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Wetlands Mitigation & Mitigation Banking

Reducing the Impact of Development on Wetlands



National Conference of State Legislatures

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Executive Summary

The United States has lost more than 50 percent of its wetlands since colonial times due to land development for a variety of purposes. State and federal programs, in an attempt to slow or reverse the adverse impacts of development on wetlands, are requiring "mitigation" from applicants to avoid or reduce wetland losses. Mitigation can take the form of avoiding adverse impacts altogether; minimizing the effects by limiting the size of the project or reconfiguring it; repairing, restoring or rehabilitating the surrounding wetlands after construction; or compensating for the loss of wetlands through replacement. Mitigation banking is a form of compensation.

Mitigation banks are large-scale sites where the banker (a state agency or private entrepreneur) creates, preserves or restores wetlands to replace the functions and values lost to development. Forty mitigation banks are operating in 17 states, and 70 more are in some stage of development. The banks' success varies with the type of wetland the bank is attempting to create; some types of wetland are easier to create or restore than others. Substituting a different type of created wetland for the lost wetlands may result in a net loss of function and value, such as flood control or wildlife habitat. Permittee and bank sponsors are generally supportive of mitigation banking because it streamlines the permit review process.

The Clinton administration supports the use of mitigation banking when appropriate and has created an Interagency Working Group on Federal Wetlands Policy to develop detailed guidance on how banks are to be established, used and operated under the federal Clean Water Act section 404 program and the "swampbuster" program of the Farm Bill.

Several states are using mitigation and mitigation banking for their wetlands protection programs. Nine states—California, Florida, Illinois, New Hampshire, New Jersey, New York, North Dakota, Oregon and Rhode Island—are profiled in this report to illustrate the range of experience states have had with mitigation banking.

Suggestions for developing a successful state mitigation program and mitigation include designating a state agency to implement the policies developed by the legislature; establishing a program with sufficient funding to identify sites suitable for restoration that could be used for mitigation or mitigation banking; and providing the authority and funds for establishing mitigation banks well before mitigation credits can be earned and applied in order to ensure that the wetlands created or restored are functioning replacements for the wetlands that will be lost to development.

Introduction

The United States has lost more than 50 percent of its wetlands since colonial times. The U.S. Fish and Wildlife Service's National Wetlands Inventory estimates that wetlands once covered over 200 million acres of the 48 lower continental states. Wetlands exist in every state; but some, like California have lost more than 90 percent of their wetlands. Approximately three-quarters of the remaining wetlands in the lower 48 states are privately owned. Most of the lost wetlands were drained or filled for agriculture.

Wetlands are filled, dredged, drained or flooded in conjunction with land development in its many forms:

- Foresters cut trees in hardwood bottomlands;
- Farmers drain, dam and cultivate for crop production, irrigation, farm ponds and grazing land for domestic animals;
- Housing and office park developers build houses and commercial facilities;
- Transportation departments and port authorities fill in wetlands for roads and dredge for stream channelization;
- Oil and gas exploration companies build dikes and canals for shipping equipment in and resources out of exploration fields.

Many federal and state programs require mitigation to reduce the adverse effects of development on wetlands. Mitigation includes redesigning proposed projects to avoid or reduce wetland losses, restoring previously degraded wetlands, "creating" new wetlands, or "crediting" the reclamation and/or creation of acreage in a larger area called a wetlands mitigation bank.

What does mitigation encompass?

The President's Council on Environmental Quality has established regulations for mitigating environmental impacts from development. These regulations include the following sequential activities that pertain to wetlands:

- Avoid adverse impacts on wetlands altogether. Revise the site plan to relocate buildings away from wetlands and to an upland site.
- Minimize the impact of development by limiting the size of a project or reconfiguring it. Use only a small portion of the wetlands or protect the most valuable wetlands.
- Rectify the damage to the affected environment. Repair, restore or rehabilitate the surrounding wetland after construction.
- Reduce or eliminate the adverse effect of development on wetlands over the life of the project. Monitor the wetland to ensure restoration or rehabilitation.
- Compensate for wetland losses by replacing them or providing substitute resources or environments.¹ One type of compensation is called "mitigation banking," which this report describes in detail.

The primary federal program that protects U.S. "waters," including wetlands, is Section 404 of the Clean Water Act (33 U.S.C. Section 1344). The U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers jointly administer the Section 404 regulatory program, in cooperation with the U.S. Fish and Wildlife Service, National Marine Fisheries Service and the Soil Conservation Service. Section 404 regulates the discharge of dredged or fill materials into wetlands and other waters of the United States.

What Are Wetlands?

Wetlands is a collective term for swamps, bogs, fresh and salt water marshes, wet meadows, prairie potholes and similar areas that form a transition zone between open water and dry uplands. Wetlands provide fish and wildlife habitat, improve water quality, reduce flood damage, recharge groundwater, offer recreational opportunities and provide aesthetics. Wetlands act as natural water filters, absorbing agricultural chemicals, sediment and other pollutants which are harmful to the ecosystem. Wetlands hold and transform impurities while keeping them out of the water downstream. Riparian wetlands help absorb the extra water that comes with heavy rains and floods. Marshes, swamps and bogs provide resting, feeding and nesting sites for animals; almost 43 percent of North America's endangered species use wetlands during part of their life. Wetlands provide opportunities for hiking, bird-watching, photography and nature study to citizens who enjoy natural beauty and diversity. Lakes used for recreational boating need wetland edges to absorb the shock from the wake of speedboats and to keep the shoreline from eroding into the lake.

According to scientists, wetlands must have one or more of the following attributes:

1. At least periodically the land is saturated or covered by shallow water sometime during the growing season of each year;
2. The land supports hydrophytic (water-loving) plants;
3. The subsurface is predominantly undrained hydric soil.

The Corps has principal authority for administering Section 404 permits; EPA establishes the guidelines used by the Corps to make permit decisions. The EPA also has the power to veto permits issued by the Corps.² An applicant seeking to discharge dredged or fill material into a wetland must seek a permit from the Corps.

In some cases, EPA has delegated to states the authority to administer Section 404. Michigan and New Jersey currently have that authority. The Corps has granted general permit authority to several other states to issue permits for activities having minor effects on wetlands. In addition many states also require mitigation of impacts on wetlands under their own programs. Appendix A lists state wetland mitigation bank laws and regulations; appendix B notes the sources of state agency regulations and guidelines for mitigation.

The Corps of and EPA signed a mitigation memorandum of agreement (MOA) clarifying the requirements for mitigation in the Clean Water Act Section 404 regulatory program in February 1990. The

MOA establishes a preference for on-site and in-kind replacement of wetland functions and value, typically with a minimum one-to-one ratio for replacement. Mitigation banks, described in a later section, are acceptable compensatory mitigation if they follow specific criteria to ensure an environmentally successful bank.³

What is mitigation banking?

In cases where on-site mitigation is not appropriate, practicable or environmentally beneficial, mitigation banks may provide an alternative. Banks typically are large-scale mitigation sites that provide advance compensation for unavoidable losses resulting from multiple development activities. Mitigation banks can be either on a different portion of the site where the project is causing losses or off site, if the project is too large to allow for on-site mitigation.

EPA and the Corps issued preliminary guidelines in August 1993 for the establishment and use of wetland mitigation banks as a form of compensatory mitigation. Specific situations are identified where compensatory mitigation through mitigation banking is appropriate—water-dependent projects, small unavoidable impacts, linear highway projects with minor impacts and routine repair and maintenance of public structures such as drainage ditches.⁴ The agencies will be proposing draft guidance in early 1995 for public comment. Final guidance is expected to be issued later in 1995. The guidance will provide more detailed information on mitigation banks.

Mitigation banks have several advantages over individual mitigation projects. Banks usually are functioning well before the project has affected the wetland area; thus, the success of the mitigation is known in advance. It also can be ecologically advantageous to consolidate mitigation for several projects into a large parcel because appropriate mitigation sites can be scarce and economies of scale allow for the reduction of mitigation costs and the use of advanced technology to ensure the bank does not fail. In addition, the banks can be monitored continuously and managed to maintain wetlands characteristics and functions over time. Mitigation banks also can reduce permit processing time for qualifying projects and provide more cost-effective mitigation.

The mitigation bank serves as a habitat accounting system. Mitigation credits accrued from wetland restoration, creation or enhancement activities, in advance of project impact, can be banked to offset wetland losses or debits incurred at the development site. As wetland losses occur over time within a watershed, credits progressively are exhausted. Mitigation credits typically are awarded by the Corps or a state regulatory program.

Credits and debits may be measured acre for acre or based on the relative value of the acres restored or created compared with the worth of the wetland damaged, perhaps as a wildlife habitat or for flood detention. Based on the relative value of the wetland in question and the level of maturity of the mitigation bank at the time credits are withdrawn, a minimum replacement ratio (the number of credits necessary to offset wetland impacts) is determined.

Some Terms Used in Wetlands Protection

Creation—Altering upland environments or shallow aquatic environments to produce wetlands.

Credit—The unit of value recognized as the basis for comparing the value of the destroyed or degraded wetland with the banked wetland offered as compensation. Credits can be expressed as acres or habitat units.

Enhancement—Altering an existing wetland to add or increase particular wetland values and functions to levels not present under previous natural conditions or to slow the natural impairment of existing values and functions.

Mitigation bank—A system in which the creation, enhancement, restoration, or preservation of wetlands is recognized by a regulatory agency as producing credits to compensate for the future loss or degradation of other wetland sites.

On-site mitigation—Creating, enhancing or restoring wetlands on the same site as the development project to mitigate the impact of the project on wetlands.

Preservation—Providing legal protection to natural wetlands that otherwise would be lost to development activities.

Restoration—Re-establishing a wetland at a site where it previously existed or exists in a severely degraded state.

