

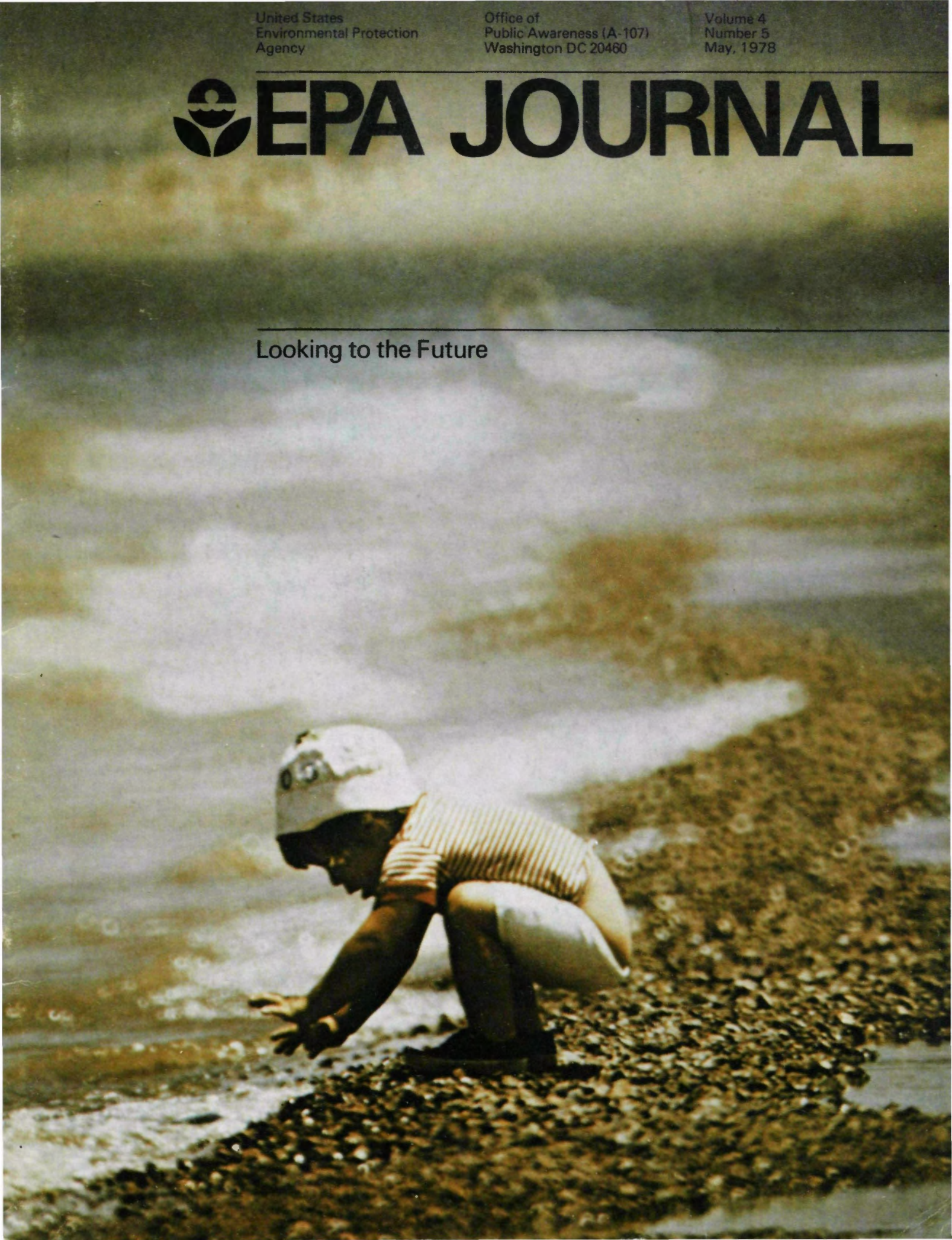
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EPA JOURNAL

Looking to the Future



Youth and the Environment

This issue of EPA Journal reviews the career and other opportunities for youngsters in the environmental area.

The rewards are still promising and the environmental cause needs the continued support and interest of the Nation's young people. EPA's Deputy Administrator Barbara Blum predicts in the column "Environmentally Speaking" that the solution to pollution of our land and water "will come from those who are now young in years" and those who will "always be young in spirit."

This issue also carries a report by Administrator Douglas M. Costle on a visit he made to the massive tanker oil spill off the coast of France and the conclusions he drew from this accident.

Also in the magazine is an interview with Charles S. Warren, Director of EPA's Office of Legislation, about the Agency's relationship with Congress, and a report from the Agency's Region 5 Office with headquarters in Chicago, the latest in a continuing series of articles from EPA's Regional Offices around the Nation. □



EPA JOURNAL

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Joan Martin Nicholson, Director Office of Public Awareness
Charles D. Pierce, Editor
Truman Temple, Associate Editor
John Heritage, **Chris Perham**, Assistant Editors
L'Tanya White, Staff Support

EPA's Purpose: 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.

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Inside cover: Young environmentalists count the rings on a tree during a trail hike near Boulder, Colo.

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Many Ways to See a Tree

By Barbara Blum
Deputy Administrator

A group of high school students came to the Visitor's Center at EPA headquarters in Washington not long ago for a briefing on the Agency. As an opener to a discussion, they were asked: "How many ways do you see a tree?" Slowly the hands began to go up with the following answers:

- Board feet, lumber to build things with. . . .
- Something very nice to look at, nice to sit under on a hot day. . . .
- A home for squirrels and birds. . . .
- A big plant whose roots hold the soil from washing away. . . .
- A machine that puts oxygen into the air for us to breathe. . . .
- An energy machine in which each leaf is a collector plate that takes energy from the sun and stores it. . . .
- Fuel for wood stoves and fireplaces. . . .
- Raw material for paper, charcoal, medicines, and chemicals. . . .
- Superstructures to hold up a swing. . . .
- A natural "jungle gym" for climbing.

Probably you can think of other ways to see a tree, but I think you will agree that these students' responses covered a wide range and in some instances showed a degree of environmental sophistication. They saw how trees are vital parts of the natural world, connected to air, water, soil, and sunlight. They saw how trees help support wildlife and human life. Their answers implied some inkling of how people's use of trees can sometimes be conservative and stable and at other times exploitive and destructive.

These students' views demonstrate that young people are still aware of environmental values. Youth's environmental consciousness has been raised over the last decade, and it is perhaps stronger now than ever. The first Earth Day celebration eight years ago was largely due to the energies and intuitive good sense of young people, and I am happy to note that the latest Earth Day, recently observed, has continued to arouse the interest

and participation of American youth.

The youth constituency, of course, is steadily changing, joined each year by new cohorts of young men and women, to take the places of those who graduate to adulthood. Many of the young leaders of the first Earth Day observance in 1970 are now over 30!

Youth's concern for the environment certainly helped a great deal in giving a strong educational aspect to nearly all phases of the environmental protection movement. Congress authorized the creation of an Office of Environmental Education in the Department of Health, Education and Welfare and most States have established special offices and staffs in their education departments to work on environmental subjects.

All these factors have led to (and have resulted from—it's a two-way street) the increased interest of students in environmental matters. Teaching plans and courses of study in environmental matters are available now for the primary grades through the college graduate level. New teaching materials have been developed, and older courses have undergone shifts in emphasis.

In their earliest science courses children now learn of the cycling of energy and materials through different parts of the natural environment. There are cycles for energy transfer: sunlight, burning and decay, falling water, the winds. There are cycles for chemical elements—nitrogen and carbon, for instance—and cycles for water and other compounds.

The biological sciences, and especially ecology, are central to environmental understanding. The fundamental concepts of the biosphere; the food chain; the mutual dependence of predator and prey, host and parasite; all these ideas can be learned at an early age.

The contents of social studies courses are also changing to meet the increasing needs of young people for environmental awareness. Sociology, the study of human societies, can be understood fairly completely in terms of people's relations to surroundings of land and resources, in short, to their environment. Likewise such traditional study subjects as history, economics, political science, and psychology have large and important environmental components.

Young people today face many challenges with their new-found knowledge of the environment because there are so many seemingly insurmountable problems. How can we continue to consume our resources of metal and other materials at our accustomed rates? What will we use for fuel when present supplies dwindle away? Despite our recent, perhaps belated, efforts at environmental

protection, there are many places where clean water and breathable air are becoming scarce. Our farms and fisheries may be reaching limits on what can be produced without irreversible damage to those resources from pesticides, single-cropping, overuse of fertilizer, etc.

That young people are worried is not news. A generation ago they worried about nuclear warfare. Today they worry about toxic substances with subtle, long-delayed effects, about environmentally-caused cancer, about population growth, about endangered species.

A generation ago, when youth were growing up under the shadow of the atom bomb, many adults thought that under this burden of no-place-to-hide, young people might lose their natural feistiness, lose all their will to be creative, to tackle and solve problems.

This did not happen. Young people today are like young people in the past, critical of the world their parents have left them, but not deprived of their inspiration. The doomsday psychology is still with us, and a considerable portion of today's youth may face their world's problems as pessimists.

Youth pays a special price for bad environmental conditions and so has a special stake in their improvement.

As a group, young people are hard hit by pollution's effects. They are more susceptible than adults to the stresses of smog, which can damage the lungs. Many schools in smog-prone areas make it a common practice to call off athletic events and curtail outdoor play periods when the air pollution index is high.

Children are the principal targets of lead poisoning, which can come from breathing lead particles in air or in dust scuffed up from streets and vacant lots. Urban, inner-city youth are often deprived by the lack of clean space for recreation and safe water for swimming. They have to grow up in noisy, dull, and ugly surroundings.

Even boys and girls whose physical health is unaffected may suffer subtler damage. I think a poor environment may be a factor in a youngster's attitudes, mental health, and even learning abilities.

From my background as a student of psychology and later as a psychiatric social worker, I sense these special hazards to youth.

Today's youth are aware of not one, but many possible doomsdays but they are not daunted by them. They see the enormity of our environmental problems, the paradoxes, the hard choices, and they don't flinch. They are confident, but not over-confident.

Young people still have enthusiasm, but mixed with it is a lot of common sense that used to be ascribed only to adults. I think young people see our environmental

dilemmas as opportunities. They are more accustomed than preceding generations to cross the artificial lines between specialized fields of knowledge and specialized skills. They are ready to blend different disciplines in new, creative ways. Whatever other limits may exist, there are no limits to resourcefulness and creativity. Consequently, I believe environmental problems will become increasingly manageable and solvable, and the solutions will come from those who are now young in years and those who will always be young in spirit.

I am optimistic that youth's creative energies—which are demonstrated to me daily by my four children—can be tapped also in neighborhoods and local communities. As Rene Dubos said in a recent interview in the EPA Journal, "Think globally, but act locally."

That is why I, as EPA Deputy Administrator, would welcome new ways to provide employment for young people in environmentally beneficial work. In recent meetings with leaders of minority groups I became convinced there must be jobs for urban youth in the monitoring of air pollution and noise levels, in water testing, and in the development and improvement of recreational areas. State and National Parks have been places of youth employment for many years. I see urban environments as the next frontiers for this very positive use of young people's energies.

I am pleased that EPA gives recognition to young people in the President's Environmental Youth Awards. More than 300,000 persons have received these awards for a great variety of projects in schools and summer camps. Some have been for humble but important jobs to remedy some local condition like a waste-strewn va-

Continued to page 37



Is the Bloom Off Environmental Careers?

By Odom Fanning



Dear Mr. Fanning: I am a senior in environmental studies at University. I was motivated to go into this field by Earth Day in 1970. I am basically an idealist, and an optimist. But I am becoming increasingly concerned that the bloom is off of the environment, and there may not be a job for me after I graduate. What do you think are my chances for a satisfying job and career?

Lesley

That is an excerpt from a letter I recently received. Like a guest on "Meet the Press," I have a few comments to make before answering the question. As the environment covers a lot of ground (no pun intended), these comments are general. Each reader must interpret them, just as each person must make his or her own decisions, including those involved in finding a job. Books, articles, and advice from counselors can provide assistance, but only through an intensive, intelligent, personal search can one usually find the right job. Later I shall return to answer the student's letter.

Environmental Enhancement

Following Earth Day in 1970, many observers believed that environmentalism was a youth-misguided fad, which soon would go the way of the yo-yo (pet rocks were yet to come—and go). Then, they predicted, it would be business as usual for polluters or destroyers of the environment and its resources. Now, eight years later, public support for environmental causes is stronger than ever; the bloom is not even fading. Here are some items:

- Six out of ten persons queried in an Opinion Research Corporation survey three years ago called it important to pay whatever price is necessary to protect the environment. Nine out of ten agreed that postponing environmental clean-up would cost more money in the long run.

Odom Fanning is a free-lance science writer whose work has been honored by the National Association for Environmental Education and other professional organizations. He has contributed to Audubon, Columbia Journalism Review, Environment, and Smithsonian, among other magazines. He is author of a college textbook on environmental citizen action. Another of his books, Opportunities in Environmental Careers, is in a sixth printing and is available from the publisher, National Textbook Company, 8259 Niles Center Road, Skokie, Illinois 60076, at \$6.50 hardcover or \$4.75 paperback and will be mailed postpaid.

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- When Arco, the oil company, ran a Bicentennial poll asking citizens what they want America to be like by the Tricentennial, one of 23 statements offered for agreement/disagreement was: "I believe there must be greater individual sacrifice to protect the environment." Eighty-five percent of the thousands who responded voted "Agree"—the highest concurrence on any of the 23 issues listed.

- On a recent visit to Washington, D.C., Jacques Cousteau, the French oceanographer/writer/TV personality, told the American Oceanic Organization: "You may hear that the environmental movement is over. That is not so, and those who believe it is are in for a rude awakening. The environmental movement is a tidal wave, not just in the United States but all over the world."

The Field of Environmental Management

Physicians, lawyers, teachers, librarians, accountants, and many other professionals pursue a common course in a professional school or college, usually to a postgraduate level, before they begin to specialize. But not so with the environmental major. There is no core curriculum which turns out *environmentalists*. Environmentalism is more a frame of mind than a discipline. Very fundamental ethical and social values are involved in environmentalism, which helps to explain why the public is willing to pay for environmental enhancement which may not be visible for a generation or more. Just in this decade, as an aftermath of Earth Day, there has emerged a new field of study and professional practice called *environmental management* (EM). The EM field covers all of those activities, public and private, which individuals and institutions undertake to enhance the quality of the human environment.

As shown in Table 1, environmental management has about 50 job titles under seven classifications. Most of these are professions requiring at least four years of college and frequently as much as four to six years' education beyond the baccalaureate. "Categorical specialists" is one term which may be unfamiliar. These are people who usually have four years of college, sometimes more, and who apply their interdisciplinary skills against a category of problems, i.e., air or water pollution, pest control, radiological threats, etc. They may be chemists, physicists, or even generalists; their expertise may come mainly from specialized training provided by their employers after they are on the job. "Paraprofessionals" may be another unfamiliar term. These are the helpers to the professionals. They may be aides requiring at least one year, or technicians requiring at least two years, at a technical institute or community college. They are very important members of the EM team. They operate our

“What are my chances?”

Table 1
Environmental Management:
The Interdisciplinary Mix

Environmental Protection and Public Health

Environmental Engineer
(Civil Engineer)
(Sanitary Engineer)
Environmental Health Scientist
Environmental Physician
(Public Health Officer)
Health Physicist
Industrial Hygienist
Public Health Veterinarian
Sanitarian
Categorical Specialists
Paraprofessionals

Energy Resources Development and Applications

Conservation Engineer
Electrical Engineer
Heating, Ventilating, and
Air-Conditioning Engineer
Mining and Metallurgical
Engineer
Nuclear Engineer
Petroleum Engineer
Solar Scientist/Engineer

Environmental Design and Land Use Planning

Architect
Civil Engineer
Geographer
Landscape Engineer
Urban Planner
Paraprofessionals

Other Occupations with Environmental Specialties

Administrator
Business Owner
Conservator
Consultant
Economist
Educator
Environmental Impact Assessor
Journalist
Lawyer
Legislator
Librarian
Sales and Marketing Executive

Biology and Ecology

Biologist
Ecologist

Conservation and Recreation

Agricultural Engineer
Agronomist
Fisheries Conservationist
Forester
Horticulturist
Range Manager
Recreationist
Soil Conservationist
Veterinarian
Wildlife Conservationist
Zoo and Aquarium Director
Paraprofessionals

Earth Sciences

Geologist
Geophysicist
Meteorologist
Oceanographer

Table 2
How Young Scientists and Engineers
Got Their Jobs

	Scientists	Engineers
Promotion	18.5	23.4
Personal reference	27.8	18.8
Recruited	14.7	16.3
College placement	7.6	20.3
Want ad	5.4	6.2
Employment agency		
Private	5.2	5.2
Public	2.8	1.5
Prof. society	1.9	.2
Other	16.1	8.2
Total %	100.0	100.1

Under 30 years of age
Survey of jobs held in 1972
This figure exceeds 100.0
because of rounding

Source: National Science Foundation

Source: Odum Fanning

water and wastewater treatment plants. They are the forest rangers, park and recreation assistants, solar energy technicians, and public health laboratory aides. They are indispensable, they are in demand, and their salaries and status are constantly rising.

Some environmental management fields have been around for centuries. (George Washington was a civil engineer, remember? And who do you think built the aqueducts of Rome?) Around the time of Earth Day, 1970, a fundamental change occurred in environmental studies and professional practice. Curricula and jobs which traditionally had been narrowly focused on one discipline became much broader. For one thing, the problems of the environment and society threatened to overwhelm us. For another, the science and technology to cope with such problems had become available. I coined the alliteration "the three I's" to characterize environmental studies and practice: *integrated, interdisciplinary, and involved*. By "the three I's" I mean, first, that the science, engineering, and technology are closely *integrated*, one with another. Second, they have been joined by other disciplines—business and public administration, communications, computer sciences, economics, the humanities, law, sales and marketing, and others—in a truly *interdisciplinary*, supportive fashion. And, third, both the student and the practitioner must be *involved* in the very fabric of peoples' lives and environments. Disciplines are still important, but they no longer are all-important. Most people in college continue to major in a discipline, because that is the way most colleges are organized. But today, in life, we are seeing more people crossing back and forth within, and even between, the seven classifications in Table 1.

