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THE ENDANGERED SEA
THE JOB FUTURE AT EPA



U.S. ENVIRONMENTAL PROTECTION AGENCY



Saving the Seas

Lying awake at night in a seashore resort listening to the distant booming of the ocean waves, you realize you are hearing music which the sea has been playing for millions of years.

Recognizing the power behind this slow muffled drumming, you find it easy to agree with Byron that the oceans are too mighty to be damaged and that while "man marks the earth with ruin, his control stops with the shore. . . ."

Yet as Administrator Train points out in this issue of EPA Journal the ocean is indeed endangered as it is increasingly used as a receptacle for all kinds of wastes.

The ocean is regarded as Lake Erie once was—a sink where all unwanted things could be conveniently disposed of. The vulnerability of Lake Erie was belatedly recognized only when this lake had reached an almost irreversible stage of pollution.

EPA is now playing a vital role in the mounting drive to protect life's birthplace—the sea—from a similar fate.

Some of the articles in the Journal report on the successes and problems of the Agency's programs to control ocean pollution. One is a first-hand account of an important and exciting hunt for radioactive wastes dropped in the ocean many years ago. Another describes the work of Kenneth Biglane, Director of the Oil and Hazardous Materials Division, in attempting to curb oil spills, many of them at sea.

The importance to the Nation of the Gulf of Mexico is described in an article from Region VI in Dallas. The Gulf area is vital for its growing industries, transportation, rich fisheries, and rec-

reation value. Measures to protect the Gulf's teeming estuaries can be models for the preservation of all waterways where freshwater meets the ocean.

On a personal level, some EPA employees tell us what the ocean means to them. Their experiences with the ocean include night sailing off New York City and walking nets into the surf on the Georgia coast to catch fish.

The Journal also has another interview with Alvin L. Alm, Assistant Administrator for Planning and Management, on subjects of interest to many EPA employees such as whether downgradings are imminent, does the Agency favor the four-day work week and what is EPA doing to prevent discrimination against women.

The Journal carried an interview with Mr. Alm in the February issue and hopes to run question and answer articles with top Agency officials periodically. If you have queries which you think would be of general interest, let us know and we may be able to include them in future interviews.

From Region VIII in Denver we have an intriguing story about a noise control program which includes use of a balloon to pick up urban noise from the sky.

On the international front, the Journal has an article about the role EPA will play in a global system to be set up for exchange of environmental information.

The International Referral System to be established and the present UN Global Environmental Monitoring System will ultimately comprise "Earthwatch," a broad UN environmental program for protecting both land and ocean.

EPA JOURNAL



COVER: BREEZING UP, Winslow Homer, National Gallery of Art, Washington, gift of the W.L. and May T. Mellon Foundation. (Detail)



U.S.
ENVIRONMENTAL
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Russell E. Train
Administrator

Patricia L. Cahn
Director of Public Affairs

Charles D. Pierce
Editor

Staff:

Van Trumbull
Ruth Hussey

PHOTO CREDITS

PAGE 3 Hope Alexander*

PAGE 4 NOAA

PAGE 6 Cecil W. Stoughton,
U.S. Department of the Interior

PAGE 7 Hope Alexander*
Her Majesty's Stationery Office
London, England.

PAGE 9 NASA

PAGE 10 John Messina*

PAGE 11, 18 Don Moran, Ernest Bucci

* DOCUMERICA Photos

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THE ENDANGERED SEA

By Russell E. Train

(Excerpted from remarks by Administrator Train to the National Audubon Society in New Orleans, La., April 19, 1975)

It was in the oceans and the estuaries of the world that primitive one-celled life originated. It came from the sea, not—like Aphrodite in Greek legend—at a single miraculous instant but over aeons of time. As the earth cooled, traces of oxygen were produced. Then came the photosynthetic cells in water, creating more oxygen which built up a shield against the deadly ultraviolet radiation from outer space. That in turn made more life possible, until creatures were able to crawl out onto the land and evolution began its long upward course to the creation of man.

Knowing these things, we cannot help but feel a swirling sense of awe and anguish as we stand at the sea's edge. For this birthplace, this original nursery of us all is endangered. Dredging and development are destroying the marshes. Filling and dredging have wiped out some 200,000 acres of shallow coastal bays in the Gulf of Mexico and south Atlantic areas over the past two decades. Chemicals and sewage and oil spills are slowly and steadily sapping the oceans' ability to serve as a well of life. The oceanographer Jacques Cousteau tells us that the floor of the Mediterranean is littered with the debris and waste of modern technology. Ecologists warn us that it is a dying sea and that unless nations act to protect it, it will soon be a dead one.

All over the world, the seas are serving as a receptacle for wastes. They have become a sink for enormous quantities of chemicals from fertilizers, herbicides and pesticides used in agriculture far inland. It is this kind of disjointed activity in our society, this process of action in one area leading to ecological shock waves far from the original source of pollution, that now threatens the sea. One of our major problems is that we don't really know what we're doing to our environment and, ultimately, to ourselves. Like children with a new toy, we have believed that just because a thing is technologically dazzling, it is good. We have worshiped at the altar of

"cost efficiency" without knowing the true cost to society of dumping untreated pollutants into the air and water. We have followed a policy of plunder-now-and-pay-later whose price tag must all too often be paid by victims far from the scene of the crime.

Indeed, compared with our skill and sophistication in creating pollution, our ability and instruments for comprehending and controlling it must rank somewhere at the level of the Stone Age.

With each passing year the need to control the increasing quantity of toxic substances in our environment intensifies. An estimated 500 to 700 new chemicals enter commerce in significant quantities every year. Substances once considered safe for widespread use are suddenly suspect and pulled off the market. In too many cases, the public and the environment continue to serve as testing grounds for such products. The more we learn about the health effects of pollutants, the worse things look. Researchers at the National Cancer Institute are reported to have estimated that 60 to 90 percent of all human cancers are caused by environmental factors—from ultraviolet rays to pesticides. And while progress has been made in treating this disease, it is obvious that the most sensible course lies in prevention, in controlling carcinogens before they enter man's environment.

ATTITUDE

One of the things I find most alarming is that our attitude toward the ocean is a carry-over from our earlier attitude toward the land. Increasingly the seas are regarded as a place to put unwanted things, a place where accidental and deliberate spillage doesn't matter because the ocean is vast and nobody is around to protest. Having polluted the land, we are now starting to lavish our attentions upon the last clean place on the globe, trusting that the self-cleansing powers of the oceans will somehow solve matters. But freedom of the seas does not mean freedom to pollute. The globe has become too small and too crowded for that.

The growing and serious problem of ocean spills and dumping has become a matter of special concern. According to United States Coast Guard figures, the

number of all types of polluting discharges into navigable waters rose from about 8,700 in 1971 to nearly 14,000 in 1974. By one estimate the amount of oil moving around the world in lanes of commerce will double each decade. This means that by the year 2,000 we can expect six times as much traffic, with an obviously greater risk of oil spills and hazards to the environment.

Supertanker traffic is giving rise to increasing spills of oil in remote areas of the globe such as off the Cape of Good Hope and in the Straits of Magellan. Some of the spills have been catastrophic to important seabird populations. I believe that international action is urgently needed to find ways to protect the valuable and highly vulnerable seabirds of the world from destruction by oil.

One of the most pressing matters with respect to the oceans still lies in the future. This is the exploitation of mineral resources on seabeds around the world.

Lying on the floors of many oceans are some rather odd, black, potato-shaped lumps known as manganese nodules. No one really knows how they were formed, but scientists have found them rich in useful metals such as copper, nickel and cobalt. Already several companies are trying to devise ways of mining them, and that's where the environmentalists have begun to worry.

Few companies have any real experience in deep water mining of this type, and we can anticipate problems. The pace of life at profound depths of the sea is exceedingly slow. The life cycles of creatures there do not occur at the same rate as on the surface, and it would require a long time to restore the ecology after it has been disturbed by mining. Very large quantities of seabed mud and debris would undoubtedly be churned up to the surface. This sediment could shut out sunlight and prevent it from reaching life at lower depths. It could threaten commercial fishing and recreation, for the sediment might be carried by currents to distant beaches. Whether refining is done at sea or at the coast, the mine tailings and waste chemicals could pose another environmental hazard.

We have seen in the case of strip mining what can happen to the land when technology outpaces legislation and environmental controls. The repercussions



from undersea mining could resound throughout the world.

The oceans represent not only a critical environmental problem area but a major opportunity for more effective international cooperation in the management of common resources. Beyond the disputed limits of national jurisdiction, the oceans are not subject to national sovereignty but are, indeed, part of the common heritage of all mankind. This has meant, in practice, that the open seas are open to unlimited exploitation on a first-come, first-served basis. It seems to me that the time has come to match our assumption of unlimited *rights* to the oceans with the assumption of *duties and obligations* also held in common and *enforceable*.

The need for improved international cooperation to protect the oceans is increasingly recognized, as evidenced by the ocean dumping convention adopted at London in 1972, and the 1973 London convention for the prevention of pollution of the seas by ships, among other such efforts. At the same time, the mechanisms for enforcing such agreements are limited, to say the least, dependent in the usual case on the voluntary cooperation of individual nations.

We have seen how ineffectual such agreements can be as in the case of the international protection of whales. At a time when the principle of national sovereignty seems stronger than ever—among great and small nations alike—it may be unrealistic to propose limitations on that principle. But in the face of growing frustration with existing procedures and the growing likelihood that freely competitive exploitation is simply going to lead to the ultimate exhaustion of the ocean resource, it

seems to me that the time has come to explore the possibility of international enforcement machinery, such as could be represented by an international coast guard or similar capability. I know this is a radical suggestion, but the times and the problems call for fresh and, if you will, radical initiatives.

LEASING

Last year the President directed the Secretary of Interior to undertake a major expansion of leasing on the Outer Continental Shelf to help increase oil supplies because of the energy problem. This policy involves a number of important environmental considerations.

As we move to improve the country's energy situation, it is important that we act effectively to reduce our energy demand. A recent study by the Conference Board showed that the Nation could make sizeable cutbacks in the growth rate of energy use without impairing economic expansion. In this connection, it is instructive to note that both West Germany and Sweden have per capita energy consumption rates about half that of the United States and both countries maintain high standards of living. The introduction of new plants and equipment in the U.S. already has reduced the growth rate of energy use and has achieved new economies. However, a sustained reduction in the energy growth rate will require a concentrated, long-term movement to more recycling, more fuel-efficient autos, more mass transit, and less waste across-the-board. Indeed, we need nothing less than a national War on Waste.

At the same time, we must move with determination to improve our energy

supply, with scrupulous regard for environmental factors. There must be a parallel effort to develop clean, renewable sources of energy such as solar power that do not exhaust finite fuel supplies.

I believe that oil from the Outer Continental Shelf can be produced in an environmentally acceptable manner if done in the right places and under vigorous regulation.

One cause for environmental concern is the very magnitude of the continental shelf development effort. It would more than double the total offshore acreage leased since the program began 22 years ago. Since drilling rigs necessary for exploration are already in short supply, it makes sense to me that we focus on areas where the resource potential is high and where the adverse environmental effects would be low. The State and local governments should be informed well in advance about coastal facilities likely to be needed. Without careful planning, new shipyards, platform construction sites, refineries and other developments at the coast could disrupt local fishing, recreation and agriculture; make massive changes in regional, social, economic and cultural patterns; and overwhelm the capacity of impacted areas to provide essential services such as housing, transportation, education, waste treatment, health and police protection. Comprehensive land use planning—with the necessary authority to implement and enforce land use controls and *carried out in advance of development activity*—is critically important to the wise development of coastal energy resources.

