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# CONSERVATION THROUGH PRIVATE INITIATIVE: HARNESSING AMERICAN INGENUITY TO PRESERVE OUR NATION'S RESOURCES

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# Conservation Through Private Initiative: Harnessing American Ingenuity to Preserve Our Nation's Resources

**By Michael DeAlessi**

**Project Director: Adrian T. Moore, Ph.D**

## Executive Summary

In the polarizing world of environmental policy, the popular press is replete with stories on the incompatibility of conservation and commerce. From loggers pitted against owls to developers fighting wetlands regulations, the rhetoric in politics and in the media all too often gives a false impression that there must be a choice between one or the other. But conservation is out there. It's happening. And it's going on amidst commercial activities, especially on private lands.

So why don't we hear more about private conservation? One reason is that success doesn't sell newspapers nearly as well as controversy. Another reason is surely that private conservation efforts, especially habitat protection, are difficult to quantify under any circumstances, but the regulatory restrictions that often accompany habitats such as wetlands mean that private landowners are downright reticent to scrutiny.

Why have private conservation efforts been successful? Largely because they concentrate on the end result of environmental protection, rather than the bureaucracy of environmental protection, which doesn't guarantee a result. One of the great shortcomings of many command and control regulations is that they are more process-oriented than output-oriented. In many cases, success has been measured by permits issued or violations cited, rather than by specific, targeted improvement in environmental quality. Indeed, conservation efforts should be measured against a set of well-defined performance metrics to recover endangered species, protect habitat types, and so on. To prove their contribution to environmental quality, and for private conservation efforts to be more widely recognized (and less onerously regulated), landowners are going to have to agree on and measure such a set of well-defined performance metrics.

Measuring performance, as well as benchmarking and setting annual performance goals, may be the only way to cut across the partisan lines that have been drawn over environmental protection. Agreeing on how to define success often unites those who are genuinely interested in improving environmental quality. Of course, many measurements are site-specific, but striving to empirically compare different approaches is a vast improvement over rhetorical arguments.

The Endangered Species Act (ESA) is one such example. Proponents of the act believe that the restrictions it imposes have kept many species from going extinct. Critics of the act point out that it has failed to recover more than a handful of species over the last thirty years, and that those same restrictions may do more harm than good to endangered species, especially on private land. This difference of opinion has hindered reform efforts that might otherwise have improved the performance of endangered species recovery efforts.

One of the most promising environmental policy reform efforts in recent years is known as Enlibra, a made-up word that originated with an effort by the Western Governor's association to deal with the declining effectiveness of many federal environmental regulations. The idea behind Enlibra is that the low-hanging regulatory fruit has been picked, which means that stricter regulations often result in very little or even no improvement in environmental quality, while imposing much higher costs and regulatory burdens. Water pollution regulations, for example, initially targeted point sources of pollution. Cleaning up these large, single outfalls of industrial or municipal pollution greatly improved environmental quality. Now, however, most water pollution problems result from non-point sources, that is, a multitude of small inputs that add up to problems in a watershed. Because these sources are difficult to pinpoint or even measure effectively, regulatory approaches have been cumbersome, expensive, and far less effective.

Of course, government regulation has had its successes, but command and control approaches to environmental protection have essentially run aground. Unless state and federal governments start using more innovative approaches to solving environmental problems, we will just spend more and more, yet achieve less and less. Perhaps conservation has come as far as it can through government regulation. A new, more effective approach is needed, and private conservation has shown itself a capable and viable alternative.

National parks are overgrazed and overcrowded, fisheries are depleted, nutrient runoff is a problem in many watersheds, catastrophic forest fires routinely rage through the southwest, fresh water wars continue in the west, and endangered species issues continue to set landowners against environmentalists. Government oversight of these problems rests with such organizations as the U.S. EPA, the Interior Department, and the National Marine Fisheries Service (part of the Commerce Department). Each has over thirty years of experience trying to deal with these problems, and none has an enviable track record. The reason for this is that to date, most environmental regulations and restrictions generally get the incentives all wrong.

Perverse regulations encourage everything from overfishing to pollution, to habitat destruction on both private and public lands. And they have also suffered from a lack of any realistic performance review. For example, the ESA has not been substantially reformed since its passage thirty years ago, despite the fact that as many species have gone extinct as have been officially recovered in that time.

Despite the dismal track record of such restrictive efforts at the esa, for every one of these problems there is an environmental lobby that insists on an increased role for federal and state government regulation and

oversight. These environmental problems, however, have been around for decades, and are not going to get solved by using similar decades-old approaches.

One problem is that unlike the marketplace, where by definition voluntary trade makes everyone involved better off, politics is a zero-sum game, where gains to one group are made at the expense of another. Turning public lands into wilderness areas, for example, can only be done by taking land away from those who might want to use it as pasture or timber land, and vice versa.

Oil and gas exploration is another classic example. Whether to drill in the Arctic National Wildlife Refuge (ANWR) or not has been a wedge political issue for environmentalists since the start of the George W. Bush administration. Yet a number of local chapters of the National Audubon Society, a particularly vocal opponent of drilling in ANWR, have drilling operations on their own properties. Why? Because they understand the tradeoffs involved (increased revenues weighed against the risk of environmental damage), and the decision is an internal one. It would be interesting to see just what the Audubon Society would do with the deed to ANWR.



The need to search for more viable alternatives is clear, and the purpose of this study is to show that commerce and conservation have been, and continue to be, inextricably linked, especially when tradeoffs and risks can be internalized by private groups, individuals, or non-profits.

For every spotted owl controversy, there are thousands of cases where conservation and commerce happily get along, from ranchers protecting stream beds to the Louisiana Audubon Society operating oil and gas drills in one of their bird sanctuaries. In fact, it is because these lands are privately owned that the controversy is minimized. On public lands, land-use decisions inevitably wind up in the court of politics, where rhetoric and extremism trump substance and tradeoffs.

Human ingenuity and the entrepreneurial spirit underlie most conservation success stories. Under private ownership and stewardship, problem-solvers become remarkably resourceful at protecting and enhancing the value of what they own, for reasons as broad as profit and aesthetics, and ranging from fisheries and forests to backyard gardens. No one questions the impetus for a cleaner, healthier, species-rich environment. How we get there, however, is another question. The most promising efforts to address the perverse incentives typically created by command and control regulation are the use of market mechanisms and performance measures, both of which rely on getting the incentives more inline with the desired results, and on tapping into the same human ingenuity that drives commercial activity. Using performance indicators to measure and acknowledge conservation success, especially in the context of using the land is the next logical step.

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## Part 1

# Introduction

In the polarizing world of environmental policy, the popular press is replete with stories on the incompatibility of conservation and commerce. From loggers pitted against owls to developers fighting wetlands regulations, the rhetoric in politics and in the media all too often gives a false impression that there must be a choice between one or the other.

For every spotted owl controversy, there are thousands of cases where conservation and commerce happily get along, from ranchers protecting stream beds to the Louisiana Audubon Society operating oil and gas drills in one of their bird sanctuaries. In fact, it is because these lands are privately owned that the controversy is minimized. On public lands, land-use decisions inevitably wind up in the court of politics, where rhetoric and extremism trump substance and tradeoffs.

It is important to understand that we only protect and conserve what we value. After all, no one will expend much effort to protect something that has no value or is “useless.” Of course this value need not be strictly financial; it may be cultural or purely aesthetic. Though few people may see a financial reason to protect a snail darter, many obviously value its existence. And so the value and “use” of resources, whether consumptive or non-consumptive, lie at the heart of environmental protection and private conservation efforts.

Private conservation activities and private, entrepreneurial innovations that benefit the environment long predate the environmental movement, and remain an integral part of any solution to our current environmental issues. The majority of endangered species in the United States, for example, depend on private lands for their survival.

Reason Foundation has been at the forefront of many of the most promising avenues for improving environmental management, developing what is known as the New Environmentalism, which includes using market mechanisms to control pollutants and nutrient loads,<sup>1</sup> measuring success through environmental standards and performance measures,<sup>2</sup> privatizing or outsourcing public services<sup>3</sup>, and relying on property rights and private conservation wherever possible<sup>4</sup>.

Of course, commercial activities have also been responsible for environmental degradation, in recent years most notably overfishing, habitat destruction on public lands, and air and water pollution. But in fact, these are classic examples of valuable resources (fish stocks, public lands, air and watersheds) that are *not* privately owned or protected.

