

America's Wetlands: A Policy Analysis of Mitigation Banking in the United States

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Table of Acronyms

ASCE	American Society of Civil Engineers
ACE (Corps)	Army Corps of Engineers
CRS	Congressional Research Service
CWA	Clean Water Act
DOT	Department of Transportation
EPA	Environmental Protection Agency
ELI	Environmental Law Institute
FEMA	Federal Emergency Management Agency
FWS	Fish and Wildlife Service
HEP	Habitat Evaluation Procedures
HGM	Hydrogeomorphic Approach
NAHB	National Association of Home Builders
NAR	National Association of Realtors
NSPE	National Society of Professional Engineers
NRCS	Natural Resource Conservation Service
NMFS	National Marine Fisheries Service
MBRT	Mitigation Bank Review Team
SWS	Society of Wetland Scientists
SWANCC	Solid Waste Agency of Northern Cook County
USGS	United States Geological Service
WET	Wetland Evaluation Technique

Executive Summary

America's wetlands are precious ecological treasures that must be protected. Unfortunately, it is sometimes necessary to fill or drain a wetland in order to complete a construction project. It is likely that a mall, parking lot, airport, or road in your community was built where a wetland once was. In the 1950's nearly half a million acres of these natural aquatic resources were being lost each year! By the late 1990's that number had dropped to 60,000 acres per year by implementing stricter regulation through legislation. To protect the wetlands, they can only be filled or drained for development purposes after a permit is granted. As part of the permitting process, mitigation of harmful impacts is required. One of the ways to mitigate impacts is through a process called wetlands mitigation banking.

Mitigation banking is similar to monetary banking in that, a person puts money into a bank with the intent of drawing money out of the bank at a later time. Similarly, wetland mitigation banking is a process in which a person establishes, enhances, or restores a wetland somewhere knowing that wetland losses requiring compensatory mitigation will occur in the future. However, the crediting and debiting procedure is far more complicated than this simple analogy suggests.

Further commercial development in the U.S. is inevitable. Mitigation banking appears to be a promising method of compensating for the destruction of our nation's wetlands. The intent of this paper is to introduce the reader to the overall wetland policy in the U.S. and focus on the more complex intricacies of mitigation banking, specifically the areas that could improve existing policy.

Introduction

Luna Leopold, naturalist and daughter of the great ecologist, Aldo Leopold, once said, “Water is the most critical resource issue of our lifetime and our children’s lifetime. The health of our waters is the principle measure of how we live on the land.” On April 22, 2004 President Bush asserted his agreement on this issue, announcing an aggressive new national goal to increase America’s wetlands each year. Previously the American vision had been to achieve “no net loss” of wetlands, but no policy had ever been proposed to improve or restore America’s spectacular wetland regions. The Environmental Protection Agency (EPA) Administrator, Mike Leavitt, issued a statement saying, “The Bush Administration is committed to enhancing America’s valuable wetlands and will continue to provide regulatory protection. We [the EPA] will partner with federal, state, local and private entities to meet the President’s goal of increasing the quantity and quality of wetlands nationwide.”¹ The Administration is currently implementing 30 programs to achieve this goal. In fact, President Bush’s budget proposal for 2005 includes a \$5 million increase for the EPA to pioneer this new program. Clearly wetlands preservation is a national priority and will continue to garner attention in the future.

One of the instruments being used to achieve “no net loss” of wetlands, as well as increase wetlands acreage in the U.S. is mitigation banking. The concept of mitigation banking was introduced about 15 years ago, and is still an evolving process. To understand the process, including environmental, scientific and policy applications, one must first understand what a wetland is. Scientific definitions as well as legal interpretation of wetlands have been provided in this report. The importance of wetlands in the U.S. is explained and supported. Additionally, the current regulatory guidelines are presented and evaluated.

¹ Milbourn, Cathy. *Bush Administration Commits to Increasing Wetlands Nationwide*. Environmental Protection Agency. 22 April 2004. Retrieved June 9, 2004 from <http://yosemite.epa.gov/opa/admpress.nsf/0/84e181a37019a07d85256e7e00750320?OpenDocument>.

Favorable and unfavorable aspects of mitigation banking were considered, and expert opinions duly noted. The stances of prominent environmental, governmental and business organizations are offered. Finally, conclusions were drawn and policy recommendations given. It is the intent of the author to analyze whether wetlands mitigation banking, under its current regulation, is an effective means of compensating for wetlands losses, and to evaluate what changes, if any, could be made to improve upon existing policy.

What is a wetland?

It is first important to understand what a wetland truly is. Webster defines a wetland as, "A lowland area, such as a marsh or swamp that is saturated with moisture, especially when regarded as the natural habitat of wildlife."² While it stands to reason that a wetland should be wet, some wetlands may not be wet year round. However, this seasonal wetness still qualifies them as a wetland in the scientific sense. So, who is actually capable of defining what is and is not a wetland? A great debate rages between regulatory agencies and landowners or developers as to what a wetland actually is.

The Federal Clean Water Act (CWA), which will be discussed in greater detail later in this report, defines wetlands as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."³ The U.S. Army Corps of Engineers (Corps) and the U.S. Environmental Protection Agency (EPA) have used this definition of wetlands since the 1970's for regulatory purposes. As wetland losses continued around the U.S., it became apparent that

² Merriam-Webster Online Dictionary. Merriam-Webster Incorporated. 2004.

³ Copeland, Claudia. *Clean Water Act: A Summary of the Law*. Congressional Research Service. 25 November 2003.

wetlands designation required a more scientific evaluation. In 1989, the Army Corps of Engineers (with input from other agencies) published the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands (Wetlands Manual)*, a massive document outlining the scientific methods for identifying and classifying wetlands. It was the intent of the Corps to provide a more specific and technical process to be used in defining wetlands under federal jurisdiction.

The Corps used a multi-parameter approach to define wetlands areas including three main characteristics: hydrology, soil, and vegetation. The most easily recognizable parameter is vegetation. Vegetation found in wetland areas is known as hydrophytic vegetation. Hydrophytic vegetation is described as vegetation capable of growing in water or substrate with extremely low oxygen levels. Cattails are prime examples of hydrophytic vegetation and are found in nearly 99% of wetland areas.⁴ Unfortunately vegetation classification can be misleading because many of the plant species outlined in the manual may continue to grow even after hydrologic conditions common to wetlands no longer exist. This introduces the necessity for the second parameter, hydrology. According to the Corps, “the term wetland hydrology encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season.”⁵ Hydric soil is the third component for wetland delineation. The scientific definition of a hydric soil is a soil that is “formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.”⁶

The three parameters defining wetland environments are uniquely intertwined, creating ecological regions unlike any other. Hydric soil would not

⁴ Anderson, Jim et al. “Legal Wetlands May Be Difficult to Recognize.” *West Virginia Farm Bureau News*. November 2001. Retrieved June 9, 2004 from http://www.lib.duke.edu/libguide/bib_magazines.htm#Article from an online magazine.

⁵ Federal Interagency Committee for Wetland Delineation. *Federal Manual for Identifying and Delineating Jurisdictional Wetlands*. Cooperative Technical Publication. Washington, DC. 1989. p. 28.

⁶ Anderson, Jim et al. “Legal Wetlands May Be Difficult to Recognize.” *West Virginia Farm Bureau News*. November 2001. Retrieved June 9, 2004 from http://www.lib.duke.edu/libguide/bib_magazines.htm#Article from an online magazine.

exist without the presence of wetland hydrology, and wetland vegetation capable of surviving in anaerobic conditions is found only in regions with hydric soils. Each parameter is dependent on the other two for the land to be deemed a wetland area. Therefore, all three parameters are used to scientifically evaluate whether a region is classified as a wetland.