Before we degrade the seas with our pollutants, before we lay down any more new carcinogens or wipe out any more species, we should remember that we are connected to all life. Man also is a fragile, endangered species, still dependent ultimately after millions of years for the very air he breathes on simple cellular plant life in the sea. We must keep in mind what Sir Francis Bacon said nearly four centuries ago: "We cannot command nature except by obeying her."

The Gulf and the oceans beyond have enriched our lives by their abundance and their beauty. May we continue to respect these vast waters, this vibrant sea to which all life on earth is bound. With care and planning and foresight we can meet the needs of our society and still protect the web of life between sea and land. If nothing else, our instinct for self-preservation commands us to do so. □

Ocean Disposal of Radioactive Wastes

Robert S. Dyer, 32, is an EPA oceanographer with the Office of Radiation Programs. The accompanying article by Mr. Dyer is the first published account of his search last summer for radioactive wastes dumped in the ocean some 20 years ago. During the past year he was chief scientist for two oceanographic expeditions and will continue in this role this summer when he again uses deep submersibles to investigate radioactive waste disposal sites 6000-9000 feet below the waves.

Last summer Mr. Dyer and his colleagues succeeded in finding and photographing a cache of radioactive waste drums in the Pacific Ocean through use of a remotely-controlled submersible with a videotape camera for "eyes" and sonar for "ears."

Under the Ocean Dumping Act of 1972, EPA's responsibility for regulating ocean disposal includes radioactive materials as well as other types of pollutants. EPA is interested in determining what happened to these drums because interest is mounting in resuming ocean dumping of radioactive wastes.

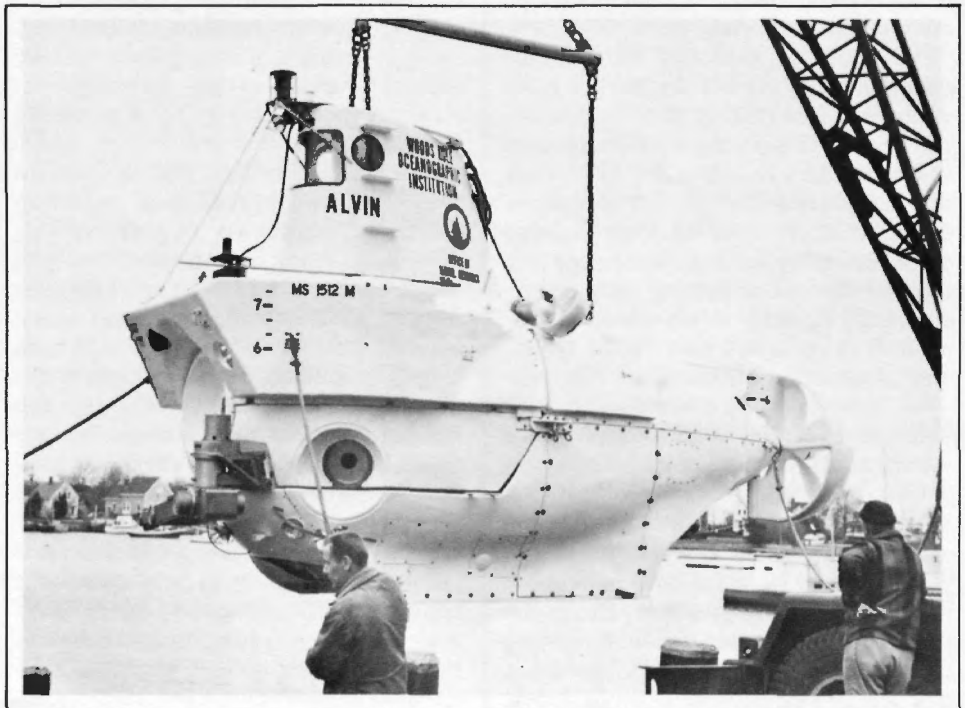
Mr. Dyer discussed some of the technical issues involved in these studies at a meeting of the International Atomic Energy Agency in Vienna, Austria, in February of this year and he expects to present additional findings at their next meeting.

Mr. Dyer did his graduate work at Oregon State University's School of Oceanography in the field of radioecology. He investigated transport processes of radionuclides released from the Hanford nuclear reactors on the Columbia River. "We were looking for the three R's — the routes, rates, and reservoirs of the released radioactive materials. We spent many weeks at sea investigating the dispersion of these radionuclides. My current work is somewhat similar because it again involves trying to determine what has happened to radioactive wastes released into the oceans."

In 1974, EPA awarded Mr. Dyer the Bronze Medal for "establishing and strengthening EPA's role in the development of national and international controls over the disposal of radioactive materials in the marine environment."



The CURV, an unmanned submersible with sonar "ears" and camera "eyes", which was used last summer to locate drums of radioactive waste on the floor of the Pacific Ocean.



The ALVIN, a submersible which can carry a crew of three, will be used by Robert S. Dyer, EPA oceanographer, to hunt for drums of radioactive wastes in the Atlantic Ocean this summer.

Should radioactive wastes be dumped in the ocean? If so, what types of wastes should be included, at what locations, and how should they be packaged? These are questions being asked more and more often by scientists and government officials both here and abroad. EPA is trying to find some answers.

With the passage of the Marine Protection, Research, and Sanctuaries Act of 1972 (commonly known as the Ocean Dumping Act), the Environmental Protection Agency was given the mandate to regulate dumping of all types of pollutants, including radioactive materials.

The Ocean Dumping Act prohibits ocean dumping of any high-level radioactive wastes or radiological warfare agents and the Office of Radiation Programs (ORP) was delegated the responsibility within EPA to develop criteria and standards governing ocean disposal of non-prohibited radioactive materials. As a result, ORP proposed two initial requirements regarding ocean disposal which were published in the *Federal Register*, on October 15, 1973.

These requirements are as follows: (1) radioactive wastes should be containerized, and (2) the containerized radioactive wastes must radiodecay to innocuous levels within the life expectancy of the containers and/or their inert matrix.

In order to amplify these requirements ORP has initiated field studies to find out what has happened to radioactive wastes dumped into the oceans in past years.

From 1946 to 1966 some government agencies and research organizations in the United States carried out ocean disposal of low-level radioactive wastes. This practice was gradually discontinued and supplanted by land burial.

Today, however, some states are becoming reluctant to accept any more radioactive wastes for land burial since these wastes often contain long-lived radionuclides. Such wastes require long-term surveillance at considerable cost to insure that the radionuclides are not released into the environment.

Therefore, many other nuclear waste disposal options are being investigated, particularly for the longer-lived materials.

These options include disposal into outer space, or emplacement in salt mines, polar ice caps, and under the ocean floor. But not all radioactive waste would require such ultimate disposal. For certain classes of radioactive waste ocean dumping onto the ocean floor under carefully controlled conditions may offer an environmentally acceptable technique as

part of an overall waste management program.

Nevertheless, ocean dumping must be viewed as a form of irretrievable storage and, as such, must be considered with caution. Any ocean disposal of radioactive materials must aim at containment over their lifetime so as to prevent environmental dispersal.

A search of the records of past sea disposal operations indicates that between 1946 and 1966 almost all U.S. disposal operations consisted of packaging the radioactive wastes in 55 gallon drums filled with concrete or other experimental matrices. These drums were then dumped at depths ranging from 3,000 to 9,000 feet. But no one had ever determined what happened to the actual radioactive materials that were dumped.

Did the containers implode from the tremendous hydrostatic pressures found in the ocean depths? Have the containers corroded away, releasing the contents? Are there any fish or invertebrates living in the disposal areas which could take up released radioactivity and transmit it through the food chain to our dinner table?

To answer these questions and others required a unique approach to oceanographic research; an approach which would allow probing of ocean waters many thousands of feet deep in search of small targets such as radioactive waste containers. Such a task could not be accomplished with the usual sampling

equipment.

The solution came with the availability of the deep submersibles CURV III (Cable-Controlled Underwater Recovery Vehicle) and ALVIN. The CURV III is operated by the Naval Undersea Center, San Diego, California. It is an unmanned, tethered submersible with a depth capability of 10,000 feet.

The ALVIN is operated by the Woods Hole Oceanographic Institution, Woods Hole, Massachusetts. Named after a scientist, Allyn Vine, at Woods Hole, the ALVIN has a titanium alloy hull to withstand great pressure, can carry a crew of three, and has a depth capability of 18,000 feet. Deep submersibles differ from submarines principally in that they are much smaller, have more maneuverability, and can descend to much greater depths.

Two deep water dumpsites were selected for EPA's pilot studies since historical records indicated that they had received the majority of radioactive wastes. One site is located in the Pacific Ocean near the Farallon Islands, 40 to 50 miles offshore from San Francisco, and consists of two disposal areas at 3,000 and 6,000 feet respectively.

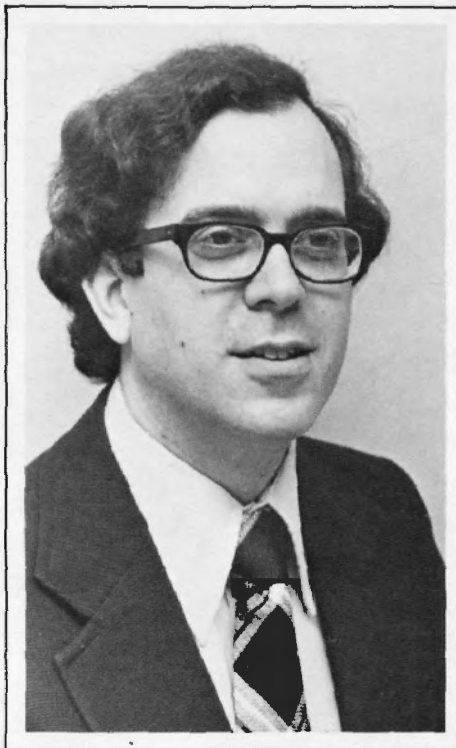
The other site, designated on navigational charts as a disused munitions disposal area, is in the Atlantic Ocean approximately 120 miles east of the Maryland-Delaware border at a depth of 8,000-9,000 feet.

The 3,000-foot depth site investigated by EPA off the West Coast received approximately 3,600 containers of an undetermined radioactivity inventory while the East coast site received approximately 30,000 containers with a total activity of about 45,000 curies.*

Many government agencies, companies, and research groups were involved in the organization and performance of these unique pilot studies. One comment kept recurring regarding the proposed project: "Locating these radioactive waste containers in thousands of feet of water, miles out at sea, will be like looking for the proverbial needle-in-a-haystack!" *IF* the weather holds out and *IF* there are no mechanical or electrical problems in the complex submersible system, and *IF* the bottom topography is relatively smooth so that the sonar system can find the targets, then and only then can you have the opportunity to search miles of ocean bottom to locate the containers.

These contingencies loomed very large and could not be overcome on the East

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By Robert S. Dyer

* A curie is a special unit used in measuring radioactivity and is equal to 37 billion nuclear disintegrations per second.

OIL SPILLS AT SEA

While the demand for the production and transportation of oil is urgent all over the world, the danger of oil spills at sea is always present.

The building of supertankers to carry vast quantities of petroleum has added to the concern about possible massive spills. These photographs illustrate some of the consequences of accidents involving oil.

This sea gull may never recover from its dive into oil-covered waters.

