

CIVIC ENVIRONMENTALISM IN ACTION

A FIELD GUIDE TO REGIONAL AND LOCAL INITIATIVES

By: Marc K. Landy
Megan M. Susman
Debra S. Knopman



Redevelopment of Gilbert-Mosley Brownfield



Planting trees in the Chesapeake Bay Watershed



Red-cockaded Woodpecker in the Sandhills

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Progressive Policy Institute

600 Pennsylvania Avenue SE, Suite 400

Washington, DC 20003

e-mail: ppiinfo@dlcppi.org <http://www.dlcppi.org/>

phone (202) 547-0001 fax (202) 544-5014

Civic Environmentalism in Action

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Marc K. Landy, Megan M. Susman, and Debra S. Knopman

*Progressive Policy Institute
Center for Innovation and the Environment*

January 1999

ACKNOWLEDGEMENTS

We are grateful to our colleagues at the Progressive Policy Institute for their advice and counsel throughout the study, writing, and publication process: Will Marshall, Chuck Alston, Martina Childress, Amy McAndrews, and Laura Cook. We also thank Keith Bloom and Eileen Sullivan for their assistance with design and production.

DeWitt John at the National Academy of Public Administration was the first person to articulate (and name) civic environmentalism and was kind enough to share his expertise with us.

Special thanks to contacts and reviewers for each case study:

Chesapeake Bay Program: Frances Flanigan, Alliance for the Chesapeake Bay; Kent Mountford, Chesapeake Bay Program; Tony Redman, Local Government Advisory Committee; Ann Powers, Pace University; Michael Haire, Maryland Department of Environment; Diane DuCharm, Pennsylvania Chesapeake Bay Education Office.

CALFED Bay-Delta Program: Elizabeth Ann Rieke, now with the U.S. Bureau of Reclamation; Tom Graff, Environmental Defense Fund; Christopher D'Elia, Maryland Sea Grant College; Scott McCreary, CONCUR; Dick Daniel, Sharon Gross, Valerie Holcomb, and Rick Soehren, all from CALFED.

Coles Levee Ecosystem Preserve: Steve Geddes, ARCO; Ron Remple and Jeffrey Single, California Department of Fish and Game.

Sandhills Safe Harbor: Ralph Costa and Pete Campbell, U.S. Fish and Wildlife Service; Robert Bonnie and Michael Bean, Environmental Defense Fund.

Wichita Brownfield: Mark Glaser, Wichita State University; Jack Brown, City of Wichita; Rick Bean, Kansas Department of Environmental Health; George Huenergardt, Wichita-Sedgwick County.

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Civic Environmentalism in Action: A Field Guide to Regional and Local Initiatives is designed to help policymakers at all levels of government create innovative, place-based solutions to local and regional environmental problems. It examines five successful case studies—two each in the policy areas of estuary restoration and endangered species protection, and one brownfields redevelopment case—to illustrate civic-environmental approaches to stewardship. These cases provide good models for decision-makers to use when creating policy solutions to environmental problems in their communities.

Civic environmentalism uses the power of place—a citizen's love for a certain place, be it where she lives, where she hikes, or simply where she goes to sit quietly and find some peace—as a foundation for innovative, dynamic collaborations among governments, citizens, and private companies. Because they are site-specific, civic environmental policies are better suited than command-and-control regulations to deal with certain issues, such as polluted runoff, habitat protection, and reuse of contaminated land.

Yet civic environmental policies also depend heavily on the foundation of federal and state environmental standards. These federal laws provide either a legal framework on which to build a consensus, as in the Chesapeake Bay Program, or a “stick” which can be avoided through local and state action, as the Wichita brownfields case illustrates. In addition, federal funding can be essential to the success of a project.

Civic Environmentalism in Action is organized to provide useful information clearly and concisely. Each case study lists the governmental innovation, the environmental results, and the lessons learned from the project. At the end of each of the main sections, “Actions for Decision-Makers” suggests ways in which federal, state, and local officials can use these lessons to craft solutions to local or regional environmental problems. A list of resources and contacts gives policy-makers some leads for more information. A list of general resources appears at the end of the report. Finally, for those who want more detail, the full case studies of each project are at the end of the guide.

Some of the major lessons learned from the case studies include:

Partnerships: Watershed Restoration

The Chesapeake Bay Program has gathered federal, state, and local policymakers together with the non-profit and business communities to find cooperative, long-term solutions to the environmental stresses on the Chesapeake Bay and its tributaries.

- **Strong public support is the program's best asset.**
- **The program has identified clear and attainable goals.**
- **States and localities have flexibility in how to attain these goals.**
- **The federal Clean Water Act provides a statutory framework and funding mechanism.**

The CALFED Bay-Delta Program was originally a task force of federal, state, and local officials to resolve water-allocation disputes. It now is a broader, publicly accountable collaborative effort to craft a long-term solution to the Sacramento/San Joaquin Bay-Delta's water-allocation and water-quality problems.

- **Some water users have been willing to trade some of their allocations for more certainty in their overall supply.**
- **The state has regained its primacy in water quality decisions.**
- **Federal laws on endangered species, water quality, and water supply are being used as levers to promote compromise.**
- **A consensus decision is possible even in the face of scientific uncertainty.**

EXECUTIVE SUMMARY

Private Incentives/Public Interest: Endangered Species Protection

The Coles Levee Ecosystem Preserve in California balances ecosystem conservation with resource extraction. ARCO has divided the preserve into conservation credits which it can sell to other developers needing conservation mitigation for their projects.

- **Species conservation is made profitable for landowners.**
- **Industry and the state are cooperating to implement a solution.**
- **The preserve is self-sustaining.**

The Sandhills Safe Harbor is an agreement between private landowners, the State of North Carolina, and the U.S. Fish and Wildlife Service which allows property owners to continue economic activity as long as the population of red-cockaded woodpeckers on their land remains stable.

- **Safe Harbor reduces property owners' fear of unfair government intervention.**
- **State government is a partner with landowners in habitat protection.**
- **Regulatory certainty translates into market advantage.**

Community Involvement: Brownfields Redevelopment

The Gilbert-Mosley Brownfield Program in Wichita, Kansas, is cleaning up contaminated areas of the city, shoring up the tax base, and redeveloping tainted lands.

- **The city used a federal hazardous-waste liability law as leverage.**
- **Stakeholders within the city have been involved from the beginning.**
- **The city is keeping the public informed of progress on site clean-up and has the public's trust.**
- **The city is working constructively with state and federal agencies and the private sector to forge site-specific clean-up plans.**

TABLE OF CONTENTS

AN INTRODUCTION TO CIVIC ENVIRONMENTALISM	3
SECTION I — Partnerships: Watershed Restoration	7
Chesapeake Bay Program (Maryland, Pennsylvania, Virginia, District of Columbia) 8	
CALFED Bay-Delta Program (California)	11
Actions for Decision-Makers	15
Resources and Contacts	16
SECTION II — Private Incentives/Public Interest: Endangered Species Protection ..	17
Coles Levee Ecosystem Preserve (California)	18
Sandhills Safe Harbor (North Carolina)	21
Actions for Decision-Makers	24
Resources and Contacts	25
SECTION III — Community Involvement: Brownfields Redevelopment	27
Gilbert-Mosley Brownfield (Kansas)	28
Actions for Decision-Makers	31
Resources and Contacts	32
CONCLUSION	33
CASE STUDIES	
Chesapeake Bay Program	35
CALFED Bay-Delta Program	47
Coles Levee Ecosystem Preserve	57
Sandhills Safe Harbor	63
Gilbert-Mosley Brownfield	69
APPENDIX A: Methodology	75
APPENDIX B: General Resources and Contacts	76

AN INTRODUCTION TO CIVIC ENVIRONMENTALISM

In the environmental field, one hears a lot about what fails and what breeds mistrust. One hears much less about what succeeds and what circumstances foster meaningful cooperation and responsible action. This report focuses on success. It describes five important environmental success stories, each of which contains lessons about what works and how collaborations involving citizens; property owners; environmental action groups; and local, state, and federal agencies can solve difficult and diffuse problems of natural resource use and improve environmental quality in the process.

Although each of these stories is different, they all share a spirit of innovation and cooperation. None is the product of a single agency or leader. All of them call upon the intellectual and material resources of diverse interests and organizations. We call this type of creative and dynamic policy activity **civic environmentalism**.¹

Civic environmentalism is the synthesis of the deep and enduring national consensus about the environment and the desire of communities and regions to solve their own problems in their own way. It is a clear departure from the first generation of national environmental policies that have tended to impose top-down and prescriptive solutions to address one problem at a time, independent of the circumstances in a particular place. For yesterday's pollution problems, the first generation policies worked (and continue to work albeit with diminishing efficiency), but the more complex and often diffuse environmental problems of today demand new tools of engagement. Civic environmentalism is a cornerstone of a second generation of environmental stewardship that redefines responsibilities among levels of government, yet roundly rejects national divestiture in environmental matters; thrives on innovative problem-solving in the private and public sectors; and harnesses market forces to drive better environmental performance.

Civic environmentalism shares the broad goals of the environmental movement—to improve the quality of the air, water, and land, and to protect human

health and species diversity. The word “civic” emphasizes its particular commitment to engaging citizens. Too much of modern public policy treats people as if they were merely consumers or clients. But Americans are more than that. They have a strong public concern. They take an active interest in the well-being of their neighborhoods, communities, and nation. Policy that fails to recognize and build upon such public-spiritedness deprives itself of a valuable and dynamic resource.

Because civic environmentalism is quintessentially a local activity, the trick is to encourage it without undermining the strong protective fundament provided by the landmark federal environmental statutes. Civic environmentalism offers a principle for coping with this dilemma. It recognizes that the geography of environmental problems rarely meshes with existing political boundaries. But it does not use this lack of fit as an excuse to shove decision-making up too high or bring it down too low. Instead, it recognizes that place-based environmental problems will often require individualized institutional designs enlisting the various affected jurisdictions in a manner that enables each to make the most useful possible contribution. It strikes a new balance between national standards and local solutions.

To achieve the requisite blend of local, state, and federal power requires that the debate about policy decentralization move beyond the caricatures fostered by ideological camps. The Right often sounds as if federal environmental standards and regulations exist solely to deprive private firms and property owners of their liberty. The Left often seems to imply that all attempts to devolve environmental policy-making authority are merely pretenses for environmental degradation. In truth, there is no magic wand capable of wiping away all the legitimate sources of conflict and resentment which these caricatures exploit. States and localities will always have some cause to chafe at what they consider to be excessive federal intrusion. The national government will always have some grounds for thinking that state and local governments do not fully see “the big

¹ For an excellent, pioneering discussion of this concept, see DeWitt John, *Civic Environmentalism* (Washington, DC: CQ Press, 1994).

AN INTRODUCTION TO CIVIC ENVIRONMENTALISM

picture.” The marriage between the levels of government will never be a love match, but as our studies illustrate, it can become a stable and productive union with civic environmentalism as its valuable progeny.

Civic environmentalism addresses a raft of problems that the command-and-control mode of centrally imposed regulations has failed to adequately cope with and for which more flexible and collaborative solutions must be found. Among others, these include: non-point sources of water pollution, habitat protection, and the redevelopment of toxic waste sites. The common thread of these problems is the important role of land-use decisions and the interplay of public objectives with private property rights. As other problems which have been successfully addressed by federal environmental laws become less severe, these issues come increasingly to the fore. The Clean Water Act, for example, has been relatively successful at forcing “point sources”—paper mills, power plants, and the like—to reduce discharges. Non-point sources now form a growing percentage of the water pollution problem.

But “non-point sources” is just a euphemism for “us.” It is the sum total of the wide variety of often small-scale activities that cause pollutants to run off the land and into the water. For the federal government to try to force compliance from the small farmers, suburban gardeners, and small businessmen who constitute non-point sources would be the public policy equivalent of herding cats. As the Chesapeake Bay Program shows, for example, the more that citizens recognize that “the enemy is us,” the more they are inclined to acknowledge their own part in the problem. They pierce the veil of abstraction attached to a fancy term like “non-point source” and start to think about how they might reduce their own use of lawn chemicals and encourage their neighbors to do the same. Furthermore, they come to see themselves as pollution fighters in much the same vein that the community policing movement has encouraged ordinary citizens to think of themselves as crime fighters. Personal responsibility, civic education, and mutual vigilance replace coercion from afar as the bases for community improvement.

The essence of civic environmentalism is public participation, encouraging individuals and organizations to become active and creative partners in environmental improvement. But meaningful participation does not come free of charge. The price of involvement is obligation. Civic environmentalism captures the energy of citizens, gives them a say in decision-making, and encourages them to recognize their civic duty. Policy is shaped by the circumstances of a particular place. Those who live and work in that place accept responsibility for actions to make the environment of that place better.

Like all really strongly held sentiments, love of place can prove highly problematic. The efforts of people to “pull up the bridge” around bucolic communities and to adopt a NIMBY (“not in my backyard”) posture toward the construction of public facilities are prominent examples of the intense conflicts which can develop between broad public goals and local attachments. No amount of wishing will make those local attachments go away. Nor should one want to do that, because the feelings that give vent to these problems are closely akin to the feelings that provoke people to accept the responsibilities of environmental stewardship.

The key is to stimulate and harness the positive emotive powers of place while retaining sufficient centralized power in reserve to keep NIMBY, moat building, and other similar parochial impulses at bay. Several of the cases in this report do just that:

- **The Chesapeake Bay Program leverages the goals and authorities of the Clean Water Act to stimulate local land-use measures outside of the Act’s jurisdiction to reduce the flow of pollutants into the Bay.**
- **The Sandhills Safe Harbor program in North Carolina engages local landowners to voluntarily participate in long-term plans to conserve habitat for red-cockaded woodpeckers in lieu of federal prescriptions that otherwise would have been required by the Endangered Species Act.**

AN INTRODUCTION TO CIVIC ENVIRONMENTALISM

- **City leaders in Wichita, Kansas, used the liability provisions of the federal Superfund law to catalyze a local solution to the Gilbert-Mosley brownfield site, thus avoiding a lengthy and litigious federal clean-up plan.**

These cases build upon the love of place to create tailor-made local solutions that support rather than contradict national objectives. A central goal of civic environmentalism is to devise specific policy designs and institutional arrangements that provide the best avenues for this type of engagement.

Thus, civic environmentalism does not displace federally imposed standards and objectives so much as it complements and supplements them. Nor does it substitute itself for the market; the tug of private interest is too strong for that. Alexis de Tocqueville said that American democracy rested on the principle of “self interest rightly understood.” As the principle states, citizens embody a mix of selfishness and righteousness. Civic environmentalism recognizes that sound policy must appeal to both. Property owners, be they firms or individuals, feel entitled to use their property to their best advantage. But as long as their property rights are not unduly threatened, they can also be successful environmental stewards. The key is to enable them to act responsibly in ways that do not threaten their sense of entitlement. Their civic spirit is free to flourish when their private interests are made more secure.

Conceiving of environmentalism in civic terms offers two distinct advantages. It allows for better policy outcomes, and it increases the capacity of the people to govern themselves. Greater involvement in directing and managing their physical environment equips people with the skills and talents to become better citizens and leaders. Like athletics, democracy is a regimen.

Deprived of the opportunity and the inclination to take part in civic life, the “muscles” needed for good citizenship atrophy. Since the New Deal, public policy has migrated from the local to the national level; indeed, environmental policy is one of the best examples of this trend. Although this centralization was justified at the time, it has had the unfortunate effect of weakening the civic tie. With less to deliberate about locally, citizens have had less opportunity to practice and perfect the democratic arts. The localizing thrust of civic environmentalism enables citizens to vigorously exercise their political skills, honing them to the level needed to sustain self-government.

Civic environmentalism also has the potential to moderate environmental conflict. At the national level, environmental questions all too often veer into symbolic disputes in which partisan camps sacrifice palpable goals to score ideological points. Those who want to protect a particular place cannot afford to play such games; they need tangible environmental outcomes, as the CALFED case study illustrates so well. They are far less likely to sacrifice concrete environmental improvement for the sake of adversarial one-upmanship.

Not all environmental issues are amenable to civic treatment. Many, such as acid rain or global climate change, will require a blend of civic, national, or even international approaches. But, increasingly, citizens are motivated to involve themselves in environmental policy-making because they love a particular place—be it the place where they live, where they hike, or simply where they go to sit quietly and find some peace.

The power of place provides civic environmentalism with a vitality and clarity of focus that the more centralized version of environmental policy usually lacks. The strong common attachment to places inspires the bonds upon which civic action is based.

Partnerships: Watershed Restoration

Chesapeake Bay Program and CALFED Bay-Delta Program



Wading into the Chesapeake Bay

The Chesapeake Bay Program and the CALFED Bay-Delta Program reflect the productive partnership possible between different levels of government based on the unique contributions that each has to make to create innovative, place-based environmental policy.

The key to good collaborative policy design is to blend the right amounts of rigidity and flexibility. Like a boat or a building, a policy design that is too flexible will wobble and fall. One that is too rigid will break. The Chesapeake Bay Program and CALFED both reflect a judicious mix of clear-cut commitments which keep the policy intact and flexible arrangements that enable it to adjust to changing circumstances.

The worst enemy of policy improvement is inertia. In many collaborative activities, the participants believe that they have more to lose from a change in the status

quo than they do from simply keeping things as they are. Therefore it is vital that a collaborative activity be structured in such a way that, for the majority of the most crucial participants, the cost of inaction exceeds the cost of action. Something must drive the process such that a failure to “get to yes” exacts a heavy price.

What that driver is may vary enormously from case to case. Positive action in the Chesapeake Bay was driven by the strong attachment which so many of the policy participants, and the public at large, have to preserving the beauty and ecological viability of the Bay. The Bay-Delta of California elicited no comparably strong and widespread sentimental attachment. Instead, positive action in CALFED was driven by the perceived need of the major participants to reduce uncertainty regarding the future availability of a vital resource: water.

CHESAPEAKE BAY PROGRAM

THE PLACE AT A GLANCE

Watershed:

64,000 square miles

Population:

15 million

Jurisdictions Involved:

*District of Columbia, Maryland,
Pennsylvania, and Virginia*

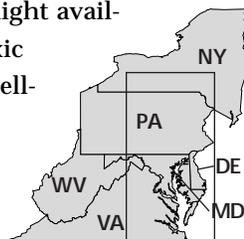
A Measure of Value:

Seafood harvests total \$1 billion per year

THE ENVIRONMENTAL PROBLEM

The Chesapeake Bay is the nation's largest estuary. Fifteen million people live in the Bay's 64,000 square-mile watershed, which includes the metropolises of Baltimore; Washington, D.C.; and Richmond. Tourism; recreation; and the harvest of oysters, crabs, and fish are all billion-dollar industries. Fifty thousand commercial vessel trips and 90 million tons of cargo pass along this important shipping route annually, and two of the five major Atlantic ports (Baltimore and Norfolk) are on the Bay. In addition, it receives the drainage of thousands of industries, millions of homes, and tens of thousands of acres of farmland.

This beehive of human activity generates all kinds of pollutants, but those of greatest concern are toxic chemicals and nutrients (nitrogen and phosphorus). Nitrogen and phosphorus run off from fertilized farmland and are discharged as by-products of livestock operations and other industries. Their fertilization increases algae growth in the Bay, which in turn decreases the amount of oxygen and light available for other plants and animals. Toxic chemicals are absorbed by fish and shellfish, posing potentially severe human health risks.



Regional Locator

THE GOVERNANCE INNOVATION

The founding of the Chesapeake Bay Program (CBP) in 1983 was based upon a series of reports commissioned by the U.S. Environmental Protection Agency (EPA), including a scientific study which established beyond a reasonable doubt that the Bay was suffering from severe environmental degradation, and an administrative study that provided an institutional framework for encouraging watershed-wide cooperation.



CHESAPEAKE BAY PROGRAM

The CBP is now the oldest and best-known estuary program in the United States and is used as a model for regional partnerships around the country and the world. It has developed a reputation for achieving results through voluntary cooperation; the only punishment for noncompliance is bad publicity. The partners in the Chesapeake Bay Program are the State of Maryland, the Commonwealths of Pennsylvania and Virginia, the District of Columbia, the Chesapeake Bay Commission, the EPA, and various advisory groups. The chief executives of these entities comprise the Executive Council, which meets annually to determine the CBP's policies. The Executive Council is assisted by various advisory committees but makes all final policy decisions.

The central CBP message is that everyone is responsible for the Bay's health. This principle of civic engagement is disseminated through schools, road signs, newspaper articles, public meetings, and other means. The Alliance for the Chesapeake Bay (ACB) coordinates the Citizens Advisory Council and does much of the Program's public outreach. Newspaper articles, the *Bay Journal* (ACB's monthly newsletter), fact sheets, and public meetings relay scientific information to the public in layman's terms. The ACB also coordinates volunteer-staffed restoration and education projects. It does not have a problem recruiting volunteers; even communities which don't border on the Bay are concerned about protecting the watershed. The ACB likes to emphasize a local benefit of protecting or restoring a stream—recreational use, fishing, public health—to spark public interest in protecting the Chesapeake. Media attention, the local Soil Conservation District office, municipal officials, and community leaders educate and motivate the citizenry; the ACB provides those local leaders with technical assistance, educational resources, and encouragement.

The Bay Program's geography, encompassing cities and rural areas, makes it an ideal forum to engage a wide socio-economic range of people in restoration efforts. Low-income communities, from Anacostia in Washington, D.C., to the watermen of Maryland's

Eastern Shore, are active in the protection and restoration of the Bay. Children in D.C. public schools help clean up the Anacostia River and learn about its ecosystems; they take this knowledge home and educate their parents. Watermen partner with environmental groups to protect their livelihood.

In 1987, the Executive Council set the ambitious goal of a 40 percent reduction from 1985 levels of controllable loads of phosphorus and nitrogen entering the Bay to be achieved by the year 2000. This reduction level would significantly improve water quality and was seen as a reasonable midpoint between the extremes of doing nothing and of trying to return the Bay to its pre-settlement condition. There is nothing sacred about this 40 percent number. A higher or a lower number would have been plausible. The great advantage of this number was that it fell within the broad band of what was scientifically defensible and yet was also deemed achievable at a reasonable cost. It made clear to all what it would mean to succeed. This inflexible goal is to be realized by linking it to specific reduction plans for the ten key Bay tributaries, each of which was assigned a specific nutrient reduction target which localities could meet in their own way, targeting education efforts and remediation plans to local circumstances.

ENVIRONMENTAL RESULTS

The CBP's combination of rigid goal setting, citizen education, and local flexibility has achieved impressive environmental results. From 1985 to 1992, the watershed achieved a 5 percent reduction in nitrogen loads and a 21 percent reduction in phosphorus loads. Estimates now indicate that the 40 percent goal will be met by 2000 for phosphorus, but not for nitrogen. Point sources have made major strides in reducing their nutrient loads; from 1985 to 1996, point sources cut their phosphorus loads by 51 percent and their nitrogen loads by 15 percent. Most of the pollution is now coming from non-point source pollution, the most difficult type to regulate and to measure. From 1986 to 1996, non-point sources reduced their phosphorus loads by 9 percent and nitrogen loads by 7 percent.

CHESAPEAKE BAY PROGRAM

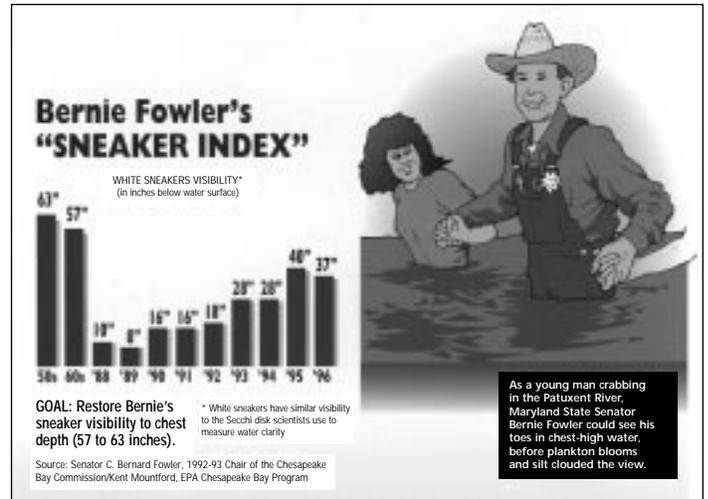
Popular confirmation of these scientific findings is provided by the Sneaker Index. As a waterman in the 1950s and '60s, former Maryland State Senator Bernie Fowler could wade into the water and see his white sneakers at chest or shoulder depth, a distance of about 57-63 inches. By 1989, however, his sneakers were obscured by cloudy water at just 8 inches. Every year since 1988, Fowler has waded into the Patuxent River at Broomes Island, Maryland, on the second Sunday in June. He goes out into the river until he can't see his feet anymore. His wading depth has increased steadily since 1988, up to 44.5 inches in 1997, as nutrients and sediments have decreased.