While the *Wetlands Manual* provides a highly technical and scientific method for defining wetlands, the legal definition has been put under great scrutiny recently. The definition of a wetland varies in the eyes of the law depending on the interpretation by the Corps and EPA, the Congress and the Supreme Court. In 2001 a case involving wetland regulations was presented to the Supreme Court. The Solid Waste Agency of Northern Cook County (SWANCC) vs. Army Corps of Engineers has proven to be the most controversial issue to emerge with regards to wetland definition. With a razor thin 5-4 vote, the Supreme Court held that the Corps had exceeded its regulatory authority when denying a permit for development to a Northern Illinois County on the basis of the area being a functional habitat for migratory birds. This raised serious questions about the Corps' ability and freedom to interpret the rules and jurisdiction of regulation under federal law.⁷ Many volumes of legal journals and environmental policy analyses have been dedicated to study this ruling, however it is not the intent of the author to consider the case other than to introduce the fact that the scientific definition of a wetland can vary greatly from the legal. Because of this ambiguity, wetlands protection can be difficult, making wetlands protection and mitigation all the more important.

⁷ Statement of John Paul Woodley, Jr. Assistant Secretary of the Army for Civil Works Department of the Army and Benjamin H. Grumbles Acting Assistant Administrator for Water United States Environmental Protection Agency Before the Subcommittee on Water Resources and Environment of the Committee on Transportation and Infrastructure U.S. House of Representatives. 30 March 2004. Retrieved June 12, 2004 from <http://www.house.gov/transportation/water/03-30-04/woodley.pdf>.

Wetlands Status and Function

Original estimates show that the continental United States contained more than 215 million acres of wetlands prior to European colonization. With wetlands having dwindled to a mere 100 million acres in the continental United States, it is no surprise that wetlands policy has quickly garnered national attention.⁸ In the 1950's it was estimated that 460,000 acres of wetlands were being destroyed each year. Despite efforts by federal and state governments to implement regulations, the wetlands were still being destroyed at an alarming rate of more than 60,000 acres a year from 1986 to 1997.⁹ Figure 1 shows wetland losses by percentage in each state based on estimates of original wetland regions from the late 1700's.

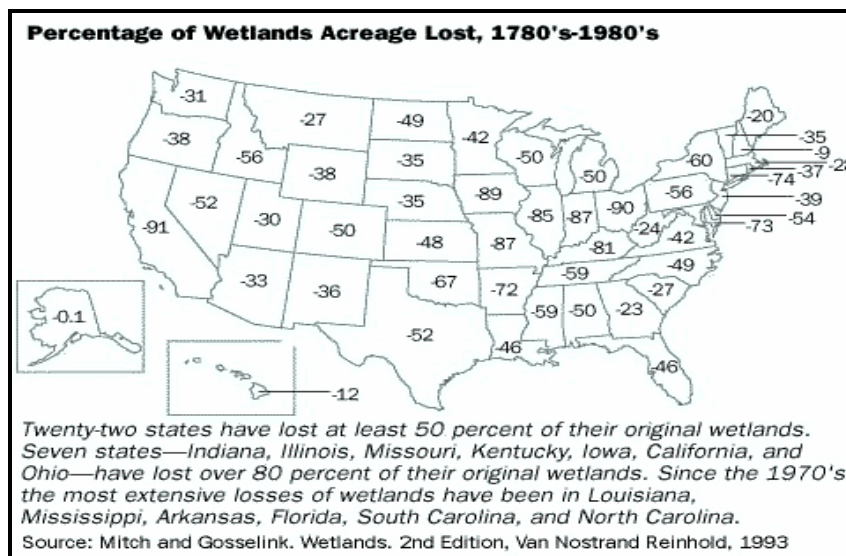


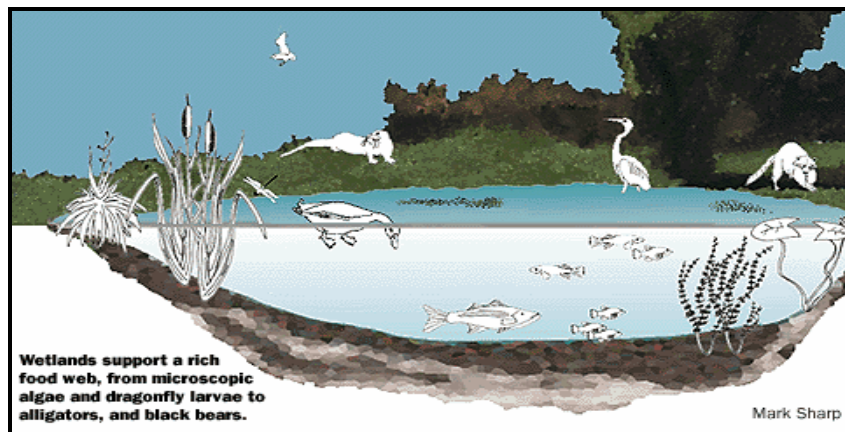
Figure 1

⁸ *What's a wetland anyway, and why are they so important to protect?* National Audubon Society. 5 Jan. 1999. Retrieved June 9, 2004 from http://www.lib.duke.edu/libguide/bib_webpage.htm.

⁹ Statement of John Paul Woodley, Jr. Assistant Secretary of the Army for Civil Works Department of the Army and Benjamin H. Grumbles Acting Assistant Administrator for Water United States Environmental Protection Agency Before the Subcommittee on Water Resources and Environment of the Committee on Transportation and Infrastructure U.S. House of Representatives. 30 March 2004. Retrieved June 12, 2004 from <http://www.house.gov/transportation/water/03-30-04/woodley.pdf>.

The American public in general appreciates the aesthetic importance of wetlands as part of the natural landscape. Environmentalists often refer to the wetlands as “nurseries of life”. In contrast, landowners and developers often coin wetlands as “wastelands” and view them as obstacles to infrastructure and civilization that should be eliminated. Most developers do not realize that wetlands play a vital role in many environmental processes including flood control, cleansing of pollutants, and species diversity

Most notably, wetlands are home to some of America’s most diverse species populations and contain many of our nation’s endangered species. Wetlands often contain unique plant species (hyrophytic plants) that would not survive in any other habitat. More than 138 bird species in North America are wetland dependent, and about one third of U.S. migratory waterfowl depend on wetland areas for nesting and reproductive purposes. Because of their diverse wildlife, fish, and plant populations, wetlands are prime areas for recreation, education, and research.¹⁰ Figure 2 illustrates the type of biodiversity common to wetland regions.



Source: Environmental Protection Agency. 2004

Figure 2

¹⁰ Testimony of Robert H. Wayland, III Director, Office of Wetlands, Oceans, and Watersheds Office of Water U.S. Environmental Protection Agency Before the Committee on Government Reform. U.S. House of Representatives. 6 October 2000. Retrieved June 10, 2004 from <http://www.epa.gov/ocir/hearings/testimony/100600rw.pdf>.

The presence of these spectacular wildlife sanctuaries contributes to the economy as well. Hunters in 1996 spent nearly \$1.3 billion for licenses to hunt ducks, geese and other wetland dependent birds. Bird watchers and wildlife enthusiasts contributed a whopping \$29.2 billion. In 1996 the Bureau of the Census and the U.S. Fish and Wildlife Service (FWS) found that activities associated with hunting, fishing, and wildlife observation totaled \$101 billion.

