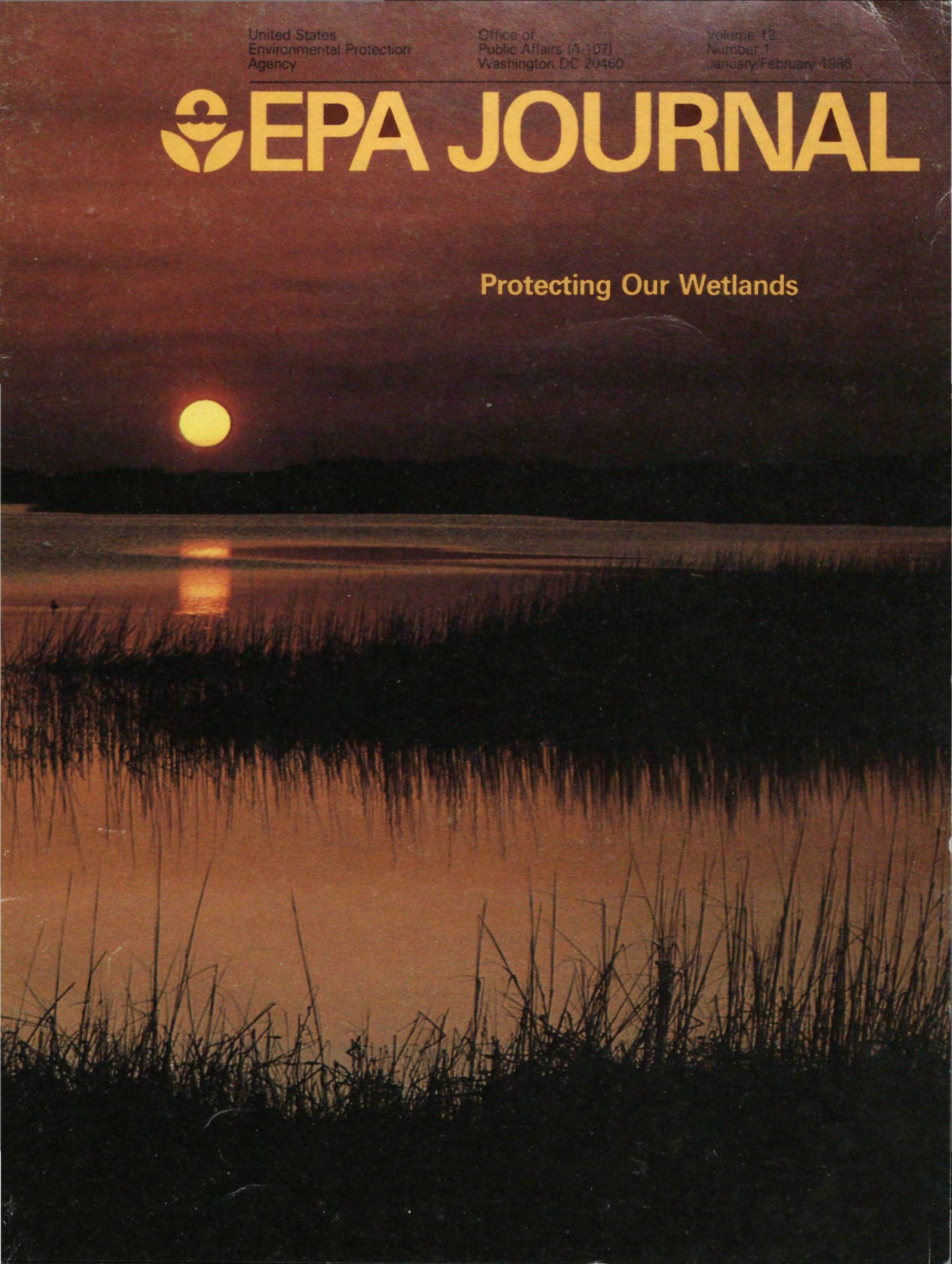
United States
Environmental Protection
Agency

Office of
Public Affairs (A-107)
Washington DC 20460

Volume 12
Number 1
January/February 1986

EPA JOURNAL

Protecting Our Wetlands



In his book, A Sand County Almanac, famed naturalist Aldo Leopold wrote about a pristine marsh in Manitoba named Clandeboye. He feared that even Clandeboye would one day vanish, like the wetlands of the United States.

We quote here the final, prophetic passage from Leopold's essay "Clandeboye":

The marshlands that once sprawled over the prairie from the Illinois to the Athabasca are shrinking northward. Man cannot live by marsh alone, therefore he must needs live marshless. Progress cannot abide that farmland and marshland, wild and tame, exist in mutual toleration and harmony.

So with dredge and dyke, tile and torch, we sucked the cornbelt dry, and now the wheatbelt. Blue lake becomes green bog, green bog becomes caked mud, caked mud becomes a wheatfield.

Some day my marsh, dyked and pumped, will lie forgotten under the wheat, just as today and yesterday will lie forgotten under the years. Before the last mud-minnow makes his last wiggle in the last pool, the terns will scream goodbye to Clandeboye, the swans will circle skyward in snowy dignity, and the cranes will blow their trumpets in farewell. □

Soil Conservation Service

Protecting Our Wetlands

Americans are recognizing that wetlands aren't the "throwaway" resource they once were widely believed to be. As a result, a diminishing national asset is receiving more attention. This issue of the *EPA Journal* examines the wetlands situation and includes the views of several key leaders with wetlands concerns.

Setting a perspective for the issue is Jennifer Joy Manson, EPA's Assistant Administrator for External Affairs, who has responsibility for the agency's wetland protection efforts under the Clean Water Act, Section 404—the chief instrument at the federal level for regulating development in wetland areas. Next, four federal officials from different agencies, including EPA, discuss their separate roles in administering Section 404. The Honorable Robert K. Dawson, Assistant Secretary of the Army (Civil Works), who is responsible for the wetlands regulation activities of the U.S. Army Corps of Engineers, describes the Army's authorities on protection of wetlands.

Views from Congress on wetlands policy are expressed in articles by Senator John H. Chafee (R-R.I.), Chairman of the Senate Subcommittee on Environmental Pollution, and Congressman John Breaux (D-La.), Chairman of the House Subcommittee on Fisheries and Wildlife Conservation and the Environment.

In another article, Jay D. Hair, Executive Vice President of the National Wildlife Federation, addresses the question, "Why protect wetlands?"

Two articles give examples of efforts to protect wetlands. One concerns Nebraska wetlands vital to the central flyway for migratory birds; the other concerns peat bogs, a special kind of wetland area widespread in parts of northeastern Pennsylvania.

An illustration of how wetlands and industrial activity can co-exist is provided in an article by Atlantic Richfield Co. (ARCO) on oil development and wetlands in Alaska.

Other articles in this issue of the *Journal* include a report on the recent high level U.S./Soviet meetings on environmental matters and a discussion of EPA's recently established Indian policy. A companion piece provides an Indian perspective on the environment. The cleanup of pollution from a South Dakota gold mine is described in another piece.

Concluding the issue are two regular items—Update and Appointments. □

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EPA is charged by Congress to protect the nation's land, air, and water systems. Under a mandate of national environmental laws, the agency strives to formulate and implement actions which lead to a compatible balance between human activities and the ability of natural systems to support and nurture life.

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Saving Wetlands: An Urgent Task

by Jennifer Joy Manson

If asked to describe the kind of environment that we seek to preserve for future generations, the values that would come to mind for many of us are those that are provided by our nation's wetlands. These areas—where our land resources meet our water resources—vary from tidal marshes to hardwood swamps to prairie potholes to bogs, and provide a host of important ecological and economic services.

A major part of the commercial and recreational fish catch in the United States is comprised of species which use wetlands as a food source or a habitat. The fishing industry contributes tens of billions of dollars annually to the U.S. economy. Wetlands also provide food and cover for many forms of wildlife.

Wetland-based recreation, including hunting, is vitally important to the economy of many communities throughout the country. The interaction of water with soil and vegetation that occurs in wetlands removes pollution before it enters our streams, lakes, and estuaries.

Wetlands also absorb peak flows during floods and release the waters more slowly, reducing damages to downstream farms and cities. Harvesting wetland plants, including cranberries, wild rice, and hardwood trees, generates other important economic benefits.

While we understand these values much better today than we did even a few short years ago, we continue to lose many kinds of wetlands. Freshwater marshes along streams and bottomland hardwood swamps are under strong development pressures, as are the isolated wetlands so important to our migratory waterfowl populations.

Thousands of activities are undertaken annually in the nation that eliminate wetlands. While many of them do not appear significant when viewed in isolation, they add up to the loss of hundreds of thousands of acres every year.

In a December 3, 1985, speech, EPA Administrator Lee M. Thomas expressed his concern about wetlands in this way: "I have the sense that we are observing an enormously important part of our heritage being nibbled away without us taking the time to state how we would like it to be, now and into the indefinite future."

The Clean Water Act charges the Environmental Protection Agency with the responsibility to restore and maintain the chemical, physical, and biological integrity of the nation's waters. To achieve this goal we embarked upon a national effort in the 1970s to build facilities to treat domestic sewage before it is discharged to our waters; that effort continues today. Billions of dollars have also been invested by American industry to reduce pollution from our factories.

Thousands of activities are undertaken annually in the United States which eliminate wetlands.

The costs of these programs have required sacrifices from all of us, and the American public deserves to receive the full benefits of this investment. Improved protection of our wetlands is critical to our task, not only because of their role in improving water quality itself, but also because of their role in nurturing the fish and wildlife that use the rivers, lakes, and estuaries we are working so hard to clean up.

All of us can and should contribute to the effort to save wetlands. Many of the decisions that affect wetlands are made at the local level, and citizens can influence the way in which their local governments view wetlands. Is the local swamp considered to be underutilized real estate, ripe for development? Or is that swamp considered to have valuable habitat, water quality, and flood control assets that help define the environmental and recreational culture of the community? The answer to that question drives the planning and zoning decisions that so often determine the fate of wetlands.

Commitment at the state level is also important, as this is where many of our environmental laws are administered. About half of the states have laws that protect wetlands. While many of them cover only some wetlands, there are many innovative and effective approaches being used. There is a trend toward more involvement among the states in wetlands protection, and EPA is hoping to further this very welcome development by encouraging more state assumptions of the 404 permitting program.

The federal government also affects wetlands in a number of ways, and not always consistently. Several federal agencies fund, subsidize, or license activities that impact wetlands. Federal resource management agencies, such as the Fish and Wildlife Service and the Bureau of Land Management in the U.S. Department of Interior, as well as the Forest Service in the U.S. Department of Agriculture, determine the fate of wetlands that are under their stewardship. The Clean Water Act's Section 404 program regulates discharges of dredged and fill material into waters of the United States, and has prevented the loss of many wetlands.

Better protection of wetlands will require that we all work together—citizens, industry, and all levels of government—to understand more clearly the effects of our activities on the many natural resources which define functioning wetlands; and to change those patterns of activities that harm these resources. EPA has a Section 404 team of bright, experienced, motivated, and talented professionals who are dedicated to the public service of protecting human health and the environment, as directed by the Clean Water Act and this Administration. While we must recognize the complex and difficult nature of this challenge, we must also recognize its importance. And we must get on with it. □

(Manson is EPA's Assistant Administrator for External Affairs, a position that includes responsibility for the agency's wetlands protection program under Section 404 of the Clean Water Act.)

Wetland Regulation: Four Viewpoints on Section 404

Section 404 of the Clean Water Act gave the Army Corps of Engineers authority to issue permits for "the discharge of dredged or fill material into the navigable waters [of the United States] at specified disposal sites." Section 404 also gave EPA a number of responsibilities to assure that the environment would be sufficiently protected from the adverse impacts of these discharges.

Prior to 1972, many of the "disposal sites" for dredged or fill material had been wetlands. It was common in those days to equate wetlands with wastelands. Since 1972, the "404 program" has developed into the most important federal regulatory program for the protection of wetlands.

Controversy has surrounded the program from its earliest days. Some have questioned whether Section 404 was intended to provide any protection for wetlands. Others, choosing to ignore some very real limitations in the law, have viewed Section 404 as providing absolute protection for all wetlands. Most experts have taken a position somewhere between these two extremes.

Section 404 jurisdiction extends to all waters of the United States to the maximum extent permissible under the Commerce Clause of the Constitution. This broad judicial interpretation was re-affirmed in December 1985. The Supreme Court ruled that developers seeking to discharge into wetlands adjacent to other waters of the nation are regulated under 404. Therefore, all wetlands in the U.S. are under Section 404 protection, except isolated wetlands that have no connection to interstate commerce.

Inland freshwater wetlands comprise 95 percent of the remaining wetland resource in the United States and 97 percent of the estimated 300,000 acres of wetlands lost each year to development. These losses include isolated wetlands such as the prairie potholes of the north central part of the country, which have very important waterfowl habitat value. Many of the losses involve drainage without a discharge, which is not regulated under the 404 program. The 1985 farm bill, which was recently signed into law by the President, should help to bring this problem under control by discontinuing subsidies to farmers who drain and plant wetlands.

The "404 program" has developed into the most important federal regulatory program for the protection of wetlands.

Approximately 11,000 project applications under Section 404 are processed each year by the Corps of Engineers. EPA reviews and evaluates them using its 404(b)(1) guidelines, which contain the environmental criteria for 404 permit decisions. The Fish and Wildlife Service and the National Marine Fisheries Service also influence the 404 permitting process through their review of applications. After receiving comments from these agencies, the states, and other interested parties, the Corps of Engineers makes its permit decisions.

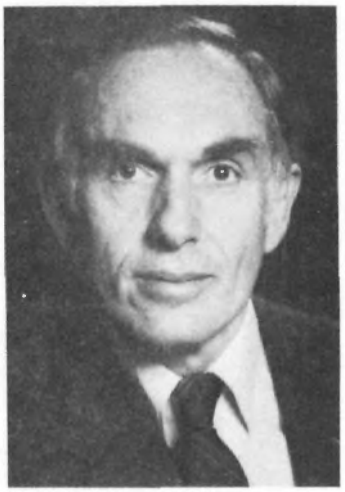
Before permits are issued, EPA has an opportunity to exercise its authority to prohibit, condition, or restrict the use of any site if such use is found to "have an unacceptable adverse effect on municipal water supplies, shellfish beds and fishery areas (including spawning and breeding areas), wildlife, or recreational areas." However, this action occurs on only a small fraction of projects.

As a result of this process, the Corps of Engineers annually denies slightly more than three percent of project applications. About one-third of the permits are significantly modified from their original application, and about 14 percent of the 11,000 annual permit applications are withdrawn by applicants.

The Congressional Office of Technology Assessment has estimated that these denials, modifications, and withdrawals save 50,000 acres of precious wetlands every year.

The EPA Journal asked key officials involved in the 404 program at the Corps of Engineers, EPA, the Fish and Wildlife Service, and the National Marine Fisheries Service to comment on how the program works and what they are doing to improve it. Their remarks follow:

Wetlands protection involves some of the most difficult issues of environmental regulation.



Allan Hirsch
Director, Office of Federal Activities
Environmental Protection Agency

Wetlands are an important national resource, and their protection is one of EPA's top priorities. Under Section 404 of the Clean Water Act, our goal is to ensure adequate protection to wetlands and other waters of the United States within a decision process that is objective, efficient, and reasonably predictable.

That goal is easy to state in general terms; in practice, it faces formidable obstacles. The term "wetlands" covers a wide range of ecosystems and geographic situations, from Alaska tundra to the mangrove swamps of the Southeast. There are many unresolved scientific and technical questions concerning how to determine the significance of a proposed discharge to specific wetlands, and how to assess the cumulative impact of wetland loss. We also lack an established threshold that represents the line between acceptable and unacceptable impacts. Without such information it is often difficult to quantify the tradeoffs between wetland losses and the social and economic benefits of development. Indeed, wetlands protection involves some of the most difficult issues of environmental regulation, often entailing conflicts between public values and private property rights.

Further, under the Clean Water Act, EPA shares responsibilities for wetlands protection with the Army Corps of Engineers, which is the authorized permitting agency. The Fish and Wildlife Service in the Department of Interior, and the National Marine Fisheries Service in the Department of Commerce also have important advisory roles. Thus, administering this legislation is unusually complex and calls for a high degree of coordination among agencies whose missions do not always coincide.

Smooth administration of Section 404 calls for a number of steps.

- A key priority is to continue to improve federal interagency coordination. There have been a number of disagreements among the agencies responsible for administering the Act, which require resolution.