Matina Horner, president of Radcliffe College, recently said: "I just don't think people are going to have one-track careers anymore. Society can't absorb it. There's going to be much more career shifting, second careers, third careers." After quoting Horner, Columnist Ellen Goodman asked: "What, after all, do college students need to know if they are going to have three careers? What is the best preparation for five decades? My answer: Just what college was supposed to teach people from the beginning. How to think. About themselves and their lives, and whatever work they plunge into, sidle into, or fall into."

The Environmental Job Market

President Carter declared in his 1977 environmental message to Congress: "Previous environmental control laws have generated many more jobs than they have cost. And other environmental measures... like energy conservation, reclamation of strip-mined lands, and rehabilitation of our

cities—will produce still more jobs, often where they are needed most."

How many jobs, nobody knows. Much depends on economic growth, yet unwritten environmental laws, energy impacts, relative stability in the world, and even how accurately the analysts make their workforce forecasts. Despite good efforts, the forecasters disagree, as these examples show:

- Professor E. J. Middlebrooks estimated in 1974 that personnel employed in industrial water pollution control would rise 300 to 400 percent from 1974 to 1979. He predicted that the greatest demand would be for process control technicians and operators. Later, Middlebrooks calculated that approximately 960,000 people, or 6 percent of the entire U.S. manufacturing workforce, would soon be involved in industrial water pollution control. He also estimated that 3.5 million would be employed in all pollution control

- The most extensive analytical study of staff needs of this kind was conducted by the Committee for Study of Environmental Manpower of the National Research Council and published in 1977 as a 500-page book entitled *Manpower for Environmental Pollution Control*. It estimated current direct employment attributable to pollution control activities at 700,000 people, 280,000 of them in the private sector. It anticipated that national "expenditures during the next 10 years will be several times those of the U.S. space program." Finally, it said that, between 1975 and 1985, Federal manpower demand (new jobs) will remain stable or decrease slightly, while State and local agencies will assume increasing responsibility for pollution control programs. The greatest manpower demand should arise from local activities involving paraprofessionals. All personnel engaged in local water quality operations and State-local regulatory activities should increase by about 50 percent.

- That same study incorporates Bureau of Labor statistics analyses suggesting that as many as 70,000 jobs are generated directly and indirectly from each billion dollars spent on pollution control. President Carter has proposed that \$4.5 billion in Federal funds be appropriated this fiscal year for pollution programs, towards an overall commitment of \$45 billion over ten years. Thus, more than three million new jobs (throughout the economy, not in environmental management per se) could result from these pollution control expenditures. Douglas Costle, administrator of EPA, has said, "The unemployment rate in 1977 was one-half percent lower than it would have been without the pollution control expenditures required by law."

- Passage of the Occupational Safety and Health Act several years ago created a tre-

mendous demand for industrial hygienists. There are about 4,000 members of this profession in the United States and Canada, and 12,000 new jobs are estimated to be in prospect over the next decade. But demand for industrial hygiene *technicians* will be even greater. There are only 1,000 today, and between 25,000 and 40,000 will be needed.

Look at the employment advertisements in a major newspaper such as the Sunday *New York Times*, and you will find that certain types of environmental management professionals are in continuing demand. This is particularly true for all the areas under Environmental Protection and Public Health and Energy Resources Development and Applications, in Table 1. Among the reasons: There are strong laws on the books, Federal spending is rising, there is significant private sector involvement, and society continues to demand results. By contrast, there are other areas just as necessary but whose importance has yet to be fully recognized by society. Fisheries and wildlife conservation, forestry, and recreation and parks are examples of stable, slow-growing fields. The industries involved do not want a strong Federal presence. The Federal establishments lack strong, political support for expansion. Jobs open up slowly in such a conservative situation.

Two Booming Environmental Professions

Nobody planned it; nobody even predicted it. Yet two professions which are not inherently "environmental" disciplines have become the pacesetters in opening up new environmental job opportunities. They are agriculture and veterinary medicine.

Continued to page 38



Youth Opportunities at EPA

By John Heritage

The bloom isn't off youth's interest in the Environmental Protection Agency, personnel officials with the Agency say. The bloom isn't off EPA's interest in youth either, they add.

"They pound our door down looking for jobs," says Bernie Unger, chief of EPA's National Employment Center. EPA has 4,000 applications for its summer youth programs alone. The Agency is getting 500 letters a week, mostly from youth, asking about jobs.

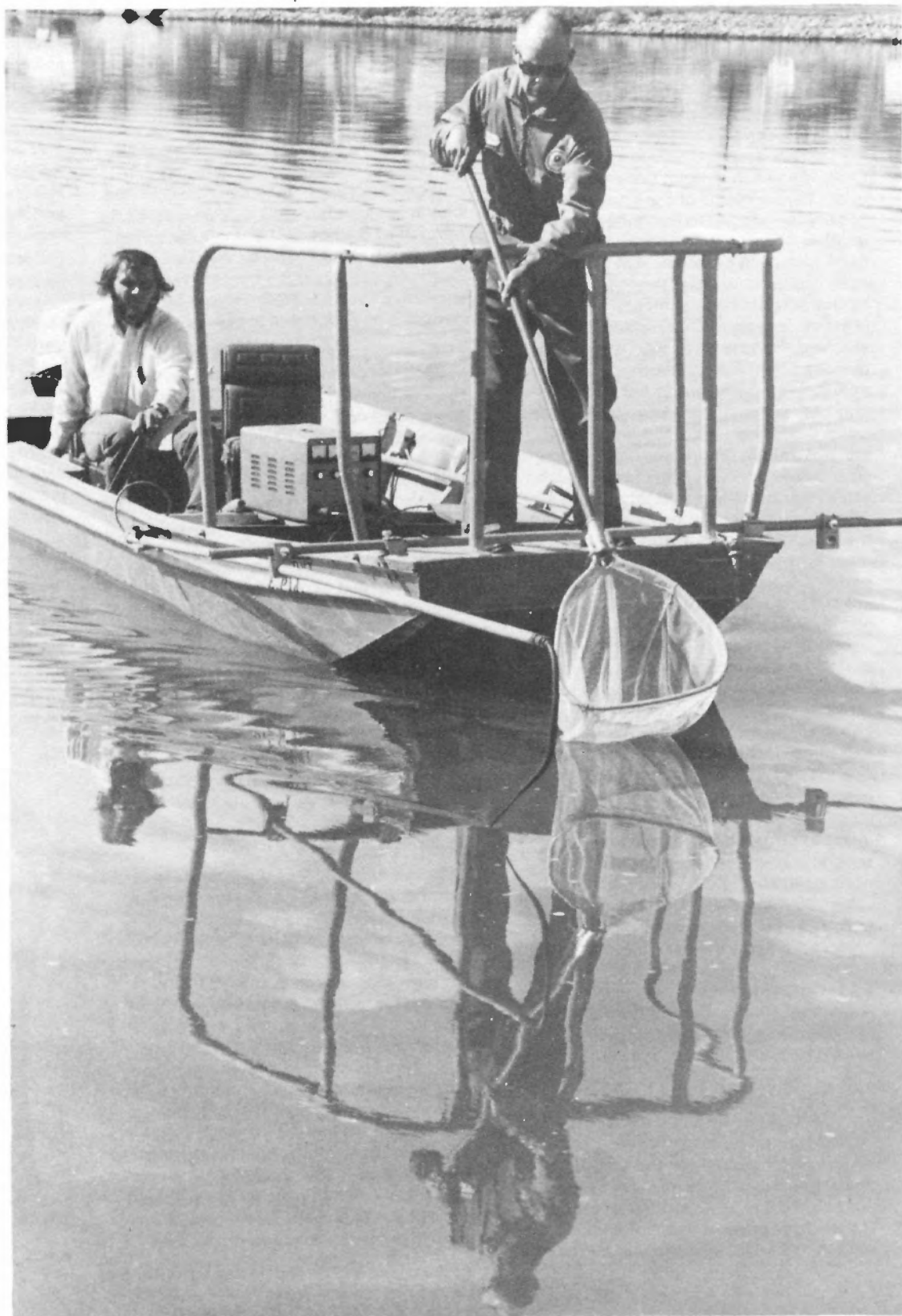
Youth's enthusiasm for EPA work is a matter of values, says Matt Simms, acting deputy director of the Personnel Management Division. "They're more interested in protecting the environment than in the military-industrial complex." Work in the life sciences is a favorite among the letter writers.

In return for the young people's environmental spirit, EPA has jobs, assistance programs and advice.

The Agency hires some 2,200 people a year nationwide to fill jobs opened by normal turnover, says Unger. In addition, EPA had 600 new jobs last year and has 690 more in the President's FY 1979 budget.

The general entry salary for professional and administrative positions is \$9,959 at the Government Service-5 level, and \$12,336 at GS-7. Recent law graduates start at \$15,090 at GS-9, or at \$18,258, GS-11. The engineering entry level is \$12,947 at GS-5, or \$14,802 at GS-7, higher starting pay than other GS-5's and 7's because of a tight supply of engineering graduates. Clerk typists are paid \$7,930 at GS-3.

John Heritage is an Assistant Editor of EPA Journal



and get \$8,902 at GS-4.

Clerk typing can be a shortcut to the professional environmental jobs for college graduates. "If they pass the civil service typing test, we can hire them and after 90 days' work they are eligible to bid on professional jobs," says Unger.

EPA positions include engineers, toxicologists, fishery biologists, and ecologists; lawyers, environmental scientists, chemists, and health scientists. But competition for many of the openings, such as life sciences, is hot, with thousands applying for some slots.

"The more technical the discipline, the better the chance," says Simms. The thrust in EPA jobs is away from normal pollution abatement and toward health effects, he adds. Toxic substances is where most of the new positions have gone recently, he explains.

The need for engineers is especially critical now, says Unger. The four key types are environmental, sanitary, mechanical, and chemical. Engineers will still be in demand 5-10 years from now, he predicts, with colleges turning out fewer graduates compared to other disciplines such as law.

Unger's advice: Take engineering or math, or one of the physical sciences. Or learn to type. "There's always a typing shortage in Washington," he says. EPA has also been hiring a lot of law students, normally after the first year of law school, says Amy Kearns, personnel

staffing specialist.

Another big environmental employment area is the operation of wastewater treatment plants, largely stimulated by Federal construction grants from EPA. The job need, says Simms, is for skilled, technically trained, blue-collar persons at the local level.

Jobs at the plants totalled 45,000 in 1974. They'll total 67,500, a 50 percent increase, by 1985, predicts a recent National Academy of Sciences report. Positions are professionals, operators, technicians, and unskilled.

Fueling the plant construction program will be \$24.5 billion in EPA grants authorized over the next five years, a 29 percent jump from 1972-1977 levels. In addition to actual plant operation jobs, each billion dollars spent for construction produces 20,000 jobs on the construction site, and 26,000 off-site, according to EPA's Municipal Construction Division.

EPA funds and requirements are also creating non-Federal jobs elsewhere, in air quality, radiation, and noise. One air quality district alone, in the San Francisco area, expects a staff of 200, compared to EPA's

staff of 350 there for the entire region.

Most of the environmental job action at the State level is in water and air, Unger adds. "I only hope that the guidance offices in high schools and colleges are noting this as they develop brochures and booklets."

Beyond its day-to-day operations, EPA reaches to youth with four special agencywide programs. They are:

The Summer Employment Program, involving about 700 college undergraduates, graduates, and faculty during summer vacations. It gives a chance for on-the-job experience and firsthand knowledge of EPA.

Positions range from clerical to professional, technical and administrative, from GS-2 through GS-12. Included in the EPA summer effort are the Federal Junior Fellowship Program and the Summer Aid Program.

The Cooperative Education Program, with alternate work and study, involving about 388 students. EPA provides the work assignments and agrees to carefully consider filling existing permanent vacancies with student graduates.

The Student Assistant

Program, involving about 123 college students a year. Positions are at GS-7 and below, with non-clerical work helping scientific, professional, or technical employees.

The Stay-In-School Program, for disadvantaged youth who need earnings to remain in school. High school juniors and seniors are involved, along with some college students. Work levels are the equivalent of GS 1-4. The effort is part of the President's Back To School Program, with 500 students at EPA nationwide.

Another special EPA job training project is aimed at the operators of wastewater treatment plants. It involves preparation of training manuals for community colleges working with EPA in about 10 States and also direct training where some new technologies are involved. EPA's National Training and Operational Technology Center carries out the program.

In an encouraging action, the U.S. Civil Service Commission recently established Ecology, GS-408, and Environmental Protection Specialist, GS-028, as separate job series. In EPA, it is anticipated that several hundred jobs will eventually be classified under these new series. The pay will range from GS-5 to GS-15.

Anyone interested in jobs with EPA should write to the National Employment Center, (PM-212) EPA, Washington, D.C. 20460, and ask for a copy of "Career Opportunities in EPA." The free pamphlet explains how to apply for jobs and where. For normal beginning salaries in GS 1-18, see the adjacent table. Higher rates are available in exceptional cases. □

EPA employees from the National Enforcement Investigations Center in Denver, Colo., gather fish samples from a "shocker" boat that stuns fish with an electric charge for easier collection.

Grade	Pay	Grade	Pay
GS		GS	
1	\$ 6,219	10	\$ 16,618
2	7,035	11	18,258
3	7,930	12	21,883
4	8,902	13	26,022
5	9,959	14	30,750
6	11,101	15	36,171
7	12,336	16	42,423
8	13,662	17	47,500
9	15,090	18	47,500

On the Legislative Front

An interview with Charles S. Warren, Director, Office of Legislation.

Does EPA have essentially the statutory authority and responsibility from Congress that it needs for a while and is EPA's main job now to implement the existing laws?

I think that is basically right. We just finished last year's major revisions of the Clean Air Act, the Water Pollution Control Act, Research and Development Act, and Safe Drinking Water Act. In 1976 we saw enacted the Resource Conservation and Recovery Act, and the Toxic Substances Act. Revision of the pesticide law is now being completed. I think what you may see this year are some revisions in the Noise Control Act and the radiation program statutes, but our major legislative revisions have been completed and I think it's going to stay that way for a while. This is probably a good thing since we need some time to assimilate all the changes that have been made and to implement some very complicated programs.

Are there unresolved issues between EPA and Congress over implementation and policy?

Yes, I think there are still unresolved issues. We have new mandates under the Clean Air Act and the Water Pollution Control Act, and we are now in the process of going through implementation of those Acts in close consultation with the Congress. I think there are always issues that are not completely settled to the satisfaction of one House or the other during the legislative process. Then the interpretation phase starts and that is the point we have reached now.

Is the Hill as responsive as it used to be to environmental concerns or is there a change in attitude now?

Congress is still fairly responsive to environmental concerns. I don't think it's as responsive as it was in the early 1970's when a lot of the major legislation was passed. I think we've seen a change in the mood of the Congress primarily because of economic factors, and the unemployment situation. The economy's been more stagnant over the last several years. I

think that places more pressure on environmental concerns because industries see environmental costs as non-productive expenditures. That's an issue that is often raised in Congress. Another problem that we have is that we're getting into some more complicated regulations, especially regulations dealing with chemical cancer-causing agents. We're relying on animal tests which are used to predict what's going to happen to humans in the future. This is the best system we have and it must be used for regulatory actions but it stirs up a large segment of industry and they come to the Congress. But, generally, Congress still is positive, I would say, about the environment and even though they might have specific quarrels with us about things that we're doing that deal with our legislation, the membership is generally positive.

How many committees do we have to deal with now on the Hill?

About 54 committees and subcommittees. Besides the Appropriations committees in both the House and Senate, we have in the Senate the Budget Committee, the Environment and Public Works Committee, the Commerce Committee, the Energy and Natural Resources Committee, the Agriculture Committee, and the Governmental Affairs Committee. In the House, we have the Budget Committee, the Interstate and Foreign Commerce Committee, the Public Works Committee, the Science and Technology Committee, the Merchant Marine Committee, the Agriculture Committee, the Government Operations Committee, the Post Office and Civil Service Committee, and the Interior Committee. Those are committees that we have more than minor involvement with and then we have to deal with many subcommittees.

Is there any way we can ease that problem?

I don't see a practical way for us to do much about it. That is essentially an internal Congressional matter. We do point out to Congress how many committees we have to deal with every chance we get.

Will there be some major changes in the key personnel on the Hill? For example, there is speculation that perhaps Sen. Muskie may retire after his present term.

Well, Sen. Muskie's term doesn't end until 1982, and there has been talk that he will retire. He has been a key member of Congress in the environmental area and to lose his leadership would have some effect on our programs. However, over the years a number of other members of the Senate have been very helpful to us and I think they would continue to be helpful.

Leon Billings has now moved up to be Sen. Muskie's Administrative Assistant. He used to play a major role in the environmental area. Who has replaced him in that role?

Karl Braithwaite will be the Staff Director of the Subcommittee on Environment. Leon was of course a major figure over the last 10 years in environmental legislation, and he was very important to us and very helpful on most of the issues. Karl Braithwaite is an extremely competent fellow and has an excellent staff. I'm expecting that the subcommittee will be as supportive and as helpful as they have been in the past. You can't replace someone like Leon Billings to the full extent, but I think that Karl Braithwaite and his associates will do a fine job.

Which EPA proposals or activities are of most interest to the Hill?

