas M. Costle points out in this issue that the clean water program has not only created many thousands of jobs in pollution control, but has also boosted shoreline real estate values along rivers and lakes.

The Administrator notes that the Commission on Water Quality estimated that meeting the 1983 goals of the Clean Water Act will bring an added benefit totaling \$3.2 billion annually to the leisure industry because of the increased purchase of sport fishing and other equipment.

At the same time the Administrator cautions that "we must be careful that our enthusiasm for recreation does not damage or destroy the very environment that has lured us to the trails in the first place."

In another article, Costle explains the impact of the recently issued Federal air pollution standards for new coal-burning electric power plants. One of the goals of these and other EPA regulations will be to help preserve visibility in the West.

In an article written for EPA Journal, Secretary of the Interior Cecil Andrus comments that many of the environmental problems of our society have impinged upon the National Park System.

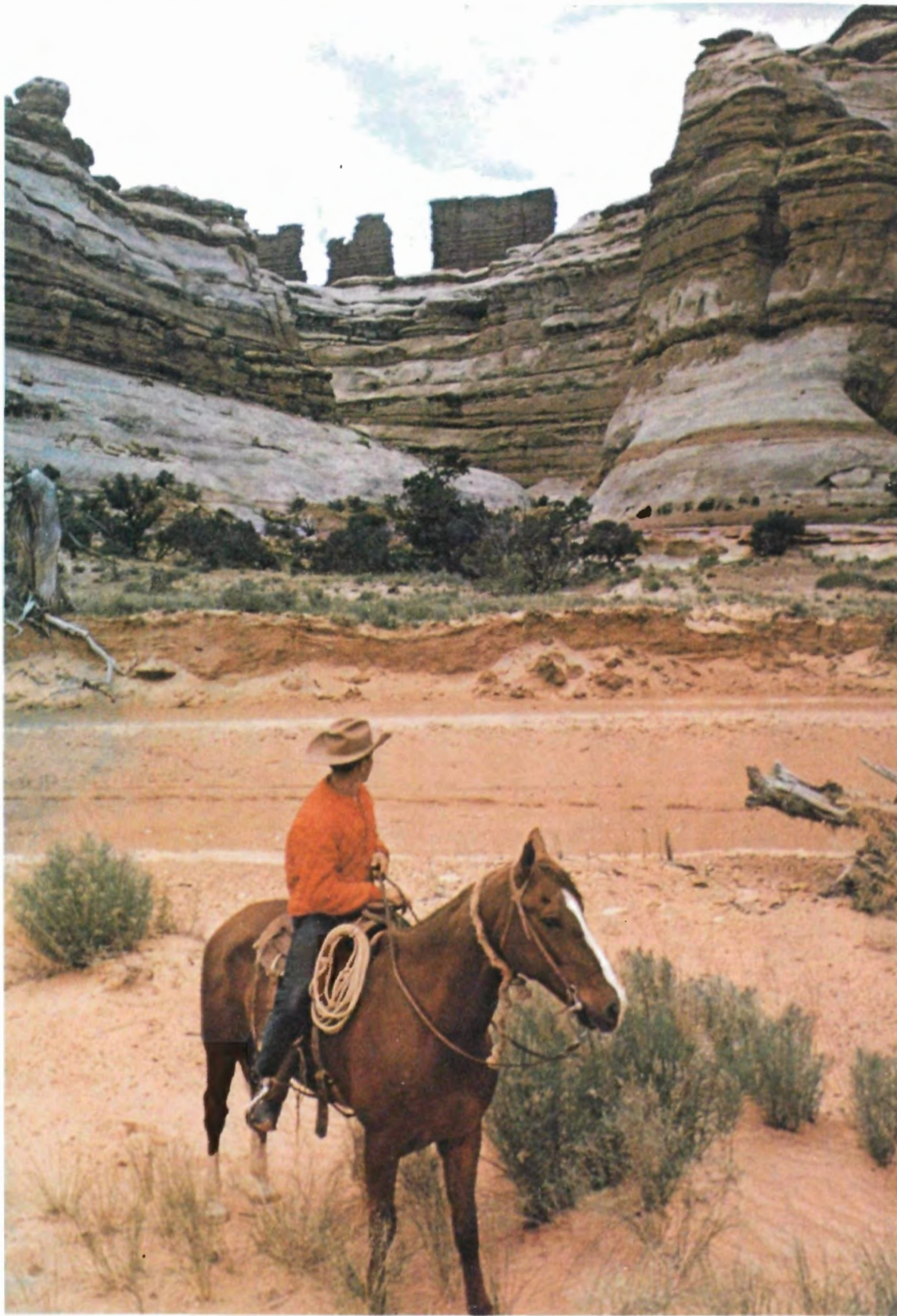
The Secretary states that the leadership of the National Park Service is dedicated to making the Service "the flagship of the Federal fleet" in environmental protection.

Anthony Wayne Smith, president of the National Parks and Conservation Association, warns that the national parks are "seated within the entire national environmental setting and cannot be protected without attention to that setting."

Two articles review the prospects for major rivers—the Potomac and the Chattahoochee.

Other articles in this issue include reports on:

An appeal by Administrator Costle to the 25-nation



Organization for Economic Cooperation and Development for careful economic growth;

An analysis by Vernon E. Jordan, Jr. of the prospects of the developing coalition of urban and environmental activists;

Water quality improvements in the Great Lakes;

The impact of tourism on the world environment;

EPA's plans to deal with the hazardous wastes problem;

Use of abandoned rail rights-of-way by bikers and hikers;

How children in New Haven are learning about ecology. □

EPA JOURNAL

Douglas M. Costle, Administrator
Joan Martin Nicholson, Director, Office of Public Awareness
Charles D. Pierce, Editor
Truman Temple, Associate Editor
John Heritage, **Chris Perham**, Assistant Editors

Articles

EPA is charged by Congress to protect the Nation's land, air and water systems. Under a mandate of national environmental laws focused on air and water quality, solid waste management and the control of toxic substances, pesticides, noise and radiation, the Agency strives to formulate and implement actions which lead to a compatible balance between human activities and the ability of natural systems to support and nurture life.

Recreation, Jobs, and Good Health ³

Administrator Douglas M. Costle discusses the dividends that a cleaner environment brings to the U.S. economy and the well-being of Americans.

Recycling the Rails ⁴

Abandoned railroad rights of way offer new opportunities for bikers and hikers.

Preserving the Potomac ⁶

Congressman Joseph L. Fisher of Virginia assesses the future of the river that runs through the Nation's capital.

A River for the People ⁸

Chattahoochee National Recreation Area makes access to recreation easy for urban residents in Atlanta.

The Urban Environment ¹⁰

Vernon E. Jordan, Jr., looks at the growing cooperation between civil rights activists and environmentalists.

Action on Hazardous Wastes ¹¹

Deputy Administrator Barbara Blum outlines the Agency's plans to counter this environmental health problem.

Protecting the Crown Jewels ¹²

Cecil Andrus, Secretary of the Interior, describes efforts to safeguard the peace and beauty of America's National Parks.

Splendor in the Parks ¹⁶

An article by Anthony Wayne Smith of the National Parks and Conservation Association on growing threats to the quality of the environment on the Nation's public lands.

New Coal Standards ¹⁸

Administrator Costle discusses rules to control coal burning emissions.

Clean Water Bonus ²¹

The Heritage Conservation and Recreation Service has programs that expand the benefits of the water cleanup effort.

The Great Lakes Revisited ²³

A look at how improved water quality affects the people living around America's largest lakes.

Environment and World Tourism ²⁷

The United Nations Environment Program reviews the international impact of travel for pleasure.

Costle Urges Careful Growth ³⁶

In a Paris speech to the Organization for Economic Cooperation and Development, the Administrator supports thoughtful development to minimize environmental damage.

Nature In the City ³⁹

Children in New Haven learn the basics of ecology.

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Almanac ³⁷ Around the Nation ³²

Update ³⁴ People ³⁰

News Briefs ³⁸

Front cover: This New Mexico vista of lake, forest, and mountains illustrates the value of clean air. See p 18.

Opposite: Rider looks back at stone formation called the Penguins, which tower above Horse Canyon Maze in Canyonlands National Park, Utah. See "Protecting the Crown Jewels," p 12.

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Recreation, Jobs, and Good Health

By Douglas M. Costle
EPA Administrator

President Kennedy, who believed wholeheartedly that Americans should keep fit, once reminded the National Football Foundation that Thomas Jefferson had urged his countrymen to devote at least two hours a day to exercise.

"If the man who wrote the Declaration of Independence, was Secretary of State, and twice President, could give it two hours," Kennedy remarked, "our children can give it ten or fifteen minutes."

That emphasis on healthful exercise has been continued with President Carter, who can be seen elsewhere in this issue on a bike, and who is also a jogger. From the President to the ordinary citizen we are exercising with enthusiasm. Never in history have Americans lavished so much attention on sports.

Aside from the enjoyment and sense of well-being that goes with exercise, it provides important dividends in better health and increased longevity. We are told by the medical profession that the number of deaths from strokes and heart disease has been declining in recent years. Increased exercise is an important explanation, along with improved diet and less smoking. Physicians have for many years recommended exercise as an important form of preventive medicine in avoiding these illnesses. EPA's mission to create healthy air and water reinforces the benefits that people are gaining from outdoor sports. Joggers should not have to breathe polluted air, bikers should be able to experience the views that their trails offer, and fishermen should not have to cast their lines in a dead stream.

What the average citizen may not realize is that physical activity also represents an important and very visible factor in the economy. The leisure industry in all its aspects is now a major one in terms of consumer spending, and leisure time to pursue sports is increasing.

Consider for example these trends:

- A Gallup Poll has found that the number of Americans who exercise daily has risen from 24 percent to 47 percent in 16

years. An estimated 19 million jog and 25 million are regular cyclists.

- Attendance at National Parks, recreation areas, and seashores rose from about 31 million in 1960 to 96 million in 1975. Attendance at State parks nearly doubled between 1962 and 1975, from 285 million to 566 million. (The figures include many repeat visits by the same individuals.)

- A. C. Nielsen says swimming is now the most popular sport for Americans, with 104 million swimming at least occasionally in 1976. Fishing also ranked high, with 64 million active participants. The number of women who fish increased from 9 million in 1970 to 21 million in 1976. There were also 58 million campers as well as 43 million involved in boating and sailing.

The Commission on Water Quality estimated that meeting the 1983 goals of the Clean Water Act will result in nearly 237 million additional days of sports fishing, thanks to our joint efforts with State and local governments in cleansing the Nation's waterways. The Commission projected that this will bring an added benefit approaching \$3.2 billion annually to the recreation industry because of the increased purchases of equipment and other outlays related to this sport.

That underscores another aspect of the relationship between EPA and the economy. Protecting the environment has created many thousands of jobs in pollution control equipment and construction. It is equally true that cleaning up our streams and lakes and open spaces is providing stimulus to the important economic sector known as the recreation industry. We cannot put a precise price tag on a stretch of river so improved that recreation undergoes a rebirth there, but we do know that cleaning it up not only helps to sell more boats and fishing rods and swim suits but also greatly enhances real estate values along the shoreline, since the river basin or lakefront has

become environmentally and aesthetically desirable and a more pleasant place to live.

Unfortunately some kinds of recreation can also create environmental problems. Off-road recreational vehicles in certain areas have produced undesirable environmental side-effects, either in excessive noise or in unwitting destruction of wildlife habitats. Aside from recreational vehicles, just plain population pressure also has created problems in several National Parks. Yosemite, for example, has had to limit access to back country because of the increase in backpackers. So we must be careful that our enthusiasm for recreation does not damage or destroy the very environment that has lured us to the trails in the first place.

The increase in leisure for Americans and their resulting interest in recreation holds the promise of a healthier Nation. It remains the responsibility of the men and women in this Agency to make sure that our waterways and open spaces offer them a clean, inviting outdoor environment where they can restore their spirits, maintain good health, and pursue happiness. □

Pleasure boat in Kenai Fjords, Alaska (top left)

Visitors descend from the South Rim of the Grand Canyon by mule to explore this famed canyon. (far left)

Campers line up at entry gate to Yosemite National Park, Calif (below)



Recycling the Rails

By Truman Temple

Fifteen years ago the Chicago and Northwestern Railroad authority abandoned service on a branch line between the communities of Elroy and Sparta in Wisconsin.

But rather than let the tracks simply rust away unnoticed, the railroad wrote a remarkable letter. "The Northwestern has long maintained that a railroad has an obligation to the communities and the people it serves," it told the Interstate Commerce Commission. "As a Wisconsin railroad, we look on this as a wonderful opportunity to do something for the people of the State and at the same time preserve a small slice of railroad lore for future generations."

The result was the Elroy-Sparta State Trail, which today permits bikers and hikers to wind their way on the former rail route through 32 miles of rustic beauty. With financial aid from the Conservation Commission, the trail is now fenced where necessary and passes across fields of clover and grain, over rivers on old railroad bridges, and through 100-year-old tunnels. The experiment has been so successful that the State is planning nearly 200 more miles of similar bike paths on abandoned rail lines.

Wisconsin is an outstanding example of the national trend in the rail-to-trail movement. Last year Interior Secretary

Cecil D. Andrus announced the selection of similar projects in ten States, providing funds from a \$5 million appropriation under the Railroad Revitalization and Regulatory Reform Act of 1976. The projects included a seven-mile bike trail in Pennsylvania along former railroad and trolley line rights-of-way, four miles along the old Washington and Old Dominion rail line in the Virginia suburbs of Washington, and a two-mile bike/walking/jogging/horseback trail in Marin County, Calif. In New Jersey, a section of Penn Central roadbed between a State park and the Trenton Battle Monument will be developed for bikes, hikers, and even wheelchairs.

The rails-to-trails activity comes at a time when the need for more bike and hiking paths is pressing. Not only has the environmental movement made the public aware of the need for such facilities, particularly in urban settings, but the energy crises of recent times have also prompted many persons to demand better consideration of commuters who travel on foot or by pedal power.

Bikes have been outselling autos in the United States for some time. Between 1972 and 1978, according to the Bicycle Manufacturers Association of America, more bikes were shipped and imported in this country than passenger cars. Total bike shipments in the period were 77.5 million, compared to 72.5 million autos. Because of this, bikes are now approaching the total number of cars in service. Last year there were about 95 million bicycles in use in the United States, compared with about 117 million cars. At a time when the cost of gasoline is steadily rising toward the \$1 a gallon level, the bicycle looks more and more attractive as an alternative to commuting by car.

Converting an old rail bed to a recreational trail is not as simple as it sounds. There must be careful planning and close cooperation by local jurisdictions and supporters of the project. They must provide beforehand, for example, for funding to acquire the abandoned rights-of-way. (A landmark decision by the Interstate Commerce Commission in 1972 involving an 11-mile trail in Seattle now permits the ICC to require railroads as a condition of abandonment to offer public agencies or civic groups the first opportunity to acquire the land if they are seeking to convert it to park or recreational uses.)

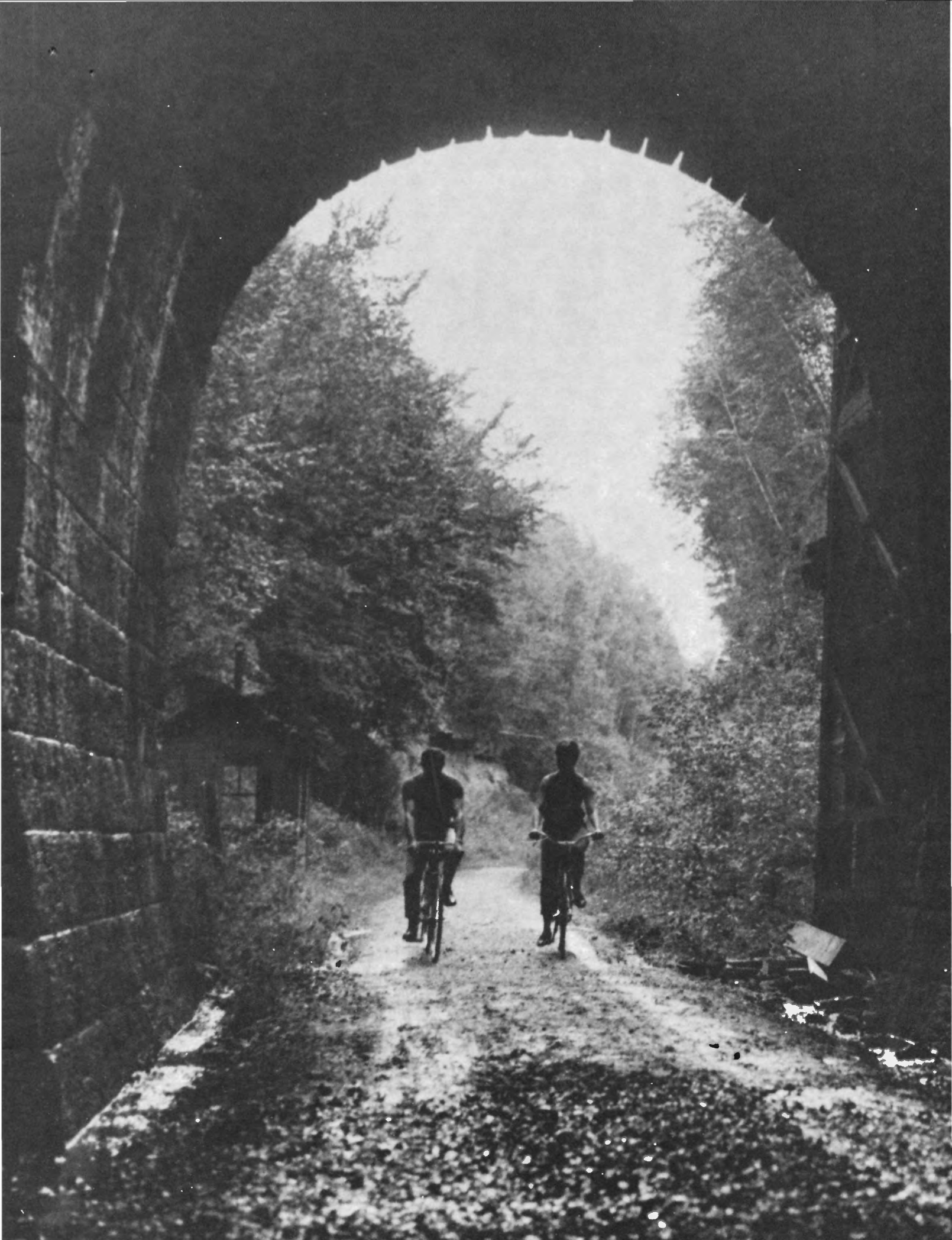
Furthermore, provision must be made for maintenance services such as litter control once the trail is opened. Some trails are patrolled by police on motor scooters to prevent vandalism, and others also make use of barriers to prevent use of the paths by unauthorized motor vehicles. Supporters may run into difficulty among themselves deciding among competing uses of the trail,

Continued to page 40

Cyclists enter a tunnel on a trail that was once a railroad. (right)

President Jimmy Carter, astride his bike, confers with visitors at Camp David. (below)





Preserving the Potomac

By U.S. Rep. Joseph L. Fisher
(D-Va.)



FOR SALE: PROPERTY ON THE POTOMAC.

The owner is moving away. Such land does not come on the market very often and many interests are intrigued by the prospect of obtaining a choice Potomac River lot.