  Recently, EPA and the Army signed an agreement which establishes procedures for resolving disputes between the two agencies over proposed permits. This is an important step. We are also working to strengthen coordination with other federal agencies that have wetlands responsibilities.

- EPA must also do a better job of clarifying its own policies internally. Much of our activity consists of reviewing permit applications and making recommendations to the Corps of Engineers. We need to make sure that process is carried out consistently and effectively, and we are developing more explicit policy guidance for this purpose.

- We need to focus more of our attention on identifying, in cooperation with the states and other federal agencies, important wetlands that require special protection before applications for 404 permits are received. We should identify geographic areas, wetland types and impacts meriting special attention. This year, EPA regions began analyzing these wetlands priorities. We need to use our authorities to increase up-front recognition and protection of such areas.

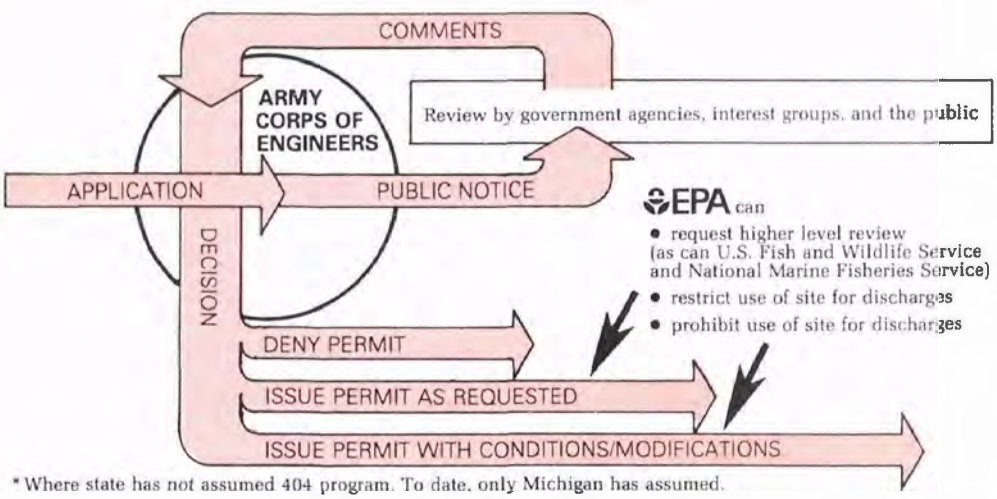
- We are also actively increasing our enforcement efforts, principally against unpermitted discharges. This increased emphasis on enforcement should strengthen compliance with permitting requirements, as well as reduce unauthorized wetlands losses.

- Wetlands loss is a national issue, but it cannot be tackled without appropriate state involvement and broad public understanding. We need to help states improve their technical and administrative capabilities, we need to explain the requirements and rationale of the program to wetland owners and permit applicants, and we need to increase public involvement and awareness.

- Finally, we must strengthen our scientific and technical foundations. The lack of data on wetlands increases the difficulty of decision-making. We need better methods to assess individual and cumulative impacts of wetland conversions as well as effective means of mitigating impacts. We must also seek a better understanding of the ways in which wetlands improve water quality. EPA has undertaken a wetlands research initiative in cooperation with other fedreal agencies to upgrade our knowledge on these topics.

These steps will help improve our ongoing wetlands protection activities. EPA Administrator Lee Thomas also has asked the agency's policy office to analyze existing wetlands programs for the purpose of developing a strategic view of the entire problem that may provide additional guidance on how to build a more effective national wetlands program for the future.

404 Permit Review and Decision Making Process*



* Where state has not assumed 404 program. To date, only Michigan has assumed.

Most wetland losses in this country occur outside the limits of 404.

H. J. Hatch
Major General, U.S. Army
Director of Civil Works

The role of the Army Corps of Engineers in administering Section 404 of the Clean Water Act (CWA) is to decide which of the many competing interests for the use of waters of the United States are not contrary to the public interest. Accordingly, we are reluctant to make emphatic statements on what Section 404 is or is not in terms of wetland protection. Emphatic statements (in either direction) would create a "blanket" approach in evaluating some of our most troublesome permit applications, namely, those involving fill in wetlands. This approach would not, in our opinion, fulfill the purpose and goals of the CWA.

In the introductory paragraphs, Congress declares the objective of the Act, which is ". . .to restore and maintain the chemical, physical and biological integrity of the Nation's waters." Congress further sets forth the goals and policies, including elimination of unpermitted discharges of pollutants into navigable waters; attainment, where possible, of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water; provision of federal assistance to construct publicly-owned waste treatment works; development of area-wide waste treatment management planning processes to adequately control sources of pollutants in each state; and launching a major effort to develop technology for eliminating discharges of pollutants into navigable waters, waters of the contiguous zone, and the oceans.

Though none of the policies or goals specifically mention "wetlands," in trying to meet the objectives and goals of the Act, especially attainment of water quality suitable for the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water, our regulatory authority under Section 404 often has the effect of protecting wetlands.

As considered in both our implementing regulations (33 CFR 320-330) and more completely in EPA's 404(b)(1) guidelines (40 CFR Part 230), wetlands are part of aquatic ecosystems and can be important in renovating and/or maintaining water quality in adjacent rivers and streams.

Also, elimination of wetlands can have adverse impacts on fish, shellfish, and wildlife resources, directly through loss of habitat and food chain production or indirectly through loss of wetlands important in restoring water quality.

However, inherent in both sets of guidelines (which are binding on our program) is the fact that not all wetlands are good fish and wildlife habitats; not all wetlands provide important food chain support; and not all wetlands restore and maintain water quality.

Preservation of wetlands without such functions does nothing to further the objectives of the Act and can result in unnecessary loss of socioeconomic benefits to the public. In addition, the Act provides for situations where other public needs would sometimes override the need for wetlands which do provide important functions.

The Corps position is that, when evaluating an application for a project in a wetland, we should first determine to the extent possible what functions the wetland performs; the values of those functions to the public; and how the project would affect those values. These values must be carefully weighed against the public and private benefits to be provided by a project. We also evaluate potential methods for replacing functions that would be lost if we do permit the project. This is part of both our public interest review and the 404(b)(1) guidelines review.

Since it was initiated in the 1960s, the public interest review has been tested and upheld in court. It incorporates not only provisions of the Clean Water Act, but the National Environmental Policy Act, the Endangered Species Act, the Fish and Wildlife Coordination Act, and a host of other federal statutes which have a bearing on the actions of federal officials.

In order to meet all the requirements of the many laws involved, the Corps maintains an interdisciplinary staff of biologists, engineers, economists, lawyers, environmental scientists, and professionals from other disciplines to provide a complete, balanced analysis of each proposal. The Corps also solicits advice from other government agencies with special expertise and from the public at large. The considerations and resulting decisions are documented and available to the public.

As to specific concerns with protection of wetlands, Section 404 provides for the regulation of discharges of dredged or fill material only. Theoretically, a property owner could dig up a wetland and cart it away, and the Corps would have no authority to prevent it.

In practice, it is generally difficult to perform such an activity without some associated discharges of dredged or fill material, such as for access roads, etc. However, it is possible to ditch, tile, pump, remove vegetation from, and impound waters on wetlands without discharging fill or dredged material. Normal plowing and discing are not discharges. Pile-supported platforms are not regulated, nor is the use of herbicides.

All of these activities can destroy or seriously damage wetlands. Obviously, this limits the effectiveness of Section 404 for those who would use it as a strict wetland protection statute. Most wetland losses in this country occur outside the limits of 404.

When we do issue a permit for an activity in a wetland, it is because there is a need for the project; there are no practicable alternative sites or methods for attaining the objectives of the project that would have less adverse impact on the environment; and the project is designed to prevent or minimize adverse impacts to the aquatic ecosystem, such as through replacement of fish and wildlife habitats.

Many times, such permits are issued only after considerable effort on the part of the Corps, the resource agencies (EPA, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and state fish, wildlife, and water quality agencies), and the applicant to work out a project design that will meet the objectives and the spirit of the Clean Water Act and other relevant statutes.

Continued to next page

While there have been differences of opinion, this is only natural when you consider the differences in the missions of the involved agencies.

Harold J. O'Connor
Associate Director, Habitat Resources
U.S. Fish and Wildlife Service

As a professional wildlife biologist and administrator for the Department of the Interior's U.S. Fish and Wildlife Service, I often find myself in discussions on the relative value of wetlands habitat. I've found that people are surprised by the fact that wetlands are—in a biological sense—the most productive wildlife habitat on an acre-per-acre basis.

Wetlands offer vital nesting and rearing habitat for millions of waterfowl and waterbirds. Their shallow waters serve as nursery areas for a tremendous diversity of fin and shellfish species important to both the recreational and commercial fisherman. But aside from their role in the support of wildlife populations, they have an unseen economic value because they offer a natural form of flood control, play a major role in the recharging of ground-water supplies, and help to maintain water quality. Given these considerations, I think of wetlands as one of this nation's most valuable natural resources.

Of course, the U.S. Fish and Wildlife Service is not the only governmental agency interested in wetlands preservation. Others include EPA, the National Marine Fisheries Service, and the Army Corps of Engineers.

Central to the varying interests of these agencies is the so-called "404 process," named after Section 404 of the Clean Water Act. Through passage of this Act, Congress sought to bring about a degree of coordination between the various agencies interested in wetlands conservation and to make sure their interests were considered in the process of regulating development in wetland areas.

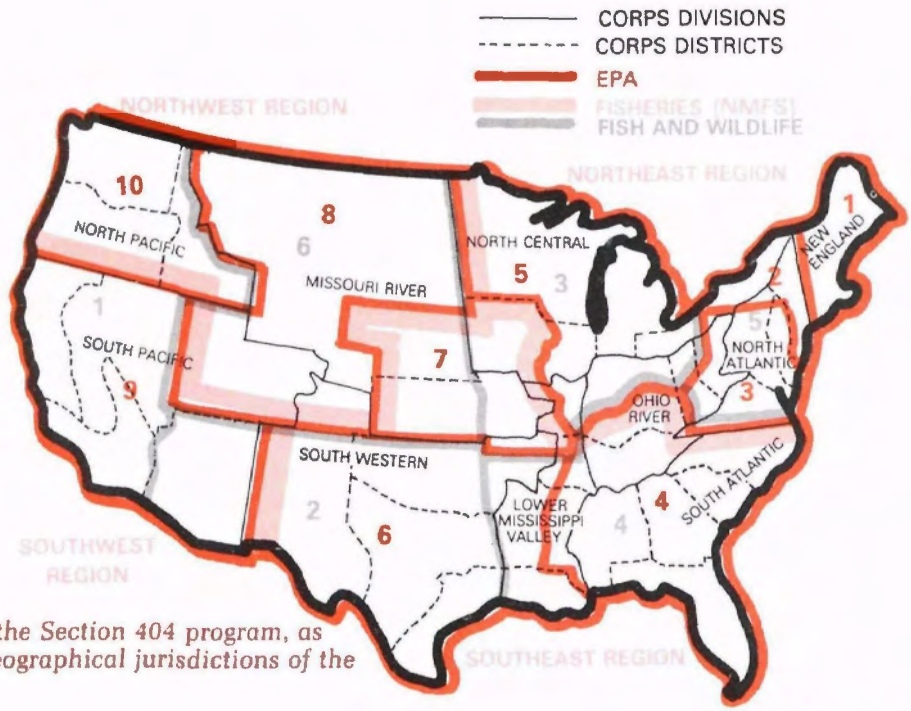
The Fish and Wildlife Service also has a very specific role that comes from the Fish and Wildlife Coordination Act, which provides an opportunity for the Secretary of the Interior to comment on 404 permit applications and recommend to the regulating agency how to minimize or offset developmental impacts. The Secretary of the Interior can also recommend denial of a permit. These responsibilities have been delegated from the Secretary to the U.S. Fish and Wildlife Service.

Section 404 has been and will continue to be a key provision in this nation's efforts to protect, conserve, and enhance wetlands. For the most part, it has brought about the kind of coordination between the agencies that Congress envisioned. While there have been differences of opinion on various projects, this is only natural when you consider the differences in the missions of the involved agencies.

One of our mechanisms for working with the Corps of Engineers under Section 404 is a Memorandum of Agreement. This agreement sets out the procedures that the two agencies will follow during review of a permit application. We recently negotiated a new agreement that should help Service biologists and Corps personnel at the field level resolve differences before issuance of a permit. I am optimistic that appeals of permits or elevations to higher administrative levels will become relatively rare in the future.

In another significant change, the Corps has accepted the Council of Environmental Quality's definition of mitigation for use in its review process. This definition includes alternatives for reducing wetlands destruction that range from avoiding the environmental loss entirely to, in some way, compensating for a project's negative impact. With these and other changes in the new Memorandum of Agreement, I think wetlands conservation efforts will certainly be enhanced in the years to come.

This nation has already lost over half of the wetland acres thought to exist during colonial times. Until recently, wetlands were areas to drain, dredge, or otherwise modify. They were considered a barrier standing in the way of progress. I think today we are beginning to see a different attitude; one espousing the idea that wetlands are indeed a vital and valuable natural resource—for people as well as wildlife.



It is administratively complicated to carry out the Section 404 program, as illustrated by this map showing the different geographical jurisdictions of the four federal agencies involved.

Despite the Clean Water Act's intentions, Section 404 features have caused uncertainty in the minds of natural resource managers and the public.

William G. Gordon
Assistant Administrator for Fisheries
National Marine Fisheries Service

In 1780, the area we now call the United States had an estimated 11 million acres of coastal wetlands. By 1954, the total had dropped to about 8.2 million acres and presently only about half of the original total remains.

Recognizing this depletion of resources, Congress in 1972 passed what we know today as the Clean Water Act. This federal law has an important feature aimed at protecting wetlands and the fish, shellfish, and other living resources found there in abundance. This feature is Section 404. It asserts a national interest in controlling disposal of dredged and fill material (e.g., sand, mud, gravel, construction debris, etc.) into the nation's waters, including its wetlands—swamps, bogs, marshes, and the like.

Valuable as living filters of waterborne pollutants and thus helping to protect water quality, wetlands provide several other essential and economically valuable services. They buffer the impact of floods and storms, serve as ground-water recharge sites, and, being thickly vegetated, they help to protect coastal shorelines and beach areas against erosion. Coastal estuaries and their fringing wetlands are nursery and home to almost two-thirds of all the fish and shellfish caught by Americans. Last year, the nation's fishery was worth nearly $15 billion, and a large proportion of the clams, oysters, shrimp, crabs, and fish taken by fishermen spent all or part of their lives in Section 404 territory.

Despite the Clean Water Act's intentions to upgrade and maintain the quality of the nation's waters, its Section 404 features have caused uncertainty in the minds of natural resource managers and the public. Why?

Interpreting and administering Section 404 is a joint responsibility of the Army Corps of Engineers and EPA.

The Corps is the agency which actually issues permits to dredge and fill. But EPA has authority to deny or restrict any permits that do not measure up to its standards of wetlands protection.

Operating under different federal laws, the Corps and EPA have different, and sometimes conflicting, goals regarding wetland use and protection. Other players with wetlands responsibilities include the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (FWS), an agency within the Interior Department. Both agencies advise the Corps on how proposed Section 404 permits would affect fish and wildlife resources for which they are responsible.

The Corps, however, is not required to accept the recommendations of these agencies when it decides to deny or issue a permit and enforce its special conditions. Such conditions are often designed to mitigate or overcome adverse effects identified by NMFS and FWS. Nationally, the Corps issues thousands of individual one-of-a-kind permits annually, and such "conditioned" permits may not always guarantee the kind of resource protection sought by FWS and NMFS.

In making its decisions, the Corps must consider several public interest factors, the most important of which may be whether a permittee can abide by protective guidelines established by EPA under Section 404. A project's possible effects on fisheries productivity is fundamental to these guidelines, and in some Corps districts, the guidelines have become almost a pass/fail standard.

As with many systems devised to carry out multiple purposes, the Section 404 permit process has a complicated set of procedures which are not easily understood. This complexity may continue to create problems, particularly as federal actions interact with additional and not necessarily complementary timetables and jurisdictions found at the state and local levels.

From the NMFS perspective, however, both EPA and the Corps are taking important steps to make their rules more effective and understandable to the public. EPA has recently drafted agency guidance on mitigating and overcoming damaging effects of projects which might be placed in wetlands. It is also completing an identification manual to help determine federal wetlands jurisdiction and thus whether a Corps permit will be required. Also, EPA is re-examining for clarity a unique Section 404 procedure to disallow or limit disposal of dredged and other fill materials into wetlands.