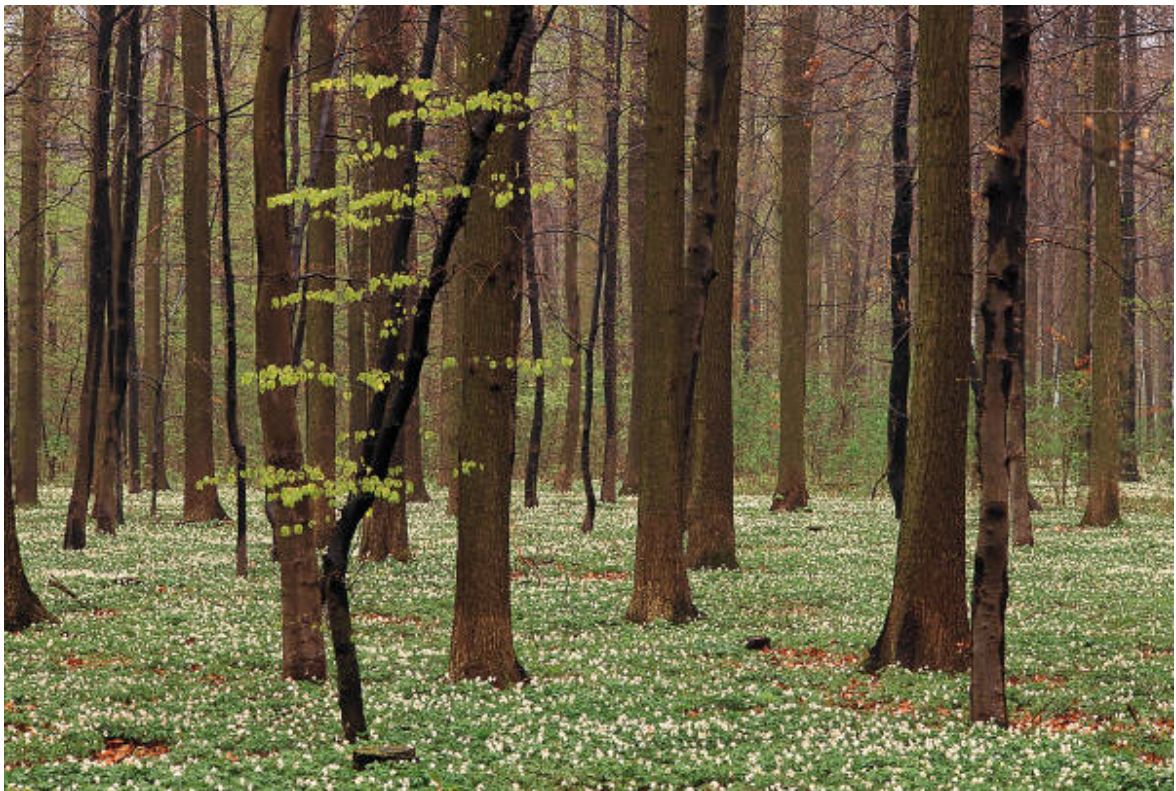


Degraded resources, whether a river, a forest or an airshed, are not generally privately owned. Timber leases in the United States are one example. Timber companies tend to behave very differently when they are harvesting trees from their own land than from public lands. Private timberland owners not only invest in the future health of the land, but consider alternatives to logging such as fee-hunting or hiking, which they cannot with a short term lease on public forest lands. The fact that timber harvesters are better stewards of their own land than public lands is not a problem with timber companies but with the incentives created by the way public lands are managed.

So why don't we hear more about private conservation? One reason is that success doesn't sell newspapers nearly as well as controversy. Another reason is surely that private conservation efforts, especially habitat protection, are difficult to quantify under any circumstances, but the regulatory restrictions that often accompany habitats such as wetlands mean that private landowners are downright reticent to scrutiny.

To prove their contribution to environmental quality, and for private conservation efforts to be more widely recognized and less onerously regulated, landowners are going to have to trade accountability for responsibility. They will have to agree on, and measure, a set of well-defined performance metrics for protecting specific habitat types or even recovering endangered species in concert with their use of the land and its resources.

We are now poised to make this the new centerpiece of our nation's conservation efforts to. Recent years have seen great advances in our understanding of how to craft such performance metrics and build projects around them. At the same time a pool of private (for profit and non-profit) projects that combine protecting habitat with management and use of land and resources is emerging. We can now lay out a framework for accomplishing both ends and ending the conflict between conservation and commerce.





## Part 2

# Measuring Success: A Results-Based Approach

One of the great shortcomings of many command and control regulations is that they are more process-oriented than output-oriented. In many cases, success has been measured by permits issued or violations cited, rather than by specific, targeted improvement in environmental quality.

Measuring performance, as well as benchmarking and setting annual performance goals, may be the only way to cut across the partisan lines that have been drawn over environmental protection. Agreeing on how to define success often unites those who are genuinely interested in improving environmental quality. Of course, many measurements are site-specific, but striving to empirically compare different approaches is a vast improvement over rhetorical arguments.

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One of the most important uses of performance measures may be to establish criteria for evaluating private conservation efforts in the context of using the land. As the rest of this study will show, private conservation has had a tremendous positive impact on environmental quality in the United States, but it is often hindered by regulatory policies that fail to take into account how those policies affect the value of the land or other resources, and therefore their impact on private conservation activities. Performance measures are also a crucial means to move away from conflict over how to tackle environmental challenges and toward cooperative and collaborative approaches.

Setting performance goals for both regulatory policy and private action will begin to create a meaningful comparison of both how regulation affects conservation, and how successful private conservation has been under different regulatory regimes.

## A. A Growing Trend

The use of performance measures is growing under the Bush administration and among non-profits. Non-profit reports that attempt to evaluate national environmental performance from year to year include the joint Pacific Research Institute/American Enterprise Institute annual report on “Leading Environmental Indicators,” and the Heinz Center’s “State of The Nation’s Ecosystems.”<sup>6</sup>



The EPA now has an Environmental Indicators Initiative to “report on the status of and trends in environmental conditions and their impacts on human health and the nation’s natural resources.”<sup>7</sup> Amazingly, this is the first comprehensive study of its type, and it has revealed tremendous knowledge gaps, especially in the health of the nation’s watersheds. Because performance measures are just now being instituted, we have a thirty-year old agency charged with protecting public health that can’t accurately chart changes in air and water quality over that time period.

One of the most promising environmental policy reform efforts in recent years is known as Enlibra, a made-up word that originated with an effort by the Western Governor’s Association to deal with the declining effectiveness of many federal environmental regulations, and is now a policy position of the National Governor’s Association.<sup>8</sup> One of the leaders of this policy is Mike Leavitt, the former Governor of Utah and the departing U.S. EPA Administrator.

The idea behind Enlibra is that the low-hanging regulatory fruit has been picked, which means that stricter regulations often result in very little or even no improvement in environmental quality, while imposing much higher costs and regulatory burdens. Water pollution regulations, for example, initially targeted point sources of pollution. Cleaning up these large, single outfalls of industrial or municipal pollution greatly improved environmental quality. Now, however, most water pollution problems result from non-point sources, that is, a multitude of small inputs that add up to problems in a watershed. Because these sources are difficult to pinpoint or even measure effectively, regulatory approaches have been cumbersome, expensive, and far less effective.

The Enlibra approach includes a number of principles that could easily be adapted and applied to improving the regulatory climate for private conservation. Building on the Enlibra approach, the following principles form the core of a performance-based system for tackling environmental and conservation challenges.

- **Assign Responsibilities at the Right Level.** With standards and objectives identified, there should be flexibility to achieve them and to provide accountability. Local governments or private entities

that can demonstrate the ability to meet or exceed standards and goals should be empowered to do so.

- **Use Collaborative Processes to Break Down Barriers and Find Solutions.** Successful environmental policy implementation is best accomplished through balanced, open, and inclusive approaches at the ground level, where interested stakeholders work together to formulate critical issue statements and develop locally based solutions to those issues.
- **Reward Results, Not Programs—Move to a Performance-Based System.** Solving problems, rather than just complying with programs, should be rewarded.
- **Separate Subjective Choices from Objective Data Gathering.** Environmental science is complex and uncertainties exist in most scientific findings. In addressing scientific uncertainties that underlie most environmental issues and decisions, competing interests usually point to scientific conclusions supporting their view and ignore or attack conflicting or insufficient information. A better approach is to reach agreement on the underlying facts as well as the range of uncertainty surrounding the environmental question at hand before trying to frame the choices to be made.
- **Markets Before Mandates—Replace Command and Control with Economic Incentives Whenever Appropriate.** Market-based approaches and economic incentives often result in more efficient and cost-effective results and may lead to more rapid compliance. These approaches reward environmental performance, promote economic health, encourage innovation, and increase trust among government, industry, and the public.
- **Recognition of Benefits and Costs.** The implementation of environmental policies and programs should be guided by an assessment of the costs and benefits of different options across the affected geographic range. To best understand opportunities for win-win solutions, cost and benefit assessments should look at life-cycle costs and economic externalities imposed on those who do not participate in key transactions. The assessment of options should consider all of the social, legal, economic, and political factors while ensuring that neither quantitative nor qualitative factors dominate.

As a recent article in *The Economist* points out, foundations and grantmakers are also beginning to see the benefits of performance measurement.

*Funding agencies are starting to wise up to the loose connections that often exist between inputs and outputs in conservation projects, where inputs are donated dollars, and outputs are species and habitats actually conserved. They would like to see that their bucks are delivering the appropriate bang. That means a radical change of attitude, both about what it is realistically possible to conserve, and how to go about conserving it.<sup>9</sup>*

In particular, *The Economist* notes that for one nature reserve in Brazil, measuring conservation success in the Mamiraua Sustainable Development Reserve was essential for the health of the local people, the local flora and fauna, and the reserve itself. Before the creation of the reserve in 1994, Brazilian law presumed that conservation and economic development were diametrically opposed. To survive, the reserve had to prove its worth unequivocally, and it seems to have done so.

Mamiraua was set up primarily to protect white uaraki monkeys. In exchange for exclusive fishing rights in the area, local villages agreed to leave certain areas of the forest unexploited and to enforce the boundaries of the reserve. Since then, the size of the fish population and the size of the fish harvested have increased,

habitat conversion from forest to farmland has dropped to zero, the monkey population is stable, and the incomes of the local people have increased by over 100 percent (300 percent for the fishermen), and infant mortality has dropped by over 50 percent.<sup>10</sup>

## B. The Need for New Approaches

No one questions the impetus for a cleaner, healthier, species-rich environment. How we get there, however, is another question.