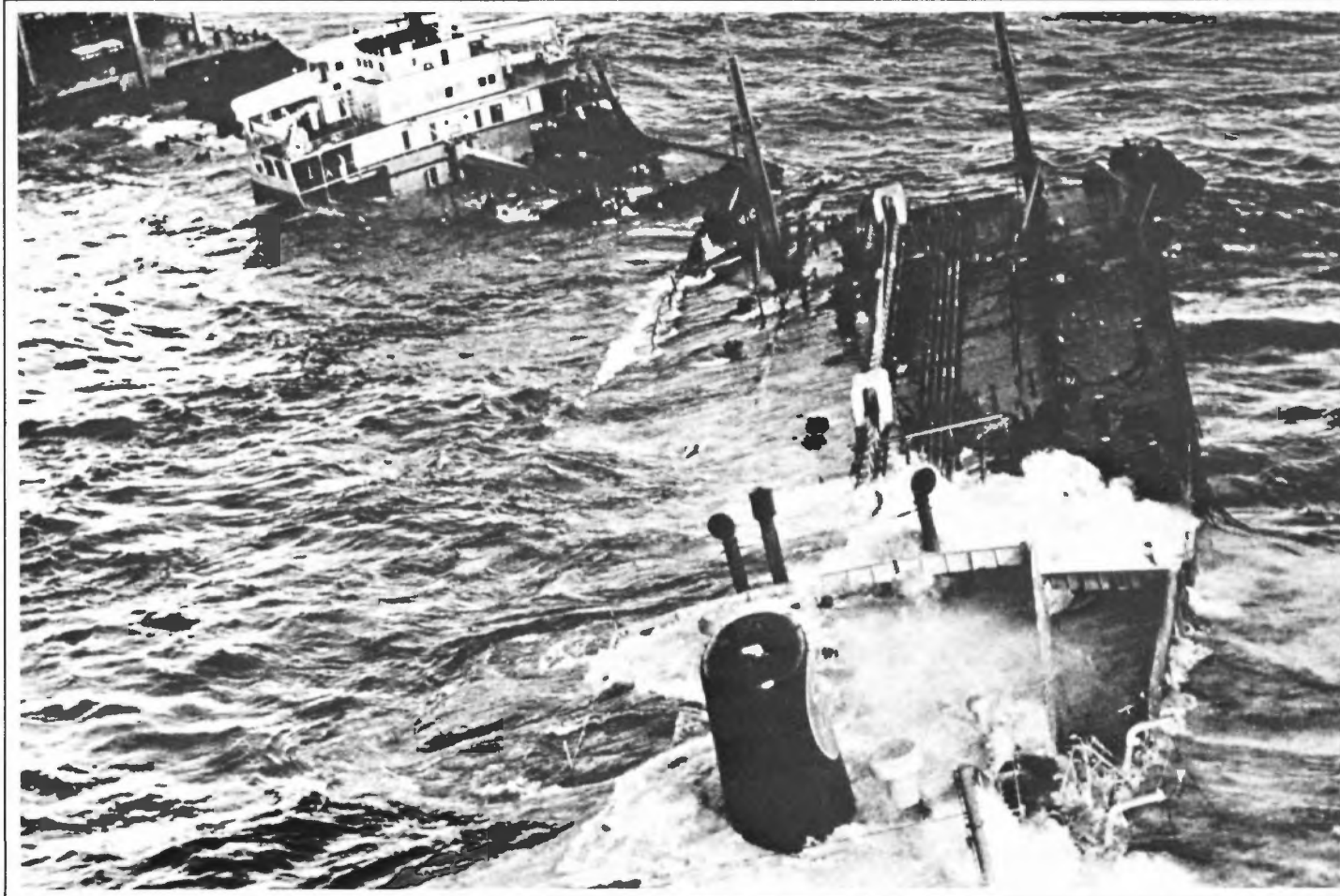
Oil bubbles up from massive leak at drilling rig off Santa Barbara, Calif., in 1969.





Beach stained by tanker oil spill in Narragansett Bay near Providence, R.I.

Tanker Torrey Canyon
breaks in two off coast of England in 1967,
spilling 33 million gallons of crude oil.



OIL SPILL FIGHTER

As the Coast Guard cutter circled the huge and spreading oil slick bubbling up from a leaking well in the blue Santa Barbara channel, Kenneth Biglane radioed to the Coast Guard station at Santa Barbara, Calif:

"She's coming into the harbor. There's no way of stopping her now."

The man who sounded this warning knew that one of the most dramatic and trying chapters was about to begin in his long career of oil spill prevention and control.

At that time, February 4, 1969, Mr. Biglane, who is now Director of EPA's Oil and Special Materials Control Division, was with the Federal Water Pollution Control Administration, one of EPA's predecessor agencies.

For the next several weeks after the vast carpet of oil smeared the harbor and shoreline of Santa Barbara, he played a key role in a tireless struggle by officials of FWPCA, Coast Guard, other Federal and local Government agencies and the Union Oil Co., owner of the leaking well, to curb the damage from the huge spill.

One of Mr. Biglane's main concerns,



Kenneth Biglane

was to discourage the spraying of detergents, except in cases of fire hazard, to help clean up the oil smears.

He explained that he had learned as an observer of the effort to clean up after the tanker Torrey Canyon was wrecked in 1967 off the coast of England that the use of detergents greatly increases the harm to water fowl and sea life.

"The Torrey Canyon was the first major oil spill and is still the largest because 33 million gallons of Kuwait crude spilled from this vessel," Mr. Biglane recalled.

"The oil from this spill hit both the English and the French shores. When I was sent to the scene as an observer I found that the English were using three million gallons of detergents in an attempt to get their beaches cleaned for the tourist season.

"Oil by itself is toxic. Adding detergents makes it more toxic. The French started using physical means such as straw and wood chips to clean up oil on their shores. As long as they did this the damage to fish and wild life was minimal. But then the French hotels got worried about the tourist season so the French also began to use detergents."

Mr. Biglane recalled that "the impact of the Torrey Canyon caused every major country to consider what it would do if something like this happened to them."

Since the Torrey Canyon spill Mr. Biglane has traveled to countries around the world as a consultant or observer when major oil spills have occurred.

Approximately one year after the Torrey Canyon spill, he flew to Puerto Rico as a senior advisor to the U.S. Department of the Interior after the tanker, Ocean Eagle, broke in two and spilled over three million gallons of oil in the San Juan harbor.

"This was a case where we learned the importance of working with a local Department of Public Works because it could provide the manpower and equipment we needed — resources a pollution control agency does not normally have in any quantity.

"I discouraged the use of detergents because I felt certain that use of these dispersants would have killed tons of fish in the San Juan harbor. Straw was used to soak up the oil on shore and then we also got every septic tank truck on the island to haul oil away to surface pits or an oil refinery."

In December, 1968, Mr. Biglane flew to Panama as a consultant to the Smithsonian Institution after the tanker, Whitwater, broke in two and spilled oil on a coral reef the Smithsonian's tropical laboratory had been studying.

"When the oil got to the shoreline we held it in pools with booms until it could be pumped out with bilge pumps. It was

pumped into shore pits and then burned. Again we avoided using detergents."

In October, 1968, Mr. Biglane had served as a U.S. delegate to the International Conference on Pollution on the Sea in Rome. This meeting led to the Brussels Intervention Convention in Belgium in November, 1969, which Mr. Biglane also attended as a U.S. delegate.

"It was at the Brussels conference that agreement was reached that one Nation could seize another's country's ship if it was about to pollute by oil the shores of the first country. In the case of the Torrey Canyon, Britain had been reluctant to seize this vessel because it was flying a foreign flag."

In 1970-71, Mr. Biglane was an advisor or observer at three off-shore oil well fires in the Gulf of Mexico.

"We learned from the Chevron oil well fire in 1970 that it was better to let the fire keep burning until a relief well could be drilled to stop fresh oil from feeding the blaze," Mr. Biglane said. He explained that as long as the fire was burning the amount of oil escaping to pollute the Gulf of Mexico was relatively small.

In 1971, Mr. Biglane was also a consultant on cleanup efforts after the collision of two tankers in San Francisco Bay resulted in a large oil spill.

"We learned a great deal in this case about using aerial surveillance to check the extent and density of the oil spill," he recalled.

In the summer of 1971, Mr. Biglane flew to Australia to testify at hearings on proposed drilling for oil in the Great Barrier Reef.

"I gave sworn testimony for five days on oil pollution control and prevention," he remembers. "I was grilled by three sets of barristers and they dredged up every bit of experience I ever had. I gave over 300 pages of testimony. It was pleasing in a way because it indicated that other countries were beginning to seek out our technology."

In 1972, Mr. Biglane helped advise on the cleanup after "one of the largest oil spills in this country" was caused by Hurricane Agnes. He said that six million gallons of waste oil being held in storage lagoons along the Schuylkill River (above Philadelphia) were swept away when the hurricane-lashed river water rose 20 feet.

"We found oil 20 feet high in trees and in the second floors of homes," Mr. Biglane recalled. "Thousands of barrels of hazardous chemicals were also carried away by this storm. We had to find and dispose of these barrels."

In 1973, Mr. Biglane went back to Puerto Rico to advise on the cleanup after

another tanker spilled oil on the island's south coast. In the same year he traveled as a consultant to the Smithsonian Institution to Jakarta, Indonesia, to conduct a workshop on marine oil pollution.

Last year, Mr. Biglane says, "I had to stay home and mind the store. We were working on our oil spill prevention program and we inherited the ocean dumping program. We did work on the granting of an ocean dumping permit for the burning of wastes in the incinerator ship Vulcanus — that was the first."

Earlier this year he went to Hawaii for an EPA hearing on whether more than 11,000 tons of Herbicide Orange, a toxic plant killer, should be burned in the Vulcanus in the Pacific Ocean about 1,000 miles west of Hawaii.

Asked how he became involved in the oil spill cleanup work, Mr. Biglane said, "At the age of 12 I worked as a roustabout in the oil fields of South Arkansas where an uncle of mine owned some wells. I became familiar with oil spills and leaks early."

A native of Shreveport, La., Mr. Biglane received bachelor and master of science degrees in aquatic biology from Louisiana State University. He later became chief of water pollution control, Louisiana Wild Life and Fisheries Commission, and executive secretary, Louisiana Stream Control Commission.

Recalling those days, he said, "Some of the worst examples of continuous discharges of oil I ever saw were on the coast of Louisiana. It used to be an ecological pig sty. Certain areas of the Louisiana coast became a biological desert as a result. The environment can bounce back from a one-time spill, but a continual discharge of oil can do great damage."

He added that he has been pleased to notice when flying over the Louisiana coast recently that "it is now well on its way to being cleaned up, due in part, at least, to action by EPA and the Coast Guard."

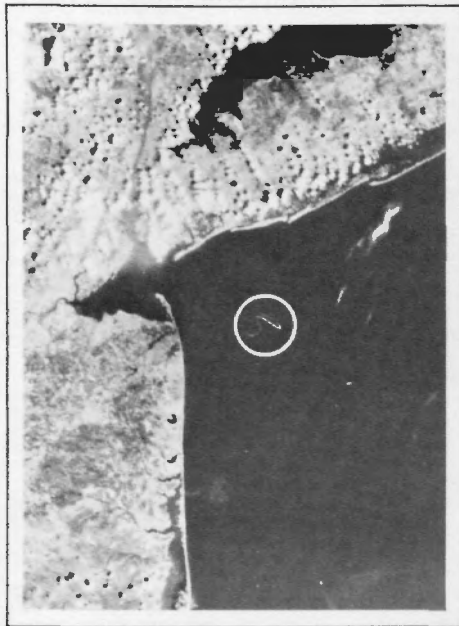
Reviewing the progress made in this country in coping with oil spills, Mr. Biglane said that all EPA Regional Offices and all Coast Guard districts now have contingency plans. There are also a number of private contractors around the country now who know how to cope with oil spills.

"We are a lot more ready than we used to be. We can minimize damage, but we can't protect everything. We have the expertise now, but we need to keep our forces fine tuned."

Asked when the next major oil spill is likely to occur, Mr. Biglane smiled and replied:

"We try to be ready every day." □

ADMINISTERING THE OCEAN DUMPING ACT



This photo, made by the Earth Resources Technology (ERTS) Satellite, shows S-shaped pattern resulting from dumping of sewage sludge outside New York Harbor.

In the more than two years since the Ocean Dumping Act became effective, all sea disposal of wastes in the United States has been brought under full regulatory control by EPA and many dumpers have been required to stop dumping immediately or to prepare for phasing out these activities.