Wetlands also function as natural flood control systems. A one-acre wetland covered in water to a depth of one foot is capable of storing 325,840 gallons of water. Wetlands near streams and rivers store water and release it slowly. The destruction of a single acre of upstream wetland near the headwater of a river basin could cause a sharp rise in flood peaks for the river basin. Figure 3 illustrates this principle.¹¹

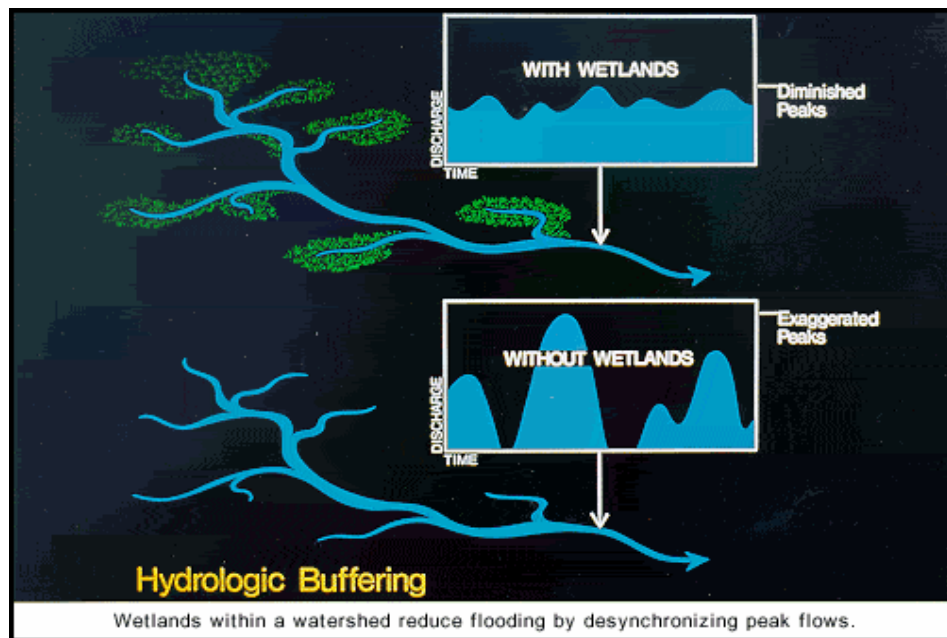


Figure 3—Source: Arkansas Wetlands Conservation Plan

¹¹ Testimony of Robert H. Wayland, III Director, Office of Wetlands, Oceans, and Watersheds Office of Water U.S. Environmental Protection Agency Before the Committee on Government Reform. U.S. House of Representatives. 6 October 2000. Retrieved June 10, 2004 from <http://www.epa.gov/ocir/hearings/testimony/100600rw.pdf>.

In 1999 direct flood damage was estimated at \$5.4 billion. According to the Federal Emergency Management Agency (FEMA), 15,000 square miles, 9.6 million households and more than \$390 billion in property are high-risk areas for flooding across the U.S. Because of wetlands' natural abilities to limit flood peaks and store floodwater, their destruction could lead to a higher incidence and severity of floods. Therefore the presence of these flood-diminishing wonders helps protect homeowners' assets and has an indirect economic benefit.

Another major wetland function is the natural filtration of water and improvement of water quality. Wetlands trap and filter sediment, toxins, and pathogens before they enter the nearest river or stream. Non point source pollution, pollution carried by storm runoff from effluent of industrial areas, can be collected and filtered. They also filter and restore groundwater supplies, which may subsequently be used as drinking water in the future. Some wastewater treatment plants even use wetlands as a tertiary treatment device.

The Clean Water Act: a Brief Overview

“The Clean Water Act is the cornerstone of water protection policy in the United States.”¹² It was originally passed by Congress as the Federal Water Pollution Control Act (PL 80-845) in 1948 as the first comprehensive federal water policy. In 1972, Congress passed considerable revisions known as the Federal Water Pollution Control Act Amendments (PL 92-500), giving the Act its current shape. The authentic Clean Water Act (PL 95-217) as it is known today was not signed into law until 1977.

In general, the Act was designed to “restore and maintain the chemical, physical, and biological integrity of the waters of the United States.”¹³

¹² *A Brief Overview of the Clean Water Act*. Georgia Center for Law in the Public Interest. Retrieved June 16, 2004 from <http://www.cleangeorgia.org/page.aspx?s=19306.0.101.19069>.

¹³ Copeland, Claudia. *Clean Water Act: A Summary of the Law*. CRS Report For Congress. November 25, 2003.

Historically, Congress intended for “the waters of the United States” to be interpreted in the broadest sense, encompassing any surface water on U.S. soil. In 1974 Section 404 of the CWA was created. Section 404 of the CWA requires permits for the discharge of dredged or fill material into the nation’s waters. The permit program is administered by the Army Corps of Engineers, with primary oversight from the EPA. The EPA retains the right to veto any permit awarded by the Corps. Initial implementation of the Section 404 permitting program limited “the waters of the US” to include “traditionally navigable” waters only, excluding many small streams and vast amounts of wetland regions. In 1975 a Federal district court recognized that the law was not being interpreted consistently with its original “Congressional intent,” and expanded the jurisdiction of the program to include all surface waters of the US, including isolated wetlands. It is this expanded interpretation of the law that the U.S. still uses today.¹⁴

The Act’s wetland permit (Section 404) program has arguably become the most controversial part of the law. The *SWANCC vs. Army Corps of Engineers* case discussed previously is a prime example of this. Moreover, environmentalists criticize the Army Corps and EPA for granting too many permits each year and contributing to the destruction of important, albeit small and isolated, wetlands. Furthermore, many environmental groups feel that the broad, vague wetland definition and its variable interpretation across the country leaves the door open for “waters of the U.S.” to be degraded or completely destroyed. Wetlands mitigation banking is one of the methods to compensate for the loss and degradation of wetlands under the permitting program. It is encouraging that, under proper regulation, mitigation banking could be a widely used alternative in the compensatory process, providing economic and environmental benefits simultaneously.

There were two types of permits created under the Section 404 permitting program: individual and general. Individual permits are project specific, and

¹⁴ Copeland, Claudia. *Clean Water Act: A Summary of the Law*. CRS Report For Congress. November 25, 2003.

issued when a project might cause significant wetland losses or damage. Individual permits entail extensive scrutiny, including an “alternatives analysis,” and can take more than a year to obtain. The more common of the two permits is the general permit, used to authorize development activities involving only minor alterations to wetland areas. “General permits are meant to provide an expedited permitting process.”¹⁵ According to the National Research Council (NRC), “as many as 85 percent of Section 404 projects authorized by the Corps in the waters of the United States are approved under a general permit.”¹⁶ The first step in obtaining a permit is to outline jurisdictional wetland boundaries on the property. Once a perimeter has been determined, water quality and development certification must be granted by the appropriate state agencies. After state agencies have been addressed, the permit application is evaluated by the Corps to determine whether or not it complies with Section 404(b)(1) guidelines. The permittee must show that there are no alternatives to filling the wetland and that the project plan of action will do the least amount of harm possible to the aquatic environment. The final step is specification of mitigation to be performed in order to offset negative environmental impacts caused by the construction.¹⁷

Types of Mitigation

If wetland damage cannot be avoided, mitigation is required to offset any losses to these important ecosystems. The Corps has the ability to specify the amount and type of mitigation required on a case-by-case basis. There are three

¹⁵ *Building a Balance: Wetlands Regulation*. National Association of Home Builders. 2004. Retrieved June 9, 2004 from

<http://www.nahb.org/generic.aspx?sectionID=128&genericContentID=378>.

¹⁶ National Research Council. *Compensating for Wetland Losses Under the Clean Water Act*. National Academy Press. Washington, D.C. 2001. p. 66.

¹⁷ *Building a Balance: Wetlands Regulation*. National Association of Home Builders. 2004. Retrieved June 9, 2004 from

<http://www.nahb.org/generic.aspx?sectionID=128&genericContentID=378>.

major mitigation processes used today: project specific mitigation, mitigation banking, and in-lieu fee mitigation.

The EPA describes project specific mitigation as the “restoration, creation, enhancement and, in exceptional circumstances, preservation of wetlands undertaken by a permittee in order to compensate for wetland impacts resulting from a specific project.”¹⁸ Basically, the project specific mitigation process requires the developer to first and foremost find a way to avoid wetland destruction altogether. If impacts are unavoidable, it remains the duty of the developer to minimize impacts to wetland areas and perform any necessary mitigation mandated by the Army Corps of Engineers under the granted permit. Each development project is handled on a case-by-case basis, with the Army Corps at the helm deciding the level of necessary mitigation at the time of the contract’s granting. It is then the responsibility of the developer to perform the necessary mitigation while development is occurring. The mitigation declared in the contract can be executed on-site or off-site depending on the decision of the Army Corps after evaluation of the area. Sometimes on-site mitigation can be as simple as removing an invasive species from the wetland area or implementing some form of erosion control of a canal or stream embankment in the area. Off-site mitigation may leave the developer responsible for creating a wetland near the development area or restoring degraded wetlands nearby.