Of course, government regulation has had its successes, but command and control approaches to environmental protection have essentially run aground. Unless state and federal governments start using more innovative approaches to solving environmental problems, we will just spend more and more yet achieve less and less.

National Parks are overgrazed and overcrowded, fisheries are depleted, nutrient runoff is a problem in many watersheds, catastrophic forest fires routinely rage through the Southwest, fresh water wars continue in the West, and endangered species issues continue to set landowners against environmentalists. Government oversight of these problems rests with such organizations as the U.S. EPA, the Interior Department, and the National Marine Fisheries Service (part of the Commerce Department). Each has over thirty years of experience trying to deal with these problems, and none has an enviable track record. The reason for this is that to date, most environmental regulations and restrictions generally get the incentives all wrong.

Perverse regulations encourage everything from overfishing to pollution, to habitat destruction on both private and public lands. And they have also suffered from a lack of any realistic performance review. For example, the Endangered Species Act (ESA) has not been substantially reformed since its passage thirty years ago, despite the fact that as many species have gone extinct as have been officially recovered in that time.

Despite the dismal track record of such restrictive efforts at the ESA, for every one of these problems there is an environmental lobby that insists on an increased role for federal and state government regulation and oversight. These environmental problems, however, have been around for decades, and are not going to get solved by using similar decades-old approaches.

One problem is that unlike the marketplace, where by definition voluntary trade makes everyone involved better off, politics is a zero-sum game, where gains to one group are made at the expense of another. Turning public lands into wilderness areas, for example, can only be done by taking land away from those who might want to use it as pasture or timber land, and vice versa.

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The need to search for more viable alternatives is clear, and the purpose of this study is to show that commerce and conservation have been, and continue to be, inextricably linked, especially when tradeoffs and risks can be internalized by private groups, individuals, or non-profits.

The most promising efforts to address the perverse incentives typically created by command and control regulation are the use of market mechanisms and performance measures, both of which rely on getting the incentives more inline with the desired results, and on tapping into the same human ingenuity that drives commercial activity.

### C. Market Mechanisms and Private Initiative

The role of the private sector in environmental management is especially important in the search for innovation in environmental management. The private sector, although often lambasted by regulators and the environmental community, has always offered the greatest opportunities for innovation. For example, competitive pressures on businesses mean they are always looking for ways to reduce costs, and so they are constantly figuring out ways to decrease resource use, a process that Lynn Scarlett describes as “dematerialization”.<sup>11</sup> For example, a skyscraper built today uses 35 percent less steel than an equivalent building just decades ago, and despite a 14 percent increase in population in the United States from 1980 to 1993, grocery packaging as a percentage of municipal waste actually declined over that same time period.<sup>12</sup>

Doing more with less is one of the most important aspects of conservation, and is also one of the prime directives of the profit motive. Aluminum cans and plastic soda bottles are getting thinner all the time not because of recycling mandates, but simply because of the profit motive that all businesses face encourages them to reduce material inputs.

Market-based instruments such as tradable pollution permits allow for firms to trade under a total cap on pollution that remains unchanged, or is often even lower, than under previous regulatory schemes that mandated specific reductions or use of specific technologies for individual polluters.<sup>13</sup> The tradable part is crucial because it is what creates value and spurs the incentive to find innovative ways of reducing pollution—in other words, to do more with less pollution.<sup>14</sup>

Another way to use market incentives to improve environmental management is by attempting to charge more direct fees for services. For example, the fees charged for trash collection are often a flat fee or portion of property taxes independent of what is actually thrown away. One study found that ‘pay as you throw’ programs that charge for the amount of trash led to 17 percent less garbage (by weight) and increased recycling.<sup>15</sup>

Market mechanisms allow flexibility in achieving real environmental goals, reward innovation, and allow the environmental community to take direct action to protect the environment (for example, by retiring pollution permits).

### D. Property Rights and the Tragedy of the Commons

The phrase “the tragedy of the commons” was coined by the ecologist Garret Hardin in the late 1960s.<sup>16</sup> It neatly summed up the work of economists in the 1950s who described the reasons why publicly managed natural resources in particular tend toward depletion.<sup>17</sup>



Hardin used the tragedy of the commons to describe a situation where resources were depleted because they were free for the taking. In Hardin's words, when the individual captures the rewards but the costs are borne by the group, "ruin is the destination toward which all men rush." Hardin used the examples of a pasture and an ocean fishery, but the tragedy also applies perfectly well to the political distribution of environmental amenities, whether timber, wilderness areas, or hiking trails. The tragedy of the commons also applies to pollution because the resource that is being used up (polluted), such as a river or an airshed, is unowned, and so all the benefits of polluting go to the polluter, while the costs are shared by everyone else in that airshed or watershed.

Remember that pollution is a by-product of productive activity, whether oil and gas production or the conversion of timber to lumber, or some other process. The tragedy of the commons neatly explains why a business might do everything it can to reduce its material use of the natural resources that go into its products, while polluting the air at the same time. It all comes down to costs and benefits.

Groundbreaking economists like Nobel laureate Ronald Coase have long understood that the one way to address these costs is to *internalize* them.<sup>18</sup> That is, to line up the benefits of pollution (whereby a troublesome product is disposed of) with the costs (the environment is damaged). People generally don't throw garbage into their own back yards for the exact reason that they own those yards and so the costs of waste production would be internalized.

This underscores the importance of property rights. Economists define property rights as bundles of rights to such things as the use of a resource, the income derived from a resource, and the ability to transfer part or all of these rights.<sup>19</sup> How property rights are assigned affects behavior by establishing different allocations of benefits and harm among individuals. Any attempt to exert control over a resource is an attempt to define property rights in that resource, whether through regulation, a group rule or a form of exclusive ownership.

Normally, property rights are either controlled by government, held in common by a group, or parceled out among individuals. There is, of course, a great deal of overlap among these groups. A complete lack of property rights is rare, but government ownership often creates perverse incentives that skew the costs and benefits and result in natural resource depletion or environmental degradation.

A classic example is the Alaska Halibut fishery.<sup>20</sup> Public managers attempted to cut down on fish catches by shortening the season, but because it was a public resource, the incentives remained for fishermen to over-harvest the fishery no matter how short the season. And so they did. Even though what was once a near nine-month long season was cut back to 3 *days*, over-harvesting continued. The fishermen had no incentive to conserve the amount of fish because any fish left would be taken by someone else. Only by creating ownership of the fish through tradable quotas, in other words, recognizing the value of the catch and enabling fishermen to trade on its value by giving them property rights to the fish, were the fish protected. In 1995, the first year of the program, tradable quotas resulted in fleet reduction to less than half, resulting in less environmental damage, and catches rarely exceed authorized levels, enabling the halibut population to stabilize.<sup>21</sup>



In the Washington state oyster fishery, where most oyster beds are privately owned, there has been tremendous private investment not only in *enhancing* oyster beds, but in pressing for measures to fight pollution because those oysters depend on clean water.<sup>22</sup> Private ownership makes all the difference.

In order to be effective, private property rights must be well-defined, enforceable, and transferable.<sup>23</sup> Property rights encourage the internalization of the harm and benefits caused by a particular user or group of users because they determine whether the future effects of current behavior (either positive or negative) will be borne by the owner.<sup>24</sup> Thus, as property rights become better defined, resource stewardship becomes more attractive and, equally, owners bear more of the costs of rapacious behavior.

## E. Private Conservation

Private conservation brings it all together—stewardship through ownership and innovation through markets—providing positive incentives to protect and enhance natural resources. And whether they are profit-seekers or simply motivated by a love of nature, private conservationists tap into the entrepreneurial spirit, providing a plurality of approaches to solving environmental problems. Many traditional environmentalists recognize private conservation’s potential. Brent Blackwelder, President of Friends of the Earth, has said that “While I don’t believe that private efforts alone are the answer, recognizing the ingenuity, commitment and effectiveness of private stewards is imperative.”<sup>25</sup>

A series of private conservation efforts provide great case studies and demonstrate what public conservation initiatives have gleaned from their successes, and how public efforts could be improved by either privatization or regulatory innovation. In each case, combining conservation with commerce offers great potential.



## Part 3

# Protecting Endangered Species

The Endangered Species Act (*ESA*) was created in 1973, and has been controversial from the start, when construction of the Tellico Dam in Tennessee famously squared off against the tiny snail darter fish. The fish won in the Supreme Court, but thanks to a special congressional dispensation, the dam went ahead (nevertheless, snail darters are numerous now). Ever since, the ESA has been marked by controversy over the restrictions it imposes on development and the use of private property.

Because the ESA prevents the use or development of private land when federally listed endangered species are present, there is evidence not only that it has failed to recover species, but that the ESA has actually been detrimental to recovery efforts. ESA restrictions are a liability for private landowners, and the majority of endangered species occur on private land. These restrictions create a perverse incentive that has led landowners to engage in preemptive habitat destruction to avoid the potentially devastating financial impact of the ESA. For example, owners of forests that could evolve into endangered red-cockaded woodpecker habitat (they prefer old-growth trees) tend to cut their trees ahead of schedule to avoid attracting the birds.<sup>26</sup>

A better policy would allow endangered species to be treated like assets. There have been some legal concessions to the perverse incentives of the ESA, most notably the creation of the Safe Harbor Program, which indemnifies landowners when *additional* species occur on their land, but there has still been no fundamental reform of the Act.