The Act, formally known as the Marine Protection, Research and Sanctuaries Act, gives EPA the responsibility for regulating the dumping of all materials except dredged material.

While the Corps of Engineers has the responsibility for regulating the ocean dumping of dredgings it must do so using criteria promulgated by EPA in consultation with the Corps.

The Act provides for control of both the transportation of material to be dumped and the dumping itself. Banned entirely are the ocean disposal of radiological, chemical and biological warfare agents and high-level radioactive wastes.

James L. Agee, Assistant Administrator for Water and Hazardous Materials, told the House Committee on Merchant Marine and Fisheries earlier this year that between 1973 and 1974 there had been a total increase in ocean dumping of about 2.1 million tons from 1973 to 1974.

He explained that while there had been an overall decrease in dumping of indus-

trial wastes during this period, the net increase was caused by a rise in the dumping of sewage sludge and construction and demolition debris.

The volume of industrial wastes being discharged at sea is on the decline and EPA has denied 70 permit applications, mostly for chemical dumping, since the Ocean Dumping Act became effective.

Eleven ocean dumping sites in the Atlantic Ocean and the Gulf of Mexico are now used by approximately 100 permit holders for municipal and industrial wastes. There is no dumping in the Pacific, although municipal sewage sludge is discharged to the ocean through outfall lines. The outfall discharges of sludge on the West coast and elsewhere are controlled under the National Pollutant Discharge Elimination System.

Mr. Agee told the House committee that "... we have seen a major problem emerge which may have far-reaching effects not only on the ocean dumping permit program, but also on our entire environmental protection effort."

The problem, Mr. Agee said, is how to dispose of sewage sludge. As more and more cities upgrade their sewage treatment facilities from no treatment to primary, secondary or advanced waste treatment processes, more and more sewage sludge is generated.

The greater degrees of treatment produce greater quantities of sludge and the sludge from more advanced waste treatment processes tends to contain large quantities of trace metals and persistent organic compounds, which may have adverse environmental consequences whether they are incinerated, put on the land or dumped in the ocean.

All present dumping of municipal sewage sludge originates from the highly congested New York and Philadelphia metropolitan areas. The total volume of the sludges from these two metropolitan areas is almost equal to the volume of all other materials discharged under the ocean dumping program.

Both the New York and Philadelphia areas are dumping under interim permits which stipulate that they must seek some way of reducing concentrations of harmful pollutants and must find alternate methods of disposal.

In discussing the general question of sludge dumping, Mr. Agee has said that "we feel that the ocean disposal of sewage sludge, whether by dumping or by outfall, can be permitted only an interim basis until it is conclusively demonstrated that ocean disposal of sewage sludge is the most acceptable environmental alternative available for ultimate disposal within the limitations of available technology." □

THE GULF

By Betty Williamson

Director of Public Affairs, Region VI



The unique basin of salt water called the Gulf of Mexico is a partly enclosed, shallow sea bordered by five southern States from Florida to Texas and by Mexico from the Rio Grande to the Yucatan Peninsula.

Because it receives the surface water runoff from two-thirds of the area of the conterminous United States and about one-half of Mexico, it might be called the Nation's sink.

But, it is also the Nation's fish basket; 32 percent of U.S. commercial fisheries production comes from the Gulf, although the coastline from the tip of Florida to Brownsville, Texas, constitutes only 13 percent of the conterminous States' coastline.

The Gulf is the gateway to the mid-United States. Its waters provide economical transportation to many inland cities as well as those on the coast. Houston, 50 miles inland, is now the third U.S. seaport in annual tonnage handled.

The Gulf covers the most extensive offshore oil and gas fields in North America, with thousands of wells already producing from "Texas towers" straddling waters as deep as several hundred feet.

The Gulf is "mined" for salt and sulfur and dredged for shells that are used as road building material and as a source of lime.

Last, but far from least, the Gulf and its coast furnish recreation and enjoyment for millions of people. No one knows the total value of the Gulf beaches, boating, swimming, sport fishing, and hunting.

One recent study estimated that more than \$4 billion was spent each year on recreation in the Gulf.

Most of man's activities that damage or threaten to damage the Gulf environment take place along the narrow coastal strip, in the shallow waters just offshore, and in the rivers and bays that bring fresh water into the Gulf. Here are the industries, the people, and the pollution.

The immense inflow of fresh water is what makes the Gulf one of the Nation's most productive fisheries. Prof. Sewell H. Hopkins of Texas A. & M. University estimates that all Gulf rivers discharge 600 million acre-feet of fresh water, laden with nutrients, each year. The Mississippi River alone accounts for about 80 percent of this water. This "natural pollutant" of seawater creates the conditions needed for young fish to survive and grow. Estuaries where salt and fresh water meet are "nurseries" for shrimp, crabs, and most commercial finfish. Oysters, a very valuable Gulf crop, live all their lives in estuarine waters.

Some damage has already been done to oyster beds by engineering work, oil contamination, and sewage pollution. The other fisheries have apparently not yet been hurt, said Prof. Hopkins, but they are in danger. There have been warning incidents—pollution kills of fish, for instance, and apparent pesticide effects on sea trout reproduction.

River diversion projects have long been promoted by agencies at all levels of government, but their potential effects on the estuaries have only recently become sub-

jects of concern. When water is taken for irrigation or for industrial uses, there is less fresh water entering the Gulf, and the saltier water comes farther up the bays and rivers.

Attempts by man to control the natural flooding of the Mississippi have significantly changed the ecology of the marshlands. The loss of freshwater has caused much of the vegetation to die, hastening erosion.

Canal construction and dredging are thought to be responsible for much of Louisiana's land loss, about 16.5 square miles a year, during the last 40 years, due to coastal erosion.

The Nation's energy needs have pushed oil and gas development up to 100 miles offshore in the constant search for new supplies. To get maximum benefit from the known vast Gulf reserves, offshore drilling has become a 24-hour activity.

While EPA is not opposed to this development, it is asking for organized, systematic planning and tight controls to protect the aquatic environment. Much time and effort are spent on the offshore oil platforms to devise effective spill prevention and control equipment. There are also highly developed sewage treatment facilities for these "mini-cities" at sea.

EPA experts believe that most of the pollutants discharged into the Gulf seldom leave it. The mixing of Gulf water with the Atlantic and the Caribbean is limited and relatively slow.

Direct dumping of industrial waste in the Gulf has been sharply curtailed since the Ocean Dumping Law took effect in the spring of 1973. Before then many millions of tons were dumped each year, with no regulation and no records kept. In 1973, under temporary permits issued by EPA's Region VI, 1.4 million tons were dumped. In 1974 the total was cut to 950,000 tons, and at-sea incineration was tried for the first time in the U.S. The Shell Chemical Co., Deer Park, Texas, burned 16,800 tons of organochlorides on the Dutch incinerator ship Vulcanus, with experts from EPA and other government agencies monitoring the effects on water and air. This year only 140,000 tons of industrial waste are expected to be dumped, one-tenth the 1973 amount.

There is still much to be learned about how the infinitely complex ecosystem of the Gulf of Mexico works.

The Agency's concern now is to guard the estuaries and coastal waters from possible long-term harm from pesticides, chemicals, and other contaminants that are washed into the Gulf with the life-giving fresh water, silt, and nutrients. □

Ellen Bowie, secretary of the Criteria and Evaluation Division, Office of Pesticide Programs, was Miss Maryland in the Miss U.S.A. Beauty Pageant held at Niagara Falls, N.Y., recently. Miss Bowie is 21 years old and has worked for EPA for a year and a half. She lives in Oxon Hill, Md. and is a graduate of Crossland Senior High School, Camp Springs. She also studied for a year at the Fashion Institute of Design and Modeling in Los Angeles, Calif.

Willis E. Greenstreet, Management Division Director for Region III, Philadelphia, has been selected for a two-year mobility assignment under EPA's Executive and Management Development Program and assigned to head the Management Information and Data Systems Division in Washington. He succeeds Michael Springer, who was recently chosen for a year-long executive training program sponsored by the Civil Service Commission and the Office of Management and Budget.

Mr. Greenstreet entered the Federal service in 1963 as a management intern with the Federal Aviation Agency. He later moved to the Post Office Department where he designed and implemented a nationwide personnel data system. With EPA since 1971, he was Deputy Director of Administration at the Cincinnati research center before being assigned to Philadelphia. He is a member of the Agency's working group on automatic data processing and an advisor to the United Nations' International Referral Service for environmental information.

Mr. Greenstreet was a member of the Cincinnati management team which recently won a Presidential Management Improvement Award.

Christopher M. Timm, 34, has been named Director of Region V's Surveillance and Analysis Division. He had previously served as Acting Director and Deputy Director for this Division. He came to the Chicago office from Denver, where he was in charge of technical investigations for Region VIII's Enforcement

PEOPLE

ment Division.

Mr. Timm joined the Federal Water Quality Administration, an EPA predecessor agency, in Denver in 1969. His work included lake eutrophication studies, checking stream water quality in mining areas, sewage plant operations, and the control of radioactive waste piles. He had previously worked as a hydrologist for the Bureau of Reclamation in Albuquerque, N.M.

A native of Michigan City, Ind., Mr. Timm earned a B.S. in civil engineering from Purdue University and an M.S. in sanitary engineering from the University of New Mexico. He served three years with the Army in nuclear weapons and radiological health.

John C. White, Deputy Regional Administrator in the Atlanta office, was recently appointed Region VI Administrator, Dallas, succeeding Arthur W. Busch, who resigned in January.

Mr. White, 45, has been with EPA since its formation and had previously worked four years with a predecessor agency, the Federal Water Quality Administration, and four years with the Department of Housing and Urban Development. Before joining the Federal service, Mr. White had been design engineer with private firms in Huntsville and Mobile, Ala.

He is a native of Blackshear, Ga., a Navy veteran, and holder of a civil engineering degree from the University of Alabama and a law degree from Emory University.

In announcing the appointment of Mr. White, Administrator Russell E. Train said:

"I am delighted that John White is undertaking this critically important job as Regional Administrator. Region VI is one of the fastest growing, most challeng-

ing areas of the country.

"John White brings several essential qualifications to his new job. As Deputy Administrator in Atlanta, he has demonstrated outstanding management ability. He is dedicated to the environmental goals of the Agency, which he has consistently pursued with firmness, fairness and balance. A career public servant, White possesses strong professional qualifications in the areas of EPA's responsibilities, particularly in the field of water quality. I am confident that John will establish and maintain effective communications with State and local officials, industries, and citizen groups throughout the Region.

"He shares my belief that our environmental goals can best be achieved by working together. He is one of EPA's top career professionals and I am confident that he will do an outstanding job."

Victor J. Kimm has been named Deputy Assistant Administrator for Water Supply, heading the new Office of Water Supply, formerly the Water Supply Division. He reports to James L. Agee, Assistant Administrator for Water and Hazardous Materials.

Mr. Kimm has been with EPA since 1971 and had been Deputy Director of the Office of Planning and Evaluation. He previously worked with the Economic Development Administration, Department of Commerce, and in a development program operating in 14 Latin American countries. As a licensed professional engineer in New York and Pennsylvania, Mr. Kimm worked for six years in the planning, design, and construction of water supply, sewerage, and industrial waste treatment facilities.

He was born in 1934 in Brooklyn, N.Y., earned a B.S. in civil engineering at Manhattan College and a master's in the same field at New York University. He studied economics and public administration at Princeton University in 1969-70 on a fellowship from the National Institute of Public Affairs.