I'd say there are three major areas. First, enforcement because that's the kind of activity that stirs up a lot of controversy and brings constituents screaming to their Representative or Senator. Second, air and water pollution. They are major programs and they're having an impact on the States. The States have to do a lot of things under both the air and water laws and that generates continuing contacts with the Congress. Another one is the pesticide program. I think that's a very controversial program, particularly in the South, the Midwest and the West. The Agriculture Committee members are the ones who are most

involved. They show a tremendous amount of interest in our pesticides activities. I would say for a program which does not involve the expenditure of large amounts of resources of the Agency, it draws a lot of attention from the Hill.

Talking about the interest of the Hill in our programs, are there any particular problem areas where the Hill is unhappy with us?

I think there's been a general unhappiness about what's happening with the pesticide programs. That's a continuing area where the Hill watches us very closely. The Agriculture Committee, on the one hand, and then the committees that handle health and science, on the other hand. Members in both groups think we're not doing enough from their own point of view. I think there's also been some concern about the research activity in the Agency. The Congress has concern that either we're not doing enough long-term research, or that we're not doing enough research to support our regulatory programs.

I think there's also concern with our water pollution program with the House Public Works Committee watching us very closely.

How would you characterize EPA's relations with Congress overall?

I would say that right now, they are better than they have been. We try very hard to be responsive to the legitimate concerns of the Congress to make sure through this Office that we service the Congress in the best possible way. We try to expedite information from the Agency, to arrange meetings, to solve problems which members of Congress bring to us. We also try to work with them very closely in the legislative area so that they get the technical advice they need and can be responsive to some of our problems. Today I think our relations are better than they have been for a while, at least from my perspective. The only way I can judge is by what I hear today as opposed to what I heard when I used to work in the Senate.

Do you anticipate additional oversight hearings on various problems?

Oh, yes. I anticipate a continuing series of oversight hearings later this year. We're going to testify on noise. We have already testified on radiation and I suspect we'll do more of that. I anticipate that we will be called up again on the pesticide program. We just have so many committees that I think we're always going to have quite a number of oversight hearings continuing throughout the year.

What is your basic philosophy in dealing with the Congress?

My basic philosophy is that you have to be knowledgeable and straightforward in dealing with the Congress. I believe in giving



Charles Warren

both the good news and the bad news when you have to. And I think you have to make your case as articulately as possible. You have to hold to your positions if they are reasonable and be prepared to change your position if it's unreasonable. But I don't think you have to always try and placate Congress. For example, if you think they are wrong and you are right, obviously that is a situation where you have to try to see that the Congress understands the actions of the Agency. We try to discuss problems thoroughly with staff and members to avoid unnecessary misunderstandings.

Do you regard your office as a service agency or do you think the office should help shape policy for the Agency?

I believe very strongly that we have a role in shaping the policy of the Agency. We cannot have an effective functioning Office of Legislation if the office is not intimately involved in the policy-making at the Agency. The only way that I can be effective in dealing with members of Congress is if they know that I am involved in policy, that if they talk to me I can have something to say about changing a particular policy or shaping a policy, and that I am not just carrying messages back and forth. When you get into the message carrier situation, you just don't have effectiveness on the Hill. That's what I saw clearly from my perspective as a legislative assistant working in the Senate. I see that even more clearly now that I'm at EPA.

Do you anticipate any major environmental legislation in the next year or so?

I would say in 1978 we're not going to see too much more in the way of major environmental legislation. I indicated before we might see refinements in some of our acts and we need to enact pesticides amendments but I don't see any major legislation right now.

With your perspective do you think the environmental movement has made substantial progress?

I think the environmental movement has made substantial pro-

gress up to this point. I think there's a greater public awareness of environmental problems all over this country and this has happened in a relatively short time—less than 10 years. I do think that the environmental movement faces difficult challenges now as we go into the future. This is primarily because we're faced with complex problems, dealing as I said before, with cancer-causing agents, long-term effects of environmental pollution, issues that are more difficult to explain to the public. We're also dealing with the public attitude, which while still favorable is a little bit less enthusiastic about environmental issues because people have heard so much about them.

While I think the environmental movement is going to continue to be strong, it's going to have to meet some serious challenges. I see industry today mounting furious attacks on environmental regulations in general.

What can we do to respond to the attacks?

I think that it's very important for an Agency like EPA to cooperate with agencies such as Food and Drug Administration, Occupational Safety and Health Administration, and the Consumer Product Safety Commission to provide as much information to the public as possible and get it out there in a credible, sensible way. An excellent start has been made on this cooperative effort with the Interagency Regulatory Liaison Group which features the active participation of the four agency heads. I believe the Administrator of EPA has a key role to play and it's a leadership role in trying to educate the public on some of the more sophisticated problems that exist today. The entire Government has to play a major role in this. Public interest groups can do some things but they're small and underfunded and they need a lot of help from the Government at all levels. I just think the public has to know a lot more about these matters. It's a difficult job, but it's primarily one of education and one that has to be done.



Preventing Tanker Oil Spills

By Douglas M. Costle
Administrator
Environmental
Protection Agency

Costle was attending a meeting in Geneva, Switzerland, when the Amoco Cadiz went aground in March off the coast of France resulting in the worst ecological disaster in history involving an oil spill. He called in U.S. experts and visited the site of the disaster. The following is an account of his visit and the conclusions he reached.

The beaches were black with oil. For more than 70 miles along the French coast in the middle of March, thousands of tons of a mixture of Arabian crude and Iranian oil from the supertanker spill covered the beaches, waterfowl, harbors and shipyards.

Not since the Torrey Canyon tanker went aground 11 years ago in March 1967, and discharged 117,000 tons of oil off the


coast of England has the world's attention focused so meaningfully on the oil spill problem. As the last holding tanks in the Amoco Cadiz broke up, nearly a week after the ship first ran aground, the seeming helplessness of all parties involved to mitigate the disaster became clear. The final barrels of a total 230,000 tons of oil washed into the sea during the week of March 19. Other attempts at destruction and cleanup of the oil also failed.

I saw the wreck and the miles and miles of oil slick around it. I hope I never see another one. It turned out to be the worst spill in history, befouling miles of French beaches and large areas of fishing grounds.

Reports were that all fishing in the area stopped, and all the prime oyster crop and France's production of seaweed for the

chemical industry were damaged or threatened. Over 400 families in the area of Roscoff, France depend on seaweed for a livelihood. Large numbers of birds were killed. The tourist business this year has been wrecked. There was so much oil—300 square miles of it and possibly more—that clean up operations will take many months. The worst of it is that much of the damage will be long lasting.

The lesson from Amoco Cadiz is clear. Such accidents must be prevented. Some 624 supertankers, of over 200,000 deadweight tons each, sail the oceans today, and by one estimate, now carry one-half of the oil shipped by ocean. Every day of the year at least one of these off-loads oil near the U.S. coastline, usually into smaller ships about 50 to 75 miles from shore. And even these smaller vessels, which are more



manageable in negotiating our harbors and ports, pose a significant risk. In 1976 and 1977, 20 tankers of this variety were totally lost each year.

So far the supertankers have had no major accident or oil spill in U.S. waters. But these mammoth ships are of fairly recent construction. Tankers tend to be involved in more accidents as their hulls and equipment age with the years. One could break up off our coast, although it is not an inevitable event.

Most tanker accidents result from human error. It is entirely possible to prevent a marine disaster such as the grounding and foundering of the supertanker Amoco Cadiz in the middle of March off the Brittany coast of France.

There are two principal factors involved in preventing future tragedies of this

kind: (1) the construction of the ship itself, and (2) the navigation of the ship and operation of its equipment by the officers and crew.

The United States and the other tanker fleet nations have begun to take action. President Carter, a year ago, proposed a number of tanker safety initiatives. In February most of his initiatives regarding ship design were adopted in a new agreement by the International Conference on Tanker Safety and Pollution Prevention in London.

Under the agreement, large new tankers would be required, among other things, to use segregated tanks for ballast, to be filled only with seawater for the added stability the ship needs. The segregated tanks would provide protection from accidental spills by being built along the sides or bottom so that

they, not the oil tanks, would be punctured in an accident. Existing tankers would be required to reduce operational discharges into international waters.

The supertanker Amoco Cadiz, which foundered off France, did not have segregated ballast tanks. These would not have prevented the accident. However, the Amoco Cadiz went aground after a steering failure. The international agreement calls for improved emergency steering design standards, and these might have prevented the disaster.

The improved design requirements for the construction of new tankers and the modifications of existing ones in the international agreement are now being incorporated into new regulations being drafted by the Coast Guard. Those regulations will apply

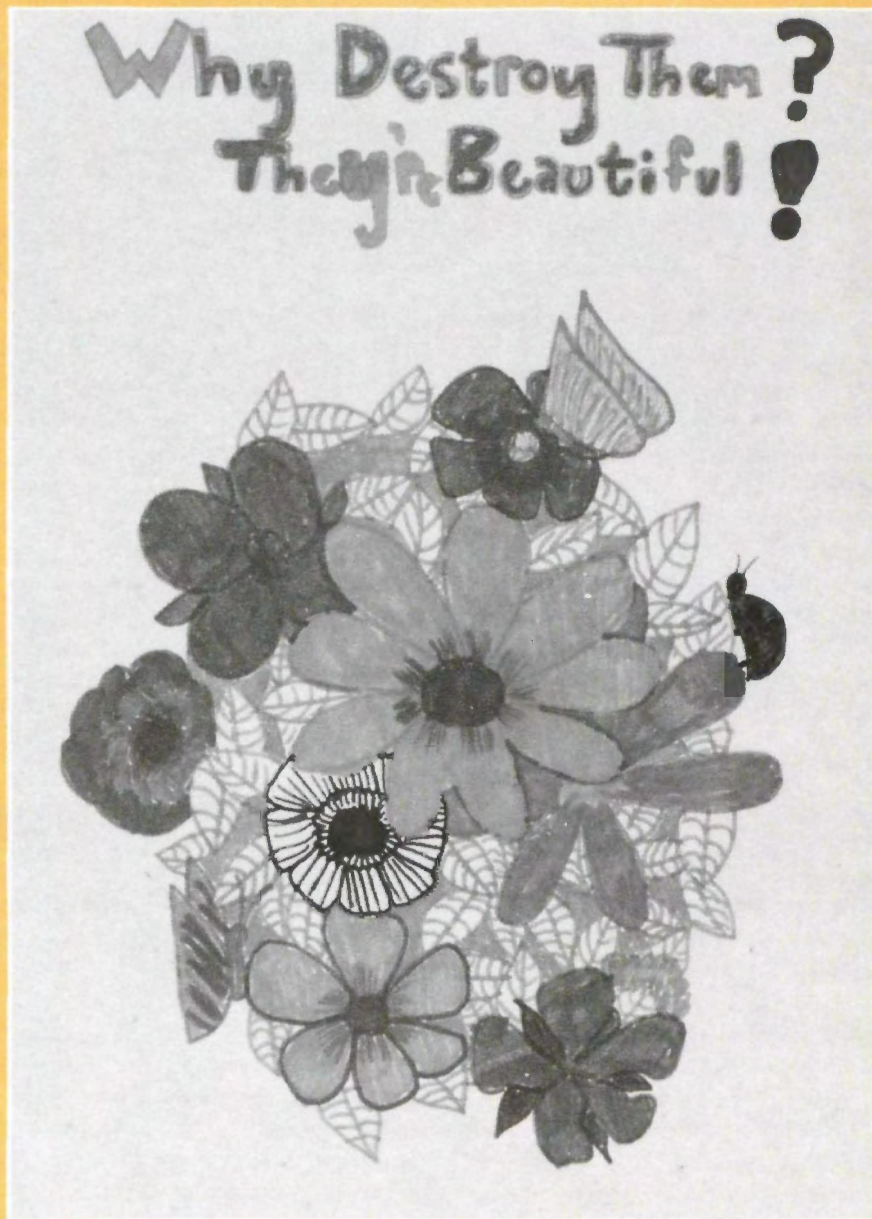
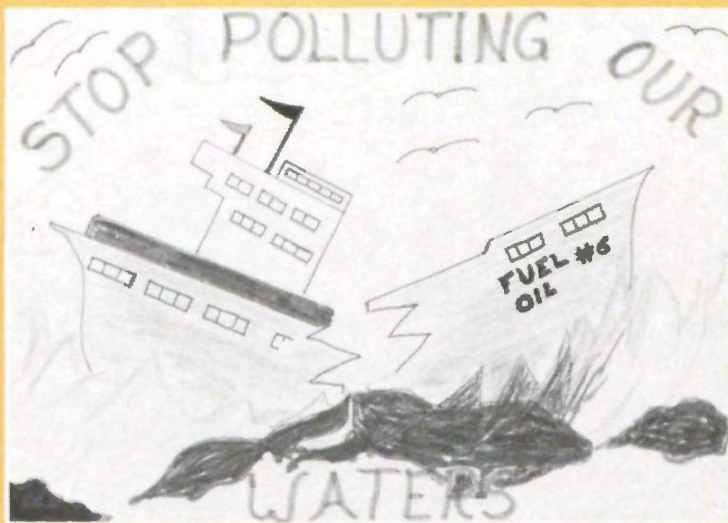
to every tanker, foreign or domestic, bringing oil to the United States.

A great deal more needs to be done about the second major cause of tanker oil spills—namely, the upgrading of seaman-ship and equipment operation standards aboard these tankers. In June of this year, an additional international conference has been scheduled under the auspices of the Inter-Government Maritime Consultative Organization to take up this problem.

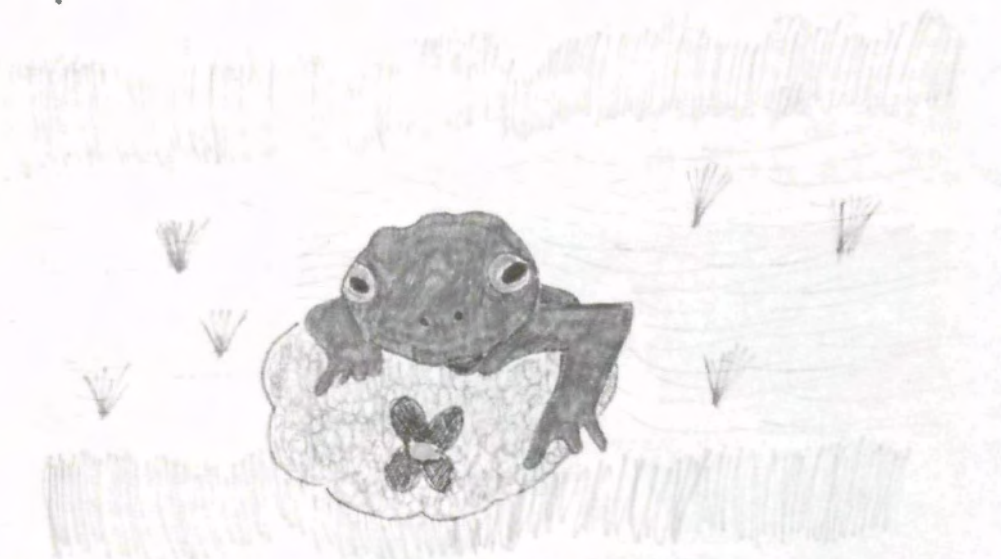
I hope the Amoco Cadiz accident will provide the impetus to obtain agreement on this other aspect of preventing tanker oil spills. It is to be hoped as well that the new agreement on safe tanker design will be quickly ratified by the U.S. Senate and other nations that were a party to it. □

Crayons Against Pollution

The posters displayed on this page are just a few of the almost 7,000 entries submitted annually to EPA's Region 1 office in Boston for its Elementary Education Ecology Poem and Poster Program. Teachers all over New England hold classroom discussions based on films or pamphlets provided by EPA. Their students create posters based on the discussions and the teachers pick the best ones for submission to the Regional Office. A citizen's panel made up of educational, civic, and environmental leaders chooses the contest winners. Those who submit the 90 best entries receive a plaque and 210 runners-up are awarded framed certificates. Awards ceremonies are held in each State with a U.S. Senator usually participating. Says Region 1 Administrator William R. Adams, "One thing that has amazed me is the degree of sophistication of many of the entries. It convinces me that the children are informed and interested about the problems of pollution."



SAVE OUR



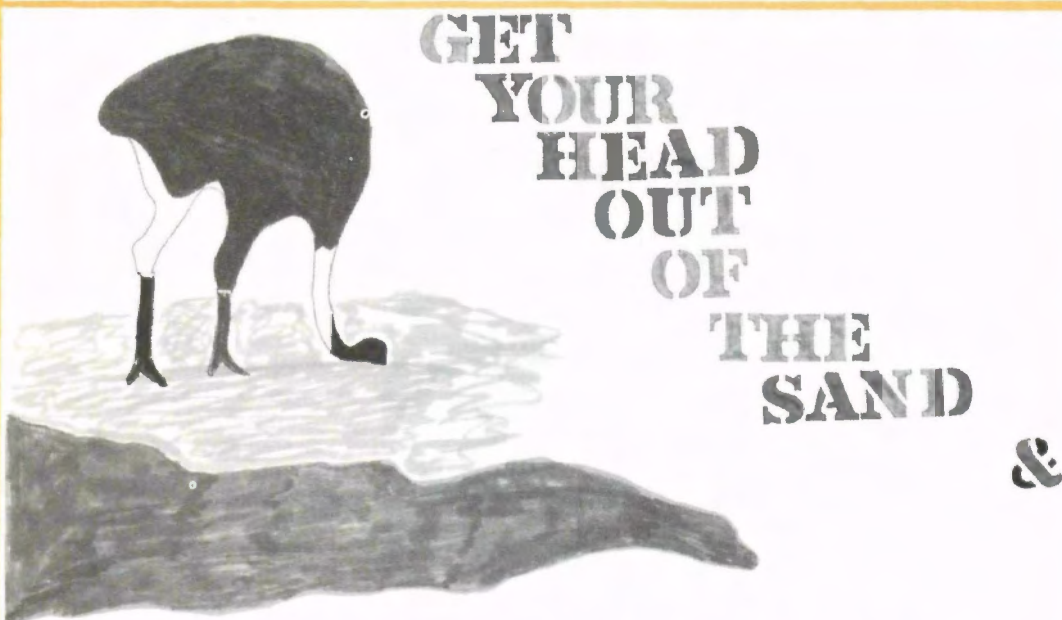
MARSHES

A tanker accident that could damage the environment was a concern of Marc Criscio of New Haven, Conn.