The Corps has streamlined its regulatory procedures, increased enforcement efforts, and issued new guidance for including mitigation conditions in permits. Most importantly, the Corps has signed new Memoranda of Agreement under Section 404 with both EPA and the Interior Department. We expect similar agreement with the Commerce Department in the near future and are hopeful that this agreement will allow NMFS and the Corps to resolve problems fully at the regional level.

Improving interagency cooperation in decisions affecting fisheries production is a basic objective of the National Marine Fisheries Service's Habitat Conservation Policy. Thus, we are pleased that the administration of the Section 404 program is improving. As enthusiastic participants in the 404 process, NMFS believes that these new steps will help contribute to the long-term maintenance of the nation's fisheries and other renewable natural resources. □

Fulfilling the Aims of a Wetlands Program

by Robert K. Dawson

Steve Delaney

The Secretary of the Army is responsible under Section 404 of the Clean Water Act for administering a regulatory program which requires permits for anyone to place dredged or fill material into waters of the United States, including most wetlands. The Secretary operates this program through the Army Corps of Engineers.

Since its inception in 1972, this program has been extremely difficult to administer and has been beset by conflict and controversy. On the one hand, the program establishes high standards of sensitivity to aquatic areas and wetlands for their public values of water purification, flood control, fish and wildlife habitat, and other features.

The Corps of Engineers Section 404 program was identified as one of those most in need of reform.

On the other hand, it recognizes the need to provide for reasonable use of private property and economic development.

In 1981, the Presidential Task Force on Regulatory Relief was formed. The Task Force put out a general request for information on overly burdensome, bureaucratic regulatory programs. The Corps of Engineers Section 404 program was identified as one of those most in need of reform.

Based on recommendations from an interagency working group comprised of Army, Justice, EPA, Interior, Commerce, Transportation, and Agriculture, the Presidential Task Force issued directives in May 1982 to reform the Corps 404 program. Army proceeded to implement the reforms directed by the task force and has met with considerable controversy every step of the way.

(Dawson is Assistant Secretary of the Army (Civil Works). His responsibilities include the wetlands regulation activities of the Army Corps of Engineers.)

The reforms sought to reduce duplicative and wasteful processes and procedures, while maintaining the sensitivity to environmental quality called for in the Clean Water Act and other statutes which govern actions of federal officials such as the National Environmental Policy Act, the Fish and Wildlife Coordination Act, the Endangered Species Act, and others.

I would like to address the Administration's initiatives and explain why we believe the Section 404 program has been significantly improved without diminishing environmental safeguards, and why more can and should be done.

The red tape and burdensome procedures which characterized this program five years ago enhanced neither the quality of the water nor Corps decisions. These procedures simply delayed the process. Many worthy projects succumbed to the lengthy process rather than being decided on their merits.

The task force directed that interagency coordination processes be speeded up. Procedures that existed prior to 1982 could take up to two years to resolve interagency differences of view. Procedures adopted in response to the task force directives result in decisions within 90 to 120 days instead of two years. Average permit decision time for all permit actions has been reduced from 140 days to 70 days, still plenty of time for full and fair consideration of environmental concerns.

The task force called for expanded use of general permits. Such permits are issued for a category of activities which, if they meet certain conditions and limitations, may proceed without separate individual review and analysis.

One type of general permit specifically endorsed by the task force is the state program general permit. Where a state has a program which controls the activities which are also controlled by the Corps and has similar review standards, these activities would not need further Corps review unless the Corps identifies issues of concern not covered by the state program.

Since regulatory reforms have been initiated, violations and wetlands lost have been significantly reduced.

These and other reforms were put into place through changes in the Corps regulations in July 1982. Environmental groups sued the government on the validity of those regulations. Lengthy negotiations resulted in a consent agreement to settle the lawsuit and the regulations were amended slightly in

Aerial view of Chesapeake Bay wetlands, below the Susquehanna River.

1984 to reflect the consent agreement.

However, some environmental groups, apparently dissatisfied with the agreement they had made, continued to criticize the program implementation. Many vague and subjective accusations were made, but through four oversight hearings of the Senate Subcommittee on Environmental Pollution, no evidence was brought forward to substantiate the charges.

In fact, we believe that regulatory reforms have improved environmental quality in this program. A reasonable, rational process promotes voluntary compliance and allows the Corps to use its staff in the most effective manner to achieve statutory goals. We have found that since regulatory reforms have been initiated, the number of violations and the amount of wetlands lost have been significantly reduced.

Another example of positive effects the reforms have on the environment involves general permits. Applicants will often reduce the overall scope of their projects to meet the requirements of a general permit with the knowledge that they can proceed more quickly. This reduction in scope often results in less impact on the environment.

One thing the government owes to its citizens is a fair hearing and a timely decision. The Presidential Task Force on Regulatory Relief set about to fulfill this responsibility. Through the efforts of the task force and the Corps implementation of task force directives, the permitting process has been improved while environmental safeguards have been maintained.

Almost four years after the reforms were initiated, reform opponents have failed to produce any substantive evidence of adverse environmental effects. The program strikes a reasonable balance between resource use and conservation. Implementation in this manner has strong endorsement from the Congress and the courts.

Despite the progress toward good government, the program still has features which need to be corrected. For example, the extent of jurisdiction has been a very difficult issue to resolve. At my personal insistence, the Department of Justice appealed to the Supreme Court a decision of the Sixth Circuit Court of Appeals in the *Riverside Bayview Homes* case. The Sixth Circuit ruling would have substantially reduced Clean Water Act jurisdiction over wetlands adjacent to streams, rivers, and lakes, and essentially eliminated jurisdiction over isolated wetlands. The Supreme Court upheld Corps implementation of Clean Water Act jurisdiction over adjacent wetlands. The court, however, specifically did not rule on isolated wetlands. The court did acknowledge that denial of a Corps permit which results in loss of reasonable economic use of a property could represent a taking for which compensation would be due. We must be mindful of this ruling as we proceed with developing policy for the Corps regulatory program.

In closing, I would note that the remaining features of unnecessary red tape and bureaucracy can be reduced or eliminated without sacrificing environmental goals or safeguards. This is a very complex program which is extremely difficult to administer. The Army Corps of Engineers as an agency and the individuals in the Corps who are responsible for this program have acquitted themselves extremely well as professionals of the highest integrity. Army will continue to provide policy guidance which maintains all proper environmental controls and gives the public more certainty and timely responses to applicants' proposals. These are compatible objectives, and deserve the support of all interested parties.

I do not contend that our administration of the program has been perfect, and we welcome suggestions on steps to improve our responsiveness to environmental concerns. The more specific the concern, the better able we will be to take corrective action. Wetlands and water quality are extremely important aspects of the overall quality of life in America, and I pledge to continue to work to see that the Corps of Engineers carries out the letter and spirit of the law and regulations. □

Doing a Better Job of Conserving Wetlands

by John H. Chafee

Everyone talks about the need to protect wetlands. Apparently, it is a goal that is widely shared by the American people and their elected officials. Over the past decade there has been an increasing appreciation that wetlands are essential to our waterfowl, our fisheries and shellfisheries, our drinking water supplies, and our flood-prone areas.

There also is broad recognition of the crisis facing the nation's wetlands. The statistics are well-known. Nearly 60 percent of the wetlands in the coterminous 48 states have been destroyed, more than nine million acres from the mid-1950s to the mid-1970s alone. Various estimates place the current rate of destruction at somewhere between 300,000 acres and 500,000 acres per year. Whatever the correct estimate is, we know that the present magnitude of destruction is producing unacceptably high economic and environmental costs to our nation.

Given this knowledge, it is surprising that there is no real consensus on what we should do to conserve these vital resources. This lack of agreement has jeopardized existing federal wetland protection programs and threatens to prevent meaningful steps from being taken to enhance such programs in the future. In recent years, federal wetlands acquisition has fallen off, a victim of rising land prices, rising budget deficits, and generally lower Congressional appropriations.

To do a better job of conserving our remaining wetland resources in the years ahead, we need to have reliable and consistent funding for state and federal efforts to protect particularly valuable areas in perpetuity. We need regulatory programs that ensure full and effective environmental scrutiny of all activities in our wetlands that have more than minimal impact either individually or cumulatively. And we need to create the incentives that will encourage wetlands protection and eliminate those that encourage their destruction.

Most wetlands are privately owned. While it is extremely important for active federal and state acquisition programs to continue, it is of equal or greater importance to provide mechanisms to maintain or restore private wetlands. This should be done through tax incentives for maintaining wetlands on private property, for donations of privately-owned wetlands to government agencies or conservation organizations, and for restoration or creation of wetlands. We also should consider expanding the approaches taken in the 1982 Coastal Barrier Resources Act which eliminate tax incentives and other federal assistance that encourage wetlands drainage and conversion.

Nearly 60 percent of the wetlands in the coterminous 48 states have been destroyed.

Another area where we have to do a better job is in controlling and mitigating wetlands losses due to publicly or privately supported development and wetlands filling. The Clean Water Act's Section 404 permitting program is without question the most important federal regulatory mechanism for curbing wetlands destruction. Over the past six months, the Subcommittee on Environmental Pollution, which I chair, has held four oversight hearings to improve implementation of the program. As I made clear during those hearings, the full and effective implementation of this program hinges largely on EPA's commitment.

Under Section 404(c), EPA has the authority, and I believe the responsibility, to prohibit or restrict discharges of dredged or fill material that would have unacceptable adverse effects on municipal water supplies, shellfish beds, or fishery, wildlife, or recreational areas. Since 1982, EPA has significantly increased its use of this authority to protect these resources. This new emphasis is a significant and encouraging shift in EPA's role under Section 404. It is a trend that I hope will continue. Use of the 404(c) authority to prevent or restrict harmful filling should be facilitated. I believe, for instance, that it would be desirable to delegate this authority to the Regional Administrators. Section 404(c) should be used judiciously, but it should not be viewed as an extraordinary action or the equivalent of a nuclear weapon brandished for its potential rather than actual use.

The greater promise for wetlands protection by EPA under Section 404(c), however, lies in the authority to designate significant wetland areas before someone applies for a Section 404 permit. Rather than a decision being made at the end of the Section 404 permitting process, our wetland and economic development interests are best served by early identification, where possible, of those waters that are off limits to filling. I am encouraged by the work that EPA has done recently toward advanced identification of designated wetland sites, and I hope that EPA will continue on this course and move as quickly as possible toward significant prospective use of its authority under Section 404(c).

Another area where I believe EPA needs to become more actively involved is in making jurisdictional

(Senator Chafee, R-R.I., is Chairman of the US Senate Subcommittee on Environmental Pollution.)

Jonathan S. Blair, (c) 1973, National Geographic Society

A retirement community extends into a Florida salt marsh, illustrating wetlands areas under development.

determinations. The Attorney General ruled in 1979 that EPA has the ultimate authority for making such determinations under Section 404. Disputes between the U.S. Fish and Wildlife Service and the Army Corps of Engineers over whether certain waters or activities are within the scope of the permitting program should be resolved by EPA.

For example, EPA should be less reluctant to use its authority to resolve whether certain areas of bottomland hardwoods or pocosins are waters of the United States under the Clean Water Act and, therefore, subject to regulation under Section 404. Similarly, EPA should continue to provide the leadership on the question of Section 404 jurisdiction over so-called "isolated" wetlands. Whether conversion of forested wetlands to upland pine plantations is exempt from Section 404 regulation as a normal silvicultural activity is another recurring jurisdictional question that the agency should settle. Recent EPA initiatives with regard to bottomland hardwoods are a first step in assuming greater responsibility for jurisdictional decisions concerning that resource. But there is a pressing need for EPA to exercise its authority to determine the scope of Section 404 over other important classes of waters and activities.

Yet another problem in administering Section 404 has been the more than 50 percent reduction in the number of enforcement actions taken by the Corps of Engineers against Section 404 violators since 1981. There is good reason to believe that this reduction reflects a drop in enforcement activity rather than a decrease in violations. It is increasingly important that EPA continue expanded use of its Clean Water Act enforcement authority against illegal discharges of dredged or fill material.

I am encouraged by the work that EPA has done recently toward advanced identification of designated wetland sites.

Finally, it is my hope that EPA will redouble its efforts to ensure that all discharges of fill material, regardless of the purpose of the discharge, are regulated fully and properly under the Clean Water Act and that swift enforcement action is taken against unpermitted discharges to prevent adverse effects to the aquatic environment.

If EPA stays on its present course of assuming a larger role in the implementation of Section 404, then I am confident that this federal regulatory program will be strengthened. And if we are able to combine a strong regulatory program with an effective program of state and federal acquisition and a proper combination of incentives, then I believe we will be able to ensure that future generations of Americans will continue to derive the many benefits provided by wetlands. □

Steps to Strengthen Wetlands Acquisition

by John Breaux

To understand the value of wetlands one need only look at the sky. This fall, those of us who are duck hunters or who like to observe the annual waterfowl migrations will be seeing fewer ducks. Mallards and pintails are down 35 percent and 50 percent respectively from historical levels, and other species have declined as well. The cause of this decline has been a temporary loss of wetlands caused by the five-year drought in the waterfowl breeding areas in Canada and the United States. Biologists believe, and duck hunters hope, that better weather conditions will bring back the habitat and the waterfowl numbers will begin to rise again, but this temporary loss of habitat serves as a dramatic demonstration of what the results would be if we lost those wetlands permanently.

Those of us who live near the mouth of the Mississippi River see other effects from the loss of wetlands. Each spring, we receive the drainage of 41 percent of the land mass of the contiguous states. Each year, as more wetlands are drained to get the water off farmers' fields in Minnesota, Iowa, and Arkansas, the spring floods get higher and higher. The bogs, sloughs, and bottomlands are no longer holding the floodwaters and releasing them over a period of months; the water is hurried off the land, pushed into the tributaries and into the Mississippi. At the mouth of this great funnel, however, there is more water than the river can handle and the resulting floods damage property and endanger lives.

Of course, wetlands have other values as well. They act as buffers to storms, provide for recharge of underground aquifers, and absorb pollutants.

(Congressman Breaux, D-La., is Chairman of the US House Subcommittee on Fisheries and Wildlife Conservation and the Environment.)

In the last several decades, we have developed a variety of mechanisms to address the loss of wetlands. The regulatory program under Section 404 of the Clean Water Act has been an important, if controversial, tool for protecting wetlands. Other proposed mechanisms have included the so-called "swamp buster" provisions which would penalize farmers who drain wetlands by denying them eligibility for price supports and other agricultural programs.

Proceeds from the "Duck Stamp" have been used to purchase more than three million acres of wetlands and upland waterfowl habitat.

Rather than discuss newer mechanisms, I would like to address the oldest and most basic tool of wetlands protection—wetlands acquisition. More than 50 years ago, in the midst of the Great Depression and the drought and dust storms that characterized the 1930s, a group of remarkable men, led by a political cartoonist named "Ding" Darling, put together our nation's first habitat conservation program and launched the wildlife conservation movement in this country.

The particular stimulus of their concern was the loss of waterfowl habitat and wetlands. Their solution was novel and direct. Make hunters purchase a waterfowl stamp to attach to their state hunting licenses and use the proceeds to buy waterfowl habitat. Ding Darling's brush and ink drawing of a pair of mallards was featured on the first stamp, which sold for one dollar. Since 1934, proceeds from the "Duck Stamp," which now costs $7.50, have been used to purchase more than 3 million acres of wetlands and upland waterfowl habitat.

The areas purchased have not only benefited hunters; they include areas such as the Chincoteague National Wildlife Refuge, one of the most popular recreation areas on the Eastern Shore of Maryland. Bird watchers, naturalists, and millions of other Americans visit areas purchased with Duck Stamp funds.

If there is any problem with the wetland acquisition program, it is that it has not had enough success. The U.S. Fish and Wildlife Service has produced several estimates of how much land must be acquired and managed in order to preserve our migratory waterfowl resource. Its recently released draft Waterfowl Management Plan calls for the protection of 1.9 million acres of waterfowl habitat in the United States and an additional 3.6 million acres in Canada.

I believe that we should do all we can to meet these goals. Our migratory bird resource is not only a source of enjoyment to bird watchers and hunters, it is also an important treaty obligation. Perhaps more importantly, migratory birds are a symbol of the integrity of our environment. They need the endless sunlight of the northern prairies in the summer, the hardwood swamps and coastal marshes in the winter, and the sloughs and lakes and other resting places in the spring and fall. How, then, can we reach the goals of the waterfowl plan?