LESSONS LEARNED

- *Strong public support was vital*
- *Goals were clear and attainable*
- *Members given flexibility in attaining goals*

The CBP's great asset is the strong public sentiment in favor of preserving and improving the Bay environment. In a 1994 poll, 87 percent of watershed residents expressed concern about pollution in the Bay. Ninety-one percent cited the Bay restoration as an important issue facing government. These strong overall findings were mirrored in each of the watershed's separate jurisdictions and were evident even among those who lived more than 100 miles away from the Bay. The success of the CBP rests on its ability to capitalize that asset.

The Program's 40 percent reduction target is a rigid goal which provides a benchmark for measuring performance and a rallying point for mobilizing ameliorative action and political support. In order not to dissipate public support, the CBP has shown great flexibility and sensitivity in enabling and empowering its constituent governmental units to pursue that goal as best they can.



CALFED BAY-DELTA PROGRAM

THE PLACE AT A GLANCE

Watershed:
40 million acres

Population:
22 million

A Measure of Value:
Provides 40 percent of California's drinking water supplies and irrigation for 45 percent of the nation's fruits and vegetables

THE ENVIRONMENTAL PROBLEM

The key points of contention in the Sacramento/ San Joaquin Bay-Delta are water flows and salinity. The Bay-Delta covers about 738,000 acres; its watershed includes more than 40 million acres. It provides 40 percent of California's drinking water supplies and irrigation for 45 percent of the nation's fruits and vegetables.

The Delta is also the largest wetland habitat in the western U.S., and because of its low salinity transition zone—where freshwater from the Delta's tributaries mixes with ocean water—it supports tidal marsh ecosystems and important fish nurseries. As freshwater from tributaries was diverted to agricultural and municipal uses, saltwater moved further up the Delta. The low salinity transition zone grew smaller and was pushed upstream, out of the tidal marshes and into narrower, more turbulent river channels. This habitat change, combined with the 1987-1992 drought and increased populations of non-native fish species, harmed indigenous fish species. By 1993, two fish species, winter-run Chinook salmon and the Delta smelt, had been listed under the Endangered Species Act (ESA), with other petitions pending.

Any increase in freshwater flows to assist the fish populations means a reduction in freshwater for farms and drinking water. The agricultural community is politically powerful in



California—nearly one-third of California's land area is devoted to agriculture; it accounts for almost \$100 billion in direct and indirect economic activity annually—and it relies on cheap, federally subsidized water. Urban water districts are also important politically. They depend on Bay-Delta water because it is both technically and politically easier to obtain than out-of-state water sources like the Colorado River. Official estimates suggest that by 2020, if conditions continue unchanged, California will experience a significant shortfall in its water supply.

The Endangered Species Act listings would restrict the activities of the federal and state water projects which pump freshwater to agricultural and urban users. In addition, the U.S. Environmental Protection Agency (EPA) had been warning the State Water Resources Control Board (WRCB) for over ten years that it needed to adopt a stronger water quality plan to protect the fish populations. In 1993, after Governor Pete Wilson ordered the WRCB to withdraw its most recent water quality standards proposals, EPA decided to issue its own water quality standards. Finally, the 1992 Central Valley Project Improvement Act (CVPIA) mandated a reconsideration of current water allocations for urban, agricultural, and environmental uses.



CALFED BAY-DELTA PROGRAM



THE GOVERNANCE INNOVATION

A train wreck between these various initiatives could be avoided only by the adoption of a single, coherent policy for the Bay-Delta. But there were grave doubts about the enforceability of a purely federal approach. In particular, EPA feared that it lacked the authority to enforce the salinity requirements necessary to protect the Bay's endangered species because those standards dealt with water flows, not with pollution. Therefore, the relevant federal officials determined to arrive at a negotiated settlement with state government and the various users that would not test the limits of federal enforcement power.

California government agencies and the major water users likewise had a strong motivation to arrive at a negotiated settlement. If EPA's claim to enforce salinity standards by mandating increased water flows was put to a court test and the agency won, the federal government would likely insist on much lower water allocations. Better to negotiate now than face the possibility of a much worse result later on. The local business community, recognizing it had an economic stake in settling the water dispute, sent a letter to President Clinton and Governor Wilson expressing support for negotiations.

To present a united front, the federal government organized its agencies into an informal coalition, known as Club Fed. Led by Elizabeth Ann Rieke, then the Assistant Secretary for Water and Science in the U.S. Department of Interior, Club Fed began negotiations to create what was eventually named CALFED. Federal participants included the Department of Interior's Bureau of Reclamation and Fish and Wildlife Service, EPA, and the National Marine Fisheries Service. State participants were the California Resources Agency, the California Environmental Protection Agency, the Department of Water Resources, Fish and Game, and the Water Resources Control Board. Also included were representatives of municipal and agricultural users and environmental organizations.

The great stumbling block in reaching an agreement was the tradeoff between the users' demand for certainty regarding future water allocations and the federal government and its environmental allies' recognition that the existing science was insufficient to provide for such certainty. When neither faction could produce reliable scientific evidence for its position, Rieke had the license to proffer a political one. She proposed that the lower outflow estimate be chosen subject to later revision as better scientific evidence became available. She provided the users with the certainty they demanded by requiring that any additional decreases in water allocation required to provide for higher outflows would have to be purchased with federal funds from willing sellers. The CALFED deal was officially signed on December 15, 1994.

The CALFED Program, which grew out of the federal-state agreement, was charged with choosing and implementing a management plan for the Bay-Delta. Program participants, with input from public meetings, winnowed down over 100 suggested alternatives to three main options: using the existing water-supply infrastructure, possibly with minor improvements; widening or deepening existing channels to increase waterflows; or building a canal or pipeline skirting the Delta to convey Sacramento River water directly to the water pumps. These three alternatives were submitted

CALFED BAY-DELTA PROGRAM

for public review and comment in March 1998, and Governor Wilson and Interior Secretary Bruce Babbitt will select one of the three as the CALFED management plan by the end of 1998.

ENVIRONMENTAL RESULTS

As the CALFED Program has not yet selected a final management plan, major restoration projects are still years away from implementation. About 75 smaller projects, such as improved fish screens, land acquisition, and levee repairs, were funded through 1997 at a cost of about \$120 million. A quarter of these projects have met their short-term objectives as of mid-1998, but their long-term impact remains to be seen. In addition

to restoration efforts, recent wet years (including the 1997-98 El Niño event) have helped fish populations increase slowly but steadily.

Hailed as “peace in the Delta” by all participants, the deal provided for increased freshwater flows (400,000 additional acre-feet in normal years, up to 1.1 million additional acre-feet in drought years). If extra water is needed to comply with the Endangered Species Act, it can be obtained only via voluntary federal purchases. State outflow standards replaced those EPA had been in the process of imposing. In sum, the CALFED deal provided “more water for the environment, less water but more certainty for agricultural and urban users, and a return to state primacy in water quality decisions.”



Tree Irrigation

CALFED BAY-DELTA PROGRAM

LESSONS LEARNED

- *Certainty for water users was critical*
 - *State primacy in water quality decisions restored*
 - *Federal laws used as a lever to promote compromise*
 - *Scientific uncertainty didn't preclude a decision*
-

Rather than relying on the force of public opinion, CALFED relied on pressure from the federal government. Environmental laws imposed the requisite rigidity regarding the goal to be achieved, that of protecting endangered species. Attaining the goal required an increase in the amount of water flowing into the Bay-Delta and a concomitant decrease in allocations to water users. This externally imposed directive created great uncertainty regarding future water availability among the major water users. CALFED's success rested on the flexible means it devised for inducing water users to accept reduced water allocation in exchange for greater certainty.

Even in the face of scientific uncertainty, a deal can be struck. In this case, a plausible estimate served as the basis for an agreement, and all sides were protected in case that number did not stand the test of further scientific investigation.

ACTIONS FOR DECISION-MAKERS

FEDERAL OFFICIALS

- Establish environmental goals with consultation and concurrence of state officials.
- Coordinate implementation of multiple authorities through a single point of contact with clear responsibility to align regulatory processes in the most effective and efficient manner.
- Consolidate funding sources to regions/watersheds and place project coordination under a single authority.
- Encourage and support local or regional leadership with the goal of using federal resources to enable “place-based” leadership to become self-sustaining and successful.
- Provide the scientific resources early in the process to support regional solutions by establishing baseline environmental conditions and defining reasonable expectations for restoration.
- Work directly with Congressional oversight and appropriations committees to explain and support regional initiatives.
- Maintain credible and consistent standards for enforcement of federal statutes to support local or regional implementation plans.

STATE OFFICIALS

- Initiate economic studies of the impact of watershed restoration and problem resolution on state and local economies.
- Establish clear environmental goals, priorities, and measures of performance.
- Promote public information and education initiatives, particularly in the schools, to explain the value of the watershed.
- Mobilize the private sector to actively engage in developing the strategy for watershed restoration.

- Coordinate implementation of multiple state regulatory authorities through a single point of contact, taking maximum advantage of flexibility in existing law to efficiently achieve a better environmental outcome.
- Maintain credible and consistent standards for enforcement of federal and state statutes to support local implementation plans.

LOCAL OFFICIALS

- Designate a lead authority and public official who would be accountable for the restoration project.
- Develop an initial understanding of the environmental problem, drawing on multiple lines of credible scientific resources available from government, academia, non-governmental organizations, and the private sector.
- Develop a similar understanding of economic implications of various levels of action and no action, drawing on state, non-governmental, and private resources.
- Assess available technical and fiscal resources at the state and federal levels, and advocate consolidation of resources and authorities to allow maximum flexibility within the standards of existing law.
- Engage stakeholders from the general public, the business community, and the environmental community early in the process through public meetings to flag concerns and assess interest, support, leadership, and commitment. Establish clear environmental goals.
- Use all available public and private resources to develop a restoration plan with early and active public involvement.
- Work with local media to help educate the local citizenry, build support for restoration, and hold officials at all levels accountable for performance.

RESOURCES AND CONTACTS

Chesapeake Bay Program

410 Severn Ave., Suite 109
Annapolis, MD 21403
Tel: (800) YOUR-BAY
Fax: (410) 267-5777
<http://www.chesapeakebay.net/bayprogram>

Alliance for the Chesapeake Bay

6600 York Rd.
Baltimore, MD 21212
Tel: (410) 377-6270
Fax: (410) 377-7144
<http://www.acb-online.org>

CALFED Bay-Delta Program

1416 Ninth St., Room 1155
Sacramento, CA 95814
Tel: (916) 657-2666
<http://calfed.ca.gov>

U.S. Environmental Protection Agency

Coastal Management Branch
(National Estuary Program Headquarters)
U.S. EPA (4504F)
401 M St. SW
Washington, DC 20460
Tel: (202) 260-6502
Fax: (202) 260-9960
<http://www.epa.gov/nep/>

The National Estuary Program has 28 projects across the country; these individual programs can also be very helpful. Contact names and numbers for the EPA regional offices and for each estuary program are listed at <http://www.epa.gov/nep/contact.htm>.

Private Incentives/Public Interest: Endangered Species Protection

Coles Levee Ecosystem Preserve and Sandhills Safe Harbor

This pair of cases deals with problems of habitat conservation. They show how the thoughtful application of the principle of self-interest rightly understood can improve both environmental performance and economic efficiency.

The Endangered Species Act (ESA) is one of the more controversial environmental laws. One of its major weaknesses has been its inability to deal effectively with endangered species located on private lands. Roughly 70 percent of endangered plants and animals live on private property, so this failing is a significant one, both for the species and for the property owners. With no incentives written into the law for private landowners, the U.S. Fish and Wildlife Service (FWS) could use only penalties to force compliance. Consequently, the ESA became a rallying point for the property rights movement, a clear example to them of both overreaching by government and its preference for animals over people. Some private landowners believed that the discovery of endangered species on their property was tantamount to posting a “No Development” sign. They had every interest, therefore, in keeping Fish and Wildlife agents off their land and in destroying habitat before the government had a chance to find an endangered species. To compensate for these shortcomings, the FWS and others have developed mechanisms to deal with the private-land conflicts that have arisen. The following two cases were built around the innovations of **conservation banks** and **habitat conservation plans**.

In California, the state has helped the ARCO Corporation to preserve Coles Levee, a vast tract of valuable wildlife habitat, in a manner that allows the corporation to recoup the costs of that stewardship while obtaining added flexibility for its development projects elsewhere. Coles Levee is a conservation bank, based on

the practice of mitigation: if a developer wants to build on an acre of environmentally sensitive land, he must compensate by setting aside an acre or more of similar land elsewhere. Conservation banks are large parcels of land managed for habitat preservation and assigned credits by the state wildlife agency. When a private entity wants to mitigate the environmental impacts of some activity on its land, it can buy habitat restoration credits from the manager of the bank, thus avoiding the complex, expensive process of creating new habitat.

In the Sandhills of North Carolina, the Safe Harbor program grew out of habitat conservation plans (HCPs), agreements between the landowner and the FWS to preserve endangered species habitat while allowing the landowner economic use of his property. HCPs allow a landowner to apply for the “incidental take” (killing or injuring) of a species in the course of the use of the property. Safe Harbor advances the HCP idea by requiring landowners in the program to maintain a baseline population of the endangered species and encouraging them to attract more animals through habitat improvements and management for wildlife. A corollary to Safe Harbor is the “no surprises” policy that gives the plan an extended shelf life and landowners the assurance of stability in the regulatory process.

COLES LEVEE ECOSYSTEM PRESERVE

THE PLACE AT A GLANCE

Watershed:

6,056 acres, near Bakersfield, California

A Measure of Value:

1,000 barrels of oil and 15 million cubic feet of natural gas extracted per day

Part of an ecosystem containing more rare and endangered species than any other area in the lower 48 states

THE ENVIRONMENTAL PROBLEM

The Coles Levee Ecosystem Preserve is a 6,056 acre conservation bank located in the southern San Joaquin Valley near Bakersfield, California. The southern San Joaquin Valley is home to more rare and endangered animals and plants than any other area in the lower 48 states. Created by the State of California's Department of Fish and Game (DFG) and ARCO Western Energy in October 1992, Coles Levee is a large, unfragmented oasis for over a dozen endangered species. ARCO manages the preserve and sells the credits it engenders to other landowners. ARCO extracts an average of 1,000 barrels of oil and 15 million cubic feet of gas per day at Coles Levee. When its reserves are exhausted, a conservation easement guarantees that it will be maintained as a wildlife preserve in perpetuity.

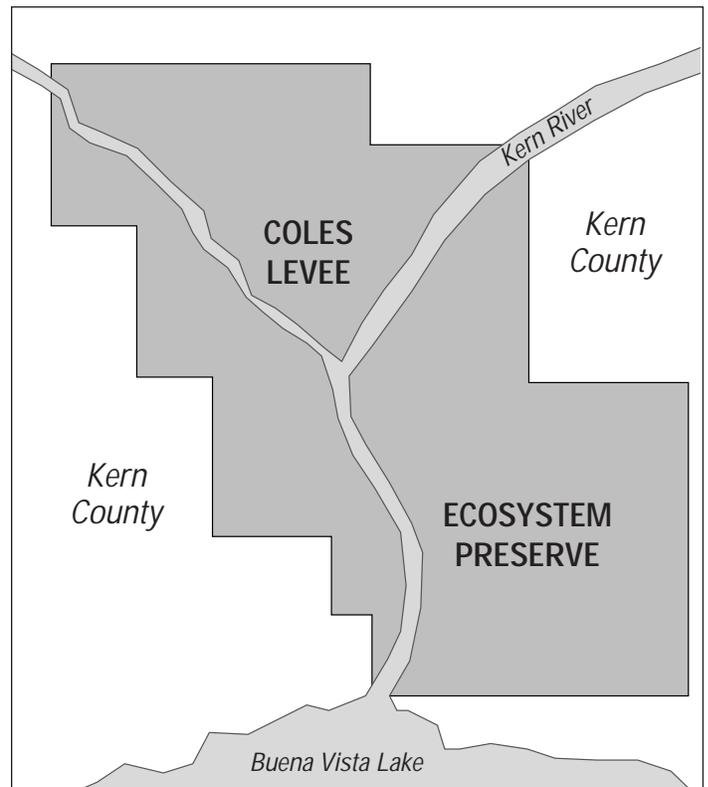
THE GOVERNANCE INNOVATION

If developers damage or destroy crucial habitat in one place, various federal and state laws can require them to mitigate by establishing or improving habitat elsewhere. Because developers and regulators may well differ about how much effort and expense such efforts should involve, costly and time-consuming disputes can occur. It is especially hard to live up to the spirit of this requirement when developments occur on small and widely scattered tracts.



Regional Locator

The agreement between ARCO and DFG demonstrates an alternative approach to habitat preservation which still requires developers to contribute to mitigation activities, but does so in a comprehensive and flexible fashion better geared to achieving palpable environmental improvement and to removing undue burdens from the developers' shoulders. The approach is called a conservation bank. It encourages a firm to embark upon a relatively large-scale habitat preservation effort by providing the firm with mitigation credits based on the size of the preserve. The firm can either use those credits to mitigate developments it is engaged in elsewhere, or it can sell them to other developers who find buying such credits to be cheaper than engaging in mitigation efforts themselves. As the Coles Levee conservation bank demonstrates, this approach is environmentally superior because the large, well-planned preserve that constitutes the bank is of much greater value as species habitat than the scattered piecemeal mitigations which developers would other



COLES LEVEE ECOSYSTEM PRESERVE



wise provide. It is also economically beneficial because it enables the “banker” to recoup her investment and the “borrowers” to satisfy their environmental requirements at less cost.

Before the creation of the preserve, ARCO had, at any given time, a number of small projects requiring mitigation. ARCO had to find mitigation parcels for each project, and DFG had to approve each one. In addition, the DFG realized that ARCO’s operations at Coles Levee were probably violating the California and federal Endangered Species Acts, but neither it nor the U.S. Fish and Wildlife Service had the resources to monitor the area continually. ARCO agreed to properly maintain and monitor the wildlife preserve, reporting periodically to the DFG, in exchange for permission to continue its Coles Levee oil and gas operations and to obtain mitigation credits that it could either use or sell. One credit represents one acre of land at Coles Levee. The ratio of mitigation varies. If a project elsewhere creates a “permanent disturbance,” it may have to purchase as many as three credits for every acre disturbed.

ARCO’s responsibilities include conducting annual biological monitoring of certain species and performing biological surveys prior to beginning projects that

threaten endangered habitat. The company also permits roughly 1,500 local 3rd through 8th grade students each year to visit the preserve to learn about its ecological, mineral, and cultural resources. DFG does no monitoring of its own. It reviews each habitat credit purchase to make sure that the habitat being destroyed is comparable to the Coles Levee habitat being preserved. Most of the projects requesting mitigation credits are local, so the habitat tends to be very similar. The DFG estimates Coles Levee meets the needs of nearly all the mitigations proposed thus far, thanks largely to the preserve’s wide variety of habitats.

The permitting process for mitigation has been cut from months to weeks. DFG’s pre-approval of the compensation credits sold to third parties reduces processing time and administrative fees. The credit purchaser does not need to provide a security deposit or letter; get a property appraisal; pay title, escrow, or tax fees; or assume any interest in or liability for the Coles Levee property. More than half of the one-acre credits have already been sold. Fees from developers seeking mitigation pay for most of the management operations and have helped to almost entirely recoup ARCO’s initial investment in setting up the preserve.

ENVIRONMENTAL RESULTS

Because Coles Levee is already being managed for species restoration, its mitigations have a better chance of succeeding than those that create new habitat parcels. Indeed, populations of endangered species have been stable since the project’s inception. Weather conditions and natural cycles have caused a decline in some species throughout the region, but DFG has no reason to believe ARCO’s management is inadequate. The science is still inexact; ARCO and DFG are still doing research on the biology of the plants and animals in the preserve and are creating adaptive management strategies.

COLES LEVEE ECOSYSTEM PRESERVE

LESSONS LEARNED

- *State and industry cooperated*
 - *Species conservation made profitable*
-

The partnership with ARCO has given DFG officials a new way to talk to industry about protecting endangered species without undue economic burden. It promotes cooperation rather than litigation. The Coles Levee model has created a market for smaller development projects to mitigate their environmental impacts easily, less expensively, and more effectively. Coles Levee harnesses the incentives of a large developer, ARCO, to a viable program of habitat preservation and restoration. Because of the ability to sell mitigation credits, the corporation can make money by managing a large ecosystem preserve. ARCO finds it easier to comply with endangered species legislation, and the company demonstrates good citizenship by voluntarily performing education and outreach services to the local community. DFG saves time, resources, and personnel by entrusting most of the monitoring of the preserve to ARCO.

THE PLACE AT A GLANCE

Area:

23,000 acres in six counties in central North Carolina's Sandhills region

A Measure of Value:

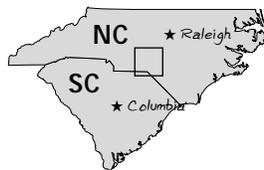
42 baseline groups of red-cockaded woodpeckers and 24 landowners

THE ENVIRONMENTAL PROBLEM

The Endangered Species Act's (ESA) perverse incentives threatened to do in the red-cockaded woodpecker. It was among the first animals placed on the endangered species list. Once common in the Southeast, its numbers dwindled as its longleaf pine habitat was decimated by logging and farming. The ESA actually contributed to its demise because landowners were so fearful of being subject to ESA regulation that they were tempted to clearcut their land before any birds could nest there. Even if they did not actively destroy habitat, they had no incentive to improve it for fear of attracting more woodpeckers.

THE GOVERNANCE INNOVATION

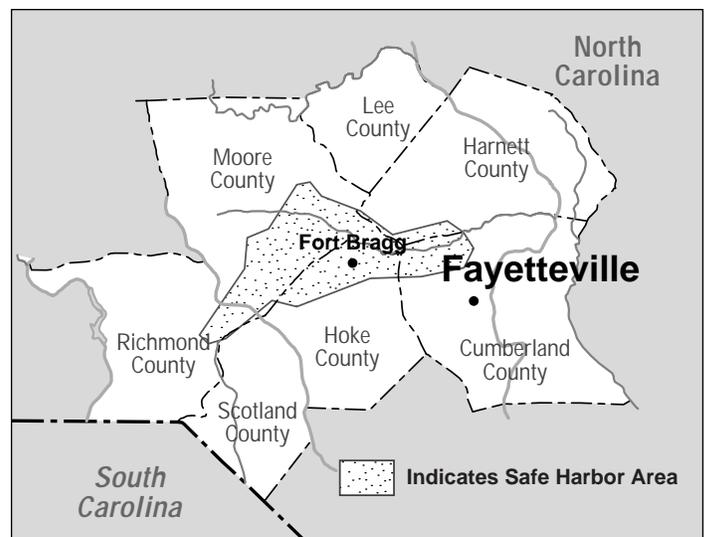
To undo this perverse impact, the U.S. Fish and Wildlife Service (FWS) joined forces with a group of state and local organizations in central North Carolina known as the Sandhills Working Group. The novel concept they developed, which they dubbed "Safe Harbor," was to refrain from penalizing landowners for removing woodpecker habitat, provided they maintained habitat for a baseline population. If the landowner agrees to serve as a steward for the woodpeckers currently on his land, he is guaranteed that the government will not further restrict his use of his land, even if more woodpeckers or other endangered species are discovered. Without Safe Harbor, a property owner might begin logging on his land, only to find a year later that wood-



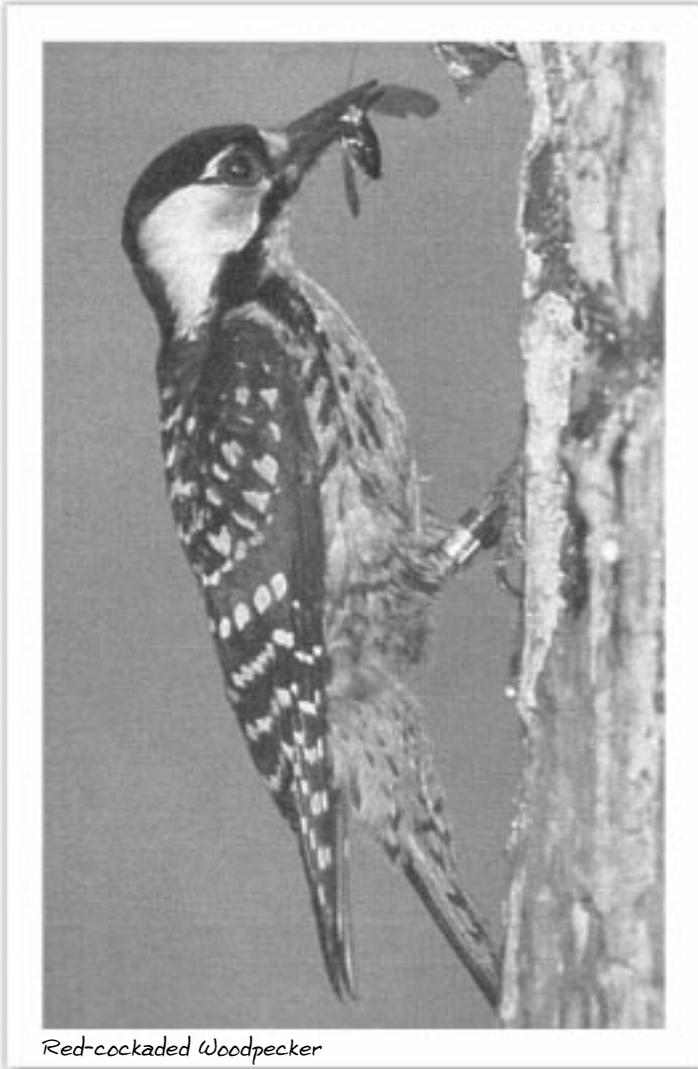
Regional Locator

peckers had begun to nest in his forest. He would then have to either cease his activities or apply for an incidental take permit (protecting him if he accidentally kills an endangered animal in the course of his activities), which he might or might not be granted. With Safe Harbor, he need not stop logging nor spend the time and money to apply for an incidental take permit, as long as he continues to find ways of protecting the number of woodpeckers he has already agreed to protect.