Kris Lund of Riverside, R.I. drew a nosegay of flowers in honor of the environment.

A swampfrog was the subject of Elizabeth Bertsch's poster. She is from Waterville, Me.

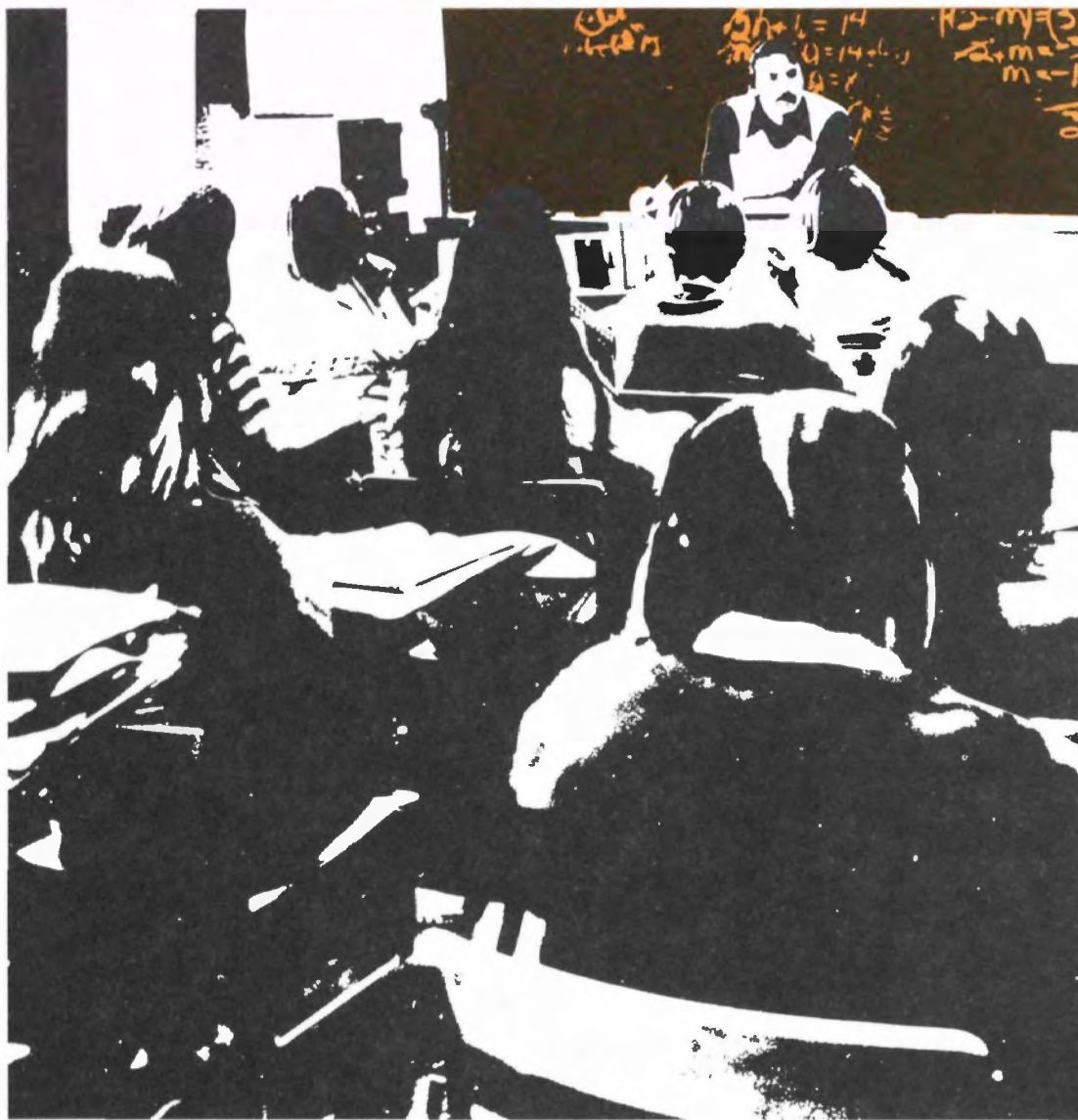
Blair Fleming of West Hartford, Conn. submitted this ostrich as a warning to those who neglect their environment.



KEEP THIS WORLD THE WAY GOD PLANNED!

By Mattie Montgomery

Washington as a Classroom



Energy and Environment: Issues and Interdependence is the topic of 16 weekly seminars being held at EPA in conjunction with the Close Up Foundation's program for high school students.

The Close Up Foundation is a non-profit organization created eight years ago to give students and teachers a first-hand look at "living government." Established by Stephen A. Janger, its current president, the organization is supported by contributions from foundations, corporations, and individuals and also by an annual Congressional appropriation, the Senator Allen J. Ellender Fellowship Program, a memorial to the late Senator who supported the Foundation at its inception.

The Foundation conducts a large government studies program and has a current budget of about \$5.5 million, including \$750,000 from Congress. It works with both public and private secondary schools around the Nation, which select representatives for one-week intensive study sessions in the Nation's Capital. Visits are generally financed jointly by the schools and students, with room, meals, and instruction materials furnished by the Foundation. However, numerous fellowships also are awarded by the organization to students and teachers covering tuition and transportation. This year's seminars extend through May 23.

Close Up has brought students and teachers to the center of American government and political activity. Through a first-hand examination of government in Washington, participants in this program are given an opportunity to achieve better understanding about their government and about how they can participate in it.

Close Up keeps its curriculum free from any single ideological slant so that students can examine the realities of American government and then be free to formulate their own political convictions.

Each Tuesday afternoon, a group of 35 or 40 high school

Mattie Montgomery is a member of the EPA Headquarters staff of the Office of Public Awareness.

students representing 25 communities across the country meet in the EPA Headquarters Visitors Center to discuss the causes and effects of major problems such as air and water pollution, land use policy development, energy allocation and consumption, the economic factors related to the quality of life, and to propose both political and social solutions to these problems.

Close Up II—Return, React, Respond—is an issue-focused political participation skills program for those high school students who are returning for a second year. Close Up II focuses on student investigation of issues and problems in American life as well as student participation in the political processes.

Daily activities for Close Up II students focus on the following issues:

Urban and Community Affairs

—Discussions of such issues as transportation, housing, crime, neighborhood studies, and community involvement.

Law-related and Justice Issues

—Examination of such topics as Search and Seizure, Juvenile Justice and the role of the Federal Bureau of Investigation.

International Affairs —An examination of foreign policy issues as they relate to global citizenship.

Congressional Studies

—Students are exposed to a comparative analysis of such issues on Capitol Hill as committee structure, lobbying, disclosure, and American political behavior patterns.

Economics, Business, and Labor

—Discussions of employment, free market enterprise, budget, etc.

Energy, Environment, Science, and Space Exploration

—Discussions of energy consumption and development, environmental problems, and how they are inter-related.

The EPA seminars are in the form of panel presentations in which selected members of the EPA staff and energy and environmental organizations provide contrasting viewpoints

followed by a question and answer session. Topics being discussed are:

- The New Department of Energy
- The Energy Act
- The energy shortage, possibilities for developing alternative energy sources, and their cost effectiveness
- How to evaluate the effects of the changes we choose on the ecological system
- How population growth affects energy demands and the ecological system
- How the scarcity of natural resources will affect life styles in the future
- What kind of conservation is necessary in order to survive with the best possible standard of living
- How can a sense of community be developed which will ensure our survival.

Close Up is an opportunity for students, teachers, and government officials alike to share perspectives on "living government." Instead of tours, souvenir hunts, or a few moments as witnesses to routine business in the Senate, Close Up uses the unique facilities of Washington as a classroom. For one week students are involved in discussions with members of the House and Senate, committee staffers, administration figures, judges, lobbyists, reporters, politicians, ambassadors, and just ordinary concerned citizens who contribute to government. Through these conversations and seminars, they gain an understanding of how government changes constantly to meet new needs and how it adjusts to new situations and pressures.

The Close Up concept goes far beyond the rigidly structured curriculum of American government textbooks. Rather than utilizing the formal approach, a participant focuses on the informal aspects of government—the cooperation, conflict, and compromise that take place, for example, concerning health effects of pollutants.

By the end of the week, students are intellectually invigorated. Their opinions are their own, but they are grounded in facts and experiences that reflect a basic understanding of the realities of government in Washington.

By the end of their EPA visit, students are certainly more aware of environmental problems, as well as EPA's efforts to solve them. They have been able

to communicate their concerns for their own community to someone at the Federal level responsible for the environmental problems they encounter. These students are extremely bright and highly motivated and are most receptive to the idea that as leaders of tomorrow, they must begin considering their responsibilities today. □



Joan Martin Nicholson, Director of the Office of Public Awareness at EPA speaks with high school students visiting Washington under the auspices of the Close Up Foundation.



Seeing Makes Believers

Seeing is understanding. As many teachers and students have found, the eyes are necessary partners to the brain in grasping complex environmental issues.

The chances to look, see, feel, and hear are readily available everywhere, though. It only takes the local park, or wastewater treatment plant, or museum, or water filtration plant. Once, some of these facilities were seen as mundane, unrelated. Now, they are recognized as keys to knowing the community and the environment.

Many public facilities with ecological lessons to offer are responding to youth's need for real life experience. They have set up special programs in pollution sampling, ecology tours, watershed control demonstrations, pollution cleanup exhibits.

It seems to be a way of saying to the student, "You need our special environmental knowledge. We need your support as environmentally-aware citizens."

As students explore the workings of their environment—the interaction, the problems, the cleanup tools—they will see the big things that are happening—a lot of technology, construction, research, debate, and caring. The whole community will become their environmental education bookstore, with volumes on history, the future, the present's problems and progress, the science and poetry of the issue.

As the following examples show, the Nation's capital is rich with environmental facilities and programs, from trails to solid waste processing. The examples can help Washington area youth in what to see.

The capital area facilities listed here can also be a guide as students and teachers elsewhere



Youngsters draw water samples under the supervision of a ranger from the Lightship Chesapeake.

make their own plans suited to their own community.

Here are some Washington facilities (for a more detailed Washington list, write Jeff Meetre (A-104), Office of Federal Activities, Environmental Protection Agency, Washington, D.C., 20460):

- Alexandria Health Department, Environmental Health, Air Pollution Division, 517 North St. Asaph Street, Alexandria, Virginia, 22314. Phone: (703) 750-6254 or -6698.

Students visiting the Air Pollution Division can see air monitoring instrumentation and discuss local pollution sources. Slides and pamphlets supplement the discussion. Also, Air Pollution Division members often take the program to schools. Division hours: 9:00 a.m.-5:00 p.m., Monday-Friday. Saturday classes can be arranged. No admission fee. Groups of up to 40 are allowed.

- The Lightship Chesapeake, National Park Service, U.S. Department of the Interior, 1200 Ohio Drive S.W., Washington, D.C., 20242. Phone: (202) 426-6896.

This 130-foot-long vessel is moored in the Washington Channel near Hains Point, in southwest Washington, D.C. Small craft and water sampling equipment are available to study the Anacostia and Potomac rivers. Pollution control study

programs have been offered for students. Interested youth may serve as volunteers in the surrounding park, assisting with park programs or conserving the ship site.

Also, the Lightship hosts a Youth Conservation Corps Camp during the summer months, where high school students earn and learn while helping park staff with needed conservation projects. The Lightship Chesapeake is open for visits by the general public, daily 9-5. Teachers must call before bringing classes. Admission is free. Groups of up to 35 are allowed.

- National Museum of Natural History (Smithsonian Institution), Constitution Avenue & 10th Street, N.W., Washington, D.C. 20560. Phone: (202) 381-6135.

The Museum has a 90-minute ecology tour with several displays and exhibits that can be useful for environmental education. For instance, in the Hall of North American Mammals students learn about the relationships of animals to each other and to their environment. The program is for students in grades 4 and above. Tours are during weekday mornings. It is recommended that teachers make reservations a month in advance. There is no admission fee. Classes can be as large as 60 students.

- Prince William Forest Park, National Park Service, Department of the Interior, Box 208,



The Lightship Chesapeake is moored in the Potomac River.

Opposite page: Grade school students on tour with their teacher pay a visit to the stegosaurus, a form of dinosaur, at the Smithsonian Institution's National Museum of Natural History.

Triangle, Va., 22172 Phone (703) 221-7181

With its old farm sites returning to forest, this park offers the student an opportunity to learn about the impact of people on the environment. The park also has 89 known species of trees and shrubs, plus numerous wild animal species, including white-tailed deer, red and gray fox, beaver, raccoon, opossum, flying squirrel, gray squirrel, and skunk.

A general orientation to the park is offered at a nature center. The orientation usually lasts about twenty minutes. Teachers should indicate if they want a movie or a talk by a naturalist. Teaching aids are available. While no reservations are required for nature trails, the teacher should call to ask for an application form for any ranger-led program. The Center is open year-round, seven days a week, from 8:30 a.m. - 5 p.m. Classes of up to 30 are allowed.

- Rock Creek Nature Center, National Park Service, U.S. Department of the Interior, Military and Glover Roads, N.W., Washington, D.C. 20015. Phone (202) 426-6829.

Much of the program is pure natural history: animals, plants, geology, and weather in the Washington, D.C. area. Astronomy classes are held in a planetarium. Ecology films are shown in an auditorium, and students hear a naturalist talk. Outside, there are two guided nature walks. Teachers should make reservations at least three to four weeks in advance. Hours are 9:30 a.m. - 5:00 p.m. Monday-Friday. On Saturday and Sunday, hours are 10 a.m. - 5 p.m., except 10-6 in the summer. No admission fee. Capacity depends on facilities used. The limit on the nature walk is 35 students; at the planetarium it's 600; and in the auditorium it's 100.

- U.S. Environmental Protection Agency Visitor's Center, first floor of the West Tower, Waterside Mall, 401 M Street, S.W., Washington, D.C. 20460. Phone (202) 755-0713.

The Visitor's Center offers programs on what EPA is doing to protect and restore the environment, as well as on what individuals and groups can do. Exhibits describe the causes and

growth of pollution, the problems confronting us, and the technology available for pollution control.

Tours are available for student and adult groups on request, and special programs featuring speakers and films are prepared to meet particular interests of groups. Free publications, posters, bumper stickers and decals are provided. Groups should call to make reservations. Hours: 9:00 a.m. - 4:00 p.m. Monday-Friday. Admission is free.

- Solid Waste Reduction Center Number 1, Department of Environmental Services, District of Columbia Government, 3200 Benning Road, N.E., Washington, D.C. 20002. Phone: (202) 629-5295.

Visitors are usually surprised to see the large volume of solid waste that is processed at the plant. The tour begins at the receiving and storage area and moves along to incineration and

the disposal of non-burnable leftover materials. Teachers must arrange field trips in advance. Hours: 10:00 a.m. - 3:00 p.m., Tuesday-Friday. There is no admission fee. Teachers should notify the Center of their class size.

- Blue Plains, Bureau of Wastewater Treatment, D.C. Department of Environmental Services, 5000 Overlook Avenue, S.W., Washington, D.C. 20032. Phone: (202) 767-7641.

High school groups learn about primary and secondary waste water treatment. No one under 16 is admitted. Teachers must schedule tours in advance. Tours lasting 1-1½ hours are given on Wednesday and Thursday beginning at 11:00 a.m. Admission is free. Groups of up to 20 are allowed.

If you plan to visit the facilities listed above, it's advisable to call in advance if you have a sizable group.

Students enjoy exhibits, and speakers, in EPA's Visitor's Center at the Agency's Washington, D.C. headquarters.



Pollution Detective

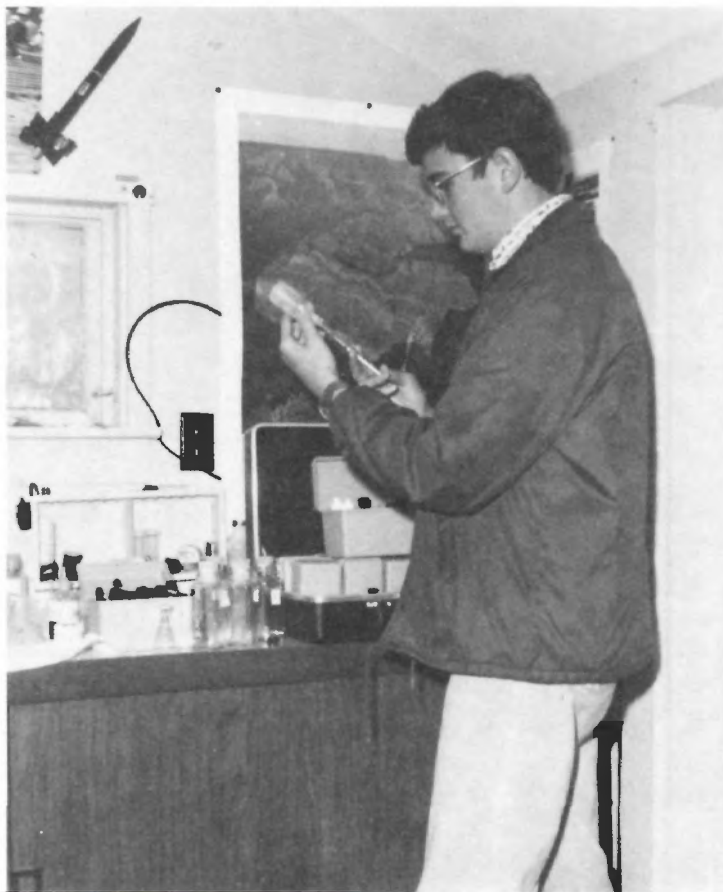
Just a year ago this month, a tall, thin 16-year-old student at Central Community High School in Breese, Illinois, drew a sample of water from near-by Beaver Creek and took it back to a shed behind his home where he had built a small laboratory.

