"People are angry about the government and they're tired of programs that don't work. They're concerned about the intrusiveness of government."

—Fred Krupp, Executive Director Environmental Defense Fund

INTRODUCTION

The political upheaval that occurred in November 1994 provides an opportunity to establish a new environmental agenda. This must be a positive agenda—one that will protect environmental quality and at the same time restore fiscal responsibility, lift onerous regulation, and promote the fair application of environmental laws.

There is no doubt that the congressional shift occurred in part because people were fed up with the rising tide of federal power. Early in 1994, environmental activists in Washington realized that they were running into trouble. Membership and contributions were beginning to wane. Grassroots members were disenchanted with the time activists spent lobbying in Washington rather than actively working to increase habitat for wildlife, improve public land management, or see that hazardous waste was cleaned up.

Legislatively, environmental activists had hit a wall. In a widely circulated memo, leaders of major environmental groups expressed alarm about what they disparagingly called an "unholy trinity" of popular demands. These demands included state and local opposition to unfunded mandates (federal requirements that states and local communities must meet), public insistence that regulations be assessed for costs and risks, and demands that private property rights be respected. These pressures forced the environmental leaders to shelve some of their legislative plans.

A Brief History

While the immediate cause of resistance was the aggressive plans of the Clinton administration, no recent administration has been immune from the extension of federal power in the name of environmental protection. Even Ronald Reagan was, indirectly, part of this trend. When he entered office, he appeared to have an anti-environmental agenda. Environmentalists feared the worst and masterfully publicized those fears to mobilize citizens. Contributions mounted, and activists stormed Washington and tightened their control of

environmental regulation.

George Bush's concerted effort to be viewed as the "environmental president" led to another surge of federal power as the EPA tried to stop the draining of wetlands, the Interior Department stepped up control of land in the name of endangered species protection, and the White House promoted a costly Clean Air Act. In 1993, the Clinton administration arrived with heavy backing by environmental groups and ambitious plans for "ecosystem management," creation of the National Biological Survey, and tighter regulation.

But these initiatives were the high-water mark of federal environmental regulation. Virtually all ran into opposition. The 1994 election results are a signal that the public will not accept such encroachment indefinitely.

Now, what is needed is a serious effort to "reinvent environmentalism" by bringing more reality and common sense to environmental policy. In some cases, this can be done by abandoning the excessive requirements of current laws. In others, it means introducing common-sense adaptations that

recognize the importance of incentives. In no case does it mean allowing people to behave in ways that cause serious harm to others.

Three Principles for a New Agenda

Our agenda reflects the insights that have guided PERC research for well over a decade. It builds on three basic principles (see Anderson and Leal 1991, and Gwartney and Stroup 1995).

Incentives matter.

When prices are determined by the government rather than the market, they change incentives, distorting people's decisions about how to use resources. These distortions often have severe environmental consequences.

When prices of a good or service are low, people demand more than they otherwise would. Low prices for federally provided water, for example, encourage excessive water use for agriculture and reduce water available for fish. Conversely, when

prices are artificially set high by the government, more is supplied than otherwise would be. For example, price supports for agriculture cause farmers to expand production to land that is only marginally suitable for crops. In spite of these harmful effects, government-determined prices are widespread because they serve the interests of narrow groups and the politicians those groups support.

The fact that Congress can force people to do what it wants at no direct cost to itself also distorts the way resources are used. Congress passed the Endangered Species Act, authorizing the U.S. Fish and Wildlife Service to control private and public lands without compensating landowners or other users of public lands. With such power at their command, Fish and Wildlife officials have little reason to think carefully about how many acres they regulate or how severe their regulations are—until a backlash occurs. At the same time, this control by the Fish and Wildlife Service causes endangered species to become the enemy of landowners and those who use public

land.

Similarly, Congress can mandate costly actions by municipalities without having to provide any funding to carry them out. Because it does not have to pay the cost, Congress tends to make extreme demands, such as requiring costly sewage treatment, even though they may accomplish little good.

Because incentives matter, price distortions should be removed. Prices of commodities supplied by the federal government should be brought more into line with market levels. And the costs that Congress and government officials ignore because someone else is paying them should be made explicit by putting these costs "on-budget." The government should pay for what it demands.