Wetland mitigation banking and in-lieu fee mitigation processes are known as third-party mitigation methods. Third-party mitigation means that the developer is not responsible for performing the mitigation processes. Both mitigation banking and in-lieu fee methods are off-site mitigation processes. Mitigation banking, which will be described in much greater detail later in this report, allows the developer to purchase wetland “credits” from a bank sponsor in order to compensate for any losses or “debits” caused by the development project. The EPA describes in-lieu fee mitigation as a process “that occurs

¹⁸ *Methods of Compensatory Mitigation*. Environmental Protection Agency. 24 Dec. 2002. Retrieved June 12, 2004 from www.epa.gov/owow/wetlands/facts/CMitigation.pdf.

where a permittee provides funds to an in-lieu fee sponsor, generally a public agency or non-profit organization, instead of performing project-specific mitigation or purchasing credits from a mitigation bank.”¹⁹

The EPA also outlines 4 methods for compensatory mitigation: establishment (creation), restoration, enhancement, and protection (preservation). Establishment of a wetland includes “the development of a wetland or other aquatic resource through manipulation of the physical, chemical or biological characteristics where a wetland did not previously exist.”²⁰ This process results in an overall gain of wetland acres. Restoration is defined by the EPA as “the re-establishment or rehabilitation of a wetland or other aquatic resource with the goal of returning natural or historic functions and characteristics to a former or degraded wetland.”²¹ This process improves wetland function, and in some cases increases wetland acreage. Enhancement is a process used to “heighten, intensify, or improve” wetland functions such as flood water retention, natural filtration, biodiversity of the region, etc. This process will not yield an increase in wetland acres, but does improve wetland function.²²

What is Mitigation Banking?

Wetland banks function in a manner very similar to fiscal banks, in that they quantify “credits” and “debits” in terms of wetland acres. A wetland mitigation bank is traditionally a large tract of land that a bank sponsor purchases with the express intent of restoring, enhancing, or preserving existing wetlands or creating new wetlands. All operations (i.e. earth moving, species introduction, hydrologic conditions, etc.) are managed by the bank sponsor, thereby

¹⁹ *Methods of Compensatory Mitigation*. Environmental Protection Agency. 24 Dec. 2002. Retrieved June 12, 2004 from www.epa.gov/owow/wetlands/facts/CMitigation.pdf.

²⁰ *Ibid.*

²¹ *Ibid.*

²² *Ibid.*

establishing substantial amounts of acres to be used as “credits”. Bank sponsors range from public entities, such as State Departments of Transportation (DOT’s), to private entrepreneurs. Developers are then able to purchase credits from the bank in order to compensate for wetlands losses (debits) in another area.

Unlike a fiscal bank account, credits purchased by the developer or owner may only be used if the Army Corps grants a permit and authorizes third-party mitigation. It is the duty of the engineers in the Army Corps to verify that avoidance is not feasible and that mitigation banking is an acceptable form of compensatory mitigation. Furthermore, the Corps is responsible for determining whether the measurable wetland losses are comparable to the credits established in the bank. Because it is difficult to assess the functionality and qualitative importance of a wetland, credits and debits are typically balanced in terms of acreage for simplicity.²³

It is helpful to consider a hypothetical example of a bank to better understand the process. Assume a bank sponsor purchases 500 acres of land. If the land costs \$2,000 per acre, and the sponsor spends \$3,000 per acre in wetlands creation, restoration and enhancement, the total amount invested by the sponsor would be \$2.5 million as shown in the equation below:

$$500 \text{ acres} \times \left(\$2000 + \$3000 / \text{acre} \right) = \$2.5 \text{ million}$$

Soon after, a developer at a nearby location has a project to finish that will alter 25 acres of wetlands (ideally wetlands that are extremely similar to the wetlands established in the bank). The developer will then apply for a section 404 permit and, with permission from the Corps, purchase mitigation “credits” to offset the wetlands losses expected for the project. The bank sponsor may set a price of \$10,000 per credit, with each acre representing a credit. The Corps has the right to determine how many credits must be purchased to offset damages to the site.

²³ Brumbaugh, Dr. Robert W. *Wetland mitigation banking: Entering a new era?*. U.S. Army Corps of Engineers Institute for Water Resources. October 1995. Retrieved June 24, 2004 from <http://www.wes.army.mil/el/wrtc/wrp/bulletins/v5n3/brum.html>.

For now, it can be assumed that 25 acres of wetland destruction requires 25 acres of wetland credit. Thereby the bank sponsor is repaid for the restoration and maintenance of the wetland in the bank, and the developer can continue his project without having to perform any mitigation processes. After selling all of the credits established in the bank, the bank sponsor may choose to maintain the bank in perpetuity, or sell the property to a land trust, government organization, or conservation group who assumes long-term responsibility for the land.²⁴ The benefits of this process are twofold. First, the wetlands are created, restored, and maintained prior to wetland destruction. Next, the wetland creation and restoration process is performed by a bank sponsor who specializes in wetland science, a skill that most developers lack.

Policy Background

In 1988 President George Bush Sr. introduced a national goal to achieve “no net loss” of America’s wetlands. It was then that the idea for wetland mitigation banking was born. Mitigation banking was a concept designed to achieve “no net loss” of wetlands while allowing landowners to develop any and all of their property, including the wetlands. President Clinton officially endorsed the concept in 1993 with his Administration’s Wetland Plan.

In November, 1995 the *Federal Guidance for the Establishment, Use and Operation of Mitigation Banks (Federal Guidance)* was entered into the *Federal Register* with input from the following five federal agencies: Environmental Protection Agency (EPA), Army Corps of Engineers, Natural Resources Conservation Service (NRCS), Fish and Wildlife Service (FWS), and National Marine Fisheries Service (NMFS).²⁵ The EPA and Army Corps of Engineers are

²⁴ Zinn, Jeffrey. *Wetlands Mitigation Banking: Status and Prospects*. CRS Report for Congress. 12 Sep. 1997. Retrieved June 24, 2004 from http://www.ncseonline.org/NLE/CRSreports/Wetlands/wet_8.cfm?&CFID=15060349&CFTOKEN=74003313.

²⁵ Ibid.

the two regulatory agencies under Section 404 of the CWA. The EPA is the main authority, with the right to veto any permit granted by the Corps if a permit is deemed errant. As written in the *Federal Register*, wetlands mitigation banking entails, "...the restoration, creation, enhancement and, in exceptional circumstances, preservation of wetlands and/or aquatic resources expressly for the purpose of providing compensatory mitigation in advance of authorized impacts to similar resources." It is important to recognize that the compensatory mitigation is required *in advance* of any damage incurred by the land to be developed. Furthermore, mitigation banks are to be used only when damage to the existing environment is completely unavoidable, according to the Army Corps of Engineers. "Congressional interest is growing because mitigation banking appears to be a promising approach for offsetting wetland degradation and implementing an overall policy goal of 'no net loss'."²⁶

Regulation of Mitigation Banking

Mitigation banks are owned and operated by bank sponsors. A bank sponsor must obtain authorization from the Corps and other agencies before credits can be sold. To do this, a Mitigation Bank Review Team (MBRT) is set up. First, the bank sponsor prepares a proposal. Next, "an interagency group, the Mitigation Banking Review Team, which may consist of representatives from federal, state, tribal and local agencies, reviews the proposal. For mitigation banks in the section 404 program the Corps representative serves as MBRT

²⁶ Zinn, Jeffrey. *Wetlands Mitigation Banking: Status and Prospects*. CRS Report for Congress. 12 Sep. 1997. Retrieved June 24, 2004 from http://www.ncseonline.org/NLE/CRSreports/Wetlands/wet_8.cfm?&CFID=15060349&CFTOKEN=74003313.

chair.”²⁷ A bank is approved based on regulations found in the *Federal Guidance*.