The youth, Steven Mensing, found the water contained an excess of nitrates and phosphates. He returned to the creek, located in southern Illinois, and began further sampling at eight sites.

Mensing was nothing if not thorough. He began keeping a record of his findings. He tested the water for nitrates, phosphates, chloride, silica, sulfides, hardness, alkalinity, carbon dioxide, and acidity. At first he checked the creek irregularly, but soon he began collecting weekly samples to establish a consistent pattern. Encouraged by his science teacher, he stirred such interest that the high school furnished him with an infra-red spectrophotometer so that he could make more accurate tests.

And Mensing took notes. No one around the school had come close to him in sheer volume of records. Although his project started out as just a little extra homework, it grew into something far bigger and more significant than that. By the time the local newspaper, the Carlyle Union Banner, got around to noticing his work, Mensing had written hundreds of pages on Beaver Creek and its pollution problems.

Mensing concluded that pollution in the creek came from several sources: a dairy farm near Carlyle discharging fecal matter into a ditch leading to the



In his home laboratory Steven Mensing studies a water sample he took from Beaver Creek

creek, a leaking oil well nearby, and Mensing's own village of Beckemeyer, where a sewage treatment plant was discharging fecal matter.

He notified the Illinois Environmental Protection Agency, and after assuring him it was aware of the problem, the Agency encouraged him to continue his work. He wrote to EPA for help and was furnished with three volumes on waste-water and analysis. The Agency also informed him that after the village's current permit expired, it would have to meet stricter standards.

Mensing aired his findings at a Regional Advisory Committee hearing on clean water in Carlyle last November. He later declared he was considering filing a formal complaint against the village for the sewage discharge

and also bringing action against the dairy farm and the oil company. If nobody else was looking out for Beaver Creek, Mensing certainly was.

In recognition of his outstanding research and persistence in pollution control, Mensing this month received the President's Certificate of Merit award. He hopes to continue his education in environmental studies after high school.

Steven Mensing is among more than five million young people in the United States who have taken part in the President's Environmental Youth Awards program, administered by EPA. The program, now in its seventh year, was created by Executive order to recognize, reward, and encourage environmental activities by students across the land.

The administrative staff for the program is under youth pro-

gram director Mary Faye Dudley in EPA's Office of Public Awareness in Washington, D.C. However, throughout its history the awards program has emphasized its focus as a local effort. The choice of projects and their planning and execution are all done by students.

As President Carter declared in a special message last year, "Young people in summer camps and schools today are much more interested in environmental problems than their parents were, and this is good. We need your help with the job of cleaning up our world."

"And this is why I would like each one of you to win a President's Environmental Youth Award—so that I'll know you have joined with me in making our country into a cleaner, safer, and more beautiful home for us all."

Since the first awards ceremony was held in the White House Rose Garden six years ago, more than 300,000 young people have received awards for their services to the environment. The youth projects cover a broad spectrum of activities including clean-up programs, petitions, public information campaigns, models of environmentally-clean cities of the future, tree plantings, and sophisticated displays of how energy and environment interact upon each other.

Throughout these projects, the participants have displayed a seriousness and industry combined with modesty that speak well for their future roles in environmental careers. As Steven Mensing said about his campaign to clean up Beaver Creek, "I hope to make waves, but not get anybody wet." □

Learning about Water

By Chris Perham

A group of third graders huddle around a mud puddle after a downpour. They use chalk to outline the changing shape of the puddle once every hour as the moisture soaks into the ground. At the end of the day the puddle is gone and the students have a contour map of their watershed, along with a new understanding of where the rain goes.

Through an outgrowth of an EPA sponsored project, teachers and students are learning to understand the role that water plays in their environment and the role that land use plays in determining water quality. The effects of nonpoint pollution caused by sediment and runoff from diffuse sources are becoming apparent to them.

The teachers are getting technical instruction and course guidance from the Washington County Project, a legal institutional group funded by the Great Lakes Project in Region 5 to work in support of public participation in EPA programs. The Project works mainly with nonpoint pollution, under the aegis of the University of Wisconsin at Madison and the University of Wisconsin Extension Service. The staff is developing sediment control ordinances for States and counties that can be used within the existing legal framework, working out methods for monitoring nonpoint source pollution, and trying to set up coordinated planning between soil and water agencies.

The public participation thread that runs through these diverse activities is education about nonpoint sources. While conducting a school program for teachers the staff was struck by the lack of information and



This eighth grader slogged around the shoreline of a dying pond in hip waders, taking plant and animal samples for later analysis.

understanding about resource issues.

The project staff tackled the problem by seeking State education grant funds for a workshop where teachers were trained to be aware and analytical of such things as watershed hydrology. Last summer 26 public and private school teachers from grades 2 through 12 were given this intensive natural resources instruction.

After the workshop the teachers were given a set of suggested school activities to use as a basis for writing their own study units. Study units are teaching tools that cover a subject in more depth than a single classroom session, but are not as detailed as a textbook.

The units devised by the teachers in Washington County describe all learning goals, activities, equipment and materials. They can be adapted to meet local needs and can be added to existing studies without extensive outlay of funds or time.

Study units have the added advantage of keeping students interested because they are timely and relevant.

There are now 23 units, covering all 12 grades, available for teachers. The subjects include science, biology, agriculture, physics, English and communications. Teachers used community projects, experiments, plays, stories, movies and outdoor activities to make children aware of environmental conditions in their surroundings.

One class of 6th graders learned interviewing techniques by questioning a local contractor about his efforts to control erosion on construction sites. A 3rd grade class studied the amount of water used to make items children cherish—bicycles and the Sunday funnies. The children recorded how much water they used during a week-end and, becoming conscious

of the waste involved, they discussed how individuals could cut the amount of water consumed.

The effects of zoning and land planning on water are murky concepts to many people. Students studying nonpoint pollution compare sediment rates in runoff from various housing subdivisions, visit swamplands to see first-hand the food-chain and habitat interaction, tour sewage treatment plants to learn how water quality requirements are met, and develop land use plans of their own on topographic maps designed to protect water resources.

By seeing and doing first-hand the youngsters not only comprehend the devastating effects of environmental carelessness in their communities, but also learn how difficult it can be to reconcile ideal plans with actual needs.

During a land-use planning exercise members of an eighth grade science class made trade-offs and compromises to come up with their ideal communities. The young people were shocked when their teacher wound up the lesson by making them put an expressway right through their planned cities. The alternatives they investigated gave the youngsters a feel for the dilemma their elders faced with a proposed highway nearby.

In some cases environmental studies helped students to see familiar sights in a new way. A local pond or stream, instead of being taken for granted, becomes a source of information or a starting point for questions. To children looking for possible sites of erosion, a schoolyard becomes an entirely new landscape.

In one town a local mill pond that was eutrophic became a focal point for local history studies when students set out to learn what the pond had been like when it was young. They went on to learn how people had contributed to its aging and what could be done to slow the death of the pond. The students

Chris Perham is an Assistant Editor of EPA Journal.



also participated in a values auction—bidding on such local priorities as a new fast food outlet, more parks, a theater, or a cleaner pond.

After the first year the Washington County Project staff found that nonpoint source pollution information from resource agencies mixed well with classroom education because of the cooperation on the part of students, teachers, building principals and school administrators. The staff anticipates that the environmental education aspect of its project will expand into a second county this year.

An attempt will also be made to involve teachers who are active in community education outside of the school. The new proposal will seek to pool the talents of parents, citizen leaders, and students to help evaluate and solve water quality planning problems. □



Elementary students investigate the rate of water movement through different soil types under the watchful eye of their teacher at Fair Park Elementary School in West Bend, Wis.

Two high school students analyze water samples taken from the Menomonee River near their school in Germantown, Wis.



Turning off the blacktop onto a rural dirt lane can offer, in addition to a bumpy ride, aggravation, surprises, beauty, excitement and, occasionally, a good scare.

Driving on one of these unpaved roads, often through clouds of dust or axle-deep mud, contributes to your understanding of why so many billions of dollars have been spent paving America's highways.

Your appreciation of hard surface roads reaches a peak when you try to navigate a dirt lane after a cloud-burst drenches the countryside.

One of the challenges of muddy roads is the puddle, which when it stretches across the roadway can look as big as the Mediterranean Sea.

Grim experience teaches that the best way to deal with

this obstacle is take a deep breath and slam your foot on the accelerator. With this technique you can usually splash through to the other side.

If you chicken out and try to hug one shoulder of the road to avoid the deepest water, your chances of sinking into soggy muck are excellent.

Unless you have a four-wheel drive vehicle, your car can sway back and forth in the mud like a boat riding heavy swells at sea. The suspense of not knowing whether you'll be able to complete your journey can be excruciating.

If you do bog down after much angry whirring of wheels you feel a little sheepish when you have to head off on foot to find a neighboring farmer with a tractor willing to pull you out of the mud.

Despite these hazards, the rewards of travelling country lanes far exceed the drawbacks.

We recently rode such a road near the Shenandoah River in West Virginia. Clouds of white dogwood arched overhead. Wildflowers such as trillium, jack in the pulpit, spring beauty, and marsh marigolds bloomed nearby, because even the most zealous highway officials do not attempt to use their roadside mowers on rural lanes.

Along the river bank the fiddleheads of young ferns were gradually unfurling in the sun. A solitary herring gull wheeled back and forth before landing on the shoreline to pick at a decaying fish carcass. A hungry crow sidled up but waited at a respectful distance for the larger gull to finish its meal.

A half dozen small Bonaparte gulls splashed down in the river just above a low dam. The birds floated quietly downstream until they were almost washed over the dam. At the last minute they flew up and returned to their original location so they could begin again their floating water game.

As we rounded a curve in the road we spotted some hooded mergansers, diving ducks, near the far shore. A gunshot sounded in the distance and with a frantic beating of wings and pattering of their webbed feet against the water the mergansers took to the air and disappeared over some giant sycamore trees.

A white-tailed deer which had been drinking from a small tributary stream bounded up as we approached and crashed away through a thicket of mountain laurel.

From a clump of reeds on a small island in the river now came the slow, melancholy and distinctive call of the red-winged blackbird: "kon-karee, kon-karee, kon-karee." And at last light after the sun sank in a cloud of purple and gold, a whippoorwill across the river began the insistent announcing of its name.

These are some of the delights of nature that travel on a country road can offer, gilt-edged assets worth protecting even if they are not counted in the gross national product.—C.D.P.

Veterans Aid the Environment

A variety of imaginative programs involving jobs in neighborhood recycling, conservation, beautification, and other activities for youth and veterans have been launched by the National Black Veterans Organization in the Washington, D.C., area.

As a result of the organization's efforts, young people have received training that will help them secure full-time employment in community information and education, conservation, gardening, and social services.

This veterans organization is a nationwide non-profit, tax-exempt organization dedicated to serving the interests of veterans and their families, to improving the quality of life for all of America's veterans, and to promoting a community interest in conservation.

The conservation programs are designed to demonstrate the most effective methods and techniques to conserve energy while providing veterans with career employment in the fields such as recycling and beautification.

The organization is using a grant from the Office of Minority Business Enterprise to make a major investment in local recycling efforts.

The veterans' group plans to build a processing factory within the District where workers will crush, store, and transport recyclables to markets. The City of Alexandria has been operating a similar facility for three years. It is fed by several dropoff centers located at shopping malls. In the District, NBVO provides labor and trucks to go one step further and make collection stops at private homes, apartment buildings, office buildings, and commercial establishments to pick up accumulated glass, aluminum, ferrous metal, and paper.

Through neighborhood planning councils, advisory neighborhood commissions, and an array of civic associations and neighborhood organizations, NBVO hopes to establish a city-wide recycling system. One successful community recycling program, and the first link in the planned chain, is the Dupont Circle Neighborhood Ecology Corporation. This organization collects newsprint and aluminum, which are sold to a local cellulose insulation manufacturer, a paper broker, and commercial corporations.

The Dupont Circle group started as a community service corporation in January 1977 and is operated by a board of 15 local residents. It borrowed trucks temporarily from the D.C. Department of Environmental Services. An unemployed resident was hired as coordinator. During the summer, with youth workers provided by the Neighborhood Planning Council, the coordinator handled the pickups from area homes and apartment buildings. In September, five workers assigned to the veterans organization volunteered to work with the Dupont Circle Corporation, thereby gaining on-the-job training and expanding the pickup services.

The youth groups involved in these projects share the profits from the sale of recyclable goods.

An agreement has been reached with the Dupont Circle group whereby NBVO crews and trucks will handle collections, while the Dupont Circle Corporation will focus on community organization, public information, and education. This neighborhood group will integrate into the system apartment house workers and several independent paper recyclers who already operate in the area, and plans are being made for the system to expand into recycling glass, metals, and office paper.

The relationship between the veterans group and the neighborhood organization is a model for future neighborhood recycling enterprises. Dupont Circle, Foggy Bottom, Georgetown, and the downtown area west

of the White House will be served by the Dupont Circle Corporation. Another company will be formed to serve Adams-Morgan, Mount Pleasant, Shaw-Cardozo, and the downtown area east of the White House. Capitol Hill and Walter Reed will serve as focal points of other companies.

The entire city could be served by a network of these neighborhood-based programs. Once they are operating, these enterprises will employ local residents and youth who are in need of financial assistance, while making a major contribution to a sound local economy.

Waste utilization and decentralized production are among the focal points of the Institute of Local Self-Reliance's research and implementation projects to demonstrate that urban neighborhoods can produce considerable amounts of energy, food, goods, and services that residents require.

NBVO has already begun programs in several communities, which will educate youth in gardening. One of its members, Walter Pierce, has organized a group of young people in the Adams-Morgan area whose activities not only involve recycling projects but gardening as well. Pierce runs his program from an old church, which is now used as a recreational facility. The gardening site is a park donated by the government. The program consists of slides, lectures, and on-the-job training. Pierce receives technical assistance from Neil Seldman, recycling specialist, Institute for Local Self-Reliance. The total number of youth participants in this program has reached approximately 480 and is still growing.

Pierce's group, the Ontario Lakers, with assistance from the Institute for Local Self-Reliance, is trying to establish an education/demonstration program. The program will be located at Community Park West, in the heart of the Adams-Morgan and Mount Pleasant neighborhoods in Washington, D.C. This area has a combined population of 40,000 people comprised of blacks, whites, and Spanish-speaking residents of mixed social origin and income levels.

In recent years, low income residents have been forced out of the neighborhood due to real estate inflation. Community Park West has been threatened with housing development, but at community insistence, the Mayor and City Council have approved the purchase of the land for a community recreation area. The park is the only available green recreation area in the community. Since 1964 the community has used the park as a ball field, playground, and for fairs and dances.

The Lakers began in 1964 as a youth program and has since developed an inter-city ghetto Invitational Basketball Tournament hosting inner-city teams from DC and other cities. It has an annual budget of \$25,000. The Lakers also operate an 8,000 square foot teen center three blocks from the Community Park West which serves several hundred youths. In the past, the Lakers have conducted a series of newspaper drives as a fund raising program. They now operate a home/apartment house pick-up service for recyclables in conjunction with NBVO's recycling programs. Each year the Lakers maintain neighborhood triangles as part of their community beautification program.

The Institute for Local Self-Reliance was started in 1974 and has provided technical assistance to groups in the Adams-Morgan and Mount Pleasant neighborhoods, as well as other D.C. communities. Institute engineers and housing consultants have provided technical consulting to the Kenesaw Tenants Cooperative in their efforts to purchase and rehabilitate their building and convert to tenant ownership. The Institute staff conducts solar workshops under the sponsorship of the Neighborhood Housing Service in Anacostia, and Neighborhood Planning Councils 8 and 13.

NBVO is committed to energy conservation and has mounted a large campaign against waste. Its Executive Director, Richard Hamilton, has stated that the organization has joined government, industry, and communities in efforts to achieve conservation. □

Around the Nation



Wood Burning

A study of air pollution from large, wood-fueled boilers and furnaces has been funded by Region 1's Office of Research and Development. The GCA Corporation, New Bedford, Mass., will conduct the study, concentrating on Vermont, which has a substantial wood products industry that burns large quantities of wood scrap and waste. Data from the study are expected to help Vermont develop better pollution control regulations and testing procedures for wood burning, and supply EPA with information that can be applied elsewhere in the country.

Pesticide Bill Signed

Gov. Michael Dukakis of Massachusetts recently signed into law a bill that would more stringently control the use of pesticides in the State. This means the State will qualify to take over from EPA the administration of Federal pesticide controls. A reorganized and expanded Pesticide Board, in the State Food and Agriculture Department, will have jurisdiction.



Sewage Agreement Set

Region 2 has filed a consent agreement in the Federal District Court of Puerto Rico in the case of the United States vs. the Puerto Rican Aqueduct and Sewage Authority. The Sewage Authority was charged with numerous violations at 91

sewage treatment facilities on the island. The Authority agreed to take corrective actions including short and long-term operations and maintenance training programs and to put into effect a computerized system to detect equipment breakdowns and potential breakdowns at all of the approximately 125 plants operating in Puerto Rico.

Resource Recovery Planned

New York State Department of Environmental Conservation Commissioner Peter Berle has submitted a draft plan to the State legislature to channel approximately two-thirds of municipal waste into resource recovery systems by 1985. Following the legislative review the Department of Environmental Conservation asked for public review and comment.



Fine for Lead in Gas

Regional Administrator Jack J. Schramm assessed a \$3,600 civil penalty against Cities Service Oil Company because it sold unleaded gasoline that contained more lead than the Federal standard allows. In addition, the distributor, Peerless Petroleum, and the retailer, Rolka's Service Station, both of Scranton, Pa., were fined \$600 and \$300 respectively for their part in the case. After EPA discovered the contaminated gas both the distributor and the retailer replaced their gas to reduce the number of cars affected. "The expense of installing pollution control equipment in auto-

mobiles costs too much money to allow consumers to be victimized by any poor refining or transportation practices in the oil industry," Schramm said.