First, we can expand the user fee system. For 50 years, we have been using various user fee systems to protect and improve fish and wildlife habitat and to run fish and wildlife programs. This concept has served us well and we should continue to use it.

Second, we have to spread the burden. Hunters are contributing their share. They pay about $16 million per year for Duck Stamps, approximately $100 million per year in excise taxes on arms and ammunition, and millions more for state hunting licenses and stamps. Their contributions benefit everyone. One possible alternative is to charge entrance fees at National Wildlife Refuges and use these proceeds to purchase additional areas. This would allow more people to participate in the protection of our natural resources.

I recognize that the fight to acquire wetlands will be difficult in these days of deficits and budget cutting.

Third, we must protect user fees from budget cuts. A user fee is, in a sense, a contract between the person paying the fee and the government. I have found that people are willing to pay their share and contribute to support a program. If, however, money is diverted from the program, the contract is broken. The public becomes rightfully suspicious and the concept is degraded.

Fourth, we must encourage those paying the user fees by attempting to match their contributions. The Land and Water Conservation Fund (LWCF) provides for land acquisition for a variety of purposes. This Fund, established by Congress in 1964, provides for acquisition of National Park, National Forest, and National Wildlife Refuge areas. Unfortunately, areas eligible for acquisition with Duck Stamp funds cannot be purchased unless specifically authorized by Congress. Programs supported by user fees should not be penalized because of their success. A combination of user fees and LWCF funding will provide the most return for the acquisition dollar.

U.S. Fish & Wildlife Service

Issued in 1934, the first duck stamp featured a pair of mallards in flight. Duck stamp sales help protect wetlands.

I recognize that the fight to acquire wetlands will be difficult in these days of deficits and budget cutting. We should remember, however, that the wetlands acquisition program began in the darkest days of the Great Depression. The people who acted then have left us not only with a better environment, but a tradition of concern for the environment and a willingness to do what it takes to protect our natural resources. We can do no less for our children and those who follow us. □

Who Cares About Wetlands?

by Jay D. Hair

B C McLean, Soil Conservation Service

Why protect wetlands? That's a question I'm often asked. Usually I give the standard list of reasons why the National Wildlife Federation works to prevent wetlands loss. Our nation's history has been one of trying to eliminate wetlands. We've described them as wastelands to be drained or filled and put to more productive use. Government policy has reflected this attitude by providing various subsidies to landowners and agencies to speed the conversion of "useless" wetlands to more clearly valuable drylands.

National policy was directed primarily to elimination of wetlands until about the mid-1900s. Large-scale drainage projects were conceived, funded, and implemented by the federal and state governments. Cheap, readily available labor made the early 1900s a time of extensive wetlands drainage.

During the 1930s, people began to recognize the links between wetlands loss and the disappearance of wetland products. A special fund was created by the establishment of a federal waterfowl hunting permit, the "duck stamp," with proceeds to be used to purchase wetlands. Private conservation groups, such as the National Wildlife Federation, were formed for the primary purpose of protecting wildlife habitat, especially wetlands.

By the 1950s and the 1960s, the wetlands acquisition programs of federal and state agencies were well-established and the broad values of wetlands were becoming clear. In the 1970s, the values of wetlands became widely recognized and documented by the scientific community, and wetlands received governmental protection at the federal level and in some states. In spite of these changes for the better, the loss of wetlands remains a problem today. Study after study has indicated that wetlands are being lost for a variety of reasons, almost all of which are man-caused.

Luckily for us, government policies are beginning to change to favor retention of wetlands.

Altogether, about 56 percent of the original wetland acreage of the 48 contiguous states has been lost. The most comprehensive and scientific study of wetlands to date was completed by the U.S. Fish and Wildlife Service in late 1982. This study shows average loss of wetlands in the United States from the 1950s to the 1970s to be 458,000 acres per year. By the 1970s, only 99 million acres of this valuable resource remained.

Only 8.2 million acres of these remaining wetlands are under federal or state protection. The majority of the wetlands in the nation are on private lands, while most of the values of wetlands accrue to the public at large. The problem is that the privately controlled resource provides public values.

Even in areas known to be productive of waterfowl or shellfish and other products, we previously provided heavy incentives for conversion. Today we still encourage general development through various tax incentives, and price supports and other subsidies for agricultural products.

These incentives create enormous pressures to drain and clear wetlands. As a result the United States is losing over 450,000 acres of wetlands every year. That's an area well over half the size of Rhode Island. In fact, over half of the country's original 200 million acres of wetlands have already been destroyed. Put another way, we have drained, filled, or otherwise destroyed wetlands that would cover an area equal to four times the size of Ohio.

(Hair is Executive Vice President of the National Wildlife Federation.)

A marsh area on a North Dakota farm, preserved as wildlife habitat for ducks and muskrats. The 1985 Farm Bill stops subsidies to farmers who eliminate wetlands to create more cropland.

And what have we lost as a result? My reasoning continues with the explanation that all of these drained wetlands once contributed to our economy and the quality of our lives. They produced ducks, shellfish, frogs, cranberries, and wild rice. They filtered nutrients out of polluted waters and buffered storm impacts in coastal areas. They held runoff in place, which helped to prevent downstream flooding, and they allowed the recharge of groundwater. All of these services are tangible and all are valid arguments for maintaining our wetlands base. And all are gone when wetlands are destroyed. Those are the reasons I usually give when someone asks me why we should protect wetlands.

But my most cherished reason is selfish. It's because I like wetlands.

That may not seem like much of a reason, but it's one of the best. Economic arguments can be countered by "Okay, so I'll pay you for the value of the services and we'll build our hotel there anyway." There is no counter for the aesthetic argument that wetlands are nice places where one can go and feel refreshed and re-created.

If you haven't spent much time around wetlands, maybe I can give you a brief idea of why I like them. Oozy marsh mud may not seem worth caring about, but the odor of a marsh bottom brings many pleasant memories to mind. The flash of a black duck's wings is most spectacular over a coastal marsh. And the call of a rail is one of those nebulous things that you can't locate, but when you don't hear it, you miss it.

I know this isn't the kind of description you can comprehend unless you are a marsh lover like I am. I want to make the point that almost none of the best qualities of a wetland can be put into dollars and cents. That is the way it should be. Modern society puts too much emphasis on what things are worth in terms of money and too little emphasis on *real* values that you can't buy.

The National Wildlife Federation has about 4.5 million members and supporters. Most, if not all, of those folks *like* wetlands. Certainly they receive all those services that we all speak about, but when they visit a wetland to go hunting or birdwatching, they aren't thinking about how many acre-feet of floodwater the marsh holds or how the wetland basin collects nutrient runoff and ties it up in sediments and living tissues which in turn prevents the degradation of our water supplies. They think, "Gosh, this is a nice place, and I'm glad it's here!" And that is why the National Wildlife Federation puts so much staff time and so many resources into trying to assure that those wetlands are still there so people can continue to appreciate them.

Luckily for us, government policies are beginning to change to favor retention of wetlands. The Supreme Court recently ruled that wetlands of all types are protected under the Clean Water Act and that the United States rightfully exerts jurisdiction over them. The Congress, in passing the 1985 Farm Bill, is eliminating the subsidies that are now available to farmers who destroy wetlands and create more cropland. Federal agencies, such as EPA, are beginning to do more to identify the reasons for keeping wetlands and exercising the powers they now have to stop various forms of wetland destruction. These items are signals that we are finally beginning to recognize that wetlands are important. This recognition is a reaffirmation that we folks who simply like wetlands have been right all along.

I recognize that all of this needs to be translated into the nitty-gritty details of regulations and rules and that we all need to be talking about the economic arguments for protecting wetlands, but it's really important for us to remember the real bottom line. Whenever we talk about wetlands and we let policy makers know why they should preserve these important parts of the landscape, we must follow up with the arguments that have no counterargument. We must speak to the need to keep those things that add quality to our lives, and for many of us that includes as simple an ingredient as wetlands. □

Visitors to the Virginia section of Assateague Island learn about the ecosystem of a salt marsh from a National Park Service ranger-naturalist.

Richard Frear, National Park Service

Racing Against Time in the Rainwater Basin

by Felice F. Furst

The Rainwater Basin of Nebraska is located within the central flyway for migratory birds. Waterfowl from the central United States, the Gulf Coast, Mexico, and South America converge on the Rainwater Basin each spring on their way north to their breeding grounds. Shore and song birds and the endangered whooping crane also use these wetlands when migrating.

Recently, epidemics of fowl cholera have swept through waterfowl populations in the Rainwater Basin. Because of the nature of this disease, most researchers now believe the drastic decreases in wetland acreage and resulting overcrowded conditions have compounded the problem. In nearly 10 years, 200,000 ducks and geese have died from cholera in this region. In 1980 alone, five percent of the mid-continental population of white-fronted geese died from the disease. Because wetlands in the Rainwater Basin are reduced now to the critical level, water and weather conditions determine how many waterfowl die.

Soil survey maps from early in this century show that Nebraska's Rainwater Basin contained nearly 4,000 separate wetland areas. Small-to-large individual basins formed a patchwork pattern over parts of 17 counties in south central Nebraska, a total area of nearly 94,000 acres. Collectively, all these areas attractive to waterfowl are known as the Rainwater Basin.

The Rainwater Basin continues to decrease in size, shrinking to only 685 basins by the late 1960s and now down to approximately 375 basins. The remaining wetlands are within a land area of 20,000 acres. Nine of every 10 basins were destroyed by draining or filling, and only half of the remaining wetlands are protected by state or federal wildlife agencies.

Nine of every 10 basins were destroyed, and only half of the remaining wetlands are protected by state or federal wildlife agencies.

While the U.S. Fish and Wildlife Service and Nebraska's Game and Parks Commission consider wetland protection a high priority, government funds are limited for land acquisition and conservation easements.

Recognizing that the wetlands are disappearing steadily, EPA Region 7 Administrator Morris Kay decided in 1984 that the region needed to take a stronger stand against wetland destruction.

The Clean Water Act under Section 404 requires permits for discharges of dredged or fill material into waters of the United States. Under one provision of EPA's 404 regulations, EPA works jointly with the Army Corps of Engineers to identify wetland sites and designate them either generally suitable or unsuitable for filling. The goal is to notify landowners ahead of time whether discharges into these identified sites are likely or not to comply with the environmental requirements of Section 404.

The first challenge of this advanced identification process is to correctly inventory the wetlands. This becomes complicated because isolated wetlands are extremely dynamic. One year a basin may fill with water; the next, it may have none. Its boundaries change shape yearly. Variations occur largely because of changes in weather conditions. These basins are characterized by clay particles that make up subsoils to a thickness of six inches to six feet. The layers of clay hardpan trap runoff water and rainwater and make the characteristics of each basin wholly dependent on rainfall.

To inventory the remaining Rainwater Basin wetlands, EPA proposes use of the National Wetland Inventory (NWI) maps being compiled by the U.S. Fish and Wildlife Service. These state-of-the-art maps, based on 1981 aerial photography, will classify the wetlands into three categories:

- Semi-permanent—wet most of the year;
- Seasonal—wet through the middle of the growing season; and
- Temporary—wet only in the spring.

The maps will be used as the identification and designation lists for the process. Sampling of 20 to 30 basins next spring and summer by the Army Corps of Engineers, EPA, and the U.S. Fish and Wildlife Service will provide additional baseline data on waterfowl use, vegetation, soils, and hydrology and will aid in classification efforts.

Although the listing and designation process is a rather straightforward procedure, simply publishing a list of wetland sites does little toward preventing further destruction of the basin wetlands. Because draining without a discharge of dredged or fill material is not regulated by the Clean Water Act, appealing to conscience and raising awareness could be the most effective way to head off additional loss

(Furst is Project Coordinator for the Rainwater Basin project advisory committee.)

Travelling in an airboat through the marshes of the Rainwater Basin, an officer of the Nebraska Game and Parks Commission removes dead birds, victims of fowl cholera. The birds will be burned to prevent spread of the disease.

A Nebraska economist has pointed out that, many times, intensive farming of wetlands is unprofitable.

of wetlands. EPA has gone a step further and begun a community relations effort to encourage local cooperation.

As Morris Kay said, "Retaining the wetlands in the Rainwater Basin is an important goal for the landowners and the local community. Everyone needs to be involved in the process." A full-scale community program seeks to inform the public of the project; raise awareness of the problems created when wetlands are lost; and stress the economic value of these wetlands and the importance of retaining them as a matter of community pride.

A federal and state interagency team is working together on the project. This federal team includes EPA, the Corps of Engineers, the U.S. Fish and Wildlife Service, and the Soil Conservation Service of the U.S. Department of Agriculture. State groups include the Nebraska Game and Parks Commission, Department of Environmental Control, and Natural Resources Commission. Independent members are Ducks Unlimited and the Wildlife Management Institute.

Open communication with local people and private interest groups is best achieved through established contacts, such as natural resources boards in the Rainwater Basin.

Elected officials and the media have been briefed on our plans for the Rainwater Basin wetlands. Private interest groups such as the Committee to Save Our Wetlands and the National Audubon Society have been contacted for their assistance.

Public workshops have tentatively been planned for early this winter when farming is at a minimum. These workshops are designed to tell the public what we're doing, to ask for suggestions, and to stress the values of these wetlands and the danger in destroying the basins. There are other values, not based upon migratory waterfowl use. These basins are needed to absorb and store rainwater runoff to help control flooding. Also, the wetlands provide habitat for commercial fur-bearing animals, such as muskrat, and for many of the game species, including pheasant and deer.

A Nebraska economist has pointed out that many times intensive farming of wetlands is unprofitable. Uncontrolled flooding, tax easements, and current market conditions are only some of the underlying reasons. The appeal to landowners not to farm marginal lands can be very persuasive.

As time runs out for Nebraska's Rainwater Basin, the trend can be reversed by farmers, property owners, private interest groups, and governmental units working together to preserve and restore this vital area. □

Nebraska Game & Parks Commission

Working to Save Pennsylvania Peat Bogs

by Jane Offringa
and Karen Wolper

As the chill of winter fades, and the first spring flowers pop up through the still-cold earth, eager gardeners head for nearby drugstores, supermarkets, and nurseries to buy large sacks of peat moss to help their gardens grow. Municipal highway departments and commercial greenhouses buy peat by the truckload.

Precisely because peat is so plentiful, few people realize that it is an irreplaceable natural resource that has to be mined like minerals. Region 3 of EPA is moving to protect this valuable resource in the Pocono Mountain area of northeastern Pennsylvania and throughout the region where limited peat deposits provide a unique habitat for plants and animals.

Peat comes from the dead remains of mosses, reeds, sedges, shrubs, and trees which accumulated mainly due to the effects of glaciers. Peatlands are classified as bogs or fens because they are constantly saturated with water.

Conditions that made it possible for peatlands to form can be traced back to the time when the last glacier scoured its way south from Canada. Great blocks of ice broke away and were driven into the earth. Huge loads of rock and gravel were deposited in the glacial ice, closing off valleys and trapping streams to form shallow, ice-cold lakes fed only by rainwater.

Living things that survived in the frigid, sterile waters settled to the bottom when they died. Over many thousands of years, dead vegetation continued to accumulate until the lakes were transformed into bog forests.

In the bogs of the Pocono Mountains, peat deposits are formed at the extremely slow rate of approximately one inch per 100 years. Pennsylvania peatlands, usually no larger than 100 acres, are commonly only about 25 acres in size, and generally range from one to 40 feet deep. Half or less of the Pennsylvania peatlands are deep enough to be worth mining.

(Offringa is a wetland ecologist and Wolper is wetland enforcement advisory coordinator with EPA Region 3's Wetlands and Marine Policy Section.)

Jane A. Offringa

At a peat mine in Lackawanna County, Pa., a bulldozer operator works on a drainage ditch.

The plants living on Pennsylvania peatlands are rare for the state, and include species that are more commonly found further north. They include such rare and endangered species as orchids and insect-eating plants.

In Pennsylvania, black bears eat blueberries, wild raisins, huckleberries, and juneberries that grow in the bogs during spring and summer. The animals hibernate in or near the peatlands during the winter. The accelerated construction of vacation homes in the Poconos makes the remaining peatlands even more critical to the black bear.

Damage to these wetlands habitats begins when a ditch is constructed around the peat bog to drain it. Then all of the shrubs, trees, and moss along with their roots are stripped away, and the peatland is cross-ditched to facilitate further drainage. Machinery fluffs up the peat to dry it before it is scraped to the bog edge in stockpiles. Roads are constructed to haul out the peat for processing and packaging.