He lives in McLean, Va, with his wife and their five children. □



Ellen Bowie



Willis E. Greenstreet



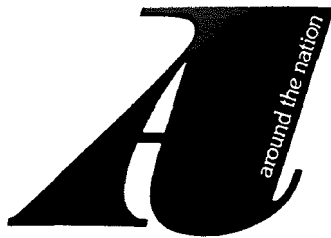
Christopher M. Timm



John C. White



Victor J. Kimm



leaded gas fines

Two oil companies recently paid a total of \$9,250 in fines for selling leaded gas from pumps labeled "unleaded," in violation of EPA regulations requiring stations to provide unleaded gas for new cars with catalytic converters.

Region I Administrator John A.S. McGlennon said the Gulf Oil Co. paid a settlement of \$5,250 for a violation at Nashua, N.H., and a few days later Texaco, Inc., paid \$4,000 for a violation at Lowell, Mass. Both stations were owned by the companies and leased to local operators. The Gulf fine was believed to be the largest in the country for this offense.

awards ceremony

Region I held its annual awards ceremony June 25 on the Discovery, a floating auditorium at the New England Aquarium, Boston.

Awards for outstanding individual accomplishment and long Federal service were presented to 50 employees by Regional Administrator McGlennon. Deputy Regional Administrator Kenneth Johnson discussed plans for fiscal 1976.



enforcement actions

Five municipalities in Nassau County, N.Y., were recently cited for violating State and Federal air pollution standards in the operation of their incinerators. They were the villages of Freeport, Garden City, and Valley Stream; the City of Long Beach; and Sanitary District No. 1, Lawrence.

Six firms and municipalities in Region II were cited for violating water pollution cleanup permits and ordered to take corrective measures. They included:

Hudson Valley Apple Products Co., Milton, N.Y., and Capital City Products Co., West New York, N.J., both ordered to stop excessive discharges into the Hudson River; Arrow Group Industries, Haskell, N.J.; McIntyre Brothers Paper Co., Fayetteville, N.Y.; the Village of Albion, N.Y.; and the City of Perth Amboy, N.J.

Civil penalties for pesticides law violations were assessed recently against Federal Chemical Co., Cranbury, N.J., \$1,743 for selling a misbranded and adulterated Federal Lawn Master Crab Grass Control, and Oil Specialties and Refining Co., Brooklyn, N.Y., \$1,500 for misbranding its Kelco Products Mint Disinfectant.

statement faulty

Region II reviewers recently found serious deficiencies in a draft environmental impact statement prepared by the Army Corps of Engineers for the proposed New York City Convention and Exhibition Center in midtown Manhattan. The proposed 2,000-car parking garage would contribute to unhealthy levels of carbon monoxide, they said, and the plans did not take sufficient account of mass transit facilities. Deputy Regional Administrator Eric S. Outwater said the Center planners had agreed to reduce parking spaces and increase reliance on mass transit.



noise control moves

Interest in controlling noise pollution has been growing in Region III. Two counties have adopted noise control ordinances, and a noise pollution study is under way in a small city.

Allegheny County (Pittsburgh, Pa.) developed a proposed noise control law designed to curb major sources of noise and prevent noise levels from increasing. The County Board of Health held a series of public workshops to acquaint citizens with provisions of the law.

Montgomery County, Md., adopted a noise control law in April.

A special noise study is under way in Morgantown, W. Va., to determine the effect the opening of the Personal Rapid Transit (PRT) System will have on noise levels in the city. PRT is designed to carry students between two campuses of the University of West Virginia. Students now drive between these locations, causing traffic and noise problems.



wastewater planning

Region IV is moving ahead in areawide wastewater treatment management planning. The Region expects to have 35 designated areas in July, according to Regional Administrator Jack E. Ravan, and 46 areas (98 percent of those eligible) at the close of Fiscal 1976.

The program in the eight southeastern States involves more than 50 metropolitan planning organizations and a total staff commitment of 300 persons. Between 250 and 300 contractors are assisting in the program.

More than 70 percent of the Region's major industrial and municipal dischargers are in the planning areas, as well as many non-point sources, major factors in lake eutrophication.

model company

The Interstate Paper Corp., of Riceboro, Ga., has received several EPA grants and has won national awards for demonstrating that modern industry can operate successfully without hurting the environment.

A new illustration of the company's community betterment work was reported recently by the Savannah Evening Press. A front page article asserted:

"A new job opportunity has opened for some members of the Chatham (Savannah) Association for Retarded Citizens: Hand planting of pine seedlings.

"The baby trees normally are planted by machine. But the mechanical process is unsatisfactory in odd-spaced, small pockets of land.

"Some 15 retarded persons were hired by Interstate Paper Corp., of Riceboro during the 1974-75 planting season to handle these special sites.

"Interstate Vice President William J. Verross called the result 'excellent.' "



u.s. steel cited

Region V recently issued a 30-day notice of violation of federally enforceable State air pollution regulations to the U.S. Steel Corp., Gary, Ind. The notice was directed at four different sources which

emit more than 9,000 tons of particulates and 3,600 tons of sulfur dioxide per year. The allowed emissions under the air pollution regulations are 169 tons of particulates and 890 tons of sulfur dioxide.

U.S. Steel will have an opportunity to meet with Region V officials to discuss the violation.

midwest water study

Preliminary results of an 83-city study of drinking water supplies in Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin have been released by Francis T. Mayo, Regional Administrator. The study was designed to detect the presence of organic material in the Region's drinking water supplies.

This study, which supplements EPA's national survey of 80 cities, found that the highest amounts of chloroform were in systems with river water sources.



strategy meeting

State public health authorities and EPA officials from Regions VI through X held a two-day meeting in Dallas recently to discuss regulations and strategy for the enforcement of the Safe Drinking Water Act of 1974. The Act seeks to assure the purity of public water supplies without disturbing the historical relationships of Federal, State and local governments. It also would give primary enforcement responsibility to the states.

The sessions reviewed the water supply program and discussed State program regulations.



meet the press

A one-day seminar in dealing with the news media was held recently for Region VII divisional and program chiefs and persons occupying related positions in pollution control agencies of Missouri, Kansas, Iowa, and Nebraska.

Taking part were Eliot Porter, St. Louis Post-Dispatch; Wes Iverson, Sun Newspapers, Omaha, Neb.; Tom Eblen, Kansas City Star; Charles Gray, WDAF Radio, Kansas City; Chris Keller, Taft Television, Kansas City; and Marlin Fitzwater, EPA News Services Division,

Washington, D.C.

Randall Jessee, Rowena Michaels, and Eloise Reed of the regional Public Affairs Division, organized the seminar, with the support of Jerome H. Svore, Regional Administrator, and Charles V. Wright, Deputy Regional Administrator.

industry waste meeting

Representatives of major industries that discharge wastewater into the sewer system of the Metropolitan Kansas City Area met June 12 in Kansas City to learn from Region VII officials what pretreatment of wastewater is required of them under EPA's discharge permit system.

"We called this meeting at the request of the Mid-America Regional Council to dispel misconceptions by some industries. . . ." said Regional Administrator Jerome H. Svore. "If we instill the fact that the same regulations for pretreatment apply to them all, we feel we will have helped the municipalities in their enforcement efforts."



lab dedicated

A central laboratory for Region VIII's Surveillance and Enforcement Division was formally opened June 13, with a ribbon-cutting ceremony by Regional Administrator John A. Green.

The new lab is in the Federal Building in Denver, adjacent to EPA's National Field Investigations Center. The facility replaces laboratory operations that had been in two widely separated locations. Eighteen persons are on the laboratory staff, under the direction of Keith O. Schwab, Director of Surveillance and Enforcement for the Region.

energy impacts

Helping the States of Region VIII cope with burgeoning development of energy resources, EPA is providing more than \$15 million for a variety of programs concerned with the impact of energy development on States and localities.

Some \$8 million is going into the Region for research in pollution control technology for power plants, health and ecological effects, mining and reclamation, and air and water quality studies.

Regional programs totalling \$3 million are directed toward monitoring, technical investigations, prediction and evaluation of impacts, and planning.

More than \$4 million in funds for areawide wastewater management planning is targeted for energy impact areas.



california standards

Administrator Russell E. Train has granted California's request to set for that State 1977 automobile emission standards more stringent than will be required by EPA elsewhere in the country.

The action allows California's Air Resources Board to require that 1977 models emit no more than .41 grams per mile of hydrocarbons, 9.0 gpm of carbon monoxide, and 1.5 gpm of nitrogen oxides. Comparable Federal standards for that year will be 1.5 gpm of hydrocarbons, 15.0 gpm of carbon monoxide, and 2.0 gpm of nitrogen oxides.

The State Board made the formal request in March. A public hearing was held in Los Angeles April 29. The waiver was granted May 20. Administrator Train ruled that: 1) compelling and extraordinary air pollution conditions exist in California, and 2) auto manufacturers have adequate technology and lead time to meet the more stringent standards.



smelter study

Intensive monitoring of air quality and pollution fallout near a big copper refining plant at Tacoma, Wash., is under way this summer, Region X Administrator Clifford V. Smith Jr. has announced.

The study seeks to determine the precise health effects of chronic, low-level exposure to arsenic and other heavy metals released into the air at the plant, owned by American Smelter and Refining Co. (ASARCO).

The work, to be performed under an EPA contract by the American Public Health Association, will focus on how much arsenic is inhaled from the air or ingested in drinking water and food grown in contaminated soil by persons living near the smelter and downwind from it. □

THE JOB FUTURE AT EPA

AN INTERVIEW WITH ALVIN L. ALM, ASSISTANT ADMINISTRATOR FOR PLANNING AND MANAGEMENT

How is job classification review proceeding? Where does EPA stand on the four-day work week? How can the regions handle the increasing workload? What is the average grade in EPA now? Does EPA want to encourage bike riding? What is the Agency doing to prevent discrimination against women?

Q: *A Washington newspaper recently carried a front page story stating that the Civil Service Commission has started an intensive audit of government jobs designed to result in massive Federal job downgradings and resultant cuts in salary. The newspaper article states that the Civil Service Commission suspects that perhaps as many as 30 percent of all Federal jobs are classified too high. Do you have any knowledge of such a plan and, if so, will EPA be affected?*

A: I gather the basis for the article was the study of positions in 18 agencies completed in May this year. The study was designed to determine whether jobs were being properly classified. Incidentally, EPA was not one of the agencies included, possibly because our own review at Headquarters had been completed so recently.

I know of no plan for any massive downgrading of jobs. As you know, we are reviewing all Headquarters positions to determine proper classifications. The Commission will not be reviewing EPA positions at Headquarters.

Q: *In your opinion, are grades too high in some cases in EPA?*

A: In some cases, yes. The Civil Service Commission evaluations and EPA evaluations have indicated that some EPA positions are overgraded. We have attempted in the field and Headquarters to minimize the number of downgradings by restructuring of the jobs, shifting additional duties, and organizational changes. In some cases, downgradings are necessary but we are attempting to keep these to an absolute minimum.

Q: *EPA's Personnel Management Division has been checking on jobs and grade levels in certain offices of the Agency since January. Why is this being done?*

A: The Civil Service Commission conducted a com-

prehensive review of personnel practices at Headquarters. In that review, the Commission indicated that we needed to evaluate all Headquarters position classifications. On the basis of that directive, we sent the Commission a schedule for review of all EPA Headquarter positions. The Commission accepted our schedule and the review is currently underway.

Q: *What has the review found generally so far?*

A: In general, we found the majority of the position descriptions in the Office of Enforcement (where the review began) are up-to-date and accurate. Where we discovered classification problems, we've worked with the Office of Enforcement in the restructuring of jobs and organizational changes. We are working very closely with that Office to keep the number of downgradings to an absolute minimum.

Q: *Then some downgradings have been recommended?*

A: No decisions have been made as to whether downgradings will occur. As I indicated, some positions are over-graded and management actions will be necessary. I assume that in some cases, downgradings will be required. Even where this occurs, employees' salaries are protected for a two-year period.