Permit Violators Sued

Region 3 has brought suit in Federal District Court against two companies, charging that they have violated their water clean-up permits under the National Pollution Discharge Elimination System. Loewengart and Co. Inc., a tannery in Mercersburg, Pa., and Appleton Papers, Inc., a pulp and paper plant in Roaring Spring, Pa. that is a subsidiary of NCR Corporation were both cited for exceeding discharge limitations and for failure to submit reports and notifications. The companies are liable for fines of up to \$10,000 per day of violation plus court costs.

Impact Statement Due

Region 3 is preparing an Environmental Impact Statement on the proposed wastewater treatment facilities plans of three Pennsylvania townships. Horsham, Warrington, and Warminster, Pa., seek Federal funds for an \$11.5 million project to construct a major interceptor sewer and several sewer collection systems, and to expand and upgrade an existing 4.5 million gallon per day sewage treatment plant. The improved plant would provide tertiary treatment for 8.5 million gallons per day. The impact statement will study how the project could affect growth in the area, and will note the economic, social, and environmental effects of the ensuing development. Special emphasis will be given to the issues of water supply and quality, land use planning, preservation of sensitive areas, and implementation of alternate treatment methods.



Saving a Lake

A variety of proposals to restore a "dying" Florida lake are under study by Region 4 and State officials. They are jointly preparing an environmental impact statement, weighing the benefits and risks of measures that might be taken to improve the quality of Lake Apopka. The statement is slated to be finished in mid-summer. Lake Apopka, covering 30,000 acres, is the second largest lake in Florida. It was once celebrated for its bass fishing. Over the last 15 years it has become overfished with nutrients that stimulate the growth of algae and other pest plants, which destroy the lake's value for fishing, swimming, and boating. Much of this eutrophication is ascribed to drainage of nutrients and organic matter from "muck farms" on flood plains near the lake that have been producing fine crops of vegetables since World War II. The effects of any remedial measures on the muck farms will have to be carefully weighed in the impact statement, as well as the effects on nearby citrus groves. The lake has a warming influence that helps prevent killing frosts in winter. Temporary drawdown—partial drainage of the lake—might lessen this frost protection. A drawdown has been proposed to help consolidate the lakewater sediments. Other possible restorative actions include harvesting of water hyacinths and dredging. The restoration effort, though still not specified, is expected to take about five years and cost up to \$3 million, half from EPA and half from the State.



Action Against Permit Violators

Region 5 and the U.S. Attorneys Offices for the Eastern and Western Districts of Wisconsin have taken administrative enforcement actions against 10 Wisconsin pulp and paper mills that have allegedly violated permit requirements under the National Pollutant Discharge Elimination System. The NPDES permits require the permit holder to sample and analyze wastewater discharges. James O. McDonald, Region 5 Enforcement Division Director, said that while the alleged violations of the permits are in fact minor, these actions are meant to emphasize the seriousness of Government intent in demanding honest and accurate self monitoring by dischargers. Court actions against the 10 mills are possible according to the Regional Office. The U.S. Attorney's Offices have sent letters to all major industrial dischargers in Wisconsin warning of possible civil or criminal action if future plant inspections by EPA uncover further violations of the permit system.

Impact Statement Completed

The draft Environmental Impact Statement on the wastewater treatment facilities plan for the Columbus, Ohio metropolitan area has been completed by Region 5. The plan proposes modifications that would save the city \$46 million in capital costs and 8 percent in annual operating costs.

6

REGION

Joint Effort

EPA and the U.S. Army Corps of Engineers will use Region 6 as a pilot area for the implementation of their new inter-agency agreement, which calls for a joint effort to restructure the administration of the Federal wastewater treatment facilities construction program. The Corps will help EPA to review and inspect the construction of new plants. The multi-billion dollar construction program includes nearly 4,000 wastewater treatment plants under construction across the country. Approximately 240 of the new facilities are located in Region 6. Regional Administrator Adlene Harrison said: "By utilizing the engineering skills of the Corps for this important activity, EPA personnel can devote more time to the environmental aspects of the program." The agreement was signed early in March, during a training program held for Corps personnel, State agency employees, and EPA staff.

7

REGION

Safe Drinking Water Violations Listed

Regional Administrator Dr. Kathleen Q. Camin has announced that eleven sources of public drinking water supplies in Missouri failed to meet the bacteriological standards required by the Safe Drinking Water Act. Under the legislation any water supply serving 25 persons or having 15 service connections must sample for bacteriological quality at

least once a month, to check for contamination from human and animal wastes. The violators are the community water supplies of Monett, Raymondville, Russellville, Arrow Rock, Centerville, Redings Mill, Kelso, and Alba, Mo.; the Livingston County Public Water Supply District #4; the Missouri State Prison, Jefferson City; and the Bates Trailer Court, Cape Girardeau. EPA has notified the suppliers to immediately inform their customers and the public that their water supply has exceeded these health standards. Administrator Camin said EPA is reviewing the cases to determine what further action is necessary to protect the public health.

Field Office Opens

Region 7 has assumed responsibility for certifying pesticide applicators in Nebraska because the State failed to pass the legislation to implement a State program. This action is required under the Federal pesticide law. In order that farmers and other restricted-use pesticide users will not be denied access to the chemicals they need, EPA has opened a field office in Lincoln, Neb. to certify anyone who might buy or use those pesticides. The field office will handle certification testing in cooperation with the University of Nebraska Cooperative Extension Service, which conducts the certification training courses.

8

REGION

CEQ to Rule on Dam Project

At the recommendation of Region 8, EPA Administrator Douglas M. Costle has referred the controversy on the Denver Foot-

hills Water Project to the Council on Environmental Quality under Section 309 of the Clean Air Act. Under that section of the law when EPA's Administrator finds that a Federal action is unsatisfactory from the standpoint of public health or welfare or environmental quality, "he is required to publish his determination and refer the matter to CEQ," Regional Administrator Alan Merson said. "The Bureau of Land Management's final impact statement, like its earlier draft statement, fails to consider the projected impacts on continued urban sprawl and increasing air pollution." Increases in single-occupant car traffic in the area related to urban sprawl would be encouraged by the dam project, making it difficult if not impossible to attain national health standards, according to Region 8. The final impact statement for the project says: "The principal purpose of the project is to enable the Denver Water Board to meet projected maximum-day demands so customers can irrigate horticulture without restriction during the hot summer months." The first phase of the Foothills project would permit unlimited lawn-watering until 1988; the final planned size would allow unlimited lawn-watering to continue until 2001, at a total estimated cost of \$1 billion. Regional Administrator Merson cited alternatives such as permanent lawn watering by schedule, metering of water use, and a priority system for water tap allocations to discourage sprawl. "The loss of Waterton Canyon, the worsening of Denver's already severe air pollution, and the expenditure of a billion dollars seem an incredibly high price to pay for unlimited lawn watering through the turn of the century," Merson said.

9

REGION

Clean Air Briefings

Region 9 staff have been using a slide presentation to explain the implications of the Clean Air Act Amendments of 1977 to government officials and interested citizens. In March they briefed the Federal Regional Council and in April sessions were held for representatives of all the Federal agencies in the States of Arizona, California, Nevada, and Hawaii. Eighteen briefings and five workshops have been held since last fall. Among those attending the briefings were the Southern California Association of Governments; the city councils of Carson City, San Diego, Ventura, and Ojai; the California Air Resources Board, and the Air Pollution Control Board of the Bay Area, Monterey, and the South Coast. Participants in workshops included the Western Oil and Gas Association, the Region 9 Air Pollution Control Officers, the Bay Area League of Industrial Associations, Air Quality Management Program Managers, and representatives of various power companies.

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REGION

Talking with the Public

Regional Administrator Donald P. Dubois is maintaining an active schedule of meetings with citizens affected by EPA programs. Recently Dubois met with grass-seed growers in Oregon's Willamette Valley who were concerned about the way that air pollution restrictions on post-harvest burning in their fields might affect yields in future years. In Coeur d'Alene, Idaho, Dubois conducted a town meeting to discuss the effects of EPA's sole source designation for the Spokane Valley-Rathdrum Prairie Aquifer. The aquifer provides drinking water for 338,000 people on both sides of the Washington-Idaho border, and its new status means that certain construction projects will be subject to EPA review to protect water quality. At a Chamber of Commerce meeting in Wallace, Idaho, Dubois exchanged ideas with 100 people who fear the ultimate shutdown of the nearby Bunker Hill Co. lead and zinc smelter because of air pollution control requirements. The smelter is a source of jobs for approximately half of the people in the county. Dubois and senior staff members from Region 10 met in Spokane, Wash. with farm extension service directors, officials of the Agricultural Research Service, and agricultural educators to discuss environmental concerns related to farming such as agricultural air pollution, land application of sludge, soil erosion, non-point source water pollution problems, and certification of pesticide applicators. □

motorcy

EPA has taken a first step toward reducing the vroom-vroom, sputter, and roar of motorcycles.

Starting in 1980, all new motorcycles sold in the United States will have to meet noise limits set by the Agency. The regulations were proposed in March and are slated to be formally adopted this summer after a three-month waiting period for public comment.

"Except for big trucks, motorcycles are the loudest vehicles on the highway," said David Hawkins, Assistant Administrator for Air and Waste Management, at a press conference announcing the proposals. "Just about every survey of local communities puts motorcycle noise near the top of the list as a source of annoyance."

The proposed limit for motorcycles licensed to be driven on public streets and for small, off-road cycles would be 83 decibels (db) in 1980 models. This limit would be lowered to 80 db in 1982 and 78 db in 1985.

Large, off-road cycles with engine displacements of more than 170 cubic centimeters would be restricted to 86 db in 1980 and 82 db in 1983.

Mopeds—motorized bicycles that can be either pedalled or driven or both—would be limited to 70 db of sound in 1980, with no further reduction thereafter.

All sound levels are to be measured while the vehicle is accelerating past the measuring instrument at a distance of 15 meters (about 50 feet).

When put into effect the proposed rules would make new motorcycles about as noisy as heavy trucks. This type of truck is now restricted by EPA rules to 83 db, starting with the 1978 models, and will be further reduced to 80 db, in 1981 and 75 db in 1983. These standards apply to trucks moving at 35 miles per hour or less, measured from the same distance as the motorcycle test.

(Decibels are units of sound power or pressure and can be read from a hand-held instrument. The decibel scale is logarithmic, or proportional; every increase of 10 db represents a doubling of sound power.

Damage to human hearing begins with prolonged exposure to sound levels of 85 to 90 db.)

The regulations would also cover the manufacture of replacement mufflers for motorcycles. Production and sale would be banned for any muffler installed on a 1980 or later model motorcycle that would cause it to exceed EPA's noise limit.

New machines and mufflers are all that EPA can regulate under the Noise Control Act, Hawkins said. The Agency cannot regulate motorcycle use or prevent owners from tampering with their bikes. State and local noise abatement laws will be needed to supplement Federal controls on new machines and mufflers.

Tampering with motorcycles to make them noisier is widespread, Hawkins said. Out of the approximately six million cycles licensed to be driven on public roads in the United States, about one in eight has its exhaust system modified to be noisier than it was when new, he said. And he estimated that more than one in four off-road machines—which are not supposed to be driven on public roads—have been modified in this manner, some as much as 20 decibels, which can bring the motorcycle's noise level to 100 db. That level is equivalent to a loud railroad train passing close by.

Although it would be illegal under the proposed rules to increase a motorcycle's noise by such tampering, enforcement would depend on local authorities and would require local laws that prescribe penalties for violation. To make this easier, EPA's rules would provide that all replacement mufflers be labeled with the type of machines they are designed for and the sound levels that can be expected.

"With this label," Hawkins said, "the local police can measure the motorcycle's noise with a sound meter and compare it to the label. This enforcement approach would have to be authorized by local ordinance."

Methods of making motorcycles quieter—in factory design and tuning and especially in muffler design—will not cause any "radical change," Hawkins said, and "will not take the fun out of motorcycling."

"Some cost and performance penalties are unavoidable. . . . We project an average

price increase of 7 to 10 percent for achieving the 1985 final and most stringent noise control level," he declared. Performance is affected because an efficient muffler causes some back-pressure on the engine, decreasing the power available to drive the vehicle.

"We don't think there are any motorcycle manufacturers that could not meet these standards, given the commitment to do so and the time in which to make the necessary design changes. . . . We intend to re-examine the lead-time issue very carefully in preparation of the final rule.

"Motorcycle noise is a serious problem in the Nation today. Noise from street motorcycles stands out in residential areas, while off-road motorcycles cause disturbances in recreational areas, vacant lots, and in your neighbor's backyard. . . .

"EPA is particularly interested in providing State and local governments with the assistance and the tools they need to eliminate motorcycle noise as a serious problem in their communities," Hawkins said.

The proposed motorcycle regulations are the latest in a series of EPA actions to control the noise emitted by newly manufactured products that are used on streets and highways. Noise standards for new heavy trucks went into effect on January 1 this year. Standards for buses and trash compactors have been proposed and are now in the public comment stage.

Off-highway machines for which EPA has proposed new-product noise limits include air compressors, rock drills and pavement breakers, bulldozers and front-end loaders, and power lawn mowers.

Newly manufactured motorcycles are already subject to EPA air pollution regulations. Starting December 1, 1977 all motorcycles sold in the United States had to meet exhaust emission limits of not more than 5 to 14 grams per kilometer of unburned hydrocarbons (varying according to motor size) and 17 gr/km of carbon monoxide. With 1980 models these limits will be cut to 5 gr/km of hydrocarbons for all engine sizes and 12 gr/km of carbon monoxide. These reductions are attainable by carburetor design and engine tuning; no catalytic converter is needed. □

cle noise



Quieter Fun

With noise standards for motorcycles, EPA is proposing to ban a practice or action that some people openly like and enjoy.

Many motorcyclists (though not all) relish the noise their bikes make. Can you imagine Hell's Angels in black leather jackets quietly purring into town? The flatulent roar of unmuffled exhaust is part of the mystique of motorcycling: a prolonged mechanical Bronx cheer to all the stay-at-home, timid types who dare not ride the macho monsters.

"If you take the noise out, who's going to ride 'em?" Assistant Administrator David Hawkins was asked at a press conference held to announce the proposed rules.

Hawkins said the quieter cycles would still be fun to ride. Many owners like to decorate their motorcycles, he said, adding, "There's a visual as well as aural" element involved in making one's own two-wheeler distinctive. "We feel the proposed rules strike a reasonable balance between the freedom of motorcyclists to enjoy . . . and the freedom of citizens from excessive noise."

The EPA official said he expected "a lot of resistance" to the new regulations from motorcycle users who enjoy the noise, though he thought they would get used to the standards, and the transition would be gradual.

No other EPA noise regulation has been opposed on the grounds that the makers or users of trucks, bulldozers, trash compactors, air hammers *wanted* their machines to be noisy. They might argue that it was technically difficult or too expensive to quiet them—but not that the noise itself was rewarding.

Motorcycles hit the open road in Colorado.

Students Curb Air Pollution

By Jane Kenneally



It's a Saturday afternoon in Milwaukee, Wisconsin. A group of high school kids are gathered around what looks like a hot rod right off the set of "Happy Days."

A slick dude, the owner of the hot rod, says, "Yeah, I slaved over a hot grill all summer to earn the bread to buy this baby." He spit-polishes the hood as he continues: "It's got a four-barrel carburetor, four on the floor, and it doesn't have any of that pollution control junk, so it runs like a top."

"Why don't you put that baby on this testing equipment and let's see just how good she's running," says a student at West Milwaukee High School. "Our \$1 test will tell you how much gas you're wasting and how badly your car is polluting the air."

"Why not? This car can pass any test," the owner says smugly. The testing probe is placed in the tail-pipe and the needles that indicate the amount of hydrocarbons and carbon monoxide go wild. The car flunks, and all of a sudden the owner isn't so smug.

His peers don't think it's too cool to drive a car that pollutes the air. Why? They have recently learned all about the connection between air pollution and automobiles in a special unit of their science class at West Milwaukee High School. The owner saw stars when he found out how much gas he was wasting. He had flipped a lot of burgers for nothing. This whole scenario in real life started in the summer of 1977. Terry

Jane Kenneally is a public information specialist in Region 5's Office of Public Awareness.

Lehman of the Wisconsin Lung Association, a former teacher, met with some EPA Region 5 staff to present an educational package on auto testing. The Lung Association had realized that cigarettes aren't the only threat to a person's lungs and that they really ought to get working on the other major problem area—air pollution. The package that Lehman presented began with educating high school students about the correlation between automobiles and air pollution. The students would then run a day of auto testing at a shopping center in the vicinity of their school, charging \$1 for each test. The test fee would be kept by the school, which could use it to purchase some science or environmental equipment.

The difference in Lehman's program from all the other attempts at volunteer auto testing was the built-in follow up to the test. All cars going through the student-run test lane were given a coupon for a discount on the needed repairs at a local gas station if they did not pass the test. By working with gas stations in the area, the students could check on which car owners had the repairs done and urge the ones that didn't to get the work done while the coupon was still in effect.

The program was partially funded as a pilot project in one high school. There were questions that needed to be answered before any sizable amount of money would be spent for another volunteer auto testing program in Region 5. In the past much effort had been expended to encourage the public to voluntarily get their cars checked. In the fall of 1976, Region 5's Office of Public Awareness worked with race

car driver Bobby Unser, two-time winner of the Indy 500, to promote auto testing at shopping centers in six cities in the Midwest. The public turned out to meet Unser and get a free auto test. The Unser tour was a success in gaining media attention for the problem. But it lacked any follow up tactic to get the failing cars tuned up.

Region 5 next attempted to get service stations to offer free tests and special prices on tune ups. The local air pollution control agencies in Dayton and Toledo, Ohio, worked very hard to secure cooperation from the service stations but found they did not want to tie up shop time giving free tests. The follow up component was the hardest to incorporate into any volunteer auto testing program. Since Lehman's program contained this important component, he was given the go-ahead.