Secure and tradeable property rights encourage cooperation and resource stewardship.

Many environmental problems occur because the rights to use resources are not secure and cannot be traded. They are "up for grabs," determined by

political clout rather than market competition.

Grazing on public lands is a classic example of insecure property rights. Because grazing rights are controlled by government officials, current holders of the rights know that their allotments can be reduced at any time through political fiat. Thus, they must constantly devote attention and resources to maintaining their political clout, waging political war against other potential uses. Knowing that they might soon lose control also makes them less willing to forgo benefits or make sacrifices to preserve the value of the land. Secure ownership would increase their interest in protecting the long-term value of the land.

Another problem on the public lands is that many rights are not fully tradeable. Owners of grazing rights, for example, cannot lease or sell them to environmentalists who would retire the land from grazing; the permits can only be transferred to other livestock grazers. If permits were fully tradeable, environmentalists could retire them or perhaps figure out how small changes in grazing practices could accomplish their goals of

preservation. Similarly, environmental groups should be able to bid on federal timber sales and, if they win the bids, modify or retire the logging rights. In this way they could preserve trees or acquire endangered species habitat, achieving their goals without the rancor and gridlock of politics.

Polluters should be liable for harms they cause others (and only for such harms).

Individuals have the right not to be seriously harmed or threatened by pollution from others, just as they have the right not to be assaulted. In the past, people protected their rights by going to court when necessary to stop pollution or to obtain compensation for pollution that had occurred.

This property rights approach to controlling pollution was not perfect, but it had a number of advantages over regulatory programs. For example, it focused on actual harm rather than emissions, which may not in themselves be a problem. Also, it allowed rights to be traded when both polluter and

recipient could find a mutually beneficial solution, and it did not require the creation of vast bureaucracies that adopt costly approaches to address minuscule risks.

While we may not be able to go back completely to the previous system of common law, our policies need to focus on prevention of harm rather than prevention of waste per se. People should be accountable for their actions when those actions are shown to be wrongful. And environmental authorities, like all government authorities, should be subject to budget constraints and to serious judicial review.

From these three principles, a new "common sense" agenda for environmentalism can be built. The new agenda should be acceptable to environmentalists because it will protect the environment where serious environmental threats occur, and it should be welcomed by the broader public because it will be cost-effective. Astute politicians should be able to build new coalitions supportive of these policy changes.

LEGISLATIVE ISSUES

of Because growing opposition to command-and-control regulation, little environmental legislation was enacted during important 1994. Yet a number of environmental laws due for are reauthorization, will and Congress undoubtedly consider some of them. These recommendations are not exhaustive, but they address the major environmental issues that will confront the 104th Congress.

THE CLEAN WATER ACT By Bruce Yandle

For two decades, the regulatory blueprint contained in the 1972 Federal Water Pollution Control Act has set the pattern for protecting water quality in the nation's rivers and streams.

Initially, the act set an impossible goal—eliminating all discharges into the nation's rivers and streams by 1985. While the act was amended to be more realistic, its focus remains on point-source or "end-of-the-pipe" discharges, with the requirement of specific technologies as the regulatory instrument.

The act has generated some notable success stories, particularly in densely populated regions, where industrial dischargers now largely meet federal standards. But compliance is costing Americans \$30 billion a year and, according to research by Resources for the Future, a nonpartisan think tank, the improvements are not proportional to the increases in spending. Municipal pollution from storm sewers and nonpoint source pollution, especially from agricultural operations and construction sites, prevent receiving waters from meeting ambient water quality standards.

Further progress in improving water quality will require moving away from the command-and-control approach, which is poorly suited to dealing with nonpoint pollution. The

Environmental Protection Agency has made a first step in this direction by focusing on river basin management. Enormous efficiency gains are possible with this approach. Working with set water communities, states can quality standards for rivers and streams. Those who discharge into the river or stream can be given complete flexibility for meeting those standards by trading among themselves. North Carolina's Tar-Pamlico River Basin Association provides a model success story of this approach (Riggs 1993). Property rights and market trading can unite and industry, municipalities cost-reducing efforts that can significantly improve water quality.