The *Federal Guidance* contains a broad range of policies and procedures for bank sponsors, federal agencies, and developers regarding mitigation banking. The policy issues of greatest concern and controversy are the following: 1) bank size; 2) geographic service area; 3) methods for determining credits and debits; 4) compensation ratios; and 5) timing of credit withdrawal. There are many more regulated banking instruments outlined by federal policy, but for the sake of concision, only the five mentioned above will be discussed in this report. The reader is encouraged to reference the *Federal Guidance* for greater detail.

Bank Size

Bank size is important and controversial because it is often the goal of the bank sponsor to create a bank by connecting several isolated wetlands in a specific area. “Federal policy has created a bias toward mitigating small impacts with large wetlands.”²⁸ There are advantages and disadvantages to this process. From an economic point of view, it is beneficial for the bank sponsor to have a large, interconnected wetland region. Because isolated wetlands in the area often have at least minimal levels of functionality and can be used as reference for hydrologic and biologic characteristics, it is less difficult to connect several wetlands than it is to create wetlands anew. Additionally, due to the SWANCC vs. Army Corps of Engineers case, which altered the jurisdiction of the CWA recently, connecting isolated wetlands helps to protect them. The SWANCC case (discussed previously) endangered small, isolated wetlands. By connecting

²⁷. Committee on Mitigating Wetland Losses, National Research Council, et al. *Compensating for Wetlands Losses Under the Clean Water Act*. National Academy Press. Washington, D.C. 2001. p. 68.

²⁸ Environmental Law Institute, The. *Banks and Fees: The Status of Offsite Wetland Mitigation in the United States*. September 2002. p. 28.

several of these isolated pockets of water, a larger, more viable wetland is created. This larger wetland is more easily recognizable under the Clean Water Act and therefore has helped preserve the smaller wetlands that may have been lost.²⁹

There are, however, drawbacks to consolidation of small, isolated wetlands to create mitigation banks. Small, isolated wetlands have their place in maintaining a unique and delicate balance in an ecosystem. The assumption that species found in small wetlands are also found in large wetlands is incorrect. There are unique isolated wetland systems that are dry for crucial points of the reproductive cycle for many organisms. These “short-hydroperiod wetlands appear to be important for maintaining populations of wetland-associated species found only in these systems.”³⁰ It is important to consider these negative biological impacts when making policy decisions.

Geographic Service Area

The *Federal Guidance* defines the geographic service area of a bank as “the designated area (e.g. watershed, county) wherein a bank can reasonably be expected to provide appropriate compensation for impacts to wetlands and/or other aquatic resources.”³¹ In other words, the geographic service area defines the marketplace in which the bank may sell its credits. Service areas are delineated by watershed or by county. A watershed is any area that drains into a common stream, river, lake or other body of water. Watersheds are either delineated by state watershed boundaries or by the United States Geological

²⁹ Hough, Palmer (speaker). Interview by Ryan Fleming. July 8, 2004. Environmental Protection Agency.

³⁰ Snodgrass, Joel. “Relationships among Isolated Wetland Size, Hydroperiod, and Amphibian Species Richness: Implications for Wetland Regulations.” *Conservation Biology* Vol. 14 No. 2 Apr. 2000. p. 419.

³¹ *Federal Guidance for the Establishment, Use and Operation of Mitigation Banks*. *Federal Register*, Vol. 60 No. 228. 58605-58614. November 28, 1995.

Survey (USGS) Hydrologic Unit Map.³² When on-site mitigation is not possible and banking is the preferred method of compensation, it is desirable to purchase credits from a bank near the area of development. The location of compensatory mitigation is important because “although wetland functions may be similar in the lost wetland and the mitigation site (both have the *ability* to filter sediments and provide habitat to wildlife and flood control benefits), because the mitigation wetland is no longer located where people live, the value of the replacement wetland may be diminished.”³³

Economically, bank sponsors prefer to purchase wetlands in rural areas because land costs are lower than in or near urban areas. Additionally, it is easier to improve and preserve wetlands in rural regions because the sediment and pollution loads are lower than in areas of higher population. Because banks simply have to be in the same county or watershed, sponsors may choose an area that provides a wide-ranging marketplace, but serves very little purpose in improving the areas of highest development.

Methods for Determining Credits and Debits

The most common method for quantifying wetland credit is in terms of acreage. “Using acreage to evaluate credit generation generally is time efficient, cost effective, and does not require the use of professional expertise.”³⁴ To simply balance debits and credits of the bank in terms of acres completely discounts the ecological importance and functionality of each wetland. Thus, other assessment methodologies emerged.

³² Environmental Law Institute, The. *Banks and Fees: The Status of Offsite Wetland Mitigation in the United States*. September 2002. p. 46.

³³ *Ibid.* p. 27.

³⁴ *Ibid.* p. 24.

Functional equivalency integrates wetland science with the determination of credit. The functional assessment method quantifies various wetland functions and assigns them value. Several methods for functional assessment have been developed including the Wetland Evaluation Technique (WET), Habitat Evaluation Procedures (HEP), and Hydrogeomorphic Approach (HGM). The most widely accepted method of functional assessment is the HGM approach. To assess the functionality of wetlands properly, reference wetlands are necessary. The reference wetlands are classified according to “similarities in their landscape settings, water sources, and hydrodynamics.”³⁵ A scale is then interpolated from the highest to lowest functionality within each class. For example, the highest value is assigned to a wetland that achieves the functionality of the least degraded reference wetland within its class.

A combination approach is also used. Generally the combination approach utilizes the acre-by-acre method for assigning wetland credit in conjunction with the functional assessment approach. In essence, it multiplies each acre of wetland credit or debit by the functional value assigned by the assessment. By using this method, higher quality wetlands may be assigned greater than 1 credit per acre and vice versa.³⁶

One of the major difficulties in using a functional assessment approach to assign wetland credits and debits is the difference in size between the bank and the development site. It is often the case that the wetland bank is much larger than the project site, creating an “apples to oranges” comparison. The two wetlands may be classified as the same type, but the larger wetland generally has a higher level of functionality due to size and restoration activities being performed by the sponsor. Therefore, smaller, degraded wetlands at the site of

³⁵ Brinson, Mark M. and Rheinhardt, Richard. “The Role of Reference Wetlands in Functional Assessment and Mitigation.” *Ecological Applications* Vol. 6 No. 1 Feb. 1996. pp. 69-76.

³⁶ Environmental Law Institute, The. *Banks and Fees: The Status of Offsite Wetland Mitigation in the United States*. September 2002. p. 32.

development are given a lower value and more acres are permitted for destruction. This detracts from the nation's goal of "no net loss."³⁷

Compensation Ratios

One of the ways to balance wetland value when assigning credits and debits without the use of technical scientific evaluation is the use of compensation ratios. Compensation ratios are the "proportional requirements for replacing wetlands that are permitted for fill."³⁸ That is, a compensation ratio can be assigned during the permitting process, requiring a permittee to purchase a greater number of credits than those impacted. The Corps is responsible for setting this ratio at the time the permit is granted. For example, if a wetland to be developed is evaluated by the Army Corps of Engineers and found to be of extreme ecological importance to the region, the Corps may assign a compensation ratio of 10:1 for a particular project. In this case, 10 acres of banked credits would be necessary for the destruction of a single acre of developed land. Common ratios for most projects are between 1:1 and 5:1, but ratios of 10:1 have been assigned in extreme cases. The use of compensation ratios contributes to the overall goal of "no net loss" of wetland acres but may not realistically improve U.S. environmental goals because the function and location of wetlands is not considered.