Q: *What about job cutbacks? Are any being considered?*

A: Our 1976 Budget would provide a 97 position increase for EPA. Within the total budgetary ceiling there are a number of major programmatic shifts, the biggest one being the shift of permit positions to construction grant activities. With the magnitude of the shifts, some job reductions may be necessary, but they will be small and isolated.

Q: *Have downgrades been recommended in the field and regional offices?*

A: Yes. Based on Civil Service requirements, both EPA and CSC reviews have recommended downgradings. As with the Headquarters review, we have attempted to keep downgradings to a minimum.

Q: *Is the harm done to morale worth the savings that may be achieved by downgrading?*

A: One has to remember the purpose of classification reviews is to be consistent with a number of Civil Service requirements that are a matter of law. The dollar savings from downgradings are minimal, if any. Clearly, any downgradings cause significant morale problems. For this reason, we attempt to work closely with EPA offices to minimize or completely prevent downgradings or reductions-in-force. There are limitations and some adverse actions will be necessary. We do, however, attempt to keep these to an absolute minimum.

Q: *Do you think the new R&D reorganization is going to help EPA, and if so, why do you think so?*

A: I believe the new organization will help in a number of ways. It will eliminate a level of overhead that occurred in the past and will place more of the research management responsibilities in the field. These changes should result in more efficient use of ORD resources.

Q: *What reactions have you heard about the R&D reorganization?*

A: Any reorganization results in mixed reactions. Some employees feel that the reorganization will hurt them personally, and some even feel that the research program will be adversely affected. It is important to recognize that the reorganization has been designed so that only a relative handful of people, fewer than 80, will have to move to new areas.

**"OVERALL, I THINK THAT OUR
RELATIONSHIP WITH
THE COMMITTEES
WILL BE EXCELLENT..."**

Q: *Doesn't this reorganization tend to centralize control in Washington at a time when other EPA activities, enforcement and grants administration and perhaps others, are being shifted to regional offices?*

A: There will be a net reduction in Headquarters personnel from the reorganization, although admittedly, it is small. The previous organization and planning system vested very detailed headquarters controls over research projects, even though Headquarters offices were supposed to be staff offices. These functions are now being decentralized to the laboratory level.

Q: *What position has EPA taken on legislation proposed by the Civil Service Commission which would provide for flexible working hours within certain limits and a possible four-day week?*

A: We have generally supported the legislation. In addition, we have asked the Civil Service Commission to allow EPA to participate as a pilot agency in the Commission's study of the compressed work week and flexible work hours when the legislation is enacted.

Q: *What do you think of the prospects of Congressional approval of EPA's budget requests for Fiscal 1976?*

A: I believe they are excellent. I was extremely pleased by the reaction of our new Appropriations Committees. Both the Senate and House Appropriations Committees were impressed with the magnitude of EPA's task and the ability of EPA witnesses to respond to questions. Overall, I think that our relationship with the Committees will be excellent and that they are sympathetic to our budget needs.

Q: *Some regional personnel are wondering how they are going to handle the additional responsibilities being given to them with no increase of personnel. Will more people be sent to the regions from Headquarters?*

A: The 1976 Budget projects a net of 74 additional positions in the field. There is no doubt that our regional offices are strapped in terms of resources and that EPA cannot do everything required of it within the current level of resources. As part of the 1976 regional guidance, we prepared an intermediary priority ranking of all EPA's programs. I think it will be incumbent upon us to carefully choose our priorities and concentrate on those activities with the highest payoff.

Q: *You have visited all the regions now. What is your impression of their operations?*

A: My general impression is extremely favorable. I have been a strong proponent of decentralization as a management principle, and believe that it is working well in EPA. I believe that the quality of personnel is extremely high and the executive development program has been successful in assuring that top management jobs are filled on the basis of merit. The regions obviously have problems, many of them related to resources. Some of the major problems are getting the construction grant funds obligated

and dealing with some of the complexity of the air quality program. Certainly the issuance of most major permits is a very significant accomplishment. I think the progress the regions have made has been impressive and something that EPA can be very proud of.

Q: *Is it true that EPA's top leadership is pushing to get supervisors to try to fill job vacancies at lower grade levels? Why has this been done, if this is correct?*

A: The average grade constraints have required EPA top management to encourage filling jobs at a lower level than the previous incumbent. Beyond the average grade control, there are other good reasons for filling jobs at lower grades. Since employees are likely to stay a number of years when there are promotion possibilities, the agency can create a more stable atmosphere by bringing in people at lower grades and providing them with promotional opportunities. By doing this, we can reduce the turnover rate which has historically been relatively high in EPA.

Q: *What is the average grade level now in EPA?*

A: The average grade level right now is 9.39.

Q: *Is this too high?*

A: No, I don't believe so. Because of strong management action, the grade level has been relatively constant for the last six months.

Q: *Why did management officials recently instruct the building guards at Headquarters to stop the practice of letting some bicyclists bring their bikes into their offices for security reasons?*

A: The General Services Administration put out a directive that precluded this practice.

Q: *Why was this action taken before adequate bike racks and security arrangements were made for the protection of these bicycles?*

A: In terms of spaces, we have adequate facilities. We have spaces for 64 bicycles with only 30 bicyclists actually using the facilities. There have been thefts of bicycles in certain areas, which has probably resulted in overcrowding of the bicycle racks next to the front of the West Tower. We will shortly be providing 30 units of secure facilities. If these facilities are fully used, we will provide secure facilities for any additional bicyclists.

Q: *Is EPA going to take any other action to encourage more of its employees to ride bikes to work? For example, are additional showers and lockers to be provided?*

A: Yes. We are contracting for additional shower facilities. Currently, the stress lab is open for this purpose, although there are scheduling problems that prevent this from being anything but a makeshift, temporary situation.

Q: *Is it true that an effort will be made to replace all Regional Administrators who are career employees with political appointees?*

A: Absolutely not. On February 15th, the President signed an Executive Order shifting the Regional Administrators of all Federal agencies into non-career job classifications. Prior to that action, our Regional Administrators were in a category called Limited Executive Appointments. Since we have administratively given our career Regional Administrators re-entry rights into the career service, the President's action does not change the status of EPA's Regional Administrators. We have continued the practice of using merit procedures to select Regional Administrator candidates. I do not foresee any change in EPA's policies for choosing Regional Administrators nor in their rights for future career opportunities.

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EPA'S ROLE IN A GLOBAL INFORMATION SYSTEM

BY FITZHUGH GREEN

Associate Administrator, Office of International Activities



United Nations
Environment
Program headquarters
in Nairobi, Kenya.

A computerized data center is scheduled to begin operating at EPA headquarters in September as part of the United Nations-sponsored global environmental exchange system.

The concept, known officially as the International Referral System for Sources of Environmental Information, was proposed by the British delegation at the 1972 U.N. Conference on the Human Environment in Stockholm.

The State Department recently designated EPA as the United States center in the system designed for the speedy distribution of environmental information around the world.

In acknowledging this designation, Administrator Russell E. Train said, "I welcome the opportunity for EPA to play a leadership role in the development of an international information system which will serve the needs of this country as well as provide assistance to other nations within the UN."

Working in collaboration with information specialists from the UN and abroad, Dolores Gregory, head of the Visitors and Information Exchange Division, Office of International Activities, and Sarah Thomas, chief of the Library Systems Branch, have brought the International Referral System concept to the brink of operating reality.

Last year Ms. Gregory served for several weeks in Nairobi on a six-person interna-

tional task force to iron out details of organization and implementation. Also acting as UN consultants at that time were EPA Systems Analysis Specialists Philip Arberg and Lester Needle. Willis Greenstreet who was then in Region III also participated the previous year.

What does the system do? First, it requires that all UN member nations designate "National Focal Points," and since the Stockholm conference some 90 nations have done so. Each Focal Point is to develop an inventory of sources of environmental information — scientific, technical, organizational, legislative and general. These national inventories are then submitted to the International Referral System unit in Nairobi which codes them and sends them to the International Computer Center in Geneva for "processing" i.e. being entered into the computer and becoming available for use.

From then on questions on any phase of environmental activity can be referred to Nairobi from anywhere. The questioner will receive the name and addresses of environmental sources that can supply the needed answer.

A committee, established by the Department of State and including representatives from several Federal agencies, is to provide policy guidance for the U.S. Focal Point within EPA. Currently, EPA is assembling a management unit which will consist of a director and a staff of five.

Incidentally, sophisticated systems involving computers are not necessary to operate a focal point. This is a break for the developing nations whose modest communication systems would otherwise be unable to coordinate with the focal points of industrialized giants like the United States or the Soviet Union.

The International Referral System, together with GEMS (the Global Environmental Monitoring System) will ultimately comprise a broad UN environmental program, "Earthwatch." This is the logical first step for a world environment control program, because it will provide a combination of sources of information and sources of observed data on the state of the world environment.

Now I'll admit this description of the Referral System sounds a bit bureaucratic and theoretic. Let's examine a concrete example of how it might help a country in trouble: Suppose the little kingdom of Poltrunia discovers that some of its citizens who reside along a river are beginning to die mysteriously and in great pain. Autopsies reveal no infectious micro-organisms but some traces of cadmium in the victims' bodies.

Although Poltrunia is an underdeveloped nation, it has recently named its own Focal Point. So the Poltrunian environment director immediately wires Nairobi for information on how this tragedy can be stopped.

The referral system then responds promptly to the emergency — i.e. that the Japanese National Focal Point can offer information on this subject because its citizens had also suffered horribly from what they called *Itai Itai* disease (*Itai Itai* means "ouch ouch").

The Japanese dispatch full data on their experience. Whereupon the Poltrunians quickly deduce that fish caught in the river have been exposed to the cadmium accumulations from the agricultural runoff from nearby farms. With no EPA to stop them the farmers have been using excessive amounts of cadmium-containing pesticides. Cadmium can cause a toxicity build-up ultimately lethal to humans. So prompt measures are taken to avoid the no-longer mysterious deaths.

Right now, as the U.S. Focal Point, EPA is fanning out thousands of input forms to describe and compile our own inventory of sources of environmental information. Also, we are looking for a good name for the "U.S. Focal Point" and employees are invited to submit suggestions to EPA's Management and Organization Division at Headquarters in Washington. If one of these suggestions is selected, the proposer will be awarded a small prize. □

SKY LISTENING

By Rich Lathrop

Public Affairs Officer, Region VIII



Balloon is raised to help monitor urban noise.

When the 12-foot long balloon was floated over Boulder, Colo., in a unique attempt to measure city noise through a monitor in the sky it marked a beginning and an end.

It was the beginning of aerial monitoring of noise in EPA's Rocky Mountain-Prairie Region and the end of a year of planning and scrounging for parts to build the balloon system.

Moments after the launch last year two men at the end of the balloon's tether congratulated each other as the transmitter in the sky began to send information to instruments on the ground.

Bob Simmons and Bob Chanaud had stood near the same site a year earlier looking up at the Flatirons, a large rock outcrop that looms behind the city of Boulder.

Chanaud, an acoustician and noise consultant to Region VIII was also a rock climber, a combination which sparked an idea. "If we could put instruments on top of the Flatiron," he said, "we could measure a whole segment of Boulder's noise with one shot."

"But we can't move the Flatirons," replied Mr. Simmons, Regional Noise Control Officer. "We could move a balloon and using a balloon in just a few locations a community could monitor its entire noise at a price it could afford."

The result of this conversation was a remote sensing system designed and built with second-hand, surplus and borrowed equipment at a total cost of less than \$400. The balloon was bought from the National Center for Atmospheric Research at Boulder. It is much more stable than the usual weather balloon, and was flown from a borrowed winch to heights up to 1,600 feet. The balloon can remain stationary even in a 20-mile wind.

Its instrument payload weighed two kilograms (about 5 pounds) and contained electronic monitoring equipment and a small battery-powered transmitter. The noise level signals were received and recorded on Army surplus equipment.