Who should buy the property? What use should be made of this site?

A developer wants to build a condominium high rise and some recreational facilities. The county government would like to buy the land, but because there is not enough potential for intensive recreational use, does not believe the expenditure can be justified. The regional park authority could use the land but has no acquisition funds. The Federal Government is interested, but because budget and program planning requires a lead time of eighteen months, cannot act quickly enough. A local farmer would be happy to enlarge his holdings but cannot match the price offered by the developer.

What will happen to this property? What should happen?

The answer, unfortunately, is that there is no consensus on what should be done with the shores of the Potomac River. Much of the attraction of the shoreline is found in the diversity of its uses. Farming and other private land uses contribute greatly to the character of the area. Boating, hiking, fishing, and other kinds of recreation are among the activities the public can enjoy along the Potomac.

To ensure that this diversity continues and that both public and private interests are respected, some kind of forum is needed to bring these interests together to formulate goals for the protection and appropriate use of the river area. If a forum existed and if it had agreed upon goals, then sellers and purchasers of land along the river would have guidance. They would know what land was needed to be kept open for public access, what land was intended for private development, and what land was expected to be maintained as farmland.

The Potomac River is one of the most interesting and beautiful rivers in the eastern United States. I have canoed along much of its upper reaches from West Virginia to Washington including the exciting white water in the stretch where the Shenandoah joins the Potomac, at Little Falls, and many other spots. As the main stem of the river runs between Maryland and West Virginia and Virginia, it changes from a wide and bucolic stretch of water to dramatic falls channeled through high palisades. The shores of the river and the surrounding area are as compellingly

beautiful and beguilingly changeable as the river itself. The Potomac flows through territory that changes from rural woodland to historical Harpers Ferry at the confluence with that other fabled river, the Shenandoah, to Great Falls, and finally to Washington, the Nation's capital.

But this scenic and historic setting is fragile. The pressures for development and recreation use of the river shore are coming to the Potomac as they have come to many parts of the countryside within reach of urban areas. The problem inherent in these pressures is not so much in the changes they engender as in the possibility that a lack of forethought and planning will result in unattractive and inefficient development and needless loss of access to the river.

What can be done? I think that the first step must be for landowners and residents of the river area, outdoor enthusiasts, naturalists, and representatives of government at all levels to get together to discuss their common interests. No one group with an interest in the Potomac, and certainly not the Federal Government, should dictate to the others how the river shore should be used in the future. What is needed and what will work is a cooperative study and planning process involving local, State, and Federal Governments and private interests, with each contributing equally what it does best. The result would be a collection of recommendations on the appropriate use of each section of the river which would be supported by all interested parties.

This forum of citizens and governmental representatives would have an important agenda. It would identify locations along the river which are either ecologically fragile or important because of their potential for wildlife, recreation, and scenic beauty. Land management techniques such as easements, public access agreements with private landowners, and other methods can be employed to enable the goals of the area people to be carried out. It should make plans to provide for the protection and promotion of such existing uses of the area as farming and forestry and those industries and other developments which are consistent with acceptable goals. The forum should also provide standards for recreational use of the river, which will indicate, for instance, the kinds of uses that are appropriate for various sections of the river.

The forum would also have a more general agenda for planning. Among the elements to be included in a plan would be a statement of the values that the plan would be intended to protect and which would guide future planning and development; a proposed boundary map of the area to be covered by the plan; a description of the role of local officials and citizens in the planning and management of the area; recommendations for land use and

conservation; recommendations for the coordination of local, State, and Federal programs and policies with each other and with private interests; recommendations for places where public use will be allowed; recommendations for financing the plan; and recommendations for the way the plan for the area should be managed.

This would not be planning imposed by outsiders, but a cooperative effort by the people most affected by decisions about land use along the river and the governmental bodies responsible for enforcing any legally binding decisions. Furthermore, none of the recommendations would be effective unless they were ratified by the appropriate level of government and the necessary ordinances and laws adopted.

A whole range of steps to guide future land use could be recommended, encompassing local or county zoning ordinances for some areas; purchase of easements and development rights in order to keep certain lands in their existing use; public purchase for protection or recreational development in another type of area; and no change in other sections of the river. These recommendations would be made only after a careful study of the needs and character of the Potomac shore area and after public hearings. Such a process would result in a plan that would have local public support and would assist in decision-making for land use along the Potomac River.

In the last Congress I introduced a bill embodying these concepts. It called for the establishment of a 30-member commission to prepare the kind of plan I have described. The majority of members of the commission were to be residents of the area along the river. Citizens would be represented by members with an interest in outdoor activities and conservation. The commission would also include representatives from State government and Federal agencies. The recommendation of the commission would be advisory with no official standing until the appropriate governing bodies had acted on the recommendations. I expect to introduce a bill along these lines again in the 96th Congress.

But the cooperative effort that I think is necessary does not have to wait for Federal legislation to go forward. If the people and the governments in the Potomac Valley want to plan ahead for the changes that inevitably come to any area, then they can work together voluntarily. Because local efforts and support are vital to the process that I have described, I think that a voluntary planning group might be successful. The Interstate Commission on the Potomac River Basin could be the agency through which a voluntary effort is begun. The opportunity should not be lost to give the citizens of the Potomac River area a voice in the future of their land. □

This secluded shoreline, at the dam above Great Falls on the Potomac, is less than 10 miles from Washington, D.C.

A River for the People

By Robert Humphries

Chattahoochee means "River of Flowered Stones" in the Creek Indian tongue. It is a river, yes, but much more. Poet Sidney Lanier celebrated the river in *Song of the Chattahoochee*, "Out of the hills of Habersham, down the valleys of Hall, I hurry again to reach the plain." It was the last barrier for the bluecoats of Billy Sherman to cross before they burned Atlanta. The river flowed quietly on as the South's great metropolis rose like the phoenix from the ashes of a great civil conflict.

More recently, the annual Chattahoochee Raft Race was listed in the 1977 Guinness Book of World Records as being the world's largest outdoor participant sport. Some 20-

30,000 people float the river every May in homemade "floats," inner tubes, rafts, and canoes while over a quarter-million spectators gather to watch the festivities along the river bank.

Sound like an interesting place?

It is. It's also one of America's newest National Recreation Areas.

Its designation as an NRA last August was the culmination of an eight-year effort for river protection by citizens, several Federal agencies—including EPA—the State of Georgia, and local governments.

Among those chiefly involved was Barbara Blum, before her appointment as EPA Deputy Administrator in 1977.

Participants in the annual Chattahoochee Raft race are in a festive mood.



Informed that a sewer was to be constructed down the river bank, she took the lead—in bringing together the varied interests, the canoers, rafters, fishermen, homeowners, and water supply interests.

"There were those who said it would never work—the coalition on the project," Blum said. "They were wrong, very wrong."

Blum and her "river rats" found a sympathetic ear in both the then—Regional Administrator of EPA, Jack Ravan, and the then—Governor Jimmy Carter.

The results?

First, the sewer line was redesigned so that damage to the riverbank beauty was minimal, even to thousands of feet of tun-

neling through spectacular cliffs in the palisades section of the river.

Then, with support from the Governor, and with the sponsorship of State Representative Elliot Levitas, Georgia's first major land-use law, the River Protection Act, was passed in 1973, putting development controls on a 2,000-foot corridor along the river.

Later, as a Georgia Congressman, Levitas shepherded the NRA bill through the House of Representatives.

Private donations of land and use of State and local funds made available almost 1,000 acres of land along the river in several tracts for public use.

All along, the need for designation na-

tionally was recognized since the project was of national significance.

In the 1972 election campaign, an aspiring candidate for the U.S. House of Representatives was approached by the river protection groups. Once contacted, Andrew Young agreed to support the effort, probably a key factor in his election to the Congress. Shortly afterward, Young, now U.S. Representative to the U. N. helped to introduce the first of a series of bills to establish the National Recreation Area. On the Senate side, another Georgia freshman, Sam Nunn, lent his support, carrying forward identical legislation.

"Andy and Sam's leadership in Washington," Blum said, "made a critical difference. They gave visibility to our efforts, and they pressed our case before the Congress."

Still, there were setbacks.

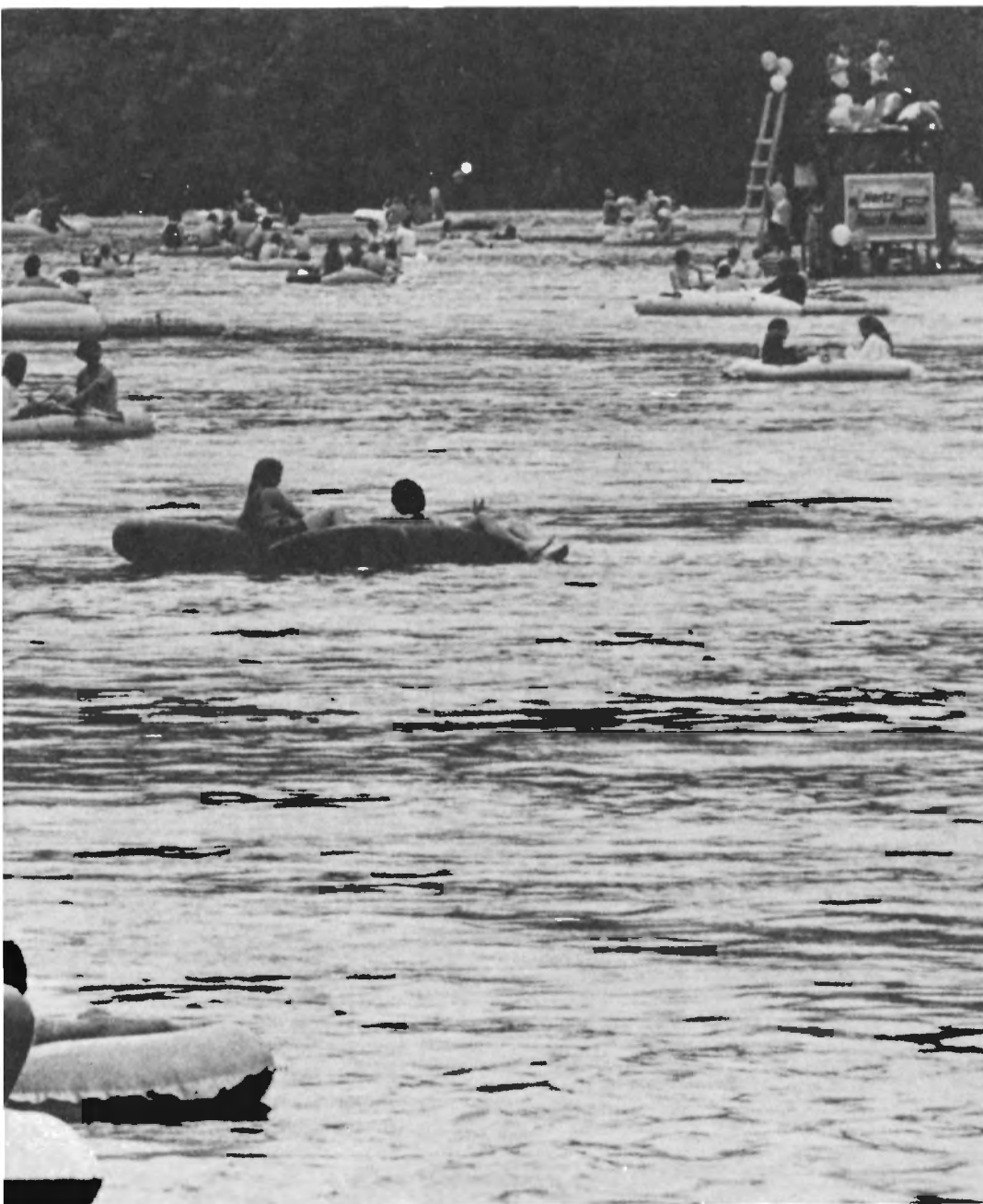
Finally, in 1979, designation of the Chattahoochee as a National Recreation Area became a reality. Established were 14 separate sites varying from 40 to 1,000 acres along a 48-mile stretch of the river from Atlanta to Lake Sidney Lanier. These sites will provide for varied riverine recreational and educational experiences as well as better control of non-point sources and unwise development.

Why is all this important? The Chattahoochee feeds water to industry and one-third of Georgia's population. It also does much more, fulfilling needs which are perhaps even more important to modern urban people. Closely surrounded by high density urban development, on the river one is not aware of these everyday scenes. Rather, vistas ranging from pastoral to rugged mountain wilderness confront and make peace with the eye and soul.

While eight out of ten residents of metro Atlanta depend on the Chattahoochee for water for home and business, the recreational and educational opportunities are equally important. Where else can cheap mass transit carry inner-city children to experience and learn the wonders of the natural world we all depend on? Youngsters can learn whitewater techniques. Fly fishermen fish the southern-most trout streams in the Nation. In a metro region of 1.7 million people, over 2 million a year use the river for recreation.

Perhaps the best comment about this National Recreational Area is that of President Carter when he signed the bill in the White House Rose Garden: "It's a rare occurrence when within the city limits of one of our major cities one can find cool water and trout and free canoeing and rapids and the seclusion of the earth the way God made it." □

Robert Humphries is the Director of the Office of Congressional and External Affairs in EPA's Atlanta office.



Protecting the Urban Environment

By Vernon E. Jordan Jr.



Vernon E. Jordan, Jr.
President, National Urban League

Children race along cluttered New York City street.



Coalition-building has always been a prime strategy of the civil rights movement, and it is important, in this age of growing concern about the environment, that a working coalition be achieved with environmentalists.

A key step in building that coalition was made early in April at the national conference on the urban environment, aptly called City Care. The conference was co-sponsored by a number of Federal agencies, the National Urban League, the Sierra Club and the Urban Environment Conference and Foundation.

The meeting's sponsors symbolized the growing concern of black groups for environmentally-caused health hazards among minorities, the shifting focus of environmentalists to urban problems, and the government's continuing interest in protecting the environment.

The new negativist mood of the Nation demands that groups working for constructive change join in creative coalition efforts. Otherwise all would be swamped by reactionary trends. But coalition also means that the partners understand each other's priorities.

For blacks relegated to the margins of our society, the priority has to be jobs. That's why so few blacks have evidenced sympathy for proposals to limit

growth. Supporters of slow and no-growth theories claim that the real issue isn't economic growth—making the pie bigger—but how the wealth we have is distributed.

But black people know that our best, perhaps only, chance to achieve economic parity lies through expanding the national economy and getting a bigger slice of that growth. In a no-growth economy, the white majority isn't going to give up part of its share so that minorities can enjoy economic equality.

So a major challenge to this emerging coalition lies in devising policies of environmentally sound economic growth. Advocates of solar energy have met this challenge by demonstrating how widespread use of solar energy could create many jobs for the urban poor who lack skills.

Another area of cooperation could be in the regulatory sphere. Cries for ending Federal regulatory efforts nearly always center around the very agencies responsible for cleaning up our air and water and making workplaces safer. Black people have a stake in this. Black neighborhoods are most affected by pollution while black workers are often locked into the most hazardous jobs that are most liable to result in health and safety risks.

And environmental concerns have to be defined broadly. Too many people think of the environment in purely physical terms. But the "environment" of human beings refers to all external factors affecting people—economic and social, as well as physical.

So an effective coalition around the urban environment has to be concerned with eradicating rats, with improving housing conditions, and with creating jobs.

Poverty is itself a major cause of the degradation of the black environment. Unemployment is related to higher incidence of health problems. Slum living contributes to increased hazards assumed by the poor.

A recent study found that children who do poorly in school may have learning disabilities related to high lead content in their bodies, lead that comes from auto exhausts and polluted air, lead that is more frequently found in poverty neighborhoods.

The nuclear incident at the Three Mile Island plant was in progress while this urban environmental conference was under way. It provided a frightening example of the importance of environmental concerns to poor people.

By throwing the future of nuclear energy into question, the incident made energy an issue of immediate concern. The Administration promptly moved to deregulate oil prices, something that will hit the poor hardest.

Poor people use less energy but spend more of their incomes for it. Although the energy crisis has been around so long it's getting gray in the beard, no plan has ever been devised to shield the poor from the spiraling cost of energy.

Here's an example of an issue this emerging coalition can run with. It can come up with proposals to defend the interests of poor people in energy matters, and fight to get them passed. No one else is doing the job. It's a key test of whether the concerned groups can move beyond rhetoric to effective advocacy for the urban poor. □

Action on Hazardous Wastes

EPA is gearing up to investigate about 300 hazardous waste dump sites per year that could pose an imminent health hazard.

EPA Deputy Administrator Barbara Blum said that as many as 50 prosecutions per year could be expected from the 300 investigations. EPA estimates that as many as 1,200 to 2,000 dump sites around the country may contain wastes that could develop into imminent health hazards.

Blum joined Michael J. Egan, Associate Attorney General, U.S. Department of Justice, in Denver, Colo., to open a strategy session of EPA and Justice Department staff considering the hazardous waste problem.

The EPA Deputy Administrator announced three key elements in the new enforcement thrust:

- Existing personnel in all ten EPA Regional Offices will be diverted from other duties to concentrate on high priority cases in the next few months. This could involve at least 50 staff members in Headquarters and the Regions.
- EPA is seeking a supplemental appropriation in the Fiscal Year 1980 budget for \$131 million and about 190 positions to investigate and do legal case work on dump sites.
- Legislation will be submitted by the Administration to Congress to set up a national fund for emergency response and containment at hazardous waste sites. A new liability scheme would be used along with traditional injunctive and enforce-

ment relief. The fund also would apply to oil and hazardous materials spills.

"Beginning in FY '80," Blum said, "we hope to be able to refer as many as 50 cases per year to Justice for prosecution. In those cases where Federal legal action is impossible, we intend to provide legal and technical support to assist State and local governments for appropriate cleanup action."

"As money becomes available for hiring full time staff," Blum said, "we can return existing staff to their present jobs. In the meantime, everyone must understand that this problem is receiving the highest agency priority. Where imminent health hazards exist, they must be dealt with promptly by Federal, State, or local authorities."

Blum also released a status report on the 103 dump sites identified last November as containing hazardous wastes, plus 32 others identified since then. The new report shows that facts are being collected and evaluated at 44 sites for cleanup or litigation. The summary also shows that no hazard exists in nearly half of the sites, but that monitoring continues to ensure protection of public health. EPA declined to identify the specific cases under intensive investigation for legal reasons.

"We are encouraging and assisting States to take lead responsibilities in all phases of this effort," Blum said. "We will support them and take the lead where necessary. But the fact is that this problem is so large, and the potential threat so compelling, that all available resources by all agencies at all levels of government must be brought to bear on the problem."

Blum also announced that

EPA is awarding a \$4 million demonstration grant to the New York State Department of Environmental Conservation to help clean up Love Canal. The Federal funds will be matched by \$4 million in State money to complete construction of a trench and tile chemical collection system for the remaining contaminated areas of the Canal. The funds will also be used for leachate treatment, monitoring, and epidemiological studies and the consideration of land use alternatives and rehabilitation.

"Nationwide, people are frightened. Some are outraged. Others may be entirely unsuspecting," Blum said at the National Enforcement Investigations Center in Denver. "Many are asking if their homes sit astride a dump, long ago covered up and abandoned. They want to know if their drinking water is contaminated, if the lives of their children are in danger. They want to know what to do, who to hold accountable and what steps the government is taking."