Types of mitigation banks

Mitigation banks are generally one of two types:

- Single-user banks dedicated to compensating for wetland losses associated with the specific activities of that entity (e.g., state transportation departments).
- General use banks established by private entrepreneurs or other entities to provide credits that can be purchased by developers or others required to compensate for wetland losses.

Establishing a wetlands bank

A wetlands mitigation bank is created when some entity—a government agency, private entity or non-profit organization—acquires a long-term interest in a degraded wetland or a suitable upland area. This is typically done under a formal memorandum of agreement (MOA) although some states, such as Florida, use a permit instead. The MOA defines the legal responsibilities of the parties and establishes legal and administrative guidelines for the development and use of the bank. It must be signed by the regulatory agencies and the entities who will own, develop, operate or participate in the mitigation bank. Mitigation banks typically are authorized by the Corps, EPA, the Fish and Wildlife Service and a state natural resource agency.

Financing mitigation banks

Funding for mitigation banks most often is provided by the bank sponsor, government agencies or not-for-profit organizations. Establishment of banks by private interests has been less common because of financial and regulatory risks. Entrepreneurs have been hesitant to establish banks in the absence of clear and consistent regulatory policies.

If states wish to encourage private mitigation banks as public policy, legislators may need to require regulatory agencies to establish greater consistency in granting permits and reviewing the mitigation process. The private sector then would have greater confidence in its ability to manage risk and earn a reasonable profit on its investment.⁵

State governments can invigorate private mitigation banking in several other ways:

- Limit the supply of credits, either by predesignating a limited number of mitigation sites or by setting a cap on the amount of credits in a bank at any one time.
- Guarantee a floor price for credits for a reasonable rate of return or establish a program (similar to agricultural commodity support programs) to purchase unused credits.⁶

Components of a Memorandum of Agreement

The Memorandum of Agreement for a wetlands mitigation bank should address the following topics:

1. Location of the bank
2. Goals and objectives of the project
3. Identification of bank sponsors and participants
4. Development and maintenance plan
5. Evaluation methodology used to assess success in meeting goals and objectives
6. Specific accounting procedures for tracking, crediting and debiting
7. Geographic area of applicability
8. Monitoring requirements and responsibilities
9. Remedial action responsibilities, including funding
10. Provisions for protecting the mitigation bank in perpetuity

- Establish a no- or low-interest loan program to provide seed money for potential bankers.

Although not-for-profit organizations do not require a return on their investments in mitigation banking, they must have sufficient income from the bank to continue to operate it. The California Coastal Conservancy, for example, is able to provide administration and long-term management of a mitigation bank where start-up financing was provided by the bank's clients.

Since most government mitigation banks are developed to provide mitigation for public works projects, the costs are borne by the sponsoring state agency or department, either through appropriations or bond issues. States now can also apply for federal dollars for bank development and start-up costs under the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)⁷, when mitigation is required for transportation projects. States also can use federal highway funds to purchase mitigation credits from entrepreneurial banks.⁸

Success of mitigation

A successful mitigation project is one that creates a self-sustaining wetland that performs the same functions, such as flood control or wildlife habitat, as the wetland that was lost or damaged through development.

However, there are many different types of wetlands (see box on page 6), and the science and technology of creating and restoring wetlands varies with the type of wetland involved. The extent to which this science and technology are understood clearly will affect the extent to which a mitigation project can be successful. Some mitigation projects have created or restored a different type of wetland than the one affected because more is known about the science of the replacement wetland. For example, both the Batiquitos Lagoon (Port of Los Angeles, Calif.) and Port of Astoria (Portland, Ore.) mitigation banks have created inter-tidal habitat as mitigation for shallow water dredging impacts. Such out-of-kind mitigation, however, may result in a net loss of a particular wetland function. Similarly, mitigation that takes place in a different watershed or far from the impacted area may replace the total wetland acreage but not the localized function of the wetland that was lost or damaged.

Wetlands, if marketed properly, can become an asset. Developers of a suburban Chicago office building, the Levy Organization, saw a marketing opportunity in its obligation to preserve five acres of grassy marsh on a 28-acre site. The project, Waterfall Glen, was advertised, "If nature needed offices, they'd be here." The firm plans to add a second building because of the appeal of having a natural resource on site.

Source: James Kroke, Jr., "When It Comes to Wetlands, There's Nothing Like the Real Thing," *Planning*, February 1989, pp. 4-9.

Status of banks

In 1992, wetland mitigation banks were operating in 17 states; more than 40 banks had been established, and an additional 70 banks were in some stage of development. Since 1992, there has been increased interest in establishing mitigation banks, including private entrepreneurial banks. California and Florida in particular have become actively involved in establishing banks. California now has 11 and Florida has eight, seven of which are in the Southwest Florida Water Management District. The Florida Department of Environmental Protection authorized its first mitigation bank recently.

Types of Wetlands

<i>Swamp</i>	Wetland dominated by trees or shrubs.
<i>Marsh</i>	A frequently or continually inundated wetland characterized by vegetation adapted to saturated soil conditions.
<i>Bog</i>	A peat-accumulating wetland that has no significant inflows or outflows and supports mosses, particularly sphagnum.
<i>Fen</i>	A peat-accumulating wetland that receives some drainage from surrounding mineral soil and visually supports marsh-like vegetation.
<i>Peatland</i>	A generic term for any wetland that accumulates partially decayed plant matter.
<i>Mire</i>	Synonymous with any peat-accumulating wetland(European).
<i>Moor</i>	Synonymous with peatland (European).
<i>Muskeg</i>	Large expanses of peatlands or bogs; commonly used term in Canada and Alaska.
<i>Bottomland</i>	Lowlands along streams and rivers, usually on alluvial floodplains that periodically flooded. Bottemlands are often forested and sometimes called bottomland hardwood forests. The Okefenokee Swamp in Georgia and the Atchafalaya in Louisiana are examples. Bottomlands provide shelter and food for deer, wildcat, cougar, fox, raccoon, beaver, muskrat, quail, dove, duck and a variety of reptiles.
<i>Wet prairie</i>	Similar to marsh.
<i>Reedswamp</i>	Marsh dominated by grasses (European).
<i>Wet meadow</i>	Grassland with waterlogged soil near the surface but without standing water for most of the year. Located along streams and lakes in poorly drained low-lying areas. Provide food and habitat for small birds, mammals and reptiles.
<i>Slough</i>	A swamp or shallow lake system in northern and midwestern U.S. or slowly flowing shallow swamp or marsh in southeastern U.S.
<i>Pothole</i>	Shallow, marshlike pond formed by ancient glaciers. Found primarily in the Great Plains states of Montana, North and South Dakota and western Minnesota. Potholes produce approximately 50 percent of the annual duck hatch and provide homes to about 7 million breeding ducks.
<i>Playa</i>	Marshlike pond similar to pothole, but with different geologic origin (southwest U.S.).
<i>Tundra or Arctic tundra</i>	Treeless, freshwater marsh covered by sedges and cotton grass only found in Alaska. Occurs in low-lying lands in northern and western Alaska where the ground beneath the surface is permanently frozen (permafrost). Water birds and shore birds are common, as are migratory fowl that nest here. Caribou herds, grizzly bear, wolf, moose, arctic fox and hare, as well as an occasional polar bear, live on the tundra.

Sources: William Mitsch and James Gosselink, *Wetlands* (New York: Van Nostrand Reinhold Company, 1986); and *Open Your Eyes to Surprise: Wetlands Are Wonderlands!* (Washington, D.C.: U.S. Environmental Protection Agency, Office of Public Affairs, n.d.).

Most banks established to date are sponsored and funded by state transportation departments, port authorities, or local governments, but operated by state natural resource agencies. These banks are designed to provide mitigation for public works projects, such as highway or port construction, which typically cause piecemeal loss or damage to wetlands, making on-site mitigation difficult. Under ISTEA, wetland mitigation banks can be classified as independent highway projects and are eligible for federal funding support. Port authorities also may sponsor and fund operation of mitigation banks, but the costs are partially paid by user fees and rents.

A few private entrepreneurial mitigation banks recently have been authorized, and other business ventures are in preliminary stages of development. Private investors, expecting sales to prospective clients, provide funding for mitigation banks. Entrepreneurs believe the sale of credits from well-planned mitigation banks offers potential for profit. Three banks offer credits for general sale: Bracut Marsh in California, Mission Viejo in California and Astoria Airport in Oregon. Other communities and counties across the country are beginning to develop general use mitigation banks to improve environmental conditions and help accommodate appropriate development.

Success of mitigation banking

Because mitigation banking has had a relatively short history and because policies with respect to mitigation banking are not consistent from state to state, it is difficult to assess how successful mitigation banking has been. However, permittees and bank sponsors are generally supportive because of the potential mitigation banking has to improve the efficiency and predictability of the permit review process. A criticism of mitigation banking that is shared by state and federal agencies is that significant time and effort are required to establish a wetland mitigation banking

Some Pros and Cons of Mitigation Banking

Potential benefits

1. Consolidation of compensation for small wetlands losses
2. Mitigation in advance of development
3. Improved planning to better integrate mitigation with other wetlands management efforts
4. Increased options for resource management and public appreciation
5. Conflict resolution
6. Monitoring and evaluation of mitigation efforts
7. Improved regulatory processing of permits
8. Public recognition and support due to added visibility from the size of the bank
9. Economic efficiency from operating one large wetland unit
10. Long-term protection and maintenance requirements established in formal banking agreement

Potential shortcomings

1. Perceived reduction in the quality of planning and regulatory decision making. Banks could only grant permits instead of considering avoidance of wetlands destruction or on-site mitigation.
2. Wetland restoration and creation techniques have not been proven and have limitations. Artificially created wetlands may not have the equivalent values of the natural wetlands they are intended to duplicate, and the time span necessary for created wetlands to assume all the natural characteristics is unknown. The slow rate at which a preserved or enhanced wetland returns to its natural or improved state and results in credits for the bank has created delays.
3. Off-site banks may be incapable of replacing the functions and values of the destroyed wetlands because of physical and ecological differences between sites affected by development and the mitigation sites. Out-of-kind replacement requires different debiting and crediting criteria and procedures.
4. Crediting and debiting techniques are difficult to establish because not all wetland functions readily lend themselves to quantification.
5. The costs of acquisition, establishment and operation of large banks may be prohibitive. Personnel time for bank establishment has been estimated at two person-years per bank; and the capital costs range from \$223 per acre to \$20,000 per acre for land acquisition and initial development.

agreement. Environmental interests remain concerned that the use of mitigation banks will be permitted where wetland losses are in fact avoidable (see box, "Some Pros and Cons of Mitigation Banking, on page 7).