Another major regulatory focal point of the Clean Water Act is wetlands. Officials have interpreted Section 404 of the Clean Water Act to require protection of wetlands, not just rivers and streams. Seventy-five percent of the targeted wetlands are privately owned. This means that farmers and other landowners can face criminal sanctions for having cultivated portions of fields

that are wet only periodically without first obtaining a Corps of Engineers discharge permit. Where land use is denied through the permit process, compensation is generally not paid.

When wetlands are private property, using them to produce a public good like wetland habitat should require full compensation, as it has in the past. Recognition of property rights and the cost that governmental takings impose on citizens will generate a logical, less controversial, and therefore more effective approach to wetlands protection. At the very least, violation of Section 404 should be decriminalized.

Where possible, common law remedies and citizen action under the law of private and public nuisance should be substituted for centralized command-and-control regulation (see Meiners and Yandle 1994). Citizens once again should be empowered and encouraged to bring private suits against any party who violates rights and imposes damage to person or property by pollution. Judges should be encouraged to require scientific evidence of harm, which is the common-law norm, and the

English rule of "loser pays" (attorneys' fees and legal costs) should be adopted to minimize frivolous suits and to avoid legal harassment.

Finally, the EPA should be required to expand and improve the national system of water monitoring and to provide annual data on the condition and progress made toward achieving water quality goals on each U.S. river basin. This database would allow governments and citizens to determine whether standards are being met.

Policy Recommendations

- Focus on setting locally-determined water quality standards rather than prescribing specific control technology.
- To address non-point pollution, encourage the formation of river basin management systems that rely on markets and property rights.
- Pay compensation where wetlands are used

to produce wetland habitat, and decriminalize enforcement of wetlands regulation.

- Expand the use of common law remedies for protecting environmental rights.
- Expand the national system of water quality monitoring, and require an annual report on river basin conditions and the progress made toward environmental goals.

THE ENDANGERED SPECIES ACT By Richard L. Stroup

The Endangered Species Act (ESA) gives the U.S. Fish and Wildlife Service control over any land on which the agency finds endangered species. The federal government can block logging, development, farming, or any other land use to protect listed species. This power exists regardless of the cost to the landowner and without any obligation to

compensate the owner.

The unintended result is that listed species become the landowner's enemy, and habitat attractive to those species is often cleared or modified to keep the species away. Animals reportedly are even shot and quietly buried. Given the perverse incentives created by the act, it is not surprising that the Fish and Wildlife Service has only removed twenty-four species from the list of endangered or threatened species, and seven of the twenty-four were delisted because they became extinct.

If landowners were compensated for producing habitat for animals, the incentive to save species would become positive rather than negative, and endangered species would be welcome on private land. Some private groups such as The Nature Conservancy recognize that incentives matter, and therefore purchase or lease land for endangered species habitat.

The ESA also has damaging effects on public land. The decision to set aside vast amounts of acreage to protect the northern spotted owl, a

threatened species, caused the Forest Service to stop logging in many areas and has led to the shutdown of timber mills and loss of jobs. Environmentalists wanted even more land set aside, because they did not have to pay the costs of protecting the owl and the forests.

A better approach would be to change the ESA and other federal laws to allow environmental groups to bid on federal land use for environmental purposes, including protection of endangered species. They could compete with timber companies for timber harvests. However, if they won a bid, they could leave the trees standing (or cut selectively in ways that encourage protection). This ability would expand preservation efforts, productively enlist the private sector, change the incentives for federal land managers, and improve the Fish and Wildlife Service's poor success rate in protecting endangered species.

Policy Recommendations

Modify the ESA to require compensation of

private landowners when it imposes habitat management rules that reduce the land's value. Compensation could be achieved through rental payments or the purchase of conservation easements.

- Change the ESA and other federal laws to allow private individuals or groups to bid on the use of federal lands for protection of endangered species.
- Prioritize species protection. Include in Section 2 a clarifying statement that since the purpose of the Act is to preserve rare genetic material through the conservation of species and the habitats they depend on, priority will go to those habitats that enhance the survival of species without close genetic relatives.