"President Carter and the Congress are asking questions like these: What needs to be done to protect the public health and safety? How do we sort through the issue of legal liability? How should victims be compensated? What resources are needed to clean up? The waste must be stored somewhere—how do companies properly transport, treat, store, and dispose of the material?"

"Clearly, hazardous wastes represent one of the most serious problems the Nation has ever faced, a problem which will only be solved by the best

efforts of all levels of government, of industry, and of the public," Blum continued.

Let there be no mistake about the seriousness of the situation, Blum warned. She gave these examples:

- Toxic wastes seeping out of underground storage units pose deadly hazards to human health and the environment.
- EPA estimates that 80 to 90 percent of the hazardous wastes produced in the U.S. are not being disposed with adequate safeguards.
- Seventy-five percent of the inactive and abandoned sites may have to be cleaned up at public expense.
- "Gypsy hauling" and "midnight dumping" practices are widespread.

"We must move—at a speed, on a scale and with a precision greater than ever before. . . . The fact is that the challenge before us is so large and the potential danger so deadly that there is no alternative," the EPA Deputy Administrator said.

The threat has been labeled "the sleeping giant of the decade," Blum added. "I agree, with one exception. The monster is not dormant, and it hasn't been."

"Eight months ago, a tragedy in Niagara Falls, N.Y., focused public attention on what already was a deep and growing concern to the government—the horrors of toxic chemical wastes.

Subsequent incidents—in Kentucky, in Iowa, in North Carolina and scores of other States—have confirmed many of our worst fears, underscoring and accelerating our commitment to act." □

Protecting the Crown Jewels

By Cecil Andrus
Secretary of the Interior



In 1916, the Congress established the National Park Service within the U.S. Department of the Interior and said that its purpose was "to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

Shortly before that time, the population of the United States passed the 100 million mark. Today, that population has more than doubled, to around 220 million.

The task which the Congress set before us, therefore, has become much more com-

plex and difficult. Many of the environmental problems of our society have impinged upon the National Park System, now grown to 322 sites in 49 States.

In Alaska, however, we still have a chance to prevent the mistakes of the past. We still have a chance to preserve whole ecosystems. We still have a chance to do it right the first time. This was the spirit behind President Carter's proclamation of potential park areas as national monuments last December, pending final Congressional action.

Our Alaskan lands proposals fit well into the overall philosophy of the Department of the Interior. We are concerned with management of resources in a manner that strikes a balance between preservation and development.

Unless this balance is struck, we are doomed to lose some of the scientific, cultural, historic, and living resources no longer available in any other part of the country. In the lower 48 States, I am sad to say, we already have lost some important conservation battles, and we have had to engage in what I call environmental "salvage operations."

More battles will be lost, some involving our superb national park areas, if we are not vigilant and active. At the present time, there are threats of remarkable diversity to the National Park System.

Many of these threats come from activities on adjacent lands and waters. Raw sewage discharged by communities or passing vessels can wash up onto national seashores, runoff from residential developments can drain directly onto meadows and natural wooded areas, and industrial dyes can change the color of a park creek.

Pesticides used in farming have found their way to National Park System lands, and mining is a major polluter near some units. Developments on adjacent lands have lowered the water table in some parks, and others are plagued by the untimely discharge of water from dams.

Air pollution is a serious problem, and it has many sources, ranging from heavy industry to automobile emissions to the incineration of garbage. Noise from cars, boats, airplanes, and industry is another form of pollution, and the location of an industrial complex near a park can create at best an eyesore and at worst a potential public health problem.

The National Park Service, under my stewardship, is working to alleviate situations of this nature. Progress has been made, and it will continue to be made. We now have the legislative tools to work for reasonable solutions of many of the Nation's environmental ills.

One of these tools is the Clean Air Act of 1970, as amended in 1977. In my judg-

Lake surrounded by spruce forest in proposed Gates of the Arctic National Park, Alaska.

ment, no Federal agency, other than the Environmental Protection Agency, will be more involved or have greater responsibility in the restoration and preservation of the Nation's air resources than the National Park Service.

Over the next two years, the 1977 Clean Air Act amendments, which provide for the prevention of significant deterioration of air in clean air areas and for the improvement of visibility where it has been impaired in some of the scenic vistas of our Class I parks, will require the Service to make specific recommendations to the EPA and to the States on whether to permit the construction outside park boundaries of new major pollution-emitting facilities or to require existing facilities to apply retrofit pollution control technology.

The Service manages 48 areas coming under the mandatory Class I designation by Congress—areas where only *minimal* amounts of deterioration in air quality are permissible.



Aerial view of the Ten Thousand Island area of the Florida Everglades.

The park service is taking this responsibility seriously. An Air Quality Program has been established, and the agency is hiring the technical experts necessary to get the job done. Many of these individuals possess skills that are new to the National Park Service.

Air quality monitoring is underway in several Class I western parks. In 1977, the Department of the Interior helped relocate a proposed 3,000-megawatt coal-fired, electric generating plant in south central Utah because it would have caused air pollution in Capitol Reef National Park, only seven miles away. A more suitable location for the power plant was found by a Department of the Interior task force, working closely with the State of Utah.

We will not hesitate, therefore, to take all actions possible within existing authorities to see that the air quality in our national



parks, which are the crown jewels of our Nation, is the best attainable.

Our approach will be the same concerning water quality. The Federal Water Pollution Control Act of 1972 and the 1977 amendments known as the Clean Water Act call upon us to make our concerns known and to assist the States in setting standards.

A problem we are studying closely is the relationship between air pollution and water pollution. Acid rainfall could damage the water quality and vegetation of many of our national parks as well as harm cultural and geologic structures. In Great Smoky Mountains National Park in Tennessee and North Carolina, there is evidence of acid rainfall in the headwaters of streams. It is thought that the changes it brings about disturb lifecycles of stream species, including the eastern brook trout. Air pollution also has caused the tips of white pines on the Blue Ridge Parkway to turn brown. Situations such as these are being studied closely by the National Park Service's new Air and Water Resources Division.

Within the parks, we are working to upgrade substandard or out-moded water systems and eliminate or improve the effluent discharges. All wells in the National Park System are monitored periodically for bacteriological and chemical contamination. When problems are found they are corrected immediately.

In recent years, in response to legislative requirements, the National Park Service has begun a push to update sewage treatment facilities throughout the System. In the present fiscal year, 43 parks have water supply and sewerage improvement projects underway, at a cost of almost \$19 million.

Noise pollution is another problem affecting our parks. It has received the most publicity in Jackson Hole, Wyo., but there the National Park Service, the Federal Aviation Administration, and the Jackson Hole Airport Board are currently developing a noise abatement plan which will establish tolerable decibel levels for aircraft serving the airport.

We have lost some environmental battles, but we have won a few, too.

Among the significant successes was the effort to protect the precious redwood trees, some of them among the world's tallest and oldest living beings, by adding 48,000 acres to Redwood National Park in northern California. At the same time, through grants from the Economic Development Administration, we were able to protect the economic well-being of loggers and mill workers whose jobs were displaced by the expansion of the park.

To protect the Indiana Dunes National Lakeshore, the Northern Indiana Public Service Company—which operates two coal-fired generating plants and is now building a third, nuclear-powered, unit nearby—has agreed to seal its fly-ash settling basins from which an estimated 1 million gallons of water seeped onto the lakeshore each day. Indiana Dunes now has both air and water quality specialists on its staff.

Equally important is the review each year, under the National Environmental Policy Act, of approximately 1,400 Federal projects that could have an environmental impact upon a Park System area. This review results in substantive comments on about 15 percent of the projects.

If an adverse situation is not alleviated to our satisfaction, we can submit the case to the Council on Environmental Quality for mediation. We have done this in two instances, both with favorable results.

The Corps of Engineers' Fire Island Inlet to Montauk Point Hurricane Protection and Erosion Control Project on Long Island called for dredging 5 million cubic yards of sand from off shore to nourish the dunes. Our study revealed that the proposal would cause environmental damage to the natural processes of Fire Island National Seashore, located on the barrier island off the south shore of Long Island, noted for opportunities for beach recreation and ecological observations.

At CEQ's request, the Corps is reformulating its plan, and will work closely with





the Department in analyzing alternatives and carrying out some landmark environmental studies. This work will greatly increase our knowledge of this important coastal ecosystem as well as enable us to protect its ecological, recreational, and economic value to the Nation. At the same time, it will minimize the hazards to life and property associated with coastal flooding and erosion.

The National Park Service and the Corps of Engineers also are working to revise the Corps' Central and Southern Florida Flood Control Project to provide maximum protection to the watershed of the Big Cypress National Preserve and Everglades National Park.

These are examples of our interest in protecting park resources from external threats. Equally important is our concern to protect the environment of our parks from internal threats.

It is important that the park visitor have a pleasing experience. We are working to reduce traffic and other congestion in our national parks. This is a goal, for instance, of the draft master plan for Yosemite National Park. It calls for reduction of facilities and traffic in Yosemite Valley and elsewhere in the park.

We also are moving ahead on environmental education, an idea that has been around for a long time, but one that now has added impetus with the creation of a new division in the National Park Service.

Environmental education will be a role for interpreters at the six parks selected as demonstration sites for energy conservation in the System—Independence National Historic Park in Philadelphia, Grand Canyon National Park in Arizona, Colonial National Historic Park and Shenandoah National Park in Virginia, Fort Sumter National Monument in South Carolina, and Colorado National Monument in Colorado.

The National Park Service hosts almost 300 million visits a year to the Nation's most magnificent and noteworthy natural and cultural sites. The leadership of the agency is dedicated to making it the "flagship of the Federal fleet" in environmental protection.

In this endeavor, it has my full support. The American people, and their future generations, deserve no less. □

Visitors explore the sunken forest in Fire Island National Seashore just outside New York City. (top)

Plane approaches landing strip over Jackson Hole National Park, Wyo. (far left)

Campers enjoy sweeping view at Chilkoot Pass, Sitka, Alaska. (left)



Splendor in the Parks

The great National Primeval Parks of America are examples of the pristine beauty of the continent before the white man came.

They were set up to preserve the most perfect specimens of the natural environment for the enjoyment of present and future generations.

They can be thought of as fragments of the past, but better as symbols of the future of a high civilization within which men will re-establish a fruitful relationship with nature.

When Yellowstone Park was established in 1872, the march of European civilization across North America to the Pacific Coast had already been completed and the railroads had brought agriculture and then cities and industrialization into what had been unbroken wilderness.

More and more units were added to the National Park System during the next 50 years in an effort to preserve outstanding examples of untouched wilderness for the present and future. The National Park Service was created in 1916, and Stephen Mather, the founder of the Service, established the National Parks Association, later the National Parks and Conservation Association, as a private monitor organization in 1919, sixty years ago.

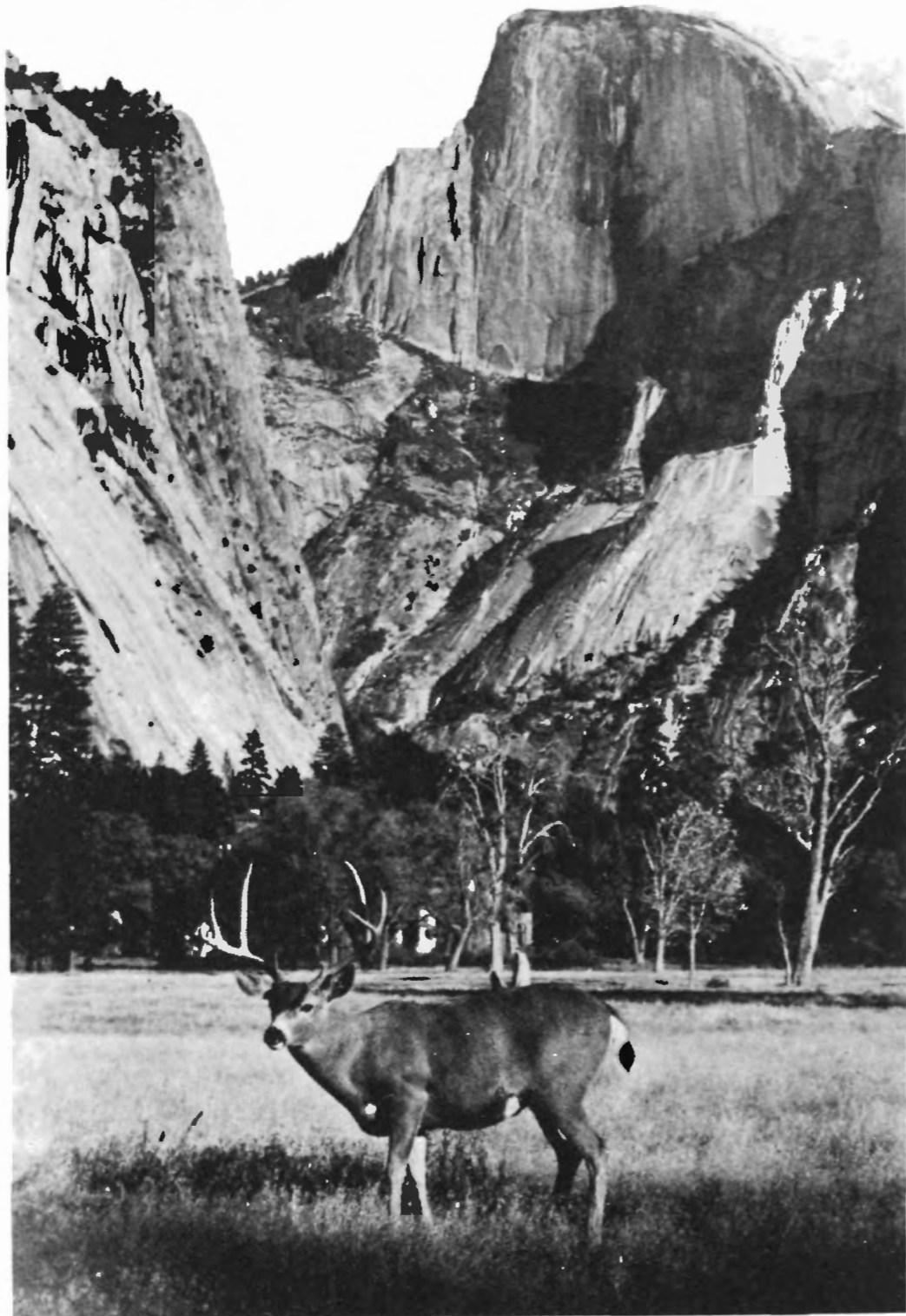
The purpose of the Service, as provided in the Act, was to protect the scenery and the historic structures and artifacts in the parks and to preserve their wildlife while making them available for enjoyment by compatible methods.

The task of preservation has been a difficult one all down the years. Private organizations like NPCA have supported the Service but at the same time served as constructive critics.

Always there were tendencies to build too many roads, and to permit excessive commercial activity by concessioners.

As the Nation grew in numbers of people and as they acquired greater mobility and leisure, traffic increased in the parks to the point where enjoyment of the natural features was impaired for visitors.

Protection can be achieved within the parks by careful planning and management.



By Anthony Wayne Smith

*President and General Counsel,
National Parks and
Conservation Association*

Free shuttles are being established (albeit slowly) to reduce auto traffic. Public transit can be developed from outlying communities into the parks, again reducing traffic.

Facilities can be moved out of the parks and relocated in surrounding communities. Visitation can also be redistributed into the surrounding National Forests, other public lands, and private lands on the periphery.

An effective interdepartmental planning system is needed to accomplish these relocation and redistribution functions. Preferably it should be at the Cabinet or White House level. Operations should turn around comprehensive outdoor recreational regional plans of much greater scope than any plans which can be developed exclusively inside any park.

But after all is said and done as to management and planning within the parks and adjacent public lands, the fact remains that the National Parks are seated within the entire national environmental setting, and cannot be protected without attention to that setting.

For example, one of the problems in the wilderness parks is the deterioration of air quality over the parks. This has been true quite notably in a number of the southwestern national monuments, affected by coal-burning power plants fueled from strip-mining operations on the public domain.

It has been true also in the Boundary Waters Canoe area, threatened with dangerous air pollution from the proposed Atikokan power plant in Canada.

Air pollution problems of this kind can be approached to some extent by raising the standards for air quality on a regional basis, and conservationists have done so. But the great cyclonic storms which move from west to east across the country really do not know any regional boundaries. As air pollution has increased all over North America, and everywhere else on the planet, air quality has declined, regardless of location.

And so, if the National Wilderness Parks are to continue as good samples of the world as it was before the industrial age, and as examples of what it could be in the future, conservationists and environmentalists must tackle the problem of air quality all over the country for its own sake.

The problem of water quality is certainly no different. There is hardly a National Park in America which does not include streams arising from outside its boundaries. As things were going until the American people became serious about water quality, these watercourses were tending toward serious pollution from mining, agriculture, the clearcutting of timber, and municipal and industrial wastes.

There is very little that can be done inside a park about river pollution arising outside the boundaries. Needless to say, the National Park Service can and must control pollution from visitation and facilities inside the park, and where trouble arises on public lands outside the parks, a measure of control can be obtained by interagency planning. But beyond that point, water pollution inside the parks is tied inevitably to pollution in the upstream communities, and the full sweep of the environmental protection laws must be brought into play at that point.

Real estate development is another problem. There have always been inholdings of private land inside the parks which occasioned a great deal of trouble. Adverse uses of these holdings were almost inevitable as efforts to abate them resulted in furious political controversy. These properties are now being acquired, and perhaps the difficulties will be eliminated in due course with fair consideration for the interests of the people involved.

On the other hand, real estate developments are creeping up to the edges of the parks. Long vistas are being destroyed. Air pollution is a consequence. The glare of settlements blots out the stars at night. In many units of the System, particularly those located close to cities, such as the Santa Monica Mountains National Recreation Area near Los Angeles, the pressures of crowding and traffic are destructive. This is part of the picture of the urban sprawl

which is destroying farmlands, woodlands, wetlands, and open space all over America.

Much as they might like to restrict their focus, conservation organizations are constantly relearning the lesson that they cannot protect their special concerns, whether parks, forests, wildlife, wilderness, or whatever, without attention to the general environmental situation within which their peculiar concerns are set.

Wildlife populations, such as, for example, the elk in Yellowstone, move outside the National Parks on a seasonal basis. Most of the parks were not set up on a foundation of ecologically intact regions. And so, when habitat is destroyed by mining, logging, grazing, and agriculture, wildlife in the parks may suffer serious damage.

The long views from high places in the National Parks frequently reach out across the privately owned timberlands. When these holdings are clearcut, the majestic outlooks which characterize the parks are destroyed. Moreover, the secluded nooks in the forests within which campers might enjoy the woods are no longer there to help with the overflow of visitation from the crowded National Parks. Management practices in the forests around the parks affect the parks in both ways.

The silences of wilderness are among the finest experiences in the parks. Few people realize how the noise of the cities has surrounded us in recent generations and changed the entire quality of our environment. The agricultural countryside was a quiet thing, particularly at night, and the woodlands and wilderness beyond it were deeply embedded in silence. The roar of the motors of automobiles, trucks, and airplanes can shatter silence. Noise carries a long distance, and can often be heard in the parks as an intrusion from surrounding communities.