The Clinton administration's position on mitigation banking

The Clinton administration supports the use of mitigation banking when appropriate to compensate for authorized wetland impacts and endorses the use of mitigation banking under Section 404. The administration recognizes several potential benefits of mitigation banks: they can consolidate fragmented mitigation projects into one large parcel, which can more effectively replace the lost wetlands and their functions within the watershed; they can increase the likelihood of successful compensatory mitigation by requiring mitigation to be established before permits are issued; and they can bring together financial resources, planning and technical expertise. The administration urges Congress to endorse the appropriate use of banking as a compensatory mitigation option and explicitly allow states to use the State Revolving Fund to capitalize mitigation banks.

In August 1993, the White House issued a position paper, *Protecting America's Wetlands: A Fair, Flexible and Effective Approach*, which proposes the following actions: The U.S. Army Corps of Engineers, in coordination with the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, the Soil Conservation Service and the National Marine Fisheries Service, will issue guidance to clarify the requirements for developing compensatory mitigation conditions in Section 404 permits. The guidance will assist permit applicants by providing consistency with respect to how federal mitigation requirements are applied. (These agencies have issued interim mitigation banking guidance to field staff to clarify when banking is appropriate under Section 404. Additional detailed guidance is being developed.)

The same agencies will expedite the development of the Hydrogeomorphic Classification System, an approved tool for the assessment of wetland functions. This system is expected to facilitate the determination of appropriate and effective mitigation measures.

The Interagency Working Group on Federal Wetlands Policy is developing more detailed mitigation banking guidance in response to the need for further clarification on how banks are to be established, used and operated under the Clean Water Act Section 404 program and the "swampbuster" program of the Farm Bill. The group published draft guidance on March 6, 1995, for public notice and comment (60 *Federal Register* 12286). The working group is developing the mitigation banking policy as part of the administration's wetlands plan.

Congressional action

Although several bills have been introduced in Congress to reauthorize the Clean Water Act or to specifically address wetlands protection issues, no major action occurred in 1994. Congress reauthorized funding for current EPA clean water programs. Senator Bennett Johnston of Louisiana did introduce a bill in October 1994, the last week of the congressional session, that, among other things, would authorize mitigation banking. The Wetlands Regulatory Reform Act of 1994 is expected to be re-introduced in 1995.

Case Study: The Hackensack Meadowlands

The Hackensack Meadowlands is a 21,000-acre estuarine area of freshwater and saltwater marshes and meadows situated in the lower Hackensack River basin in the New York City/Northeastern New Jersey metropolitan area. Almost 18,000 acres of the meadowlands were originally wetlands, but development, drainage, diking, filling, garbage dumping and sewage pumping have distributed many of the natural ecological processes. From 1969 to 1984, more than 863 acres of wetlands were filled in accordance with the Hackensack Meadowlands Development Commission master plan. Little filling has occurred since then, and habitat enhancement work on 190 acres of wetlands has been performed in mitigation.

The Hartz Mountain project, a mall and office complex, filled 127 acres of wetlands with the stipulation that the company would have to mitigate the impact by construction of a 63-acre brackish marsh in Secaucus, N.J., on Mill Creek. The mitigation goals were to enhance wildlife diversity and abundance by converting the site from a common reed-dominated high marsh community to a cordgrass intertidal marsh. More than 80 percent of the site is now inundated during part of the tide cycle, and a vigorous growth of cordgrass has become established. The intertidal cordgrass marsh created out of high marsh at the mitigation site appears to have met its goals of enhancing habitat heterogeneity, vegetational diversity and wildlife utilization, principally by birds. The project should be viewed as habitat enhancement and conversion rather than ecosystem restoration for the following reasons:

1. The mitigation did not recreate the particular estuarine ecosystem that existed on the site before the river was dammed and other environmental modifications made.
2. Because of the limited area and the limited goals, the mitigation project had no impact on the regionwide ecological degradation of the meadowlands. The habitat cannot be considered "restored" because of the influence of these intractable conditions on the mitigation project site.
3. The contractors produced an intertidal marsh, not the original marsh. There is no evidence that the ecosystem created on the mitigation site had previously existed there. The development commission has regulated development, water quality in the river is better and aquatic species, waterfowl and fish have returned. Ecosystem restoration, however, involves more than water quality improvement and increased wildlife use.

Source: National Research Council, *Restoration of Aquatic Ecosystems*, (Washington, D.C.: National Academy of Science), 1992, p. 297.

State experience with mitigation banking

The experience of the states with respect to wetlands mitigation banking has been varied. The following case studies from nine states—California, Florida, Illinois, New Hampshire, New Jersey, New York, North Dakota, Oregon and Rhode Island—illustrate the range of experience states have had with mitigation banking.

California

In August 1993, Governor Pete Wilson introduced a statewide wetlands initiative, the California Wetlands Conservation Policy, endorsing the use of wetlands mitigation banking.⁹ Before this policy was announced and passed, state agencies were operating without clear and consistent guidelines with respect to mitigation banking. Permittees hesitated to use banks because of this uncertainty.

According to the governor's policy, wetlands mitigation banking provides flexibility to the regulator and the landowner and avoids the problems of project-by-project mitigation. The policy calls for the drafting of mitigation banking guidelines which will

- ensure replacement within the same region for which the permit is issued;
- contain flexible mitigation ratios;
- be consistent with federal agency guidelines; and
- be amenable to inclusion in local or regional plans.

Once the guidelines are drafted and issued, the policy calls for development of pilot mitigation banks in the Central Valley, where the majority of the state's remaining 450,000 acres of wetlands are located. The Sacramento-San Joaquin Valley Wetlands Mitigation Bank Act of 1993 authorized the state Department of Fish and Game to approve bank sites in the Central Valley for use by urban developers who must provide mitigation credits for their projects. Currently, the Irvine Company, a large landowner in Southern California, is creating a mitigation bank in the San Joaquin Marsh near Irvine to compensate for the impact on wetlands of residential development.

Florida

In 1993, Florida Wetlandsbank in Broward County became the state's first permittee for a private entrepreneurial mitigation bank; the bank completed its first successful sale in 1994. In this agreement, a developer purchased credits from Florida Wetlandsbank for mitigation required for a construction permit from the City of Pembroke Pines. With these funds, the bank is restoring a 350-acre degraded wetlands site owned by the city. The bank will monitor the site for five years, then return management responsibility to the city.

The Florida Department of Environmental Protection reports that during the year ending November 1992, the state issued permits for development that would result in the destruction of 3,575 acres of wetlands. The agency and the five regional water management districts required preservation, creation or improvement of 52,318 acres in return. Over the past five years, permits for 28,134 acres of wetland losses were issued and 398,635 acres of wetlands mitigation was required. The ratio has been 28,134 acres of losses to 398,635 acres of mitigation.

Illinois

The mitigation statute in Illinois applies only to state and federally funded "pass through" construction projects and does not direct the state Department of Conservation (DOC) to develop a formal compensation ratio for mitigation. For minimal wetlands loss caused by construction, DOC requires replacement to be made on a one-to-one basis in

the same type of wetland. For a significant loss, the DOC requires additional compensation, in the form of replacement, creation, purchase or enhancement of an existing wetland. Compensation wetlands must be "close to" the altered or destroyed wetland. Mitigation also can take the form of funding for wetlands research. The state Department of Transportation has not established mitigation banking for its projects.

New Hampshire

The New Hampshire Coastal Program has issued a report that reviews mitigation issues and analyzes existing state wetlands protection regulations (*Wetlands Mitigation Issues and Regulations Analysis*, 1993). The Wetlands Bureau will use the report to develop new overall mitigation regulations. The state currently makes mitigation decisions case by case.

The report has the following key findings:

1. Although compliance monitoring of mitigation sites is required, no long-term scientific evaluations have been conducted; and
2. Although the state Department of Transportation endorses mitigation banking, it rarely is advocated by the bureau.

New Jersey

The state Department of Environmental Protection requires replacement at a two-to-one ratio for wetlands lost to development. The 1987 mitigation statute, which exempts farming, forestry and ranching, calls for restoration for temporary disturbances (e.g., burying sewer or power lines) and offers three mitigation options for permanent filling:

1. Creation of new wetlands acreage at a two-to-one ratio;
2. Enhancement of a degraded wetland, and
3. Contribution to the mitigation bank if on-site mitigation is not feasible.

Although any citizen can contribute to the wetlands bank, there have been few applications. In addition, the department has not had sufficient staff to follow up on and enforce the statute's provisions, and questions remain regarding the science of creating wetlands.

New Jersey is also responsible for implementing and operating a mitigation bank in connection with the Passaic River flood control project. The U.S. Army Corps of Engineers, which operates the project, acquired large tracts of wetlands with natural flood retention capability for the bank. This acreage compensates for loss of wetlands in other areas of the river basin; it also is used to mitigate non-federal projects that cause wetland losses. Credits accrue from the purchase and preservation of threatened wetlands. Additional credits may be given for the restoration and enhancement of currently degraded wetlands.