Some companies have entered the peat mining business for the sole purpose of creating shallow lakes from the mined-out peatland as recreational lakes for vacation homes.

Unfortunately, such lakes have a lower ecological value than the original peatland. Even mined-out peatlands that are not changed to lakes generally lose much of their value to wildlife. For example, animals such as the river otter, snowshoe hare, and osprey that thrive on the food sources in the Pocono peatlands are displaced when these wetlands are destroyed.

The handiwork of man is not the only problem confronting the peatlands. Weather changes over the years prevent the natural restoration of the peat bogs.

At one time, peat mining was not regulated under the Clean Water Act. However, U.S. Army Corps of Engineers regulatory changes in October 1984 made it clear that the regulation of many peat mining activities does come under the Clean Water Act. Several court decisions have supported this determination.

The regulatory changes require that anyone who wants to deposit dredge or fill material which will cause the loss or substantial adverse modification of 10 acres or more of wetlands must obtain a permit from the Corps of Engineers. (The Corps must be notified if the loss or modification is greater than one acre but less than 10 acres.) Through this provision, the peat mining industry is required to obtain individual permits, since mined areas are usually more than 10 acres.

Since June 1985, Region 3 has issued 13 administrative orders to peat mining operators ordering them to cease dredge and fill activities in peat bogs without the required permits, to provide EPA with further information on their operation, and to apply for permits from the appropriate U.S. Army Corps of Engineers office. Region 3 is now vigorously reviewing permit applications for peat mining operations for conformance with Clean Water Act guidelines.

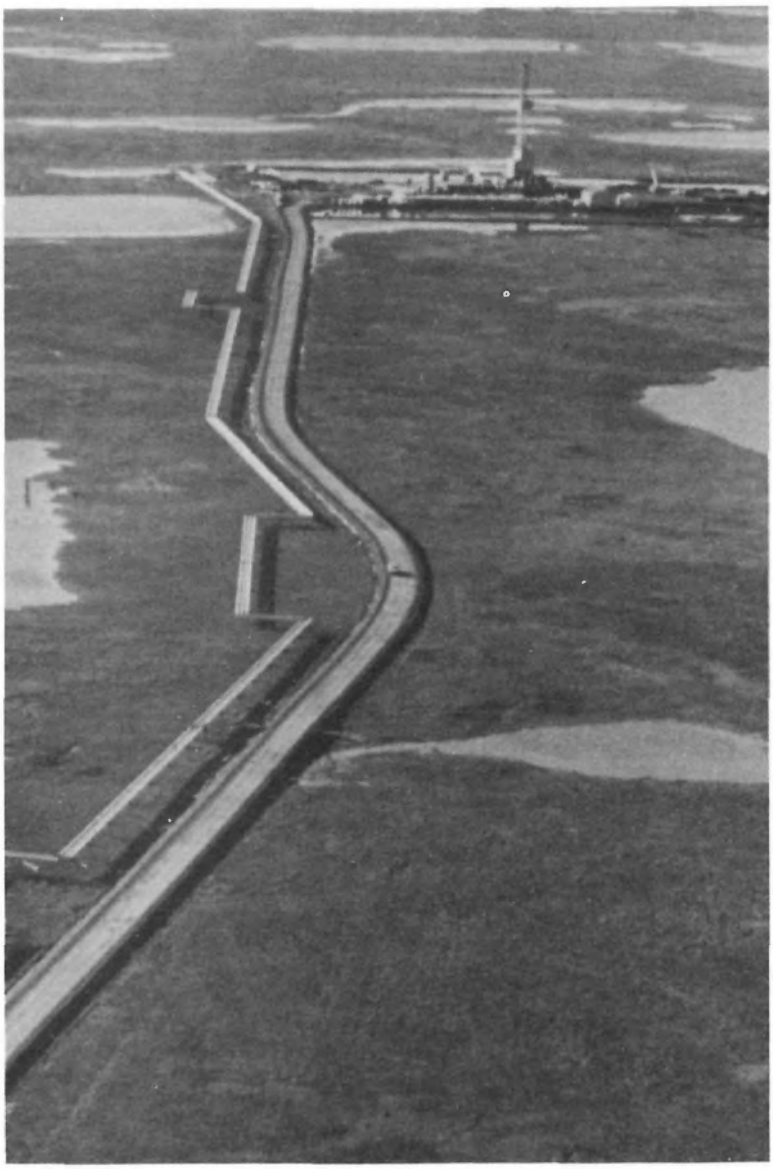
Alternatives to peatland destruction must also be considered, and adverse impact on valuable wetlands must be avoided. Peat is not the only material that can be used as a soil conditioner. Wood shavings, compost material, and recycled sludge are effective alternatives.

In areas such as the Pennsylvania Poconos, peat mining activities destroy unique and valuable habitats for rare or threatened species. The time may come when peatland mining will be limited to certain geographic areas to preserve these habitats.

For the time being, EPA is focusing its attention on public education and research into alternatives to peat use. Peat moss is as irreplaceable a natural resource as oil, gas, and minerals. By using less peat or no peat, we can help preserve that resource. □

Wetlands and Oil: Coexistence on the Tundra

by James M. Posey



ARCO

An ARCO drilling and production pad at Prudhoe Bay, Alaska. Pipelines and utility corridors are generally sited aboveground and routed for minimal impact on the wetlands environment.

(Posey is a manager in the External Affairs Department of ARCO Alaska, Inc., a subsidiary of Atlantic Richfield Company. He has been involved in the wetland permitting, land management, and regulatory reform effort in Alaska for the past five years.)

Petroleum development and an unspoiled arctic environment can co-exist.

This is the clear conclusion of the Atlantic Richfield Company (ARCO), based on more than 15 years' experience developing the vast oil fields of the North Slope of Alaska.

Industry has taken a massive quantity of oil from the North Slope—more than four billion barrels. But apart from pipeline and oil-field facilities, the arctic environment remains preserved in a virtually pristine state.

Development and preservation: how have these two seemingly conflicting goals been achieved?

50 Million Acres

One of the main things to remember about the North Slope is its size: a huge 50 million acres extending from the Brooks Range to the Arctic Ocean. Tundra and shallow lakes and ponds cover the surface of the Slope. Permafrost, or frozen ground, lies beneath the surface. Most of these 50 million acres—about 75 percent—could be classified as wetlands. Despite apparent similarities, North Slope

We have succeeded in arctic Alaska because we have taken the trouble to find out about this environment.

wetlands are fundamentally different from those in temperate areas. The permafrost and the flat and irregular profile of the North Slope land limits the flow of water on the surface and to ground water.

Nevertheless, the vast expanse of the North Slope wetlands is extremely valuable as a wildlife habitat.

In 1968, ARCO discovered the huge Prudhoe Bay oil field on the North Slope. At that time, most of the major federal environmental laws had not yet been enacted, and very little was known about the North Slope's environment and wildlife.

ARCO asked arctic naturalist Angus Gavin to do three things: to determine the nature and extent of the environmental resources of the region,

ARCO

The Arctic Fox is one of the more abundant species of wildlife making its home in North Slope wetlands.

to analyze the potential impact of oil and gas development, and to suggest ways to minimize the likelihood of any adverse impact.

Gavin provided information on the best locations for development. He indicated sensitive areas to be avoided, and offered continuing feedback as development intensified. His work served as a standard both for ARCO and other developers.

The vast expanse of the North Slope wetlands is extremely valuable as a wildlife habitat.

In addition to Gavin, ARCO used a number of other consultants to carry out site-specific studies. These consultants provided important data for baseline and impact evaluations as well as site location and facility design. They enlarged our general understanding of the area, helping us to carry on a major industrial development in a uniquely difficult environment. Essentially, we have succeeded in arctic Alaska because we have taken the trouble to find out about this environment and to adapt our activities to it.

For example, the company has established manmade islands in tundra lakes for bird habitat, and rehabilitated abandoned disturbed areas such as gravel pads and roads. We have also included elaborate fish bypasses in the waterflood intake systems associated with the Prudhoe Bay and Kuparuk oil fields. Mitigative techniques like these offer a workable combination of environmental protection and economic practicality.

Collaborative Strategies

But one of the main reasons that the value of the North Slope wetlands remains undiminished despite oil development is cooperation: among ARCO and the U.S. Army Corps of Engineers, EPA, the U.S. Fish and Wildlife Service, and a number of state and local agencies in Alaska.

By 1979, when the permit program under Section 404 of the Clean Water Act was initially applied to the North Slope region, it had become clear to us that knowledge and cooperation were far more effective in solving environmental problems than confrontation and conflict.

Collaboration has made it possible to develop permitting procedures that comprehensively address significant environmental issues early on in the permitting process. Establishment of accelerated processing procedures with various federal, state, and local agencies has proved essential in making permitting decisions on a timely basis—critically important in this region where a few weeks' delay could result in the loss of the short construction season for an entire year.

Collaboration has also made it possible to keep the amount of fill in wetland areas to a minimum. For example, based on ARCO siting criteria and development guidelines, drilling points and access roads are located to avoid wetland and other sensitive environments whenever possible. However, when such locations are unavoidable, the company and the various agencies involved work towards compromise solutions together at ARCO's annual Gravel and Project Review Conference or other joint meetings.

ARCO's structural design and criteria manual for culverts, gravel pads, and embankments is now the standard by which most industry and public projects proposed for the North Slope are judged. The manual incorporates the best available civil engineering technology on hydrology in arctic wetlands to maintain natural drainage patterns in wetland and shoreline areas.

ARCO is also cooperating with EPA on the innovative use of a peer review panel to achieve mutually acceptable solutions in controversial areas. In the first experiment with this concept, the panel evaluated a study of the effects on waterfowl of noise associated with a proposed North Slope project. The study satisfied agency requirements and allowed a time-sensitive project to move ahead after considerable delay. Use of the panel, while still experimental, appears to be a promising mechanism for achieving common industry-government goals.

The oil fields of the North Slope of Alaska provide about 20 percent of U.S. oil production, yet less than one percent of the North Slope is affected by oil development. One reason, then, that the value of North Slope wetlands as a wildlife habitat has remained intact is that only relatively small areas of the region are used for development. But in the areas that are so used, industry regularly takes wetland and other environmental values into consideration throughout planning and development.

In North Slope oil, ARCO and other companies have made a great resource available to the American people without damaging another resource of equal importance, the natural habitats and wildlife of the region. This success stands as a model for the compatible development of oil and gas resources in other wetland environments of the country. □

The Amerikanskis Are Coming

by Fitzhugh Green

At Moscow meeting, EPA Administrator Lee Thomas, left, receives gift of miniature samovar from Dr. Yuriiy Izrael, Thomas' counterpart in the USSR.

(Green is EPA's Associate Administrator for International Activities.)

Sixteen Americans led by EPA Administrator Lee M. Thomas landed at Moscow airport at dusk in the cold of November 12, 1985. On hand to greet the Thomas party were Academician Yuriiy Izrael, chief of the USSR State Committee for Hydrometeorology and Control of Natural Environment, and several members of his delegation.

Izrael and his colleagues led the Americans into a small welcoming room where coffee and joviality were offered. Clearly the Soviets were happy to see their guests. Six years had passed since the last high level meeting of the US/USSR Joint Committee on Cooperation in the Field of Environmental Protection.

Clearly the Soviets were happy to see their guests.

Early next morning, Izrael and Thomas and their supporting casts of scientists and environmental managers plunged into a round of plenary conferences and private huddles which led to their approving 38 projects on November 18, the day before the summit at Geneva. In a sense, Co-Chairmen Izrael and Thomas of the US/USSR committee could be described as bellwethers for the successful conference of Messrs. Gorbachev and Reagan. Indeed, their accord was cited in the communique that was issued at Geneva the following week.

Major new projects include a study of the causes and effects of underground water pollution, collaborative development of technology for managing waste and lowering waste buildup, research on improved handling of toxic substances, and a schedule of education and training in environmental protection.

Other items to be studied are the effect of acid rain on forest ecosystems, impacts of anthropogenic pollution, and global ocean monitoring.

The November conclave in the USSR also triggered discussions of non-agenda items like diversion of major rivers in the northern USSR; nuclear winter; verification of underground atomic tests; and threats to the atmospheric ozone layer, as well as Sen. Claiborne Pell's proposed international convention to require transboundary environmental impact statements.

A key element of this meeting was that the Co-Chairmen themselves were once again taking charge at the policy level. Their re-emergence as leaders gave fresh significance to the work by scientists and engineers faithfully carried out during the past six years. The joint chairmen showed their determination to maintain personal involvement by agreeing to meet again in the US this fall.

Their work together caps 13 years of mostly fruitful cooperation between the two nations. The pact that launched these activities was signed by President Nixon and Chairman Podgorny in 1972 in Moscow. More than 2,000 scientists, engineers, and environmental managers have exchanged visits to the US and the Soviet Union in carrying out some 200 activities since then.

The environment and allied topics have proved to be a sacred cow, of sorts, in US-USSR relations. The Cuban missile crisis, for example, did not prevent a high-seas rendezvous between three Soviet and three American oceanographic vessels in the South Atlantic for an amicable exchange of scientific information, at the very time of the naval quarantine a few hundred miles to the north. Neither did six years of political chill following the invasion of Afghanistan freeze the US-USSR environment program.

While in the Soviet Union last November, the visiting Americans toured facilities of the Soviet environmental protection system.

The Cuban missile crisis did not prevent a high-seas rendezvous between three Soviet and three American vessels for an amicable exchange of scientific information.

Among these were the vast sewage treatment plant in Moscow, the enormous automatic solid waste disposal plant in Leningrad, as well as a hydromet institute in Leningrad.

In fact, the friendly hosts kept the Americans busy and/or entertained throughout their stay. Dr. Izrael's own solicitous attention to Thomas' entourage never flagged. He even made it a point to see them off at the airport on their departure. His attitude bodes well for the future.

Up to now, the results of the 13-year US-USSR agreement are many and positive. For example, the USSR's environmental legislation has been patterned on the US National Environmental Policy Act. A 1981 article in the *Journal* of the USSR Academy of Sciences praised the US practice of environmental impact statements.

Other articles in the Soviet press have lauded the US national park system. Actually, the Soviets have created their own "recreational zones" along the lines of American parks.

The EPA logo now gleams in government offices and laboratories from Leningrad to Tashkent. Americans touring the USSR may be surprised to see EPA's blue, white and green symbol on lapels and desks, or hanging from walls. Each one represents one or more encounters under the environment agreement that have opened closed doors.

In 1984, American scientists, after participating in a six-week Bering Sea cruise on a Soviet oceanographic ship, disembarked at Dutch Harbor. The 500 inhabitants of this small Aleutian town turned out in force to greet the voyagers. They prepared a homecoming feast that featured 150 hot pizzas: one of the more ambitious take-out orders in history.

American participants in environment agreement-sponsored programs have found their personal lives broadened and improved, but none more so than has George Baughman. On his own initiative this enthusiastic EPA scientist studied Russian for an hour a day until he could converse easily with his Soviet counterparts and read their reports. His project—on water quality modeling—was judged one of the best, thanks in part to his hard-won language skill.

One dramatic fallout of the environment agreement began in 1979 when an air pollution specialist from the University of Washington toiled several weeks with his Soviet counterparts in the USSR. There he met a lady Lithuanian scientist. Their professional relationship took a personal turn, and they married. In 1980, she emigrated to the US, and in 1983 their firstborn arrived—a true child of international cooperation. In keeping with the trouble-free history of the agreement, these two scientists went to show their infant son to his Soviet grandparents and returned to their home in Seattle without difficulty.

Even the Soviet media seemed to favor the Committee Meeting last November. Representatives of TASS, *Pravda*, *Izvestiya*, and Radio Moscow were on hand to interview Thomas and Izrael individually between sessions. Both on those occasions and at a joint press conference the questions were courteous and apolitical.