The glare of lights from surrounding towns and cities, now a constant phenomenon all night, rises as an urban aurora into the skies and can destroy the genuine experience of night in the wilderness. Astronomers who struggle to use their big tele-

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Mule deer at Yosemite with Half Dome rising in the background.

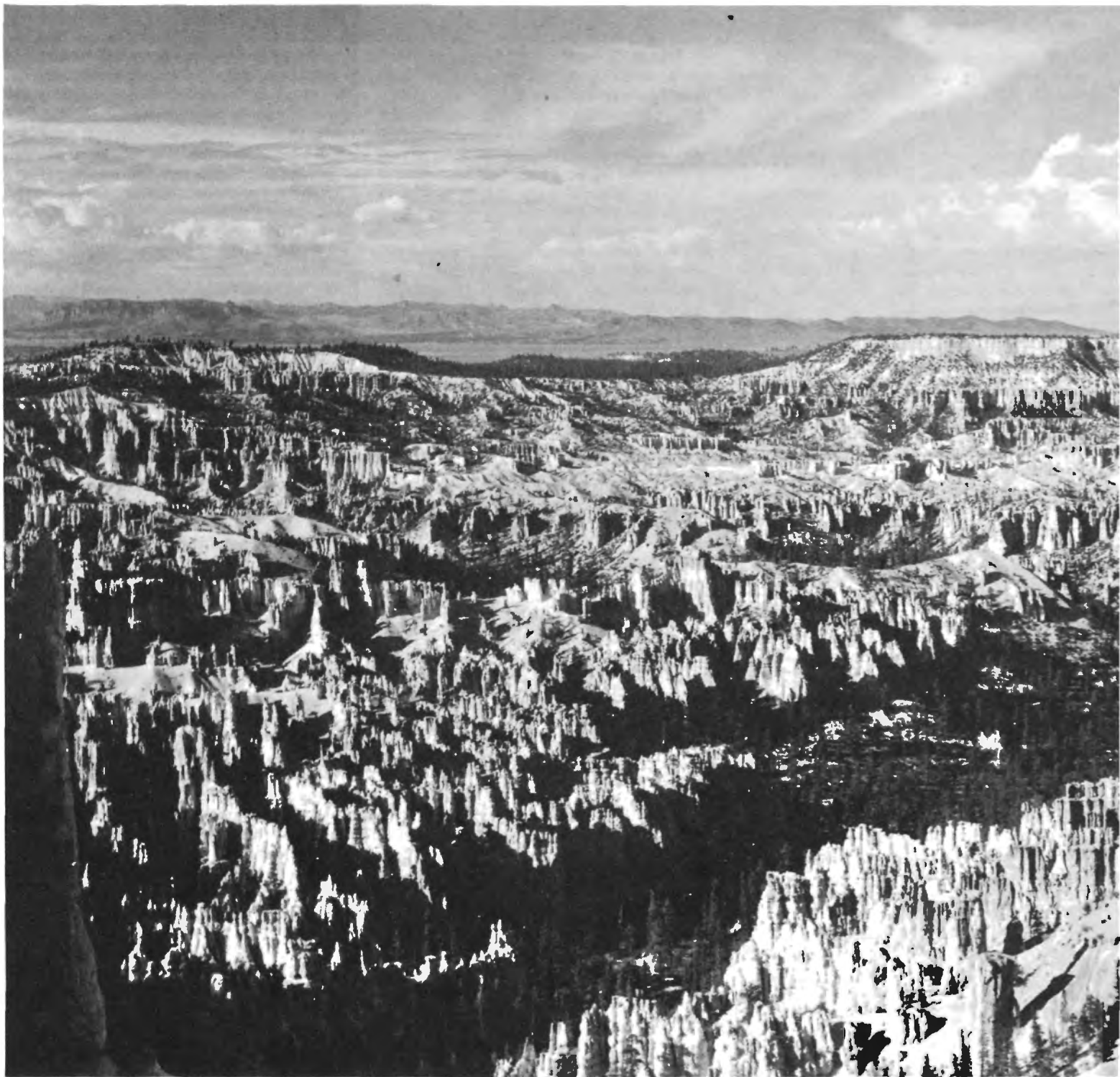
New Coal Standards

By John Heritage

Tighter Federal air pollution standards for new coal-burning electric power plants have been issued, EPA Administrator Douglas M. Costle has announced. These final rules are substantially more stringent than the current standards and will permit greatly increased coal use without increasing national sulfur oxide and particulate emissions.

"These new standards," Costle said, "will help protect air quality by substantially reducing emissions from new coal-fired plants."

Clean air over Bryce Canyon, Utah, enhances vistas.



These rules will, in effect, require sulfur dioxide removal devices called scrubbers on all 350 new power plants expected to be built in the U.S. between now and 1995. Costle said EPA considers scrubbers the best technology available today for controlling sulfur dioxide pollution. These standards, however, do not preclude the use of emerging technologies, which may prove viable for controlling sulfur dioxide in the future.

"Nationally," he said, "sulfur dioxide emissions from the new plants will be

reduced to half the levels allowed by the existing standard. Particulate emissions will be 70 percent lower and nitrogen dioxide will be 20 percent lower."

Costle said the new standards will "allow the country to move forward without disruption to fully develop coal resources while supplying energy growth needs and easing dependence on imported oil."

"It will preserve our options for future growth by not allowing our clean air resources to be consumed by power plants," he said.

All types of coal (high and low sulfur) mined in this country can be burned under the new standards.

In 1975, 647 million tons of U.S. coal were produced. By 1995, under the new standards, coal production will nearly triple the 1975 level. Coal production will increase in all regions of the country compared to 1975 levels.

Under the current standards, utility annualized costs are expected to be \$175 billion per year in 1995; the new standards will increase this annualized cost by \$3.3—\$3.6 billion, or two percent. The new standards will increase the average monthly residential electric bill in 1995 by about two percent over the current standard.

"None of these percentages, of course, take into account the benefits that the public will experience, such as cleaner air, better health, more room for necessary or desirable growth; and the preservation of visibility in the West," Costle said.

The standards contain provisions encouraging the development of control technologies other than scrubbers for power plants. For instance, commercial demonstration permits can be granted to allow less stringent pollution requirements for initial full-scale demonstration plants. If it is found that an emerging technology cannot achieve the applicable standards, but offers superior environmental performance, alternative standards could be established by EPA.

On December 23, 1971, EPA issued the original new source performance standards to limit emissions of sulfur dioxide, particulate matter (dust material) and nitrogen dioxide from power plants.

Since that time, the technology for controlling sulfur dioxide and the other pollutants has improved. Today, emissions of sulfur dioxide (which can irritate the upper respiratory tract and cause lung damage), particulate matter (which can cause breathing problems and respiratory illness), and nitrogen dioxide (which can cause bronchitis and pneumonia) are still a national problem. In 1976, power plants contributed 65 percent of all U.S. sulfur dioxide emissions, 29 percent of all nitrogen dioxide emissions, and 24 percent of all particulate matter.

New Source Performance Standards are issued under authority of Section 111 of the Clean Air Act. This Section requires EPA to set direct Federal emission limitations for categories of industries whose air pollution causes or contributes to the endangerment of public health or welfare.

Each new power plant also undergoes a case-by-case review, in which States can set tougher standards for new power plants than the Federal nationally applicable standards.

David Hawkins, EPA Assistant Administrator for Air, Noise, and Radiation, said EPA expects that tougher requirements may well be imposed in specific cases to provide added protection for national parks and other very clean air areas.

Emissions from major power plants and copper smelters are already harming the view in 12 national parks and recreation areas in the Southwest, says Barbara Brown, air quality program manager for the National Park Service. The parks range from Mesa Verde in Colorado to the Petrified Forest in Arizona.

Visibility in the whole Southwest dropped 10-30 percent between the early 1950's and 1970's, according to a study sponsored by EPA's Environmental Sciences Research Laboratory in Research Triangle Park, N.C.

In the Northeast visibility dropped 10 to 40 percent at suburban and rural locations in this same period, according to another EPA study. The median visual range in the Northeast is now about 12 miles, with summer the worst season for visibility.

In the 1977 Clean Air Act Amendments, Congress designated visibility as one of the treasures to be protected in the Nation's pristine, Class I areas, including many national parks and wilderness areas and some Indian reservations. (The "Class I" status was provided in the Clean Air Act.)

Congress noted that the beauty of a scenic vista can lead to real economic benefits. Said a House Interstate and Foreign Commerce Committee report: "Certain areas of the United States depend upon their intrinsic beauty and historical and archaeological treasures as a means of promoting their economic viability."

"In particular," the report continued, "areas such as the Grand Canyon and Yellowstone Park are areas of breathtaking panorama; millions of tourists each year are attracted to enjoy the scenic vistas."

Administrator Costle said then: "We support the concept in the House bill of controlling emissions from sources affecting visibility over certain pristine Federal lands. This is an important goal. . . ."

The focus is on the West, because it has 75 percent of the Nation's Class I areas.



The clean western air is also the most threatened, due to energy development.

It would be impracticable to revise the national ambient air quality standards to adequately protect visibility over the whole country, the House committee report added. A clear air standard good enough to protect the Grand Canyon probably could not be achieved in New York City.

However, Class I areas in the East are being included under the protective umbrella by EPA and Federal land managers, though the pollution is more complex. Shenandoah National Park in Virginia probably is getting haze from Baltimore, Washington, D.C., and Richmond, says Brown of the Park Service.

Explaining why visibility has become a national concern receiving special attention, Brown says, "Finally everything came together." Kaiparowits highlighted future dangers; Congressional staff learned about existing pollution on their western trip; present approaches to protect the view were inadequate, and environmentalism increased the awareness of visibility's value.

With the new national mandate, EPA will launch the following actions to protect visibility, according to Hawkins:

- Issue a list of Class I areas where visibility is an important value. The Administrator published a proposed list in February, naming 156 of 158 mandatory Class I areas. Not named were Bradwell Bay, Fla., and Rainbow Lake, Wis., national wilderness areas mostly limited to short range views. (Mandatory areas are those designated under Federal law.)

- Make a report to Congress spelling out ways to achieve a national goal of visibility protection. Expected this summer.

- Give advance notice of proposed regulations, including public information meetings. Expected this summer.

- Propose regulations. Expected late this fall. Under the Congressional Act, final regulations must require State air quality plans to take two steps: provide for a long-term strategy for meeting the national goal; require best available retrofit technology on sources less than 15 years old and which are or may be expected to damage visibility.

- Publish the results of three technical support efforts along with the proposed regulations. Included will be a workbook for State and Federal land managers in assessing visibility impact, an analysis of the effects of the proposed regulations, and

guidance for adopting best available retrofit technology on large power plants.

- Issue regulations. Expected in the summer, 1980.

Also, under the Congressional mandate Federal land managers have a responsibility to protect visibility and other air quality related values in Class I areas. For instance, in its Clean Air Act role the National Park Service will review the visibility impact of energy projects now proposed near two western parks, Zion and Bryce Canyon.

Hawkins foresees two main accomplishments from the Federal-State visibility protection effort.

"Over the short term," he says, "we can install very good pollution control technology on existing sources that are affecting visibility—some large power plants for example.

"Over the long term we're going to have to depend on programs to clean up the copper smelters that are operating in the southwestern U.S. and on programs that accommodate growth in a way that minimizes its effect on visibility both by reducing emissions and by sensible decisions on siting."

(Congress exempted the copper smelters from having to install best available control technology in the near term. But Hawkins points out the States themselves aren't precluded from requiring tighter controls on the smelters.)

As they design controls, regulators need to know more about visibility pollution. The physical laws governing the problem are well known. But the intangibles—like the rating a park visitor attaches to a view—aren't. The ability to predict how visibility will be affected by pollution from a certain source is also incomplete.

EPA is helping fill the gaps. Plumes from industry and cities in the Southwest are being tested by plane. The aim is to learn the chemical and optical characteristics of a plume, giving it an identifying signature.

Such details are needed for a model that will do the job of forecasting visibility pollution. It is a crucial step in regulation. EPA scientists from Research Triangle Park are leading the work.

Second, a network of visibility-measuring devices called telephotometers is being set up in national parks in southern Utah and northern Arizona. The object is to provide a yardstick that marks good visibility now and compares it with changes in the future. The EPA Environmental Monitoring and Support Laboratory in Las Vegas is doing the study with the National Park Service.

Meanwhile, the Park Service will study visitor reactions to visibility damage in the parks to define an "adverse effect" as seen by the human eye.

One of the toughest questions facing regulators is how to protect visibility from the hazes of tiny particles one-fiftieth as wide as a human hair. Whether EPA can deal with this problem soon, Hawkins says, depends on making a convincing case that connects specific amounts of sulfur dioxide pollution from a source or collection of sources with specific effects from fine particles far downwind.

Visibility can be improved. A copper smelter strike in the Southwest in 1967-68 showed what could happen. The view improved 5 to 25 percent within 150 miles of the smelters. Sulfate counts dropped dramatically in the Grand Canyon and Mesa Verde national parks 200-300 miles from the main group of smelters.

The view in the Southwest also improved from 1972-76, when strides were made toward the goal of adequate pollution controls on smelters, a preliminary EPA study shows.

Some other air pollution problems will benefit as the view clears up. The hazes that blight visibility can also cause acid rain, erode cultural treasures, and damage soils and vegetation. They may even be affecting global climate.

In high enough concentrations the same tiny particles dimming the view can also affect health. They can elude the body's defense system and penetrate deep into the lungs. "What we see out there can harm us," commented one EPA technician.

Hawkins is optimistic that the current visibility out West can be preserved with the program now under way. Actually improving it where needed will take longer, he says.

It's a major responsibility, the Assistant Administrator adds. "The Federal Government is probably the only institution that the people of this country can rely on to preserve the good visibility that we have. If we let the vistas of the West become discolored and blurred and filled with haze, I don't think that future generations would forgive us and I don't think they should." □

John Heritage is an Assistant Editor of EPA Journal.

Clean Water Bonus

By Chris T. Delaporte, *Director, Heritage Conservation and Recreation Service, U.S. Department of the Interior*

Will people have access to the Nation's waters as they are restored to fishable and swimmable conditions? Will all Americans be able to realize the outdoor recreation benefits these waters will provide?

At the Heritage Conservation and Recreation Service in the Department of the Interior, we believe that the clean water effort can help meet public recreation and open space needs. We are developing practical programs to include people's needs for outdoor recreation in the Nation's water clean-up effort.

Our program is the focal point in the Federal Government for planning, coordinating, and financing public recreation. In fulfilling its Congressional mandate, our agency helps government and private interests to conserve and develop outdoor recreation resources for the benefit of present and future generations.



Garden plots are available at Springbrook. The treatment center is in the background.

Recreation Opportunities at Wastewater Treatment Sites

The billions of tax dollars invested in cleaning up our Nation's waters can simultaneously provide attractive and useful open spaces and opportunities for recreation. Wastewater treatment plant sites offer tremendous potential for public recreation while fulfilling community sanitation needs. Recreation at these sites in turn increases public awareness of and support for water cleanup efforts.

The Clean Water Act of 1977 is a breakthrough in affirming multiple land-use. Under Sections 201 and 208 of the Act, EPA

grant applicants must analyze and identify recreation and open space opportunities that can be expected to result from improved water quality. Grant funds received from EPA for planning specific projects can be used for identifying recreation and open space opportunities at project sites.

EPA and our agency have a program underway to help EPA grant applicants incorporate recreation and open space considerations into plans for sewage treatment plants. A memorandum of understanding signed by Administrator Costle and Secretary Andrus in November, 1978 coordinates the programs of the two agencies. Shortly thereafter, we and EPA jointly sponsored a two-day national workshop in Chicago entitled "Water Cleanup and Recreation." A summary report of the workshop will be available this summer.

Following the November workshop, several Regional Offices of EPA and our agency held strategy meetings to determine how to implement the provisions of the memorandum in their region. Many of the Regional Offices have developed plans to provide technical assistance through regional workshops, training, publications, and demonstration projects.

One example of significant activity in this area is the Southeast region, where we and EPA have generated significant local interest. For instance, a Council of Governments workshop on recreation planning and water quality management was held in Raleigh, N.C., in April for local officials and interested groups.

Several instructional materials prepared by us to supplement this program are now available. These include a Questions-and-Answers pamphlet on Water Quality Management (Section 208) and Construction Grants (Section 201), a brochure that describes implementation of the recreation and open space requirement, and an audiovisual presentation which focuses on incorporating recreation in wastewater treatment planning.

One of the provisions of the memorandum of understanding is that EPA is to assure that State and local water quality agencies consider priorities as stated in the State's Comprehensive Outdoor Recreation Plan. The Recreation Plan establishes the State's policies and objectives for providing recreation resources, and also identifies funding priorities. Preparation of a Recreation Plan also allows a State to receive its apportionment under the Land and Water Conservation Fund.

Land and Water Conservation Fund

The Land and Water Conservation Fund currently apportions about \$370 million annually to the States to acquire land for recreation uses and to develop recreation facilities. The total apportionment to the

States will increase to over \$500 million annually from 1980-1989 under recent amendments.

Land and Water Conservation Fund grants are matched locally on a 50-50 basis, and can be used to provide for recreation at a wastewater treatment facility site by constructing facilities such as access trails, bicycle paths, boat launches, etc. The local match can be in the form of a donation of privately-owned land. The land would not necessarily have to be located next to the facility site, but would have to be located within the municipality's boundaries. Further information on Land and Water Conservation Fund grants is available from the State Outdoor Recreation Liaison Officer or from one of our Regional Offices.

Multiple Land-Use at Wastewater Treatment Sites

The multiple land-use of publicly funded wastewater treatment sites is not new. Many treatment sites have been successfully incorporating recreation and open space into their land-use plans for years.

Examples of sewage treatment plant sites that provide for recreation include facilities in Naperville, Ill., New York City, and Evergreen, Colo. The Springbrook regional water reclamation center in Naperville provides a canoe launch, access trails, picnic shelter, play areas, vegetable plots, and an educational center. New York City's Coney Island wastewater treatment plant leases part of its site to the local boys club, which has installed a football field with bleachers and a roller hockey rink. Two heavily-used tennis courts lie on top of the wastewater treatment plant in Evergreen as a result of a lease agreement between a local group and the sanitation board.

Abandoned treatment plants also offer significant potential for recreation uses. This has been successfully accomplished in



This football team practices on land leased by the local boys club from the Coney Island wastewater treatment plant.

Miamisburg, Ohio, where an abandoned plant was recycled into an innovative playground that provides wading and swimming pools and sandboxes.

Though there have been many accomplishments, relatively few of the 13,000 wastewater treatment plants already constructed in this country provide for recreation. Surely many of the sites these plants occupy, which often involve large parcels of land, could provide dirt trails, paved walk/bikeways, and boat launches if appropriate.

There are another 6,000 wastewater treatment plants in the U.S. currently under construction or planned. There is great potential for these sites to provide needed recreation and open space. Considering public recreation and open space opportunities early in the planning or construction process permits the full exploration of a site's potential. Construction costs are less when recreation facilities are completed at the same time the plant is being built and the surrounding area is being landscaped.

Clean Water and the National Rivers System

The National Wild and Scenic Rivers Act, passed in 1968, affirmed the protection of river resources and the concept of a national system of wild, scenic, and recreation rivers. Four years later, restoring the Nation's waters to fishable and swimmable conditions by 1983 wherever attainable became a national priority through passage of the Clean Water Act Amendments of 1972. These amendments also required that programs that are designed to provide for recreation must be an integral part of the water cleanup effort.