THE 1995 FARM BILL
By B. Delworth Gardner

Agricultural subsidies designed to support incomes of farmers and rural communities are highly diverse. They include direct support or "target" prices for certain crops, including wheat, the feed grains, cotton and rice; fixed prices for sugar, milk, peanuts, tobacco, wool, and honey, propped up by import quotas and support controls; direct payments to exporters of designated commodities; credit and water subsidies; and payments to farmers for soil and wetland conservation. Indirect subsidies result from demand enhancement programs such as food stamps for the poor, school lunches, and foreign aid to developing countries.

Not only do these subsidies create a huge and costly bureaucratic structure that distorts market signals and causes inefficient resource use, they also promote environmental degradation. Subsidies encourage the extension of crop production onto submarginal land that is vulnerable to soil erosion or waterlogging. Without the subsidies, such land might, instead, provide valuable wildlife habitat.

Subsidies and accompanying acreage set-asides have also made it profitable for farmers to employ greater quantities of chemicals (fertilizers, herbicides, insecticides and fungicides) that contaminate soil and water.

Other costly programs such as the soil conservation reserve program (CRP) and the wetland reserve program (WRP) are then established to offset the perverse results of subsidies. The CRP, however, has not been cost-effective in protecting erodible soils or in providing wildlife habitat, and the WRP has been so heavy-handed and bureaucratic that it has aroused fierce opposition among landowners and farmers.

Correcting these problems begins with the elimination of subsidies to the extent possible. If that is not politically feasible, more limited steps toward allowing market forces to operate should be implemented.

Policy Recommendations

Ideally, subsidy programs should be

eliminated altogether. Farmers who bear the full cost of their actions will be more careful stewards of the environment.

- Costly government programs providing disaster relief and subsidized crop insurance should be abandoned in favor of private insurance programs.
- If the complete elimination of subsidies is politically infeasible, subsidies should be "decoupled" from production; that is, payments to farmers should not depend on the quantity produced. This decoupling would sharply reduce incentives to produce on risky and erodible land and to use excessive quantities of chemicals.
- If complete decoupling is politically impossible, then increasing the "flex" set-aside acreage (acres where price-supported crops are not allowed but other profitable crops are) would be highly

desirable. This would give farmers more freedom to manage their resources and would reduce regulatory costs.

 Finally, if price supports are extended, linking payments to frozen "base" acreage and to historic "program" yields should continue. This reduces incentives to expand erodible acreage and use more toxic chemicals.

SUPERFUND By Richard L. Stroup

Superfund, the federal program to clean up abandoned hazardous waste sites, is a program out of control. It costs Americans billions of dollars a year and produces few demonstrable health or environmental benefits, as the Environmental Protection Agency (EPA) initiates costly cleanup actions that do little or nothing to reduce harms or serious risks.

The three worst flaws of the Superfund program are exaggerated estimates of harm from

Superfund sites, extremely high cleanup standards, and excessive expenditures (see Stroup and Goodman 1994).

The EPA routinely misleads people about the dangers of sites on the Superfund list. It estimates the dangers that might accrue if people experienced "reasonable maximum exposure" to the site's contamination. Its risk analysis strings together extreme assumptions that exaggerate expected risks by 100, 1000, or even 10,000 times. The EPA does not tell citizens the expected or most likely risk, but only the risk associated with worst-case scenarios.

As a result, the risks posed by most Superfund sites are mostly imaginary. According to Hamilton and Viscusi (1993, 18), who studied 77 representative Superfund sites, 92% of the cancer risk is imagined future risk to people who might conceivably live on the site and not to the people currently living nearby.

Cleanup standards are also extreme. For example, the EPA authorizes remediation of Superfund sites if they pose as little as a

1-in-a-million chance of causing an additional cancer death. Yet each person living in the United States for 70 years has a 4.2-in-a-million chance of being killed by a falling airplane sometime during his or her life (see Goldstein et al. 1992). We do not stop planes from flying or take extraordinary precautions when we go outdoors. Why should we pay an average of \$30 million per Superfund site to reduce even smaller risks?

The law requires the EPA to propose cleanup plans without regard to cost. Only at the last stage, when alternative plans are being compared, is cost even considered, and even then, the EPA is free to ignore it. To restore a semblance of control over Superfund costs, Congress must require the EPA to seek the lowest feasible cost of meeting the risk-reduction targets it selects.