To initiate a Safe Harbor agreement, the landowner invites the Fish and Wildlife Service to inventory the red-cockaded woodpeckers on his lands, establishing a baseline population. He then signs an agreement promising to maintain and improve habitat as needed to sustain that baseline population. The landowner is prohibited from shooting, capturing, or otherwise taking these baseline birds. If he wants to engage in any activity that may result in an incidental taking of birds or habitat not part of the baseline, the property owner must not do so during the mating season and must notify the FWS agent in advance so that the birds can be protected or relocated. FWS agents and biologists are allowed to enter the property at reasonable times to verify that the baseline population is being maintained, to identify the birds, and to relocate them as needed. The FWS cannot impose any further constraints on the



SANDHILLS SAFE HARBOR



with red-cockaded woodpeckers in the six-county Sandhills area, 24 have signed up for Safe Harbor. Even landowners who currently have no woodpeckers on their property are applying for permits; they want to be sure that should they decide to plant longleaf pines, they would still be able to use their property as they wish, as long as they maintain sufficient habitat to protect a pre-determined number of birds.

ENVIRONMENTAL RESULTS

As of mid-1998, the baseline populations of red-cockaded woodpeckers were stable. FWS biologists had put in 8-15 new clusters of nest cavities in the previous year, but so far none of these clusters has attracted a known breeding pair. The program is still relatively new, however, and the FWS is confident that populations will soon increase. Safe Harbor permits FWS and other biologists to monitor and study birds on private lands where they previously weren't allowed; this access allows them to gather more data and refine plans to increase the number of woodpeckers.

landowner if new birds are discovered, so he has no reason to fear such discoveries.

Safe Harbor agreements generally last for 99 years, but a landowner can opt for a shorter agreement. Safe Harbor also benefits the local economy by enabling landowners to realize the economic benefits of longleaf pine production. Longleaf pine straw is a valuable mulching and landscaping material.

Production is at its highest in exactly the type of habitat needed by the woodpeckers: mature trees with little underbrush. Enrollees are the best salespeople for the program, spreading the word to other landowners and encouraging them to sign up. Of 72 land parcels

LESSONS LEARNED

- *Property owners' fear of government removed*
 - *State governments made partners in habitat protection*
-

By limiting the responsibility of landowners and providing them with certainty about the future, Safe Harbor has removed the fear of government that drove property owners to take actions they did not really want to take, such as clearcutting pines, to preclude woodpecker “infestation” that would bring the federal government down on their heads. These landowners have stopped their inflammatory rhetoric against the woodpeckers and the ESA and, in the civic environmental spirit, are now active partners in slowing or stopping the loss of the birds.

Safe Harbor makes state government a full-fledged collaborator in habitat stewardship, establishing baselines, and monitoring compliance. Other states, including Texas, Georgia, and Louisiana, have begun to adopt it. South Carolina’s Safe Harbor had 15 landowners and 84,000 acres enrolled at its inception in 1998 and expects to have every landowner in the state with red-cockaded woodpeckers signed up within a year.

ACTIONS FOR DECISION-MAKERS

FEDERAL OFFICIALS

- Provide technical and financial assistance to states to establish baseline species population statistics, with priority given to regions actively engaged in incentive programs for private lands.
- Set baseline goals for ecosystem restoration, including targets for keystone species.
- Evaluate systematically the environmental performance of existing Safe Harbor and other innovative policies, and publicly report the outcomes annually.
- Keep Safe Harbor and other incentive programs flexible enough to adjust as more research is completed.
- Continue the use of the flexibility already within the Endangered Species Act to encourage local and regional landowner incentive programs.
- Fix the Endangered Species Act to provide comprehensive incentives to private landowners to help conserve and restore threatened and endangered species.
- Maintain credible and consistent standards for enforcement of federal and state statutes to support local implementation plans.

STATE OFFICIALS

- Assume authority for endangered species restoration as resources permit, drawing on the technical and financial resources of the federal government for support.
- Set credible, science-based goals for restoration.
- Build a legislative framework for state-based endangered species restoration that would allow state administration of the recovery programs to the maximum extent feasible and rely on incentive-based private landowner actions.

- Convene a working group of economic development interests in the state, environmentalists, and other members of the public to identify state environmental and economic interests for early resolution of endangered species conflicts.
- Establish a long-term environmental monitoring program.
- Provide front line technical support and one-stop regulatory guidance to private landowners where sufficient local capacity does not exist.
- Maintain credible and consistent standards for enforcement of federal and state statutes to support local implementation plans.

LOCAL OFFICIALS

- Define your community's economic interests in conservation and development, drawing on assistance from the state, private sector, and nongovernmental organizations.
- Provide the leadership to bring landowners into discussions with state, federal, and other interests to structure innovative, market-based conservation programs.
- Draw on the resources of nongovernmental organizations, such as the Nature Conservancy and the Environmental Defense Fund, who have developed a track record of working successfully with private landowners.
- Work with state authorities to develop baseline measures of the ecological and economic health of the community.
- Provide a clearinghouse service to landowners on options available to conserve species and habitat.

RESOURCES AND CONTACTS

**California Department of Fish and Game
Environmental Services**
1416 9th St.
Sacramento, CA 95814
Tel: (916) 653-4875
<http://www.dfg.ca.gov/esd/index.html>

ARCO Western Energy
P.O. Box 147
Bakersfield, CA 93302
Tel: (805) 321-4044
<http://www.arco.com/AWE/clip/>

**U.S. Fish and Wildlife Service
Division of Endangered Species**
Mail Stop 452ARLSQ
1849 C St. NW
Washington, DC 20240
Tel: (202) 208-4131
<http://www.fws.gov/r9endspp/endspp.html>

**Field Supervisor, USFWS
Department of Forest Resources**
261 Lehotsky Hall, Box 341003
Clemson, SC 29634-1003
Tel: (864) 656-2432
Fax: (864) 656-1350

Environmental Defense Fund
1875 Connecticut Ave. NW
Washington, DC 20009
Tel: (202) 387-3500
<http://www.edf.org>

Community Involvement: Brownfields Redevelopment

Gilbert-Mosley Brownfield



Gilbert-Mosley Brownfield Redevelopment, Wichita

The federal law governing abandoned hazardous waste sites is commonly known as Superfund. Superfund establishes a liability scheme which requires polluters to pay for cleaning up these sites. It has therefore served to stimulate extensive, privately funded cleanups. Unfortunately, the process which Superfund establishes for U.S. Environmental Protection Agency oversight of cleanup has historically been slow, cumbersome, and often excessively adversarial; recent administrative changes have improved the program. Parties responsible for part or all of the pollution can be vulnerable not only to lawsuits from EPA for the cost of cleanup, but also from owners of contaminated property for the loss in property values. Litigation over the allocation of cleanup costs can drag on for years or even decades; meanwhile, the site often remains contaminated and unused.

Being designated as a Superfund site carries a terrible stigma. Communities fear that such a designation will actually make it harder to redevelop the site, known as a “brownfield,” after it has been cleaned up. Property values drop, so contaminated sites lose their worth as collateral for loans. No one wants to buy a parcel subject to the often-confusing Superfund liability. Therefore, communities, eager both to protect public health and to get abandoned properties back on the tax rolls, have been searching for ways to use the threat of Superfund involvement to encourage private parties and neighborhood groups to voluntarily and cooperatively devise alternative cleanup programs.

In Wichita, Kansas, local officials worked with banking and business leaders to organize their own non-Superfund cleanup of a large downtown site.

GILBERT-MOSLEY BROWNFIELD

THE PLACE AT A GLANCE

Land Area:

8,000 parcels of land affected by a six-square-mile plume of contaminated groundwater

A Measure of Value:

Estimated \$20 million cleanup cost

THE ENVIRONMENTAL PROBLEM

The city of Wichita, Kansas, discovered in August 1990 that a six-square-mile plume of contaminated groundwater was spreading underneath the main business section downtown—just after the city had announced plans for a \$75-million revitalization project in that very area. Once the toxic waste was discovered, however, banks refused to make loans to downtown businesses, and the ambitious redevelopment plan seemed impossible. The city's drinking water didn't come from the contaminated groundwater, so public health was not immediately threatened, but if unchecked, the contamination would eventually spread to drinking water supplies. The contaminated site, known as Gilbert-Mosley, included more than 8,000 parcels of property with about 550 businesses. Wichita officials feared that if the site were to be placed on the Superfund list, cleanup could take 10-20 years. The U.S. Environmental Protection Agency (EPA) would have to assign responsibility to polluters and probably go to court to force them to pay for their share of the cleanup. If city officials wanted to retain any chance of revitalizing downtown, they could not afford to have the site languish for years while EPA wrangled with the polluters.

THE GOVERNANCE INNOVATION

Wichita officials took the initiative to create a strategy which would allow them to avoid Superfund designation and restore the neighborhood's environmental and economic health. With the participation of the banking community and other

affected industries, Wichita negotiated an agreement with the Kansas Department of Health and Environment (KDHE) and the EPA to permit the city to take over cleanup operations, based on five conditions: (a) the primary polluter must commit to paying for a portion of the cleanup; (b) banks must agree not to deny loans based solely on contamination of the property; (c) the city's liability is limited to what it can collect from responsible parties and tax increment financing; (d) the state legislature must pass an amendment to the tax increment finance law to allow the city to commit operating revenues for more than one year; and (e) the city must successfully create a tax increment finance redevelopment district.

Cleanup would cost an estimated \$20 million over



20 years, but Mark Glaser, a special consultant on the project, noted that “the annual property taxes at risk were worth that much.” The main polluter, the Coleman Company, agreed to pay \$1 million to fund the remedial investigation/feasibility study and part of the cleanup. Without this agreement, Coleman would have been vulnerable to civil lawsuits from hundreds of owners of contaminated properties seeking damages. Economically, it made more sense for Coleman to accept responsibility through partnership with the city than to take its chances in litigation.

To stimulate lending, the city, in cooperation with the lending community, issued certificates to downtown property holders which released them from future liability in the cleanup. These certificates, in conjunction with local banks’ promise not to refuse loans solely because of contamination of the property, allowed the sale and development of downtown parcels. Banks agreed to grant loans because they already had substantial assets tied up in the affected area and because the city agreed not to hold the lender liable for any contamination found on the property. While this agreement would create the potential for more risky loans, it seemed a small price to pay compared to the loss the banks would suffer if the downtown area were listed as a Superfund site; all the money currently invested in these properties would be lost. The certificates of release demonstrated the city’s confidence in the project, and property values quickly rebounded to their original levels.

The city’s main funding strategy was to pursue responsible parties to pay 80 percent of the cleanup costs. While it would have been popular to force polluters to pay the entire cost of cleanup, the city would have run into exactly the problems it was trying to avoid by averting the Superfund designation: years of drawn-out litigation while the parties squabbled over who had to pay what share. Instead, to make up the 20 percent of funds not collected from responsible parties, the city set up a tax increment finance authority. Under this plan, part of the property taxes from the affected parcels would be dedicated to the cleanup. This type of

tax district has been used in other communities to finance economic development; it ensures that any additional costs for programs that will benefit a certain area will be paid for with the taxes of that jurisdiction, rather than those of the whole community. Taxes were not raised, and no more than 20 percent of the district’s tax revenues could be used for Gilbert-Mosley.

Wichita had to obtain the state legislature’s approval for implementation of the tax increment finance district, as well as for exemption from the state’s “cash basis law.” This law was intended to restrain spending by forbidding local governments to commit operating revenues beyond one year at a time. However, Wichita would have to commit funding for 20 years to prevent Gilbert-Mosley from becoming a Superfund site. The same coalition which helped create the plan—city officials and their business partners—successfully lobbied the legislature to pass a special exemption for Gilbert-Mosley. Citizen involvement was an essential component of the city’s plan. The city created two citizen participation committees to address technical and public outreach issues. The committees set up a telephone hotline, published a newsletter, and held public hearings.

ENVIRONMENTAL RESULTS

No cleanup of the contamination has occurred yet, but its spread has been stopped. As of 1998, the city had issued about 2,100 certificates of release. The owners of those properties were thus able to transfer their parcels to other parties. The area has seen about \$106 million in commercial loans which would have been impossible without the city’s efforts. The program protected the health and finances of downtown citizens, preserved the tax base, protected the environment and restored the damaged properties—and the polluters paid for it. The city also demonstrated an enterprising approach to dealing with environmental problems while keeping economic concerns in mind; this reputation could give it an edge in attracting new businesses. The success of the Gilbert-Mosley project convinced EPA to allow Wichita to take over cleanup of another

GILBERT-MOSLEY BROWNFIELD



contaminated site in the city, the North Industrial Corridor, which had been listed under Superfund in 1989 and had been mired in the initial investigation stages since then. In 1996, the site became the first ever to be de-listed from the Superfund National Priority List and turned over to another entity for cleanup. As of May 1998, Wichita was about one year into the cleanup project.

LESSONS LEARNED

- *City and federal liability laws used as leverage*
 - *Stakeholders involved from the beginning*
 - *City kept the public informed and gained public trust*
 - *City created partnerships with state and federal agencies*
-

Gilbert-Mosley succeeded because of the city government's initiative. It had risk-taking, innovative managers who figured out how to use the often-daunting liability provisions of Superfund to their advantage.

But any city undertaking such a lengthy, complex, and massive project must have adequate resources and the commitment to follow through on its plans.

Partnerships were vital to the success of Gilbert-Mosley. The city engaged stakeholders up front, particularly the lending community, which helped create the certificates of release, a major factor in restoring the downtown economy. The city succeeded in these partnerships in part because the project managers figured out what the stakeholders' interests were—primarily to avoid litigation and uncertainty, and to maintain competitiveness—and played to those drivers.

Implementing a risky policy requires the trust of the public. Wichita's leaders had demonstrated their competence in the past; based on these positive experiences, the constituents trusted their government. Project leaders were aggressive about keeping the public informed about the progress of the cleanup. The city's declaration that it would take responsibility for a \$20 million cleanup could have angered taxpayers who might fear they'd be stuck with the bill. Instead, Wichita's assiduous education and outreach efforts created public confidence in the project leaders and support for the cleanup. The city also spread the costs of cleanup as fairly as possible, putting most of the burden on the polluters yet recognizing that Gilbert-Mosley residents would reap the benefits of cleanup and therefore should bear some share of the costs through the tax increment financing.

The state contributed to the success of Gilbert-Mosley by remaining flexible and by publicly supporting Wichita. City and state officials had worked together previously and had developed a professional relationship based on mutual trust and respect. In addition, turning the cleanup over to Wichita minimized KDHE's investment without sacrificing environmental protection.

ACTIONS FOR DECISION-MAKERS

FEDERAL OFFICIALS

- Present communities with alternatives to listing a contaminated site under Superfund.
- Publicize brownfields success stories and package them as models for other communities to follow.
- Continue to provide funds for communities to plan brownfields programs, initiate cleanup efforts, or substitute for absent responsible parties.
- Offer technical support and assistance to states and communities to assess environmental risks and the viability of remediation alternatives.
- Help communities to identify potentially responsible parties and to engage them in an early allocation of liability.
- Press for statutory changes in the remediation waste program of the Resource Conservation and Recovery Act (RCRA) that will cut red tape, allow for locally tailored solutions, and speed site cleanups.
- Allow realistic risk assessments and cleanup goals.
- Remove sites from the National Priority List when there is a city/state agreement to take over cleanup.
- Maintain credible and consistent standards for enforcement of federal statutes to support state and local brownfields programs.

STATE OFFICIALS

- Offer flexibility to community initiatives for brownfields redevelopment, including special legislation when needed to provide the financial resources to speed redevelopment.
- Work to increase the technical capacity of the state environmental agency to administer Superfund and RCRA programs, if the state has not already been delegated that authority by the EPA.
- Maintain credible and consistent standards for enforcement of federal and state statutes to support state and local brownfields programs.

LOCAL OFFICIALS

- Work with state and federal officials to define alternatives, resources, legal tools, and constraints.
- Identify and engage important stakeholders early in the process with the goal of developing a partnership to further joint objectives.
- Take bold leadership in controlling the process and outcome of brownfields redevelopment, using the resources at the state and federal level for support.
- Keep the public informed of every official step taken.
- Educate citizens to understand the risks, costs, and benefits involved with action and inaction.
- Instill public trust in local project leaders through consistent and open exchange of information.
- Pursue responsible parties for cleanup funds using the leverage of federal and state liability laws, but consider tapping into public resources to capture the public benefits of expeditious redevelopment.

RESOURCES AND CONTACTS

City of Wichita

455 N. Main St.

Wichita, KS 67202

Chris Cherches, City Manager

Tel: (316) 268-4351

Jack Brown, Environmental Health Director

Tel: (316) 268-8351

Mark Glaser

Associate Professor of Public Administration

Hugo Wall School of Urban and Public Affairs

Wichita State University

Wichita, KS 67260-0135

Tel: (316) 978-6521

Kansas Department of Health and Environment

Bureau of Environmental Remediation

Forbes Field, Building 740

Topeka, KS 66620

Tel: (785) 296-1660

Fax: (785) 296-1686

<http://www.ink.org/public/kdhe/ber/>

Northeast-Midwest Institute

218 D St. SE

Washington, DC 20003

Tel: (202) 544-5200

<http://www.nemw.org/envqual.htm#brownfld>

Excellent general source for brownfields information, including financing options. The Web site features on-line publications and links to federal and state brownfields contacts, as well as to non-governmental organizations working on brownfields issues.

U.S. Environmental Protection Agency

Office of Solid Waste and Emergency Response

Outreach and Special Projects Staff, MC: 5101

401 M St. SW

Washington, DC 20460

Tel: (202) 260-3525

<http://www.epa.gov/swerosps/bf/>

This site has many specific contacts for regions, states, and issue areas, as well as a wealth of regulatory, financing, liability, and other information.

The strength of civic environmentalism lies in tapping the creative abilities of citizens to solve the problems of a place that matters to them. Throughout the Chesapeake Bay watershed, for example, citizens have devised changes in land-use practices to improve the environmental health of the Bay. To act effectively, however, citizens need the legal tools and technical and financial resources to enable them to craft solutions likely to lead to lasting environmental and economic benefits. Transboundary problems like species conservation and estuary protection necessarily involve mandates by states and the federal government, but that doesn't mean that decisions on what specific actions to take must be prescribed from on high.

Conversely, even for highly localized land and groundwater contamination problems, local action is often enabled by state and federal liability rules and credible means of enforcing them. As an example, the federal Superfund law's liability provisions enabled the city of Wichita to reach an early agreement with one of the businesses responsible for the groundwater contamination, providing funds for planning and public outreach at a vital stage of project development.

Simple pronouncements from the left and the right about decentralizing environmental decisions miss the rich character of locally driven solutions. In each of these cases, problem-solvers at the local and state level mixed their own special blend of federal, state, and local authorities and private actions to get the job done. Those closest to the problem pieced together and implemented the solutions, but they often relied on legal tools, technical assistance, and financial resources provided by the state and federal governments. This is

the story of the Chesapeake Bay: the authorities and funds of the federal Clean Water Act enabled the Bay states to launch their restoration program, beginning with additional controls on publicly owned treatment works. This is also the story of the CALFED program: Californians working with the federal government leveraged federal laws on water quality, endangered species, and water management to reach a new accommodation on restoration of the San Francisco Bay and San Joaquin-Sacramento Delta.

Civic environmentalism thrives in those places where relationships among public tools and private actions are, in de Tocqueville's phrase, "rightly understood." The cases demonstrate the creative ways in which market forces can be harnessed to bring about a solution to a long-standing environmental problem. In the Sandhills and Coles Levee cases, innovative agreements led to the creation of economic value for private landowners who voluntarily met their stewardship responsibilities. Yet, local government or a regional consortium of public interests asserted leadership at vital points along the way to forge a public consensus and vouch for the environmental integrity of the project.

These cases foreshadow the richness of civic environmentalism emerging in the United States. As understanding grows of the new and often diffuse environmental challenges at home and abroad, the power of place and the need for civic engagement in problem-solving becomes even more compelling. We hope that *Civic Environmentalism in Action* helps citizens and policy-makers throughout the nation turn their many creative and constructive ideas into successful action.

CHESAPEAKE BAY PROGRAM

District of Columbia, Maryland, Virginia, and Pennsylvania

BACKGROUND

The Chesapeake Bay is a unique resource: the nation's largest estuary and one of the most productive in the world. In the Bay's 64,000 square-mile watershed live some 15 million people, including the metropolises of Baltimore, Maryland; Washington, D.C.; and Richmond, Virginia. The Bay has long been heavily harvested for its oysters, crabs, and fish; the seafood harvest brings in \$1 billion per year. Fifty thousand commercial vessel trips and 90 million tons of cargo pass along this important shipping route annually, and two of the five major Atlantic ports (Baltimore and Norfolk) are on the Bay. In addition, it receives the drainage of thousands of industries, millions of homes, and tens of thousands of acres of farmland.

From these watershed residents come pollutants of all kinds, but those of greatest concern are toxic chemicals and nutrients (nitrogen and phosphorus). Toxic chemicals are absorbed by fish and shellfish, posing potentially serious human health risks. Nitrogen and phosphorus run off from fertilized farmland and are discharged as by-products of animal feedlots and other industries. Their fertilization increases algae growth in the Bay, which in turn decreases the amount of oxygen and light available for other plants and animals.

Oysters are powerful natural filters of the Bay's waters—they were once so plentiful that they could filter the entire volume of Bay water in a few days—but over-harvesting, disease, pollution, and loss of habitat have drastically reduced their numbers. It now takes the oyster population over a year to filter the entire Bay. In the 1990s, harvests are just 3 percent of what they were at their peak in the 1950s. Decreased oyster population has meant cloudier, more polluted waters. Cloudier water means less light reaches the estuary floor, which means fewer aquatic grasses, which means fewer of the creatures for which these grasses provide shelter and nourishment, and so forth.

Tourism and recreation bring in billions of dollars per year, and these activities require clean water, healthy fisheries, and plentiful wildlife. The Bay is home to 2,700 resident and migratory wildlife species and 2,700 plant species. An important stop on the Atlantic Flyway migration route for many birds, it is a major nesting area for the bald eagle and contains the nation's largest population of ospreys.