The sophomore biology students at West Milwaukee High School were taught air quality conservation for seven 50-minute periods that heavily emphasized the correlation between the auto and air pollution. Mount Mary College in Milwaukee gave the students a high-volume particulate air sampler that was operated on the roof of the high school during the course of study so that students could get some experience in air quality testing.

Rudy Cook, head of the science department at the West Milwaukee High School, comments, "Although the students had a lot working against them for the testing day, with terrible

weather and not much lead time, no one complained. They ran around handing out flyers about the test, selling advance tickets for it, and were serious and informative about the test for the people bringing their cars through the test lane."

The cooperation received by the Lung Association and West Milwaukee High School was surprising. Terry Lehman explains, "Sun Electric Corporation in Waukesha supplied two exhaust analysers free and provided a special training session at its office for the students who would be using the machines. Five service stations signed contracts agreeing to honor coupons for a 10 percent discount on a tune up."

The testing day was unfortunately scheduled opposite a few other important events in Milwaukee such as the opening of deer season, which is quite an event there, and the Christmas Parade.

Fifty-five cars were tested, which is about average for a one-day shot. Thirty-three percent of the autos going through the test lane passed. The cars with the best passing rate were 1975 and 1976 models. The largest problem with failures was due to high carbon monoxide content in the exhaust when the car was at idle.

The pilot program has shown that the education tie-in with auto testing can work. The high school willingly accepted the program; the students were very interested (they complained about going back to "that old biology junk" when it was over); the business community cooperated, and the students proved they were capable of operating a successful auto testing program. □

People

Charles R. (Jack) Ford

Formerly Acting Assistant Secretary of the Army (Civil Works), he has been appointed Executive Assistant to Administrator Douglas M. Costle.

In nearly 31 years of Federal service, Ford was a civil engineer with the Bureau of Reclamation, Department of Interior in Denver; the Board of Engineers for Rivers and Harbors, Washington, D.C.,



involved in water resources development and policy, Chief, Office of Civil Functions in the Office of the Secretary of the Army overseeing the Corps of Engineers' Civil Works Program; and for the past year served as Acting Assistant Secretary of the Army (Civil Works).

A graduate of the University of Florida at Gainesville, where he received a Bachelor's degree in Civil Engineering in 1949,

he also did graduate work at Catholic University in water resources planning, open channel hydraulics and water quality control. He attended the Program for Senior Managers in Government at Harvard in 1976. Ford received the Exceptional Civilian Service Award in 1973 and the Distinguished Civilian Service Award this year.

William J. Lacy, Principal Engineering Science Advisor, Office of Research and Development, talks with Lance G. Johnson, one of the forty high school seniors from across the Nation who were winners in the Westinghouse 37th Annual Science Talent Search. Johnson and the other winners came to Washington, D.C. with all expenses paid to attend the five-day Science Talent Institute,



Russell E. Train

The former EPA Administrator has been elected President of the World Wildlife Fund—U.S. He served as Vice President of the organization from 1961 to 1969 and also is a trustee of WWF—International. In electing him, the board of directors restructured the position of President to the status of a full-time chief executive officer.

In his new post he will guide

the fund's conservation program, which involves a variety of wildlife and habitat projects. The program emphasizes measures in the western hemisphere to protect endangered species and wilderness areas.

Mr. Train has held posts in judicial and executive branches of the Federal Government under three U.S. Presidents. He served as a U.S. Tax Court Judge 1959-65; Under Secre-

tary of the Interior in 1969; Chairman of the Council on Environmental Quality 1970-73; and EPA Administrator 1973-77. He founded the African Wildlife Leadership Foundation in 1959 and served as its first president, and also was elected president of the Conservation Foundation in 1965. He is recipient of numerous awards including the Animal Welfare Institute's Albert



Update

A listing of recent Agency publications and other items of use to people interested in the environment.

General Publications

Environmental New York: A Directory. 1977. This 200-page book lists environmental and related agencies and organizations in New York State, including Federal, State, regional, county, and local groups. It explains the purpose of each group, and carries the name of a contact person for each organization as well as a mailing address and telephone number. Available for \$3.95, including postage, from "Directory," New

York State Department of Environmental Conservation, Bureau of Community Assistance, 50 Wolf Road, Albany, New York 12223.

Labor, Minorities, and Environmentalists Together. 1977. This 8-panel pamphlet describes the Urban Environment Conference, outlines its goals, and lists the directors. It discusses workshops, conferences, and programs designed to inform and unite labor groups, minorities, and environmentalists on topics of common interest. The pamphlet also describes the Urban Environment Foundation, a re-

search and education organization attached to the UEC. Available from the Urban Environment Conference, 1302 18th Street, N.W., Washington, D.C. 20036.

Federal Register Notices

Copies of Federal Register notices are available at a cost of 20 cents per page. Write Office of the Federal Register, National Archives and Records Service, Washington, D.C. 20408.

Noise

EPA proposes noise emission regulations for new motorcycles and new motorcycle replace-

ment exhaust systems; comments by 6/16/78. Pages 10822-864 in the March 15 edition.

Air

EPA limits emissions of sulfur dioxide from petroleum refinery Claus sulfur recovery plants. Pages 10866-873 March 15 issue.

EPA prohibits the manufacture, processing, and distribution in commerce of fully halogenated chlorofluoroalkanes for those aerosol propellant uses which are subject to the Toxic Substances Control Act. Pages 11301-326 March 17 issue.

Alvin R. Morris

He is Deputy Regional Administrator in Region 3 and has been appointed by President Carter to be a Federal Commissioner to the Interstate Commission on the Potomac River Basin. The Commission is a Regional Agency that was first established in 1940 to study water pollution control and act as an information and public education center. In 1970 Con-

gress expanded the Commission's role to include water quality assessment, and added planning, advising, and coordinating of the conservation and development of land and water resources in the basin. The Commission is funded by the States of Maryland, Pennsylvania, Virginia, and West Virginia, the Federal Government, and the District of Columbia. Dr. Morris has been Region 3 Deputy Ad-

ministrator since July, 1975 and served as Acting Regional Administrator for six months in 1977.

March 2-6. In addition, they will share \$67,500 in science scholarships and awards. Johnson is interested in Environmental Engineering and visited the Environmental Protection Agency to discuss areas of mutual scientific interest with Lacy. Johnson is from Spirit Lake, Iowa, and a member of the National Honor Society.

F. Gordon Hueter

He has been selected to be Director of the EPA Health Effects Research Laboratory at Research Triangle Park, N.C., according to Dr. Stephen J. Gage, Assistant Administrator for the Office of Research and Development. Dr. Hueter was most recently the Associate Laboratory Director and had been serving as Acting Director of the Criteria and Special Studies Office there.

He completed his studies at the University of Maryland; earning a B.S. in 1952, an M.S. in 1956, and a Ph. D. in 1958, with majors in animal science, physiology, and biochemistry. Dr. Hueter will serve in an acting capacity until his appointment is approved by the Civil Service Commission.

Schweitzer Medal, the Wildlife Society's Aldo Leopold Medal, and the National Wildlife Federation's Conservationist of the Year Award. Earlier this year he also received the John and Alice Tyler Ecology Award from Pepperdine University. The award included a \$150,000 check.

**George R. Alexander, Jr.,**

He has resigned his position as Region 5 Administrator to return to private industry in Texas. Alexander was appointed to the Chicago post in March, 1976. He joined EPA in 1972 as Deputy Regional Administrator for the Agency's Region 6 office in Dallas, Tex., and then served as Deputy Director of the Office of Regional and Intergovernmental Operations from 1974-

76. In 1974 he received the Bronze Medal for exceptional service to the Agency. Before joining the government service, Alexander held executive positions with several life insurance companies and conducted a private law practice. He holds B.B.A. and J.D. degrees from Southern Methodist University and is a member of the Texas and Kentucky Bar Associations.

Regulations Under Consideration

The following rules are being developed by EPA. The Agency encourages public comment. EPA contacts and proposed issuing dates are listed so that interested persons can make their views known. These rules will be issued in June 1978:

National emission standards for the hazardous pollutant benzene, write or phone Don Goodwin (MD-13), EPA, Research Triangle Park, NC 27711. (919) 541-5271.

Designation of glass-melting furnaces as source categories under Section III of the Clean Air Act for control of air pollutants from new and modified facilities. Same contact as above.

States Served by EPA Regions

Region 1 (Boston)

Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
617-223-7210

Region 2 (New York City)

New Jersey, New York, Puerto Rico, Virgin Islands
212-264-2525

Region 3 (Philadelphia)

Delaware, Maryland, Pennsylvania, Virginia, West Virginia, District of Columbia
215-597-9814

Region 4 (Atlanta)

Alabama, Georgia, Florida, Mississippi, North Carolina, South Carolina, Tennessee, Kentucky
404-881-4727

Region 5 (Chicago)

Illinois, Indiana, Ohio, Michigan, Wisconsin, Minnesota
312-353-2000

Region 6 (Dallas)

Arkansas, Louisiana, Oklahoma, Texas, New Mexico
214-767-2600

Region 7 (Kansas City)

Iowa, Kansas, Missouri, Nebraska
816-374-5493

Region 8 (Denver)

Colorado, Utah, Wyoming, Montana, North Dakota, South Dakota
303-837-3895

Region 9 (San Francisco)

Arizona, California, Nevada, Hawaii
415-556-2320

Region 10 (Seattle)

Alaska, Idaho, Oregon, Washington
206-442-5810

2002

Environment
in the Year



The Council on Environmental Quality in a few days will release a major study attempting to forecast where the world will be in the year 2000 in terms of population, natural resources, and environment.

Acting on the request of President Carter, CEQ with the help of the Environmental Protection Agency and several other Federal organizations, has devoted a year to pulling together a massive body of statistics and information in this forecast. President Carter in his Environmental Message May 23, 1977 said the study would serve as a basis for longer-term planning.

Among the questions the study attempts to answer are these:

- Where and why will soils in the cropland base be added or lost?
- How much water will be needed for irrigation projects and other uses?
- What are the gains and losses in the world's forests, particularly in China, compared to future demands for construction, paper, fuel, and so on?
- What will fertilizer cost 22 years from now, and what are its ecological effects, including its impact on the ozone layer?
- How does the world make an orderly transition to a post-petroleum era? What do we know about the effect of coal-burning on global climates? How about biofuels, and will they compete with food for land, water, and fertilizer?
- What are the trends in disposal of wastes from urban, agricultural, industrial, nuclear, and other activities, and are there alternatives to the present degradation of resources?
- What are the environmental implications of straining the ability of the oceans and atmosphere to absorb wastes?
- What are the trends in environmentally-caused illnesses like cancer, black lung, and snail fever disease?

CEQ officials note that the Nation's longer term planning

Truman Temple is Associate Editor of EPA Journal.

on world population, resources and environmental matters until now has been done largely on an *ad hoc* basis, in response to immediate problems and needs. When forecasts have been made, they usually have focused on a single factor such as population or food without full consideration of how other factors interact with such variables. A major goal of the CEQ study has been to look at such interactions in population, resources, and environment.

The objective of the study has not been to see whether we can get to the 2000 date. Rather it is to see if we can arrive at the end of the 20th century in a condition good enough to proceed in an orderly, promising fashion into the 21st.

Among those from EPA participating in the study organization are Deputy Administrator Barbara Blum, who serves on the executive group; Alice Popkin, Associate Administrator for International Affairs; and specialists in the Office of Research and Development.

The field of "futures study" in the sense of a modern systematic effort to anticipate major trends and prepare for them is a relatively recent development. It was pioneered by the United States and France after World War II when long-range forecasting in military and scientific areas was needed.

Futures research employs various sophisticated tools such as statistical methods, computer simulations, and data collections, as well as social concepts and probability theory. It requires an awareness of likely scientific and technological breakthroughs, and equally important, a perception of their impact and side-effects on society.

As Dennis Little of the Futures Research Group in the Library of Congress Congressional Research Service has explained, "The point is to sound the alarm in time to avoid catastrophe. A good example is our declining birth rate and aging population. They're on a collision course that, without intervention of some sort, will wreck the Social Security system." (His remarks were made before the recent revision by Congress of Social Security law.)

"Futurism" in fact is now so

well accepted as a tool of government and industry that it has its own association, the World Future Society, boasting some 20,000 members since it was founded a decade ago. Futures study also is involved with grants, courses, conferences, and above all a body of published literature in the form of journals and books.

One of the best-publicized and popular works, of course, was Alvin Toffler's *Future Shock*, which sold 6 million copies in 20 languages. More scholarly was *Year 2000: A Framework for Speculation on the Next 33 Years* by Herman Kahn and Anthony J. Wiener of the Hudson Institute. Currently more than 300 courses in futures studies are being offered in U.S. colleges and universities. If one includes future-oriented areas such as environmental studies and technological forecasting, the total would approach 1,500. In fact, as the National Science Foundation's publication, "Mosaic," recently pointed out, the environmental impact statements now submitted to EPA from many sources also are "forecasts, in effect, of the environmental consequences of major projects."

Project director for the CEQ Year 2000 Study for the President is Gerald O. Barney. Co-chairmen are Charles Warren CEQ Chairman, and Patsy Mink, Assistant Secretary for Oceans and International Environmental and Scientific Affairs, U.S. Department of State.

Others serving on the Executive Group are: Richard C. Atkinson, Director, National Science Foundation; Dr. Rupert Cutler, Assistant Secretary for Conservation, Research and Education, U.S. Department of Agriculture; Joan Davenport, Assistant Secretary for Energy and Minerals, Interior Department; Richard A. Frank, Administrator, National Oceanic and Atmospheric Administration; Dr. Robert A. Frosch, Administrator, Agency for International Development; Frank Press, Director, White House Office of Science and Technology Policy; Admiral Stansfield Turner, Director, CIA; and Alvin Alm, Assistant Secretary for Policy and Evaluation, Department of Energy. □

Scouting and the Environment

The world of scouting has involved youth in an awareness of environmental questions from its beginnings early in this century.

Lt. General Robert Stephenson Smyth Baden-Powell, the British hero of Mafeking in the Boer War and founder of the Boy Scouts and Girl Guides, made it clear in his earliest scouting experiments. A trial camp that he operated for boys on Brownsea Island off the southern coast of England in 1907 demonstrated his view that youth should be involved in an awareness of conservation, the outdoors, and the world of nature.

Baden-Powell's scouting movement spread swiftly to the United States, and within four years after the Boy Scouts of America were legally incorporated in Washington, D.C. in 1910, an awards program was begun that today still inspires large numbers of youth in conservation and environmental quality projects. The program, begun by Dr. William Temple Hornaday, bestows awards in five forms for service or projects; certificates, badges, and bronze, silver and gold medals or medallions for work ranging from local to national levels.

Hornaday awards have been granted to Scouts for enlisting patrols in weekly collections of paper, glass, aluminum and steel cans to recycling centers. Such projects are not casual; candidates must carry out the activities over many months, keeping careful records on pounds of material handled, costs of pick-up and delivery, and revenues received. Other projects enlist Scouts in continuing programs of trash and debris removal from stream banks and lake-shores, with certification of the project by the government agency having jurisdiction over the area; publication of articles on local endangered animal and plant species in newspapers, magazines, or broadcast media; air pollution abatement in co-



A Girl Scout learning the joys of living in the outdoors.

operation with local air authorities; and plantings of grass, shrubs, and trees along river banks to stabilize the soil and prevent sedimentation of the waterways.

In addition to Hornaday awards, Scouting has numerous other environmentally-related goals and projects. The Boy Scout merit badge in environmental science, for example, requires a candidate to define terms like ecology, biosphere, and ecosystem, and pursue projects such as demonstrating the relation of plant cover to water runoff and their relationship to water and oxygen cycles.

Proficiency badges also are awarded by the Girl Scouts at the Cadette level in environmentally-related areas such as

conservation, plant kingdom studies, weather effects, and physical and biological science. Other levels of the Girl Scouts, including Brownies, Juniors, and Seniors, covering an age range from 6 to 17, also carry out environmental activities determined by individual troop leadership.

Within the Cub Scouts, those 10 years old at the Webelos level also are made aware of environmental careers by earning badges for studies of occupations such as forester, geologist, and naturalist.

Although the merit badge for environmental science is a relatively recent addition in the 1970's to the many Boy Scout activities, the philosophy of environmental awareness goes back nearly three quarters of a century and has been evident

throughout the history of the movement.

And environmentalists everywhere have a powerful ally in Scouting, for not only are members found around the world—some 14 million Boy Scouts in 109 countries, for example, and 7.5 million Girl Scouts in 93 countries—but equally important, the idea of environmental protection is being planted very early in the minds of youth.

One of the oldest sayings in Scouting, dating back many decades, might have been written by any environmental leader or scientist in 1978 as a motto for our world: "Always leave a campsite cleaner than you found it." □

Many Ways to See a Tree

Continued from page 3

cant lot or river bank. Many have been for recycling of paper and glass waste. Still others have been for quite advanced and sophisticated work on solar cookers, wind-mill experimentation, and car pooling with the help of a computer.

EPA also has a summer intern program at Washington headquarters for employing high school and college students. These interns do useful work for the Agency, and while contributing they get a better understanding of the relations between government and citizens, policy and action. We are investigating the possibility of starting such intern programs at Regional Offices as well as at headquarters.

The EPA's Visitor's Center in Washington is frequented by students and young people and offers them a point of access to the Agency. Groups of students by

the busload visit the Center to see environmental exhibits, hear talks by EPA people, and see films and slide shows.

Most of our student visitors are from the Washington metropolitan area, and they include elementary school classes. But each year, particularly during Easter and spring vacations and just before the summer holidays start—we play host to tour busloads of high school students from distant places.