Policy Recommendations

 When assessing risks at Superfund sites, the EPA should be required to reveal the full range of risk estimates (not just the extreme

high end), and to base its estimates on more reasonable assumptions about concentrations and toxicity of chemicals and about human exposure. The EPA should also reveal the future changes in land use it assumes when it calculates the "reasonable maximum exposure" to hazardous chemicals.

- The EPA should be required to aim at reducing risk to a level accepted in other federal regulatory agencies, not a level far more stringent.
- The EPA should be required to consider costs explicitly in the remediation actions it orders and to choose the least costly method that can reach the target level of remaining risk.
- Congress should require the EPA to study the feasibility of privatization of Superfund sites.
 A buyer (or the current owner) would assume common-law liability for damages to others from the site, but Superfund liability

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as such would not apply.

PUBLIC LAND MANAGEMENT

In parts of the nation, especially the West, few issues are more contentious than the management of federal lands. Established with the idea that competing uses could be scientifically balanced, public land management has become a political football fumbled from one side to another (see Nelson 1995). Generally, the game pits recreational and environmental interest groups against commodity users, with taxpayers paying for the resulting budget deficits.

But there are ways to end the gridlock. First, we should allow environmental users to compete in the marketplace with other public land users. Second, we should recognize existing private rights to public land use and allow those rights to be traded. (For more details see Anderson 1994.)

RECREATION By Terry L. Anderson

Recreational and environmental interest groups are quick to argue that commodity users on federal lands receive big subsidies, but the data show that recreation generates the lion's share of the drain on the federal treasury from public land usage. For fiscal year 1993 total federal expenditures on recreation exceeded receipts by more than a billion dollars (see Anderson 1994).

Furthermore, data from the Wilderness Society (1994) show that national forests in fiscal year 1993 lost \$557 million from commodity uses (timber, grazing, and mining), compared to recreation losses of \$474 million. The recreation figure ignores expenditures of \$305 million for resource stewardship such as recovery of endangered species; arguably, this amount should be allocated to recreational and environmental costs.

Recognizing that commodity users paid \$1.2 billion into the treasury in fiscal year 1994, while recreationists and environmentalists paid only \$49 million, it is not surprising that the former get more attention from federal bureaucrats, since their budgets depend in part on those receipts. The introduction of realistic fees for recreation on public land would correct this imbalance.

Policy Recommendations

- Institute a recreation fee for public lands. To use federal lands for recreation, people (over 12 years of age) would purchase an annual recreation stamp similar to the federal duck stamp that hunters purchase today. The price of the stamp would be \$20 and allow hunting, fishing, hiking; additional fees would be charged for camping where facilities are provided.
- Allocate a share of the fees to each federal agency with jurisdiction over public land,

with the share based on user-days. Within each agency, allocate fees to local districts on the basis of user-days.

 Earmark a share of the annual fees to a "Biodiversity Trust Fund" that would operate in a way similar to the National Science Foundation; grantees could seek funds for endangered species research or habitat preservation.

TIMBER By Donald R. Leal

In fiscal year 1993 Forest Service timber operations generated losses of \$614 million. This substantial loss leads many environmental activists to conclude that below-cost timber sales are a subsidy to the timber industry.

Actually, however, they are not. According to the dictionary, a subsidy is "financial assistance given by one person or government to another." While below-cost timber sales represent a loss to the taxpayer, they do not benefit the timber industry, at least in most cases. Most Forest Service timber sales are bid competitively; as long as there is genuine competition, the buyers that win the bid are paying the market price.

The main reason for Forest Service losses, it appears, is excessive bureaucratic costs, rather than below-market prices. A recent study (Leal 1994) compared the national forests in Montana with the state forests of Montana. On similar land and under similar conditions, the state of Montana is able to make money, while the Forest Service loses money. From 1988 through 1992, the state's timber sales generated nearly \$14 million in income, while the ten national forests in Montana showed a cumulative loss of \$42 million.

The study found that the federal government expends more than twice as much money per thousand board feet of timber harvested than the state of Montana does. Yet a statewide audit indicates that state foresters do a better job of protecting environmental amenities such as water

quality and wildlife habitat.