1983 EPA REPORT

Ever since colonial times, the Bay's water quality has been declining and has been of concern to its residents. Virginia and Maryland had, at various times since the 1860s, created agencies to study the problem (usually with respect to fisheries) and to recommend solutions. The collaboration among the Bay states came about after the creation of the U.S. Environmental Protection Agency (EPA) in 1970, which promoted a regional viewpoint rather than a state-by-state one. The EPA also provided a strong push toward the creation of a standing regional agency with jurisdiction over the Bay through a highly publicized comprehensive study of the Bay's resources in 1983. This series of reports created a scientific baseline that provided the technical consensus needed for the next step, a cooperative regional program.¹

One of the reports, "Chesapeake Bay: A Framework for Action," stated clearly that "the Bay is an ecosystem in decline" and that "actions throughout the Bay's watershed can affect the water quality of the rivers flowing into the Bay." To improve the water quality of the multi-jurisdictional watershed, "it is essential that the states and federal government work closely together to develop specific management plans that address the basin-wide problems identified" by the report. Efforts by local, state, and federal authorities, up to that point, were fragmented and uncoordinated. Each level of government had dominion over various pieces of the problem, but coordination between agencies and across state lines was limited, and some existing laws were not adequately enforced.²

Nearly everyone in the Bay area agreed that degradation of the Chesapeake was a problem—the effects of pollution on the ecosystem were well documented. Before the EPA's Chesapeake Bay study began in 1976, however, little scientific analysis had been done on the causes of pollution and the links between the decline of living resources and increased pollution. First, the EPA staff consulted Maryland and Virginia state officials, scientists, and citizens of the Bay watershed to identify the main water quality issues in the Chesapeake:

- wetlands alteration
- shoreline erosion
- effects of boating and shipping on water quality
- hydrologic modification

CHESAPEAKE BAY PROGRAM

- **fisheries modification**
- **shellfish bed closures**
- **accumulation of toxic substances**
- **dredging and dredged material disposal**
- **nutrient enrichment**
- **decline of submerged aquatic vegetation**³

Following determination of the problems and consultation with Maryland and Virginia officials, the EPA funded about 40 research projects between 1976 and 1981 to investigate the sources of pollution and its effects on the Chesapeake's resources.

These studies created a scientific baseline for the Chesapeake Bay. While they could not definitively link the trends in living resources to the degradation of water quality, they provided compelling "circumstantial evidence," identified many of the ecological stresses which contributed to the deterioration of the estuary,⁴ and "made science useful to managers and citizens."⁵ Most importantly, the research "clearly established that nutrient loadings have substantially increased, that massive quantities of toxicants have entered this system, and that the unchecked increases of these pollutants threatens important resources."⁶ While the scientific evidence was incomplete, those involved in the watershed protection effort saw it as compelling enough to demand "prompt and effective correction," even though "we ... do not know with certainty to what extent levels of pollution must be reduced to achieve a quality of water that can support resource objectives." The authors of the report emphasized that monitoring and research must be continued in order to evaluate pollution control efforts and redirect them as necessary.⁷

Other stresses on the ecosystem intensified the pollution: the population of the watershed was expected to grow by 1.9 million between 1980 and 2000. From 1950 to 1980, the conversion of land to residential, suburban, and urban uses increased by 182 percent, although urban areas still represented less than 15 percent of the land in the watershed. Agricultural land use had decreased since 1950, but the methods used to farm the land required more fertilizer, pesticide, and herbicide; increased runoff and soil erosion; and diminished incentives for conservation. No accurate estimate of the amount of wetlands loss existed, but a best guess put it at several thousand acres per year during the 1960s, a pace which slowed to 50 acres per year at the time of the 1983 report.⁸

The studies documented major trends in living resources to assess the "state of the bay." They found an increase in algal blooms in the upper Bay; dinoflagellate cell counts increased 250-fold since the 1950s. Submerged aquatic vegetation, the primary indicator of the Bay's health, decreased in abundance and diversity since the 1960s, most dramatically in the upper Bay and moving progressively down the estuary. Populations of freshwater-spawning fish (shad, alewife, striped bass) decreased, while ocean-spawning fish (menhaden, bluefish) were stable or even increasing. From 1880 to 1980, marine-spawning species made up 75 percent of the Bay fishery, but from 1971 to 1980, they made up 96 percent. Oyster harvests decreased as well.⁹

In most areas of the Bay, data from 1950 to 1980 showed that water quality was declining, in part because of nutrient loading. Most affected by nutrients were the upper tributaries, with concentrations declining downstream, so that the lower Bay showed little sign of nutrient enrichment. The nutrients stimulated algal blooms, which rob the water of dissolved oxygen. In 1983, between the Bay Bridge and the Rappahannock River, water deeper than 40 feet had no oxygen—and therefore no life—from May to September. From 1950 to 1980, the volume of water in the main Bay with little or no dissolved oxygen increased fifteen-fold. Researchers discovered high concentrations of toxics in the sediments of the estuary, particularly near industrial sources, river mouths, and areas of high turbidity. They also found high metal concentrations, especially in highly industrialized rivers like the Patapsco and the Elizabeth.¹⁰

In 1978, the General Assemblies of Maryland and Virginia created the Chesapeake Bay Legislative Advisory Commission (CBLAC) "to evaluate existing and potential management institutions" for the Bay. CBLAC examined seven management models that could be adapted to the Bay. It concluded that a regional authority was needed to enhance cooperation between the states and that the states should have primary responsibility for governing the Chesapeake and should resolve jurisdictional disagreements among themselves. Maryland and Virginia followed up on CBLAC's recommendations by creating the Chesapeake Bay Commission (CBC), composed of legislators, an executive agency, and a citizen from each state.¹¹ The CBC's mission was to coordinate uniform Bay-related legislation in all member states, to promote intergovernmental cooperation, and to recommend policies to improve the Bay.¹²

CHESAPEAKE BAY PROGRAM

On the federal side, EPA's Chesapeake Bay Program (here referring to the five-year study ending in 1983 rather than the entity which grew out of it) commissioned a report from Resources for the Future (RFF) to examine existing, alternative water management programs which dealt with regional environmental issues. The RFF report found that these programs had not generally been successful because "new regional institutions tend to be resisted by existing local, state, and Federal entities." RFF came up with three recommendations to avoid this problem in the Chesapeake Bay:

- **The institution should be just large enough to encompass all of the affected parties and geographic area, but no larger.**
- **Because the "impact boundaries" of the Bay's problems are unknown and undefined, a multiple-institution structure would allow extensive, unbiased information gathering and dissemination. While this structure would be more expensive, the cost is justified because the problem has "potentially serious consequences" and because of the benefits of different viewpoints on complex problems.**
- **The members of the institution must recognize that the advantages of participating—side benefits that accrue from merely being at the table, benefits from the collective resolution of problems—outweigh the disadvantages—minimal loss of autonomy, power, and representation; and minimal outlay of time and resources.¹³**

As will be explained below, the new institution, the Chesapeake Bay Program, met and even exceeded these conditions.

The 1983 report proposed three options—expand the authority of existing programs and agencies, modify an existing institution, or create a new institution—and recommended the modification of an existing entity. The reasoning was that a multitude of federal, state, and local agencies were involved in the Bay; the costs of cleaning up the estuary were estimated at \$1 to 3 billion (in 1983 dollars) over the next 20 years in addition to current expenditures; and restoration efforts needed to begin immediately.¹⁴ A central, regional authority could coordinate efforts more effectively than any one of the existing entities, and the immediacy of the problem precluded setting up a new institution. An existing entity, if modified to conform to RFF's rec-

ommendations, would avoid the traditional tensions among local, state, and federal agencies.

CREATION AND HISTORY OF THE CHESAPEAKE BAY PROGRAM

The Chesapeake Bay Program (CBP), formally created in 1983 after the EPA report, has become the oldest and best-known estuary program in the U.S. and is used as a model for regional partnerships around the country and the world. Its founding agreement recognizes the "historical decline in the living resources of the Chesapeake Bay"¹⁵ and the need for cooperation among the EPA and the states. The Program is completely voluntary; the only punishment for noncompliance is bad publicity. It has developed a reputation for achieving results through cooperation, "commitment to the effort, political persuasion, funding incentives, and public opinion"¹⁶ rather than command and control.

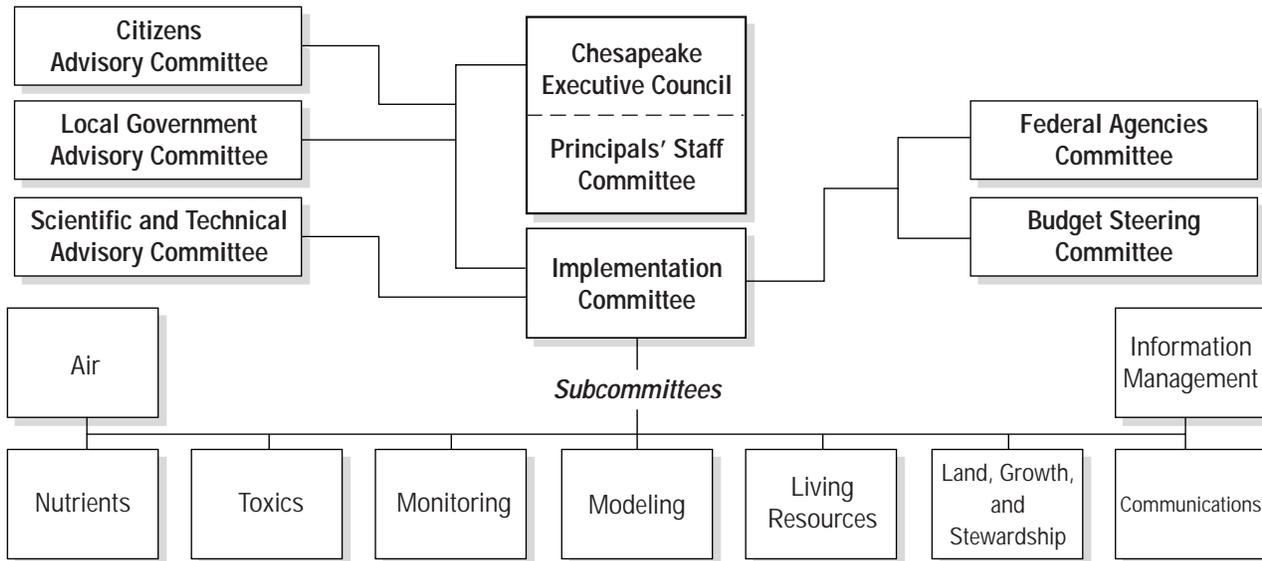
The partners in the Chesapeake Bay Program are the State of Maryland, the Commonwealths of Pennsylvania and Virginia, the District of Columbia, the Chesapeake Bay Commission, the U.S. EPA, and various advisory groups. The chief executives of these entities comprise the Executive Council, which meets annually to determine the Program's policies. The Executive Council is assisted by various advisory committees (see organizational chart on next page) but makes all final policy decisions.

The Chesapeake Bay Commission is composed of seven-member delegations from each of the three states—five state legislators (three from each House and two from each Senate), the governor or his designee, and a citizen representative appointed by the legislature in each state. The Commission identifies opportunities for interjurisdictional coordination and cooperation; gathers, analyzes, and disseminates information for the state legislatures; recommends legislative and administrative actions to promote effective management of the Bay and its resources; represents the common interests of the member states as they are affected by the activities of the federal government; and provides an arbitration forum to mediate conflicts among the states.

The Citizens Advisory Committee connects the CBP with the residents of the watershed. It passes citizens' concerns on to the Executive Council and relays the Council's decisions to the general public to increase understanding of the problems facing the Bay and compliance with protection and restoration programs. The Council also works

CHESAPEAKE BAY PROGRAM

CHESAPEAKE BAY PROGRAM ORGANIZATIONAL STRUCTURE



closely with the Local Government Advisory Committee to involve the 1,650 municipalities in the watershed in the protection of the Bay.

The Science and Technical Advisory Committee (STAC) and its subcommittees, composed of scientists from the public and private sectors, perform research, propose scientific standards, and recommend priorities. All projects budgeted for more than \$50,000 are peer-reviewed, with clearly defined guidelines for the selection of reviewers. STAC publishes recommendations, evaluations of current programs, white papers on topics of concern, and an annual summary of research and literature on Bay- and estuary-related issues. These publications are available to the public, but while some papers are easily understood by the layperson, others require scientific expertise.

FUNDING

The federal government contributes one-fifth of the annual \$20 million budget. The states' contributions vary; Maryland generally puts in more money because almost the entire state lies within the watershed's boundaries, whereas Virginia has a smaller percentage of its land area within the Bay boundary, and Pennsylvania does not even border on the Bay at all. The Program typically faces a budget shortfall every year, but it usually is able to find extra funding because it is a strong program with an established

structure, a proven track record, and scientific credibility. Its proximity to the nation's capital raises its visibility in Congress, and its public relations efforts in reporting successes and identifying specific challenges help to maintain a high profile in the member states.

CITIZEN INVOLVEMENT

The Chesapeake Bay Program was created by the federal government and the member states; citizen involvement in its creation was minimal, and the structure of the Program means that individual citizens are not involved in the final policy decisions. However, residents around the Bay have always had a strong emotional attachment to it. Because grassroots support is an essential key to success, one of the Program's main goals is to involve residents as much as possible and to create a sense of community among the entire watershed. The message, delivered to citizens through schools, signs, newspaper articles, public meetings, and other means, is that everyone is responsible for the Bay's health. For example, one recent project posted signs at the watershed's boundaries on Interstates 95 and 68 in Maryland, informing motorists that they are now in the Bay basin and educating them about its resources. These signs are expected to be seen by over 30 million motorists each year.¹⁷

The Bay Program's geography, encompassing cities

CHESAPEAKE BAY PROGRAM

and rural areas, makes it an ideal forum to engage a wide socio-economic range of people in restoration efforts. Low-income communities, from Anacostia in Washington, D.C., to the watermen of Maryland's Eastern Shore, are active in the protection and restoration of the Bay. Children in D.C. public schools help clean up the Anacostia River and learn about its ecosystems; they take this knowledge home and educate their parents. Watermen partner with environmental groups to protect their livelihood. In Maryland, every schoolchild is taught a unit on the Chesapeake Bay every year.

A 1994 "Bay Attitudes Survey"¹⁸ of the residents of the watershed found powerful support for clean-up efforts. Eighty-seven percent of the 2,004 people surveyed were either very concerned or somewhat concerned about pollution in the Bay, and 91 percent cited the Bay restoration as an important or one of the most important issues facing government. The survey polled about 500 people in each of the CBP's member states (including the District of Columbia) and found strong support in each jurisdiction. One striking feature was that support for clean-up efforts did not drop as distance from the Bay increased; people living more than 100 miles from the Bay were as supportive as those living near the estuary. These figures, dubbed "remarkable" and "extraordinary" by Bay Program leaders, suggest that the CBP's awareness and education efforts have paid off.

The Alliance for the Chesapeake Bay (ACB), which coordinates the Citizens Advisory Council and does much of the Program's public outreach, believes that the citizens of the Bay need to have reliable, easily understood information in order to change their behavior to protect the watershed. ACB prides itself on providing unbiased, comprehensible scientific information to the general public. Frances Flanigan, director of the ACB, says it is adept at sorting out relevant information and "translating" it for laypeople. Newspaper articles, the *Bay Journal* (ACB's monthly newsletter), fact sheets, and public meetings relay the information to the public.

The ACB also coordinates volunteer-staffed restoration and education projects. Flanigan says they never have a problem gathering enough volunteers; even communities that don't border on the Bay are concerned about protecting the watershed. The ACB likes to emphasize a local benefit of protecting or restoring a stream—recreational use, fishing, public health—to spark public interest in protecting the Chesapeake. Media attention, the local Soil Conservation District office, municipal officials, and com-

munity leaders educate and motivate the citizenry; the ACB provides those local leaders with technical assistance, educational resources, and encouragement.¹⁹

The infrastructure set up to ensure public participation in the CBP's programs is large and expensive, but everyone interviewed agreed it is worth it. Citizen involvement in the Bay Program has been a powerful and constructive force for progress. While many CBP staff and partners complain, semi-humorously, about the sheer number of committee meetings, they also recognize that these gatherings give them the chance to meet and exchange ideas with many different people.

The most important aspect of the public's involvement, however, may not be through these formal channels. The citizens of the Bay are sufficiently educated about and interested in the watershed that, when an issue of concern arises, they make their opinions known through informal means, if necessary. Steven G. Davison notes the deference shown to science in Bay decision-making, but adds, "Where science is uncertain about an issue, such as what ails the oyster and the blue crab, political pressure—from watermen, environmentalists, and other Bay interest groups—determines the policy outcome."²⁰ The *Pfiesteria* problem is a good example: very few people live or work on the affected waterways, but the public outcry over the toxic microbe was tremendous. The residents of the watershed made the connections on their own: the potential spread of *Pfiesteria* to other tributaries, the possible health effects of eating seafood from contaminated waters, the curtailing of recreational activities like boating, and the broader idea that the Bay is not yet saved.

LOCAL GOVERNMENT INVOLVEMENT

The Local Government Advisory Committee (LGAC) works closely with municipal officials to promote preservation and restoration activities, offering technical advice and public recognition. Executive Director Tony Redman believed that the Bay Program was not doing enough to engage, educate, and listen to local governments; when he took over the leadership of the LGAC four years ago, his mission was to make these communities valuable partners in the CBP. His objectives have included getting local communities involved in preservation by emphasizing that their local water quality concerns are also the concerns of the Bay Program, expanding education efforts, keeping local

CHESAPEAKE BAY PROGRAM

governments informed of CBP activities with a newsletter, and actively seeking feedback from local officials. Now, he reports, the EPA and the states are learning from the LGAC's efforts and are looking for opportunities to involve local governments in their projects. This effort is particularly well received in Maryland, where many communities border on the Bay and experience water-quality problems firsthand.²¹

The LGAC knows how important public recognition is to local governments. Last year, it began the Partner Communities Program (PCP), which recognizes communities that have made exceptional efforts with Gold, Silver, and Bronze designations. Unlike a previously existing award for one-time innovations, the PCP is intended to reward local governments for their day-to-day actions to protect the Bay. The LGAC developed a series of benchmarks in six theme areas: Development that Works, Preventing Pollution, Conserving and Preserving Living Resources, Valuing Trees and Forests, Conserving the Countryside/Revitalizing Communities, and Community Involvement. Gold communities are those that have met a certain percentage (based on the size of the community) of benchmarks in all six theme areas, Silver communities have met the percentage in five areas, and Bronze have met it in four areas.

All three categories of communities receive recognition in the local and regional press, as well as at the annual Chesapeake Bay Executive Council meeting, and they get small roadside signs to advertise their achievement. They are also awarded priority standing in the CBP's grants process. Gold and Silver Communities may use the Chesapeake Bay Partner Community seal on their letterhead. Gold Communities also get special recognition from the governor of their state and a large "Chesapeake Bay Partner" sign. The LGAC also provides technical help for Silver and Bronze communities to work toward Gold status.²²

The greatest stumbling block for the LGAC's work, according to Redman, is a lack of funding. Competing with all the other subcommittees for the limited CBP money—the LGAC gets about \$1.8 million of the annual \$20 million budget—the LGAC cannot afford to give local governments financial assistance (although it does help them find other funding sources). To address this problem, the LGAC recently set up the Center for Chesapeake Communities (CCC), a nonprofit intended to garner resources from corporations, foundations, and other donors to help local governments. The EPA has given it a two-year grant to get started, but after that time, the CCC is expected to become

self-sustaining, bringing in enough money to support itself and to give grants to local governments. In addition, it will work with area universities to develop training programs for local government officials.²³

40 PERCENT NUTRIENT REDUCTION GOAL

In 1987, the Executive Council set the ambitious goal of a 40 percent reduction by 2000 of controllable loads²⁴ of phosphorus and nitrogen entering the Bay, based on 1985 levels. The Council determined that 40 percent was the best achievable level of reduction, given the Bay's current population and available technology. This reduction level would significantly improve water quality and was seen as a reasonable midpoint between the extremes of doing nothing and of trying to return the Bay to its pre-settlement condition. It was also politically palatable and easy to comprehend. The states share responsibility for achieving the goal, and they have flexibility in how to reach it.

There is nothing sacred about this 40 percent number. A higher or a lower number would have been plausible. The great advantage of this number is that it falls within the broad band of what is scientifically defensible and yet is also deemed achievable at a reasonable cost. This rigid goal provides a benchmark for measuring performance and a rallying point for ameliorative action and political support. It makes clear to all what it would mean to succeed.

The CBP is perhaps the first effort to tie upstream watershed protection projects to their effects on the endpoint estuary.²⁵ The Program helped push forward legislation in all the states to reduce nutrient loads, including a phosphate detergent ban that went into effect in each state between 1985 and 1990, and wastewater treatment plant upgrades throughout the watershed. In 1992, the member states agreed to tackle the Bay-wide nutrient problem at the source: the tributaries. They developed tributary strategies for the ten major tributary basins—the Susquehanna, Patuxent, Potomac, Rappahannock, York, and James Rivers, the Western and Eastern Shore of Maryland, and the Western and Eastern Shore of Virginia. Each tributary was assigned a specific nutrient reduction target and given flexibility to meet its goal based on its sources of pollution. The tributaries north of and including the Potomac contribute most of the nutrients to the main Bay, but the southern tributaries have important living resources. In 1992, the

CHESAPEAKE BAY PROGRAM

CBP reevaluated the tributary strategies and amended them to address the Bay's nutrient reduction goals and local water quality necessary to support living resources.

TRIBUTARY STRATEGIES

Maryland has aggressively implemented its tributary strategies. The state identified ten tributary watersheds—the Upper, Middle, and Lower Potomac, the Upper and Lower Western Shore, the Patuxent River, the Patapsco/Back River, the Upper and Lower Eastern Shore, and the Choptank River—and created individual strategies for each of them in cooperation with local governments. Each watershed differs in its land use and sources of pollution; a single strategy for the entire state would have engendered unequal burdens. The individual plans allow each watershed to tailor its pollution reduction efforts to its sources of pollution (i.e., industry in the Baltimore area and agriculture on the Eastern Shore) and ensure that every tributary makes at least some contribution toward Maryland's overall 40 percent reduction goal. The tributary management teams, composed of state and local government officials and local interests, can target education efforts to their communities, use local examples to explain the strategies more clearly, and allow for regional and political variations.²⁶

In keeping with the CBP's reputation for cooperation and public involvement, state officials set a framework for coordination on the strategies with non-binding "cooperation agreements" between the state and the local authorities.²⁷ Over 1,000 citizens attended the three public meetings held in each watershed in 1993 and 1994 to help develop the plans; ideally, their active participation in the creation process will translate into active participation in implementation.²⁸ To overcome one of the biggest barriers to success—money—the state identified alternative funding ideas to combat financing shortfalls and created a revolving loan fund and cost-share programs to help wastewater treatment plants meet their goals. In less industrial watersheds, efforts focus on non-point source pollution control measures, such as creating riparian buffers, instituting best management practices (BMPs) to curb runoff and erosion, and preserving open space.²⁹ From 1985 to 1996, Maryland has reduced its nitrogen loading by 23 percent and its phosphorus loading by 38 percent.³⁰

Although Pennsylvania does not border on the Bay, it accounts for roughly one-third of the drainage area of the Chesapeake; its nutrient reduction strategies are vital to

reaching the overall 40 percent reduction target. Most of Pennsylvania's tributary strategies concentrate on agricultural sources, which contribute the largest portion of the state's non-point source pollution. The state already had a cost-share program, begun in 1985, to help farmers install agricultural BMPs to reduce runoff and conserve land. In 1993, the Pennsylvania General Assembly passed a Nutrient Management Law which mandated nutrient management plans for large farms (affecting about 10 percent of the farms in the Bay watershed) and provided financial assistance to landowners.³¹ Urban non-point source pollution control projects include expanded enforcement and compliance for erosion and sediment control, increased funding for open space conservation, and promotion of riparian buffers (coordinated by the Alliance for the Chesapeake Bay).³² The non-point source strategies will achieve 86 percent of Pennsylvania's nitrogen reduction goal and 63 percent of the phosphorus goal.³³

From 1985 to 1994, Pennsylvania achieved reductions of 8 percent for nitrogen and 19 percent for phosphorus. The state estimates its nutrient reduction plan will reduce nitrogen by 36 percent and phosphorus by 38 percent by the year 2000.³⁴ Supplementing its non-point source plans are exploration of alternative technologies to control point source discharges and reduction of atmospheric deposition of nitrogen through tighter enforcement of the Clean Air Act. Wastewater treatment plants need to be upgraded to meet the state's goals, but limited funding and technology have thus far prevented improvements. The state is also exploring the possibility of trading nutrient reduction shortfalls among other CBP members and waterways.³⁵

Virginia had lagged in developing tributary strategies, partly because its tributaries have less effect on the Bay than do the northern rivers and partly for political reasons, but Chesapeake Bay Commission member and Virginia Delegate W. Tayloe Murphy, Jr., worked hard to pass legislation requiring Virginia to complete and implement tributary strategies by 1999.³⁶ The District of Columbia's strategy consists almost entirely of wastewater treatment plant upgrades; its plan also addresses combined sewer overflow and residential pollution along the Anacostia River.³⁷

ENVIRONMENTAL RESULTS

From 1985 to 1992, the Chesapeake Bay watershed achieved a 5 percent reduction in nitrogen loads and a 21

CHESAPEAKE BAY PROGRAM

percent reduction in phosphorus loads. Estimates now indicate that the 40 percent goal will be met by 2000 for phosphorus, but not for nitrogen—the most recent model predicts that the CBP will be within 4 million pounds of the 186 million pound goal by 2000.³⁸ Point sources have made major strides in reducing their nutrient loads; from 1985-1996, point sources cut their phosphorus loads by 51 percent and their nitrogen loads by 15 percent. Most of the pollution is now coming from non-point source pollution, the most difficult type to regulate and to measure. From 1986 to 1996, non-point sources reduced their phosphorus loads by 9 percent and nitrogen loads by 7 percent.³⁹

The Chesapeake Bay is unquestionably in better health than it would have been without the actions of the CBP. Some key environmental indicators⁴⁰ listed below show the steady improvement of the Bay's ecological health:

Submerged Aquatic Vegetation (SAV). Submerged grasses are one of the most important indicators of the Bay's overall health. They are sensitive to overloads of nutrients and other pollutants; reduction of nutrient loading as well as replanting programs have helped the grasses rebound from their lowest level in 1984. As of 1997, SAV acreage had increased by 70 percent over the 1984 level, to 63,461 acres. The CBP estimates total potential habitat for SAV at 600,000 acres; the interim goal, established in 1993, is 114,000 acres by 2005. Halfway there in just four years, the Program seems to be on track to reach its goal.