³⁷ Brumbaugh, Dr. Robert W. *Wetland mitigation banking: Entering a new era?*. U.S. Army Corps of Engineers Institute for Water Resources. October 1995. Retrieved June 24, 2004 from <http://www.wes.army.mil/el/wrtc/wrp/bulletins/v5n3/brum.html>.

³⁸ Committee on Mitigating Wetland Losses, National Research Council, et al. *Compensating for Wetlands Losses Under the Clean Water Act*. National Academy Press. Washington, DC. 2001. p. 108.

Timing of Credit Withdrawal

“As many as 92% of the nation’s banks allow credits to be withdrawn from the mitigation bank in advance of maturity. On average, banks allow for the advance debiting of 66 percent of credits prior to attaining final performance criteria and 42 percent of credits prior to achieving any performance criteria.”³⁹ Performance criteria are a set of characteristics (measurable or observable) that are used to evaluate whether an ecologically viable wetland was created in accordance with the conditions set forth in the initial authorization of the bank. It is the duty of the Corps to evaluate whether or not a bank is “successful.” Wetland creation and restoration projects take a considerable amount of time and initial capital. Functional properties of wetlands take even longer to develop. Jeffrey Zinn, of the Congressional Research Service (CRS) asserts, “While the recent growth in the number of mitigation banks suggests expanded interest and support for this approach, several years may elapse before success (or failure) at individual sites can be determined.”⁴⁰ Therefore, bank sponsors assert that it is absolutely necessary to be able to sell credits prior to overall project success. The practice of “advance debiting” is common across America, with only 8 percent of mitigation banks requiring final performance standards to be met before credits can be sold.⁴¹ The *Federal Guidance* allows advance debiting and does not limit the percentage of credits that may be sold prior to performance standards being met.

The EPA and Army Corps have addressed the concept of advanced debiting and conclude that, within reason, the process does not hinder the overall success of the bank or the role of banks in compensatory mitigation. If a bank

³⁹ Environmental Law Institute, The. *Banks and Fees: The Status of Offsite Wetland Mitigation in the United States*. September 2002. p. 119.

⁴⁰ Zinn, Jeffrey. *Wetlands Mitigation Banking: Status and Prospects*. CRS Report for Congress. 12 Sep. 1997. Retrieved June 24, 2004 from http://www.ncseonline.org/NLE/CRSreports/Wetlands/wet_8.cfm?&CFID=15060349&CFTOKEN=74003313.

⁴¹ Environmental Law Institute, The. *Banks and Fees: The Status of Offsite Wetland Mitigation in the United States*. September 2002. p. 64.

sponsor has begun earth moving, species introduction, hydrologic improvement or other beneficial processes, then the environment has benefited.⁴² Robert Brumbaugh from the Corps Institute for Water Resources writes, “When examined individually, many of the early banks had deficiencies in implementation or in designated long-term management programs. Nevertheless, the majority of the banks were functioning, or were expected to function, as planned. Not surprising, the most common reason for failure was improper design or engineering of hydrology.”⁴³ The EPA is sympathetic with sponsors, realizing that if the bank is allowed to sell a small percentage of credits early, there will be an incentive to continue improvements and achieve overall success. The process is not without risk, which is why legal measures are taken to ensure the long-term commitment of the bank sponsor to reach completion. In addition, financial assurances are required as a banking instrument at the outset of the bank setup, just in case the bank fails to reach maturity.⁴⁴

Relevant Legislation and Professional Opinion

There have been many attempts to modify wetlands policy via legislation through the years. Representative Walter B. Jones of the third district in North Carolina has been very active in the process, introducing the American Wetland Restoration Act. According to Congressman Jones, “This bill recognizes the need to protect our wetland resources while balancing the rights of private property owners to have reasonable use of their land. This legislation builds upon current wetlands mitigation banking practices and current regulatory

⁴² Hough, Palmer (speaker). Interview by Ryan Fleming. July 8, 2004. Environmental Protection Agency.

⁴³ Brumbaugh, Dr. Robert W. *Wetland mitigation banking: Entering a new era?*. U.S. Army Corps of Engineers Institute for Water Resources. October 1995. Retrieved June 24, 2004 from <http://www.wes.army.mil/el/wrtc/wrp/bulletins/v5n3/brum.html>.

⁴⁴ Hough, Palmer (speaker). Interview by Ryan Fleming. July 8, 2004. Environmental Protection Agency.

guidelines.”⁴⁵ The bill was introduced in the 107th and 108th Congresses, but has not been passed. In June of 1998 the Transportation Equity Act for the 21st Century (PL 105-178) was enacted. This law “established a preference for mitigation banking to compensate for unavoidable losses to wetland or other natural habitat caused by transportation projects...”⁴⁶ The appearance of the law is not surprising, considering that most early bank sponsors were State Departments of Transportation (DOT’s). Primarily the document clarifies the existing regulations set up by the original *Federal Guidance* of 1995, with specific application to Federal aid highway projects.

Status and Trends of Mitigation Banking

Interest in banking as a form of compensatory mitigation has sharply risen in the past 10 years. A study by the Environmental Law Institute (ELI) conducted in 1993 found 46 banks across the country in various stages of functionality. As of December 2001, 219 banks had been approved and had begun operation. This constitutes a 376% increase in less than 10 years!

Not surprisingly, the Southeast is home to the most mitigation banks because of the large number of wetlands in the region. Florida, Georgia and Illinois have the most banks with 34, 25, and 21 respectively. Figure 4 shows the distribution of banks across the country as of 2001.

⁴⁵ Meagher, Patricia. *Jones Introduces Bill to Protect and Restore Wetlands*. Congressman Walter B. Jones. 4 April 2001. Retrieved June 22, 2004 from <http://jones.house.gov/html/040401.html>.

⁴⁶ U.S. Department of Transportation. *Federal Guidance on the Use of the TEA-21 Preference for Mitigation Banking to Fulfill Mitigation Requirements Under Section 404 of the Clean Water Act*. 11 July 2003. Retrieved June 22, 2004 from <http://www.fhwa.dot.gov/environment/wetland/tea21bnk.htm>.

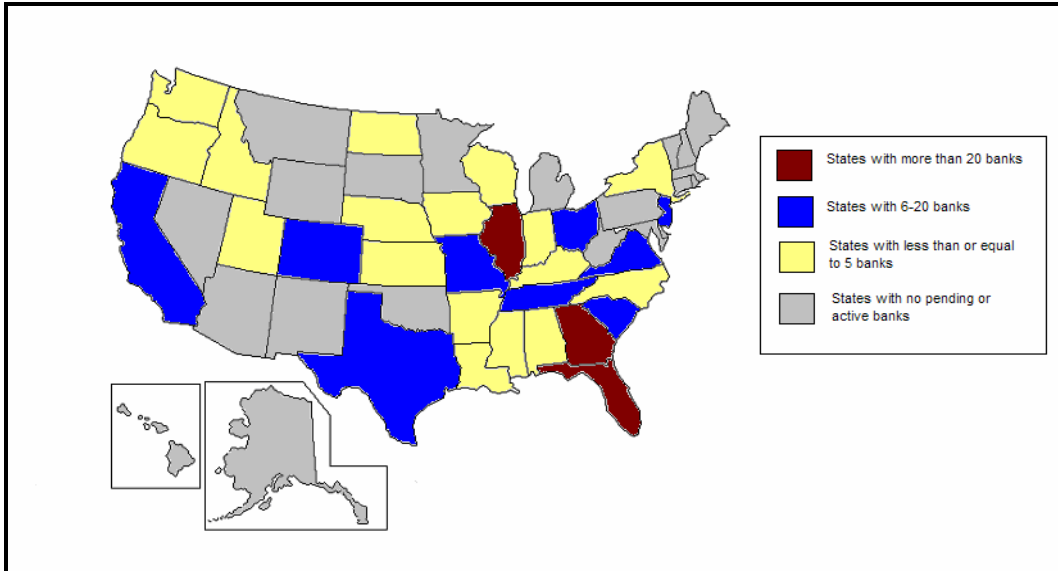


Figure 4—Source: Environmental Law Institute Study 2001

An interesting trend is found when comparing the size of mitigation banks over the previous decade. In 1992 most banks were fewer than 100 acres. Earlier in this report the tendency of bank sponsors to consolidate small, isolated wetlands into large banks was discussed. Figure 5 shows a trend supporting that claim.