If the Forest Service is required to make a profit on its sales, below-cost timber sales will end. To improve monitoring of timber operations, Congress should consider the model adopted by state lands. Since the "profits" or net proceeds help finance the state's schools, school officials insist that the state lands earn net revenues. In a similar way, if a share of Forest Service "profits" went to a "Biodiversity Trust Fund," environmentalists would encourage timber operations that are both business-like and environmentally protective.

Policy Recommendations

- Require federal forests managed by the U.S.
 Forest Service and the Bureau of Land
 Management to pay for expenses out of receipts at the district level.
- Earmark a share of "profits" from forest management to a "Biodiversity Trust Fund."
 The directors of the fund would have an

incentive to oversee forest management, just as school officials oversee the generation of school trust funds.

- Allow district managers to sell or auction viewshed easements on federal lands.
- Allow timber to be purchased with an option not to harvest. This would allow environmental and recreational interests to express their demands through the marketplace.

GRAZING

By Myles J. Watts and Jeffrey T. LaFrance

Grazing has come under attack from environmental groups who argue that ranchers are receiving subsidy in the form of below-market-value grazing fees. Grazing does lose money for the U. S. Treasury. For example, in fiscal year 1993, grazing on national forests generated \$12 million in revenue, but generated \$72 million

in expenditures, leading to a net loss of \$60 million.

However, the extent to which the fees are below the value of grazing received is highly uncertain and controversial. For one thing, there is a single nationwide grazing fee, but grazing conditions vary substantially around the country. The federal fee may be higher than market rates in some parts of the country, but lower in others. Also, many factors influence the value of a grazing permit. In some cases, the lessee of federal grazing rights may have to make significant investments, such as building fences or digging wells, that are not necessary on leased private land.

A second criticism of grazing policy is that grazing causes environmental degradation and competes with wildlife for habitat and forage. Again, the debate is contentious. As long as grazing rights are secure, there is good evidence that the owners of these rights act as good resource stewards. When grazing rights become less secure, the incentive for stewardship dwindles. The confidence that grazers have in the security of their federal leases has declined dramatically in the past

twenty years. According to our estimates, this confidence fell from 97% in 1973 to 18% in 1993 (see Watts and LaFrance 1994). Such a decline adversely affects stewardship.

The goal of policy changes should be to make grazing rights secure by selling them to current users, who have ownership in many respects already. Owners should be allowed to sell or lease them to individuals or groups who may decide to retire them.

Policy Recommendations

- Privatize grazing permits. This can be done by selling the rights to the current permittee at a price equal to or slightly above the discounted present value of the current grazing fee payments.
- Allow owners of permits to sell or lease them to grazers or to non-grazers (for example, hunting organizations or environmental groups), who may choose not to use the

permit for grazing.

 A portion of the proceeds from the sale of permits should be made available to recreational and environmental groups to purchase and manage public land currently used for livestock grazing. These funds could be awarded through a grant application system similar to that used by the National Science Foundation.

MINING By John L. Dobra

Contrary to the impressions of some, reform of the 1872 Mining Law is not a pressing environmental issue. The U.S. mining industry must obey the environmental laws and regulations that apply to all industries. Virtually all the environmental impacts of mining that have been discussed in the reform debate are the results of mining prior to the passage of the major environ-

mental laws in the 1970s.

Nor is mining law reform a pressing federal land-use issue. The acreage actually disturbed by mining activity is minuscule. Since European settlement, less than three-tenths of one percent of the nation's 2.27 billion acres have been impacted by mining, and one third of that has been reclaimed. Moreover, 63% of federal land is already closed to mineral entry (Dobra 1994).

The mining laws simply provide a mechanism for exploring and mining to occur by transferring mineral rights (and surface rights to mineral lands) from federal to private ownership. The discoverer of a mineral deposit can "claim" the mineral rights and, if the deposit can be developed into an economically viable mine, acquire full fee-simple ownership of both mineral and surface rights by "patenting" the claim.

In the current policy setting, however, the debate over mining is intractable. Reformers, primarily environmental activists, object to the conveyance of mineral rights without a federal royalty and consider patenting at non-market

prices as "giveaways," or corporate welfare. They see these fiscal issues as a way of diminishing mining activity in the U.S., and this approach is working. Mining companies view the far-reaching changes proposed by environmental groups as undermining the security of their property rights in the U.S. and are already abandoning the U.S. in favor of mining on foreign shores.