In December 1993, Governor Jim Florio signed legislation requiring state agencies to help counties identify suitable areas for creation of new wetlands and restoration of degraded wetlands. The state Wetlands Mitigation Council will review wetland mitigation areas identified by counties. When developers are required to create or restore wetlands under a permit, approved sites will be used.

New York

Mitigation is a component of New York's policy of avoiding, minimizing and mitigating wetland destruction. When reviewing a permit application, the Department of Environmental Conservation first considers whether wetlands loss can be avoided altogether or minimized, even if the applicant has proposed mitigation. When mitigation is allowed, it is reviewed site by site, and two-for-one mitigation, on site and in the same type of wetland, is required. If mitigation is not possible on site, it must be within the same watershed.

Some activities are exempted from regulation; these include depositing or removing natural products of the wetlands; farming; public health activities; and mosquito control projects. Wetlands smaller than 12.4 acres also are exempt, unless they are deemed "of unusual importance."

North Dakota

The North Dakota wetlands mitigation bank operates on an acre-for-acre basis. At least 50 percent of the mitigation must be accomplished within the same county, or within counties contiguous to the drained wetland. However, replacement wetlands are not required to be the same type as the drained wetland. The bank is to be used for highway projects and all state permitted and licensed projects, and it can carry a debit of only 2,500 acres at any time.

The majority of North Dakota wetlands currently are in agricultural holdings controlled by federal regulations that prohibit draining and filling. The state Water Commission foresees that the role of the wetlands mitigation bank will grow as the cities expand and agricultural land is converted to real estate development. The credit evaluation and bank management functions are performed by the North Dakota Game and Fish Department, the North Dakota State Water Commission and the Office of the State Engineer.

Oregon

The state legislature created the Oregon Mitigation Bank in 1987. Under the program, a wetlands credit can be used only after it has been determined that on-site mitigation would be impractical. The Division of State Lands must approve all mitigation projects and conduct annual and five-year reviews of mitigation projects, and it may charge a fee for the purchase of credits in the mitigation bank. Little credit has been withdrawn from the bank because it is used as a last resort only after other mitigation solutions have failed. Funding for the bank comes from a revolving account created by the same legislation that established the bank. Initially capitalized with a \$238,000 federal coastal zone management grant, the fund is authorized to receive state appropriations, federal grants, gifts and donations from public and private sources, fees for the purchase of credits and interest earnings.

The first mitigation bank in Oregon was created in Astoria, near the mouth of the Columbia River. Designed to be self-perpetuating, this bank uses credit proceeds to acquire or restore another mitigation bank. As of May 1994, no state funds had been paid into the account. A second bank has been established in the Willamette Valley near Eugene.

Rhode Island

The Rhode Island Coastal Resource Management Council now requires wetland mitigation for all alterations to coastal wetlands. Projects that involve permanent changes or loss of coastal wetlands are to be mitigated at a two-to-one ratio.

Tracking and enforcing successful mitigation in Florida

After an individual permit is issued that requires mitigation for wetlands development, how does an agency ensure that the mitigation has been initiated and is successful?

The Florida Department of Environmental Protection (formerly the Department of Environmental Regulation) studied its mitigation program in 1990 to assess the use and effectiveness of mitigation projects required for development permits. Permits had been issued since 1979 to require mitigation as a condition for offsetting wetland losses caused by development. From January 1, 1985, through December 6, 1990, the department issued 1,262 permits stipulating some requirement (creation, restoration, enhancement or preservation) for mitigation. The permits allowed a total of 3,305 acres of wetlands to be destroyed in return for 18,234 acres of created, enhanced or preserved wetlands.

Another goal of the study was to evaluate the effectiveness of permitted mitigation and provide guidance on improvement where needed. State wetlands staff reviewed 119 wetlands sites created and required as mitigation by 63 permits. Sites included freshwater wetlands with forests or woody (herbaceous) plants, salt marshes and mangrove forests (a mangrove is a tropical evergreen tree). The sites were evaluated for the permittee's adherence to the design established in the permit—including site dimensions, soil treatment, planting and ground elevations—and the ecological success of the new wetlands.

The ecological success rate of the 63 permits was only 27 percent for combined tidal and nontidal wetlands. The success rate increased to 45 percent when only tidal wetland mitigation was studied. Remedial action on salt marsh and mangrove creation projects was expected to lead to a success rate of almost 90 percent. The remaining 10 percent were adversely affected by inadequate tides for water exchange or location near heavily traveled waterways. Staff recommended additional attention to the design phase of future projects to eliminate these problems.

Freshwater wetlands creation had a success rate of only 12 percent due in part to groundwater table fluctuations, which are more difficult to predict than tidal fluctuations. Options to increase success include additional construction at the original site or reconstruction at a location closer to the naturally occurring and contiguous wetlands.

Several recommendations made by agency staff to improve the permitting process have been implemented. The principal recommendation was for permittees to avoid wetlands and to minimize the impacts on the wetlands of permitted activities. The department also has implemented a new procedure for mitigation projects if the destruction of wetlands cannot be avoided or minimized. This procedure requires the permittee to

1. enhance degraded wetlands or restore historical wetlands;
2. preserve wetlands in conjunction with other forms of mitigation; and
3. create new wetlands, but only after a review of the permit applicant's proposal notes inclusion of features that will ensure the success of the new wetland.

The most disturbing result of the review was that one-third of the required mitigation had not been attempted by permittees. Some 14 percent of the projects where mitigation had been implemented were only partially constructed. Only four of the 63 permits were found to be in full compliance with the permit requirements.

Noncompliance ranged from failure to submit reports to major deviations from the approved design. Some deviations, however, seemed to improve the likelihood of success

for the creation of a viable wetland. The Department of Environmental Regulation made several recommendations to the Legislature to strengthen program monitoring and enforcement. These recommendations included that the department have

- authority to assess compliance fees when the permit is issued;
- authority to assess administrative fines for noncompliance;
- use of collected fees and fines to administer the compliance program; and
- authority to hire additional staff to support permit compliance, enforcement and mitigation work.

Other recommendations were to provide clear notice to permit applicants about their responsibility for the success of long-term mitigation. Chronic failure to comply with permit requirements now can be used as grounds for permit denial. If a permit applicant is not in compliance with an existing mitigation permit or failed at a mitigation project, further permits should not be issued.¹⁰

Legislative options for developing a mitigation program and mitigation banking

The following are suggestions that state legislators may want to consider when creating a mitigation requirement for wetlands permits or establishing a mitigation bank.

- Designate and authorize an appropriate state agency to implement and enforce mitigation and mitigation banking policies.
- Establish a program, with adequate funding, to identify suitable wetland restoration sites within the state that might be used as mitigation or mitigation banking projects.
- Provide authority and funds for the establishment of watershed or basinwide mitigation banks where creation or restoration projects must be completed, monitored for several years and certified by agency staff as functioning before mitigation credits can be earned and applied.

Appendix A

State Statutes Governing Wetland Mitigation Banking

California:

Cal. Pub. Res. Code Sec. 30233 (1991)
Cal. Fish & Game Code Sec. 1775-1793 (1991)
Cal. Pub. Util. Code Sec. 740.4 9 (1991)

Colorado:

Colo. Rev. Stat. Sec. 37-85.5-101 to -111 (1991)

Florida:

Fla. Stat. Sec. 373.4135 (1993)

Louisiana:

La. Rev. Stat. Ann. Sec. 49-214.41. (1991)

Maryland:

Md. Nat. Res. Code Ann. Sec. 8-1201 to -1211 (1994)

Minnesota:

Minn. Stat. Sec 1036.221-1036.2373 (1992)

New Jersey:

N.J. Stat. Ann. Sec. 13.913-13 to -15 (1988)

North Dakota:

N.D. Cent. Code Sec. 61-32-05 (1987)

Oregon:

Or. Rev. Stat. Sec. 196.600 to .665 (1987)

Texas:

1991 Tex. Sess. Law Serv. ch. 3 Sec. 6.01-6.07

Wyoming:

Wyo. Stat. Sec. 35-11-310 to -311 (1991)

Source: Environmental Law Institute, *Wetland Mitigation Banking*, 1993, pp. 17-18.

Appendix B

State Agency Regulations and Guidelines Governing Wetland Mitigation Banking

California:

California Department of Fish and Game, Draft Guidelines for the Establishment of Wetland Mitigation Banks (July 1991)

Florida:

Fla. Admin. Code Rule 62-342 (February 1994)

Maine:

Code Me. R. ch. 310 (June 1990)

Maryland:

Co. Mar. .08.05.04.01 to .06 (June 1990)

Minnesota:

Minnesota Department of Transportation, Guidelines for Implementation of Wetland Habitat Mitigation Banking, Technical Memorandum No. 87-28-Env-2 (June 18, 1987)

New Hampshire:

New Hampshire Department of Transportation, Policy on Wetlands (October 1990)

New Jersey:

N.J. Admin. Code tit. 7:7A Sec. 14.1-15.7 (1992)

Oregon:

Or. Admin. R. Sec. 141-85-240 to -262 (1984)

Wisconsin:

Wisconsin Department of Natural Resources and Wisconsin Department of Transportation, *Compensatory Mitigation Policy for Unavoidable Wetland Losses Resulting from State Transportation Activities*. (Amendment to the Interagency Cooperative Agreement between the Wisconsin Department of Natural Resources and the Wisconsin Department of Transportation, November 7, 1990).

Source: Environmental Law Institute, *Wetland Mitigation Banking*, 1993, pp. 17-18.