Fish Populations. Striped bass have rebounded from their lowest population level in 1986 to well above the restoration goal by 1995, and their numbers continue to climb. Shad are increasing as well, but they still have "a long, long way to go." Both species owe their recoveries to various moratoria on fishing since the late 1980s, removal of dams and other migration blocks, and restocking efforts by the member states.

Bald Eagles. Bald eagles are a striking success story in the Bay. Thanks to a 1972 ban on the DDT pesticide and to habitat improvements, bald eagle populations have grown steadily since the early 1970s, and the species has been downlisted from endangered to threatened, in the Bay area and nationwide. To maintain and increase population levels, the CBP and its members must continue to protect the isolated, waterside trees favored by the eagles from encroaching development.

Wetlands/Forests. In addition to providing vital habitat, forests, wetlands, and riparian buffers filter pollutants and

help prevent sediment from reaching the Bay. Forest acreage in the watershed declined from colonial times until the late 1800s, when it slowly began to rise. In the last few decades, however, forest acreage has declined again as urban sprawl spreads. The Bay Program aims to restore 2,010 miles of riparian forests by the year 2010; as of 1997, only 73 miles have been restored. The Program's goal for wetlands is no net loss, with a long-term goal of gaining acreage. Loss of estuarine wetlands has been slowed to just 5 acres per year from 1982 to 1989, but freshwater wetlands diminished at a rate of over 2,800 acres per year during the same time period.

Bernie Fowler's Sneaker Index. One of the most popular indices of how the Bay is doing is the Sneaker Index, begun by former Maryland Senator C. Bernard Fowler. As a waterman in the 1950s and '60s, Bernie Fowler could wade into the water and see his white sneakers at chest or shoulder depth, a distance of about 57 to 63 inches. By 1989, however, his sneakers were obscured by cloudy water at just 8 inches. Every year since 1988, Fowler wades into the Patuxent River at Broomes Island, Maryland, on the second Sunday in June, until he can't see his feet anymore. The depth has increased steadily since 1988, up to 44.5 inches in 1997, as nutrients and sediments have decreased. Fowler says that "although this is not a scientific measure, it puts restoring the River on a human scale;" people relate to the anecdotal and personal aspect. And it actually is scientific: Fowler's white sneakers resemble the Secchi Disk, a tool scientists use to estimate water clarity in much the same way that Fowler uses his sneakers.

CHALLENGES

PFIESTERIA

The outbreak of *Pfiesteria piscicida* in the summer of 1997 caught the Program off guard, and the lack of information about *Pfiesteria* made an effective response difficult. Since then, *Pfiesteria* has grabbed the headlines, taking attention from other, equally serious problems. Many of the Bay Program's partners have allocated money for research, funds which might have been earmarked for other restoration purposes. *Pfiesteria* was responsible for a massive fishkill in North Carolina some years ago; had the Bay Program communicated more regularly with non-participating states such as North Carolina, it might have been more prepared for the

CHESAPEAKE BAY PROGRAM

Pfiesteria outbreak. Better communication among watershed-protection programs around the country may help mitigate problems like this in the future; sharing information about potential problems on a regular basis, instead of solely in times of crisis, benefits every protection effort.

However, many of the CBP partners have used the outcry over *Pfiesteria* to turn the public's attention to nutrient reduction, particularly from agricultural sources. While the research is not definitive, preliminary evidence indicates that nutrients in the water contribute to the conditions which make *Pfiesteria* toxic. A Blue Ribbon panel in Maryland concluded on October 31, 1997, that greater controls are needed to protect the state's waters from nutrient-rich runoff, particularly from poultry operations. They recommended that all farmers have nutrient-management plans in place by 2002 and suggested new procedures for dealing with poultry waste. In May 1998, Maryland Governor Parris Glendening signed a bill which would codify many of the panel's recommendations, including requiring farmers to have nutrient-management plans by 2005.

MEETING THE 40 PERCENT GOAL

As discussed above, the CBP will probably reach its 40 percent reduction goal for phosphorus, but not for nitrogen. Nutrient runoff is one of the most important reasons for the CBP to cultivate a close relationship with the citizens of the watershed—they have to be convinced to change their behavior as individuals to reduce non-point source pollution. Tributary strategies are the key to reaching the 40 percent goal: states must speed up implementation in the rivers north of the Potomac and initiate strategies in rivers south of the Potomac if the nitrogen goal is to be met by 2000 and, more importantly, if the CBP hopes to maintain the Year 2000 nutrient levels in the face of growing population.⁴¹

However, researchers are now discovering another reason why the member states will most likely not reach the 40 percent goal: a significant portion of the nutrient load that ends up in the Bay comes from states that do not participate in the Program, such as Delaware, New York, and West Virginia. While many of the Bay Program members support the idea of bringing these states into the Program, they do not address the fact that these outlying states, with only a small portion of their land lying within the watershed boundaries, will not reap the same benefits as the states which border the Bay directly; thus, it will be difficult to convince them to commit resources to the Program. Some

Program members don't want other states to join the Program; the \$20 million annual budget would be spread even more thinly. They advocate, instead, individual states working with their neighbor, non-member states to develop nutrient reduction strategies on tributary streams.⁴² The Executive Council has called for cooperative efforts with Delaware, New York, and West Virginia, emphasizing nitrogen loading from New York wastewater treatment plants and agricultural non-point source management in Delaware and West Virginia.⁴³

Deposition of airborne nitrogen is quickly becoming a serious problem in meeting the 40 percent goal; 38 percent of the nitrogen in the Bay watershed comes from the air, another 38 percent comes from the watershed itself, and 24 percent comes by air from states outside the defined "airshed."⁴⁴ Currently, the CBP regards air deposition as "uncontrollable" and has no strategy to deal with the issue, relying mainly on the federal Clean Air Act to reduce air emissions in general. But the Program and its members, most notably the Alliance for the Chesapeake Bay, realize that at some point, they will have to address air pollution. Most likely, this issue will be on the back burner until the 40 percent goal is met—that lower amount of pollution will then become a cap on nutrient pollution in the region. With population growth and more development around the Bay, reducing air deposition will become necessary to stay below the cap.

VIRGINIA

The Bay Program has necessarily been fluid and adaptable as the internal politics of each member state changes. Over the years, relatively few problems have arisen from changes of administrations, because each state supported the fundamental principles that protection of the Bay benefitted the state and the nation, that the federal government was a valued and indispensable partner in protection efforts, and that the Bay Program was based on sound scientific and organizational principles. However, the philosophy of former Governor George Allen's administration (1994 to 1998) in Virginia was antithetical to the very structure and goals of the CBP. The governor and his appointees, especially Secretary of Natural Resources Becky Norton Dunlop, disagreed with the model of the Bay Program, the science upon which the CBP bases its policies, and even the idea that protection of the Bay serves a national purpose. While the Allen administration's opposition did not cripple the Program, its failure to carry out the agreed-upon controls

CHESAPEAKE BAY PROGRAM

slowed progress toward many of the CBP's goals.

TMDL LAWSUIT

On November 13, 1997, the Sierra Club, the American Littoral Society, and the Chesapeake Bay Foundation, represented by the Widener University environmental law clinic and by the Earthjustice Legal Defense Fund, filed suit against the EPA, charging that it should have enforced the total maximum daily load (TMDL) provisions of Section 303(d) of the Clean Water Act with regard to Maryland's waterways. A TMDL is a water quality-based standard intended to supplement traditional technology-based controls which might be inadequate. It determines the amount of pollution a water body can bear while still meeting national water quality standards for a designated use, then allocates pollution-control responsibilities among the various sources in the watershed. It takes into account all sources of pollution, including runoff, rather than concentrating on the point sources whose discharge has typically been regulated.

The groups claim that, had the EPA and the state identified waters at risk and set TMDLs for them as required by law, the Pfiesteria outbreaks of the past summer might have been averted. Maryland's Department of Environment (DEP) has checked only 22 percent of its waterways for pollution, according to the suit. No state has complied with the TMDL regulations, and EPA has not enforced the requirement. EPA has been sued or threatened with a suit in 29 states over this provision, and nine of those cases have been settled or have resulted in a court order to comply. Maryland is actually one of the more advanced states; the DEP has proposed TMDLs for some waterways and plans to complete its review in six years, as opposed to the 8-13 years other states estimated they will need. The EPA contends that the Clean Water Act's original deadline for TMDL identification was simply infeasible. It is only recently, says former Assistant EPA Administrator for Water Robert Perciasepe, that states have acquired the technology to assess entire watersheds. Now the EPA hopes to set TMDLs in every state over the next ten years, with the help of an additional \$20 million in funding this year alone.⁴⁵

On the surface, the lawsuit seems puzzling: Maryland is one of the most environmentally conscious states in the country, and the Chesapeake Bay Program has thus far given interest groups an alternative to legal action. Why would environmental groups now resort to litigation? The suit seems to be meant to prod the EPA and the state to

action, not to punish them. EPA's Region 3 administrator, W. Michael McCabe, says as much: "This just basically holds our feet to the fire. I don't have a problem with that."⁴⁶ The lawsuit doesn't seem to threaten the cohesion and cooperation of the Bay Program.

Yet TMDLs may threaten the Bay Program in other ways. If EPA sets a national standard which caps nutrients below the CBP's 40 percent reduction mark, it will reduce the incentives for businesses and states to participate in the CBP. Also, TMDLs are state-based, which goes against the regional focus of the CBP.⁴⁷ On the other hand, the Bay Program has made significant accomplishments on a cooperative, voluntary basis; the intangible incentives of good publicity and good citizenship that have brought it this far may well make a national TMDL standard irrelevant.

POPULATION GROWTH

Population in the Chesapeake watershed is expected to grow to 17.4 million people by the year 2020.⁴⁸ Growth and development are primary concerns to many of the communities in the Bay, which will experience an influx of new residents and a loss of open space as urban and suburban residents move out to areas not previously served by infrastructure. As development spreads out, runoff and soil erosion increase and send more sediment and nutrients into waterways. Maryland, with the least land area of any of the Bay states, has taken the lead in controlling sprawl and directing development. If the state's growth patterns continue unchanged, development will claim as much land area in the next 25 years as it did in the previous 300 years.⁴⁹ To preserve its residents' quality of life and to minimize the impact of population expansion on the Chesapeake, Maryland legislators and officials, assisted by Chesapeake Bay Program members, created the Smart Growth Program. Smart Growth is based on the premise that "taxpayers' dollars should not be spent on programs that either promote sprawl or damage the environment. It encourages development and economic expansion, but only in locations where it makes the most sense and where the infrastructure is in place (or planned) to support it."⁵⁰

Smart Growth is a package of legislation designed to discourage sprawl through tax laws and incentives rather than through regulation. The Priority Funding Areas law gives priority for state funds to municipalities; areas inside the Washington and Baltimore Beltways; and areas already designated as enterprise zones, neighborhood revitaliza-

CHESAPEAKE BAY PROGRAM

tion areas, heritage areas, or existing industrial land. This prioritization lets communities target the location of development and gives support to those municipalities that want to protect open space. The Rural Legacy Program directs existing state funds toward preserving agricultural and natural areas. At current funding levels, the state could protect 240,000 acres of land by 2011. The Brownfields Program provides incentives to companies that clean up and revitalize contaminated lands, limiting their liability and offering them loans, grants, and tax incentives. The Job Creation Program provides tax credits to small businesses that create jobs in Priority Funding Areas. The state also promotes “Live Near Your Work,” offering grants to participating companies’ employees who buy a home near their workplace.⁵¹

The other states in the Bay watershed have not acted as aggressively to curb sprawl and to target development. Some counties in Northern Virginia, such as Fairfax, Loudoun, and Prince William Counties, are tackling the issue independently as the Washington, D.C., metro area expands. At this time, both Virginia and Pennsylvania seem to be leaving development issues up to local communities. Pennsylvania has enacted a nationally recognized Land Recycling Program that encourages redevelopment of brownfields, reducing the development pressures on farmland and open space.

LESSONS LEARNED

The CBP’s greatest asset is the strong public attachment to the Bay. The Program has maintained the high level of public support for preservation and restoration through assiduous cultivation of the media. Frequent and flattering publicity has brought in more money; increased awareness; recruited volunteers; and prompted governments to enforce regulations, polluters to clean up their act, and individuals to take stock of how their everyday activities affect the Bay. Certain reporters become knowledgeable about Bay issues and can be counted on to promote Bay interests.⁵²

The 40 percent nutrient reduction target helped to promote the CBP’s efforts. It is an easily understood, numerical goal that provides a clear benchmark of progress and seems to be achievable. Reducing nutrient pollution by 40 percent will significantly improve water quality at a reasonable cost. State and local governments have the flexibility to implement nutrient-control strategies that best suit each tributary’s characteristics.

The CBP has also focused attention on key areas of the Bay’s ecology. It addresses nutrient issues, which are not covered by any federal regulations except for the unenforced TMDLs. The Program has targeted much-needed resources on the restoration and management of the Bay’s valuable fisheries. The cooperation among the states, federal agencies, and other concerned groups would not have been possible without the framework of the Program. The concentrated media attention and increased public awareness would probably not have been so effectively coordinated by individual states and non-governmental organizations.

The CBP’s novel institutional arrangement created a great deal of excitement, and its cooperative, innovative approach maintains the level of enthusiasm. Flanigan reports that many of her colleagues in the Program who have spent their entire careers in the environmental field say that the CBP is the most exciting program they’ve ever worked with.⁵³ Ann Powers, a former General Counsel to the Program, cites the quality and enthusiasm of the participants as a major force behind the creation, funding, and success of the CBP. Many important figures, from governors to state and U. S. Congresspersons to EPA staff, had the vision, commitment, and influence to promote the Bay’s interests at the local, regional, and national levels.⁵⁴

Although the Bay Program prides itself on being a part of the local community and on working with all levels of government, it would not be possible without the solid foundation of federal laws on which it is built. The federal government is a vital partner, providing financial and technological assistance as well as the framework of regulations that supports the Program and its activities. The CBP’s goals are more ambitious than the federal regulations, but (as with all voluntary compliance programs) states and companies that comply are rewarded with good publicity and goodwill in a way that they would not be for simply complying with federal laws. The federal government will continue to play an important role in the Bay Program, particularly as air- and waterborne pollutants from non-signatory states become a greater problem for the Bay.

CHESAPEAKE BAY PROGRAM

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CALFED BAY-DELTA PROGRAM

Sacramento/San Joaquin Bay-Delta, California

BACKGROUND

The main dispute in the Sacramento/San Joaquin Bay-Delta is not the usual water quality concern; rather than pollution, the primary points of contention are waterflows and salinity. Water is a precious resource for California's economically and politically important agricultural industry, but federal and state laws, with vigorous support from the state's active environmental community, also claim water rights for endangered species and other ecological priorities. In addition, the Bay-Delta is in the difficult position of having to supply water not only to San Francisco and its surrounding communities, but also to Los Angeles and the drier areas of Southern California—over 22 million people in all. The stresses on this watershed are formidable, and the debate over priorities has been contentious.

The Bay-Delta covers about 738,000 acres; its watershed includes more than 40 million acres. It provides 40 percent of California's drinking water supply and irrigation for 45 percent of the nation's fruits and vegetables. The Delta is also the largest wetland habitat in the western U.S., and because of its low salinity transition zone—where freshwater from the Delta's tributaries mixes with ocean water—it supports tidal marsh ecosystems and important fish nurseries.

This low salinity transition zone is the crux of the environmental problem: as freshwater flows from tributaries were diverted to agricultural and municipal uses, saltwater moved further up the Delta. The low salinity transition zone grew smaller and was pushed upstream, out of the "extensive, protective, and highly productive"¹ tidal marshes and into narrower, more turbulent river channels. This habitat change, combined with the 1987-1992 drought and increased populations of non-native fish species, diminished indigenous fish species; by 1993, two fish species had been listed under the Endangered Species Act (ESA), with other petitions pending.²

However, any increase in freshwater flows to assist the fish populations means a reduction in freshwater for farms and drinking water. The agricultural community is politically powerful in California—nearly one-third of California's land area is devoted to agriculture; it accounts for almost \$100 billion in direct and indirect economic activity annually—and it relies on cheap, federally subsidized water. Urban water districts are also important political players, and they depend on Bay-Delta water for their jurisdictions because it is closer to home and less controversial than out-of-state

water sources like, for example, the Colorado River.

Much of California's population and agriculture is in naturally arid regions, and it relies heavily on water transferred from within and outside of the state to survive. The state's official estimate is that by 2020, if conditions continue unchanged, it will experience a 2.9 million acre feet (MAF) shortfall in average water years and a 7 MAF shortfall in drought years (for comparison, average statewide urban demand for water currently runs between 8.8 and 9 MAF). Its options for minimizing the shortfall are narrowing as the federal government pressures it to reduce the amount of water it takes from the Colorado River—California was allotted 4.4 MAF per year, but it is currently using over 5 MAF. In the absence of new sources of water, future water management efforts could lessen the shortage to 1.4 MAF in average years and 3.9 MAF in drought years, and population trends could change, which would affect water demand.³

CALFED CREATION PROCESS

In 1993, three federal agencies were on course for what Interior Secretary Bruce Babbitt called "a train wreck," as they drew up standards for the Bay-Delta that had the potential to conflict in scheduling and in policy. The U.S. Fish & Wildlife Service and the National Marine Fisheries Service had listed the winter-run Chinook salmon and the Delta smelt under the ESA. The listings would restrict the activities of the federal and state water projects that pumped freshwater to agricultural and urban users. In addition, the U.S. Environmental Protection Agency (EPA) had for over ten years been warning the State Water Resources Control Board (WRCB) that it needed to adopt a stronger water quality plan to protect the fish populations. Under Section 303(c)(4) of the Clean Water Act, if a state's water quality standards are not sufficient to protect a designated use (such as fish and wildlife), EPA must issue standards within 90 days. EPA had been repeatedly referring the standards back to the state. In 1993, after Governor Pete Wilson ordered the WRCB to withdraw its most recent iteration of water quality standards (possibly because the proposal would have been detrimental to agricultural interests, which were strong supporters of Governor Wilson's imminent reelection bid⁴), EPA decided to issue water quality standards. Finally, the 1992 Central Valley Project Improvement Act (CVPIA) mandated a division of water for urban, agricultural, and environmental uses.

CALFED BAY-DELTA PROGRAM

Newly elected President Bill Clinton, Interior Secretary Babbitt, and Assistant Secretary for Water and Science in Interior Betsy Rieke wanted to work with Governor Wilson to resolve the conflicts amicably. To present a united front, the federal government organized its agencies into an informal coalition, known as Club Fed. Led by Rieke, Club Fed began negotiations. The groups involved in CALFED, as it was eventually named, were: the California Resources Agency, Environmental Protection Agency, Dept. of Water Resources, Dept. of Fish and Game, and State Water Resources Control Board; the U.S. Dept. of Interior's Bureau of Reclamation and Fish and Wildlife Service (FWS), EPA, and National Marine Fisheries Service (NMFS); municipal and agricultural users; and environmental groups. It was "by water policy standards remarkably open and inclusive," says Adrienne Alvord of the Community Alliance with Family Farmers Foundation (who nonetheless feels the process wasn't inclusive enough).⁵

Rieke credits the resolution of the dispute to "a favorable interest-group configuration." She says, "The possibility of mutual gains [among the urban, environmental, and agricultural interests] was apparent."⁶ All three sectors wanted to end the uncertainty over water supplies; that in itself was enough to bring them to the table. A further incentive for water users was that a federally imposed solution under the authority of the ESA could potentially take more water from other uses than a negotiated settlement.

The urban water agencies actively courted agricultural interests to put together a package of ESA protections and water quality standards, and the strength of the environmental community helped the federal team push for environmentally meaningful solutions. Rieke also emphasizes the importance of individual leadership in breaking the various impasses encountered along the way. Dan Nelson, executive director of the Delta-Mendota Water District, rallied the agricultural community; Tim Quinn of the Metropolitan Water District championed CALFED in the urban sector; Tom Graff and John Krautkraemer of the Environmental Defense Fund rounded up the environmental community and prodded last-minute negotiations to save the agreement when it seemed unsalvageable. Though not directly involved in CALFED, the business community recognized that it had an economic stake in settling the standards debate; Richard Rosenberg, CEO of the Bank of America, collected signatures from 13 business leaders on a letter to President Clinton and Governor

Wilson in support of the CALFED agreement.⁷ On the state side, Resources Secretary Douglas Wheeler and Deputy Secretary Mike Mantell were instrumental in convincing their colleagues of CALFED's value.⁸

The federal government wanted to negotiate a state solution to the debate rather than impose its own plan. Much of the impetus behind this decision was legal: federal officials believed that a state solution had the highest probability of creating enforceable standards that would stand up in court. They suspected EPA lacked the authority to enforce salinity requirements because these standards dealt with waterflows, not with pollution. Despite these concerns, the federal negotiators were committed to enforcing the Clean Water Act and the ESA—"no additional water quality protection was not an option," as Rieke says—but they made sure the other CALFED members knew that the feds wanted flexible, state-adopted solutions that would minimize impacts on water users, include stakeholders in decision-making, and leverage interest-group pressure toward cooperation instead of confrontation.⁹

Much of this process was driven, directly or indirectly, by the federal government. The federal government made the decision to seek a state solution; the threat of federal regulations (the "gorilla in the closet") pressured interest groups to the table (a table which was set up by the federal agencies, not local consensus). Rieke states explicitly that "absent the mandates of the Clean Water Act and the ESA, there would be no Bay-Delta Agreement and, therefore, no enhanced protection for the natural resources in that system."¹⁰ And, of course, the federal government owns the Central Valley Project, giving it proprietary as well as regulatory interest.

Most of the participants agreed on the science determining what the water quality standards for salinity should be and how to meet them. However, no such consensus existed for the science surrounding the protection of Delta smelt and the other fish species. FWS and NMFS had one plan for protecting the fish; the agricultural and urban sectors had a different one. In frustration, Rieke held a "science day" to allow each side to present its scientific reasons for its plan. Neither faction, as it turned out, could produce reliable scientific evidence for its position; it seemed no "good science" existed on the issue. This impasse made the decision a political choice rather than a scientific one, and Rieke used the agricultural/urban proposal, with lower waterflows for fish, as a base for revisions.¹¹

CALFED BAY-DELTA PROGRAM

The final agreement was hailed as “peace in the Delta” by all participants. It provided for increased freshwater flows (400,000 additional acre-feet in normal years, up to 1.1 million additional acre-feet in drought years). If extra water is needed for any new listings under the ESA, it must be purchased with federal funds from willing sellers, not taken through regulatory actions. EPA withdrew the federal standards in favor of adequate state standards, which were adopted in May 1995. Rieke sums up the agreement as “more water for the environment, less water but more certainty for agricultural and urban users, and a return to state primacy in water quality decisions.”¹²

PUBLIC INVOLVEMENT IN THE PROCESS

In contrast to the Chesapeake Bay, there was little or no grassroots pressure for a solution in the Bay-Delta. Local citizens are concerned about various aspects of the problem—endangered species, drinking water, agricultural allotments—but there does not seem to be involvement on the scale of the Chesapeake Bay. Perhaps this is due to the nature of the primary problem: freshwater flows. While an individual citizen can help improve water quality through simple actions, she has little impact on the salinity level of the Bay-Delta. The best action an individual can take to increase freshwater flows is to conserve water so that less freshwater will be needed for municipal uses. Even this action has minimal impact; about 80 percent of the Bay-Delta’s flow goes to the agricultural sector. Of the 20 percent that goes to urban uses, roughly 50 to 65 percent is used by residential customers. The program needs, in the words of San Mateo County Supervisor Reuben Barrales, “to draw a relevance between preservation of the Estuary and the quality of people’s lives.”¹³

The general consensus is that the CALFED process, although more inclusive than any previous efforts, did not try hard enough to bring in every stakeholder. Rieke notes that other interest groups, particularly water users north of the Bay-Delta, should have been consulted more. Adrienne Alvord, representing a nonprofit, family-farm advocacy group, goes farther, saying that the government did not make enough of an effort to include certain groups and did not level the playing field among the participants. For example, she says, rural communities and fishery interests did not have the same financial and political resources as the powerful urban water districts, the agricultural sector, and even some of the environmental groups. In addition,

she notes that “missing are the voices of many town and county governments, neighborhood and grassroots organizations, ethnic and low-income groups, environmentalists, and citizens too busy making a living to attend all-day meetings.”¹⁴ The more powerful players, not surprisingly, are the ones who stand to gain from the final agreement, as more water is moved from low-income agricultural regions to wealthy cities.