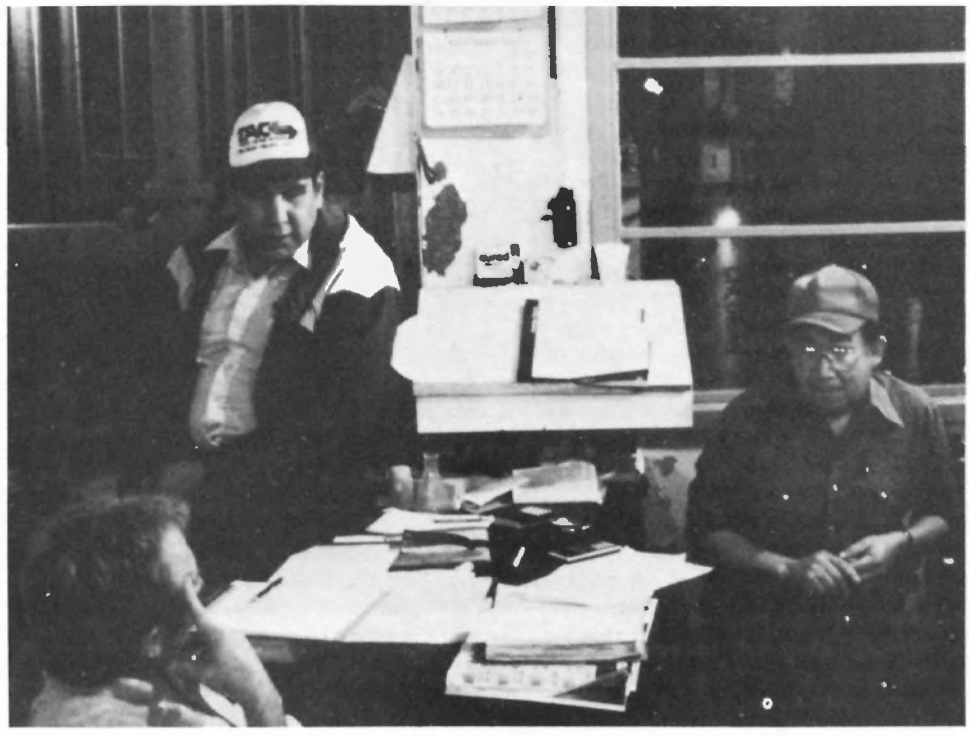
Their views seem to coincide with a comment by Thomas on the significance of the extensive cooperative program slated for 1986: "It gives us Americans a fine opportunity to share research on vital environmental matters. Additionally, it is a chance for these Soviet and American experts to stimulate broader understanding between our two countries." □

An Indian Policy at EPA

by Jack Lewis

Etting Little Owl, right, and Byron Bad Bear, water supply operators at the Crow Reservation's surface water treatment plant near Billings, Mont., discuss water turbidity with Robert Hayes of the Indian Health Service, far left. The session is part of a training program co-sponsored by the Service and EPA.

EPA is the first federal agency to formulate an Indian Policy in accordance with President Reagan's Federal Indian Policy. In the first of two articles in this section, Jack Lewis, Assistant Editor of the Journal, explains the substance of EPA's policy and the impact it will have on the environmental quality of U.S. Indian reservations. In the second article, A. David Lester, the Executive Director of the Council of Energy Resource Tribes, gives an Indian perspective on environmental protection.



Few people realize how vast America's Indian territory is. Across the United States there are 278 Indian reservations covering an expanse of land as big as New England, New Jersey, and Maryland combined. Approximately 700,000 people—only half of them Indian—live on those reservations.

The environmental problems of the Indian reservations—like many of their other problems—have tended to take a back seat to those of the 50 states. EPA's legislative authorities are principally built on federal-state relationships, so there has been a tendency for Indian problems to fall between the cracks. That is why we can be particularly proud of the fact that EPA is the first agency of the federal government to formulate specific plans for implementing the President's Indian Policy.

This policy recognizes the principle of tribal self-government that was written into the Constitution, but long ignored in practice. After decades of abuse, the concept was reformulated in the Indian Reorganization Act of 1934, but it failed to gain real momentum until the 1960s. In 1970, President Nixon issued a self-determination policy that reaffirmed the importance of tribal sovereignty.

President Reagan's Federal Indian Policy resembles older policies in two respects: it accords to tribal governments the same degree of sovereignty enjoyed by the states, and it proposes that the federal government should deal with the tribes on a government-to-government basis. Those two tenets are well established. President Reagan's Indian Policy extends them by making the most explicit statement at the Presidential level of the importance of moving Indians toward actual self-government.

That goal requires a concerted approach to strengthening both the economies and the governments of the tribes. The new Federal Indian Policy recognizes that tribal self-government is meaningless without economic prosperity. To this end, the President formed a Presidential Commission on Indian Reservation Economies, which has identified ways of strengthening the economic life of the reservations through changes in federal law, private sector involvement, and other means.

The Federal Indian Policy also calls for bolstering tribal governments so that they can move from dependency on federal funds and expertise into actual decision-making. To this end, the President has recommended training to help tribes develop managerial skills. He has also recommended action to clarify the legal privileges of tribal governments, especially in terms of tax status.

On November 8, 1984, EPA announced its own "Policy for the Administration of Environmental Programs on Indian Reservations." EPA was the first—and, to date, remains the only—agency of the federal government that has formulated its own version of the President's Federal Indian Policy. EPA stressed that the "keynote" of the agency's Indian policy, like the President's, would be "to give special consideration to tribal interests in making agency policy and to ensure the close involvement of tribal governments

In front of a sawmill, sprinklers spray water to prevent fungus growth on cut trees. This sawmill in Omak, Wash., is operated by the Colville Confederated Tribes.

in making decisions and managing environment programs affecting reservation lands." In practice, this would mean continuing the agency's ongoing efforts at protecting health and environmental quality on Indian reservations while gradually increasing Indian control over such programs.

Fiscal year 1985 was just beginning as EPA's Indian Policy was announced. The $5.7 million EPA expended on Indian projects during the year represented both an ongoing base of activities plus an increment of newly committed funds. Those projects were funded largely on an ad hoc basis by various EPA program offices (Air, Water, Pesticides, Solid Waste). EPA's Office of Federal Activities (OFA), headed by Allan Hirsch, has been assigned responsibility for monitoring their progress. OFA reports to EPA's Assistant Administrator for External Affairs, whose new incumbent is Jennifer Joy Manson.

EPA realized from the outset that tribal control over environmental protection would differ fundamentally from state control. After all, the environmental problems found on Indian reservations are far less complex than those that plague America's urban and industrial areas. Some reservations are beginning to feel the encroachment of pollution problems, especially those associated with mining and energy development, but most still enjoy a relatively pristine natural environment, marred only by isolated problems, such as faulty sewage treatment or waste disposal practices.

EPA has no desire to impose elaborate environmental programs on tribes that do not need them. The agency realizes that grinding poverty and massive unemployment are emergencies distracting tribal leaders from environmental protection. But EPA is finding that even tribes with the most pressing economic constraints take a keen interest in tackling whatever environmental problems face their reservations. Reverence for nature is so deeply ingrained in Indian culture that EPA does not have to propagandize for environmental protection. The interest is there but, all too frequently, the needed skills and resources are not.

EPA, for its part, is also running up against frustrating limitations. Almost all of EPA's statutes lack language empowering the agency to deal with Indian tribes in a way analogous to its dealings with the states. Congress is now considering amendments to three of EPA's most important statutes—the Clean Water Act, the Safe Drinking Water Act, and the Superfund law. These amendments will enable the agency to develop and fund on Indian reservations programs similar to those in the states—and eventually to delegate to the tribes authority over the water programs.

Progress is also being made along a number of different fronts. EPA's regional offices are increasing outreach and technical assistance efforts on Indian reservations. The agency is also gathering much-needed information about the nature of the problems on the reservations. With Americans for Indian Opportunity, EPA is sponsoring a national survey of Indian tribes. The results of this survey should be available next June. In addition, EPA's Superfund office has completed an initial survey of hazardous waste problems on 25 reservations, preparatory to a broader national survey.

EPA is also forging ahead with four pilot projects that will serve as prototypes to guide the agency in implementing its version of the Federal Indian Policy. Problems encountered in the pilot projects—and solutions formulated—will be valuable as the agency charts its course in the months and years ahead. Project funding comes from EPA, with additional resources furnished by the tribes themselves.

The pilot projects now in progress are:

- Region 5: A project on the Menominee Indian Reservation in northern Wisconsin for developing solid and hazardous waste management programs as well as surface and ground-water protection.

The Menominee Reservation consists of 233,000 heavily wooded acres in northern Wisconsin. Unlike most other tribes which were forcibly removed from their native lands in the nineteenth century, the Menominee Tribe has been in continuous possession of these forests since time immemorial.

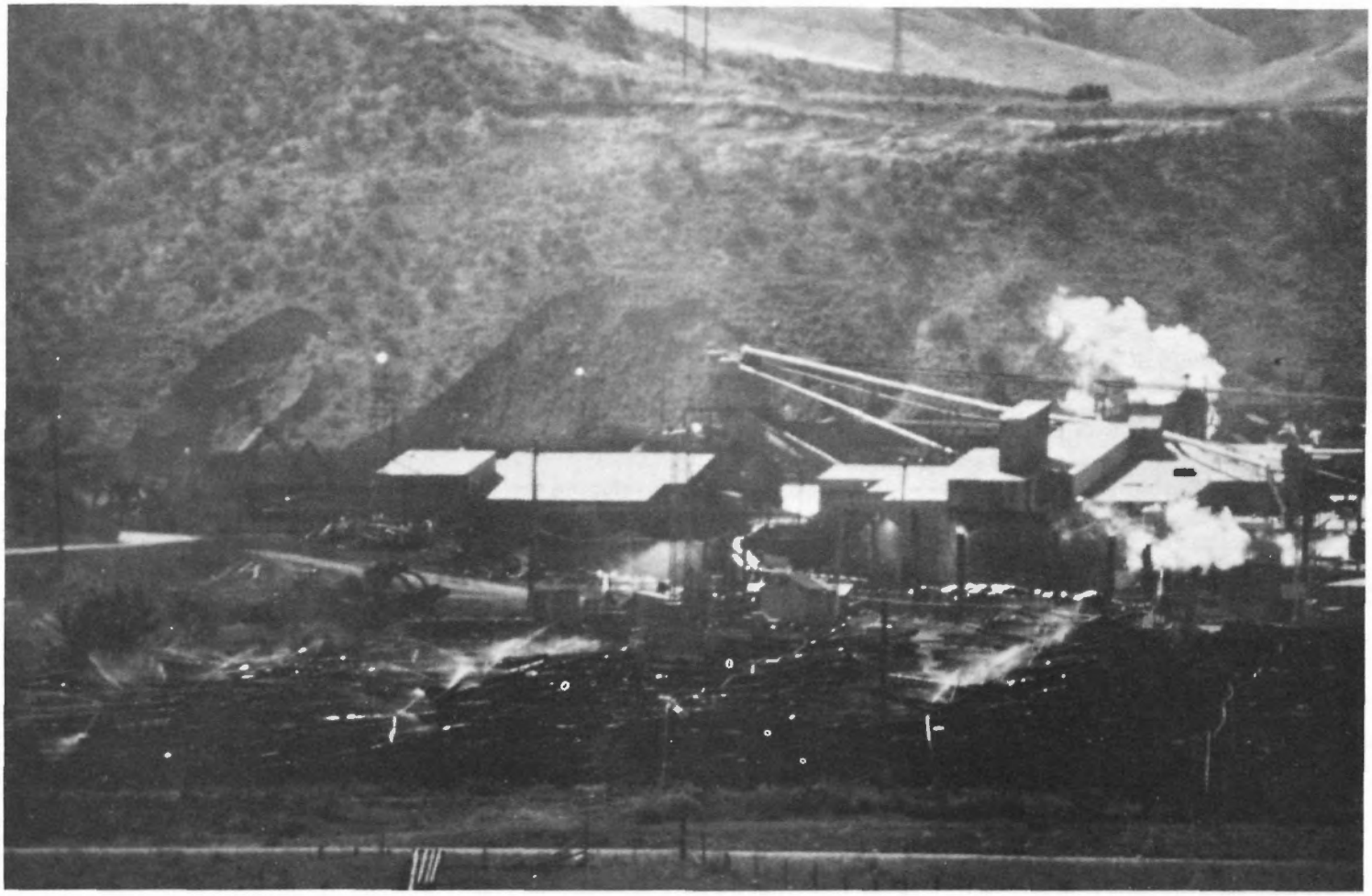
With a population of 6,500, the tribe does not generate a great deal of waste. The Menominee now have four open dumps for solid waste, recently inspected with the help of the Wisconsin Department of Natural Resources. The tribe plans to tighten requirements for future landfills—and if funds can be found, to upgrade those that exist.

When it comes to hazardous waste, the Menominee have decided to be even more stringent than the Resource Conservation and Recovery Act requires them to be. Their draft tribal regulation would altogether prohibit the disposal of hazardous waste on the Menominee Reservation.

The reservation has few sources of hazardous waste other than a sawmill and several gas stations. Menominee leaders hope to have outside collectors drive in to pick up their hazardous waste. Commercial collectors could be put off, however, if the tribe goes ahead with a proposed "user fee" on transporters of hazardous waste who use Menominee roads.

In 1986, the tribe hopes to draft water quality standards for surface and ground water. Of particular concern are inadequate sewage treatment and leaking underground storage tanks. However, additional funding may be required to complete this aspect of the pilot project, which is now running behind schedule.

- Region 8: A project on the Fort Berthold, N.D., reservation of the Three Affiliated Tribes (Hidatsa, Mandan, and Arikara) for the purpose of developing an integrated environmental protection program addressing problems in all media (air, water, pesticides, and solid waste).



The Three Affiliated Tribes live on 980,000 acres of prairie flatlands in western North Dakota. Aside from light industry and farm ranching, the reservation offers few employment opportunities to its 7,000 residents. Unemployment hovers at a staggering 80 percent.

Oil, natural gas, and coal have attracted companies to the region. These have generated leasing revenue, a few jobs for Indians, and many pollution problems. Air pollution is a particular concern. Hydrogen sulfide, for instance, emanates from many gas wells on the reservation.

During fiscal year 1985, the Affiliated Tribes received grant funds from EPA in the areas of air and pesticides. The air grant was used to set up two new monitoring stations, which have already gathered a great deal of valuable meteorological data. The pesticides funds went toward formulating the first Indian-drafted pesticides code that appears likely to receive EPA approval.

Progress was also made in the areas of water and solid waste. Some of the Fort Berthold pesticides money was used to monitor ground-water contamination from 700 improperly discarded pesticide containers, which the Tribes have removed. In addition, an EPA grant to the Council on Energy Resource Tribes has helped the Fort Berthold Tribes to develop a management plan for solid waste. This grant funded remedial action at open burning dumps as well as an inventory of the Tribes' solid waste facilities.

- Region 9: A project for developing a tribal implementation program to ensure visibility standards on the Navajo Reservation that spreads into New Mexico, Arizona, Utah, and Colorado.

Ensuring visibility standards is only the most ambitious aspect of this multi-faceted air project. By striving for the highest level of air quality, this project will also ensure that EPA's Prevention of Significant Deterioration (PSD) standards are met.

Concern for air quality on the Navajo reservation is certainly warranted. With 165,000 residents, it ranks as the most populous of American Indian reservations. These people live on a 16,000,000 acre reservation, which is the site of ambitious coal-mining operations. In addition, a variety of power plants—many serving distant cities—are generating pollution both on and off the reservation.

The EPA-Navajo pilot project will gather baseline air quality data and compile an emissions inventory of all pollution sources. The compilation of this data will begin next spring with the opening of the first of several monitoring stations. Data from these stations will be shared with interested state as well as federal agencies.

The objective is to develop an approved Tribal Implementation Plan. This will establish an ongoing air quality management program for the tribal government.

- Region 10: A project for implementing a Water Quality Management Plan on the reservation of the Confederated Colville Tribes in the State of Washington.

The Colville Tribes live on 1,400,000 acres in north central Washington. The

mountainous terrain of the reservation fosters a logging economy, but more than 50 percent of the tribe is unemployed.

Water Quality Management Plans are required under Section 208 of the Clean Water Act. The Colville Confederated Tribes are the first in the nation to develop the capability to implement their own plan.

The Colville Tribes met their financial commitment to the project, but found that staffing cutbacks stemming from a downturn in the timber industry left them with insufficient personnel to meet the project schedule. Supplementary funds from the Department of the Interior's Bureau of Indian Affairs are expected to become available early in 1986. These should permit the Colville Pilot Project to wrap up late in 1986.

Substantial progress has already been made. In January 1985, the Colville Business Council approved an important slate of tribal ordinances as components of its Water Quality Management Plan. These are very similar to those already adopted by the State of Washington, and therefore should foster harmonious tribal-state relations.