The massive public investment in improving water quality by necessity will shift away from structural water pollution control programs. In the future, water quality management planning and implementation programs will involve land-use determinations as a means of controlling sources of water pollution. Thus, regulating land resources along rivers will be an element of critical importance in the water quality and national rivers system efforts. Both of these efforts will manage virtually the same water and land resources and will use compatible methods to achieve complementary benefits.

Coordinating all Federal, federally assisted, State, and local river management programs represents an exceptional opportunity to achieve environmental and recreational goals, and to do so in a cost-effective manner. We are working on recommendations to accomplish this marshaling of government resources. Some of the recommendations will be included in the Nationwide Outdoor Recreation Plan, undergoing final revision in our agency and due to come out later this year as a Presidential message to Congress.



Local residents use the boat ramps at the Springbrook regional water reclamation center in Naperville, Ill. to launch their canoes.

Urban Waterfront Study

We recently completed an Urban Waterfront Study, which focuses on the present and potential role of recreation and heritage resources in urban waterfronts. The results of the study will be published soon. We are developing recommendations for a national urban policy on these waterfront resources.

There are 415 cities in the U.S. with populations of 50,000 or more. Seventy percent of these cities are located on water; thus the potential for urban waterfronts to meet America's recreation needs is great. These recreation activities not only include water-oriented activities such as boating, swimming, and fishing, but also water-enhanced activities such as picnicking, walking, sunbathing, sightseeing, and playgrounds for children.

Much has been achieved across the U.S. in developing urban waterfronts for recreation uses. In Denver, Colo., the Platte River Development Project, which includes parks, boating facilities, and a 10-mile paved walk/bikeway, is almost complete. The landscaped "River Walk" in San Antonio, Tex., has over 40 different sets of stairs to provide access from street level.

In Ann Arbor, Mich., the Huron River Greenway includes a paved walk/bikeway connecting the central and north campuses of the University of Michigan plus picnic areas and a boat launch. The Point State and Roberto Clemente Parks in downtown Pittsburgh, Pa., contain a museum and miles of paved walkways where the Allegheny, Monongahela, and Ohio Rivers meet.

Urban Park and Recreation Recovery Program

A new Federal program that can offer assistance to urban waterfronts is the Urban Park and Recreation Recovery program. This effort is authorized at \$150 million annually over the next five years to help cities rehabilitate their deteriorated parks and develop innovative recreation programs. The program is administered by our agency, and it emphasizes an *ongoing* commitment to park and recreation planning as a part of the grants process. Its impact on urban waterfronts is likely to be felt for years to come.

The Urban Park and Recreation Recovery program is an outgrowth of the National Urban Recreation Study, conducted by us and others in the Interior Department and published in early 1978. The concept of the new program was included in the President's March, 1978 urban policy message to Congress, and the bill creating it was introduced in May, passed in October, and signed into law November 10. This shows that studying a recognized problem or need of society can result in a tangible program to provide solutions.



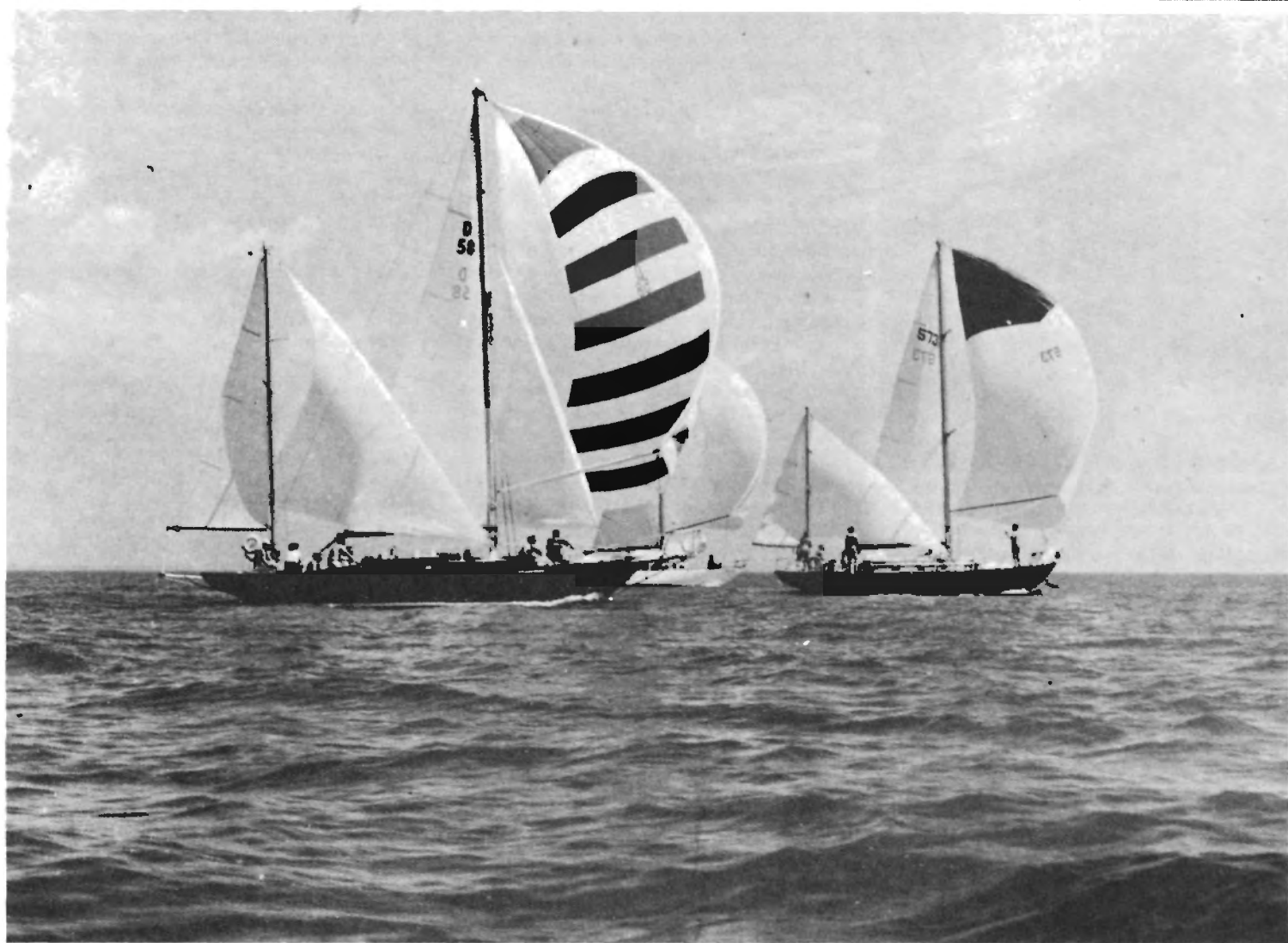
Children romp in an innovative playground built on an abandoned sewage treatment plant at Miamisburg, Ohio.

Conclusion

As the Nation's water quality improves, the value of land adjacent to our water resources will rise sharply. Unless we act swiftly, this could result in many of our waterfronts becoming accessible only to people who can afford the high costs of waterfront homes and docking facilities.

If we do not take action now at our wastewater treatment plant sites, we run the risk of building large facilities that represent an intrusion on public land and provide one singular public benefit. Investing a little extra money, well below one percent of the total cost of a treatment plant, enables these sites to become attractive and useful for other public needs.

Achieving good water quality is essential for ensuring public health and maintaining our environment. The national effort to restore, maintain, and protect our water resources *can* at the same time be harnessed at relatively low cost to meet our public recreation and open space needs. □



Sailboats on Lake Michigan participate in the annual race from Chicago to Mackinac Island.

The Great Lakes Revisited

By Susan Nelson

"It's a matter of time—and gasoline—for us," says a young Milwaukee attorney who takes three children and a dog along when she and her husband plan weekend getaways. "Going to one of the Great Lakes is perfect for four days of camping and fishing. We can drive, and I don't think we'll ever run out of new beaches and coves to explore."

A retired Michigan couple who shuddered along with most of the Nation 10 years ago at the thought that Lake Erie, and perhaps all of the Great Lakes, was about to die, admit they bought a boat and began sailing to the tiny fishing villages that

abound along Lakes Michigan and Huron for just that reason. "We decided we'd better see these Great Lakes we've always been so near before they succumbed to aging . . . or we did. And you know what? The people we've met who live along them—Swedes, Indians, Germans, Canadians, even 'old salts' like us—are friendly, and they always seem genuinely concerned about cleaning up pollution problems that remain."

"We give a damn about that lake, I'll tell you that," says a steelworker in Gary, Ind. A member of Local 1010, United Steelworkers of America, he grows passionate when he speaks about Lake Michigan and the Environmental Committee his union has formed. In his part of the country at this time of year, fishing is the chief participatory sport, and one of his committee's activities involves taking members' complaints—perhaps about a steel mill's illegal outfall—to Region 5 EPA and then following up on corrective measures, from the inside. "So far, so good," he says. "The cohos and chinooks and lake trout that are

stocked each year are responding to cleaner waters."

Recreation is booming along the Great Lakes. It follows on the heels, and perhaps on the promise, of EPA's efforts to maintain and restore the U.S. share of the lakes' 65 trillion gallons of fresh water, a whopping 95 percent of the fresh water in the United States and the largest reservoir of drinkable, navigable water in the world. As word of cleanup efforts and successes spreads, scientists from governments around the world are coming to talk about the Great Lakes and to see for themselves what advances are being made in controlling pollution. The visitors say such information is invaluable for helping them to go home and save their own fresh-water lakes.

What, then, about these Great Lakes? One thing is sure: Even the people who live along them aren't reeling from an overdose of knowledge about them. Dr. Wayland R. Swain, head of EPA's Large Lakes Research Station on Grosse Ile, south of Detroit, tells a story about an open house he and his staff held last December.

"Probably a thousand school children



Couple strolls the shore at Indiana Dunes National Lakeshore.

Four National Lakeshores of the Department of the Interior are located on the Great Lakes. Pictured Rocks National Lakeshore, on Lake Superior near the Upper Peninsula of Michigan; Apostle Islands National Lakeshore, on Lake Superior near Bayfield, Wis.; and Sleeping Bear Dunes, on Lake Michigan along Michigan's lower peninsula, all provide thousands of acres for camping, hiking, and exploring.

The fourth and smallest, Indiana Dunes National Lakeshore, however, has one thing no other place in the country can claim—service by the Chicago, South Shore & South Bend Railroad, the very last of the Nation's all-electric, interurban railways.

Preserving the train, which carries 4,000 commuters each weekday, became a concern of environmentalists within the last few years because the South Shore's "parent," the Chessie System, asked permission from the Interstate Commerce Commission to suspend passenger service.

EPA's Environmental Impact Statement found that such a suspension would adversely affect the already poor air quality along its south Chicago route. A record number of riders and sympathizers turned out in subzero January weather for hearings, and the little interurban with its 50-year old cars won a reprieve.

Last summer, shortly after mass transit plans to share funds for new rail cars were announced, environmentalists won another battle. They were able to convince railroad officials to permit a gravel-topped flagstop for South Shore riders who wanted to head to the National Lakeshore without using autos that would pollute the dune grasses and wetlands.

Flagstop service continues this year, depositing passengers just across the street from the park's visitors' center, within walking distance of several historic farm buildings and Lake Michigan's shores. □

came through, around 4th grade through high school. As they started the tour, we asked them if they could name the lakes. How many do you think could name all five?" From his face you know it wasn't many.

"Three," he says, still a bit taken aback. He adds, "As a group the kids could name them all." He doesn't add that surely, after an hour's tour explaining the Great Lakes ecosystem and how it works, along with a bit of history about the lakes, the names Superior, Huron, Michigan, Erie, and Ontario will be permanently imprinted.

Sometimes called the world's eighth sea, they have formed a necklace strung across the top of North America since the glaciers receded some 12,000 years ago. The five lakes work as a system: Whatever finds its way into Superior, for instance, slowly but surely finds its way into Lakes Michigan/Huron and Lake Erie, the Niagara River and Lake Ontario and, an estimated six or seven hundred years later, into the Atlantic Ocean via the St. Lawrence Seaway.

There is much more to know about these mighty inland seas:

- Since 1972, when the U.S. and Canada signed the Great Lakes Water Quality Agreement (amended and re-signed in 1978), nearly \$4 billion has been spent on the U.S. side for new and improved municipal wastewater treatment facilities. U.S. industry has also spent a substantial, if undetermined, sum to effect a cleanup as required by law.

- The eight States located along the Great Lakes' 4,039 miles of U.S. shore—Minnesota, Wisconsin, Illinois, Indiana, Michigan, Ohio, Pennsylvania, New York—also share in the cleanup of the Great Lakes. So do some 80 counties and many municipalities, as well as a growing number of universities and a dozen or so Federal agencies in addition to EPA.

- While Canada shares the Great Lakes, she may seem to have more reason for concern about their caretaking: Although an estimated 20 percent of the U.S. population lives along the lakes and in the Great Lakes Basin, nearly 60 percent of Canada's population lives on the northern border of these lakes. Canada also may seem to respond more quickly to Great Lakes problems: While the lakes are unevenly divided between the eight States that border them (see box), in Canada it is primarily the Province of Ontario that is concerned with Great Lakes matters.

- The Great Lakes are the reason the Midwest became the steely spine of the United States. Iron ore from the shores of Lake Superior and limestone and coal from other lakes' shores were barged to either the south end of Lake Michigan or to the eastern shore of Lake Erie. Mining, com-

mercial fishing, paper mills, wineries, and fruit growing—all furthered settlements along the Great Lakes, where one-fourth of U.S. industry now is located.

- The Great Lakes are obviously the agricultural outlet for America's heartland. Grain has been a commercial cargo on the Great Lakes since 1678. And it was grain shipped across the lakes in 1973 that stimulated trade with the USSR.

- Navigation and commerce on the Great Lakes are a significant, if little considered, use of the lakes. The Soo Locks, which lie between the twin cities of Sault Ste. Marie, Mich. and Ontario, handle more tonnage per year than do the Suez and the Panama canals combined.

- The Great Lakes moderate climate, just as mountain ranges and oceans do. The lakes have sudden fogs and 10-foot waves that can turn uneventful cruises into savage encounters with unexpected rocks and sandbars.

Yet, despite their capricious weather, the Great Lakes are once again growing as tourist attractions. They used to be popular vacation spots when people traveled close to home. Great Lakes passenger ships plied the waters regularly. But as people's tastes became more exotic the Great Lakes began to lose out. Interstate highways cut off the small, quaint hotels and communities along the lakes. And, by the late 1940's, sea lampreys had all but devastated the lake trout and other sports-fish populations, just as commercial fishing had nearly wiped out freshwater sturgeon and considerably thinned lake whitefish populations.

By 1959, when the St. Lawrence Seaway opened, silvery alewives were being noticed in the Great Lakes. Since they no longer were hunted down by the larger fish



EPA scientist on board EPA research vessel is drawing water quality samples from the Great Lakes.



Bathers flock to the shore of Lake Michigan from downtown Chicago.

such as lake trout, which had fallen victim to the rasp-mouthed lampreys, the alewives were nearly responsible for choking off the tourist business that remained. During several summers they clogged water intakes of the cities, such as Chicago, that take drinking water from the lakes. The stench from the alewives rotting by the thousands on beaches and in the shallows made swimming and boating unappealing. The Great Lakes lifestyle lost its appeal, and the tourist industry continued its decline.

However, conditions are now improving. The Great Lakes Fishery Commission, founded by U.S.-Canadian Convention in 1955, was given the sea lamprey and associated problems to solve. After lampricides were applied to the lakes, salmonids—lake and other trout and Pacific salmon such as cohos and chinooks—were planted in the waters. Alewives became their food,

controlling part of that problem. The States also began to use the harvest of alewives for fishmeal and other products.

So, on one level, it is fishing that has brought about the rebirth of Great Lakes recreation. Lake Michigan is probably the best example. In 1966 the State of Michigan first stocked a full range of sport fish, beginning with 660,000 coho salmon. By 1977 Michigan stocked 2.3 million cohos; the other Lake Michigan States brought that year's total of coho fingerlings to 3.087 million.

How many were caught? In 1975, the last year for which statistics are available, Lake Michigan yielded close to six million fish to anglers: nearly one million cohos (and half a million chinooks), a million trout of various colors, and three million yellow perch among them. Lake trout, which the Fishery Commission hopes to see be-

come the mainstay of the Great Lakes, have been planted nearly 6.9 million strong since 1976.

And sport fishing, including tackle and lodging, licenses and boating equipment, has become what is said to be a \$500 million industry along the Great Lakes. It is growing rapidly, and as new areas of the lakes or their tributaries become clean enough to support young fish, the sport expands again. (Commercial fishing, which now amounts to an estimated \$100 million industry, has taken a back seat to the boom in fish-stocking programs for sport fishermen and fisherwomen.)

Something else has been restricting fishing, and that of course is toxic substances. New York State imposed a ban on fishing in the Niagara River and Lake Ontario in 1976, after the pesticide mirex was found to be seriously contaminating those waters. Coincidentally, the economic impact of that ban was logged by Tom Brown, a Cornell University research associate who had begun a study in 1973 of New York's stocking program in the Salmon River, which flows into Lake Ontario.

Between 1973 and 1975, the study reveals, local purchases related to fishing along the Salmon River jumped from \$61,000 to \$440,000. In 1976 they dropped, just as abruptly, when the pollution-related ban cut in half the number of fishermen who returned.

Although statistics are not so specific for other Great Lakes fishing areas, it is known that PCB's, which continue to be found in lake trout and larger fish of other species in the Great Lakes, may be dampening the enthusiasm of would-be fishermen and women. PCB's have ravaged the commercial fishing industry; they will very likely be found to be holding back further development of the sport fishing industry, too.

Business Week recently reported that the FDA's consideration of lowering allowable PCB levels in fish from 5 parts per million to 2 ppm means a "growing threat to Great Lakes fishing" and predicted \$18 million in losses for commercial fishing.

Facts About The Great Lakes

Maximum depth, by lake (in feet)					Miles of shoreline, by state
<i>Superior</i>	<i>Huron</i>	<i>Michigan</i>	<i>Erie</i>	<i>Ontario</i>	Minnesota 180 (Superior)
397	281	229	64	237	Wisconsin 785 (Superior, Michigan)
					Illinois 63 (Michigan)
					Indiana 45 (Michigan)
					Michigan 2,232 (Superior, Huron, Michigan, Erie)
					Ohio 312 (Erie)
					Pennsylvania 51 (Erie)
					New York 371 (Erie, Ontario)
(from <i>New York Times Encyclopedic Almanac</i> , 1970)					

The resulting loss in sport fishing could also be major.

Most of the eight Great Lakes States issue advisories on the consumption of fish caught in those lakes. These advisories vary: They are based on each State's samples and analyses, as well as on EPA and FDA tests. They also vary because some States are more cautious than others, just as some fishing enthusiasts are more worried about PCB's than others. If a general rule emerges, it is to limit to one meal a week large fish caught in the Great Lakes, and to trim away the fat in which PCB's accumulate. In several States pregnant women and preschool children are advised to avoid Great Lakes fish altogether because of possible PCB contamination.