THE CALFED PROGRAM

The CALFED agreement led to the creation of a programmatic entity to choose and implement a management plan for the watershed. CALFED divided the process of finding a solution to the Bay-Delta conflict into three phases. In Phase I, from June 1995 to March 1998, the program identified the problems facing the Bay-Delta, created its mission statements and guiding principles, and developed three alternative strategies for resolving the conflict. Phase II, from March 1998 to December 1998, will feature an environmental review of the selected alternatives, with public comment, and will end with the selection of one preferred alternative. In Phase III, that solution will be implemented in stages over the next 20 to 30 years, beginning in late 1999.

MISSION STATEMENT

The mission of the CALFED Bay-Delta Program is to develop a long-term comprehensive plan to restore ecological health and improve water management for beneficial uses of the Bay-Delta System.

GUIDING PRINCIPLES

CALFED’s primary objectives are to:

- **Provide good water quality for all beneficial uses.**
- **Improve and increase aquatic and terrestrial habitats and improve ecological functions in the Bay-Delta to support sustainable populations of diverse and valuable plant and animal species.**
- **Reduce the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system.**
- **Reduce the risk to land use and associated economic activities, water supply, infrastructure, and the ecosystem from catastrophic breaching of Delta levees.**¹⁵

CALFED BAY-DELTA PROGRAM

The main business of the CALFED program is to select a long-term management plan for the Bay-Delta and the use of its water. The program has outlined solution principles which will guide its choice of the long-term plan and other projects:

- **Affordability**—the plan can be implemented and maintained within the foreseeable resources.
- **Equitability**—it focuses on resolving problems in all problem areas. Improvements for some problems will not be made without corresponding improvements for other problems.
- **Implementability**—it has broad public acceptance and legal feasibility and will be timely and relatively simple compared with other alternatives.
- **Durability**—it will have political and economic staying power and will sustain the resources it was designed to protect and enhance.
- **Reduce conflicts in the system**—it will reduce major conflicts among beneficial water users.
- **No significant redirected impacts**—it will not solve problems by redirecting significant negative impacts, when viewed in its entirety, in the Bay-Delta or other regions of California.¹⁶

SELECTION OF ALTERNATIVES

CALFED identified four major conflict areas in the Bay-Delta: fisheries vs. water diversions, habitat vs. land use and flood control projects, water supply availability vs. beneficial uses (instream vs. out-of-stream uses), and water quality vs. land use. Teams addressing each conflict area came up with 100 preliminary solution alternatives, then narrowed them and balanced them based on CALFED's solution principles, ending up with a list of 20. The Bay Delta Advisory Council (BDAC) (discussed later), stakeholders, and the general public then assessed the alternatives in a workshop. By April 1996, ten alternatives were left and were evaluated in several meetings around the state for their potential to meet CALFED's objectives while adhering to its solution principles. Finally, the alternatives were reworked and combined to come up with three proposals:

- **Existing System Conveyance**: using the existing infrastructure, possibly with new water storage facilities or altered pumping schedules.
- **Through Delta Conveyance**: widening or deepening existing channels to increase flows.

- **Dual Delta Conveyance**: modifying channels as in the Through Delta option and building a canal or pipeline skirting the delta to convey Sacramento River water directly to pumps.¹⁷

Again, BDAC, stakeholders, and the public reviewed the final three choices, made some minor revisions, and registered concerns for future consideration.¹⁸

Although a final proposal was supposed to be ready by 1997, CALFED instead released all three options in March 1998, each with a range of possible variations and with provisions for restoring habitat, promoting water conservation, and improving water quality. The alternatives will be evaluated and modeled during 1998, and a draft preferred alternative will be announced in December 1998. A final decision will be made in late 1999. The delay allows CALFED to gather more environmental documentation on each alternative, encourages further public comment, and gives the coalition more time to try to find common ground.

LOCAL GOVERNMENT INVOLVEMENT

Local governments are, in general, very involved in the Bay-Delta program. The water districts have a very high stake in the proceedings, particularly those in the Delta region. Municipalities in the San Francisco Bay area are moderately involved, but, excepting the Metropolitan Water District of Southern California and the San Diego County Water Authority, there is little direct participation from Southern California. Many of the water agencies in the south, however, belong to the California Urban Water Agencies Association, which has been very active in CALFED. Governments along the upper tributaries of the Bay-Delta system are becoming more involved as their water needs and their concern over where their water is going grow.

PUBLIC INVOLVEMENT

The issues surrounding the Bay-Delta are very complex and not easily understood by a lay person. The lack of easy, "ways you can help" solutions also hampers public involvement. The public can offer input through workshops and other public meetings; however, as Alvord points out, many private citizens do not have the time or expertise to contribute to these fora. She believes the governmental agencies of CALFED need to do a better job of actively

CALFED BAY-DELTA PROGRAM

soliciting public participation, educating laypeople, and engaging individuals in the program. The water issue, surprisingly, doesn't seem to register very highly with the general public in California.

The CALFED program, like the process that produced it, has been criticized for not doing enough to involve the general public. An independent review panel recommended increased public outreach and education, modeled on the Chesapeake Bay Program's public involvement programs. The numerous environmental advocacy groups in the San Francisco area are also an excellent resource for drumming up public interest and for educating the Bay-Delta residents. CONCUR, a mediation group that has worked closely with CALFED, recently completed a stakeholder analysis identifying those groups not sufficiently represented in the program: small family and organic farms, a sizable constituency in California; minority communities and people of color, traditionally underrepresented in environmental issues; business and industry, with the exception of agriculture; Southern California interests, except for the Metropolitan Water District of Southern California and the San Diego County Water Authority; and small watershed conservancies and other small environmental groups, particularly those based outside of the San Francisco-Berkeley-Sacramento area.¹⁹

Part of the reason that some of these groups have not become involved in the process is geography: 90 percent of the CALFED meetings are held in Sacramento, so stakeholders outside of the immediate Bay-Delta area are at a disadvantage. CALFED is attempting to remedy this by holding meetings across the state as frequently as possible. Some groups, particularly non-agricultural business and industry, have not recognized a need to participate in the Bay-Delta program. CALFED has passed the stakeholder analysis on to a private consulting firm, Katz & Associates, which will conduct outreach programs to industry and other groups that CALFED feels should be involved in the program.²⁰

One of the few formal mechanisms to solicit public input is the Bay-Delta Advisory Council. The Council is a group of more than 30 citizen-advisors selected from California's agricultural, environmental, urban, business, fishing, and other interests who have a stake in finding a long-term solution. They advise CALFED on the program mission, problems to be addressed, and objectives for the program; review reports and other program materials; and provide a

forum for public participation. The BDAC is a useful tool for increasing the involvement of the watershed citizens in CALFED's efforts. Anywhere from 100 to 200 people attend each BDAC meeting, and about half of these people are regular participants and half are new faces. Workgroups on specific subtopics are more sparsely attended, and the audience at these meetings tends to be mostly made up of regular players.²¹

CALFED conducted a total of 14 public meetings in 13 communities with more than 700 attendees during Phase I. In addition, it held seven technical workshops with about 1,000 attendees, and the BDAC met every one to two months. CALFED sent notices about the alternatives and the meetings to a mailing list of over 3,000 names and recorded all public comments. Major areas of public concern included drinking water safety, having adequate flood protection, maintaining "a single, coherent vision of ecosystem restoration," and promoting water use efficiency. Phase II will consider these concerns while assessing costs, performing environmental and engineering studies, conducting geological analyses, and clarifying the role of individual actions. As of September 1998, CALFED has held 30 public meetings on Phase II, plus 17 open hearings on the accompanying Environmental Impact Statement/Environmental Impact Report.²²

FUNDING

All of CALFED's funding thus far has been for planning efforts in Phases I and II. Phase III, implementation of the management plan, will start after CALFED member agencies have reviewed the proposal selected in Phase II, probably in late 1998/early 1999, and will continue for 20 to 30 years. No sustainable funding has been secured yet for the implementation phase; however, much of the money will come from water users throughout the region, through their water and sewer bills.²³

CALFED estimates it will need \$8-10 billion over 20 years to complete its planned restoration activities (\$2 billion for ecological restoration, \$1 billion for water quality improvements, \$1.5 billion to improve system integrity, and the rest to provide a reliable water supply). To date, they have a commitment of \$1 billion—\$600 million from the state through a bond election, \$340 million authorized from the federal government (spread over three years, although Congress must appropriate it each year), and \$60 million

CALFED BAY-DELTA PROGRAM

from private sources, including urban water districts. Much of the funding for capital costs can be absorbed by other programs like the Central Valley Project. The program assures that “neither one sector of society nor one revenue source will shoulder responsibility for paying for the ultimate solution alternative.” Of course, one of CALFED’s solution principles is that the alternative must be affordable; if a proposal cannot find adequate funding, it will be altered or discarded.²⁴

ENVIRONMENTAL PROGRESS

It is a little unfair to judge CALFED by its results, as it has not yet implemented or even selected a final plan. However, the CALFED participants recognized that some measures needed to be taken immediately to protect the endangered species and thereby minimize the effect of federal regulations on the water supply. Roughly 75 restoration projects were funded through 1997 at a cost of about \$120 million. Projects included improved fish screens, acquisition of floodplain and farmland, and moving or repairing levees. About 20 to 25 projects have been completed as of early 1998 and have achieved their short-term objectives (i.e., removing small diversion dams to allow fish passage), but their long-term results (i.e., increasing fish populations) remain to be seen.²⁵

Diversion of inflows. A string of exceptionally wet years (1993, 1995-96, and 1997-98’s El Niño event) helped water quality in the Bay-Delta and added to freshwater flows, boosting fish populations. The extra precipitation also reduced the percentage of water diverted for agricultural and urban uses: 11 percent was diverted in 1994, a wet year, while 54 percent was diverted in 1990, the middle of a 5-year drought.²⁶

Status of endangered fish. CALFED created a federal-state operations group, CALFED OPS, to make day-to-day decisions about water pumping based on populations of endangered species. Increased, “in the water” monitoring of fish gives them up-to-the-minute information to decide on diversion amounts.²⁷

Central Valley salmon populations are showing significant improvement, in part because of the recent wet years, but also due to CALFED’s efforts with local water districts to time water releases to coincide with the salmon’s migration and reproduction cycles. For the endangered winter-run chinook salmon, populations rebounded from a record low

189 fish in 1994 to 1,361 fish in 1995 and 900 in 1996 (the low population in 1994 affected the 1996 run because there were fewer parent fish to spawn). Winter, fall, and spring runs are all still below their peak levels in the 1980s, but all are reversing the downward trend of the last decade and stabilizing or growing.²⁸

Delta smelt populations fluctuate greatly from year to year because the fish live only one year. Populations were relatively high in 1991, 1993, and 1995, but very low in 1992, 1994, and 1996. They are very sensitive to changes in the environment; for example, low outflows bring the salinity zone further up the estuary, reducing their habitat, but high outflows also hurt the smelt by pushing them too far down the estuary. Federal and state water pump operators began in 1994 to regulate outflows to keep the smelt in the Suisun Bay, but because little is known about Delta smelt, recovery efforts can’t be targeted effectively.²⁹

Other species. With the exception of striped bass, most Bay-Delta fish species show a modest but steady upward trend. One challenge to the estuary’s native biodiversity, besides water quality and quantity, is the invasion of non-native species. Bioinvasion is increasing at a rate of one newly introduced species every 15 weeks, and exotic species are taking over most waterways in the estuary system. In some communities, non-native species account for 40 to 100 percent of the species found in surveys. The exotic invaders compete with native species for food and habitat, block water intake valves, burrow into and undermine riverbanks, and choke waterways with vegetation. Few programs are currently in place to curb bioinvasions: a voluntary measure to have ships discharge their ballast water in the ocean instead of in the bay (ballast water is one of the primary ways in which exotic species are introduced), nuisance species patrols in a few waterways, and border patrols checking for zebra mussels (which are much feared but have not actually been found in the estuary yet) on boat hulls.³⁰

CHALLENGES

It would be unfair to judge the CALFED program while it’s still in the planning stages. New challenges arise almost daily. However, this is an excellent point for the program to take stock of where it’s headed and to try to correct itself before it goes too far down the wrong path.

What is CALFED’s goal? Different users have different

CALFED BAY-DELTA PROGRAM

visions of what the watershed should look like. CALFED tends toward addressing separate problems in the watershed rather than taking a whole-ecosystem approach. The scientific consensus that exists in the Chesapeake Bay does not exist in the Bay-Delta; competing uses are far more inimical here than in the Chesapeake. The Bay area has been heavily affected by human development ever since Americans settled its shores, as opposed to the Chesapeake Bay, where most development until recently took place away from the waterfront. While much of the Chesapeake Bay's support was generated by people who could remember the way the Bay looked before the decline in its water quality, no one can remember what the Bay-Delta looked like before human activity. Thus, restoration of the Bay-Delta is difficult to define and probably impossible to achieve on a widespread scale. Even the goal of rehabilitating it to a more natural state prompts the question, "What exactly defines a natural state?"—particularly since no one knows what its pre-Columbian state was. This uncertainty means that CALFED doesn't have a clearly defined goal.

Scientific consensus. For most of the history of conflict over the Bay-Delta, the science has been adversarial. Competing uses were so adamantly opposed that they could not even agree on the nature or extent of the ecological problems. Recently, a consensus on the scientific aspects of the program has begun to emerge, although it is by no means solid. CALFED itself has helped this understanding evolve by bringing together adversaries, and by convening in October 1997 a Scientific Review Panel composed of outside, nationally recognized scientists to assess an ecosystem restoration plan—the first independent review of a CALFED program.³¹ CALFED is planning to set up a formal body to oversee scientific studies, monitoring, and evaluation of the Bay-Delta and will seek outside review more frequently. These steps will certainly help to reach and maintain a scientific consensus on the problems and solutions.

One major area of scientific uncertainty is the "water balance" needed between diversions and environmental uses. Tom Graff of EDF has requested an analysis of "the effects of cumulative diversions and depletions, and the water supply commitments of the two big projects," the Central Valley Project and the State Water Project. CALFED's response has been that its alternatives address the type of conveyance needed rather than the

amount of water it will divert, and therefore such a study is unnecessary. However, determining the balance of water needed for each of the sectors using Bay-Delta water would seem to be an important step in selecting a conveyance method.

Central Valley Project (CVP). A 1992 federal law, the Central Valley Project Improvement Act (CVPIA), required water districts to allocate up to 800,000 acre-feet of water per year (12 percent of the CVP's annual delivery) to help restore fisheries in the Bay-Delta. The Act was hailed as putting the environment, for the first time, on an equal footing with flood control, electricity generation, and agricultural and municipal water use in the CVP's priorities. The final decision on water allocation, however, took five years, and its unveiling touched off more litigation and contention among the CALFED members.

The final federal plan was announced by then Deputy Interior Secretary John Garamendi on November 20, 1997, and almost immediately a group of water districts filed suit against it, claiming that the plan isn't fair and will harm agricultural and business interests. They believe that Interior is exceeding its authority and that the fisheries already receive enough water under existing federal laws. However, environmentalists are not pleased either; they claim the plan offers too many loopholes that permit water intended for ecological purposes to be diverted to farms.³² On February 4, 1998, a coalition of environmental and fishing groups filed suit to stop implementation of Garamendi's plan, claiming that only about half of the 800,000 acre feet would go to increasing flows for fish restoration.³³

Garamendi tried to involve the CALFED members in the formation of the final policy through a series of meetings for one-and-a-half years before his final announcement. The water districts filed their lawsuit because they were unhappy with the outcome and believed their views hadn't been taken adequately into account. When the Interior Department suggested that the water districts' lawsuit was invalid because nothing had actually happened yet, the environmentalists sued because of Interior's inaction.

Loss of certainty. One of the major incentives that brought the CALFED partners together was the elimination of the uncertainty regarding the division of water in the Bay-Delta. Now that uncertainty is creeping back with the dispute over the CVPIA. Dan Nelson, executive director of the San Luis and Delta-Mendota Water Authority, which brought the November 24, 1997, lawsuit over the CVPIA,

CALFED BAY-DELTA PROGRAM

complains, “What we thought we got from the Bay-Delta accord was, number one, certainty for water users, and the integration of a lot of different statutes like this into one set of rules. What sort of certainty do we have if they can use another statute and come back at us?”³⁴

Strains on the coalition. The lawsuits over the CVPIA mark a return to the litigious, contentious, pre-CALFED atmosphere. Some participants, like EDF’s Tom Graff, express deep disappointment over the turn of events. He points to the alignment between environmental and urban interests that suffered when urban water districts began siding with the agricultural sector, to the lack of commitment he feels regional heads of federal departments have for the environment, to CALFED’s heading in the wrong direction—toward the massive water projects of the past. He is pessimistic about CALFED’s long-term effectiveness unless federal agency leaders in Washington take the lead again.³⁵ In a letter to Garamendi, he reaffirms EDF’s commitment to CALFED, but emphasizes that the participants must adhere to all of CALFED’s objectives and solution principles. He is particularly concerned with the durability, reliability, and cost of any proposed solution.³⁶

Crafting a long-term solution to the Bay-Delta problems is taking longer than anticipated. The additional wait before a management plan can be implemented—while permitting CALFED to provide more environmental documentation on each proposal—may fray the coalition further; executive director Lester Snow admitted in August 1997 that “it is highly strained. The excitement has worn off and I think there is maybe a more realistic understanding of the hard work and the realistic trade-offs that have to be made.” However, Snow also believes that if the coalition holds together, it will create a lasting solution to the Bay-Delta’s problems.³⁷

Other observers of the program believe that media reports of the fragility of CALFED’s coalition are overstated. The participants have too much at stake to let this attempt at “peace in the water wars” fall by the wayside; the failure of numerous past efforts has demonstrated that a cooperative effort among the three major sectors is essential. Within CALFED are smaller coalitions of players who have forged strong ties of cooperation and who are committed to keeping CALFED intact and cogent. In the end, CALFED simply has too much political, financial, and social capital built up to fall apart.³⁸ Whatever bad feelings arose out of the CVPIA decision, says CALFED staffer Dick Daniel, can’t compare

to the bad feelings that brought the participants together in the first place.³⁹

Selecting an Alternative. The environmental community is distressed by the direction in which CALFED seems to be heading as it narrows its choices for a final proposal. Their view is that CALFED is leaning toward the Dual Delta Conveyance option, which they see as a resurrection of the much-reviled Peripheral Canal, which was proposed and defeated in 1982. EDF cites regularly conducted surveys showing continued, unflagging opposition to the Peripheral Canal in most areas of California. The Dual Delta Conveyance, EDF fears, is the same ecologically harmful, inefficient, “pork barrel” project as the Peripheral Canal, but under a less controversial name.⁴⁰ It is unclear if the environmental community will withdraw their support from CALFED if the Dual Delta is chosen, as seems increasingly likely. Governor Wilson and Interior Secretary Babbitt will select a draft management plan from the three options by the end of 1998.

Funding. Thus far, CALFED’s funding has been through non-sustainable appropriations. Although the Clinton Administration pledged funding for three years, California’s representatives have to lobby each year for those funds to be appropriated by the U.S. Congress. And despite the bond approved by California voters, CALFED members must still fight for in-state resources. The nature of the Bay-Delta program may hurt it in the long run: it is completely contained within one state and has very little direct implication for other states. This narrow focus may eventually undermine federal support, particularly if the U.S. government decides to concentrate its resources on regional issues rather than in-state problems. Graff also notes that “the days of big water subsidies are behind us,” at least as far as the federal government is concerned. If CALFED’s ultimate solution depends on construction of a large water project, it may have trouble getting federal funding.⁴¹

On the other hand, the coalition of interests that lobbies for funding is very strong and very effective. CALFED has obtained millions of dollars just for planning efforts, which bodes well for successful fundraising for implementation. In addition, once implementation of the solution begins, much of the money will come from the water users in the form of increased fees on water and sewer bills. CALFED has committed to raising implementation funds from varied sources, including government agencies, federal grants, public-pri-

CALFED BAY-DELTA PROGRAM

vate partnerships, and bonds.⁴²

Long-term structure. CALFED is a temporary coalition and was never intended to be a long-term entity. A permanent successor agency is needed; staff and stakeholders are just beginning to broach this issue. Clearly, the set-up and operation of this agency will have a major impact on the implementation of the chosen solution and on the future of the Bay-Delta. In the absence of a formal decisionmaking structure, the program depends on the strength and commitment of its leaders; if it loses some of the strong personalities who brought the players together and guided the process, it could suffer.

LESSONS LEARNED

Rieke lists several lessons she gleaned from the CALFED process. “Open, inclusive, and collaborative processes” are essential to crafting a program that will be self-sustaining and effective. While federal agents may have been required by law to take the lead in negotiations, they also must involve stakeholders in the search for “mutual gains.” However, she notes, the cooperative process alone does not guarantee that long-term or national priorities will be met; therefore, other incentives may be needed, whether these come in the form of threatened government action or financial rewards. Finally, she emphasizes that, while models can be useful in creating a protection program, each watershed has different needs and thus requires an individual approach.⁴³

Rather than relying on the force of public opinion, CALFED relied on pressure from the federal government. The federal intervention in this intrastate dispute illustrates the valuable mediation role Washington can play in regional and in-state conflicts. Having a federal leader take the responsibility for organizing the effort obviated the regional squabbles and prevented second-guessing. While the federal government wasn’t completely neutral, it was, of all the parties involved, the least susceptible to accusations of parochial bias. Federal environmental laws imposed rigidity on the goals to be achieved; CALFED’s success rested on the flexible means it devised for inducing water users to accept reduced water allocation in exchange for greater certainty.

The CALFED agreement affected water policy not just in the Bay-Delta region, but throughout the state, by bringing together stakeholders who had traditionally been adversaries and helping them to find common ground. “[It gave] urban water managers, farm-industry leaders, and environmentalists an opportunity to know each other—which is to say, to stop demonizing each other. Erstwhile antagonists have become, if not exactly friends, then at least friendly. More important, they discovered that they have the same goals.”⁴⁴ This truce has reverberated in historically bitter water disputes across California; that an agreement was reached at all in the Bay-Delta, regardless of its content, has stood as a model for feuding stakeholders to strive for in other areas. While the CALFED program is encountering difficulties, its very existence is laudable.

CALFED BAY-DELTA PROGRAM

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COLES LEVEE ECOSYSTEM PRESERVE

California

BACKGROUND

The Coles Levee Ecosystem Preserve is a 6,056-acre conservation bank located in the southern San Joaquin Valley near Bakersfield, California. Created by the State of California's Department of Fish and Game (DFG) and ARCO Western Energy in October 1992, the Reserve is home to about a dozen endangered species, notably the San Joaquin kit fox and the kangaroo rat. Under a conservation easement protecting the land in perpetuity, ARCO administers Coles Levee, selling credits to other landowners and managing the preserve. It also retains mineral and surface estates, including the rights to continued oil and gas production and operations. The protection of Coles Levee is an integral part of the Metropolitan Bakersfield Habitat Conservation Plan, part of California's Multiple Species Conservation Plan. The southern San Joaquin Valley is home to more rare and endangered animals and plants than any other area in the lower 48 states, and many of these species can be found in Coles Levee.