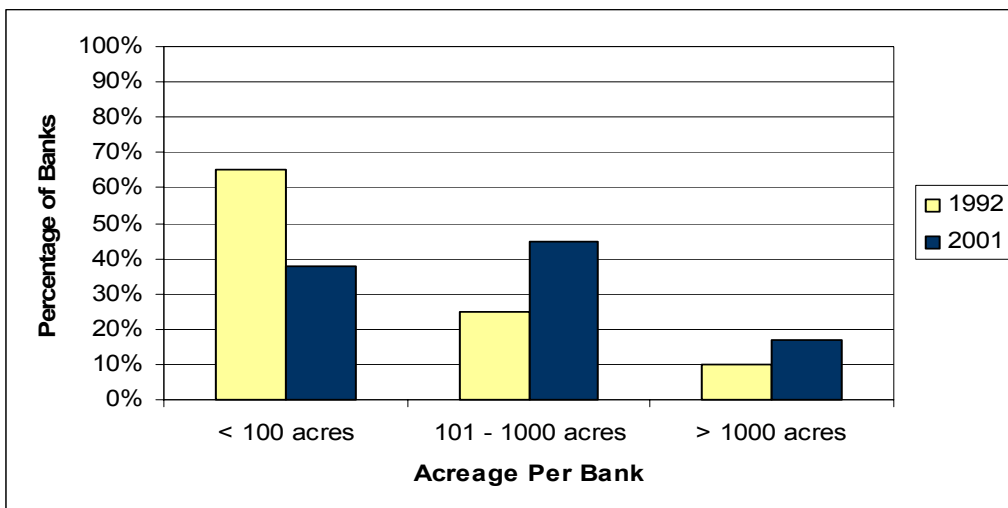


Figure 5—Source: Environmental Law Institute Study 2001

The geographic service area of banks shows an interesting tendency as well. Even though the *Federal Guidance* explicitly *suggests* that the service areas for banks should be based on the “Hydrologic Unit map of the United States,” only 11% of banks currently follow this principle.⁴⁷ Fortunately most banks are required to utilize state watershed boundaries to delineate service areas. The following graph (Figure 6) shows the distribution of service areas for banks in the U.S. as of 2001.

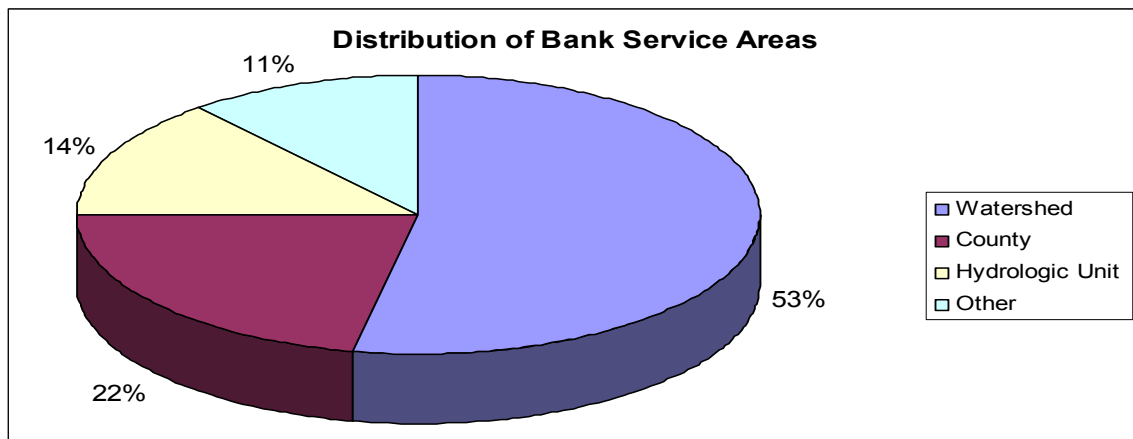


Figure 6—Source: Environmental Law Institute Study 2001

Clearly the watershed approach is the most widely used method for outlining bank service areas. The service area is set forth in the banking instrument by the Corps Mitigation Banking Review Team (MBRT) upon initial setup of the bank. States and local entities may also be involved in the process of bank service areas, which is why watershed and county delineations are widely used rather than the U.S. Hydrologic Unit Map.

The geographic service areas vary widely from state to state. In Chicago districts, banks define the service area solely based on watersheds, keeping them small and allowing for impacts only very near the mitigation bank. Wisconsin, by contrast, has a bank (Wisconsin Waterfowl Association Banking Instrument) that allows the whole state to be used as a service area. Similarly

⁴⁷ Environmental Law Institute, The. *Banks and Fees: The Status of Offsite Wetland Mitigation in the United States*. September 2002. p. 47.

the Mile High Wetland Bank in Colorado has a service area that spans 8 counties and 10,000 square miles. The large service areas are highly desirable for the bank sponsor, creating a larger market to sell their credits, but can have negative ecological consequences, which were discussed in previous sections of this report.

Support for Mitigation Banking

As the primary regulatory agencies responsible for mitigation banking, it stands to reason that both the EPA and the Army Corps support the concept of mitigation banking. The EPA lists the following benefits to mitigation banking:

- Banking can provide more cost effective mitigation and reduce uncertainty and delays for qualified projects especially when the project is associated with a comprehensive planning effort.
- Successful mitigation can be ensured since the wetlands [in the bank] can be functional in advance of project impacts.
- Banking eliminates the temporal losses of wetland values that typically occur when mitigation is initiated during or after the development impacts occur.
- Consolidation of numerous small, isolated or fragmented mitigation projects into a single large parcel may have greater ecological benefit.
- A mitigation bank can bring scientific and planning expertise and financial resources together, thereby increasing the likelihood of success in a way not practical of individual mitigation efforts.

Robert G. Szabo of Van Ness Feldman, a prominent environmental law firm, says, “In addition to benefiting the environment, use of mitigation banks will save Federal highway dollars that can be made available for other things such as highway construction.”⁴⁸ Ohio’s DOT found that purchasing credits from its Big Island Mitigation Bank lowered costs of mitigation from \$66,000 an acre to a

⁴⁸ Szabo, Robert G. and Bleichfeld, Howard. “ISTEA Amendment May Spur Wetlands Mitigation Banking.” *Transportation Builders Regulatory Issues*. March 1998.

scant \$12,000 per acre. Similarly, the Illinois DOT generally pays \$80,000 to \$100,000 per acre in the general Chicago area to perform on-site mitigation, but is able to purchase bank credits sponsored by Land and Water Resources, Inc. for half of that price.

Various professional societies and environmental groups have also provided an opinion regarding mitigation banking. The National Society of Professional Engineers (NSPE) endorses mitigation banking and states that, “banking of enhanced, restored, and created wetlands for offsetting losses is a potentially effective means of replacement of wetlands values before they are destroyed...”⁴⁹ A similar organization, the American Society of Civil Engineers (ASCE) also endorses mitigation banking and advocates change at the federal level to improve existing policy. The National Association of Home Builders (NAHB) advocates wetland mitigation banking. Even the National Association of Realtors (NAR) has issued a statement saying it “supports wetlands mitigation banking as an efficient and viable mitigation alternative when wetlands are lost or harmed during development.”⁵⁰ The NAR interestingly also states, “Realtors are becoming more involved in finding appropriate property in which to develop these banks, and developing banks on their own.”⁵¹ Even more conservative environmental groups, such as the Society of Wetland Scientists (SWS), support the concept of mitigation banking as a compensatory method.