Regardless of fears and warnings about toxic substances in fish, the sport of trying to catch a fish has turned Great Lakes boating into big business. Having a boat means being able to get off shore, bridge, or pier and onto the waters with the inlets and rocks that the choicest fish prefer. And boating is the most lucrative aspect of recreation on the lakes, with an estimated rate of growth of 10 percent a year.

For instance, in New Buffalo, Mich., not far from Chicago, a marina that accommodated 250 boats in 1973 today has twice that many slips—and a waiting list of 300. The Buffalo, N.Y. harbor master has said that he gets three times as many requests for moorings as he can provide. In Chicago, moorings are so highly prized that bribes to get them (reportedly up to \$3,000 a season) not too long ago landed a string of park district waterfront employees in jail. The story is the same all over the Great Lakes: There are more boats and people who want to buy boats than the shores of the lakes can handle.

Shore properties, which were generally owned by wealthy families, are slowly coming onto the market. If the buyers are not real estate developers cashing in on the market for lakeside condominiums, they tend to be government agencies, which buy the land in order to convert it to public-access use—boat launches, harbors, parks, beaches, whatever.

The need for marinas is also great. Marinas offer pump-out sanitation facilities, which several Great Lakes States now require to protect water quality.

And swimming in the Great Lakes? The appeal varies. Chicago, whose entire lake-front is a tawny-sand beach, is packed with sun-seekers from the earliest warm day of the year to the last. But many of the areas along the Great Lakes that are open to the public have rocky shores or high bluffs—or beaches that have suffered serious erosion.

The waters themselves not only have undertows but also temperatures that are too chilly most of the summer for any but the hardiest swimmers.

Pollution gave Great Lakes beaches a bad reputation. Pollution also probably explains the number of swimming pools to be seen in the yards of homes in wealthier residential areas anywhere on the lakes.

But even the beach situations are changing. Sterling State Park beach in Monroe County, Mich. opened again in 1978 for the first time since 1961: Homes in a nearby township were finally hooked up with a newly completed sewer system. Beaches north of Chicago, in some of the Midwest's wealthiest suburbs, were customarily closed after heavy rains until last summer, when the North Shore Sanitary District completed its system to protect Lake Michigan from pollution. Only the State of Ohio hasn't acted to ban high-phosphate detergents from Lake Erie.

There are still a few exceptions to the rule of improvement, notably in the Milwaukee area and in sections of Indiana, both on Lake Michigan, near Saginaw Bay on Lake Huron, and along Lake Erie, near Cleveland and in Dunkirk and Cedar, N.Y.

But the beaches are improving. The editor of a Chicago publishing company who grew up near Chautauqua Lake, N.Y., tells an experience shared by many. She begins by remembering family trips to Lake Erie for several weeks each summer during the late 1940's and early '50's.

"Suddenly—it must have been around 1956," she says, "the beaches were closed. The water looked gray. People talked about unsafe conditions and disease, and even the fishing boats where we used to buy smoked fish were abandoned."

Two summers ago she returned home for a visit and decided to take her two young nephews swimming to an inland lake nearby. "My parents asked if I didn't want to take them instead to Lake Erie. I was amazed. All this time, I had thought it had died. But the water looked clear; we could see bottom. Fish are coming back; we saw fishermen hauling them in. The beaches are open again. Even the smoked fish are being sold again."

Meanwhile, findings of the Great Lakes National Program Office, located in Chicago, suggest that some of the efforts to stop and to contain Great Lakes pollution seem to be working. □

Susan Nelson is a writer-editor with the Great Lakes National Program in EPA's Chicago Regional Office.

Splendor In the Parks

Continued from page 17

scopes in the vicinity of cities like Los Angeles understand the problem. Conservationists should get together with astronomers to focus all this light on the ground, not the sky. In any case, it shows how the parks are seated within the entire environment.

The Historic Parks, including the battlefields, are in many ways the greatest sufferers from the advances of traffic, sprawl, and industrialization all around them. Established as rural areas where historic events occurred, they once looked out upon rolling countryside with a background of wooded hills or snowy mountains. Now all too often the view is one of city streets and tall buildings, and at night the vista is ablaze with glare.

In brief, the present problems of the National Park System arise not so much from difficulties of internal management, nor the management of the public lands around the parks, but from the deterioration of the natural environment everywhere in the Nation. This comes down to the need for strict regulations and strict enforcement in respect to air pollution. Environmentalists are not likely to stand still very long for any substantial retreat from high national standards. You could say that people are not about to go on being poisoned by dirty water or smothered by foul air. This is probably going to be a fundamental attitude, and one not likely to be softened very much by pleas for compromise.

It also means that we have to get urban sprawl under control. The protection of all our farmlands, not merely prime lands, will be imperative as food shortages develop at home and abroad as a result of proliferation. The policies of EPA looking toward restrictions on sewage facility grants, which merely lead the way toward sprawl, will help to get scatterization under control. Another approach could be a restraint on subdivisions by limitations on on-lot disposal systems, to prevent build-ups resulting later in the need for costly sewers and treatment plants. Federal assistance of many kinds could be conditioned on the enactment of suitable local ordinances. We might save a bit of the countryside that way; a buffer zone could be established between the cities and the wilderness parks.

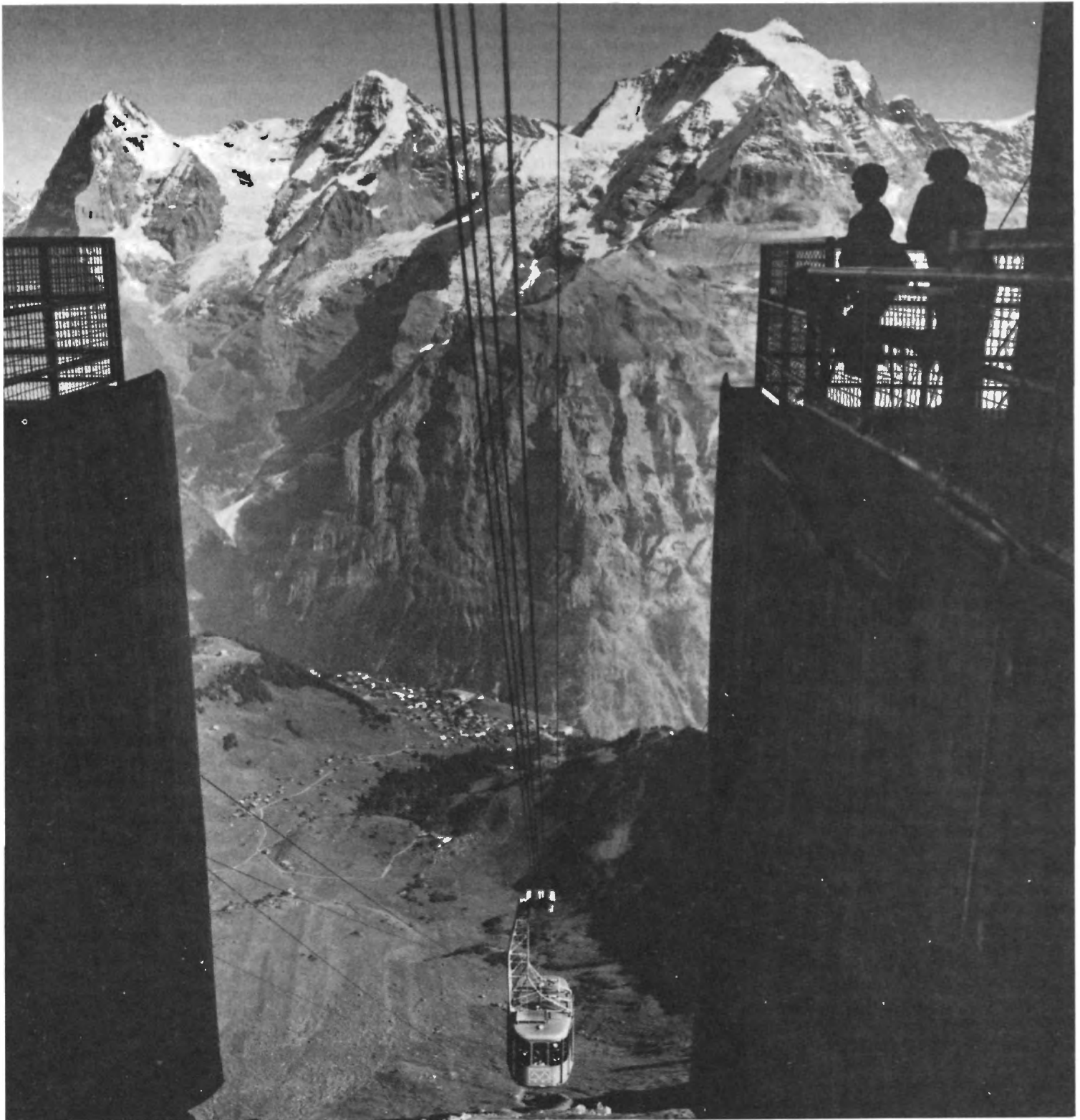
Assuredly, the parks are set within the entire national and continental environment. Only when Americans resolve to restore a natural setting for their lives in every respect, will primeval conditions be restored and protected permanently in the National Parks. □

Environment and World Tourism

By Dominique Larre

Teams of mountaineers climbing Annapurna or Mount Everest, visitors to the Pyramids in Egypt, pilgrims to Lourdes and Mecca, and yearly participants in Germany's Wagner Festival are examples of the variety of reasons that people travel.

Increasing numbers of citizens from the richer countries use part of their income and leisure to escape polluted cities and seek better climates, clean beaches, beau-



Many tourists travel to Switzerland for mountain views such as this, at the village of Murren.

tiful landscapes, historic sites, and different people. These tourists benefit from cheaper, faster, and safer transportation, and a growing variety of accommodations, managed by the tourism industry.

Pleasure travelers fall into two categories: "sunlust" and "wanderlust." The "sunlust" tourists are stay-at-homes at heart and seek lodgings as close to their environment as possible. The "wanderlust" tourist is more likely to hop around in search of extraordinary experiences. The tourism industry can satisfy both customers, but the "sunlust" type is more easily pleased in large numbers.

There are two types of regions where tourism can have an adverse impact: areas where facilities are satisfactory for the local population, but insufficient for large numbers of visitors, and places that lack the bare necessities.

Priorities for environmental concern also vary greatly from country to country. In heavily industrialized countries, visitors worry about the potential long-term health risk of toxic substances in otherwise safe drinking water. In some less-developed countries, the most urgent environmental concerns are the basic sanitation problems that Europe and North America solved during the nineteenth century. Recently, environmental protection as it relates to development has expanded from the simple idea of industrial pollution control to a broader concept that includes natural and social issues.

Because of the many forms of tourism, and of priorities for environmental concern, the relationship between tourism and environment is complex and still far from fully understood. Several individuals and institutions have analyzed the relationship between tourism and environment. Professor Jost Krippendorf, Director of the Swiss Tourism Federation, has written a book on tourism that parallels the role of Rachel Carson's "Silent Spring" in environmental matters. In 1975, the Economic Commission for Europe convened a symposium on the relationship of the environment and tourism.

In 1976, the International Office for Social Tourism held a seminar on tourism and environment in Tunis. Mohamed Tangi, a planning officer for the United Nations Environment Program, reported on tourism aspects in *Ambio*, the Swedish environmental magazine.

Development Forum published two articles by Jacques Buguicourt, Director of Environmental and National Development in Africa, Dakar. The Centre for Transnational Corporations has launched major studies on the subject. The Organization for Economic Cooperation and Development Council may soon consider a recommendation on environment and tourism. The following briefly summarizes the major issues and recommendations.

Issues

First, a sound environment is necessary to attract tourists. In spite of their enormous potential, developing countries still attract relatively few tourists. Studies have shown that likely visitors may be put off by the feeling that environmental sanitation is insufficient. They have a particular fear of intestinal diseases, and of the common diarrhea complaint called "turista," a term reflecting insufficient medical understanding by natives of the problem.

Excellent guidelines on sanitation for tourism are available from the World Health Organization, but implementation is hardly possible in many countries, without overall improvement in the quality of life for the whole population.

Second, tourism is based on enjoyment of a clean environment, where it is still available, by people from urban areas whose environment has been degraded. But the industry that attracts these tourists is self-defeating, since it builds, for example, cities on the beach to accommodate them. While tourists help give a monetary value to the conservation of rare wild species or historic monuments, too many hordes of them visiting national parks or famous sites can endanger protected areas. Some 1,500,000 visitors—i.e., 3 million feet—were tramping around the Parthenon in Greece every year before protection measures had to be taken.

Third, the tourist industry is accused of ignoring the fragility of the local social structure that must adjust to tourists. Social relations are less resilient than natural ecosystems. As major economic benefits of tourism escape the poorer, local population, the people can become hostile or servile to visitors. In developing countries, though tourism helps transmit modern ideas, the tourist's idleness and extravagance may well lure natives away from their traditional, hard-working lifestyles, which are needed for future development.

Recommendations

The first environmental concern for tourism is space. Any sound tourism policy starts with land use planning. Classification is the tool. Some part of a country or a region should be set aside for relaxation and recreation.

Once primary recreation areas are set, they can be preserved by prudent and balanced management of other development which could encroach on them. Each country should choose legal and institutional patterns to achieve this effect.

Actual siting of tourist facilities should not be decided without careful consideration of environmental criteria. Water resources are particularly sensitive to tourist activities.

The local population must have a major role in decision-making on tourism-related issues: Where should facilities be located? How big should they be? Well-planned tourism also requires a careful evaluation of costs and benefits.

Governments must coordinate investments in facilities for tourism with major development plans, particularly with road-building and sanitation.

Developers must create a careful balance between excessive concentration of tourist housing, which can create skyscrapers in formerly pristine areas, and excessive dispersion, which leads to suburban sprawl. The protection of wooded areas is particularly important.

The automobile is a friend of the tourist when properly controlled. Regulation is only one of the available tools to prevent environmentally harmful auto use that can result in air pollution, noise, and road accidents. In the most important historic sites, a combination of investments in good approach and bypass roads will be necessary.

Concern about the social dangers of tourism does not mean opposition to real intercultural contact. Countries such as Canada, Tunisia, and Turkey have made sophisticated attempts to develop tourism without destruction of the social environment.

It is unsound to develop tourism to the point where the local population has become too busy to be hospitable. When tourists spend vacations with local families, the presence of foreigners can change lifestyles without a brutal breakdown in the local social fabric, but this is difficult to do with an entire industry.

One of the greatest risks to the environment where tourism develops is the spiral of real estate speculation. The establishment of a public agency to control the purchase and sale of land can do much for environmental protection. So can efforts to guide architectural designs, using local materials and designs which blend in with the surroundings.

The United Nations works toward defining and implementing environmentally sound tourism by publishing various documents (listed below) and through training seminars, institutions, and agencies.

The World Health Organization has been most active in the sanitation field, and the U.N. Education, Scientific, and Cultural Organization for the social aspects. The

U.N. Environmental Program has concentrated on introducing tourism elements into environmental management in its regional seas programs, and particularly in action plans for the Mediterranean and the Caribbean. UNEP and the World Tourism Organization (WTO) have taken steps to formalize their understanding and agree on common goals regarding environment and tourism. UNEP plans to support WTO concerning environmental matters at the 1980 World Tourism Conference.

The most farsighted elements of the tourist industry have been closely associated with these environmental efforts. The industry is attempting to reassess the positive as well as the potentially harmful environmental and social impact of its activities. No industry can expect a solid economic foundation unless it serves the social aim of improving the quality of life of all the population.

Renewed local hospitality is a healthy sign to look for in areas where the tourist industry dominates. It is not likely to be found unless the values, policies, objectives and programs of the industry incorporate environmental considerations in the planning stage. □

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Additional information on tourism and the environment is available from the following sources:

United Nations
Public Inquiries
United Nations, N.Y. 10017

(1) The Role of Transnational Corporations in International Tourism, a preliminary survey, by John A. Dunning and Matthew M. McQueen, draft report for the Center for Transnational Corporations.

(2) Economic Commission for Europe. Planning and development of the tourist industry in the ECE Region, United Nations, New York, 1976.

(3) Development Forum, June-July, 1977 and August-September, 1977 issues.

United Nations Environmental Program
Information Office
United Nations, N.Y. 10017

(1) United Nations Environment Program. Review of the areas of environment and development, and environmental management. Document UNEP Report No. 3 (1978)

(2) Mohamed Tangi: Tourism and the Environment, AMBIO, Vol. 6, No. 6, pp 336-341. □

June 5 was World Environment Day. Many countries held ceremonies to commemorate the occasion, in cooperation with environmental organizations, conservation societies, and public interest groups. The day was highlighted by an official State observance in California, activities planned by the United Nations Association in Chicago, and by a formal statement from the United Nations in New York City.

The world-famous Parthenon has been attracting visitors in Greece for centuries.



People

Of the 27 new appointments to division director posts in EPA's 10 Regional Offices, two-thirds were promoted from within EPA.

William Drayton, EPA Assistant Administrator for Planning and Management, said that the appointments were made after examining applications from 2,000 men and women within and outside the Federal government. The number of promotions from within the Agency, Drayton said, "reflects the exceptional quality of EPA's professional staff."

He added that of the 27 appointments, six are women and three are minorities. "These appointments," Drayton said,

"represent a strong commitment to equal opportunity employment as well as our intent to employ the highest caliber personnel we can find, both in and out of government. The fact that so many existing EPA managers competed for, and were selected for, these positions is truly impressive."

The new directors are:

Region 1

Charles W. Murray

Water Div.

Merrill Hohman

Air and Hazardous Materials Div.

Leslie A. Carothers

Enforcement Div.

Region 2

Barbara Metzger

Surveillance and Analysis Div.

Conrad Simon

Water Div.

Region 3

Greene Jones

Water Div.

Stephen Wassersug

Air and Hazardous Materials Div.

R. Sarah Compton

Enforcement Div.

Region 4

Paul Traina

Water Div.

Sanford Harvey

Enforcement Div.

Region 5

William H. Sanders

Surveillance and Analysis Div.

Sandra Gardebring

Enforcement Div.

David Kee

Air and Hazardous Materials Div.

Charles Sutfin

Water Div.

Region 6

Myron Knudson

Water Div.

Diana Dutton

Enforcement Div.

Allyn Davis

Air and Hazardous Materials Div.

Region 7

Allan Abramson

Water Div.

Louise Jacobs

Enforcement Div.

David Wagoner

Air and Hazardous Materials Div.



Charles W. Murray



Merrill Hohman



Leslie A. Carothers



Barbara Metzger



Conrad Simon



Greene Jones



R. Sarah Compton



Paul Traina



Sanford Harvey



William H. Sanders



Sandra Gardebring



David Kee



Myron Knudson



Diana Dutton



Allyn Davis



Allan Abramson



Louise Jacobs



David Wagoner



Robert L. Duprey



Frank M. Covington



Clyde Eller



Lloyd Reed



Robert S. Bard



Douglas Hansen

Region 8
David Standley
Water Div.
Robert L. Duprey
Air and Hazardous Materials Div.

Region 9
Frank M. Covington
Water Div.
Clyde Eller
Enforcement Div.

Region 10
Lloyd Reed
Enforcement Div.
Robert S. Burd
Water Div.
Douglas Hansen
Air and Hazardous Materials Div.