We in EPA are convinced of the importance of education in the environmental protection effort. We regard young men and women, and boys and girls, as a distinct group that is vital to the achievement of this Agency's goal, as expressed in the National Environmental Policy Act of 1969: "to encourage productive and enjoyable harmony between man and his environment."

We will try to expand our outreach to young people and continue to welcome their observations, criticisms, and requests for information so that they can be effective advocates in their communities for environmental betterment. □

News Briefs

Weed-killing
Pesticide
Reviewed by
EPA

Use of an herbicide known as 2, 4, 5-T to kill weeds and brush in forests, rangeland, and highway and electric line rights-of-way is now being reviewed by EPA to determine whether these uses should be continued. This herbicide has been produced since 1948. However, EPA has received many complaints from environmentalists charging that the product may cause cancer or birth defects. On the other hand, many agricultural officials contend that the herbicide is extremely effective and is not a hazard. A cause of special concern is the presence in this herbicide of dioxin, one of the most toxic chemicals known. Producers of the herbicide have reduced the level of dioxin to below .1 parts per million.

Careers

Continued from page 7

Agriculture.

Enrollment in agricultural colleges has tripled since 1963—from 35,000 to more than 100,000—and experts forecast continued expansion into the mid-1980's. There seem to be three major explanations: (1) Young people are motivated by their concern for people, populations, the environment, natural resources, and food shortages; (2) they are attracted to the outdoors, open space, rural areas, simple technology, and utilization of energy efficient techniques such as solar energy; and (3) schools of agriculture have changed their curricula to become comprehensive integrated/interdisciplinary/involved institutions, preparing graduates to do many things. One, of course, is to run farms. Another is to operate agricultural businesses. Still another is to serve overseas in Peace Corps, AID, UN, or related programs. To be effective in any such endeavors, one must be able to deal with all aspects of the environment. Today's school of agriculture prepares graduates to be anything listed in Table 1 under Conservation and Recreation and almost anything listed under Environmental Design and Land Use Planning. Lucrative jobs await virtually all graduates who want them.

Veterinary Medicine

Just as the publication of Rachel Carson's *Silent Spring* in 1962 is credited with inspiring the environmental movement, the publication of James Herriot's *All Creatures Great and Small* in 1972 is believed by some to have started the boom in veterinary medicine as a career. Unlike schools of agriculture, schools of veterinary medicine cannot expand rapidly because the costs are extremely high, comparable to those for a school of (human) medicine. Even so, several States are establishing new veterinary schools. Statistically, it is harder to get into a veterinary school than it is to get into a medical college. The three major reasons given above for the popularity of agriculture as a major apply also to veterinary medicine, plus the special attraction provided by love of animals. There are about 30,000 veterinarians in the United States. Employment opportunities are expected to be favorable through the mid-1980's.

Considering such a broad field as environmental management, and such a dynamic one, is it any wonder that I am reluctant to advise an individual to adopt one course or another? Yet Lesley, whose letter began this article, exemplifies so many young persons interested in environmental careers; perhaps some of my remarks to her would help others.

Excerpts from My Response to Lesley

You wrote that you are becoming increasingly concerned that the bloom is off of the

environment, and there may not be a job for you after you graduate. And you asked what I think your chances are for a satisfying job and career. . . .

No one can predict "satisfaction" for anyone else; that is a very personal value. But you have good basic intelligence, a command of the language (not all college seniors do, sad to say!), and a sense of humor. Ability? You have that, as shown by your 3.4 average. And aptitude, for your best subjects are in science. And direction, for you've been active in the scouts and in several voluntary environmental organizations. And leadership, for you've held responsible positions in them. And you've gained experience, working summers as a camp counselor. And your major is in interdisciplinary environmental studies with potential application in a variety of ways. . . .

You discussed how you intend to go about seeking a job, and it is an intelligent approach—a good resume, responding to ads in professional journals, and gaining the widest possible range of contacts. Enclosed is a table (Table 2) showing how young scientists and engineers got their jobs. . . .

Because you are a woman, I should comment on whether this is a plus or a minus. Traditionally, of course, it has been a handicap in many fields. Engineering, for example. Yet, reports the Engineering Manpower Commission, "Engineering is unique among the major professional occupations in consistently offering higher starting salaries for women than for men." According to the College Placement Council, women's average offers for first engineering jobs last year were 3.8 percent higher than men's; and came to almost \$16,000 per year for new graduates without prior work experience. No job, among the almost 50 listed in Table 1, is closed to you. . . .

In conclusion, Lesley, society is going to meet you, and most other college graduates, halfway. As far as an environmental career goes, don't worry about *taking* your chances. Just get on with *making* your chances. It's up to you! . . . □



A Word About Salaries

Engineering and technology graduates of the class of '77—including those in environmental management—encountered one of the most favorable job markets since the heydays of the 1960's. In the case of community college or technical school graduates with the Associate in Science degree (an example might be water and wastewater technicians), the average monthly starting salary last year was \$867, an 11.3 percent increase over the \$779 offered in 1976.

The starting salary offers were compiled by The College Placement Council, Inc., and interpreted and published by the Engineering Manpower Commission of Engineers Joint Council. Engineer graduates with the B.S. degree but without prior work experience were offered an average of \$1286 per month in 1977, a 7.6 percent increase over 1976, and those with the M.S. degree, \$1429, a 7.3 percent increase.

Salaries for experienced scientists and engineers are more difficult to determine. Although recruitment advertising for technical personnel in environmental management has continued to be voluminous for the past seven or eight years, most ads describe salaries as "excellent," "competitive," or "open," but do not state amounts. An analysis of 50 display recruitment ads published in the Sunday *New York Times* during the first three months of 1978 found only two advertisers who mentioned salary amounts. Both were management consulting firms recruiting for un-named clients. One sought experienced environmental engineers for energy companies with openings in many U.S. cities and throughout the world, at salaries described as "fully competitive, in the \$20,000 to \$45,000 range." The other sought a manager of environmental services with a B.S. in chemistry, chemical engineering, or equivalent, and five to 10 years in plant operations, at \$25,000 to \$30,000 per annum. □

Region 5 Report

By George R. Alexander, Jr.,
Regional Administrator

There seems to be no letup here in Region 5. Although major settlements were reached in 1977 with Milwaukee, Detroit, Reserve Mining Company and U.S. Steel, a whole new series of problems has arisen to take their place since 1978 began, and we have responded with new kinds of action.

When President Carter declared "regional energy emergencies" in Ohio and Indiana in February, we ordered stepped-up air pollution monitoring in alert-prone areas of those States to ensure protection of public health. Both States acted responsibly in this crisis.

To deal with an increasing number of toxic chemical spills in the Region, we opened our new Central Regional Laboratory in Chicago in February. The laboratory will have an important role in the cooperative toxics control effort jointly being coordinated by EPA, the Occupational Safety and Health Administration, the U.S. Consumer Product Safety Commission, and the Food and Drug Administration.

Beginning this year, we are embarking on a new approach to the protection of the Great Lakes. I have brought together in the Great Lakes National Program functions that formerly were dispersed among several offices in the Region.

This program has been specifically designed to provide a focus for a goal-oriented approach to water quality problems in the Great Lakes in concert with a complex array of environmental and resource concerns on and for the Great Lakes.

This spring, we have begun a two-year international study of the causes and effects of Lake Erie pollution. As part of this effort, we have refitted the *Crockett*, a former Navy patrol gunboat used in Vietnam, to serve as our primary research vessel.

The issue of clean air versus growth arose here in 1978 when EPA named areas in the

country that had not attained health standards for air pollution under the Clean Air Act Amendments of 1977. The new Act automatically imposes strong economic sanctions on communities that delay in revising clean air plans to cope with remaining air problems. Therefore, communities anxious to attract new growth also must be committed to achieving clean air. We will be providing support to communities to achieve their clean air goals.

Last fall, we began a series of innovative meetings with steelworkers around the Region to discuss the concerns that the workers have about pollution control and health. We were assisted in this effort by United Steelworker Local 1010 of Gary, Indiana, and have held six workshops so far.

In an effort to increase participation by Region 5's constituencies in the Midwest, televised town forums were held in Ft. Wayne, Ind., Toledo, and Cincinnati, Oh., Grand Rapids, Mich., and in Madison, Wis. In addition, a new public participation program was drafted to help the public learn early-on of proposed regional actions.

In water pollution control progress, the Regional picture is encouraging. Over 12,500 industries and municipalities have received permits. Permit violations are most frequently attributable to municipal construction delays or failure of industrial plants to comply with effluent limitations.

This year EPA announced, and Region 5 implemented, a new enforcement philosophy with respect to air and water violators. Henceforth, the Agency will "file first and negotiate later." As part of this policy, EPA will seek to collect, as a minimum, civil penalties equivalent to the economic savings realized by the violator as a result of non-compliance. In addition, Region 5 made clear that Federal facilities would not be exempted from enforcement for their failure to comply with air and water standards.

Also Region 5 became the first Region in the Nation to have completely transferred the

permit program to its States when Administrator Douglas Costle authorized Illinois to issue permits as of October 23, 1977.

The Region is now in the process of working with the States to fully integrate toxic substance control requirements into the day-to-day permit activities. The Region is laying out a program that primarily will utilize the 129 toxic substance limitations for 21 industrial categories being developed by the Effluent Guidelines Division. Major efforts will continue to evaluate and control those significant toxic pollutants not covered by guidelines. Process evaluation and process modification versus end-of-the-line treatment will continue to be encouraged.

The fight for clean water is clouded by numerous issues—PCB's, PBB's, asbestos, Mirex, and other complex organic and inorganic toxicants, nutrients such as phosphates, thermal pollution, etc.

The continuing controversy over phosphates in the Great Lakes gains momentum as projected studies indicate that phosphorus loadings will increase at an alarming rate during the next decade. The addition of phosphorus to the lakes results in eutrophication—slow choking of the lakes by excessive plant growth. One practical way to help combat the problem of phosphorus is to enact a ban on detergents using phosphates. Although some cities have bans on phosphates, no nationwide ban has yet been passed. Earlier this year, a Region 5 Phosphorus Committee prepared a position paper calling for a detergent phosphate ban for the Great Lakes Basin. While phosphate controls in themselves cannot solve the problem entirely, they can make a significant difference.

A series of poisonous chemical spills in the Ohio River prompted EPA to take another look at methods designed to prevent and/or deal with emergency spills. EPA is currently

implementing stepped-up monitoring and enforcement procedures and working for increased emphasis on spill prevention by industry.

As part of its "get tough" pollution policy, EPA fined U.S. Steel (Gary works) \$4.2 million for pollution violations of the Federal air and water pollution laws. This is the largest such penalty in the history of the Agency. Crackdowns on persistent municipal polluters got started also with a major enforcement action against the city of Detroit resulting in a consent decree involving both the city and its suburban customers.

Section 208 of the water law calls for regional water quality management plans—regional programs for dealing with common water quality problems. Such plans address the preservation of clean water as well as the restoration of polluted waters and advocate public participation throughout the planning process.

In Region 5, 37 regional planning agencies are working closely with cities and towns to identify problems and develop methods of reducing and eliminating pollutants. Planning solutions include combinations of building wastewater treatment facilities, enacting regulations, monitoring streams, and limiting sources of pollution. Although in some States the planning effort has slowed to a snail's pace as a result of political red-tape, the public's interest in 208 is increasing. Increased emphasis is needed in toxic substance and non-point source control.

Of the initial \$18 billion authorized by the Clean Water Act for sewage treatment construction grants, \$4.5 billion has been awarded to some 2,000 Region 5 municipalities. Over 700 grants totaling \$4 billion involve actual ongoing construction of sewage treatment plants, intercepting sewers, and other waste treatment facilities. Their completion will significantly affect the quality of water in the Region.

During the 1977 fiscal year, Region 5 set a national record by obligating almost \$1.5 billion for construction of sewage treatment facilities. This is more than any Region has ever obli-

gated in any 12-month period since the program started. The \$1.4 billion obligated was divided among our six States as follows: Illinois - \$331 million; Indiana - \$237 million; Michigan - \$276 million; Minnesota - \$79 million; Ohio - \$442 million; and Wisconsin - \$107 million. The Region's projected use of \$5.48 billion (over 22%) of the \$24.5 billion authorized by the Clean Water Act Amendments of 1977 will provide the long-range stability necessary to continue the municipal water pollution cleanup in Region 5.

Region 5 is using the authority delegated to it by the Safe Drinking Water Act to see that action is taken to maintain the integrity of the estimated 95,000 public water systems in the region. Five out of six States in the Region—Ohio, Illinois, Michigan, Wisconsin, and Minnesota—have signified their intent to seek primary enforcement responsibility for public water system supervision. Minnesota, Michigan, and Wisconsin now have primacy. Since Indiana has officially stated that it will not immediately pursue primacy, Region 5 is operating the primacy program there. Region 5 uses the Model States Information System to gather required information on drinking water supplies.

In response to a drinking water crisis caused by the disposal of taconite wastes in Lake Superior, the city of Duluth, Minnesota received a Federal grant for the construction of a treatment plant. Now operating, the new facility is capable of removing potentially hazardous asbestiform fibers from the water.

In other parts of the Nation, EPA scientists have launched studies on the possibility of carcinogens in drinking water supplies. In Region 5, such a study is currently being conducted on the Fox River near Aurora, Illinois.

The Great Lakes Surveillance Branch completed a two-year study of Lake Michigan. Early indications showed that waters in the inshore area are getting

cleaner, but the open waters of the lake are now intermediate in nutrient supply. Final results will be available this spring at about the same time that Region 5 launches its new research vessel, the *Crockett*, to begin looking at Lake Erie.

Over the last few years most of the activity in air pollution control in Region 5 has centered on two major areas. The first of these was the development of a control strategy and regulations for sulfur dioxide in Ohio, since that State was unable to provide an approvable plan. The regulations were promulgated in August, 1976 and are now being enforced to bring violators into compliance. The other major activity has been to enforce the requirements of the State implementation plans adopted in 1972. These standards were to have been achieved in mid-1975, and in fact, 92 percent of the 4,500 major sources of air pollutants in the Region are now in final compliance or following cleanup programs.

A joint State-Federal enforcement effort is under way to place the remaining violators in the Region on schedules. The key elements of this program include the early filing of court actions to prevent prolonged negotiations during which pollution continues unabated, and the assessment of civil monetary penalties based upon the economic savings enjoyed by the polluter because of his failure to invest in pollution controls. The use of civil penalties in this way is important to protect the competitive position of the vast majority of industry that has moved to clean up.

Other major goals of the regional air enforcement program are to maintain the current high levels of compliance (virtually 100 percent) with EPA hazardous pollutants standards and to ensure that industrial emission growth does not threaten delay in achieving health standards or adversely affect clean air areas.

In order to reduce automobile-related pollution, enforcement efforts have focused on ensuring compliance with EPA's unleaded gasoline and tampering regulations to ensure the protection of auto emission control

devices. Major actions in this area have been taken against fleet owners such as the City of Chicago and the Yellow Cab Company in Cleveland, Ohio.

A large number of the urban areas in Region 5 have failed to meet health standards for particulates (dust) and sulfur dioxide. In addition, the problem of photochemical oxidants (ozone) continues to grow. Virtually every monitor in the Region records violations during the summer months. Hydrocarbon emissions from autos and industrial sources are the primary cause of this problem. The monitors near urban areas are recording hundreds of violations at levels as high as three times the health standard. Even very rural sites are recording violations as polluted air travels from the congested urban areas out to what would otherwise be pristine areas.

The Clean Air Act Amendments of 1977 have greatly reinforced the EPA's and the States' ability to address this problem. Every State in Region 5 is required to submit a plan by January 1, 1979, to control the hydrocarbon emissions within its boundary. To attain the standards this program will need to address both industrial sources and vehicle emissions.

In the area of pesticides regulation, Region 5 is working with the States in the development of applicator training and certification programs. Plans have been submitted by all the Region 5 States, three States have full approval, and two have received contingent approval; Illinois is seeking full approval of its State plan.

So far almost 200,000 Region 5 citizens have received training and are eligible or certified to use restricted pesticides. Pesticide Branch staff are currently developing cooperative enforcement agreements with State regulatory officials. It is anticipated that six agreements will be completed by the end of FY 79.

Recently, the solid waste staff's major effort has been in



the development of programs established under the Resource Conservation and Recovery Act of 1976 (RCRA). The new Act provides for the elimination of open dumping, a hazardous waste regulatory program, and financial and technical assistance to develop State and local waste management control plans.

Due to Region 5's large population and consequent high solid waste generation rates, its State agency solid waste programs will be among the largest and most comprehensive in the Nation. Regional Office and State agency personnel have been working closely in preparation for implementation of RCRA programs, and the Regional Office is now in the process of awarding grants to its respective State agencies. Region 5 is responsible for distribution of the largest share of grant funds in the Nation.

In the area of noise control, the Region has been working

with individual States and communities by helping them to develop noise control regulations. In addition, the Noise Program has conducted environmental noise workshops throughout Region 5. These workshops provide training for public officials involved in formulating community noise control programs. The program has also provided technical assistance to Federal facilities in Region 5 that have experienced noise problems.

In Region 5, the Radiation Program Office is coordinating its activities with the States. During FY 78, the Region will define and evaluate the problem of decommissioning radiological facilities in urban areas. Assistance is given to the States

in the development, testing, evaluation, modification, and maintenance of State Radiological Emergency Response Plans. The Regional Office participates on the Regional Steering Committee and in the Federal Cadre operation. Region 5 also presents radiological response training courses. Assistance in implementing the Drinking Water Standards is given through laboratory certification.

The Radiation Program maintains a network of ambient radiation environmental sampling stations to continuously measure the radioactivity in the air throughout the Region. Sample collections are made twice weekly. During potential fallout periods, such as occurred with the Chinese bomb test, additional standby air sampling stations in the network are activated and air samples are collected every 24 hours. The States are alerted immediately of any fallout that may occur in their area. □

Fishermen on Lake Huron dip their nets for smelt

Back cover: Youngsters cleaning up their environment



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