This prototype balloon system was used to demonstrate the feasibility of the method, Mr. Simmons said. He hopes to have an improved system available soon for use throughout the region.

Already, he said, two Federal agencies have expressed interest in the balloon monitoring techniques. The Forest Service is interested in measuring the noise made by snowmobiles and motorcycles on its lands and the Army wants to check noise made by its vehicles during maneuvers and by construction equipment.

Total community noise levels can now only be estimated from many ground-level measurements. An easy and much cheaper

method such as the balloon system to gauge total noise could provide baseline levels against which to measure future changes.

David A. Wagoner, Director of the Air and Hazardous Materials Division, said that balloon monitoring activity is only one aspect of the Region's support for vigorous local community efforts to deal with noise pollution.

"In 1972," Mr. Wagoner said, "there was no noise control program in the Region with a full-time enforcement officer. Today there are 16 community programs with 25 employees and more interest is being generated every day. These programs are totally paid for by the communities, a good measure of community concern about the effects of noise."

Alvin F. Meyer Jr., Deputy Assistant Administrator for Noise Abatement, said that Region VIII's work in this field has been "excellent."

Discussing community noise programs, Mr. Simmons said that they need an enforcement officer and three kinds of well-defined standards: use zones or noise limits for residential, industrial and commercial areas; noise limits for vehicles and inclusion of noise considerations in all decisions on land use.

Use zones involve decibel limits to protect individuals from their neighbors' noise. Frequently, 55 decibels is used for a day-time maximum in residential areas and 50 decibels for nighttime. If noise from even a distant source is sufficiently annoying, an individual can call the local environmental officer.

If these sound levels are exceeded, the officer who is called should use diplomacy, Mr. Simmons stressed. The goal is to achieve quiet without harassment or economic hardship.

Control of vehicle noise is usually established with a noise trap. With a microphone and recording equipment set up a short distance from a highway, the environmental officer monitors passing traffic.

When cars or motorcycles exceed 80 decibels, a police officer in a chase car stationed up the road is notified by walkie-talkie that "a customer for quiet" is on the way, and the offending vehicle is described.

Chase officers who stop such cars should be picked for their ability to talk to people. Again, the soft approach is preferred.

The officer explains the violation, the city's program, and the motorist's options. The motorist is issued a summons, which will be waived by the city if the noisy vehicle is quieted and tested

Continued on Page 19

WHY IS THE OCEAN IMPORTANT TO YOU?



Harry F. Smith Jr., Water Supply Engineer, Region II, New York: "It's primarily a form of recreation for me. I go sailing in the ocean and it gives me a lot of peace and contentment to be out there with the wind and a full sail. It's a great way to unwind. I particularly enjoy sailing at night when there are very few boats out. You don't feel like you're in a metropolitan area when you're more than half a mile off shore. It is really beautiful on some nights when the moon is shining over the water and the whole city of New York is lit up like a gorgeous backdrop."

Edward F. Wong, Natural Resource Officer, Region I Laboratory, Needham, Mass.: "The ocean is a dynamic force, forming embayments where nutrients from the wetlands combine with minute marine organisms of the sea to form a reservoir of food that supplies oysters and other members of the shellfish community. This community, lying on the ocean floor, is a vivid social order inhabited not by shellfish alone but by other sea animals. These neighbors consist of crabs, sponges, barnacles, flatworms, starfish and a host of assorted fishes, either friend or foe. The ocean is everything to the marine community. It provides a place to propagate, a place for the young to grow and to sustain

THE MUCH RESOUNDING SEA,
Thomas Moran, National Gallery of Art,
Washington, gift of the Avalon Foundation.

life in a wet and crowded manner. The ocean is more than water to me. It is teeming with life and a culture of its own."

Debbie Schmitt, Library Technician, Region III, Philadelphia: "One of my favorite places is the ocean. It's full of good memories and when I am there with friends, we always have great times. It's also a source of personal comfort and inspiration. I can really relax there—problems don't seem as bad by the sea. We often tend to think of the ocean as infinite and self-renewing, when it is actually a living thing. We can't continually dump waste and trash in it without some consequences. Although sludge disappears from sight, the effect may not show up for years. However, with careful planning the pollution results could minimally affect the sea life and shore life."

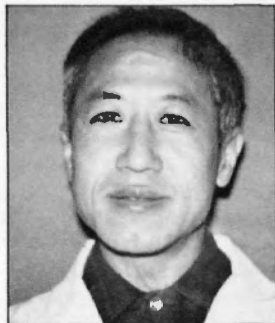
John Wise, Environmental Impact Statement Coordinator, Region IX, San Francisco: "The ocean, or more specifically the coastal marine environment, is important from two perspectives. First, from an ecological perspective, the natural prod-

uctivity of the marine organisms in the coastal waters, estuaries, and wetlands is of immeasurable value as the basis for food for this and future generations. Second, from a personal perspective of recreational needs, the coastal marine-land environment offers opportunity for wilderness, solitude and renewal."

Tony da Silva, Sanitary Engineer, Region IV, Atlanta: "I do a lot of fishing in the ocean with nets which I can't do any place else. I learned from my father how to make seine nets of nylon webbing, lead weights, ropes and styrofoam floats. I am working on a net now which will be 220 feet long. On weekends I drive to the ocean beaches, usually off Brunswick, Ga. I take at least four people with me. When we get to the beach two of us walk with one end of the net as far out in the ocean as possible without going over our heads. We then pull the net horizontally and swing in toward shore again, bringing with us all the fish which had been swimming in this loop. Pulling in the loaded nets takes a lot of muscle. We have caught as many as 100 fish in one sweep of the net. We catch mostly mullet and other bottom fish. We cook some of these fish right on the beach and have a good time. The net fishing is best in the evening or at dawn." □



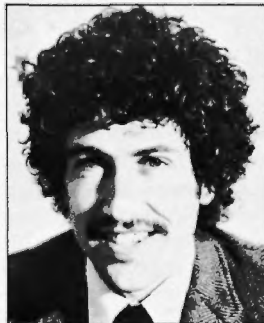
Harry F. Smith Jr.



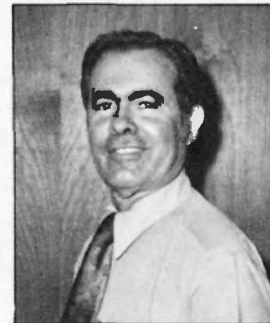
Edward F. Wong



Debbie Schmitt



John Wise



Tony da Silva

Q: *Why didn't the Agency implement its 1974 goals for improving the grade structure for women in EPA?*

A: Frankly, the goals were set without serious consideration of how they could be implemented. Guidelines are now being prepared by the Personnel Management Division on how to set goals and realistically implement them.

We are trying a number of approaches to improving the grade structure of women. Obviously, the Executive Development Program provides one ladder to improve their grade structure. The new Upward Mobility, in which 1 percent of all Agency positions are designated for this purpose, should result in many women moving from non-professional or subprofessional jobs to professional jobs.

In 1975 three women were selected for long-term graduate training. Although not a large number, this is a very significant increase for EPA. One of the Agency's three nominees for the one-year Congressional operations fellowship is a woman. We've also nominated the first woman recently for a one year assignment with industry under the President's Executive Interchange Program.

While there is a great deal to be done, this is a positive start. It is critically important that all Agency managers give a great deal more attention to considering women and minorities for higher level jobs. Although we have developed special programs, which will help, we need the support of line managers at every level in the Agency if we are to achieve our objectives.

"WE SIMPLY CANNOT AFFORD TO MISUSE THE TALENT WITHIN EPA."

Q: *Is it true that male veterans were, or are, given double preference when applying for EPA positions?*

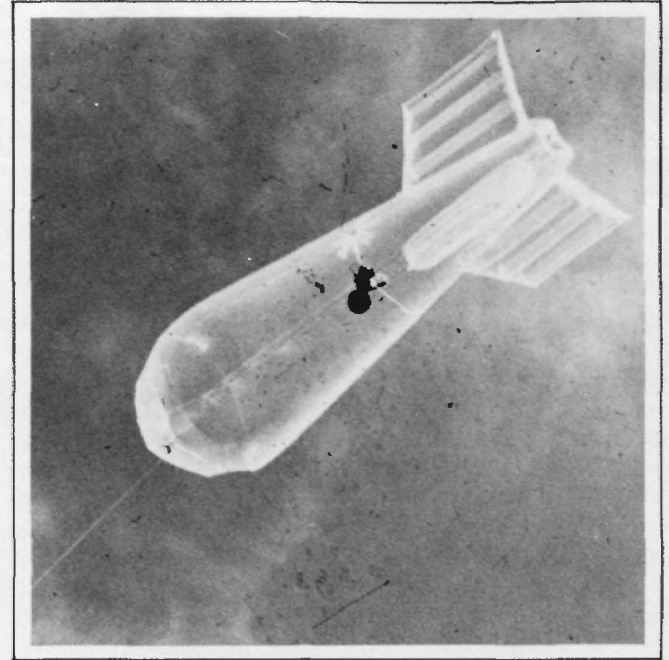
A: It was true. We had previously inadvertently given preference to veterans for the management intern program on top of the extra scores mandated by law. When we realized that this was providing double preference, we discontinued the practice. We currently do not give double preference to male veterans.

Q: *What is being done to improve the situation of the high percentage of women college graduates in clerical positions?*

A: We are taking a number of steps to improve this situation. The Upward Mobility Program will move employees from non-professional to professional job categories. Since women represent a disproportionate amount of lower grade positions, this program will be of special benefit to them. Secondly, where we find qualified people in non-professional jobs, we are working to build them into professional jobs. We simply cannot afford to misuse the talent within EPA.

Q: *What is being done to stop the practice of using the pronoun "she" in the standard job position description for secretaries?*

A: The position description for secretaries has been completely revised to remove any reference to sex. □



within a prescribed time. Most factory-equipped and well maintained cars and motorcycles can meet the 80 decibel limit. High-performance and modified vehicles are the most frequent offenders. Trucks and buses are allowed somewhat higher levels.

"The diplomatic approach brings about 95 percent voluntary compliance," said Mr. Simmons. "It is rare to have to fine someone to achieve the desired results."

Use zones and vehicle traps help eliminate noise. Land use controls can help protect a city's noise goals, he explained. Administratively or by law, local governments can control issuance of building permits, zoning changes, even highway construction in a manner that can solve noise problems before they become problems.

Developers are routinely required to demonstrate impacts of their proposals on traffic patterns, sewage systems, water supply, etc. More communities are now asking for similar information on noise effects.

And more communities are asking more questions about noise programs. How can we start one? What kind of monitoring is necessary? How do we sell the city council on the program? What constitutes a good ordinance?

To answer those and many other questions, Mr. Simmons and Mr. Chanaud have written a 350-page Community Noise Ordinance Workbook that can be used by communities to develop an effective, enforceable noise ordinance.

From an introduction and justification for noise control based on noise effects on health and welfare, the workbook takes the reader through a suggested procedure designed to help the community create a comprehensive program tailored to its own noise problems and taking into account the community's economic and administrative capabilities.

In draft form, the workbook has been used in Region VIII. Formal publication by the Agency is planned after an intra-agency review is completed.

In Region VIII, noise control is usually the first environmental program to be initiated at the local level and this helps stimulate concern for other EPA programs, Regional Administrator John A. Green stated.

"Successful programs tend to proliferate," Mr. Green noted. We like to think we've hit upon a successful combination with the community approach, the aerial monitoring and the workbook. For community noise control programs there's nowhere to go but up."