Appendix C

Wetland Mitigation Banks in the States

<u>Bank Name</u>	<u>Bank Type</u>
California	
Bracut Wetland Mitigation Marsh	Nonprofit bank for general use
California Coastal Conservancy-Huntington Beach	Government bank for own use
Mid City Ranch	State/local government bank for local government use
Mission Viejo/ACWHEP	Private/local government bank
Naval Amphibious Base Eelgrass Bank	Navy bank for own use
Port of Long Beach-Pier A, Newport Bay Mitigation Bank	Public bank for own use
Port of Long Beach-Pier J, Anaheim Bay	Public bank for own use
Port of Los Angeles-Inner Harbor	Public bank for own use
Port of Los Angeles-Pac Tex, Batiquitos Lagoon	Public bank for own use
San Joaquin Marsh	Public/private bank for own use
Sea World Eelgrass Mitigation Bank	Private bank for own use
Florida	
Cheval Tournament Players Club	Private bank for own use
Disney World*	Private bank for own use
Hillsborough County Utilities Dept. Mitigation Bank	Local government bank for own use
Northlakes Park Mitigation Bank	Local government bank for own use
Northwest Hillsborough County*	Local government bank for own use
Polk Parkway Bank	Local government bank for own use
Polk Regional Drainage Project Bank	Local government bank for own use
Southeast Mitigation Bank	Local government bank for own use
Florida	
Weisenfeld/Meadow Woods	Private bank for own use
Wetlands Bank of Florida, Inc.*	Private bank for general use
Georgia	
Georgia Department of Transportation	Single client DOT bank
Wetbank, Inc., of Savannah*	Private bank for general use
Idaho	
Aciquia	Single client DOT bank
Mud Lake Wildlife Management Area	Single client DOT bank
Old Beaver	Single client DOT bank
Indiana	
Geist Reservoir	Private bank for own use, resulting from violation
Morse Reservoir WMB	Private bank for own and general use

<u>Bank Name</u>	<u>Bank Type</u>
Louisiana Department of Transportation and Development Fina LaTerre	Single client DOT bank Private bank for own and general use
Minnesota Dept. of Transportation Wetland Habitat Mitigation Bank	Single client DOT bank
Mississippi Dahomey National Wildlife Refuge Malmaison Wildlife Management Area State Line Bog and Dead Dog Bog Port of Pascagoula SAMP	Single client DOT bank Single client DOT bank Single client DOT bank Local government agency for own use
Montana Interagency Wetland Committee Bank	Single client DOT
Nevada Washoe Lake Mitigation Bank	State DOT bank for own/general use
North Carolina Company Swamp Pridgen Flats	Single client DOT bank Single client DOT bank
North Dakota North Dakota State Highway Department	Single client DOT bank
Oregon Astoria Airport	State sponsored bank for general use
South Carolina Highway Mitigation Bank	Single client DOT bank
South Dakota Wetlands Accounting System Bank	Single client DOT bank
Tennessee West Tennessee Mitigation Bank	Unknown
Virginia Bowers Hill/Goose Creek Cabin Creek WMB Fort Lee WMB Otterdam Swamp	Single client DOT bank Single client DOT bank Single client DOT bank Single client DOT bank
Wisconsin Patrick Lake	Single client DOT bank

*Permits issued since 1992 survey.

Proposed Banks

Alabama State Highway Department	Single client DOT bank
Alaska City and Borough of Juneau WMB	Local government bank for general use
Arizona Asarco	Private bank for own use
Arkansas State Highway Department	Single client DOT bank
California Bill Signs Trucking WMB Dune Mitigation Bank Folsom City	Private bank for own and general use Local/government bank for own use Willow Creek, Humbug Creek Parkway Plan
Mission Bay Eelgrass Mitigation Bank Placer County	Local government bank for own use Local government bank for general use
Sacramento County Caltrans Bank Springtown Natural Communities Reserve	Single client DOT bank Private for general use
Florida Bird Drive Mitigation Bank Department of Transportation East Lake/McMullan Booth Road Jerry Lake Weir Mitigation Bank Mud Lake North Trail WMB	Local government bank for own use Single client DOT bank Local government bank for own use Local government bank for own use Local government bank for own use Local government bank for own/ general use
Orlando International Airport Build-out Pinellas County S.W. Florida Regional Wildlife and Wetlands Conservation Mitigation Area	Local government bank for own use Local government bank for own use State bank for private use
Georgia Marshland Plantation Commercial WMB Millhaven Plantation Commercial WMB	Private bank for general use Private bank for general use
Illinois Homebuilders' Association of Greater Chicago WMB Lake County WMB	Private bank for general use Local government bank for general use
St. Clair County WMB	Local government bank for general use
Louisiana Barksdale Air Force Base WMB Himont Expansion Bottomland Hardwood Bank	Federal agency bank for own use Private bank for own use

Pass A Loutre Deltaic Splay Development Terrebonne/Point Au Chien Wildlife Management Area	State bank for general use State owned bank for general use
Maryland Prince George's County	Local government bank for own use
Nebraska Lancaster County WMB Department of Roads	Private/public bank for general use Single client DOT bank
New Hampshire Department of Transportation	Single client DOT bank
New Jersey Chimento Mitigation Bank Department of Transportation Hackensack Meadowlands Passaic River Central Basin Wetlands Bank	Private bank for public/general use Single client DOT bank Public/private bank for general use Public bank for general use
New Mexico Valencia County	Single client DOT bank
Ohio Homebuilders' Association of Ohio	Private bank for general use
Oregon Dalton Lake Port of Astoria WMB Turner Mitigation Bank West Eugene Mitigation Bank	Single client DOT bank Local government bank for own use Single client DOT bank Local government bank for general use
Texas General Land Commission Commercial Mitigation Bank, Arkansas County Dow Nature Refuge, Lake Jackson Taylor Lake Nature Preserve and WMB Wetlands Management, Inc.	State government bank for general use Private bank for general use Private bank for own use Private bank for own and general use Private bank for general use
Utah Provo City WMB Northeast Utah WMB Tenth West Corridor WMB	Local government bank for own use Private bank for general use Local government bank for general use
Virginia Creeds Dale City Lowe's Island	Local government bank for own/state use Private mitigation violation for own/ general use Private bank for own and general use

Neabsco Wetland Bank
Northern Virginia-Manassas
Ragged Island Wildlife Management Area

Private bank for general use
Single client DOT bank
Public agency bank for own use

Washington

Department of Transportation
Port of Everett

Single client DOT bank
Local government bank for own/
general use

Wisconsin

Statewide WMB

Single client DOT bank

Wyoming

Highway Department

Single client DOT use

Source: Environmental Law Institute, *Wetland Mitigation Banking*, 1993.

Notes

1. 40 C.F.R. 1508.20 (a-e) The Council on Environmental Quality Regulations for the Implementation of Natural Environmental Protection Act.
2. Environmental Law Institute, *Wetland Mitigation Banking*, (Washington, D.C.: Environmental Law Institute, 1993), 9.
3. *Ibid.*, 15-16.
4. *Ibid.*, 22.
5. *Ibid.*, 121.
6. *Ibid.*
7. 23 U.S.C. Sec. 3(1)(13).
8. Telephone conversation with Paul Garret, U.S. Federal Highway Administration, January 4, 1995.
9. Executive Order No. W59-93.
10. Ann Redmond, "How Successful is Mitigation?" in *Natural Wetlands Newsletter*, January/February 1992, pp. 5-6.

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Subsidizing Disaster

How your tax money and weak wetland protection increase your risk of being flooded.

**Taxpaying Families
Every Town, USA**

DATE: April 15, 1997

**PAY TO THE
ORDER OF: DEVELOPERS AND WETLAND DESTROYERS** **\$7,000,000,000**

Seven Billion and 00/100 ----- **DOLLARS**

**PAID FOR BY:
You, the US Taxpayer**

**MEMO: WETLAND
DESTRUCTION SUBSIDIES**

Sierra Club and Clean Water Network

April 15, 1997

\$UBSIDIZING DISASTER:

*How your tax money and
weak wetland protections increase your risk of
being flooded*

By Brett Hulseby

Sierra Club Midwest Representative

Contributors:

David Conrad, National Wildlife Federation

Karen Sarafin and Brett Koeller, Sierra Club

Cover Design:

Karen Sarafin, Sierra Club

*Let's protect our families, our homes and our wallets from
floods. Stop giving developers tax subsidies to build in
floodplains and to destroy wetlands!*

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10. Conclusion

For more copies of the report, send \$10 (check payable to the Sierra Club Foundation) to the Sierra Club Midwest Office, 214 North Henry Street, Suite 203, Madison, WI 53703, phone (608) 257-4994. Email address: sierra@execpc.com.

Paid for with a generous grant from the McKnight Foundation and the Clean Water Network.

The Sierra Club is the nation's oldest grassroots conservation organization dedicated to protect America's environment, for our families, and for our future. The Sierra Club Midwest Office has been working protect families and homes from flooding for over 25 years.

A Story — Washington: *We Have a Problem*

Doris Wilson knew something was wrong when there was a river in her yard last summer. A developer had destroyed a wetland nearby and converted it to a lake. The water was running 2 feet deep in her yard.

She complained to local authorities last summer and found out the developer had legally destroyed the wetlands with a Nationwide Permit that allows for easy wetland destruction.

When the rains hit this spring, she had 3 feet of water in her home. "I have lived there for almost 20 years and never had this kind of problem," she said. "Then they destroyed the wetlands."

The builders of the new \$250,000 homes had destroyed what protects her home from floods — a neighborhood wetland. The builders enjoy large taxpayer subsidies for roads, schools, and home mortgage interest to help sell their homes. They were not stopped by weak local and federal wetland protection rules.