## A. The Peregrine Fund

In the 1960s, the Peregrine Falcon seemed to be heading down the path toward extinction. Captive breeding offered one of the best hopes for recovery, but a government breeding program was unsuccessful. The Peregrine Fund, a private, non-profit group, however, stepped in and began a program of captive breeding and reintroduction that played a huge role in the eventual de-listing of the Peregrine Falcon.<sup>27</sup>

Today, the Safe Harbor Program has enabled the Peregrine Fund to work with landowners to reintroduce the Northern Aplomado Falcon, the last endangered falcon species in this country. Over the last few years, Peregrine Fund releases have generated a wild population of at least 39 pairs of falcons (May 2003) where they hadn't existed for some 50 years.<sup>28</sup>

The Peregrine Fund works closely with the U.S. Fish and Wildlife Service, but depends on fundraising to support its efforts, and so it is far more results-oriented than the Service. Looking under "Conservation Projects" on the Peregrine Fund Web site, for example, immediately brings up references to the number of

species in the wild, numbers of species in captive breeding programs, and the numbers of species that have been released.<sup>29</sup> The U.S. Fish and Wildlife Service endangered species Web site does a good job of compiling lists of endangered and threatened species, but gives little indication of whether their numbers are increasing or declining.<sup>30</sup>

## B. Earth Sanctuaries, Ltd., Australia

In Australia, a for-profit company is in the business of saving endangered species, and it is also especially conscious of producing measurable results. Earth Sanctuaries, Ltd (ESL) was founded by Dr John Wamsley, who had the insight that the way to save Australia's endangered species was to protect them from feral predators (mostly cats and foxes).<sup>31</sup> More importantly, he also had the wherewithal to actually do something about it, which is a good thing, because more mammals have become extinct in Australia in the last 200 years than anywhere else in the world.

Since ESL started buying land, building feral-proof fences and reintroducing native species, endangered Australian species like woylies, rufous bettongs, long-nosed potoroos and Southern brown bandicoots have thrived. Some species, like the Eastern quoll can only be seen on mainland Australia in an Earth Sanctuary. ESL has a business plan that includes specific target numbers for species recovery.

In May 2000 Earth Sanctuaries, Ltd. was listed on the Australian Stock Exchange (ASX code ESL), earning the distinction of being the world's first publicly listed company whose "core business is conservation."<sup>32</sup> Since that listing ESL's share price has stumbled, but in late 2002 ESL restructured the company, sold off some assets, and emerged a leaner, more focused operation. Contrast that with the U.S. government endangered species programs which have not only seen little success, but little reform.

## C. The Cayman Turtle Farm

Species of sea turtles such as the green sea turtle are commonly threatened throughout the Caribbean, mostly due to habitat loss and fishing pressure. Jacques Cousteau proclaimed decades ago that "If the green sea turtle is to survive, it must be farmed," and in the late 1960s a former chicken farmer decided to give it a go in the Cayman Islands.<sup>33</sup>

The motto of the farm, Mariculture Ltd., was "Conservation through Commerce." The farm began ranching the turtles by collecting eggs from the wild that would not otherwise have survived (frequently because of where or the way they had been buried in the sand) and then rearing the turtles at the farm and releasing them into the wild. By combining market value (profit was to be made from the sea turtle's valuable meat and shell products) and conservation the farm would take pressure off of wild harvests by providing an alternative supply, and would actively supplement the wild population with farm-bred turtles, much like the Peregrine Fund releases captive bred raptors.<sup>34</sup>

Many environmentalists, however, objected to commercialization of the species, and were successful in placing trade restrictions on *all* green sea turtle products, farmed or not. As a result, Mariculture Ltd. went bankrupt in 1975, and was later reorganized as the Cayman Turtle Farm. This second incarnation went under when the turtle was added to the U.S. Endangered Species Act in 1978, thereby banning turtle products from

even passing through a United States port, a crucial hub for the farm's international trade. The farm was subsequently taken over by the Cayman government and remains little more than a tourist attraction today.



At the time the green sea turtle was placed on the U.S. endangered species list, the wild population in the Caribbean and the Gulf of Mexico was estimated to be about 5,000 strong. The Cayman Turtle Farm population at that time was close to 80,000.<sup>35</sup> This ill-fated venture demonstrated both the vast potential of private initiative and, unfortunately, the potentially debilitating effects of government intervention.

#### D. The American Bison

Lastly, it is worth mentioning the American bison, which has become a typical metaphor for the need for government action to prevent rampant exploitation of a species, as the bison were hunted to near extinction on the open range. The real story, however, is quite different. In the 1870s, long before there were any federal or state protections for the bison, six private individuals, motivated by profit or a desire to save a rapidly declining species, were the first to protect the bison.<sup>36</sup>

Today, all but a handful of the bison in the United States are direct descendants of those animals that were taken off the commons and privatized.<sup>37</sup> A census in 1903 by William Hornaday of 41 herd owners in 24 states showed that only about 5 percent of the bison population at that time was under government control.<sup>38</sup> Today, bison are common because once they were taken off of the open range, the perversities of the tragedy of the commons were neutralized and the bison were protected. Unfortunately, wildlife privatization is the exception rather than the rule.

##### Key Points: Protecting Endangered Species

- Most endangered species in the United States rely on habitat that is on private land. The rules and restrictions of the U.S. Endangered Species Act, however, currently make federally listed species a *liability* for private landowners. Some progress has been made through the Safe Harbor program, which indemnifies qualified landowners from any new restrictions, but does not help those who already have listed species on their property.
- Even including public lands, the performance of the ESA to date has been dismal. In the last 30 years, almost 1,300 species have been added to the list of threatened and endangered species, while only 10 North American species have "recovered", often due to efforts unrelated to the ESA.
- Both non-profit and for-profit private conservation groups on the other hand, must produce results to survive. For example, the Peregrine Fund has established 39 pairs of the endangered Aplomado falcon in the wild and Australia's Earth Sanctuaries, Ltd. is reintroducing native species to their original habitats throughout Australia.





## Part 4

# Protecting Freshwater Resources and Habitat

## A. Protecting Water Quality

### *1) Pollution Trading Regimes*

Regulatory restrictions on nutrient and suspended solid pollution have improved water quality in most U.S. watersheds. But poor water quality is still a common problem throughout the United States. A good example is Wisconsin's Fox-Wolf River Basin, which suffers from poor water quality due especially to the nutrient phosphorus. Most of the gains in water quality in Wisconsin and elsewhere have come from point-source reductions (that is, reductions of pollution from a single outfall), which have now reached the stage of diminished returns and increased costs.

The U.S. EPA, for example, states that “nonpoint source (NPS) pollution remains the Nation's largest source of water quality problems”.<sup>39</sup> To address this problem, EPA “endorses trading as an economic incentive for voluntary pollutant reductions from point and nonpoint sources of pollution,” because trading “can provide greater efficiency in achieving water quality goals in watersheds by allowing one source to meet its regulatory obligations by using pollutant reductions created by another source that has lower pollution control costs.”<sup>40</sup>

Pollutant trading mechanisms do not affect the overall level of pollution, just how those targets are reached, and they are usually introduced at the same time as an overall reduction in pollution. By allowing trading, pollution is reduced at a lower cost, and the process also encourages flexibility and innovation (discovering a new way to reduce pollution is immediately rewarded by the ability to sell the excess pollution rights).

In Wisconsin, a group of stakeholders called the Fox-Wolf Watershed Alliance is pushing to allow trading between point and non-point sources of pollution.<sup>41</sup> Their proposal would allow a point-source polluter to pay a nonpoint polluter to install Best Management Practices (BMPs) that reduce pollutant loads to the watershed.<sup>42</sup> In agriculture, examples of BMPs include installing buffers along stream beds, fencing out livestock from riparian areas, placing sheds over manure piles to minimize runoff, and using low-chemical intensity pest control techniques.

Several regions around the country have already demonstrated success with water quality trading. In Connecticut, for example, nitrogen trading among publicly owned water treatment plants that discharge into Long Island Sound is expected to achieve the required reductions while saving an estimated \$200 million in control costs that would have otherwise been passed on to consumers.<sup>43</sup>

North Carolina's Tar-Pamlico Basin Association is North America's foremost example of a nutrient trading community with experience in point-source and nonpoint-source trading.<sup>44</sup> The association came into being after a series of fish kills and other water quality problems, despite the fact that all of the point-source dischargers were operating within the limits of their discharge permits. U.S. EPA studies of the cost of further removing pollutants in the area showed that reductions from point sources would cost from \$1,892 to \$17,294/kg. The cost of removing the same amount by nonpoint sources ranged from \$147 to \$262/kg. Without trading, the association estimates it would have cost its members an average of \$7 million in technology upgrades to achieve a comparable level of nutrient reduction that a \$1 million investment in nonpoint-source controls yielded.

### *2) Oysters in Washington State*

Oyster beds in Washington State are owned in fee simple—just like a piece of property on land. As filter feeders, oysters depend on clean water not only to survive, but to be edible. Because of their commercial interests in clean water, oyster growers in Washington State have been the staunchest defenders of water quality in that state for over one hundred years, and they are also likely the reason that Washington State has some of the cleanest estuaries in the country.<sup>45</sup> Of course, water in Washington is not privately owned, but just by having privately owned oyster beds at the margin of the commons, water quality improved.

### *3) Private Water Rights in other countries*

In other countries, such as the United Kingdom, riparian rights to water are much stronger than in the United States, and owners of water use rights there have been able to sue polluters for nuisance and trespass. Those polluters, incidentally, are often by the very municipalities charged with enforcing clean water regulations.