Fortunately, some reforms would be both consistent with fiscal prudence and would be ones that mining companies could adapt to. First, mineral lands could be patented at market values instead of \$2.50 per acre. Second, the federal government could retain the right to a reasonable net royalty (rather than a gross royalty) when mineral rights are transferred. Third, claimholders could be required to demonstrate due diligence. The additional funds generated by these changes could be used to reclaim mines abandoned before the passage of environmental laws.

In addition, the concept of patenting (obtaining ownership of a specific resource by showing due diligence in developing the allowed use) could be

expanded to include the patenting of federal lands for environmental purposes. Those who patent mining claims must show "due diligence" in using federal property for mining. Similarly, private groups or private/public partnerships that could show "due diligence" in managing federal land for purposes such as wetlands or wildlife protection could acquire ownership. This would create markets for the environmental amenities on federal lands.

Policy Recommendations

- Set patent fees at levels consistent with current market values for surface rights and mineral exploration costs. Eliminate the recently enacted \$100 claim holding fee and impose reasonable diligence requirements in its place.
- Base any royalty on the value of minerals net of discovery and production costs, allowing the discoverer a sufficient return to preserve incentives for discovery. (Any federal royalty should reflect the value of

what the federal government actually owns, which is land with undiscovered minerals.)

- Expand the concept of patenting to other resource uses to protect environmental amenities. Patentees would be required to demonstrate due diligence by achieving environmental goals such as protecting endangered species habitat.
- Where there is concern about the impact of mining on environmentally sensitive lands such as national parks, Congress should appropriate funds to purchase existing mining claims.

WATER AND FISHERIES MANAGEMENT

Like public lands, the nation's water resources are the subject of constant contention. But it does not have to be that way. By introducing market approaches to federal water, and by creating opportunities for sole-ownership fisheries, present problems can be largely overcome.

FEDERAL WATER PROJECTS By Terry L. Anderson

Federal water projects have a notorious reputation for their drain on the federal treasury. Since the federal government began supplying water in 1902, it has subsidized 86% of all irrigation construction costs (Wahl 1989, 36). Cheap water leads users to have an unquenchable thirst for excessive amounts of water.

The environmental consequences of these subsidies are becoming increasingly obvious. Of course, dams eliminate free-flowing rivers, but in addition, excessive irrigation water often carries pesticides, herbicides, salts and trace elements from the soil into rivers, lakes, and wetlands. In the infamous case of the Kesterson Wildlife Refuge, birds died or hatched deformed offspring because of excess selenium in the soil caused by run-off irrigation water.

Subsidized water use has also hastened the demise of salmon in the Columbia River Basin. Irrigators, hydropower users, and municipalities do not want to give up their cheap water to increase flows for salmon.

While it may not be possible to eliminate the subsidies to federal water, or even to significantly reduce them, there are ways to bring markets into water usage that will lead to less waste and more environmental benefits. The simplest and most basic reform would be to allow recipients of federal project water to sell or lease their rights at whatever price they can obtain. Municipalities and

other users that must now pay high prices to store and deliver new sources of water could offer attractive prices and at the same time save themselves money. By obtaining water this way, they would not have to build more dams and canals, and farmers and ranchers would be less likely to waste water. Environmentalists should be allowed to purchase water, too, and leave it in the stream.

Policy Recommendations

- Stop federal funding of subsidized water projects.
- Allow existing users of water from federal water projects to sell their water at a profit.
- Allow private groups to purchase water and leave it instream for fish and wildlife habitat.

FISHERIES MANAGEMENT

By Donald R. Leal

Many fish populations in U.S. waters are severely depleted, and many coastal fishing communities face the prospect of economic ruin. In 1993 alone, the total harvest from Atlantic fisheries from Maine to New Jersey dropped 30 percent. The cause is not intrusion by foreign fishermen, since a 200-mile coastal zone assures national control over more than 90% of U.S. fisheries. The problem is that government policies fail to create strong incentives for husbanding the ocean resource. Instead, they perpetuate a common-property framework which encourages overfishing and economic waste.