"I do realize the rain was an act of God," Doris told the Associated Press, "But I truly believe it was an act of arrogance that flooded my home."¹

You would think that taxpayers would think twice about giving easy wetlands destruction permits and tax handouts to developers who put our people's homes at risk from flooding. Read on.

1. Overview and Recommendations

Sadly, Doris Wilson is not alone. Millions of families have been flooded from their homes over the last four years in some of the most dangerous floods ever.

¹Rizzo, Katherine, "Floods Were Worst Due to Wetland Loss," San Diego Daily Transcript, March 19, 1997.

Federal Emergency Management Agency Director James Lee Witt says that "Floods have caused greater loss of life and property, and disrupted more families than all other natural hazards combined. In recent decades, over 80 percent of presidentially declared disasters have been floods that resulted in billions of dollars of losses."²

As we all rush to file our taxes, many taxpayers will be surprised to hear that billions of our tax dollars may be going to destroy wetlands and increase the risk that our homes will be flooded. That's right, our tax money is increasing the flood risk.

According to the Department of Interior's report, The Impact of Federal Programs on Wetlands, there are over 40 U.S. government programs that can contribute to wetland destruction. These programs can increase the risk of flooding by destroying wetlands that soak up the flood waters.

This report estimates that taxpayers pay at least \$7 billion each year in tax money to subsidize wetland destruction and could increase the risk of flooding to our families and homes.

The report analyzed 10 of the over 40 federal programs that the Department of Interior has identified as leading to wetland destruction and possible increased flooding. Those are the Federal Flood Insurance program, federal farm programs, some "flood control" projects, and road building.

Farmers destroy about half and developers and others destroy the other half of the 70-90,000 wetlands acres destroyed each year.

How is this so? First, developers enjoy large subsidies for road and federal flood insurance to build homes in floodplains and wetlands. They also have the home mortgage write-off, that allows home buyers to get a credit on their income taxes for home mortgage. While most homeowners use this to buy a new home, it is a subsidy to developers to help sell homes built in flood-prone wetlands and floodplains.

These same developers and builders then turn around and fight for weaker wetland protections to be able to build more houses in flood-prone wetlands and floodplains. The National Homebuilders Association filed suit just a few weeks ago to keep loopholes in the Clean Water

²FEMA, National Mitigation Strategy, December, 1995, page I.

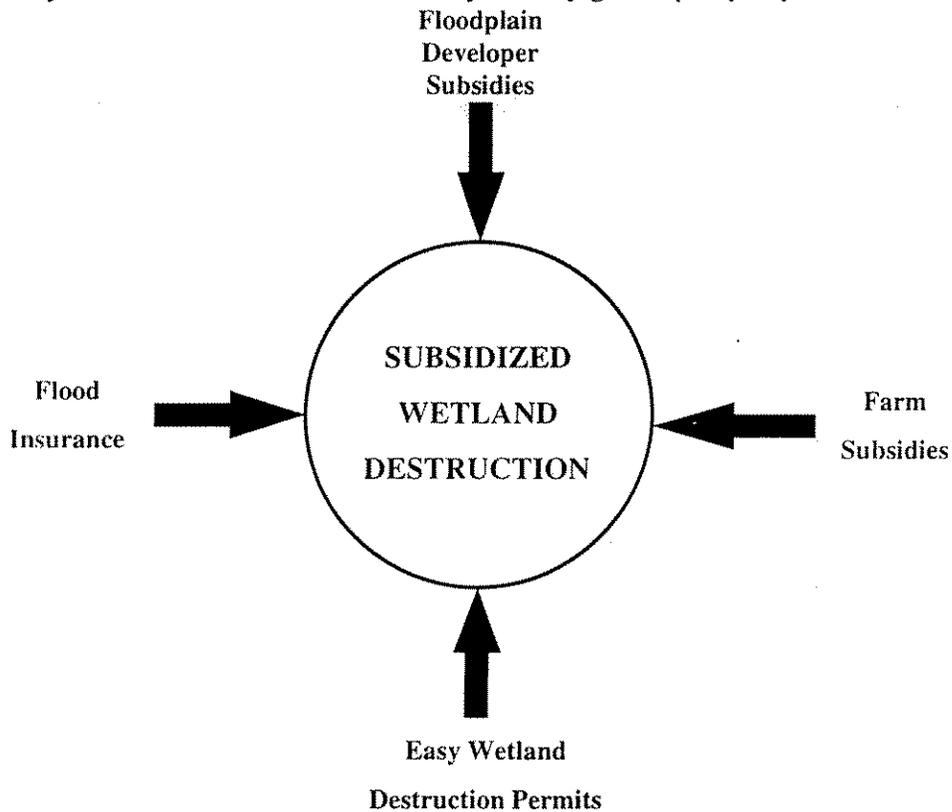
Taxpayers also subsidize agricultural interests for just under \$10 billion each year. Farmers are the largest destroyers of wetlands, according to the Fish and Wildlife Service. Congress passed laws in 1985 to reduce the federal subsidy to farmers who destroy wetlands, then plant crops on them. But last year, under pressure from agri-business groups, Congress weakened the rules that cut subsidies for wetland-destroying farming operations.

The least we can ask of these groups that receive such large federal tax subsidies is that they be responsible and not build in floodplains or destroy wetlands.

You also pay over \$100 million for the federal wetlands destruction permit program administered by the U.S. Army. That is, you pay for the government workers to hand out over 90 percent of the wetland destruction permits the developers request. While wetland developers do withdraw a small percentage of these permits, the rest of the wetland destruction permits allow homes to be built in floodplains, and destroy wetlands that soak up floods. This hurts people like Doris by increasing the risk of the flooding at her house, and could do the same for you.

Taxpayers also cover all the costs for disaster relief: 80 percent of the federal disaster payments are for floods. You also pay for crop damage and billions for "flood control" projects that don't always control floods.

Taxpayers have to cleanup the mess with federally-subsidized Flood Insurance Program, which has over \$360 billion in outstanding damage liability. Less than two-in-ten people who live in floodplains buy the subsidized flood insurance, yet many get help anyway.



Now we are starting to see why we can never quite balance the budget. There are too many senseless subsidies that increase our risk of floods and disasters. These programs don't require people to be responsible for their own choices, but ask taxpayers to bail them out.

And if that is not enough, the U.S. House voted two years ago to expose more families to floods by weakening our wetland protections even further. In 1995, the House passed policies that would open over two-thirds of the nation's wetlands to building and destruction. This means bigger floods and even more homes in floodplains. Luckily the Senate was wise not to pass this measure.

Opening wetlands to more building makes no sense. Wetlands are nature's sponges — they protect our homes from floods by soaking up rain and releasing the water slowly. They filter dangerous pollutants and chemicals from our drinking water. They provide homes and habitat for fish, waterfowl, wildlife, and seafood.

Nationwide, we have already lost over half of our wetlands. In the worst flooding states, we have destroyed more. California and Ohio have allowed over 90% of their wetlands to be destroyed; over 80% have been destroyed in Missouri, Illinois, Kentucky and Indiana, and 60% in Tennessee, according to Fish and Wildlife Service scientists.

According to noted hydrologist Don Hey, writing in the March 1995 Restoration Ecology Journal, preserving one-half of the original wetlands in the Upper Mississippi River Basin would have held back most of the flood waters that flowed past St. Louis in 1993. Protecting wetlands could have saved up to 50 lives, and over \$15 billion in homes lost and taxpayer bailouts.

The Clinton Administration took a positive step by promising to phase out over the next two years Nationwide Permit 26, the easy wetlands destruction permit for isolated wetlands. We also need President Clinton to cancel Nationwide Permit 29, which gives developers easy permits to build homes in wetlands and floodplains, and puts thousands more families at risk from flooding.

Given this clear and overwhelming evidence, why would Congress vote to make it easier to build in flood-prone wetlands? Follow the money.

Developer and wetlands polluter PACS gave over \$25,000,000 to Congress and presidential candidates since 1989, according to Federal Elections Commission reports analyzed by the Environmental Working Group;

Public servants are supposed to protect our families and homes from flooding, not waste our tax money and put our families at risk.

2. Flood Damage and Disaster Summary

“The reason they call them floodplains is that it is plain that they flood.”

— Vice President Al Gore, 1995

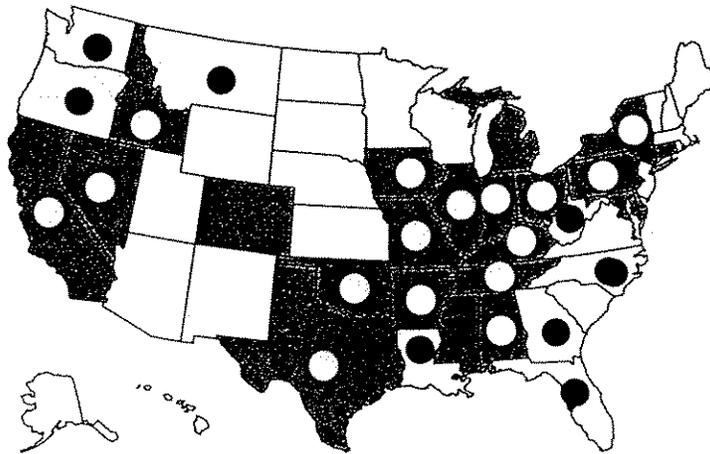
Floods have caused great damage to the families and homes of this country. A review of recent flood damage by the Sierra Club in the report Floods, Deaths, and Wetland Destruction shows that floods killed almost 500 people and cost \$33,000,000,000 in the last four years.

YEARLY TOTALS OF FLOOD DEATH AND DAMAGES

YEAR	DEATHS	DAMAGES
1997	28	\$1 Billion (est.)
1996	232	\$7 Billion
1995	62	\$8.7 Billion
1994	124	\$1.2 Billion
1993	50	\$15 Billion
1993-March 97 Total	496	\$33 Billion

Chart of states with wetlands loss from Dahl with dots on high flood states.