The Anglers Cooperative Association in England and Wales, for example, has been able to use its members' rights to fish for salmon to effectively reduce pollution.<sup>46</sup> The same types of rights were used by early pollution fighters in the United States and Canada, but these common law approaches have faded as legal statutes superceded them.<sup>47</sup>

## **B. Conserving Water Resources**

Water, especially in the arid West, has always been a valuable resource. Today, it is not uncommon to hear reports that states like California are running out of water, and cities like Los Angeles are famous for restricting urban water use. In California, however, there is no real water shortage. Over 85 percent of California's water use is agricultural—which is not to belittle the importance of agriculture, only to point out that there is plenty of water available in the state. What is lacking is the price structure to ensure that it is used wisely.

### 1) Water Markets

Private rights to use water are common throughout the United States, but often these rights are narrowly defined by state law, so that transferring or selling them is difficult or impossible, and even alternate uses such as environmental protection are often precluded. This aspect of water law is often known as ‘use-it-or-lose it.’ and just what constitutes an acceptable ‘use’ is determined by statutes that define ‘beneficial use’.

The effect of these restrictions is to create a situation akin to the tragedy of the commons. A water user in West who has a strong use right to water generally only pays for the delivery of the water, not for the water itself. Using a lot of water may impose costs on downstream users and the environment, but there is no incentive for the water user to cut back because any water that isn’t used simply goes to the next rights holder downstream—just like a fisherman who depletes a fishery because any fish left in the water will likely be caught by someone else.

Allowing water rights to be sold, however, would force water users to directly bear the costs of their decisions on how much water to use. In times of scarcity, for example, water prices would rise and that cost would increase, which would encourage conservation.

‘Use-it-or-lose-it’ is the reason why some Californians grow monsoon crops (like rice) in a desert environment. Restrictions on trade which translate into weak water rights have also led to increasing conflicts between urban, agricultural, and environmental uses in the arid West. One reason is that putting water to environmental use is often *not* considered a ‘beneficial use,’ which immediately creates a conflict between farmers and the environmental community.



## *2) Water Trusts*

One of the first states to address this problem was Oregon, which passed the Instream Water Rights Act in 1987. Under this Act, leaving water instream to enhance water quality and fish habitat now constitutes a beneficial use.<sup>48</sup> The change allowed for the creation of the Oregon Water Trust in 1993, whose mission is “to enhance stream flows by acquiring consumptive water rights to restore flows in rivers and streams in Oregon.”<sup>49</sup>

Water trusts have been formed in many western states, including Oregon, Washington, and Montana, as well as Texas.<sup>50</sup> Many of these organizations are now actively involved in the Columbia Basin Water Transaction Program, a federal program to use market transactions to increase flows for fish in the Columbia River following a habitat mitigation mandate under the Endangered Species Act.<sup>51</sup> Some of the private organizations involved are the Oregon Water Trust, the Deschutes Resources Conservancy (OR), the Washington Water Trust, the Montana Water Trust, and Trout Unlimited.

In California, water transfers began to be feasible in the early 1990s with legislative changes to facilitate the environmental mandates that went along with the large water projects in the Central Valley of the state.<sup>52</sup> Since that time, the number of transactions have grown, but most activity is due to state and federal intervention, not only through direct purchases, but because it is simply easier for water users to gain state and federal approval for transfers that occur within state and federal water projects.<sup>53</sup> As a result, California does not have any private water trusts, and the Oregon Water Trust model is sorely lacking.

## *3) The Imperial Valley of California*

Ground zero in recent years for the controversy over water rights has been the Imperial Valley of California, an area in the southeastern part of the state where agricultural interests have very senior water rights. The vast amount of water used by the Imperial Irrigation District (over 3 million acre feet, which is more than all of Los Angeles), has attracted the attention of both urban Southern California, which is always looking for reliable water supplies, and the environmental community, which wants both to save the declining Salton Sea and to keep water away from the coasts to impede urban development.

The Imperial Valley gets its water from the Colorado River, a vast watershed that runs through seven western states into Mexico. In 1998, a deal was struck to transfer water from the Imperial Valley to San Diego, but the December 2002 deadline to finalize the deal passed without a final agreement, in large part due to local and state politics.

Farmers in Imperial pay about \$15 an acre-foot for their water (an acre-foot is about 326,000 gallons), which is a delivery charge only. San Diego offered to pay \$258/af, but balked at taking responsibility for the environmental health of the Salton Sea, an important bird habitat that depends on agricultural runoff from Imperial and is in danger of dying from being too salty. Under the federal law of the Colorado River, however, it is not legal to put any fresh water into the Salton Sea, only hyper-saline farm runoff may flow into it.

Another problem for water rights holders in Imperial is that their rights are held in trust by the Imperial Irrigation District—a political body that is elected by the general public in Imperial County. Politically, it makes more sense for the Irrigation District to seek to redistribute money as broadly as possible among the

electorate, rather than cater to the far less than 1 percent of the population that holds a water right. For this reason, the Irrigation District has held up the deal.

It now appears that a deal has finally been reached, but only after seven years of wrangling over the terms.<sup>54</sup> How much easier would it have been if some of the farmers of marginal land could simply have sold their water directly? How much easier would it be to save the Salton Sea if environmental groups could pay directly to put cleaner, fresher water into the Sea? Instead, poorly defined water rights have led to a political morass that, despite the recent agreement, will no doubt lumber on in the courts for years to come.

Farmers and environmentalists in other western states such as Oregon are using water markets to forge agreements that are good for both farming and wildlife. California needs a system where the public interest manifests itself through voluntary exchanges of water, not prolonged political battles.

### C. Protecting Wetlands Habitat

Wetlands provide diverse and productive habitat for everything from fish to waterfowl to reptiles. They also serve an important hydrologic function by controlling floods, recharging groundwater, and improving water quality through sedimentation and nutrient uptake.

Wetlands have been a source of controversy in recent years as federal regulations to protect them have been painted as being both onerous and overstepping their jurisdiction. On the other hand, wetlands restoration by groups like Ducks Unlimited has been one of the great private conservation success stories.

According to the U.S. EPA, of the over 220 million acres of wetlands that existed in the lower 48 states before European colonization, only about 100 million acres of wetlands remain.<sup>55</sup> Thus, over half of the wetlands in the United States have been drained and converted to other uses. While U.S. laws now strictly regulate wetlands, much of the reason for this decline was the government-subsidized wetlands destruction that took place from the 1800s well into the 1960s.

The years from the mid-1950s to the mid-1970s were a time of major wetland loss, but since then the rate of loss has decreased. Still, these losses and the environmental degradation that ensued have played a major part in flood damages, drought damages, and declining bird populations.

Large-scale wetlands destruction began with the passage of the Swamplands Drainage Acts of 1849, 1850 and 1860, in which Congress transferred 65 million acres of federally owned wetlands to the states on the condition that they use the proceeds from the sale of wetlands to private entities to subsidize drainage on those properties.<sup>56</sup> Much of this development was for agriculture.

With the passage of the Flood Control Act of 1928, the federal government began directly draining wetlands. With the subsequent Flood Control Act of 1944, the emphasis shifted from flood control to agricultural development, but the result was the same—a drastic loss of wetlands throughout the country.<sup>57</sup>

The Clean Water Act of 1972 marked the shift from federally sponsored drainage to federally mandated wetlands protection. And what a shift it was. The major impetus for federal wetlands protection is Section 404 of the Clean Water Act, which regulates the discharge of dredged and fill material into the waters of the United States.<sup>58</sup> For the Army Corps of Engineers, the “waters of the United States” include anything that



might be used by migratory birds, and so every wetland in the country falls under its jurisdiction. This interpretation has been slightly curtailed by a recent Supreme Court Decision known as SWANCC,<sup>59</sup> but the Army Corps remains intimately involved in wetlands regulation throughout the United States.

Wetlands regulations are now so strict and often nonsensical, that after a winery owner in Northern California created a 90-acre wetland habitat for waterfowl, he actually had to create another 4.5 acres of wetlands to ‘mitigate’ for the damage he did to 1.5 acres of wetlands filled in the process of creating 90 new acres of wetlands.<sup>60</sup>

### *Ducks Unlimited*

Far less controversial has been the quiet restoration and protection of millions of acres of wetlands by private groups, most notably Ducks Unlimited. In 2002, Ducks Unlimited celebrated a milestone of ten million acres of habitat conserved for waterfowl and other wildlife.<sup>61</sup>

Ducks Unlimited was formed in 1937 as an effort by a group of sportsmen interested in preventing the decline of the waterfowl they loved to hunt. They started out restoring and improving wetlands in Canada, and quickly became known as a group of engineers who measured success in acres of water restored.<sup>62</sup>

Today, Ducks Unlimited is a large organization with projects throughout North America. In its 2001 annual report, Ducks Unlimited reported net assets of over \$60 million, and annual support and revenues of over \$130 million.<sup>63</sup>

#### **Key Points: Protecting Freshwater Resources and Habitat**

- Freshwater quality has seen much improvement from the regulation of point sources (that is, single identifiable sources of pollution such as a pipe), but little improvement in non-point (that is, widely dispersed pollution or nutrient loads such as agricultural runoff). To address this problem, the U.S. EPA endorses cap-and-trade programs that use economic incentives to lower pollution and nutrient loads at the lowest cost possible. Trading programs allow for flexibility and innovation—two words rarely associated with the regulatory process.
- Freshwater supply has suffered immeasurably because property rights in water have been ill-defined, especially the ability to sell unused water. Without the ability to transfer water, users have little incentive to conserve, and especially in the arid West, water shortages are common. Freeing up water markets not only encourages conservation by water rights holders, but has allowed for the formation of water trusts that buy water rights to leave them instream, providing environmental amenities. Similar private efforts by groups like Ducks Unlimited use water to create wetlands habitat. In either case, whether creating stream flows for fish or wetlands for waterfowl, private groups must demonstrate success to their members, and as a result, Ducks Unlimited, for example, recently celebrated its ten millionth acre of wetlands conserved.