While state and federal governments have monopolized modern management of most fisheries, there are significant historical examples of sole-ownership fisheries that conserved fish populations (Anderson and Leal 1994). For example, prior to white settlement, American Indians established exclusive fishing territories along the Columbia River, successfully controlled access,

and ensured sustainable harvests from the salmon fishery.

From the 1930s through the 1950s, fishing cooperatives effectively controlled access to Gulf Coast shrimp fishing grounds, sustaining the fisheries and maintaining economic returns for the fishermen in the cooperatives. (The courts, however, ended such arrangements by ruling that the cooperatives violated anti-trust laws.) In Maine even today, lobster fishermen form harbor "gangs" that effectively limit entry and ensure stable lobster populations.

Modern sole-ownership fisheries offer an alternative to current management of fisheries. With sole ownership, there is a chance to create the proper incentives for husbanding the resource.

So far, the only real innovation in fishery management has come in the form of individual transferable quotas or ITQs. With ITQs, fishermen have a right to a specific share of the fish catch. Because the fishermen can take their share when they wish, the derby-like race to catch fish is eliminated, and the fishery is more easily preserved.

However, ITQs have flaws. They create an incentive to "high grade," or land only the best fish, and this leads to waste. Also, determination of the annual total allowable catch is still left in the political arena, where divisiveness often rules.

Under sole ownership, a corporation or cooperative would acquire the fishery. Ownership shares in the corporation or cooperative could be allocated to fishermen. But unlike ITQs, which represent ownership of a portion of one year's catch, these shares would represent ownership of a portion of the total profits from the fishery. The corporation then could specify where, when, and how much to harvest, with the goal of maximizing profits from the fishery. Thus, all participants would have an incentive to encourage the fishery's long-term preservation. This approach is patterned after unitization rules for oil fields.

In the past, the costs of monitoring to ensure that overfishing is not occurring may have been prohibitive. Today, however, new technology such as satellite reconnaissance and global positioning systems make monitoring and enforcement more

feasible. For many beleaguered fisheries, vesting sole ownership in fisheries with private or public corporations or local communities is an idea whose time has come.

Policy Recommendations

- Amend the Magnuson Fishery Conservation and Management Act to legalize sole-ownership fisheries in U.S. waters.
- Exempt fishing cooperatives from anti-trust laws.
- Regional fishery management councils, which currently oversee fishing regulations, should establish procedures for auctioning off rights of fishery ownership to private or public corporations. NOAA's National Marine Fisheries Service should establish regulations for these corporations or cooperatives patterned after unitization rules established for oil fields.

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CONTRIBUTORS

Terry L. Anderson (406) 587-9591
Professor of Economics
Montana State University
and Senior Associate
PERC
502 South 19th Avenue, Suite 211
Bozeman MT 59715

January 1995 through May 1995

John M. Olin Visiting Scholar (607) 255-1020

Cornell Law School

109 Myron Taylor Hall

Ithaca NY 14853-4901

John L. Dobra, Director (702) 784-6859
Natural Resource Industry Institute
University of Nevada
Mail Stop 302
Reno NV 89557-0060

B. Delworth Gardner

(801) 378-7487

Professor of Economics

Brigham Young University

Department of Economics, 169 FOB

Provo UT 84602

Jeffrey T. LaFrance

(602) 621-6261

Professor of Agricultural and Resource Economics

University of Arizona

Department of Agricultural and Resource

Economics

Building #23

Tucson AZ 85721

Donald R. Leal

(406) 587-9591

Senior Research Associate

PERC

502 South 19th Avenue, Suite 211

Bozeman MT 59715

Richard L. Stroup

(406) 587-9591

Professor of Economics

Montana State University

and Senior Associate

PERC

502 South 19th Avenue, Suite 211

Bozeman MT 59715

Myles J. Watts

(406) 994-5642

Professor of Agricultural Economics and Economics

Montana State University

Department of Agricultural Economics and

Economics

Bozeman MT 59717

Bruce Yandle

(803) 656-3977

Alumni Professor of Legal Studies

Clemson University

Department of Legal Studies

201 Sirrine Hall

Clemson SC 29634-1330