An Administrative Procedures Act—also passed in January 1985—has committed the Colville Tribes to fixed channels of appeal and judicial review when any of their Water Quality Management Plan decisions are contested. This has allayed the anxiety of non-Indians on the Colville Reservation who feared that their views would not receive a fair hearing. According to Deborah Gates of EPA Region 10, the Colville Administrative Procedures Act is so innovative that it "can serve as a model for other Tribes in developing environmental programs."

In August 1985, the Colville Tribes signed a Cooperative Agreement with the State of Washington. A comparable agreement between the Colville Tribes and EPA is nearing completion. These agreements mark important milestones in a federal/state/tribal relationship that has in the past been marred by litigation.

These steps toward developing the capability of four American Indian tribes to deal with their environmental problems represent progress. But they are still a far cry from integrated environmental programs on 278 reservations nationwide. For the foreseeable future, EPA will continue to play a very active role in seeing that environmental standards are met on the nation's Indian reservations.

EPA cannot meet such responsibilities without the vigorous support of all the agency's various program offices. A good example of the kind of support the programs can give is a training and technical assistance program sponsored by the Office of Drinking Water (ODW).

In August 1985, ODW awarded $140,000 to the Foundation of California State University at Sacramento to train 44 Indian water supply officers from seven reservations in Montana, Wyoming, Arizona, and New Mexico. Over the coming year, three different methods of training—correspondence lessons, classroom demonstration, and on-site demonstration—will be used to prepare these officers for the Water Supply Certification Tests in their various states.

Face-to-face contact is vital to the success of any project requiring cooperation with Indian tribes. That is why the field work of EPA's regional offices is so crucial. Most EPA regions have reservations, but Indian-related activity is most intense in Regions 5, 6, 8, 9, and 10.

The administrative tangles can get very complex. Take the Navajo Nation, for example. Every decision the Navajo tribe makes first must pass through a complex series of legislative and administrative decisions, just at the tribal level. Then the encroaching prerogatives of no fewer than four states must be considered: Arizona, New Mexico, Utah, and Colorado. Finally, the Navajo Division of Resources has to deal with three different EPA regions: Region 6 in Dallas, Region 8 in Denver, and Region 9 in San Francisco.

From this crazy quilt of conflicting cultures and jurisdictions, orderly progress does somehow emerge. It takes a lot of haggling and fine-tuning, and requires a never-ending interchange of ideas, skills, and resources. But no one on the Indian reservations of the United States would question the value of local control over local issues, and its superiority to the paternalistic and sometimes heartless policies of the past.

The prospects of making the Reagan Administration's Indian Policy a success seem particularly promising in the area of environmental protection. America's Indians bring to that mission a commitment to the sanctity of nature that is fully shared by EPA's staff and by EPA Administrator Lee M. Thomas. The transfer of control to tribal governments will be gradual, both because of the current atmosphere of fiscal stringency and the highly technical nature of EPA's programs. But the agency has a good start and can point to areas of real achievement. On this foundation, EPA will continue building in the years ahead, with the ever-increasing participation of America's tribal governments. □

The Environment from an Indian Perspective

by A. David Lester

A. David Lester

Non-Indians feel that they "own" the land and can "use" it like any other resource. American Indians think differently. We are truly people of the land. It is we who belong to the land in a spiritual sense much more than it belongs to us, in any material sense.

Our lands contain the dust of every Indian generation that has preceded us since the dawn of time. And it will hold the dust of all the future generations of our tribes who will enjoy the natural legacy and the cultural values that spring from our land.

We know that all life, including our own, is composed of three natural elements: land, water, and air. The harmony of these three elements is crucial to the cultural, spiritual, aesthetic, physical, and economic health of the tribes that live on America's reservations.

(In addition to serving as Executive Director of the Council of Energy Resource Tribes, Lester has also been Commissioner of the Administration for Native Americans in the U.S. Department of Health and Human Services and President of the United Indian Development Association.)

Non-Indians are just now awakening to the importance of a harmonious relationship with nature. In the past 20 years, the environmental movement has made great strides in non-Indian communities. What few people stop to realize is that Indians have been advocating environmentalism for time out of mind. We are the original environmentalists.

It is therefore no surprise that we welcome the precedent-setting EPA Indian Policy. A commitment to protecting natural resources is not something we have to learn from EPA. We strongly favor tribal self-government in this area, and we want to make it a reality as soon as possible.

We realize there will be technical and administrative hurdles to clear as the tribes assume a central role in implementing EPA's delegated federal programs and activities. But we also realize that this is the most simple and effective way for tribes to ensure that natural resources are protected and/or enhanced according to tribal desires.

We have learned that letting others set our priorities just does not work. Ever since valuable resources were discovered on the reservations, the tribes have been faced with very difficult decisions concerning how best to balance the development of natural resources with the protection of our environment.

In the past, tribes relied upon industry or the federal government to make provisions for protecting precious environmental resources. In many cases, the result was improper care or no care at all.

This practice of letting others attend to tribal resource decisions led to two predictable results. First, some tribes developed a "wait and see" attitude. They were paralyzed by the prospect of potential environmental degradation along with the technical complexity inherent in very large resource-development projects. Essential decisions were simply put on hold.

The second consequence was the development of jurisdictional confusion. It became unclear who had authority over environmental issues on Indian reservations. This, in turn, caused uncertainty among industry, the tribes, and the federal government concerning the regulatory requirements applicable to reservation projects. This jurisdictional void made it very difficult for proponents of energy development projects to properly plan proposed work on Indian lands.

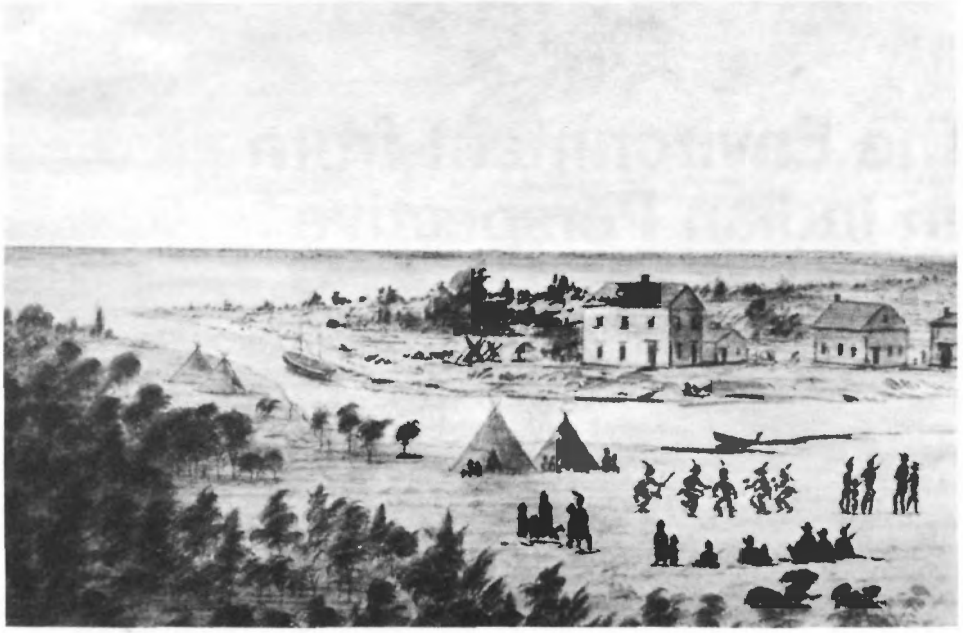
There have been many developers eyeing Indian resources in recent years. The irony of the situation is not lost on the tribes themselves. We remember how undesirable our lands were thought to be when the boundaries of most U.S. reservations were drawn in the nineteenth century.

America's 278 reservations are lands that were "reserved" as homelands for Indian tribes as they ceded, often under military duress, large tracts of valuable land in exchange for guaranteed security of their people, their reserved land, and their right to continue as self-governed political and cultural entities. A common misunderstanding is that Indian lands of today represent gifts from the federal government to Indians. The historical truth is the reverse: America's Indian reservations are the land the Indians did not give to the federal government.

At the time most designations of reservation lands took place, 150 years ago, the lands reserved to Indians were perceived, for the most part, as the least desirable real estate in the United States: large sections of what cartographers then called the "Great American Desert." Conventional wisdom in the nineteenth century held that Indians would become the "Vanishing Americans," slowly dying out on their "desert" reservations.

The twentieth century has held some

Pollution problems barely existed when artist George Catlin depicted an encampment of Indians in this "View of Chicago in 1834." Indians, says the author, are the "original environmentalists."



National Gallery of Art, Paul Mellon Collection

surprises for these pessimists. Indian population has increased six-fold since 1900, and a whopping 71 percent from 1970 to 1980. And the "desert" has yielded up riches beyond anyone's expectations. America's Indian reservations cover only three percent of the land in the United States, but the U.S. Department of the Interior has estimated that 25 percent of all the nation's mineral wealth is located on Indian lands. When resources such as timber, grasslands, and water are factored in the equation, it becomes apparent that protecting the Indian environment is a colossal undertaking.

In order to bring greater expertise to the management of these vast resources, the Council of Energy Resource Tribes (CERT) was formed in 1975. The 41 governing tribes of CERT represent nearly half of the U.S. Indian tribal population and have jurisdiction over 60 percent of all Indian lands in the United States. Collectively, CERT lands possess approximately one-third of the nation's recoverable low-sulphur coal, six percent of America's onshore oil and gas reserves, 50 percent of U.S. uranium deposits, plus large quantities of oil shale, tar sands, and other minerals such as phosphate, limestone, and copper.

Participation in CERT has been valuable training for tribes that will now be performing many environmental protection tasks once handled by EPA. Many tribes have already demonstrated, through action and hard work, that they are willing and able to take on these new responsibilities. But no American Indian tribe can separate new responsibilities from ancient obligations.

For example, members of the Jemez Pueblo Tribe took action when they became concerned about geothermal development near their reservation and the impact it might have on their sacred religious sites. The Hopi Tribe is developing its coal resources, but the tribe is giving careful consideration to the adverse archaeological impact of any mining activities. The Menominee Tribe is questioning what long-term impact proposed mining near its border will have on the tribe's Fox River. The Yakima Nation is interested in oil and gas development, but is also concerned about impacts on particular natural vegetation essential to the cultural survival of the tribe.

These are only a few examples of tribal environmental values which transcend criteria specified in federal laws and regulations. Indian values differ from those of non-Indians. We live in small communities, confined in many cases to a diminished land base. We have a total commitment to staying on that land for generations to come. Therefore, the tendency in the area of environmental protection is toward prevention of damage. If any disturbance occurs, we want to be sure the damage can be repaired.

The small number of people on Indian reservations and their limited land base dictate a unique and somewhat conservative approach to managing environmental resources. Tribes cannot afford such catastrophes as Times Beach or Love Canal where people suffer dislocation from their homes. In addition to the obvious health problems associated with hazardous waste, Indians fear the cultural trauma. To relocate tribal members from their homeland would adversely affect the well-being of the tribe far beyond any damage suffered by non-Indians. Indians simply cannot pull up roots and move as do nomadic Americans.

That is why American Indians are eager to make EPA's Indian Policy work. Tribes are already making environmental protection part of their governmental agenda. They are incorporating environmental values into the total tribal decision-making process. But much still needs to be done. And the tribes, as self-governing entities, will have to take the initiative to ensure that environmental protection actually does occur on reservations.

Indian tribes are aware that the maintenance of balance and harmony today requires more sophisticated management and technology than ever before in our long history. And if we are to fulfill our responsibilities as a people, we must obtain recognition of our self-governing right to regulate activities and enforce appropriate standards in concert with EPA.

EPA's Indian Policy is a giant step in that direction. It recognizes the right of the tribes to govern their own environmental programs. Furthermore, it commits EPA to providing the technical assistance and funding that will be necessary to carry out this task. And, importantly from the Indian standpoint, it recognizes that Indians will bring their own unique goals and values to protection of their environmental resources.

In the resulting evolution of tribal environmental management, tribes will be tailoring uncommon (and sometimes strict) sets of environmental standards. However, tribes fully recognize their responsibility to work in cooperation with their neighbors in the development and enforcement of such standards. This is inherent in all environmental laws. Simply stated, Indians only seek equity under these laws to work with EPA, the states, and others as partners in the common mission of managing scarce and important environmental resources. □

Cleanup Strides at a Gold Mine

by David Wann

As the largest gold mine in the western hemisphere, Homestake did have the financial flexibility to do what had to be done.

Wild Bill Hickock and Calamity Jane would have been amazed!

If those legendary figures of the Old West were alive today in Deadwood, S.D., they would no doubt be surprised to see the waters of Whitewood Creek running clear.

For over a century, the stream has been polluted by municipal wastes from the Black Hills towns of Deadwood and Lead, and by cyanide and arsenic from the Homestake gold mine and its smaller counterparts.

Even more amazing is the fact that cleanup of the creek has been accomplished in large part by the tiniest of all "varmints," cyanide-eating bacteria.

Until recently, not even the oldest of old-timers in this part of South Dakota could remember when the creek was anything more than an open sewer. But in recent months, a few have caught their limit of trout. South Dakota's Department of Water and Natural Resources (DWNR) has found a population explosion of brown, brook, and rainbow trout. What's more, the natural color of the creek is also returning to what it must have been more than 110 years ago, before gold was discovered by members of General Custer's 1874 expedition.

At one point in the creek's history, an attorney testified that its waters were "enriched" like the Nile by silt from the mines above, but historian Watson Parker saw it differently:

"The pollution produced by the Homestake—and indeed by all the mines—first stained the creek waters red from the cement ores and placers, then grey with the slimes from the mills, and the reek of cyanide hung over the valleys of Deadwood and the Whitewood like a curse."

The creek had come to be viewed by state and federal biologists as "the disgrace of the whole region." But what had been tolerable since 1881 became illegal with the passage of the federal Clean Water Act amendments of 1972.

That law, based on updated scientific information and an increased awareness of the environment's impact on public health, required the state of South Dakota to establish water quality standards for the creek and required the Homestake Mining Company to obtain a federally enforceable discharge permit.

The state defined Whitewood Creek as a "marginal cold-water fishery." This was the clean water goal which people such as South Dakota DWNR's Duane Murphy believed the creek should meet. It didn't happen quickly.

First came a protracted modern version of the frontier days shootout. Homestake went to court, challenging South Dakota's cold-water fishery determination. The case dragged on until both sides could see that a lot of energy was being wasted; times had changed and the law with them. By 1977, Homestake was required to meet federal and state standards or else pay hundreds of thousands of dollars in fines.

Homestake agreed to build a huge tailings pond, behind a dam 280 feet high and 1220 feet wide. Although the completed pond won commendations from the President's Council on Environmental Quality and the Environmental Industry Council, EPA insisted that a waste treatment plant would be needed in order to resurrect the creek. Homestake complied, but first attempts to chemically remove the pollutants failed. Total cyanide in the water, as defined by EPA, actually increased. Try as it would, Homestake couldn't meet the required standards.

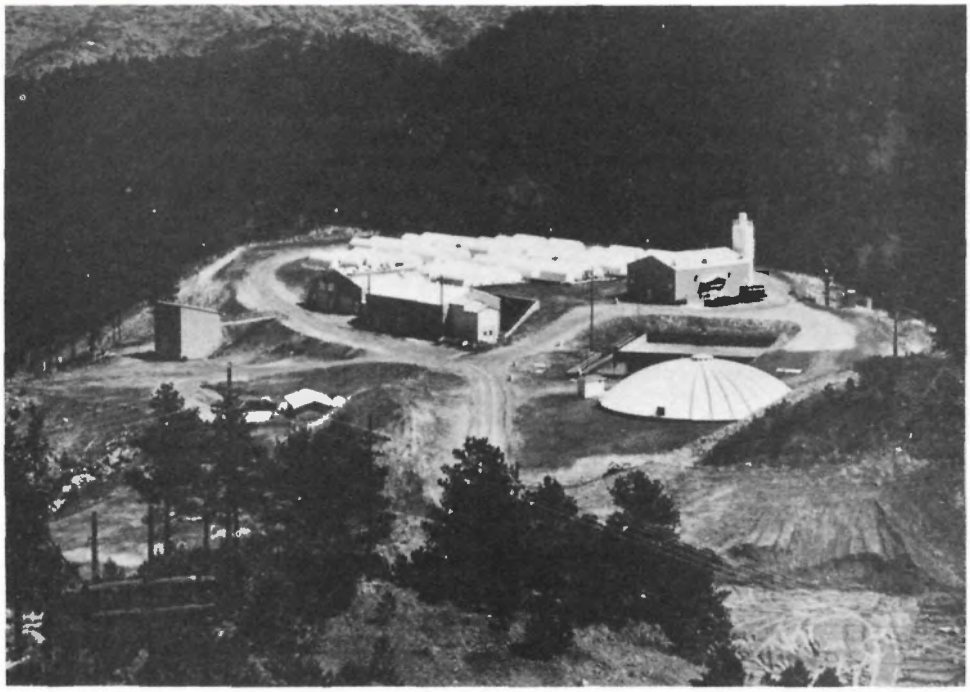
Meanwhile, the litigation continued and Whitewood Creek continued its polluted flow. By 1979, both sides began to redefine the problem. According to EPA's Rob Walline: "From Homestake's perspective, the litigation was not successfully providing a basis for long-term corporate planning and it wasn't helping its corporate image. And the company's potential civil liability penalty was growing each day. From the EPA and state perspectives, the litigation wasn't producing tangible environmental results and was just delaying efforts to engineer an effective water treatment system."