Oil and gas were discovered in Coles Levee in 1938 and have been extracted continuously since then. Currently, ARCO extracts an average of 1,000 barrels of oil and 15 million cubic feet of gas per day. ARCO estimates that approximately 5 million barrels of oil remain to be pumped, and when reserves are exhausted, Coles Levee will be maintained as a wildlife preserve in perpetuity. In the meantime, the carefully monitored oil and gas operations provide jobs to the community and generate tax revenues for the county and state.¹

CONSERVATION BANKING

If a developer damages or destroys endangered species habitat in one place, various state and federal laws can require him to mitigate the damage by establishing or improving habitat elsewhere. Successful mitigation is often difficult; regulators and developers often differ on the expense and effort needed to fulfill the obligation, and most mitigations occur on small, widely scattered tracts of land.

The State of California created an alternative approach to habitat preservation which still requires developers to mitigate habitat damage, but does so in a flexible, innovative manner better geared to achieving palpable environmental improvement and to removing undue economic burden from the developer. This approach is called a **conservation bank**. It encourages a company to embark upon a large-

scale habitat preservation effort by providing the firm with mitigation credits based on the size of the preserve. The firm can use those credits either to mitigate for developments it is engaged in elsewhere, or it can sell them to other developers who find buying such credits to be cheaper than engaging in mitigation efforts on their own. Conservation banks promote ecosystem management, address habitat conservation and species protection holistically, and focus on high-priority biological resources in targeted regions.²

Any person, company, or agency can start a conservation bank provided the land has been certified by an authorized wildlife agency "to have substantial regional habitat value, be in need of preservation and/or restoration, and be worthy of permanent protection." There are no size restrictions on conservation banks, but they must be large enough to be "ecologically self-sustaining" or be part of a larger regional conservation plan. The entity managing the bank must have its resource management plan approved by the appropriate government agency and must submit an annual report to that agency.³

The State of California's Official Policy on Conservation Banks notes some of the benefits of properly set-up and managed conservation banks. They conserve important habitats or habitat links rather than isolated, individual mitigations. This large-scale approach allows the bank operator to take advantage of economies of scale, while giving the company incentives to preserve habitat, which is especially important as the state's financial resources shrink. Credit sales can help fund an ecosystem preserve under a regional conservation plan. Finally, the regulatory process is simplified for government and landowners alike while attaining greater conservation goals.⁴

Coles Levee is an excellent illustration of a conservation bank. The preserve is a large, unfragmented oasis for over a dozen endangered species. It's an important link in the only remaining east-west migration path in the southern San Joaquin Valley. ARCO does well by doing good: they preserve a treasured ecosystem, retain exploration rights to its large oil and gas reserves, and sell credits to third parties at a profit. By contrast, if ARCO had not turned Coles Levee into a conservation bank, the land would be less profitable because it would still have the environmental restrictions on activity, but without the additional income from selling credits. And finally, by allowing the preserve to be used for educational purposes

COLES LEVEE ECOSYSTEM PRESERVE

es, ARCO is building good relations with state officials and local communities.

CREATION OF THE PRESERVE

Before the creation of the preserve, ARCO had, at any given time, a number of small projects that all needed mitigation. This generated a great deal of work both for ARCO, which had to find mitigation parcels for each project, and DFG, which had to approve each mitigation proposal. ARCO suggested copying the Southern California air emissions trading program, which allowed polluting companies to buy credits permitting them to emit pollutants above their statutory limits.⁵ The DFG realized that ARCO's operations were probably violating the California and federal Endangered Species Acts, but neither they nor the U.S. Fish and Wildlife Service had the resources to monitor the area continually to ensure that no further damage was done. The conservation bank idea "reconcile[d] these two realities,"⁶ in addition to eliminating the administrative burden of the flood of small mitigation projects. ARCO agreed to monitor the wildlife preserve, reporting periodically to the DFG, in exchange for permission to continue its operations in an environmentally sensitive manner in Coles Levee and for regional mitigation credits that it could use for itself or for sale to other parties.

One credit represents one acre of land at Coles Levee. The ratio of mitigation varies according to the project being mitigated; if it creates a "permanent disturbance" at the development site, it can require up to three acres in mitigation for every acre disturbed. For example, a five-acre development which permanently disturbs habitat would need to purchase 15 credits, representing 15 acres, at Coles Levee. DFG assigns the credit ratio based on its assessment of the project's impact. As of May 1998, 4,642 of the 6,056 credits have been sold.⁷

INNOVATION

The conservation bank "makes everyone's life easier," says the DFG's Ron Rempel.⁸ It preserves a large area of habitat for endangered species; it creates a market for smaller projects to mitigate their environmental effects easily and cost-effectively; it makes ARCO's compliance with endangered species legislation easier; and it reduces financial and manpower burdens on the DFG. Perhaps most importantly, it established a strong cooperative rela-

tionship between ARCO and the DFG, and it gave the agency a way to talk to the corporate community and other private landowners about complying with the law without undue economic burden.

Among ARCO's responsibilities as ecosystem manager are conducting annual biological monitoring of certain species and performing biological surveys prior to beginning projects in threatened and endangered habitat. The company also permits roughly 1,500 local 3rd through 8th grade students each year to visit the preserve to learn about its ecological, mineral, and cultural resources. ARCO has created teachers' guides and lesson plans to use back in the classroom. This education program was not part of the original agreement; it was ARCO's suggestion, which has reaped the rewards of good citizenship and good publicity.⁹ The program costs ARCO about \$25,000 per year, some of which is covered by grants from the DFG.

DFG receives regular biological reports from the ARCO preserve managers and does no monitoring of its own. The agency does, however, have to approve each habitat credit purchase to make sure that the habitat being destroyed is comparable to the Coles Levee habitat being preserved in mitigation. Most of the projects requesting mitigation credits are local, so the habitat tends to be very similar. The DFG estimates Coles Levee meets the needs of nearly all the mitigations proposed thus far, thanks largely to the preserve's wide variety of habitats. DFG officials believe their screening process is sound.¹⁰

PUBLIC AND LOCAL GOVERNMENT INVOLVEMENT

The public was involved only peripherally in creating the preserve, but the citizens of the surrounding area have certainly benefitted from the educational aspect of ARCO's management. The Kern County government was kept informed of the project but had little input.¹¹

BENEFITS

One of the greatest benefits of Coles Levee is that it establishes a precedent for cooperation between the DFG and the business community. It creates a system for mitigation of habitat, that is particularly helpful to smaller projects that would otherwise have a hard time mitigating for just a few acres. Streamlining the permitting process and having

COLES LEVEE ECOSYSTEM PRESERVE

ARCO manage the preserve have saved money and manpower for the DFG without sacrificing species protection. ARCO's educational programs benefit the surrounding community.¹²

ENVIRONMENTAL BENEFITS

Populations of endangered species in Coles Levee have been stable since the preserve's inception. Weather conditions and natural cycles have caused a decline in some species, such as the kangaroo rat, throughout the region, but DFG has no reason to believe ARCO's management is inadequate. The science is inexact; ARCO and the DFG are in the early stages of implementing adaptive management strategies and are still doing research on the biology of the plants and animals in the preserve. Therefore, even if species were to decline, it would be difficult for DFG scientists to put the blame on ARCO.¹³

In a worst-case scenario, however, if DFG decides that ARCO is not properly managing the preserve, the agency has a range of options. They would begin by investigating why animal populations are declining and revising the operations and management plans accordingly. At the extreme, DFG could take over the management of the preserve, but this option is very unlikely. So far, ARCO has proven to be an excellent and conscientious manager of Coles Levee.¹⁴

ECONOMIC BENEFITS

The permitting process for selling credits has been cut from months to weeks. The compensation credits sold to third parties are pre-approved by the DFG, reducing processing time and administrative fees. The credit purchaser does not need to provide a security deposit or letter; get a property appraisal; pay title, escrow, or tax fees; or assume any interest in or liability for the Coles Levee property. The credits are sold in units of one acre, about half of which have already been sold, at a ratio of three mitigation acres per acre of land developed. Because Coles Levee is already being managed for species restoration, the mitigation has a better chance of attaining its environmental goals than would a newly created habitat parcel.

Coles Levee is nearly self-sustaining. Fees from developers seeking mitigation pay for most of the management operations and have helped to almost entirely recoup ARCO's initial investment in setting up the preserve. The education and research programs add expenses without

bringing in revenue, but they generate goodwill between ARCO and the DFG and educate the community. DFG also helps to fund the education programs.

CHALLENGES

Projects like Coles Levee can make it easier for companies to comply with the ESA, but each case has trade-offs that might not be readily apparent. The cost of creating and managing the preserve can be a significant up-front investment; the company must have the resources to cover this expense until the funds from selling mitigation credits begin to flow. The company would have to compare its present costs of compliance with the expense of more frequent but less intense monitoring in a conservation bank.¹⁵ While Coles Levee provides a good model, it can't be used as a cookie cutter; each case must be evaluated individually.

Although some environmentalists, notably the Nature Conservancy, have endorsed the conservation bank idea¹⁶, others, like the local Audubon Society chapter, fear that mitigation credits could be sold to a company in exchange for land that might have other threatened species.¹⁷ DFG proudly points out the larger ramifications of Coles Levee and other conservation banks: "We're finally able to show those that don't necessarily like the Endangered Species Act that some value can actually be created on land that has endangered species on it. And, two, we're showing that corporate America can start helping resolve some of the larger issues around land preservation and endangered species."¹⁸ The Audubon Society counters that "this is the government's easy way of getting out of the endangered species business."¹⁹

LESSONS LEARNED

Thanks to the success of Coles Levee, DFG has a new way to talk to industry about complying with endangered species laws without undue economic burden. These partnerships promote cooperation, not litigation, and they help ensure the protection of endangered species on existing habitat. They also save time, money, and personnel resources for the DFG without sacrificing the monitoring of endangered populations.

Conservation banks help to create a market for species preservation. Smaller development projects can mitigate their environmental impacts more easily and effectively.

COLES LEVEE ECOSYSTEM PRESERVE

ARCO, meanwhile, makes money by selling credits. It's easier for ARCO to comply with the endangered species laws, and the company can demonstrate its good citizenship by voluntarily performing outreach and education services to the community.

The Coles Levee project won a 1994 Innovations in State and Local Government Award from the Ford Foundation, and its success and national recognition have made it a model for other projects in California and other states. The DFG has set up about 30 to 35 conservation banks across California, encompassing \$80 to \$90 million worth of land.²⁰ The lessons learned from Coles Levee and other Multiple Species Conservation Plan projects help federal and state wildlife agencies refine new, cooperative techniques to protect endangered species.

COLES LEVEE ECOSYSTEM PRESERVE

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SANDHILLS SAFE HARBOR

North Carolina

BACKGROUND

The red-cockaded woodpecker (RCW) was one of the first animals named to the Endangered Species list in 1973. Once a common bird in the Southeast, its numbers dwindled as its longleaf pine habitat was decimated by logging and farming. Even after its listing, populations continued to decline through the 1980s. As is the case with most endangered species, the woodpecker's decline was due to habitat loss rather than hunting or disease, and its habitat is primarily on privately owned land.

Red-cockaded woodpeckers live in groups composed of a breeding pair and a few non-breeding birds who help to raise the young. Their preferred habitat is longleaf pine forest with widely spaced trees. The birds nest in cavities they excavate far up the trunks of 60- to 80-year-old living trees. Unfortunately for the woodpeckers, these mature pines are the most valuable to loggers and are often the first to be cut. Also, the forests need frequent, low-intensity fires to keep the undergrowth in check, and many private landowners try to avoid fires rather than initiate them.

Perception of the Endangered Species Act (ESA) was also a problem. Many landowners heard horror stories about the government taking over their property if an endangered species was discovered on it. Rather than risk an "infestation" of woodpeckers and the subsequent government action, some property owners clearcut their land before any birds could nest.¹ Less dramatically, other landowners, while not actively destroying habitat, did nothing to improve habitat on their land for fear of attracting more woodpeckers and possibly other endangered species. Even if they were prohibited from "taking" a bird under the ESA, they had no incentive or requirement under the law to proactively manage the woodpeckers' habitat—for example, by setting fires or drilling artificial nesting cavities.²

It is difficult for the U.S. Fish and Wildlife Service (FWS) to prove that a species has been taken on private land. FWS agents often cannot gain access to private property, and they don't always know where the woodpeckers' nests are or how many birds are in each group, so they can't easily determine if the landowner has violated ESA's take prohibition. While they can observe habitat destruction, they can't correlate it to the death of an individual bird. Finally, they can't force the property owner to set controlled fires, and the lack of these fires can eventually lead to an unsuitable habitat for the woodpeckers.³ To protect birds on pri-

vate land, the FWS clearly needs tools beyond enforcement of the ESA.

PREVIOUS PROTECTION SCHEMES

The FWS attempted to create some new tools, beginning in 1992, to give landowners incentives to protect and restore habitat. It signed Memoranda of Agreement with ten corporate landowners (as of mid-1997) to protect and manage over 66,000 acres of woodpecker habitat with at least 280 groups of woodpeckers—29 percent of known RCW groups on private land. For individual landowners, the FWS used Habitat Conservation Plans (HCPs). These plans allowed the landowners an incidental take in return for creating a replacement group at a 1:1 ratio or higher, relocating birds to a new area, or a combination of the two options. From 1995 to mid-1997, the FWS approved seven HCPs.⁴ While Ralph Costa, the FWS's RCW Recovery Coordinator in South Carolina, is optimistic about the success of these plans, the Environmental Defense Fund (EDF) is less sanguine.

Robert Bonnie, an economist with EDF, notes that most of the HCPs do not require that the landowner succeeds with his mitigation effort, only that he attempts it. Some of the HCPs permit the mitigation to take place on federal lands, which Bonnie calls "a very damaging precedent"—in effect, the landowners are merely paying the federal government to do what the law already requires: protect woodpeckers on public lands. And because the federal agency (usually the Forest Service) is already managing the public land for the RCWs, the cost to the landowner for the management of the mitigation groups is minimal. These HCPs actually create an incentive for property owners to destroy habitat on their land and mitigate on federal land.⁵

CREATION OF SAFE HARBOR

The case that triggered the creation of Safe Harbor was that of landowner Ben Cone. Cone wanted to cut the hardwoods and thin the pines on one section of his property to improve his quail-hunting grounds; incidentally, these actions would also make the parcel prime habitat for RCWs. He had no RCWs in that part of his land, but he had 12 groups in other areas on his property. Cone feared that they would move into the thinned section, creating more headaches for him with the Endangered Species Act. While the Act made provisions for the incidental taking of birds in

SANDHILLS SAFE HARBOR

the 12 groups already on his land, it didn't allow him to get a permit for a future incidental take. Cone spoke to Ralph Costa, and Costa brought up the problem with others in FWS's regional headquarters in Atlanta and with the Sandhills Working Group.

The Sandhills Working Group was grappling with the same issue at the same time. The group was composed of representatives from Fort Bragg, the state-owned Sandhills Gamelands, the FWS, the North Carolina Wildlife Resources Commission, EDF, and private landowners. They came up with the Safe Harbor concept: issuing a permit to take what doesn't yet exist, provided a baseline population is maintained.

Safe Harbor gives a property owner certainty about the restrictions on use of his land while stabilizing and even increasing the woodpecker population. If the landowner agrees to maintain woodpecker habitat, he is guaranteed that the government will not further restrict his use of his land in the future, even if more woodpeckers or other endangered species are discovered. So, while he has no direct incentive to create new habitat, he has no disincentive, either. Safe Harbor also encourages him to improve existing habitat to maintain the baseline population. Either the landowner or the government may back out of the agreement at any time, but even if this happens, theoretically the species would be no worse off than before the agreement.

To initiate a Safe Harbor agreement, the landowner invites the Fish and Wildlife Service to inventory the red-cockaded woodpeckers on the lands he wishes to enroll in the program. He then signs an agreement to improve habitat as needed to maintain the baseline population, the number of birds inventoried by FWS. The landowner is prohibited from shooting, capturing, or otherwise taking these baseline birds. If he wants to engage in any activity that may result in an incidental taking of birds or habitat not part of the baseline, the property owner must not do so during the mating season and must notify the FWS agent in advance so that the birds can be protected or relocated. FWS agents are allowed to enter the property at reasonable times to verify that the baseline population is being maintained, to identify the birds, and to relocate birds as appropriate. The FWS cannot impose any further constraints on the landowner if new birds are discovered on his property, so, unlike in the past, he has no reason to fear the discovery of more birds. Safe Harbor agreements generally last

for 99 years, but a landowner can opt for a shorter period of time. The agreement covers the land regardless of who buys or inherits it, although the new landowner can terminate the accord at any time.

The anchors of the Sandhills Safe Harbor area were two publicly owned properties: the Fort Bragg Army base and the state-owned Sandhills Gamelands. These two parcels were separated by several miles of private property on which RCW habitat had been declining for years. To link the public lands and create a less-fragmented swath of habitat, FWS approached private landowners with Safe Harbor. The Safe Harbor permit (and thus the monitoring responsibility) in the Sandhills was issued to the FWS's Regional Coordinator, in this case Ralph Costa, and the enrolled landowners all fell under this single permit. Since April 1995, 24 property owners with 23,000 acres housing 42 baseline groups of RCWs have enrolled in Safe Harbor in the Sandhills region.⁶

Safe Harbor has proven extremely popular with landowners and state governments. Enrollees are the best salespeople for the program, spreading the word to other landowners and encouraging them to sign up. Out of 72 parcels of private lands with RCWs in the 6-county Sandhills area, 24 have signed up for Safe Harbor. Even landowners with no RCWs on their property are applying for permits; they want the certainty that they can plant longleaf pines now and, as long as they maintain them as habitat, will be able to use their property as they wish when the pines reach maturity, regardless of whether woodpeckers colonize the pines or not.⁷

Other states have begun adopting Safe Harbor. A March 1998 ceremony marked South Carolina's entry into the program with 15 landowners and 84,000 acres already enrolled. FWS expects to have every South Carolina landowner with RCWs signed up within a year.⁸ Safe Harbor programs are being developed in Alabama, Georgia, Louisiana, and Texas as well. In these states, permits are divided into three groups: 1) forestry corporations, 2) large, non-industrial forest owners, and 3) smaller, private landowners who wish to be included in the statewide Safe Harbor agreement.⁹ Unlike in the Sandhills, the state holds the Safe Harbor permit and monitors compliance.

INNOVATION

One important innovation of Safe Harbor is that it takes endangered species protection from the federal scale to

the state scale. The state becomes the intermediary between the federal government and the private landowner. Safe Harbor fully engages the states in species protection and makes them active partners. If a landowner has a question about endangered species on his property, he is more likely to call a state agency than the FWS. Now the states can offer the Safe Harbor program as a solution to their constituents, and they can help to run it, taking some of the administrative burden off of FWS.

Costa says he realized from the beginning that the Sandhills Safe Harbor would be a flagship for the future of endangered species protection. Everyone concerned with the ESA would be watching this experiment. The imbroglio around the Act is only getting worse, and adversaries on all sides are eagerly searching for a better way. Costa believes Safe Harbor is the future of species protection.

PUBLIC AND LOCAL GOVERNMENT INVOLVEMENT

As it was developed in the Sandhills, Safe Harbor had no public input and very little local government involvement. It was created by the Sandhills Working Group, which had representatives from federal and state agencies, private and public landowners, and environmentalists. These agreements covered only private land, the property owners entered into the compact voluntarily, and no local government regulations such as zoning were involved. Citizen involvement didn't seem like a priority, given that the general public was not directly affected.

Now that Safe Harbor has become a model and is being adapted for other states, the process is becoming more inclusive. Each state adopting the program sets up a commission to examine how it can be tailored for local needs. While it would not be practicable to have a representative from every city or county in the state, local governments' constituents are represented through the industries, private landowners, and environmental groups that serve on the commission. The commission holds public meetings throughout the state to inform citizens and hear their comments.¹⁰

BENEFITS

Safe Harbor has removed the fear of the government that drove property owners to take actions they didn't really

want to take, such as clearcutting pines, to preclude RCW "infestation" that would bring the onerous federal government down on their heads. These landowners have stopped their inflammatory rhetoric against the woodpeckers and the ESA and are now active partners in slowing or stopping the loss of the birds. Costa warns about the dangers of demonizing the approximately 1 percent of private property owners in the country who still have endangered species on their lands.¹¹ If species are to be saved, they must be saved on private lands, and the landowners must be partners in the preservation effort. Ben Cone, whose dilemma inspired Safe Harbor, was once a leading firebrand in the fight against RCWs. Now he proudly cites his part in the plans to preserve them.

The Safe Harbor program is self-sustaining, although individual agreements are subject to termination at any time. Most agreements are long term, for as many as 60-80 years. As more Safe Harbors spring up across the country, for woodpeckers and for other species, the states and the FWS can modify the program to account for weaknesses that come up in practice. Already, the FWS and state agencies are tweaking Safe Harbor on a case-by-case basis.

ECONOMIC BENEFITS

By signing up with Safe Harbor, the landowner gains certainty. This can translate into reduced, or at least accurately anticipated, direct costs, opportunity costs, and future compliance costs.¹² Without Safe Harbor, a property owner might begin logging on his land, only to find a year later that woodpeckers had begun to nest in his forest. He would then have to either cease his activities or apply for an incidental take permit. Either option would cost him time and money that he could not have predicted he would need to spend the year before.

With a little creative thinking, Safe Harbor proponents can find other economic incentives to encourage landowner participation. For example, the longleaf pine's needles are a valuable mulching and landscaping material, and pine straw production is at its highest in exactly the type of habitat needed by the woodpeckers: mature trees with little underbrush. A 1994 EDF analysis indicated that, on land fully stocked with mature longleafs, future income from pine straw production can represent about one-third of the total value of the land. That percentage rises to 80 percent on newly planted land.¹³ Pine straw was a \$50-million business in North Carolina in 1995, profitable enough to convince

SANDHILLS SAFE HARBOR

some landowners to sign onto Safe Harbor for the pine straw revenues alone.¹⁴

EDF has floated some ideas to make Safe Harbor even more economically attractive. Preservation of RCW habitat creates an opportunity cost for the property owner because he is foregoing revenue-generating uses of the land. A mitigation market could help reduce or even eliminate the opportunity cost. Landowners who need to mitigate for taking, for example, two groups of woodpeckers would pay a Safe Harbor enrollee to extend his baseline population by another two or more groups. In other words, the enrollee would be compensated for relinquishing his right to take some of the birds above his baseline level and for the resulting increase in proactive management of the habitat. Region-wide Safe Harbors reduce the transaction costs of such trades because they establish a trading protocol.¹⁵ One caveat, however: these trades should be permitted only when the habitat gained and lost is comparable. To avoid a net loss of birds, the trades should observe at the very least a 1:1 ratio (one group protected for each one taken).

Alternatively, landowners who have to mitigate could pay into a conservation trust fund that would then be used to compensate owners of RCW habitat to manage their forests for habitat improvement. Other payments, such as tax revenues and offsets from utilities as credits for their carbon sequestration activities, could also go into the fund. Landowners who protect habitat could also be allowed to defer the estate tax that would otherwise be due on their properties as long as their heirs maintain the conservation agreement. A similar tax incentive has been used to keep family farms in the family.¹⁶

ENVIRONMENTAL BENEFITS

The ESA on its own does not force landowners to conserve species, only to avoid harming them. Safe Harbor requires the landowner to conserve at least the baseline population of the species, creating a higher level of management. The program has directly caused immediate habitat improvements for existing groups of woodpeckers. FWS biologists have put in 8 to 15 recruitment clusters of nest cavities in the past year, but as of April 1998, none of these clusters has attracted a known breeding pair. The programs haven't been in place very long, however, and FWS is confident that soon they'll be "growing" woodpeckers. The increase FWS predicts will be short term, but it will buy time for biol-

ogists to study the RCWs further and for policymakers to develop longer-term preservation plans. The baseline populations are, as a requirement under Safe Harbor, maintained at existing levels, so there is, at any rate, no net loss of birds.¹⁷

The agreements also permit biologists to monitor and study birds on private lands where previously they often weren't allowed. The state and federal wildlife agents can not only learn more about the woodpeckers, they can also ensure that the landowners are holding up their end of the bargain by making the habitat improvements and maintaining the baseline population.

CHALLENGES

Safe Harbor is not suitable for every landowner. Where the mature pines are aesthetically valuable, on golf courses and in residential areas, Safe Harbor seems to work well—the habitat probably wouldn't be destroyed regardless of the ESA. But on land that is logged or slated for development, critics say Safe Harbor does not provide adequate protection for the woodpeckers, especially since the landowner can back out of the agreement at any time. Each Safe Harbor agreement must be carefully constructed on a case-by-case basis and continually monitored. As scientific evidence accumulates from these experiments, the program can be adjusted.¹⁸

A more serious criticism of HCPs in general is that they replace the ESA's goal of increasing a species' population to the point of recovery with the goal of maintaining current population levels.¹⁹ Although Safe Harbor may promote increased numbers of woodpeckers, it doesn't explicitly require such an increase, nor does it provide any specific incentives to encourage expansion of habitat—it merely removes the disincentives to enhancing habitat. FWS may soon accept some type of economic incentive, such as a mitigation market, to encourage a landowner to increase species on his land, but it hasn't yet happened.