An Individual Learning Center opened recently at EPA Headquarters. The facility uses programmed instruction packages, which allow the student to control the rate of material presentation. The Center features a variety of training equipment for video cassettes, audio tapes, and other types of programmed instruction. Initially, courses are available in the scientific and technical, managerial, communication, office skills, and general interest categories. The Individual Learning Center is open 9 a.m. to noon and 1:00-3:30 p.m., Monday through

Friday. EPA staffers can get more information on the courses available by reading the "EPA Headquarters Training Catalog for the Individual Learning Center", which has been distributed to Headquarters managers and supervisors. Interested regional and field employees may request copies from the Headquarters Training Center staff on (8)-245-3062. Use by employees of the Individual Learning Center for continued career growth and advancement is being encouraged by the Personnel Management Division.



Stephen Wassersug



Charles Suttin



David Standley

ACT '79 visitor Rosalynn Carter observes wood burning power generator with Congressional and Washington, D.C. officials.



Gwen Proctor, a secretary from the Office of Public Awareness, views a tape in the Individual Learning Center.

"We need to regain some control over our lives," said Mrs. Rosalynn Carter. The President's wife was visiting a model community on the Mall in Washington, D.C. The self-reliant and environmentally clean town was set up for four days in late April by ACT '79. The community was powered by the sun, the wind, and human labor. EPA was a major participant, emphasizing resource recovery and helping with waste recycling and other conservation steps.

Several hundred exhibitors and speakers joined in the celebration of old-fashioned American ingenuity. Sponsored by the National Park Service and the District of Columbia Cooperative Extension Service, ACT '79 was conceived by an independent board of directors. ACT '79 stands for appropriate community technology—small, decentralized, economically feasible methods.

1

REGION

Permit Issued

Region 1 has approved an air quality permit for the Boise-Cascade Corporation to build a new recovery boiler and smelt tank at its pulp mill in Rumford, Me. EPA determined that the new facilities will not result in significant deterioration of air quality. In accordance with regulations for preventing significant deterioration the Regional Office reviewed air quality data and projected impacts of the facilities and found that ambient air quality standards will not be violated. When the new facilities are completed, Boise-Cascade will retire two older boilers, resulting in a net reduction of suspended particulates, reduced sulfur compounds, and sulfur dioxide.

Ecology Awards

EPA's Boston office recently gave awards to winners of its seventh annual Elementary Education Ecology Poem and Poster Program. Teachers of grades kindergarten through six who participate in the program spend time discussing environmental problems with their classes. Students then create poems or posters about what they have learned. The teachers select two outstanding entries from each class and send them to EPA for judging. This year more than 3,500 teachers representing over 100,000 elementary school students participated in the program.

2

REGION

Waste Sites Listed

EPA recently released a report that lists 215 waste disposal sites in Erie and Niagara Counties of New York. The report, compiled by a Federal and New York State Inter-agency Task Force on Hazardous Waste, pinpoints 36 sites known to contain large amounts of poisonous, carcinogenic, or radioactive wastes. Hooker Chemical Co. owned or operated 24 of these 36 high priority sites. EPA investigated waste disposal as practiced by Federal agencies for over 30 years in the two counties, which receive more than half the waste generated by heavy industry in New York that is disposed of in landfills.

Ban Enforced

Newspaper surveys of retailers in Long Island, N.Y. showed that 17 of 62 retail stores were still selling products containing 2,4,5-T and Silvex despite EPA's temporary suspension of those substances. According to Dr. Stanley Fenichel, chief of the pesticide branch, consumers complained to the Region 2 office after newspaper articles, and TV and radio segments showed that stores were ignorant of or defying the suspension. Pesticide inspectors acting on these tips contacted the stores allegedly selling these products and were told that the pesticides would be removed from sales shelves immediately and stored until further notice.

3

REGION

Noncompliers Named

Region 3 has announced the names of 22 water suppliers in the Commonwealth of Pennsylvania that have failed to comply with the Safe Drinking Water Act by notifying EPA of the results of drinking water monitoring tests. EPA is concerned because Pennsylvania has led the Nation in the number of water-borne disease outbreaks for the past three years. The Safe Drinking Water Act requires suppliers that serve more than 24 persons to monitor their drinking water for bacteria, chemicals and/or turbidity (cloudiness) and to report the results to EPA. Ray Lee, Chief of Region 3's Drinking Water Program said, "We are concerned about the quality of the water from these suppliers. We cannot judge its safety until we obtain the required monitoring reports." EPA announced the names in hope that public pressure would help bring the non-reporting suppliers into compliance. Water suppliers that do not meet the standards must also notify their customers and take immediate action to correct any problems. The non-complying suppliers are scattered throughout the State. Pennsylvania is one of the few States that has not yet assumed primary responsibility for enforcing the Safe Drinking Water Act. Region 3 is working with the Commonwealth on assumption of the program.

4

REGION

Spill Totals Released

Region 4 recently released a study that reports nearly 22 million gallons of oil and hazardous wastes were spilled into South-eastern waters between 1974 and 1978. There were 5,556 reported spills in the five-year period. Oil spills made up 3,828 of these spills and 577 were hazardous materials. The remaining 1,151 were unknown materials or insignificant amounts. Regional Administrator John C. White said, "Even though the number of spills seems quite large, these are reported spills. Many small to medium-sized spills are never reported as required." The Environmental Emergency Branch supervises clean-up where necessary to ensure the protection of the environment. During 1978 EPA personnel supervised clean-up of 131 spills, down 20 percent from 1977, and down 25 percent from 1976. However, the number of spills reported during 1978 increased by six percent over the previous year. According to White, "Over the five-year period \$327,496 in civil penalties were collected from firms and individuals responsible for the spills. And, the number of cases being referred for collection of penalties is increasing." EPA responds to inland spills, while the Coast Guard has responsibility in coastal areas. Figures released in the EPA study do not include spills under the Coast Guard's jurisdiction.

5

REGION

Library Fair

Region 5 recently held its second annual Library Fair for Midwestern librarians, environmentalists, and the general public. At the fair an extensive collection of environmental publications was offered to the public free of charge. The materials included technical and research literature; reports on air and water pollution and hazardous waste management, as well as miscellaneous Federal, State, local and trade publications. The fair was held in the lobby of the Kluczynski Federal Building in Chicago.

States Assume Management

EPA has given financial aid to Michigan and Minnesota under the Clean Water Act of 1977 to help those States assume the management of their portion of the Federal construction grants program. The aid was given through the State Management Assistance Program. The Michigan Department of Natural Resources received over \$7 million to cover the actual costs of managing the construction grants program through September, 1981. The Minnesota Pollution Control Agency received \$1.6 million to pay similar costs through January, 1981. Through the construction grants program, the Federal Government pays 75 percent of the cost of constructing publicly-owned wastewater treatment facilities. The State of Michigan receives about \$180 million annually in construction grants; Minnesota receives about \$80 million.



Sanctuary Set

EPA and the National Oceanic and Atmospheric Administration (NOAA) recently signed an agreement to protect the Flower Garden Banks, undersea elevations 100 miles off the coast of Galveston, Texas. The agreement comes under the Clean Water Act and the Marine Protection and Sanctuaries Act. The sanctuary covers a six mile circle around the Flower Garden Banks. Under the agreement, there will be a five-year moratorium on developing oil and gas resources on new tracts within the proposed marine sanctuary. This will allow the two Federal agencies to monitor the impact of the activities of current lessees and to determine the environmental effects of drilling. Leaseholders may discharge drilling mud only under restricted conditions and monitoring. NOAA has issued a draft environmental impact statement supporting the sanctuary designation and will issue regulations officially designating Flower Garden Banks as a marine sanctuary.

Second Suit Filed

The Department of Justice has filed a second suit against Velsicol Chemical Co. of Bayport, Texas, on behalf of EPA, based on allegations that the pesticide leptophos washed from the plant property into tributaries of Clear Lake and Galveston Bay. The suit alleges 28 instances of discharge from July, 1974, to April, 1977. The company earlier paid a \$17,000 fine in settlement of the first suit, covering discharges during a different period.



Bust A Bus

When an accidental mixture of diesel fuel and motor oil caused Kansas City buses to belch black smoke, EPA received scores of angry telephone calls. The Area Transportation Authority continued to use the contaminated fuel, adding clean fuel to their central reservoir, in hope that it would eventually eliminate the smoke. EPA suggested putting clean fuel into the buses immediately or swapping fuel with another industry. Since the city and the Transportation Authority failed to act to correct the problem, Region 7 became involved. The first step was the "Bust A Bus" program, which used the local media to ask citizens for documentation of excessive smoke from buses. This information, once notarized, would help the Agency take appropriate enforcement action. Two EPA compliance officers also documented 67 buses in 75 minutes emitting black smoke for over five seconds, which violated the Kansas City air pollution code. "The problem could have been corrected immediately," said Regional Administrator Dr. Kathleen Q. Camin. "However, the Kansas City Area Transit Authority continued to use the contaminated fuel in its buses." EPA issued a notice of violation to the bus company informing them of possible enforcement action. Camin added, "Citizen complaints have shown us that the public is concerned about clean air and wants to see something done about air pollution."



Environmental Profile

The Denver Regional Office has issued its first profile of environmental quality in Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming. In the report the Agency notes that the Region generally enjoys good water quality and that clean air prevails over large expanses. The 30-page document shows progress in EPA efforts to deal with problems of noise, energy development, radiation, pesticides, solid wastes, and toxic materials. However, it adds that much remains to be done since nearly one-third of the people in the Region breathe unhealthy air, and that substantial problems remain in the balancing of energy needs and environmental protection. According to Deputy Regional Administrator Roger Williams, the report was prepared "to inform the Region's citizens about the quality of their environment and to let them know how their environmental improvement dollars are being spent." Free copies of the report are available by writing to Profile, EPA Public Awareness, 1860 Lincoln St., Denver, Colo. 80295.

Four Day Week

EPA's Denver Office has been in the forefront of planning and proposals for an experimental four-day work week for Federal employees. The work is being coordinated with the Air Quality Committee of the Denver Federal Executive Board. Studies show that commuter travel would drop 20 percent if Federal employees worked four 10-hour days instead of five 8-hour

days. The Office of Personnel Management in Denver announced recently that several agencies in the area, EPA among them, will start the four-day work week this month.



Water Violations

The Region 9 Office recently issued five findings of violations against the City and County of San Francisco for water pollution. The two governing bodies were found to be violating the time schedule for wastewater clean-up and to be over the interim limits set for effluent levels in wastewater.

Mexico Meeting

The Region 9 Administrator, Deputy Regional Administrator, and Enforcement Division Director met recently with the Subsecretary for Environmental Improvement of Mexico at San Diego, Calif. The technical meetings covered such topics as hazardous industries, coordination of air monitoring programs in Tijuana and San Diego, and air pollution source monitoring.



Charge System Set

Regional Administrator Donald Dubois and Water Division Director Bob Burd met recently with the Mayor of Tacoma, Wash., to discuss the adoption of a user charge system for the publicly-owned sewage treatment plant. The user charge system, long sought by EPA, places a more equitable burden on industrial

contributors to wastewater treatment plants. Just a few days after the meeting, the city council adopted the new system. Had a new system not been adopted, EPA would have been obliged to withhold awards and payments for several pending projects, including construction of collection lines and interceptor sewers, and expansion of a primary plant. The city's action is seen as a sign that other sewerage authorities in surrounding Pierce County will adopt compatible user charge systems.

Dirty Water

Region 10 has recommended that people served by the Barlow system in Clackamas County, Oreg. boil their tap water before using it, based on the discovery that maximum contaminant levels were exceeded in four out of five samples taken from the system. The system has 70 connections, including 2 restaurants, and is the largest of five systems operated by the Alder Creek Water Co., a private firm. In February EPA officially asked the company to explain recurring violations of the Safe Drinking Water Act. The Agency also has brought a civil complaint against Nesko-win Enterprises Inc., a water company in Tillamook County, Oreg. for failing to provide adequate disinfection, to perform required monitoring, to file required water quality reports to EPA, and to notify the public properly of water quality problems. The company supplies the town of Neskowin, a coastal community where last summer more than 170 cases of gastrointestinal illness were attributed to impure drinking water. Periodic water sampling by EPA has shown continued violations of Federal standards for bacteria and murkiness. □

Update

A review of recent major EPA activities and developments in the pollution control program areas.

ENFORCEMENT

EPA Orders

GM Recall

The EPA has ordered General Motors to recall about 430,000 of its 1975-1978 Pontiac vehicles to correct a defect in the vehicles' pollution control system.

The Pontiac models involved include Catalinas, Bonneville, Firebirds, Le Mans, and Grand Prix. These models represent about 27,000 1975 vehicles with 455 cubic inch displacement (CID) engines, 5,000 1976 vehicles with 350 CID engines, and 398,000 1977 and 1978 vehicles with a 350 or 400 CID engine. Vehicles sold in California are not included in this order, although they are currently under investigation.

Ford and American Motors Corporation were ordered in 1978 to recall about one million vehicles for a similar defect. The defect is a poorly brazed joint used in the Exhaust Gas Recirculation System, which controls oxides of nitrogen (NOx) emissions.

EPA also announced that 4.8 million vehicles were recalled in 1978 bringing the total recalled since 1972 to 14 million. An Agency report on emission recalls in 1978 indicated that 2.8 million of the vehicles recalled were either ordered by EPA, or the result of EPA investigations. About two million vehicles were recalled without EPA intervention.

Auto Warranty For Air Cleanup

The EPA has proposed an auto warranty program

that would make car manufacturers liable under certain conditions for repairs to the emission control system of 1980 and later vehicles that violate air pollution emission standards.

The warranty would cover the cost of repairs to the emission control system of a car that fails an EPA-approved auto inspection test, provided that the vehicle owner has followed the manufacturer's recommended maintenance instructions. The new warranty program would be available only in areas that use the EPA test as part of their auto emission inspection systems that identify when cars are not meeting pollution standards.

"Under the Clean Air Act Amendments of 1977," said EPA Assistant Administrator for Enforcement Marvin B. Durning, "we expect most major urban areas to install auto inspection/maintenance programs by 1982."

The warranty would cover cars for a period of five years or 50,000 miles, whichever occurs first. Up through the first 24 months or 24,000 miles the manufacturer must repair any portion of the vehicle necessary to bring it into compliance with applicable emission levels.

After the initial period, the manufacturer is only required to repair components that have been installed for the sole or primary purpose of controlling emissions. These would include such parts as the catalytic converter, air pump and exhaust gas recirculation system.

NOISE

Expanded Rules for Rail Noise

The EPA recently proposed an expanded noise emission regulation for the Nation's railroads.

EPA established standards in 1975 to control noise from locomotives and rail cars. The new regulation extends that authority to address noise from other facilities and equipment of more than 4,000 railroad yards.

The proposal sets limits on the level of noise that may reach people living or working on developed property next to railroad yards. Standards are also set for three specific yard sources: "hump" yard retarders, refrigerator cars, and rail car coupling operations.

It is estimated that compliance with the proposed regulation will reduce noise for some 830,000 people to levels which do not jeopardize their health and welfare and provide some relief to the remainder of the approximately 4 million currently exposed to high levels of rail yard noise.

Total cost to the industry to comply with the proposed regulation is estimated to be an average \$27 million a year.

PESTICIDES

EPA Stops Sale

The EPA has stopped the sale of several electromagnetic insect and rodent repellers because tests have shown they don't work.

According to the manufacturers, the electromagnetic repellers emit low-level "electromagnetic waves" which disorient harmful insect and rodent pests such as cockroaches, termites, ants, rats, mice, gophers, squirrels, and others within a 1-30 acre range, causing them to stop eating, drinking, and reproduc-

ing. Eventually, according to the manufacturers, the pests become inactive and die.

However, tests by several Federal Government agencies and universities show that the repellers do not affect insects and rodents at all.

Makers of various electromagnetic repellers are being required to stop selling them and have been requested to voluntarily recall all remaining models which have not been sold by retailers. The repellers generally retail from about \$300 to \$1,000.

The repellers are: NATURE SHIELD by Solara Electronics, Inc. of Costa Mesa, Calif.; SIGMA by Orgolini Manufacturing Co., Inc., of Sparks, Nev.; and AVIS RODENT CONTROL, by Sentry Manufacturing Inc., Fairbury, Nebr. For two others, THE ELIMINATOR by DAL Industries, Inc., Ft. Lauderdale, Fla., and the AMIGO PHASE 2 by Mira Manufacturing Co., Pine Valley, Calif., tests are completed and action is pending.

SOLID WASTES

Landfill Guidelines

The EPA has proposed guidelines for the more than 20,000 landfills around the country. The guidelines recommend practices for site selection, design, construction, operation, and maintenance of landfills. Without adequate precautions, landfill disposal can lead to contamination of groundwater and surface streams, gas explosions, and other environmental, health, and safety problems.

The guidelines are proposed under authority of the Resource Conserva-

tion and Recovery Act. They apply to landfill disposal of municipal refuse (about 90 percent of which is deposited in landfills), sewage sludge (about 25 percent of which is taken to landfills), and industrial and other wastes. The disposal of hazardous waste, however, will be subject to regulations which were proposed in December, 1978.

The guidelines emphasize that in selecting a site for a landfill, consideration should be given to groundwater and surface water conditions; geological and topographical features; social, geographic, and economic factors; and environmental impacts. Environmentally sensitive areas, such as wetlands, floodplains, and recharge zones of aquifers that are principal sources of drinking water for communities, should be avoided.

Risky Drums Moved For Safe Detonation

Eighty-six drums containing explosive phosphorus were moved from a truck terminal in Hagerstown, Md., to Fort A. P. Hill, Va., recently in order to be safely detonated. The drums were being stored in Hagerstown following a transportation accident in Gettysburg, Pa.

"Effective action by the National Response Team has averted a potential hazard which could have required evacuation of some Hagerstown residents," said EPA Deputy Administrator Barbara Blum.

The move was coordinated by the National Response Team, a Federal inter-agency group that reacts to spills of oil and other hazardous substances. It is chaired by the EPA and includes the Departments of Transportation (Coast Guard), Commerce, Interior, Agri-

culture, and Defense. The team was activated to consider solutions to the threat posed by deterioration of the 55-gallon drums.

TOXICS

Final Rules On PCB's

The EPA recently issued final regulations banning the manufacture of polychlorinated biphenyls (PCB's) and phasing out most PCB uses. PCB's are toxic and persistent chemicals primarily used as insulating fluids in heavy-duty electrical equipment in power plants, industries, and large buildings across the country.

The EPA rules will gradually end many industrial uses of PCB's over the next five years, but will allow their continued use in existing enclosed electrical equipment under carefully controlled conditions.

"Although PCB's are no longer being produced in this country, we will now bring under control the vast majority of PCB's still in use," said EPA Administrator Douglas M. Costle. "This will help prevent further contamination of our air, water, and food supplies from a toxic and very persistent man-made chemical."

PCB's have caused birth defects and cancer in laboratory animals, and they are a suspected cause of cancer and adverse skin and liver effects in humans.

State Toxics Control

The EPA has awarded five States a total of \$1,740,229 to develop programs for investigating and controlling human and environmental hazards from toxic chemicals.

The States receiving the funds under cooperative agreements are: Maryland, Michigan, New Jersey, New York, and Wisconsin. The grants

are the first to be awarded for State program development under the 1976 Toxic Substances Control Act.

States had until May 27, 1979, to apply for a second round of grant money totalling \$1,250,000.