## Part 5

# Managing Land Resources

About one-third of the land in the United States is owned by the federal government, with the greatest concentration occurring in the West and in Alaska. Much of this land has been degraded over the years, both through use and neglect. Of course, the incentives that both land managers and land users face are quite different than those faced by private landowners. Revenues from National Parks and federal forest lands, for example, often have little to do with the budgets and performance reviews of the National Park Service and the Forest Service.

This has led to a rather dismal evaluation of the performance of public land management. The *2004 Index of Leading Environmental Indicators*, for example, found that “Although dollars spent on public lands have gone up and land set aside for recreation or conservation has increased, the quality of the land has, by most significant measures, deteriorated.”<sup>64</sup> The report goes on to say categorically that “It is difficult to discern a favorable trend in public lands management.”<sup>65</sup>

Private landowners, on the other hand, face a direct correlation between the health of the land and the revenues they derive from it, and they also face the fact that they will lose revenue unless they invest in environmental protection. Any timber company that chooses to clear cut its property, for example, not only has to deal with the effects of clearcutting on soil quality and future tree growth, it also gives up potential revenues from recreational uses such as hunting or camping, which puts additional pressure on them to steward the land. On a federal timber lease, however, the only decision is how thoroughly to cut before they run.

For this reason, Terry Anderson, Emily Simmons, and Nobel prize-winning economist Vernon Smith have persuasively suggested the privatization of public lands, and even offer a blueprint for how to achieve it.<sup>66</sup> Until then, however, the examples that follow will show that the tradeoffs that come with land ownership often lead to better land stewardship, and not at the expense of natural resource use.

## A. Oil and Gas Exploration and Habitat Protection

One of the most spirited debates over the use of public lands in recent years has been over oil and gas exploration, especially in Alaska. The Arctic National Wildlife Refuge, known as ANWR, lies atop a rich oil field in Alaska. Environmental groups like the National Audubon Society decry that oil and gas exploration in ANWR would endanger millions of birds and other wildlife.<sup>67</sup> At the same time, proponents claim that no animals will be endangered.<sup>68</sup>

Who is right? There is certainly an element truth in both statements, but because the issue centers on federal land, there really isn't any compromise—ANWR will either be developed or not. There is significant oil and gas activity already within the nation's system of federal wildlife refuges, but unfortunately there has been little or no measurement of the environmental performance of these activities. For example, a 2003 GAO report on oil and gas activity within the refuge system reported that approximately one-quarter (155 of 575) of all refuges either have or have had oil and gas activity.<sup>69</sup> The GAO also found that "The Fish and Wildlife Service has not assessed the cumulative environmental effects of oil and gas activities on refuges" which range from negligible to substantial, and from temporary to long term.<sup>70</sup> In fact, the GAO found that U.S. Fish and Wildlife didn't even know how many oil and gas wells were operating within its refuge system.

On private land, however, the tradeoffs that come with being able to use oil and gas revenues to protect environmentally sensitive lands has led to some interesting arrangements, even within Audubon itself.

### ***1) The Rainey Wildlife Refuge***

Deep in the marshes of Louisiana, there is living proof that oil and wildlife *can* mix. The Rainey Sanctuary is such an important bird sanctuary that even the public is not allowed to visit, but because they own the land, many years ago Audubon weighed the benefits of oil and gas development against the environmental hazards, and chose to go ahead. Of course, they took the precautions they thought necessary to protect the birds, but they also reasonably determined that the risks of environmental damage were outweighed by the size of the revenues from development.

Rainey's 26,000 acres of brackish and freshwater marshes are a rich feeding area for wintering waterfowl. And in the early 1980s, gas wells in Rainey brought in close to a million dollars in revenues to the preserve.<sup>71</sup> The wells have been in operation for decades, and the wildlife doesn't seem to mind.

Thus, despite the National Audubon Society's opposition to oil and gas exploration on public lands like ANWR, state chapters of the Audubon Society in Louisiana and elsewhere have demonstrated that it can be done responsibly.<sup>72</sup>

### ***2) Welder Wildlife Refuge***

Another interesting demonstration of environmentally sensitive oil and gas exploration occurs on the Rob and Bessie Welder Wildlife Refuge near Corpus Christi, Texas. This 7,800-acre refuge was formed in 1954 after the death of Rob Welder, a Texas rancher who made his fortune in oil. Mr. Welder had a passion for wildlife, and set up the private, non-profit foundation. According the foundation, "no other organization has dedicated itself solely to conducting wildlife research in the midst of a ranching operation and an active oil field."<sup>73</sup>

The refuge today is a working cattle ranch with operating oilfields and a healthy array of wildlife ranging from bobcats to bobwhites and tremendous wintering populations of waterfowl and shorebirds. Welder has had as many as 25 producing wells on the property, but in recent years, advances in slant drilling have allowed for fewer pads.

The fact is that on private land, whether owned by an individual, a corporation, an environmental group, or a non-profit educational foundation, there are environmental benefits flowing from oil and gas revenues.

## B. Mining and Habitat Protection

Mining on public lands is an interesting case because of the Mining Law of 1872, an oft-maligned but still extant law that allows for the ownership, rather than a lease from the federal government, of metals mining. Specifically, the law allows U.S. citizens to claim land for mining purposes in units of 20 acres as long as \$100 per year is spent on the land, and it also allows the conversion of those claims to ownership of the land for \$2.50 an acre.<sup>74</sup> This is a radical departure from other commercial uses of federal lands, which are all based on lease instead of outright ownership.

While mining activities cover an extremely small percentage of federal lands, the environmental impacts of mining often extend beyond the areas that are actually mined, most notably in pollution of surface and groundwater.<sup>75</sup> Environmental regulations have addressed many of these concerns, and mining companies today normally have to offer up a bond that is only returned after environmental restoration of the site is completed.

Private ownership does create the right incentives, but only applies to a narrow group of mining activities (only metals mining), and claims are nullified if the land is put to non-mining uses, which severely limits the opportunities that owners have to benefit from improvements to the land.

### *1) Peabody Energy Company's Recreational Lands*

Peabody Energy Company is the world's largest coal company. That has not stopped it, however, from exploring recreational and eco-tourist opportunities on the lands that it owns. Peabody runs a number of its reclamation sites for recreation now, including the Williams Fork Mountain Ranch, for example, a hunting lodge in the midst of 22,000 acres in the Rocky Mountains.<sup>76</sup> Revenues at the property run from elk hunting and trout fishing to mountain climbing and wildlife viewing. Peabody also owns and manages Waterside, an 8,600-acre property in southern Illinois. Waterside was mined for over fifty years, but is now primarily a wetland habitat for waterfowl, shorebirds, turkey, deer and upland game.<sup>77</sup>

## C. Preserving Healthy Forests

Forests offer another stark contrast between public and private management. The National Forests were set up initially for logging, but over the past 30 years that focus has shifted to preserving wilderness, on top of over 100 years of fire suppression. Instead of forests with big trees and green, open areas underneath, fire suppression has created dense underbrush, so that now when there is a fire, it burns hot enough to reach the crowns of the bigger trees, killing them. They are also more susceptible to disease and pests such as bark beetles.

In fact, in California there is frequently a simple test one can use to determine where the boundaries of public and private forests are. Just fly over the forest in a plane and look for the line where the color of the trees turns from green (private) to brown (public).

On private lands salvage harvests are typical, which limit noxious pests and control the undergrowth. Many private forest owners are also moving away from logging as their sole revenue, toward such activities as camping, hiking and fee-hunting.

In fact, due to current management practices on public lands, George Reiger, the conservation editor at *Field and Stream*, believes that “the future of hunting for millions of American sportsmen will be on privately managed farms, forests and rangelands.”<sup>78</sup>

### ***1) The Healthy Forests Initiative***

According to the U.S. National Interagency Fire Center, an average of over 4 million acres of forestlands has burned over the last ten years, and in 2000 and 2002 alone, almost 7 million acres burned each year.<sup>79</sup> In 2000, the United States suffered its worst wildland fires in 50 years, and still, according to the U.S. Department of Interior, another 190 million acres of federal lands face a high risk of catastrophic fire.<sup>80</sup>

Many of these larger fires are the result of a U.S. forest policy of fire suppression over the last 150 or so years, which has resulted in a large fuel buildup, and the potential for a few large fires instead of a larger number of smaller fires.

This has led both Congress and the Administration to propose something called the Healthy Forests Initiative, which proposes to finance forest maintenance by allowing local contractors to keep the timber produced by thinning trees as they remove underbrush.<sup>81</sup> The forest service calls these arrangements stewardship contracts, and is setting strict performance measures to ensure that the risks of catastrophic fires are reduced.<sup>82</sup>

Critics point out that “Timber harvesting and hazardous fuel reduction activities are two completely different things.”<sup>83</sup> Fuel reduction thins areas thick with young trees, and cuts through brush and shrubs. It is often also followed by a controlled fire. Of course, this is expensive, and so the Initiative allows for more mature timber harvest—that is, harvest of trees that have real commercial value that aren’t part of the fuel load problem—to pay for the fuel reduction.