Thus far, Safe Harbors have been set up to protect a single species. It's unclear if this concept will work in habitats where multiple endangered species with different habitat needs exist. Species needing more proactive management may not be well served by Safe Harbor, either—the more work a landowner needs to do to maintain the baseline population, the less likely he is to do it unless he has major economic incentives.

LESSONS LEARNED

By limiting the responsibility of landowners and giving them certainty about the future, Safe Harbor has removed the fear of government that often drove property owners to take actions they did not really want to take, such as clearcutting pines, to preclude RCW “infestation” that would bring the onerous federal government down on their heads. These landowners have stopped their inflammatory rhetoric against the woodpeckers and the ESA and, in the civic environmental spirit, are now active partners in slowing or stopping the loss of birds.

Safe Harbor grew out of face-to-face discussions among the parties with the greatest stake in finding a solution to the endangered species problems: property owners subject to the ESA, FWS enforcers of the Act, and state officials and environmentalists concerned about species protection. Everyone rejected the “all or nothing” approach in favor of flexibility, compromise, and a willingness to see the other side’s point of view.

For some landowners, such as golf courses and residential developers, maintaining the RCW’s habitat fits in well with their aesthetic needs. In fact, a golf course, the Pinehurst Resort and Country Club, was the first entity to sign up for Safe Harbor in the Sandhills. The club’s maintenance director, Brad Kocher, heard about Safe Harbor and convinced his bosses not only to sign up for the program, but to become the first Safe Harbor in the nation, on June 20, 1995. The program is going so well at Pinehurst that RCW populations are expected to increase; meanwhile, the country club has garnered favorable press for its environmentalism.²⁰

Safe Harbor makes state government a full-fledged partner in habitat stewardship, establishing baselines, and monitoring compliance. In addition, FWS has found ways to work with municipal officials to create and promote Safe Harbors that complement local protection efforts. For example, some local governments, like the city of Pinehurst, have their own restrictions on cutting pine trees, and FWS works with them to link these initiatives with Safe Harbor.²¹

SANDHILLS SAFE HARBOR

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20. Williams.
21. Ralph Costa, interview.

GILBERT-MOSLEY BROWNFIELD

Wichita, Kansas

BACKGROUND

SUPERFUND¹

Superfund strikes as much fear into the hearts of developers as the Endangered Species Act. Once a site is put on the Superfund list, anyone who ever owned or leased the property can be held liable for environmental cleanup, regardless of whether they caused the contamination or not. Understandably, therefore, no one wants to purchase or develop a site that has real or even perceived contamination. Banks will no longer make loans to anyone in the area around the site, because the property used as collateral is worthless. If the U.S. Environmental Protection Agency (EPA) takes over the cleanup, litigation can create delays and escalate costs, enmeshing all participants in a seemingly inextricable web for years or even decades.

At the time of the Gilbert-Mosley project in Wichita, in the early 1990s, Superfund liability was unclear.² EPA and Congress had intentionally structured liability provisions flexibly in the hopes of encouraging compliance from responsible parties. While innocent parties could be held liable for cleanup, they were also allowed to sue responsible parties for damages, including cleanup costs and lost property value. Meanwhile, banks and other lending institutions could technically be liable for cleanup costs if they had “managerial influence” through a loan made to a responsible party. EPA administrative decisions had steered away from this use of Superfund, but it was still legally an option.

The effect of all this uncertainty had been the opposite of what EPA intended: businesses tried to avoid involvement altogether rather than face up to their culpability. Admitting responsibility for contamination left a company open to lawsuits not only from third parties whose property has been affected, but also from EPA—for as much as three times the actual cleanup costs. The only way for a business to accept responsibility and have less financial liability was for it to cooperate with the other potentially liable parties. This kind of coalition was very difficult to form, however; in Wichita’s case, it required the neutral leadership of the city government.

THE GILBERT-MOSLEY SITE

The city of Wichita, Kansas, found out that a six-square-mile plume of contaminated groundwater was spreading at the rate of one foot per day underneath the main busi-

ness section downtown at the worst possible time—just after the city announced plans for a massive revitalization project in that very area. A major developer had recently proposed a \$75-million plan to build a new sports stadium, an outdoor amphitheater, an amusement park, apartment buildings, restaurants, hotels, a marina, and a giant statue which would become a new symbol for Wichita. Once the toxic waste was discovered in August 1990, banks refused to make loans to downtown businesses, and the ambitious redevelopment plan seemed impossible.³ The city’s drinking water didn’t come from the contaminated groundwater, so public health was not immediately threatened; however, had no action been taken, the contamination would have eventually spread to drinking water supplies.⁴

The contaminated site, known as Gilbert-Mosley, included more than 8,000 parcels of property with about 550 businesses: banks, office buildings, manufacturers, and residential properties. Wichita officials feared that if the site were to be placed on the Superfund list, cleanup could take 10-20 years. The EPA would have to assign responsibility to polluters and probably go to court to force them to pay for their share of the cleanup. If city officials wanted to retain any chance of revitalizing downtown, they could not afford to have the site languish for years while EPA wrangled with the polluters.

Another site in Wichita, four or five miles from Gilbert-Mosley, made the perils of Superfund listing crystal clear. Called the North Industrial Corridor, it too had underground pollution, and in this case, EPA had put it on the Superfund list in 1989. It took EPA over six years to finish the remedial investigation feasibility study, during which time the responsible parties “ran for the weeds.” Soon cleanup costs were far above the preliminary estimates, and property values plummeted 40 percent.⁵

CREATION OF THE PROJECT

City officials searched for projects in other communities upon which they could model a cleanup program, but they couldn’t find any. Instead, the Mayor, City Manager, and Department of Environmental Health took the initiative to create a strategy which would allow them to avoid Superfund designation and restore the neighborhood’s environmental and economic health. The city engaged the lending and real-estate communities up front, addressing

GILBERT-MOSLEY BROWNFIELD

their concerns and securing their cooperation. Then, with the support of the Wichita business community, city officials negotiated an agreement with the Kansas Department of Health and Environment (KDHE) and the EPA to permit the city to take over cleanup operations, based on five conditions:

- **The primary polluter must commit to paying for a portion of the cleanup.**
- **Banks must agree not to deny loans based solely on contamination of the property.**
- **The city's liability is limited to what it can collect from responsible parties and tax increment financing.**
- **The state legislature must pass an amendment to the tax increment finance law to allow the city to commit operating revenues for more than one year.**
- **The city must successfully create a tax increment finance redevelopment district.⁶**

The state contributed to the success of Gilbert-Mosley by remaining flexible and by publicly supporting Wichita. City and state officials had worked together previously and had developed a professional relationship based on mutual trust and respect. In addition, turning the cleanup over to Wichita minimized KDHE's investment without sacrificing environmental protection.⁷ The state laws governing hazardous waste sites were broad enough to allow flexibility; all the state really needed was the legal ability—the “stick”—to go after responsible parties.⁸

Cleanup would cost an estimated \$20 million over 20 years, but Mark Glaser, a special consultant on the project, noted that “the annual property taxes at risk were worth that much.”⁹ The main polluter, the Coleman Company, agreed to pay \$1 million to fund the remedial investigation/feasibility study (RI/FS) and part of the cleanup. Without this agreement, Coleman would have been vulnerable to civil lawsuits from hundreds of owners of contaminated properties seeking damages. Economically, it made more sense for Coleman to accept responsibility through partnership with the city than to take its chances in litigation.¹⁰ The city pursued other potentially responsible parties as well, with the goal of collecting 80 percent of the total cleanup costs from polluters.¹¹

To stimulate lending, the city, under its agreement with KDHE, issued certificates to downtown property holders which released them from future liability in the cleanup. These certificates, in conjunction with local banks' promise

not to refuse loans solely because of contamination of the property, allowed the sale and development of downtown parcels. Banks agreed to grant loans because they already had substantial loans tied up in the affected area and because the city agreed not to hold the lender liable for any contamination found on the property (unlike Superfund, Wichita differentiated owners of contaminated property from polluters). While this agreement would create the potential for more risky loans, it seemed a small price to pay compared to the loss the banks would suffer if the downtown area were listed as a Superfund site; all the money currently invested in these properties would be lost. Local lending institutions also felt pressured to demonstrate their support for the community and to avoid any accusations of redlining underprivileged neighborhoods in the contamination zone.¹² The certificates of release demonstrated the city's confidence in the project, and property values quickly rebounded to their original levels.

The EPA's standards for cleaning up Superfund sites are often based on risk assessments which can require total cleanup of all toxic waste. This level of cleanliness might not always be necessary, however. Wichita and KDHE agreed on more realistic risk assessments. The city had imposed restrictions on using groundwater for drinking water supplies, so cleanup could be less complete without endangering public health. By preventing exposure to and containing the expansion of the contaminated groundwater, the city and state could clean up to an “alternate concentration level.” The site would be clean enough to protect human health, but not totally pristine, and the city would save several months and millions of dollars.¹³

FUNDING

The city's main funding strategy was to pursue responsible parties to pay their share of cleanup costs. While it would have been popular to force polluters to pay the entire cost of cleanup, the city would have run into exactly the problems it was trying to avoid by averting the Superfund designation: years of drawn-out litigation while the parties squabbled over who had to pay what share. The city also considered a special-benefit district, in which the property owners within Gilbert-Mosley would have had to shoulder the financial burden through increased taxes. However, this plan would have penalized innocent owners, and many businesses would not have been able to afford the

GILBERT-MOSLEY BROWNFIELD

increased costs. A special-benefit district would have thus torpedoed the revitalization of the downtown area before it even got started.¹⁴

Instead, to make up the 20 percent of funds not collected from responsible parties, the city set up a tax increment finance authority. Under this plan, part of the property taxes from the affected parcels would be dedicated to the cleanup. This type of tax district has been used in other communities to finance economic development; it ensures that any additional costs for programs that will benefit a certain area will be paid for with the taxes of that jurisdiction, rather than those of the whole community.¹⁵ Taxes were not raised, and no more than 20 percent of the district's tax revenues (about \$2.6 million) could be used for Gilbert-Mosley.¹⁶ The city has so far not had to use the full 20 percent allowable in any given year. As redevelopment increases in the neighborhood, the tax base improves, putting more money into the Gilbert-Mosley pot.¹⁷

Wichita had to obtain the approval of the state legislature for implementation of the tax increment finance district, as well as for exemption from the state's "cash basis law." This law was intended to restrain spending by forbidding local governments to commit operating revenues beyond one year at a time and was considered something of a sacred cow. However, Wichita would have to commit funding for 20 years to prevent Gilbert-Mosley from becoming a Superfund site. The same coalition which helped create the plan—city officials and their business partners—successfully lobbied the legislature to pass a special exemption for Gilbert-Mosley.¹⁸ The state legislature's flexibility was vital to the project's success.

Project leaders also made an important decision not to sacrifice results for low cost. The environmental consultant who performed the critical RI/FS was selected for quality, not by the lowest bid. The consultant had to identify the contamination, begin to determine responsible parties, recommend cleanup methods, and draw the boundaries among the various zones of responsibility within Gilbert-Mosley. This fundamental work might have been seriously compromised if cost had been the primary deciding factor.¹⁹ If contaminants and responsible parties had been incorrectly identified, costs would have rapidly escalated when project managers had to sort out these problems further down the road.

PUBLIC INVOLVEMENT

Citizen involvement was an essential component of the city's plan. The city created two citizen participation committees. The technical committee, composed of university and industry representatives, helped select an environmental consultant and provided technical and scientific advice. The citizen committee of stakeholders, including residents, state representatives, banks, environmentalists, and businesses, acted as the conduit among the various elements of the community.²⁰ The committees set up a telephone hotline to direct calls to legal, health and environment, or management and policy experts. They also published a newsletter and held hearings, several of which had over 700 attendees. While citizens disagreed on some issues, they appreciated being included in decision-making, being asked for their opinions, and taking part in the hearings.²¹ The city was rewarded by public support and increased confidence that officials were undertaking an innovative and worthy project.

RESULTS

As of 1998, the city had issued about 2,100 certificates of release. The owners of those properties were thus able to transfer their parcels to other parties. The area has seen about \$106 million in commercial loans which would have been impossible without the city's efforts. The Ford Foundation honored the program with its award for Innovations in State and Local Government, and it has been used a model in other communities.²² Little actual cleanup has taken place so far, but source control plans are in place.²³

The program protected the health and finances of downtown citizens, preserved the tax base, protected the environment and restored the damaged properties—and the polluters paid for it. The city also demonstrated an enterprising approach to dealing with environmental problems while keeping economic concerns in mind; this reputation could give it an edge in attracting new businesses.

The massive redevelopment project never got off the ground, not because of environmental concerns, but because the city and the developer were unable to sell the plan to the public. The City Council eventually approved a much smaller development project, and various companies have already begun converting dilapidated downtown

GILBERT-MOSLEY BROWNFIELD

buildings into entertainment, governmental, residential, commercial, and office complexes. Developers agree that if the city had not addressed the contamination problem as effectively as it did, even these scaled-back developments would not be possible.²⁴

CHALLENGES

Wichita is still trying to recover cleanup costs from roughly 10 to 15 responsible parties. The city hopes to avoid litigation as much as possible but realizes that lawsuits may be necessary.²⁵

The success of the Gilbert-Mosley project convinced EPA to allow Wichita to take over cleanup of the North Industrial Corridor site under the same model. In 1996, the site became the first ever to be de-listed from the National Priority List and turned over to another entity for cleanup. As of May 1998, Wichita has created a consortium of about 20 liable companies, which contributed \$400,000 up front to do the RI/FS. The city is one year into the RI/FS phase, has hired an independent consultant, and has set up the tax increment district and the liability releases. It will soon set up citizen committees.²⁶ The challenge for the city now is to follow the Gilbert-Mosley model to a successful conclusion again.

LESSONS LEARNED

Gilbert-Mosley succeeded because of the city government's initiative. They had risk-taking, innovative managers—especially City Manager Chris Cherches—who figured out how to use the often-daunting liability provisions of Superfund to their advantage. But any city undertaking such a lengthy, complex, and massive project must have adequate resources and the commitment to follow through on its plans.²⁷

Implementing a risky policy requires the trust of the public. Wichita's leaders had demonstrated their competence in the past; based on these positive experiences, the constituents trusted their government. Project leaders were aggressive about keeping the public informed about the progress of the cleanup. The city's declaration that it would take responsibility for a \$20 million cleanup could have angered taxpayers who might fear they'd be stuck with the bill. Instead, Wichita's assiduous education and outreach efforts created public confidence in the project

leaders and support for the cleanup.²⁸ The city also spread the costs of cleanup as fairly as possible, putting most of the burden on the polluters yet recognizing that Gilbert-Mosley residents would reap the benefits of cleanup and therefore should bear some share of the costs through the tax increment financing.

Partnerships were vital to the success of Gilbert-Mosley. Partnerships between the city and its business communities have made cleanup run much more smoothly and quickly than is typical for hazardous waste sites. The city engaged stakeholders up front, particularly the lending community, which helped create the certificates of release, a major factor in restoring the downtown economy. The city succeeded in these partnerships in part because the project managers figured out what the stakeholders' interests were—primarily avoiding litigation and uncertainty, and maintaining competitiveness—and played to those drivers.

The project also involved “vertical partners,” the local, state, and federal governments. The county and local school districts had to agree to the plan, and Wichita had to lobby the state legislature to get an exemption from the cash basis law. The city's strong working relationship with KDHE helped base the consent decree on a firm foundation of mutual trust. Finally, the EPA had to be convinced that Wichita could handle the project; solid professional relationships among Wichita, KDHE, and EPA staff helped smooth the way here, too.²⁹

The liability provisions of the federal Superfund laws helped give Wichita the framework and leverage to structure a settlement with the responsible parties. For these companies, partnership with the city was economically more enticing than the prospect of being tied up in litigation for years. The lending community was likewise an active and essential partner, thanks to the threat of Superfund liability.

1. Superfund information comes from Mark Glaser, Chris Cherches, and Jack Brown, "Rx for the Ills of Superfund: Cost-Effective Local Solutions, Appropriate Financing, and EPA Responsiveness," *Municipal Finance Journal*, Vol. 18 No. 3 (Fall 1997), 67-83; and Mark Glaser, "Economic and Environmental Repair in the Shadow of Superfund: Local Government Leadership in Building Strategic Partnerships," *Economic Development Quarterly*, Vol. 8 No. 4 (Nov. 1994), 345-352.
2. Several legislative and administrative reforms have been passed since then which have changed liability under Superfund. This discussion is meant to illustrate the conditions under which the Gilbert-Mosley project was created.
3. Eric Harrison, "Wichita Rescues Redevelopment by Paying for Toxic Cleanup," *Los Angeles Times* (Nov. 6, 1991).
4. Glaser, "Economic and Environmental Repair," 347.
5. Harrison.
6. Chris Cherches, City Manager of Wichita, presentation to U. S. Senate Committee on Environment and Public Works, May 4, 1995.
7. Glaser, "Economic and Environmental Repair," 347.
8. Rick Bean, Bureau of Environmental Remediation, KDHE, interviewed by Megan Susman, May 15, 1998.
9. Harrison.
10. Glaser, "Economic and Environmental Repair," 347-48.
11. Jack Brown, Environmental Health Director, City of Wichita, interviewed by Megan Susman, May 12, 1998.
12. Mark Glaser and Chris Cherches, "Local Government's Role in Groundwater Cleanup," *Public Management* (Feb. 1992), 4-10.
13. Cherches presentation.
14. Glaser, "Rx for the Ills of Superfund," 77.
15. Cherches presentation.
16. Glaser, "Rx for the Ills of Superfund," 78.
17. Jack Brown, interview.
18. Glaser, "Economic and Environmental Repair," 349-50.
19. Glaser, "Economic and Environmental Repair," 348.
20. Glaser, "Economic and Environmental Repair," 350.
21. Cherches presentation.
22. Ibid.
23. Jack Brown, interview.
24. Harrison; also from Jack Brown interview.
25. Jack Brown, interview.
26. Ibid.
27. Rick Bean, interview.
28. Glaser, "Economic and Environmental Repair in the Shadow of Superfund," 350-51.
29. Rick Bean, interview.

Many candidate case studies were initially considered, but few could meet all of the following criteria:

- **Was the program innovative, especially in governance?**
- **Was it grounded in sound, generally accepted science?**
- **Had it been established long enough to produce measurable environmental results?**
- **Did it have support or participation from local government and from the general public?**
- **Was it collaborative? Did it include all stakeholders in the process?**
- **Was it based around the needs and capacity of the community?**
- **Could it serve as a model to other communities?**
- **Was it flexible enough to adapt to changes and be self-sustaining?**

A final criteria, often the deciding factor in our choices, was the availability of research and interviewees for the project. Although we preferred to use less-publicized programs or to focus on a different angle of better-known projects, we needed cases that had some amount of publicly available information. Some policy areas had fewer success stories than others. Some successful projects were so sorely understaffed that they could not easily respond to our requests for materials and interviews. Brownfields programs in particular seem to suffer from this problem; in many of the potential case studies in this policy area, just one or two people were responsible for the brownfields program in an entire city or county. Nearly all the interviewees noted that they get many calls every week from other municipal leaders asking for advice on how to start a similar project in their communities. This is one of the primary reasons why we undertook the field guide project in the first place.

APPENDIX B

General Resources and Contacts

Council of State Governments

P.O. Box 11910
Lexington, KY 40578-1910
Tel: (606) 244-8000
<http://www.csg.org>

Environmental Council of the States

444 N. Capitol St. NW, Suite 305
Washington, DC 20001
Tel: (202) 624-3660
<http://www.sso.org/ecos/>

International City/County Management Association

777 N. Capitol St. NE, Suite 500
Washington, DC 20002-4201
Tel: (202) 289-4262
<http://www.icma.org>

National Academy of Public Administration

1120 G St. NW, Suite 850
Washington, DC 20005
Tel: (202) 347-3190
<http://www.napawash.org/napa/index.html>

National Association of Counties

440 First St. NW
Washington, DC 20001
Tel: (202) 393-NACO
<http://www.naco.org>

National Association of Local Government Environmental Professionals

1350 New York Ave. NW, Suite 1100
Washington, DC 20005
Tel: (202) 638-6254
<http://www.nalgep.org>

National Association of Towns and Townships

444 N. Capitol St. NW, Suite 294
Washington, DC 20001
Tel: (202) 624-3550
<http://www.natat.org>

National Civic League

1445 Market St., Suite 300
Denver, CO 80202-1728
Tel: (303) 571-4343
<http://www.ncl.org>

National Conference of State Legislatures

444 N. Capitol St. NW, Suite 515
Washington, DC 20001
Tel: (202) 624-5400
<http://www.ncsl.org/>

National Governors Association

Hall of the States, Suite 267
444 N. Capitol St. NW
Washington, DC 20001-1572
Tel: (202) 624-5300
<http://www.nga.org>

National League of Cities

1301 Pennsylvania Ave. NW, Suite 550
Washington, DC 20004
Tel: (202) 626-3000
<http://www.nlc.org>

The U.S. Conference of Mayors

1620 I St. NW, Suite 400
Washington, DC 20006
Tel: (202) 293-7330
<http://www.usmayors.org/uscm/>

ABOUT THE AUTHORS

Marc K. Landy is a Professor of Political Science at Boston College and a Senior Fellow of the Gordon Public Policy Center at Brandeis University. He is an author of *The Environmental Protection Agency from Nixon to Clinton: Asking the Wrong Questions* and co-editor of *The New Politics of Public Policy*, which includes his essay, “The New Politics of Environmental Policy.” He has also contributed studies of hazardous waste policy, policy decentralization, public participation, federalism, the politics of cost-benefit analysis, global warming, and the international trade implications of environmental regulation to projects sponsored by the Brookings Institution, Resources for the Future, Clean Sites, the American Association for the Advancement of Science, and the Environmental Protection Agency. Landy was a member of the National Academy of Public Administration panel mandated by Congress to study the Environmental Protection Agency and whose report *Setting Priorities, Getting Results* has served as the basis for congressional hearings about reforming the agency. He has also enjoyed a long-standing consulting relationship with the Natural Resources Cabinet of the Commonwealth of Kentucky and Marine Policy Center of the Woods Hole Oceanographic Institution.

Megan M. Susman is the policy analyst for the Progressive Policy Institute’s Center for Innovation & the Environment. While earning a master’s degree, she conducted consulting projects for the State of North Carolina’s Department of Environment, Health, and Natural Resources on revising hog industry regulations and on reorganizing one of the department’s divisions. She previously worked at the Conservation Fund, which preserves historically and ecologically important land. Her areas of expertise include nonpoint sources of water pollution, approaches to regulating agricultural operations, land use and development, and community organization around environmental problem-solving. She is a graduate of Bryn Mawr College (B.A.) and Duke University (Master of Public Policy).

Debra S. Knopman is the Director of the Progressive Policy Institute’s Center for Innovation & the Environment. She has an extensive background in environmental and natural resources policy, environmental science, and public administration. In 1997, President Clinton appointed her to serve on the Nuclear Waste Technical Review Board, which evaluates the technical validity of the Department of Energy’s program for managing high-level nuclear waste. Since 1995, she has been a member of the National Research Council’s Commission on Geosciences, Environment, and Resources. For two years ending in June 1995, Knopman served as Deputy Assistant Secretary for Water and Science in the U.S. Department of the Interior, where she was involved in policy development and oversight of Western water conflicts, federal science and technology budgeting, Clean Water Act reauthorization, regulation of discharge from abandoned mine lands, and the Ward Valley low-level nuclear waste site. From 1979-83, she served first as legislative assistant to Senator Daniel P. Moynihan for environmental and energy issues, and then as a professional staff member on the U.S. Senate Committee for Environment and Public Works. She is a graduate of Wellesley College (B.A.), Massachusetts Institute of Technology (M.S. in civil engineering), and The Johns Hopkins University (Ph.D. in the Geography and Environmental Engineering Department).



**PROGRESSIVE POLICY INSTITUTE
CENTER FOR INNOVATION & THE ENVIRONMENT**

600 Pennsylvania Avenue SE, Suite 400 Washington, DC 20003

Phone: (202)547-0001 Fax: (202)544-5014 E-mail: ppiinfo@dlcppi.org WWW: www.dlcppi.org