With or without a balloon. □

RADIOACTIVE

Continued from Page 5

coast operations of May and September-October, 1974, where both mechanical and weather difficulties forced cancellation of the ALVIN dives. However, with the cooperation and support of EPA's Marine Protection Branch of the Office of Water Program Operations, the Manned Underseas Science and Technology Program and the Marine Environmental Protection Office of the National Oceanic and Atmospheric Administration (NOAA), the Woods Hole Oceanographic Institution, and the Virginia Institute of Marine Science, much oceanographic data in this Atlantic region was collected by the research vessels Delaware and Albatross. Also, the existence of large populations of the potentially commercially exploitable large red crab, *Geryon quinquedens*, was verified in the Hudson Canyon approximately 90 miles north of the radioactive waste dumpsite. In addition, some munitions containers were found in the trawls near the dumpsite area confirming the relative accuracy of the published coordinates for past munitions dumping operations and providing support for the supposition that the radioactive wastes will also be found in this dumpsite area as reported.

The West coast operation near the Farallons met with remarkable success. This pilot study was a coordinated effort of EPA's Office of Radiation Programs and Water Program Operations, the Navy's Undersea Center at San Diego, and Interstate Electronics Corporation. The operation budget permitted only five days to be spent in running station lines in search of the radioactive waste containers. After two and one-half days of searching the ocean bottom the first cluster of targets was located consisting of about 150 fifty-five gallon drums nestled in a small valley between 300 foot embankments at

a depth of 2,800 feet. In the subsequent two and one-half days, two more target clusters were found. After five days this mission had succeeded in: (1) taking the first videotape and 35 mm coverage documenting the conditions of the radioactive waste barrels, (2) taking the first precision-located sediment core samples in a radioactive waste disposal area using a specially-devised rosette corer attached to the CURV III's manipulating arm, (3) finding large sponges up to four feet high, (possibly a new genus) attached to the radioactive waste containers; these sponges were, in at least one case, partly responsible for biodeterioration of a metal container, and (4) documenting edible species of fish in the immediate vicinity of the containerized radioactive wastes.

We have obtained much preliminary information on container integrity and design. Through existing records and correspondence pertaining to past disposal operations in the region of the Farallon Islands, we have been able to determine the age of the photographed containers as between 20 and 22 years old. Those radioactive wastes packaged in an inner matrix of concrete have maintained relatively good integrity while those packaged in a gel matrix with a bitumen (tar) liner did not stand up as well. Radionuclide analyses for strontium, cesium, uranium, thorium, radium, plutonium, and gross gamma activity are currently being completed, and an operations report on the Farallon Islands pilot study is soon to be published. Preliminary results of radiochemical analyses of samples has detected some levels of plutonium above background in sediment at the site. The implications of these findings are under investigation and the results will be included in a forthcoming technical report.

Since the studies conducted in 1974

were primarily pilot studies to determine the feasibility of this unique approach using deep submersibles, the Office of Radiation Programs has organized two follow-up studies for this summer to provide more specific answers to continuing questions such as:

(1) What are the hydrostatic pressure effects on containers dumped at 6,000-9,000 feet as opposed to now-documented effects at 3,000 feet? (The present internationally-recommended minimum disposal depth is 6,000 feet.)

(2) What is the speed and direction of dispersion forces in the disposal areas?

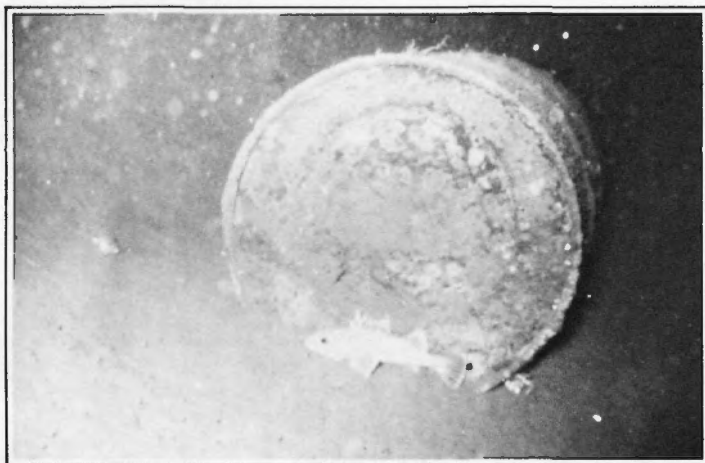
(3) What is the sediment sorption or cation exchange capacity for released radionuclides?

(4) Are the past packaging and container design specifications adequate to assure that no radioactive materials will be released when dumped in waters greater than 6,000 feet deep? If not, can these specifications be attained with current technology?

(5) What should be the design and extent of a monitoring program around any future radioactive waste dumpsites?

Only after the successful completion of the 1975 studies may enough information be available to begin answering some of these questions. □

NOTE: The International Atomic Energy Agency (IAEA) in Vienna, Austria, is developing international recommendations for ocean dumping of radioactive wastes pursuant to its responsibility as stated in the International Ocean Dumping Convention of 1972. To fulfill its responsibility the IAEA has established an international panel of experts to assist in the development of specific recommendations. EPA (Office of Radiation Programs) will present its findings to the IAEA panel of experts in its role as the United States representative to this panel.



A deep sea fish, a Thornyhead (*Sebastolobus*), swims past drum of radioactive wastes photographed by the CURV in the Pacific.



The dent in the middle of this drum is believed to be the result of underwater pressure.

news briefs

PRESIDENT DEDICATES CINCINNATI LABORATORY

President Ford dedicated the new \$28 million Environmental Research Center in Cincinnati on July 3. The new structure will accommodate several laboratories and administrative offices. The new EPA research center will be occupied in late September, or early October.

CALIFORNIAN CHOSEN AS EPA ENFORCEMENT CHIEF

Stanley W. Legro, San Diego, Calif., attorney, has been nominated by President Ford to be Assistant Administrator for Enforcement, succeeding Alan G. Kirk II, who resigned in January. A founding partner in the San Diego law firm of Legro and Rentto, Mr. Legro, 39, was born in Muskogee, Okla., graduated from the U.S. Naval Academy, served in the Marine Corps, and won his law degree cum laude from Harvard. He is married and the father of two children.

MESSNER, GREENSTONE, AND BARDEN RESIGN

Howard M. Messner, Deputy Assistant Administrator for Administration; Seymour D. Greenstone, Director of the Management and Organization Division; and Charles S. Barden Jr., Director of the Personnel Management Division, resigned June 20 to join the newly formed Congressional Budget Office. Their acting replacements, respectively, are Alexander J. Greene, Director of the Grants Administration Division; Edward Chase, Deputy Director, Management and Organization Division; and Stanley R. Williams, Director for Evaluation and Executive Manpower. At the Congressional Budget Office, Mr. Messner is Assistant Director for Management, Mr. Greenstone is Deputy Assistant Director for General Government Management, and Mr. Barden is Deputy Assistant Director for Personnel and Administration.

GERBER APPOINTED TO A TOP R & D POST

Carl Read Gerber, 39, has been named Associate Assistant Administrator of the Office of Research and Development. In his new post, Mr. Gerber shares fully with Dr. Wilson Talley, Assistant Administrator for R & D, major responsibilities for EPA's research program. A former Senior Fellow at the Brookings Institution, Mr. Gerber served as an AEC official from 1960 to 1972 and is co-author of "Plowshare," a book about peaceful uses for nuclear explosions.



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MAYFLIES HELP POLLUTION FIGHTERS

Every trout fisherman hopes to arrive at his favorite stream when the mayflies are "hatching" because then the trout bite madly and will rise to any lure.

But Philip A. Lewis roams the rivers and streams of a dozen eastern States to catch mayflies, not trout.

Mayflies are good indicators of water pollution, says Mr. Lewis, an aquatic biologist at EPA's Environmental and Support Laboratory, Cincinnati, Ohio. Certain species tolerate moderate amounts of pollution, others can live under a range of water conditions, and still others are found only in clean water.

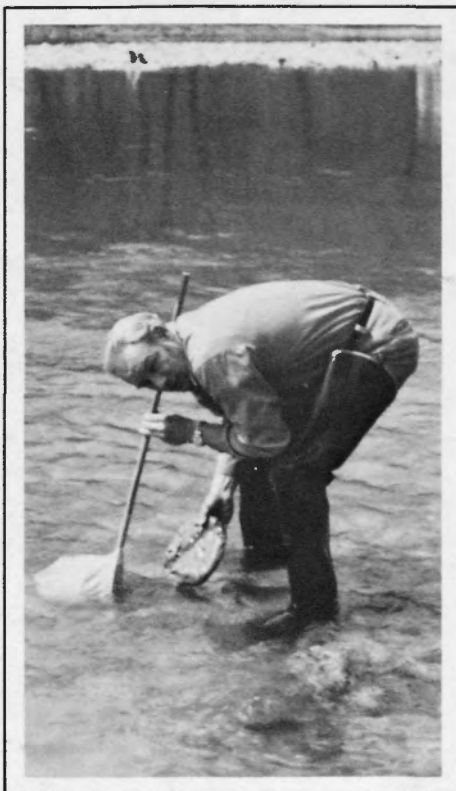
If you know exactly what mayfly species predominates in a stream or lake, you have a good fix on the degree of pollution in that aquatic ecosystem.

An 88-page monograph by Mr. Lewis, recently published as part of the Environmental Monitoring Series of the Office of Research and Development, describes 31 species of the mayfly genus *Stenonema* (Heptageniidae) and tabulates their relative tolerance for water pollution.

Three of the species are new ones, never before described, and many other species descriptions are revised in the monograph, which has many enlarged photos of mayfly markings and parts and which tabulates key features to assist biologists in accurate identification.

The presence (or absence) of different species of fish and invertebrates is often cited as an indication of water quality. But aquatic biologists have tended to neglect using *Stenonema* mayflies for the same purpose, said Mr. Lewis, because they are harder to identify by species, and the pollution tolerance of each has either been unknown or mentioned only in scattered technical papers.

To gather data for the study, Mr. Lewis and his colleagues collected more than 1,500 specimens of *Stenonema*



With high boots and two nets Philip Lewis collects mayflies.

from throughout the Ohio River Basin, carefully noting the pollution levels of the waterways where they were taken. He also gathered more than 300 live, immature insects, took them back to Cincinnati, and raised them to maturity in plastic shoeboxes. Mayflies reared in the laboratory are often in better condition than those caught in the wild, and the adult forms can be more certainly identified by species and positively linked with their immature forms. He also examined specimens in various university and museum collections.

Mayflies constitute an "order" of insects, having more than 1,500 different species. In North America alone there

are about 500 species in 15 families and 53 genera. The order's name is Ephemeroptera, a Greek-rooted word meaning, roughly, "having wings for only a day."

In spite of their name, mayflies can emerge into their brief adult lives in other months than May. Some species emerge the year round, said Mr. Lewis. If they are not eaten by a leaping trout or a swooping bird, they usually live for several days to mate and lay their eggs in the water. Nymphs emerge from the eggs, sexually immature but fully adapted to aquatic life. The nymphs have gills for breathing, six legs, antennae, and complicated mouth and tail parts. They can cling to rocks in the swiftest water. After six months to a year of growing in the water environment, the nymphs are ready to emerge. They rise to the water surface, shed their last nymphal skin, open their new wings, and fly.

Thousands and thousands of a particular species may emerge at the same time, in dancing swarms that can impede auto traffic on bridges or highways.

The *Stenonema* mayflies of Mr. Lewis's study have body lengths of about 10 millimeters (less than half an inch). Extended forelegs, wings, and long tail parts make them seem bigger. Other genera can have body lengths of 35 mm (1.4 inches) or more.

Mr. Lewis is continuing work on the classification and ecology of *Stenonema* mayflies, and he believes he has discovered four new species. The genus ranges over most of North and Central America. He is also starting work on another mayfly genus, *Baetis*, which inhabits nearly every continent. In this country there are about 60 species, but the immature stages are known for only 10. Mr. Lewis believes that the species of this genus will show marked differences in tolerance to water pollution. □