No doubt the merits of the Healthy Forests Initiative will continue to be debated for some time to come. What certainly can be said about the program, however, is that it is a historic shift in approach; one that combines outsourcing, conservation and commerce, *and* performance measurement of fuel reductions on federal lands. The shift from a prescriptive approach (for example, measuring fuel reductions by the square footage of wood removed) to a performance-based approach (such as ecological health and how susceptible the *remaining* trees are to catastrophic fire) is a laudable one indeed.

### ***2) State vs. federal forests***

Much of the impetus for this major shift in policy came from the leadership of the states. Many state forestry departments are dependent on revenues from their forests for their own budgets, and so they are more conscious of finding ways to combine conservation and commerce.

In Montana, for example, a 1994 study by Don Leal compared state and federal forests.<sup>84</sup> When the two were side by side, the state of Montana generated positive revenues, while the Forest Service lost money. In



addition, a statewide audit showed that state foresters did a better job of protecting water quality and wildlife habitat.<sup>85</sup> Thus, states like Montana demonstrated that conservation and commerce were a good match on forestlands.

### *3) Private forest lands*

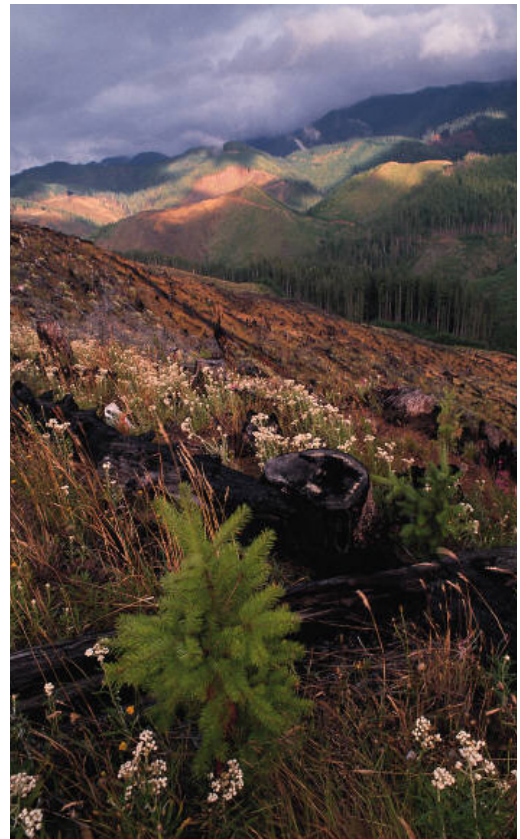
Of course, private forest owners have known this all along. In the middle of California, for example, Southern California Edison shifted management of 20,000 acres of its own forest land around Shaver Lake over 20 years ago to favor recreation.<sup>86</sup> Improvements were paid for by the trees removed, but always with an eye to improving forest health. Today, the property is a popular hiking and camping spot, filled with big trees and open meadows, and habitat for species ranging from black bears to deer to bald eagles.

A number of trade associations also offer assistance, training, and certification programs to ensure sustainable forest practices among private forest owners. The American Tree Farm System, for example, is a Washington, D.C.-based group that has promoted sustainable forestry and habitat protection on private lands since 1941.<sup>87</sup> ATFS has standards and guidelines that must be met to become a certified Tree Farm, under which forest owners must meet strict environmental standards and pass an inspection by an ATFS volunteer forester every five years.

## **D. National Parks**

National parks in the United States have suffered from severe mismanagement, and reports from the federal government's Government Accountability Office continue to document the mismanagement of the national parks, which includes an estimated \$5 billion maintenance backlog.<sup>88</sup> This backlog includes such egregious examples as a sewage system in Yosemite National Park that dates back to the 1930s that routinely spills sewage into the Yosemite Valley.

Even worse than making things uncomfortable for visitors, the parks also commonly suffer environmental degradation from overgrazing, catastrophic fires, and invasive plant and animal species. Much of this has to do with the incentives that park managers face—where the bottom line is not environmental health but political savvy. For this reason, many national parks have suffered especially from a trend toward “natural regulation,” which means, essentially, doing nothing.<sup>89</sup> Environmental economist Randal O’Toole has pointed out that under this regime of natural regulation, if 10,000 elk starve to death after eating all of the available forage, park managers can simply say “it’s not us—it’s nature.”



### *1) Big Bend Ranch State Park vs. Big Bend National Park*

Once again, it is instructive to compare state and federal efforts, and once again Don Leal offers a telling example.<sup>90</sup> Near the Rio Grande River in Texas, the Big Bend Ranch State Park and Big Bend National Park are adjacent to each other and feature very similar terrain and wildlife. Activities such as hiking, horseback riding, canoeing, and fishing are free in the National Park, but fee-based in the state park. The reason is that Big Bend National Park's budget comes from Washington, D.C., while the Big Bed Ranch is forced to make do with its own visitor revenues.

As a result, despite having fewer visitors, Big Bend Ranch earns more per acre, has much lower operating expenses per acre, and despite a much smaller staff, provides more services.<sup>91</sup>

### *2) Outsourcing*

One method that may improve national park management is outsourcing, whereby both services and overall park management may be contracted out to private entities.<sup>92</sup> Outsourcing has worked well in Newfoundland, for example, where Newfoundland's Parks and Natural Areas Division competitively sourced 21 of its 34 provincial parks to private operators. The parks remain public property, and the types of leases vary from short term to 50 years. Under private management, the parks no longer need public financing and must respond effectively to public demands for environmental amenities and quality tourist facilities to survive.

#### **Key Points: Public vs. Private Land Management**

- About one-third of the land in the United States is owned by the federal government, with the greatest concentration occurring in the West and in Alaska. A recent study found, however, that despite increases expenditures on public lands throughout the U.S., the quality of the land has deteriorated. One of the main reasons for this is that revenues from these lands are often unrelated to the budgets given to them by agencies like the National Park Service and the Forest Service.
- Private landowners, on the other hand, face a direct correlation between the health of the land and the revenues they derive from it, and they also face the immediate tradeoffs of sacrificing, for example, recreation for timber harvesting. These tradeoffs are the reason that many private landowners are finding innovative, environmentally sensitive ways to harvest trees, explore for oil and gas, or reclaim mine sites so that hunters, hikers, or birdwatchers will still want to visit.



## Part 6

# Protecting Coastal and Ocean Environments

## A. Maintaining Sustainable Fisheries

One of the few empirical studies of the effects of private institutions on marine resources compared oyster beds managed by state regulators to those leased privately in the Chesapeake Bay and the Gulf of Mexico.<sup>93</sup> This study found that the leased oyster beds were healthier, better maintained, and produced larger, better quality oysters. Leaseholders invested in protecting their oysters and enhancing oyster habitat.<sup>94</sup>

### 1) ITQs

Although the benefits and feasibility of private ownership are most readily apparent for sedentary species like oysters, they may also be perfectly applicable to more far-ranging species as well. Of course, fisheries are rarely either wholly private or wholly public, but many countries are attempting to improve fisheries management by introducing some limited forms of private ownership into the fisheries, specifically by creating Individual Transferable Quotas (ITQs).

ITQs grant a right to harvest a certain percentage of the Total Allowable Catch (TAC) of fish in a given year, and ITQs can be bought or sold. Over time, ITQs may also offer a real opportunity to move toward the private ownership of marine resources. Over the last few years they have been introduced most notably in New Zealand, Iceland, Australia, the United States and Canada.

While not really private rights, in contrast to regulation-based controls, ITQs provide positive conservation incentives for those harvesting resources, in large part due to the fact that the health of the fishery is capitalized into the value of the quota. In other words, the brighter the prospects for future harvests, the more ITQs will be worth, allowing ITQ owners to gain now from steps they take to ensure the long-term future health of the fishery.

A comprehensive ITQ system was introduced in New Zealand in 1986. Today, following numerous improvements, the program appears to be tremendously successful. Fish stocks are generally healthy and ITQs have ended subsidies, reduced fishing capacity, and encouraged investment in scientific research.<sup>95</sup> The New Zealand Ministry of Agriculture's Philip Major described a remarkable transformation after the creation

of the ITQ system; “It’s the first group of fishers I’ve ever encountered who turned down the chance to take more fish.”<sup>96</sup>

Ownership rights have also started to radically change the way entrepreneurs look at fisheries. When regulatory controls are the norm (which they still are in most of the world’s fisheries), fishermen look for innovative ways to beat the system, such as they did in the Alaskan halibut fishery mentioned earlier.

Today, the Alaska halibut fishery is one of the best managed in the United States, managed by an Individual Transferable Quota (ITQ) system. A recent letter to the *Alaska Fisherman’s Journal* summed up the change: “We fish better weather, deliver a better product, and have a better market. This is a better deal.”

A sense of ownership has also helped to reduce the conflict between commercial fishermen and anglers, a conflict which has grown in the United States in recent years as many recreational fishermen would like to see less commercial fishing and have supported ballot measures to do just that. On the other hand there is the Icelander Orri Vigfusson and the North Atlantic Salmon Fund (NASF). The NASF represents anglers who would like to see less offshore salmon fishing, but instead of trying to exert political pressure, the NASF has raised enough money in recent years to completely buy out the entire Greenland commercial salmon fishery. The Greenlanders do not have any individual fishing rights, but they do know who has the right to fish and who does not, and so there is a group of ‘owners’ to bargain with. The NASF is one more example of an ingenious solution to an environmental conflict, made possible by at least some form and definition of property rights.

## B. Protecting Marine Habitat

The latest formal complaint against the California Coastal Commission arises from a dispute with a marine environmentalist and his plans to seed kelp beds on the ocean floor.