FIGURE 1. States that lost more than 50 percent of their wetlands between the 1780's and mid-1980's (Listed states shaded) (after Dahl 1990):



State	Percent Lost	State	Percent Lost
Alabama	50	Maryland	73
Arkansas	72	Michigan	50
California	91	Mississippi	59
Colorado	50	Missouri	87
Connecticut	74	Nevada	52
Delaware	54	New York	60
Idaho	56	Ohio	90
Illinois	85	Oklahoma	67
Indiana	87	Pennsylvania	56
Iowa	89	Tennessee	59
Kentucky	81	Texas	52

Furthermore, states with the highest wetland destruction experienced the worst floods as the above chart shows. Only Colorado, Michigan, Maryland, Connecticut, and Mississippi escaped major flooding. Mississippi is now experiencing floods, however.

In addition, the Sierra Club's 1997 Floods, Deaths, and Wetlands Destruction³ report concludes:

- So far in 1997, floods have killed over 50 people and cost families and taxpayers at least \$2 billion.
- Floods in 1996 killed over 200 people in North Carolina, Georgia, Florida, California and cost families and taxpayers at least \$7 billion.⁴
- The states with the greatest loss of life and property, Missouri, Illinois Ohio, Kentucky, Indiana, and California are also the states that lost the most wetlands (80-92%).⁵
- In 1993, Midwest floods in Illinois, Iowa, and Missouri killed 50, brought commerce to a halt, and cost almost \$15 billion. Taxpayers paid at least \$5.4 billion.
- Flood damage has tripled in constant dollars since 1950, despite billions spent on "flood control" projects.⁶
- The Federal Emergency Management Agency (FEMA) estimates that 9.6 million households and \$360 billion in property are at risk from flooding. This includes 22,000 communities.

³Brett Hulseley, et al, Floods, Deaths, and Wetlands Destruction, Sierra Club, 1997.

⁴ Billion Dollar U.S. Weather Disasters 1980-1997. National Climatic Data Center. January, 1997.

⁵ Dahl, T.E. and C.E. Johnson. 1991. Status and Trends of Wetlands in the Conterminous United States, Mid-1970's to Mid 1980's. U.S. Dept. of the Interior. Fish and Wildlife Service, Washington, D.C., pg. 2.

⁶ Devine, Robert. "The Trouble with Dams: Environmental Problems, High Cost of Operation". The Atlantic Monthly. August, 1995, pg. 64.

3. Role of Wetlands in Preventing Floods

“Despite the nation’s massive effort during the past 90 years to build levees throughout the upper Mississippi Basin, mean annual flood damage has increased 140 percent during that time....The 1993 flood verifies the need for additional wetlands: the amount of excess water that passed through the St. Louis during the 1993 flood would have covered a little more than 13 million acres — half the wetland acreage drained since 1780 in the upper Mississippi Basin. By strategically placing 13 million acres of wetlands on hydric soils in the Basin, we can solve the Basin’s flooding problems in an ecologically sound manner.”

--Hydrologist Donald Hey, Restoration Ecology, March 1995

Wetlands soak up floods by acting like sponges. The Galloway report on the 1993 floods found that “where significant wetlands exist, they can have a noticeable effect on (flood) discharge peaks from the basin.”⁷

The scientists looked at four watersheds in the Iowa and Minnesota and determined that by restoring wetlands, applying the Conservation Reserve Program and other water holding measures, we can reduce 100 year flood peaks by up to 40 percent.

We should use wetland restoration, Conservations Reserve Program, and other flood control techniques in all high-flood watersheds.

4. Current Policies on Wetlands Protection — Weak and Under Attack

We have destroyed over half -- 53%-- of our original wetlands in the lower 48 states.

Our remaining wetlands are supposed to be protected by the Clean Water Act, which limits the amount of pollution that can be put in our rivers lakes and streams. The act requires polluters to get a permit to dump in our water.

However, the Clean Water Act is not being enforced. Developers got 99% of the wetland destruction permits they requested in 1995, according to the Army’s wetland permit tracking system analyzed by the Environmental Working Group.

⁷ Science Assessment and Strategy Team, A Blueprint for Change, Part V, Science for Floodplain Management into the 21st Century, Interagency Flood Plain Review Committee, June, 1994, page 159.

These permits, called 404 permits for section 404 of the Clean Water Act, allow developers to destroy an estimated 70-90,000⁸ acres each year.

While this destruction rate is a reduction from the 450,000 lost each year in the mid 1970's and the 290,000 lost each year in the mid 1980's, it still puts thousands of new families and homes at risk from flooding each year. Under the Clean Water Act, wetland destroyers are supposed to avoid, then minimize, then mitigate the wetland destruction. Yet there are too many permits being granted.

The Army Corps of Engineers, which oversees the National Wetland Program, also gives easy permits for wetland destruction, called general or nationwide permits (NWP). These require little paperwork and no warning for neighbors, such as Doris Wilson.

There are two nationwide permits that are especially dangerous for home and flooding. One is NWP 26 that had allowed for building on isolated wetlands under ten acres. The Clinton Administration recently lowered this to three acres. The developer that destroyed the wetland near Doris Wilson's home had a NWP 26 for isolated wetlands less than 10 acres. These isolated wetlands may be the most critical because most wetlands are isolated in states that have destroyed 80-90 percent of their wetlands. These states have the most flood damage.

The other is NWP 29 which allows homes to be built on wetlands of less than one-half acre. Of course, most people's homes are built on lots much smaller than a half an acre.

These permits are only for filling of the wetland with dirt or other material and do not cover other wetland destruction activities like pumping the water out or ditching. Again, that is why Doris Wilson's home was flooded. Clearly any activity that puts homes at risk from flooding should be covered by the act to protect us all from floods.

Developers say they can destroy wetlands in one place and protect wetlands elsewhere through mitigation banks. Unfortunately, in floodplains and flood-prone wetlands, you need the wetlands there to protect the homes and families from flooding. Wetlands protected elsewhere would not have helped Doris Wilson or thousands of other floods victims.

What we need is a comprehensive program that protects our families and homes from flooding. This program would protect all wetlands from all wetland destruction activities, like pumping and draining.

⁸EPA, The Quality of Our Nation's Waters:1994; Executive Summary of the National Water Quality Inventory, 1994 Report to Congress, page 29.

5. Federal Subsidies that Increase Flooding and Destroy Wetlands

“While some Federal programs are designed to protect wetlands, others encourage economic development projects which sometimes destroy wetlands. Further, these projects have too often turned out to be of questionable economic merit.”

--Interior Secretary Bruce Babbitt⁹

Despite enormous federal sums being spent on flood control projects, flood damages are continuing to rise at an alarming rate. The 1988 report to the President and Congress of the National Council on Public Works Improvement¹⁰ found that from 1960 to 1985, the Corps of Engineers and the Soil Conservation Service had spent over \$38 billion on flood control programs. Obviously, much more was spent both before and after this period.

Yet, by the late 1980's, the nation's average annual flood damages — adjusted for inflation and population — had nearly **tripled** to over \$3 billion — since 1951.¹¹ Today, the national average annual flood damage figure is closer to \$8 billion, and it continues to rise according to current figures.

Flood disasters have continued to cost the U.S. Treasury substantially in increasing disaster relief costs. Within the past two years, the Federal Flood Insurance Fund has had to borrow some \$442 million from the Treasury to pay recent claims. Presidential flood disasters have been declared in over 24 states in the past two years.

Clearly, current wetlands and flood protection programs are not effectively protecting our families and homes from floods.

In addition, there are numerous tax-funded programs that lead to wetland destruction, according to the Department of Interior's The Impact of Federal Programs on Wetlands.

⁹U.S. Department of Interior, The Impact of Federal Programs on Wetlands, Vol. II, A Report to Congress by the Secretary of Interior, Washington, D.C., 1994, page I. This is available on the Internet at www.doi.gov/oepec/wetlands2.

¹⁰National Council on Public Works Improvement, Report to the President and Congress, 1988.

¹¹See Atlantic Monthly above

Of federal wetland destruction subsidies, Interior Secretary Babbitt said "Many of these programs are designed and financed in ways that violate the most basic principles of economics. Such programs distort market signals and provide subsidies that have both a negative environmental and economic effects, wasting resources and adding to the federal deficit."¹²

What programs was Secretary Babbitt referring to? The Interior Department study referred to over 40 federal programs that encourage wetlands destruction. In this report, we will focus on the programs that encourage home building in wetlands and destruction of wetlands in high-prone floodplains, because those cause the most damage and put the most people at risk from flooding.

For example, we have known for many years that the Federal Flood Insurance Program encourages wetland and floodplain building. Even in 1966 this was recognized in the "Report of the Task Force on Federal Flood Control Policy"¹³, authored by Gilbert F. White, who said that ". . . some flood plain encroachment is undertaken in ignorance of the hazard, that some occurs in anticipation of further federal protection, and **that some takes place because it is profitable for private owners even though it imposes heavy burdens on society**".

"Flood control" structures may also increase the costs of flooding by giving people a false sense of security. This may be one of the most important lessons learned from the devastating 1993 Midwest floods, reflected in the landmark June 1994 report of the Interagency Floodplain Management Review Committee, the title "Sharing the Challenge." The need for greater sharing of responsibility was the message of General Galloway gave in 1995 testimony before the Senate Environment and Public Works Committee. He said:

". . . floodplain management requires a coordinated effort on the part of all levels of government and the public at large. Many of the most important floodplain management decisions are land use decisions and need to be made at the state and local level. The Federal Government must set the example in its actions and provide support to the States for the conduct of floodplain management."