At this point, the company-government interaction began centering on technical rather than legal issues. Because treatment of mine wastes containing cyanide is different from treating cyanide by itself, a new approach was needed.

The agencies and individuals involved began to pool information. And, as the largest gold mine in the western hemisphere, Homestake did have the financial flexibility to do what had to be done. There was still a lot of gold to be mined in the area. The company decided it was in its best interest to accept responsibility for the development of an adequate treatment process.

A three-party consent decree permitted Homestake to extend the 1978 deadline for the treatment plant, and

(David Wann is a writer with the Office of External Affairs in EPA's Region 8 in Denver, Colo.)



Homestake Mining Company's wastewater treatment plant in South Dakota, where bacteria destroy cyanide mine wastes.

required the company to provide $390,000 for the rehabilitation of Whitewood Creek and to provide monthly progress reports to EPA and South Dakota. Also, there were to be regular technical meetings attended by federal, state, and company experts.

This agreement was to some extent a gamble. It contained no specific effluent limits for cyanide or other metals because it wasn't clear what results could be achieved. The engineers, lawyers, and scientists did agree on a common goal: the water in the creek would be clean enough for fish to survive.

Cooperative efforts have proved better for the environment than an endless legal shootout.

Because previous experiments, using every known cyanide-treating technology, had been unsuccessful, T.I. Mudder and J.C. Whitlock, Homestake chief environmental engineer and chief chemist, respectively, decided to test something new. They tried a bacterium which they could grow in the mine and which happened to have an appetite for cyanide. The resulting reduction in cyanide, as well as other heavy metals and compounds in the mine effluent, was impressive.

This innovative process, now patented by Homestake, is much less costly than the hydrogen peroxide treatment which would have been second choice, and it doesn't add chemicals which later have to be removed. On the basis of the early results with the bacteria, the compliance deadline was extended. But the decree stipulated that if, after all, the biological process didn't work, Homestake would have to install the peroxide plant or another high-removal-efficiency technology.

This has not proved necessary. The "little varmints" have risen to the occasion, converting ton after ton of the wastes into comparatively harmless sulfates, carbonates, and nitrates. In August 1984, the full-scale treatment plant went on line. In a tourist area dominated by frontier-style restaurants and saloons, Homestake Mine operates a very specialized kind of facility, 48 "rotating biological contactors" which serve as "all-you-can-eat" cafeterias for the bacteria. The plant also includes sand filtration, carbon adsorption, and heat exchangers to cool the discharge.

The results are dramatic. Within a month after the plant started functioning, algae and small fish were back in Whitewood Creek. Duane Murphy now has seen mayflies, stoneflies, caddis flies, snails, and several species of birds which had been strangers to the stream for many years.

EPA has been active in testing the creek's waters. Agency aquatic biologist Del Nimmo uses another innovative biological technique to measure toxicity. He uses a flea-like water-dwelling organism, *Ceriodaphnia affinis/dubia*, to make quick assessments. Just big enough to be seen, Nimmo's "varmint" has a life cycle of only four days, which enables the EPA scientists to gather definitive data concerning mortality as well as reproductive capability, and, says Nimmo, "most of the laboratory can be brought along in a jam jar."

In July 1983, Nimmo was working a stream near Whitewood Creek when he decided to try some of Whitewood's water out on his *Ceriodaphnia*. By comparing his results with similar data compiled right after the new plant started up 17 months later, Nimmo and his South Dakota colleagues were able to predict confidently that the creek was being "raised from the dead." Today, fish can safely migrate downstream from above the Homestake discharge point.

There are other problems which began in the days of Wild Bill and Calamity Jane that are still to be resolved. The stretch of the creek downstream of the mines has been designated a Superfund site, and studies are under way to determine the long-term impact which the accumulated wastes of 100-plus years (including mercury, arsenic, and cyanide) will have on human health and environment.

But for the people involved in the long process of regulatory compliance at Homestake, the reappearance of fish life in Whitewood Creek represents an ecological, legal, and technical triumph. Cooperative efforts have proved better for the environment than an endless legal shootout. □

Update

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

AIR

Response Planning

The agency has released to the states additional information and guidance materials in its program to help states and communities respond to emergencies from the release of toxic chemicals into the air.

Included in the new materials is a list of 402 acutely toxic chemicals, which, if released accidentally in sufficient quantities, could produce immediate (acute) adverse health effects to nearby populations unless appropriate emergency response is taken.

Auto Tampering

EPA announced that it is seeking a $262,500 civil penalty for violations of the Clean Air Act from the Atlas Processing Refinery and A&B Muffler Shops, both located in Louisiana.

The agency alleges that catalytic converters and other emissions control devices were removed from 60 company-owned vehicles used at the refinery, and that the A&B Muffler Shops were responsible for illegally removing at least 45 of the converters at the request of Atlas.

Removal of catalytic converters can cause increases in emissions of hydrocarbons, carbon monoxide, and nitrogen oxides.

Chrysler Recall

Chrysler Corporation is recalling about 348,000 1981 model year Dodge and Plymouth vehicles that are exceeding the federal hydrocarbon and carbon monoxide emission levels.

The cars affected are the Dodge Omni, 024, and Aries, and Plymouth Horizon, TC3, and Reliant models equipped with 2.2 liter engines. California vehicles are not included in the recall.

Chrysler agreed to recall the cars after EPA tests determined they exceeded the clean air tailpipe standards.

EPA said an air bleed assembly which will alter the air/fuel mixture burned by the engine will be added to the recalled vehicles to reduce the excessive exhaust emissions.

HAZARDOUS WASTE

Land Disposal Compliance

Preliminary EPA figures indicate that 492 hazardous waste land disposal facilities operating under interim status have certified compliance with ground-water monitoring and financial responsibility requirements, and have applied for final operating permits.

Approximately 1,600 land disposal facilities were authorized to operate under interim status prior to November 8, 1985. Congress, under the 1984 amendments to the Resource Conservation and Recovery Act (RCRA), required those facilities that intended to continue operations after November 8 to certify compliance. Those who could not comply were required to stop receiving hazardous waste on November 9, and must close in accordance with RCRA.

Non-certifying facilities which fail to stop operations or submit closure plans are subject to civil or criminal enforcement actions, including penalties.

Approximately 45 interim status facilities could not fully certify because they were unable to obtain liability insurance, one of the financial responsibility requirements.

PESTICIDES

Farmworker Protection Standards

EPA will propose revisions of its farmworker protection standards based on direct negotiations with those substantially affected by the standards.

EPA's 25-member advisory committee—with members from farmworker organizations, user and grower groups, pesticide producers and applicators, and state and federal agencies—will negotiate the following key issues: training and monitoring, re-entry intervals, notification, protective equipment, and enforcement.

The farmworker protection standard is the second pesticide project being explored through face-to-face negotiations among interested parties. The first, the proposed revision the regulation permitting emergency uses of pesticides, was completed and proposed earlier this year.

Final Pesticide Process

The agency is announcing final revisions in rules for initiating and conducting "special reviews" of pesticide products which may pose unreasonable risks to public health and the environment.

Special review (previously called the "rebuttable presumption against registration" or RPAR) of pesticides is a risk/benefit determination process that begins when the agency receives "validated tests or other significant evidence raising prudent concerns of unreasonable risks to man or the environment." The special review process is used by the agency in determining whether to initiate action to cancel, deny, or reclassify registration of a pesticide.

The major changes to the special review process will:

- Focus agency resources on pesticides which have significant potential for causing unreasonable effects.
- Expand opportunities for public participation.
- Formally change the name of RPAR to special review.

The public participation provisions of both the special review and registration standards programs are elements of a September 1984 settlement agreement between EPA and the Natural Resources Defense Council.

TOXICS

Dioxin Testing

EPA is proposing a rule requiring manufacturers to analyze 34 commercial chemicals for contamination by certain dioxins and furans, called halogenated dibenzo-p-dioxins (HDDs) and dibenzofurans (HDFs). Companies must report to EPA if certain levels are found.

These types of dioxins and furans may cause a persistent skin rash called chloracne in humans, as well as liver dysfunction, elevated blood cholesterol, nervousness, and other health problems. Tests on laboratory animals indicate that exposure to these substances may result in a rare form of cancer called soft tissue sarcoma.

If industry officials find these contaminants above certain concentrations in a chemical, they must report production, process, use, exposure, and disposal information to EPA as well as any relevant unpublished health and safety information and records of alleged adverse health and environmental effects. These data will be used by the agency in assessing the need for future regulation.

This action is one of several that have been initiated under EPA's two-year-old, $10 million dioxin investigation program.

Proposed Asbestos Phaseout

As the *Journal* went to press, EPA proposed to ban the manufacture, importation, and processing of asbestos in certain consumer products, and to phase out its use in other products. Any product that is not banned would be labeled as containing asbestos.

Acting under the Toxic Substances Control Act, EPA plans to immediately prohibit asbestos in five of the products in which it is most used: roofing felts, flooring felts (and felt-backed sheet flooring), vinyl-asbestos floor tile, asbestos cement pipe and fittings, and clothing.

In addition, all remaining domestic mining and importation of asbestos would be phased out over a ten-year period. The ten-year phaseout affecting other products would be accomplished via a permit system, under which EPA would allocate permission to mine or import a specific volume of asbestos per year.

WATER

Research Burn Permit

EPA has made a tentative decision to issue a research burn permit to Chemical Waste Management of Oak Brook, Ill., to incinerate chemical wastes at sea.

The research burn would provide more data on the technical and operational issues related to ocean incineration, as well as respond to the interest and questions about this technology from the scientific community and the general public.

The permit would authorize incineration research activities at the proposed North Atlantic incineration site, located 140 nautical miles east of Delaware Bay.

The proposed incineration will have minimal impact upon the marine environment, according to EPA. The agency said burning PCB wastes at the destruction efficiency of 99.9999 percent will release a maximum of .013 gallons of waste residue per day to the environment.

The permit would be effective for six months and would authorize the applicant to implement a research program designed by EPA. Liquid wastes containing 10 to 30 percent PCBs could be incinerated under terms of the permit. A maximum of 708,958 gallons of PCB waste would be incinerated. This amount of waste will allow EPA and the applicant to conduct an extensive set of tests using a single incinerator over a 19-day period. □

Appointments

J. Craig Potter

Linda Wilson Reed

J. Craig Potter has been nominated to be Assistant Administrator for EPA's Office of Air and Radiation. The position includes responsibility for setting and enforcing standards for national ambient air quality, hazardous air pollutants, new source performance standards, and those for the prevention of significant deterioration of air quality. Potter will also administer standards for mobile sources and establish and enforce national radiation standards.

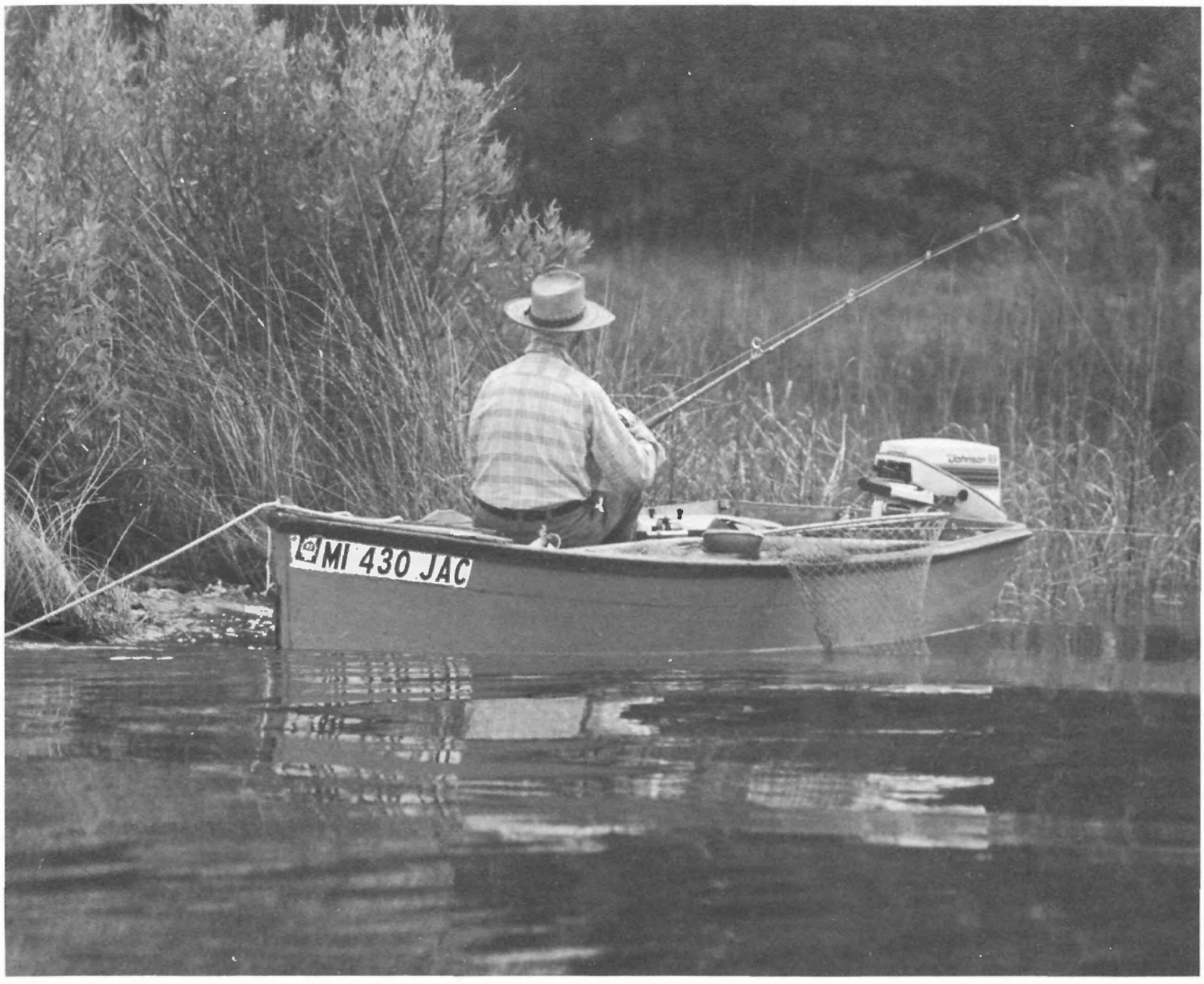
From 1981 until July of this year, Potter served with the Department of Interior, first as a special assistant to the Assistant Secretary for Fish and Wildlife and Parks, then for two years as the Principal Deputy Assistant Secretary, and finally as the Acting Assistant Secretary for Fish and Wildlife and Parks. Since July, he has been the Acting Executive Secretary of the National Fish and Wildlife Foundation.

Potter is a graduate of the University of Illinois and the University of Wyoming College of Law. Potter has served on the staff of the Senate Post Office and Civil Service Committee, the Senate Government Affairs Committee, and from January 1978 to March 1981 with the Senate Appropriations Committee.

Linda Wilson Reed has been appointed Director of EPA's Office of Public Affairs. She will be responsible for the agency's press office, publications, audiovisual services, and community involvement program.

Reed comes to EPA with extensive experience in management. From 1981 to 1985, she held public affairs policy positions with the Department of Education, the Science and Education Administration at the Department of Agriculture, the Federal Highway Administration, and the Office of Federal Contract Compliance at the Department of Labor.

Reed received a B.A. in distributive education in 1977 from the University of South Carolina and is active in the University's alumni association. □



Steve Delaney

A straw hat shades the eyes of a contented fisherman on a Mississippi bayou.

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