Kelp forests are havens of biodiversity, but according to the California Department of Fish and Game they have been in decline since at least the late 1960s, especially in Southern California. A Newport-based nonprofit, the Marine Forests Society, aimed to stem this decline by creating artificial kelp habitats. Their idea is to restore water quality by seeding shellfish, especially mussels, on suspended plastic tubes, which then creates the right ecological conditions for kelp growth. The kelp attaches to a series of submerged tires (the cheapest non-toxic, durable substrate they could find). Detractors accuse the Society of simply dumping junk—but the marine life is there for all to see (although by mandate there is now no maintenance of the reef), and a simple dumping plan hardly seems like it would merit the designs of the Cal-Tech biologist who worked on them.

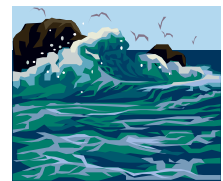
The Marine Forests Society first received approval from Newport Beach officials and a lease from the state Department of Fish and Game for a ten-acre experimental reef, which it planted in 1993. The Coastal Commission, however, deemed the reef “unpermitted development,” and refused to issue a retroactive permit. In 1999, the Commission issued a cease and desist order, and so development and most maintenance of the reef has stopped.

### 1) Artificial Reefs

Historically, Alabama has had the most lenient laws regarding creating artificial reefs. Reefs cannot be owned outright, but permit holders do not have to specify the exact location of their reef. The fishermen sink objects to form artificial reefs and attract fish, and then hope to keep the location secret. Satellite systems, such as GPS, allow fishermen to return to their exact location at sea. A secret location allows for limited exclusion, so fishermen can capture some of the returns on their investment. As a result of artificial reef production, Alabama produced 33 percent of the recreational red snapper catch in the Gulf States in 1992, even though it has only 3 percent of the Gulf shoreline, a huge increase over catches prior to the start of the artificial reef program.<sup>97</sup>

#### Key Points: Protecting Coasts and Oceans

- Overfishing and coastal degradation are common because of what is commonly referred to as the “tragedy of the commons”, which occurs when valuable resources are free for the taking, whether fish, clean water or habitat. The key to rehabilitating and sustaining the ocean environment is overcoming it through private stewardship and property rights.
- New Zealand provides one illustration of the full potential of marine property rights. Because they have secure tenure over their fisheries, New Zealand fishermen have formed management companies that invest in stock research and enhancement. They manage the resource cooperatively with the government, they take multi-species management into consideration, and are even experimenting with no-take zones. In other words, property rights to fish have created the kind of integrated management framework necessary to improve the marine environment.



### C. Coastal development and habitat protection

California’s coastline is one the most gorgeous and dramatic in the world. It is also among the most heavily regulated. The California Coastal Commission controls all 1,150 miles of California’s coastline, and has been called “one of the most powerful and influential regulatory bodies in the country.” Unfortunately, its actions are not always in the best interests of the environment

From its inception in the early 1970s, the Coastal Commission has been controversial. Ironically, the oldest and latest development projects stymied by the Commission are also probably the most environmentally sensitive. In the late 1960s a group of developers made plans to develop ten miles of the Northern Sonoma coast into what is now The Sea Ranch. Their far-sighted vision incorporated a strict set of architectural and visual covenants that mandated every home fit into the natural setting and tread as lightly as possible on the coast. For example, no property lines would be visible, no ocean views obstructed, no building would occupy the actual coastline, only natural wood exteriors would be used, and only native vegetation would be planted.

The Sea Ranch Condominium, one of the first buildings constructed, is still studied today by architects all over the world. It incorporated the natural landscape and used clustered housing and solar power to reduce its environmental impact. Nevertheless, the size of The Sea Ranch and the limitations it imposed on public



beach access created a public stir, eventually leading to the passage of Proposition 20 in 1972, which established the forerunner of the Coastal Commission. In 1976 the state legislature passed the Coastal Protection Act, creating the Coastal Commission that exists today.

As a result, a building moratorium was imposed on the Sea Ranch and an acrimonious fight began. It took special legislation in 1980 to resolve the conflict. Coastal access was assured, the number of lots reduced (by over half to under 2,500), and building was allowed to proceed.

The result? Nobody got what they wanted, and the environment suffered. After seven years of moratorium and therefore virtually no income, the owners of The Sea Ranch needed an infusion of capital, and the only way to get it was to liberalize their covenants. There is still a Sea Ranch Design Committee that approves all construction and landscaping, but according to some environmentalists, “The original, idyllic concept of Sea Ranch became a network of overgrown vacation homes, private roads and well-off transplanted residents.”

## Part 7

## Conclusion and Recommendations

Human ingenuity and the entrepreneurial spirit underlie most conservation success stories. Under private ownership and stewardship, problem-solvers become remarkably resourceful at protecting and enhancing the value of what they own, for reasons as broad as profit and aesthetics, and ranging from fisheries and forests to backyard gardens. Using performance indicators to measure and acknowledge conservation success, especially in the context of using the land, is the next logical step.

A performance-based system for tackling environmental and conservation challenges should be based on the following principles as laid out by the National Governor's Association Enlibra statement:

- **Assign Responsibilities at the Right Level.** With standards and objectives identified, there should be flexibility to achieve them and to provide accountability. Local governments or private entities that can demonstrate the ability to meet or exceed standards and goals should be empowered to do so.
- **Use Collaborative Processes to Break Down Barriers and Find Solutions.** Successful environmental policy implementation is best accomplished through balanced, open, and inclusive approaches at the ground level, where interested stakeholders work together to formulate critical issue statements and develop locally based solutions to those issues.
- **Reward Results, Not Programs—Move to a Performance-Based System.** Solving problems, rather than just complying with programs, should be rewarded.
- **Separate Subjective Choices from Objective Data Gathering.** Environmental science is complex and uncertainties exist in most scientific findings. In addressing scientific uncertainties that underlie most environmental issues and decisions, competing interests usually point to scientific conclusions supporting their view and ignore or attack conflicting or insufficient information. A better approach is to reach agreement on the underlying facts as well as the range of uncertainty surrounding the environmental question at hand before trying to frame the choices to be made.
- **Markets Before Mandates—Replace Command and Control with Economic Incentives Whenever Appropriate.** Market-based approaches and economic incentives often result in more efficient and cost-effective results and may lead to more rapid compliance. These approaches reward environmental performance, promote economic health, encourage innovation, and increase trust among government, industry, and the public.

- **Recognition of Benefits and Costs.** The implementation of environmental policies and programs should be guided by an assessment of the costs and benefits of different options across the affected geographic range. To best understand opportunities for win-win solutions, cost and benefit assessments should look at life-cycle costs and economic externalities imposed on those who do not participate in key transactions. The assessment of options should consider all of the social, legal, economic, and political factors while ensuring that neither quantitative nor qualitative factors dominate.

Of course, many performance measures will be site-specific, and unfortunately, there is little experience with broad conservation performance on private lands because there has been so little entrepreneurial activity or donor-mandated contract fulfillment to encourage their refinement. A general idea and gist of possible performance measures would include:

- Increases or decreases in endangered species population numbers over time
- Well-defined recovery targets for endangered species, such as minimum population size over a specific area, both as a de-listing criteria and to determine whether the population is self-sustaining or not
- Increases or decreases in non-listed species that are associated with endangered species to evaluate overall ecological health
- Increases or decreases in acreage of specific wildlife habitat types
- Economic value of the land under private management with and without restrictive regulation
- Increases or decreases in invasive species over a specific area
- Specific measures of environmental quality of pollution, such as, in water quality, parts per million of nutrients such as phosphorus and nitrogen
- Percentages of targeted habitat that meets specific criteria for ecological health
- Percentage of land managed using “best management practices”
- Changes in incident rates of shocks such as disease, algae blooms, etc.

If the framework is right, and the incentives are there, the performance measures can be determined and applied. When that happens, we start to move away from conflict and confrontation over solving environmental challenges and toward cooperative and collaborative approaches where we can actually measure the results.

## About the Author

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- <sup>83</sup> Matthew Hall, "A Forester Looks at the Healthy Forest Initiative," *West by Northwest.org*, Feb 11, 2003, <http://westbynorthwest.org>.
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- <sup>88</sup> U.S. Government Accountability Office, "National Park Service: Efforts Underway to Address its Maintenance Backlog," September 27, 2003. [www.gao.gov/cgi-bin/getrpt?GAO-03-1177T](http://www.gao.gov/cgi-bin/getrpt?GAO-03-1177T)
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- <sup>90</sup> Donald Leal and Holly Fretwell, "Back to the Future to Save Our Parks" PERC Policy Series Issue Number PS-10, June 1997. [http://www.perc.org/publications/policyseries/back\\_future\\_full.php?s=2](http://www.perc.org/publications/policyseries/back_future_full.php?s=2)
- <sup>91</sup> Ibid.
- <sup>92</sup> Geoffrey Segal, "National Parks" testimony to the Senate Energy and Natural Resources Committee, Subcommittee on National Parks, July 24, 2003. <http://www.rppi.org/nationalparkstest.html>
- <sup>93</sup> Richard R. Agnello and Lawrence P. Donnelley "Property Rights and Efficiency in the Oyster Industry," *Journal of Law and Economics*, Vol. 18, 1975, pp. 521-533.
- <sup>94</sup> Unfortunately, oyster populations throughout the Chesapeake have been devastated in recent years by two different kinds of disease, known familiarly as Dermo and MSX, which have cut back oyster populations to less than 1 percent of their historic levels.
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- <sup>97</sup> Eric S. Cisar, "Artificial Reefs: Making Something from Nothing," *Tide*, November/December 1993, p. 44.