WATER

Urban Lakes Initiative

EPA Deputy Administrator Barbara Blum has announced a new effort to upgrade and revitalize lakes in urban areas to provide recreational, leisure-time, and aesthetic opportunities for inner city residents. Blum announced the new program at a conference in Detroit, Mich., on urban environmental problems.

The pilot program will involve the selection of ten urban lakes, one in each of the standard ten Federal regions of the country, for intensified improvement efforts under EPA's existing Clean Lakes Program. Public transit access to these lakes will be a major requirement for selection.

Under proposed regulations, EPA could provide grants of up to \$100,000 per lake in Fiscal Year 1979 to pay for 70 percent of the planning costs related to water quality improvement. These projects would then be eligible for a 50 percent grant for actual improvements.

"Many cities have had to cut back on funding for nonessential public services such as maintenance of public park areas,"

Blum said. "As part of the President's Urban Policy, this new initiative would help take up the slack and focus on recreational opportunities for inner city residents."

Groundwater Protection

The EPA has proposed regulations designed to prevent pollution of the underground sources of drinking water that now serve one-half of the U.S. population.

EPA will provide up to \$6 million this year to help States set up and enforce programs to insure that the underground injection of liquid wastes and other fluids does not endanger subsurface drinking water. Potentially harmful practices—such as the improper underground disposal of hazardous wastes—would be stopped.

Thousands of communities depend on groundwater resources for their drinking water. Even so, EPA has estimated that there are over 500,000 injection wells that now have the potential to contaminate groundwater; this number increases by about 5,000 each year.

"The answer is clear—we must stop contaminating our groundwater sources immediately," said EPA Administrator Douglas M. Costle. "Otherwise, we may not be able to insure the availability of adequate supplies of safe drinking water in the years ahead."

Basically, EPA's regulations call on the States to set up programs to review all underground injection operations and take any remedial action necessary to protect groundwater. Injection wells would be inspected to make sure they are properly constructed and maintained. Safe injection operations that are not potentially dangerous could continue; however,

they would have to comply with permits and rules issued by the States or EPA.

EPA, Forest Service Water Agreement

The EPA and the Forest Service of the U.S. Department of Agriculture have agreed to coordinate their activities to promote awareness of water pollution problems resulting from forestry operations.

Both agencies hope the result will be less erosion of the soil on forestlands, which results primarily from timber harvesting activities, such as the construction of logging roads and skid trails. Such erosion destroys the soil, pollutes waterways, and disrupts aquatic life.

The "Statement of Intent" was signed in Washington, D.C., by EPA Deputy Administrator Barbara Blum and Forest Service Chief John R. McGuire.

AGENCYWIDE

Blum Speaks To U.N. Group

EPA Deputy Administrator Barbara Blum recently addressed the Governing Council of the United Nations Environment Program (UNEP) in Nairobi, Kenya.

In delivering the principal U.S. Plenary statement, Blum emphasized the critical role the U.N. program plays in the world environment. "With each tick of the clock," she said, "we have less time to remedy the global imbalances before lasting damage is done."

Outlining many global environmental threats, Blum stressed the alarming disappearance of the world's forests. She stated, "Tropical forests are the world's richest

genetic reservoir, a potential source of useful plants and drugs, a modulator of climate, a shield against desertification and soil loss, a renewable timberbank. It is time to highlight this key problem for decision-makers at the highest level of government."

She called for UNEP to "convene an international meeting of experts to accelerate and coordinate action to improve management of our forest resources."

Focusing on another environmental problem, Blum pointed out the serious climatological effects of the buildup of carbon dioxide in the atmosphere.

"In our view UNEP *can* and *should* take the lead in coordinating assessment of the impact of a global carbon dioxide increase on the environment and health and society generally."

Blum illustrated the ominous problem of hazardous waste disposal to the Governing Council by summarizing the recent American tragedy of Love Canal, near Niagara Falls, N.Y. The lesson learned by the United States, she said, is that "provisions must be made from the start to detoxify wastes before land disposal. Otherwise, they must be securely sealed in the earth for ages."

In her final comments Blum saluted the U.N. Program's accomplishments in the past year. She assured the Governing Council that "the U.S. Delegation will do all it can to support UNEP's objectives and goals." In conclusion Blum called for UNEP to "go forward, neither complacent nor paralyzed by the problems before us. We owe it to all people and to future generations to guard against environmental abuses. Our survival may depend on it." □

Costle Urges Careful Growth

EPA Administrator Douglas M. Costle has called upon the 25 nations of the Organization for Economic Cooperation and Development to pursue economic growth that takes into account the need to safeguard human health and natural resources.

Speaking as Chairman of the Environment Committee at the Ministerial Level of the OECD in Paris last month, Costle also urged members to emphasize preventive actions in halting environmental damage before it occurs, rather than after-the-fact cleanup tasks. He also stressed the need for harmonizing policies of member countries and greater international cooperation in matters such as standards for toxic substances.

"Most importantly, we must seek a new concept of economic growth that takes into account the finite nature of natural resources and the limited capacity of natural systems to recover from chronic damage," Costle declared.

"We need growth—but we can only afford a qualitative growth that protects human health, anticipates the virtual depletion of some resources—most notably petroleum—and safeguards the present integrity and future productivity of other finite resources, such as land and water."

Costle noted that the economies of many OECD nations including that of the United States seem to be shifting from manufacturing to one based increasingly on information, knowledge and communications, a trend now being studied by OECD. He emphasized that the basic industries such as steel and autos will still be important in the next decade, but will also become more environmentally benign, largely due to environmental regulations.

"Environmental regulation often forces companies to rethink their production processes and products," he said, "thereby providing the necessary catalyst for innovation. In the United States, such

process review has led some companies to adopt innovations that lead to greater industrial efficiency, improved fuel conservation and profitable recycling. Thus, bottom-line economic benefits, as well as energy benefits, can result when corporate management responds creatively to regulations."

The Administrator said qualitative growth calls for a "new partnership between environmental and economic concerns." EPA has already taken steps in this direction, he added, in moving toward an increasing use of economic incentives instead of command-control type regulations.

"These steps demonstrate that economic and environmental principles can complement each other rather than following the adversarial, trade-off role prescribed to them in the past. In the same spirit, I trust that economic policies in the 1980's will be examined not only for their impact upon investment, prices, and employment, but also on resource depletion and environmental deterioration," he said.

The theme of the OECD meeting, "The Development of Environmental Policies in Changing Economic Conditions," grew out of a realization by member nations that profound changes have been occurring in many countries in recent years. Widespread inflation and slower economic growth have brought new pressures to halt or slow down environmental control efforts. At the same time, numerous long range environmental problems have persisted and have required careful attention.

In calling for greater emphasis on preventive environmental action, Costle pointed out that in the United States, \$25 million already had been spent to clean up damage from leaking chemicals at one site where the problem could have been controlled years ago for \$2 million. In another case, one corporation has paid \$20 million to settle lawsuits involving a pesticide incident that could have been prevented by a \$100,000 investment, he declared. And similar inferences could be drawn from environmental and health tragedies in other nations, where "the lack of stringent environmental control over hazardous substances can prove vastly more expensive in the long run than the imposition of those controls in the first place," Costle said.

"From our common experience so far, then, I would draw this conclusion: Far from retreating on environmental controls because of our current economic distress, we should intensify our efforts to protect natural systems and human health from the side-effects of industrial activity," he warned. "Our failure to do so will not appreciably moderate our economic diffi-

culties; indeed, reducing environmental protection can even worsen our economic situation."

Costle emphasized that pollution control expenditures in the United States, while adding slightly to consumer prices, are more than offset by the health benefits and resulting increased productivity of workers, as well as jobs created in the pollution control sector.

Other EPA officials attending the Paris conference last month included Steven R. Reznick, Deputy Assistant Administrator for Energy, Minerals and Industry; Alice B. Popkin, Associate Administrator, Office of International Activities, and Richard Dowd, Director, Science Advisory Board.

The OECD was created in 1960 and aimed at improving the economic vitality and standard of living among nations and at expanding world trade. OECD established the Environment Committee in 1970 to encourage cooperation among member nations in the relationship between environmental and economic factors.

Nations belonging to OECD are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Federal Republic of Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom, and the United States. Yugoslavia is an associate member. □



Administrator Costle confers with J. W. MacNeill, Director of the Environment Directorate of the Organization for Economic Cooperation and Development, and Mostafa Tolba, Executive Director, United Nations.

When the silence of long summer evenings is broken by an insistent hum, punctuated by a loud slap, we know that the female mosquito is back seeking a blood meal.

Despite the annual expenditure of \$55 million in the United States for mosquito abatement, mostly for chemical pesticides, billions of these pests have now hatched to feed upon humans and other animals.

In addition to helping spread such diseases as encephalitis and malaria, mosquitoes also cause vast economic damage. Clouds of these small blood suckers make park and outdoor recreation areas unbearable at times. Beef cattle lose weight and production from dairy cows drops when mosquito densities are high. Cattle, harassed by mosquitoes, are sometimes driven into frantic running and occasionally refuse to eat or drink for days.

When the pesticide DDT was developed and extensively applied after World War II, the problem of malaria, a debilitating disease transmitted by mosquitoes, appeared to have been controlled. However the insects developed a resistance to this chemical and the malaria rate has begun to climb again.

This development helped spur interest in integrated pest management which encourages use of biological controls (natural predators or diseases) and cultural controls (altering the insect's surroundings to make them less favorable).

In Montana, where mosquitoes can be a serious problem at times, EPA is working with the State and several Federal agencies to help develop a program of using Gambusia fish to eat the mosquito larvae before they develop into adults.

The State has requested assistance in its efforts to develop more warm water ponds where the Gambusia, a tropical fish related to the guppy, can survive the harsh Montana winters.

Van Jamison, a biologist with the Montana Department of Health and Environmental Sciences, said that while use of Gambusia fish to destroy mosquitoes has been well established in many parts of the world, the difficulty of keeping them alive during cold winters had previously prevented the use of these fish in Montana.

The state has begun to impound warm water from geothermal springs to help keep the Gambusia alive over winter.

While the cold will kill the Gambusia in most of Montana's waterways, if there is a supply at nearby warm water ponds these fish can be transferred each spring to the areas where they are needed.

"We need to pick up the Gambusia and place them early in the spring so they can reproduce and be ready to go in large numbers when the number of mosquito larvae in June becomes a big problem," Jamison said.

The winter freezing in Montana acts as a limiting factor on the number of mosquito

fish and restricts their permanent establishment to the warm water ponds. This means that the Gambusia is not likely to become a widespread undesirable import, such as the European starling, for example.

The explorers Meriwether Lewis and William Clark were among the first to officially note Montana's mosquito problem, Jamison reports. He says that Lewis and Clark made more than 50 references to mosquitoes in the Montana area in their journals.

"Early trappers and homesteaders burned green wood in their fireplaces because smoke discouraged mosquitoes," Jamison said. "To protect livestock they burned moldy hay in a corner of a field so the stock could bathe in the smoke and escape their tormentors."

Today in addition to increasing use of mosquito fish, extensive efforts are being made to foster expansion of other natural mosquito enemies such as parasites, pathogens and certain other insects.

Meanwhile, a tiny fish appears to be one of our most promising allies in the multi-million dollar, world-wide effort to control an annoying and dangerous pest which has plagued humanity since prehistoric times and spread diseases responsible for the deaths of millions of people

C. D. P.

Mosquito Time

News Briefs

EPA Proposes Testing Rules

EPA recently proposed the first standards for testing potentially hazardous chemicals under the Toxic Substances Control Act. The proposed standards would be used in testing chemicals for chronic (long-term) human health effects. They also include "Good Laboratory Practices" for health effects testing, to help assure the quality and reliability of chemical testing information submitted to the Agency.

Anti-Noise Orders

EPA has issued its first enforcement orders under the Noise Control Act. The orders were issued to two manufacturers of portable air compressors. The actions were taken to require that compressors the firms had distributed comply with EPA noise reduction regulations. Portable air compressors are used on construction sites to supply compressed air for the operation of pneumatic hammers, drills, and similar equipment. The companies are Worthington Compressors, Inc. and General Supply and Leasing Company.

Herbicide Halted

Chevron Chemical Co. of San Francisco, the largest manufacturer of home and garden weed-killing products containing the ingredient "Silvex," has agreed, in a settlement with the Environmental Protection Agency, to halt any future production of these products and to recall and assist in the safe disposal of existing stocks. In the settlement, EPA agreed that, under the 1972 Federal pesticides law, retailers and distributors of Chevron's home and garden Silvex products may present claims for compensation for the costs of existing stocks.

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Nature in the City

By Dorie Karl

Groups of boys and girls cluster in the corner of a New Haven schoolyard searching the bare ground for seeds from a maple tree. Traffic roars by outside the fence and office buildings rise on all sides, but the youngsters are absorbed in their task. They grab the winged seeds and toss them up, filling the air with twirling bits of green. Under the watchful eyes of their teacher and a Yale graduate student, the children are finding out how nature works in their environment. Later, back in the classroom they will use an ecology workbook to delve into the mysteries of life on the seashore and in the mountains, learning to understand and appreciate other environments.



Children from the Winchester Community School in New Haven search for seeds.

In 1969, teachers in New Haven's Head Start Program sent out a call for volunteers to lead inner city children on nature walks. Students at the Yale School of Forestry and Environmental Studies, a graduate school within Yale University, answered the call and helped establish a relationship that has flourished in the ten years since. They have provided successive classes of youngsters with diverse experiences, from building an igloo to viewing slides of wildlife in other countries. Yale Forestry School students, although no longer working through Head Start, have maintained their own informal organization from year to year to coordinate the work that now involves some twenty students.

How do they find the time? Or, more to the point, why do they *make* the time? A belief in the importance of environmental education is one factor. Personal satisfaction also plays a part. There is delight in getting a classroom of third graders to discuss why there are more plants and animals in natural ecosystems than in their own backyards.

The children not only learn abstract concepts of ecology but also see familiar surroundings and habits with new understanding. They learn that a blazing lamp in an unoccupied room is a waste of energy, and that throwing candy wrappers on the sidewalk is littering.

Most of the learning takes place in school and is coordinated with the help of School Volunteers for New Haven, Inc. Forestry School students register with its Talent Bank and Ecology Project. The Talent Bank lists people who can share a special interest or skill with children on an occasional basis. Volunteers in the Ecology Project offer weekly classes in environmental subjects. They may follow a curriculum designed by the staff of School Volunteers or they may design their own. The names of students participating in both programs were distributed to all New Haven teachers at the beginning of the school year. Calls for volunteers began coming in after less than a day.

Forestry School students Marc Groff and Hobson Calhoun taught a group of children to build model igloos. This was not a crafts project but an opportunity to teach the children about the environmental differences between Arctic and temperate climates. Henry Woolsey led a junior high school class on an ecology field trip. Other students have talked about beekeeping, making maple syrup, backpacking and wilderness survival, identifying edible plants, and birdwatching. Foreign students have given slide shows and talks about their native lands in African, Asia, Indonesia, Australia, and South America.

Many classes center around urban ecology. Forestry School students lead children through residential areas as well as nearby

parks and woodlands. They point out the habitats available to animals and birds in the city and discuss the differences between these and a wilderness environment.

Such experiences are also available outside the public school system. Cub Scout, Boy Scout, and Girl Scout troops frequently request special help from the Yale Forestry School. In the past, students have provided visual aids and other material for Scout leader presentations on ecology and forestry in the United States. One colorful day last fall, Chris Brown and Tom McHenry administered a field quiz in tree identification to a group of Cub Scouts seeking their forestry achievement badges. Another student recently spoke to a Girl Scout troop about forestry careers.

When the volunteers are not working directly with children, they are paving the way for future studies. This April a group of Yale students helped plan nature trail stops for New Haven's Cedar Crest Park, a camp dedicated to environmental education.

New Haven's children have been eager learners. Although many have never had the opportunity to venture beyond city limits, their curiosity can carry them around the world. The Yale Forestry School volunteers provide them with an awareness and appreciation of nature that they'll carry into adulthood. □

Dorie Karl, a second year graduate student at the Yale School of Forestry and Environmental Studies, is the president of the Forestry Club and coordinator of the volunteer project. She and another student have designed and illustrated a children's guide to identifying plants.



Ecology lessons continue in the classroom

Recycling the Rails

Continued from page 4

such as snowmobilers versus hikers or cross-country skiers in winter, and bikes versus mopeds in summer. All these factors have to be dealt with before a trail can be considered a successful effort.

Despite the problems and obstacles, the rails-to-trails movement has attracted widespread support. As a result of this increased public interest, the U.S. Department of Transportation last year completed a study, "Availability and Use of Abandoned Railroad Rights-of-Way." It pointed out that since 1970 more than 15,000 miles of track had been abandoned and petitions were pending before the ICC by railroads to relinquish another 6,000 route miles. The American Association of Railroads has predicted that the remaining 200,000 miles of track in the United States would be reduced by a further 20 percent within the next ten years.

Terming these abandoned rights-of-way a "unique land resource," the report said they represent opportunities in conservation, recreation, and also for other uses by utilities such as buried cables or pipelines.

In fact, the report noted that some trails earn revenues by sharing their land with utilities. One trail at Falmouth—Woods

Hole, Mass., receives \$27,000 annually through lease of part of its right-of-way for public parking areas and the entire length of the line for electric and telephone transmission corridors.

The creation of bike trails is not limited to old rail beds, of course. The Federal Water Pollution Control Act encourages combining wastewater system rights-of-way with open space and recreational uses. The Washington Suburban Sanitary Commission, which has built 10 miles of bike trails in the last five years along such rights-of-way in cooperation with the Maryland National Capital Park and Planning Commission, now is planning to add additional trails under the Act's provisions.

Some of the best opportunities for trails are along the tow paths of old canals. An example is one along the Chesapeake and Ohio Canal extending from Washington, D.C. into rural Maryland, now used by thousands of cyclists and hikers.

And the 67-mile California Aqueduct Bikeway illustrates still another approach. It was established after a private citizen, Mrs. Artemis Ginzton, saw the pipeline route from a commercial airliner, later chartered a private plane to survey it, and helped to convince authorities that the aqueduct's banks would provide an ideal bike trail. □

Truman Temple is Associate Editor of EPA Journal.

Some Useful Publications

A 68-page booklet on the subject, "From Rails To Trails," by the Citizens Advisory Committee on Environmental Quality is available for \$1.50 from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. (Stock No. 040-000-00330-4.)

Your community may be eligible under the Clean Air Act Amendments of 1977 for a grant to help plan bike programs. Details are furnished in a booklet, "Bicycle Programs and Urban Air Quality Grants," available without charge from Nina Rowe, Office of Transportation and Land Use Policy, ANR-445, Environmental Protection Agency, Washington, D.C. 20460.

Opposite: Children flanked by giant redwood trees in The Cloisters at Sequoia National Park, Calif. See "Protecting the Crown Jewels," p 12.

Back Cover: Surfer rides waves off the north shore of Oahu, Hawaii. See "Recreation, Jobs, and Good Health" on p 2.

Price Rise

Due to increasing production costs, the Government Printing Office will raise the price of subscribing to the EPA Journal from \$10 to \$12 a year, effective July 1. The price of a single copy will go from \$1 to \$1.20. The subscription cost if mailed to a foreign address will be \$15 instead of the current \$12. All domestic requests received by GPO before July 1 will be sold at the \$10 rate.

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