The Interior Department report showed that the Federal government has yet to set an example

¹²Office of the Secretary, "Interior Department Report Recommends, Revisions in Federal Programs Detrimental to Wetlands," Department of Interior News Release, July 11, 1994, page 1.

¹³Gilbert F. White, "Report of the Task Force on Federal Flood Control Policy", U.S. Congress, 1966.

by removing tax and other subsidies for wetland destruction.

The Army Corps of Engineers has also recognized that flood control often promotes sprawl and building in flood-prone areas in its June 1995 "Floodplain Management Assessment," Chapter 10.

The Army's report recognizes that "flood protection projects do encourage additional development of floodplains" and that "structural flood protection projects have tended to induce floodplain development beyond what would have taken place, and the effects of such inducement have frequently not been well accounted for."

SUBSIDIZED WETLAND DESTRUCTION ACTIVITY	1996 US BUDGET EXPENDITURES (BILLIONS)¹⁴	ESTIMATED WETLAND DESTRUCTION SUBSIDY
National Flood Insurance	\$ 0.469	\$ 0.469 [1]
Disaster Relief	\$ 3.593	\$ 2.874 [2]
Fed. Crop Insurance Corporation Fund	\$ 1.690	\$ 0.169 [3]
Watershed and Flood Prevention Operations	\$ 0.070	\$ 0.070 [1]
Army Flood Control, Mississippi River	\$ 0.327	\$ 0.327 [1]
Bureau of Reclamation	\$ 0.824	\$ 0.082 [3]
Total Farm Income Stabilization	\$ 5.777	\$ 0.578 [3]
Agricultural Credit Insurance	\$ 0.447	\$ 0.045 [3]
Commodity Credit Corporation	\$ 2.707	\$ 0.271 [3]
Highway Spending	\$21.184	\$ 2.118 [3]
ESTIMATED SUBSIDY		\$ 7.003 Billion

¹⁴ From U.S. Government Website, for year 1996, found at <http://cher.edu.doc.gov/BudgetFY97>

Assumptions: We only looked at 10 of the over 40 federal activities that lead to wetland destruction, according to the Interior Department.

1. We assumed that all flood insurance and flood control expenses were subsidies to those building in floodplains.
2. FEMA estimates that 80 percent of federal disaster relief is flood related.
3. We assumed that most farm and road building does not destroy wetlands, but that 10 percent does.

While there are many items in the federal budget that promote wetland destruction and flooding, this is a partial summary of wetland destruction and flood subsidies. We recognize that all of the money spent on these items do not encourage wetlands destruction and floodplain building.

Policymakers should examine all wetland related programs thoroughly for a more complete estimate. Each subsidy program in The Impact of Federal Programs on Wetlands should prove that it does not increase flood risk for families and homes.

6. State Updates — Bright Spots

A. MISSOURI

Missouri experienced some of the worst flooding in its history in 1993. The 1993 flood showed the risks of allowing building in flood-prone wetlands and destroying wetlands.

Missouri allowed 87% of its wetlands to be destroyed by the mid 1980's, according to Fish and Wildlife Service scientists.

St. Charles County Relocation a Success Story

Missouri illustrates the success of buyout/relocation programs to assist victims and to reduce future flood risk. To date, more than 10,000 homes and businesses have been moved and relocated from the floodplain and flood-prone wetlands.

Because of the effort made in Missouri, flood destruction and deaths are down. According to the Missouri State Emergency Management Agency, after another record flood on the

Missouri River in May of 1995 that covered much of the same area at nearly the same depths as 1993, many communities had only a tiny percentage of the disaster relief costs and damages experienced in the Flood of 1993.

For instance, the State recently published figures showing that disaster assistance costs in St. Charles County, MO, were 99% less in 1995 than was experienced after the 1993 Flood. This was a major testament to the effectiveness of the "non-structural" voluntary buyout effort made by the many federal, state, and local agencies who were involved.

Of course, it makes much more sense to not allow building in flood-prone wetlands and floodplains in the first place.

Missouri Wetlands Destruction and Floodplain Building Continues Unchecked.

From 1988-1996, Missouri developers received a total of 4,989 general nationwide wetland destruction permits, and 1,218 individual permits to destroy wetlands. Of the permits requested, 93% were granted, according to the Army Corps of Engineers data compiled by the Environmental Working Group.¹⁵

Only 341, or 5.1%, of the permits were withdrawn, and 129 or 1.9% of the wetlands destruction permits were denied during that time frame.

Farm Subsidies

From 1985-1994, U.S. taxpayers gave 135,000 Missouri farmers over \$3,365,000,000 in farm subsidies according to USDA data. If we assume that 10% went to destroy wetlands, that comes to a \$336,500,000 subsidy for wetland destruction.

B. ILLINOIS

Citizens throughout the state have suffered mightily from floods over the last 4 years. Illinois has allowed over 85% of its wetlands to be destroyed according to the Fish and Wildlife Service.

Valmeyer — a Success Story

After the floods of 1993, FEMA used disaster aid to move at least 11,000 homes and businesses out of the floodplain in the affected region, mostly along the Mississippi River. The most

¹⁵See the EWG website at www.ewg.org and check the Where You Live icon.

dramatic effort was in Valmeyer, Illinois, where the entire town of 900 inhabitants was moved to higher ground.¹⁶

Illinois Wetlands Destruction and Floodplain Building Continues Unchecked.

From 1988 to 1996, 4,649 general nationwide wetland destruction permits were granted, 499 individual permits were granted, or 7.9% totaling 81.8% permits granted. Only 33 permits or 0.5% were denied, and 1,107 were withdrawn, according to the Army's figures.

The total agricultural subsidies for Illinois from 1985-1994 are \$7,500,000,000 going to 223,929 farmers according to USDA data compiled by the Environmental Working Group. 10% would equal at \$750,000,000 tax subsidy.

WHERE YOU LIVE

To find out more about wetlands permit destruction, polluter contributions to candidates, and farm subsidies in your area, check the Environmental Working Groups's website at www.ewg.org and look for the "Where You Live" icon.

7. Why Would Congress Weaken our Flood Protections?

"Follow the money."

— Deep Throat, All The President's Men

In the last session of Congress, wetland destruction interests like Exxon and the National Association of Homebuilders succeeded in convincing the House to open 73 million acres of wetlands, or 71 percent of what is left, to development and destruction. They did this by changing the definition of wetlands to exclude these areas. For flood-prone places like Missouri, Illinois, Ohio, Kentucky, and California this would mean thousands of new homes built in flood-prone wetlands.

An analysis of the Federal Election Commission contributions by the Environmental Working

¹⁶USA Today editorial, "Taxpayers losing battle," April 1, 1997.

Group in the Swamped with Cash¹⁷ report shows that political action committees associated with companies that profit from making it easier to destroy wetlands gave over \$25 million to members of Congress and presidential candidates since 1990. These wetland destruction PACs gave \$5.9 million to Senators since 1990, and \$5.5 million to House candidates since 1992.

8. Who Wants to Destroy Wetlands?

Why would anyone want to destroy a wetland? Developers who stand to profit.

Big oil companies like Exxon, shopping mall and sprawl developers, and agri-business groups want to weaken wetland protections to make it easier to build and explore for oil in wetlands. These groups formed the National Wetlands Coalition in 1989 to promote their efforts to weaken laws that protect wetlands.

Who in their right mind would build a house in a place that obviously floods? No one, and we should take a hard look at the subsidies we give these groups.

9. What Can You Do to Protect Your Family, Your Home and Your Wallet from Flooding?

To protect your home from flooding, you can:

- Find out if your home is built in a wetland or floodplain, check with your insurance agent or call the National Flood Insurance Program at 1-800-638-6620. Even though flood insurance is federally subsidized, at least you will help pay for your flood protection.
- Ask the developer who built your home and/or the Realtor who sold you the home to guarantee it is not built in a flood-prone wetland or floodplain.

You can support:

- A moratorium on all new wetland destruction permits and building in high-flood wetlands and floodplains to protect existing and new homes from additional flooding. This is a practical first step to reducing our families' risk of flood damage.
- Protecting and restoring critical flood-catching wetlands along the Mississippi, Missouri, Ohio, and other flooding rivers by targeting and increased funding for the Wetlands Reserve

¹⁷See www.ewg.org.

Program, Conservation Reserve Program, and other programs that restore and protect high quality wetlands. We recommend a goal of 5% of the land area in high flood watersheds or 75 percent of the destroyed wetlands, whichever is greater.

- Cutting all subsidies for wetland destruction and building in floodplains and wetlands. Stop all Federal Flood Insurance subsidies for new homes built on wetlands or floodplains.
- Cutting all federal farm payments to farmers who destroy wetlands in high-flood watersheds.
- Cutting the federal subsidy for "flood control" projects from 75 percent to 50 percent to stop funding projects that do not work, and to stop sprawl development in flood-prone wetlands and floodplains.

Urge President Clinton to:

- Continue his good work to phase out Nationwide Permit 26, the easy wetland destruction permit for "isolated wetlands" of less than three acres, which now allows thousands of wetlands to be destroyed each year.
- Stop Nationwide Permit 29 and all other wetlands destruction permits that give easy permits to build homes in wetlands and floodplains.
- Appoint a national Protect Our Families and Wallets from Floods Taskforce to report by July 4th how to protect families and homes from flooding, protect wetlands, and stop wasting tax money on floods.

10. Conclusion — Stop Subsidizing Flooding and Wetland Destruction with Our Tax Money.

We know our families and country have a flood problem. We know we should not allow people to build houses in places that flood. We know that wetlands protect our homes from floods. We know we spend too much tax money encouraging people to destroy wetlands and build in floodplains. There are common sense, practical things we can do to save families from floods and save money. It is time to do something about it.