Policy Recommendations

With such positive feedback from a wide-ranging audience, it would seem difficult to find dissent with regards to mitigation banking. However, the program is not without its flaws. The overlapping of jurisdiction between federal, state and

⁴⁹ National Society of Professional Engineers. *Wetlands Protection*. 20 July 1996. Retrieved June 3, 2004 from <http://www.nspe.org/govrel/gr2-ps1722.asp>.

⁵⁰ Riggs, Russel. *Department of Defense Authorization Bill Encourages Wetlands Mitigation Banking*. National Association of Realtors. 26 Jan. 2004. Retrieved June 18, 2004 from <http://www.realtor.org/fedistrk.nsf/0/e5b1c36d8590298385256e24006ac37e?OpenDocument>.

⁵¹ Ibid.

local agencies hinders the program's success. In addition, the *Federal Guidance* is a vague, suggestive document that lacks efficacy. It is difficult to determine whether wetlands mitigation banking under current regulation is "a useful wetlands management tool or, rather, an option that inevitably contributes to further incremental loss of habitats regionally and nationally in response to persistent demands for development permits."⁵²

First, the overlapping jurisdiction of wetlands from federal, state, local and private perspectives poses major problems for the oversight of mitigation banks and their use. In order for banking to become a successful form of compensatory mitigation, better collaboration between agencies must be established. This report briefly discussed the difficulty (especially following the SWANCC case) of determining whether or not an area can be legally defined as a wetland. The interpretation of the law regarding the definition of a wetland is only the first obstacle. When granting permits and establishing banking instruments, the Corps must work with state and local regulatory agencies and remain in accordance with state water quality laws. Initially, the idea of handing regulatory responsibility to the states seemed to be the simplest solution to this problem. Under Section 404 of the Clean Water Act, each state is permitted to establish its own Section 404 permitting program after approval from the EPA and Army Corps. However, only two states have implemented the program: Michigan and New Jersey. There are several reasons why states choose not to direct their own Section 404 permit programs. Many states feel that the federal program is sufficient and choose simply not to bother. States also are able to use federal oversight as a scapegoat in situations when state and local agencies may have personal or political influences. It is much easier for a well-known developer within a state to "twist the arm" of state and local authorities than it would be to impart his or her influence on the federal government.⁵³ Thus, the author contends that turning over regulatory authority to the states is not the solution.

⁵² Race, Margaret S. and Fonseca, Mark S. "Fixing Compensatory Mitigation: What Will it Take?". *Ecological Applications*, Vol. 6 No. 1. Feb. 1996.

⁵³ Hough, Palmer (speaker). Interview by Ryan Fleming. July 8, 2004. Environmental Protection Agency.

If relinquishing regulatory roles to the states is not the answer, then perhaps the federal government should be given a more prominent role in the process. As it stands, the *Federal Guidance* created in 1995 is the only document used in the authorization and monitoring of mitigation banks. In current form, the document acts more as a *suggestive* device than a mandatory statute. The reason for the flexibility of the document is due to the difference in wetlands nationwide. A wetland mitigation bank in Colorado will be far different than one found in Florida, for example. One would like to have a more explicit and stringent policy regarding mitigation banks, but there is no fix-all approach that can be applied to the wide variety of banks across the country.

Luckily, banking instruments were set up to create an overall outline for the necessary components of successful banking sites with some banking instruments being used to balance the shortcomings of others. An example of this is the use of compensation ratios to discourage degradation of wetlands with greater functionality and value. The banking instruments of particular interest have been discussed, and the best way to evaluate policy change may be to explore possible alterations to each instrument.

Bank size should be determined based on scientific evidence with consideration given to the unique biodiversity found within small, isolated wetlands. Currently, both the Corps and bank sponsors embrace the concept of “bigger is better” when creating a bank. This “bigger is better” mentality must be changed and preservation and restoration of smaller wetlands should be encouraged.

Geographic service areas should all be based upon a watershed approach. Every literary opinion considered during the course of this report has heralded the watershed method of service area delineation. Because wetland characteristics generally help to shape and improve watershed structure, it would follow that mitigation efforts should occur in the same watershed as the impact area.

However, many watersheds are large, and mitigation banks may be in the same watershed as a project site, yet still lay hundreds of miles away! To address this concern, a tiered geographic service area is recommended. The Corps could evaluate a permit and develop a specific service area, with compensation ratios increasing as proximity to the site increases. Figure 7 shows an example of this.

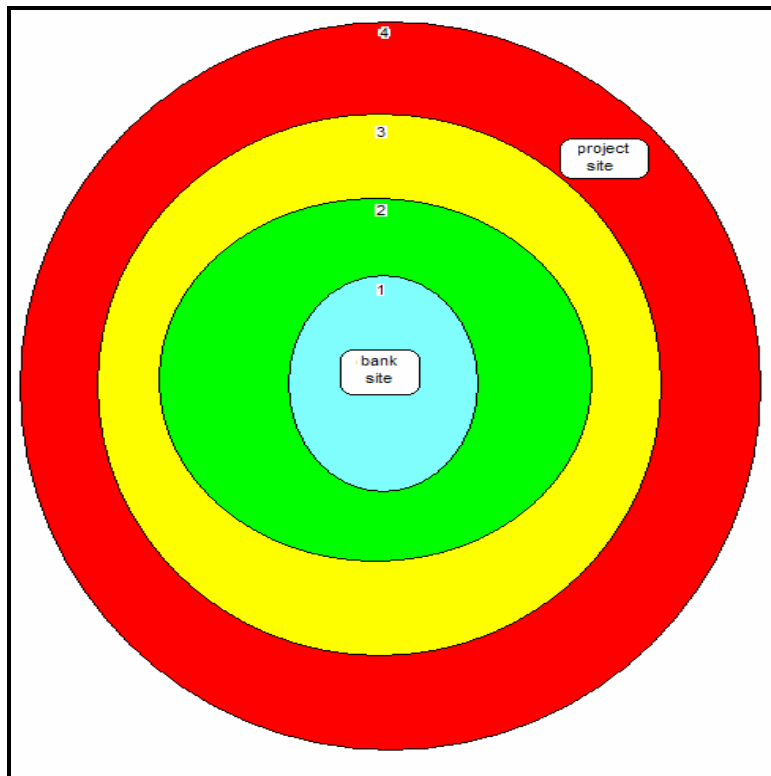


Figure 7

From figure 7 it is shown that ideally credits should be purchased from the bank for projects in close proximity (region 1, light blue). As the impact area gets farther away from the bank, compensation ratios necessary for mitigation should be increased accordingly. For example, in the figure shown, the developer may be assigned a compensation ratio of 10:1 because of the large distance from the bank site. According to the National Research Council, “Losses of habitat that occur at a particular site are seldom balanced by mitigation at another site,

because such mitigation rarely replaces all relevant ecological interconnections. If a key watershed feature is significantly altered or destroyed, there may be no suitable means of mitigating that impact elsewhere.”⁵⁴ Using a tiered method encourages developers to perform mitigation on-site or find off-site alternatives very near the project area. Furthermore, it would encourage bank sponsors to create banks closer to the areas of greatest development, rather than taking advantage of the ease and economic benefit rural areas offer.

Determination of credits and debits based solely on acreage is an antiquated approach that completely discounts the scientific and ecological importance of wetlands. Mitigation banking seems to be an effective tool in achieving “no net loss,” and in some cases a net gain (when high compensation ratios are required) of *acreage*, but may not achieve an overall gain in wetland *function*. It is recommended that all banks be required to utilize both wetland acres *and* functions when defining bank crediting and debiting quantities. Therefore, the Corps must either develop a nationwide scientific process to assess functional value, or adopt one of the methods described earlier in this report. In 1996 the Corps attempted to develop the Hydrogeomorphic (HGM) approach for wetland assessment, but didn’t earn widespread acceptance by district Corps offices and other regulatory agencies because of its complexity and technical difficulty. With only 13% of all banks using functional assessment approaches for defining credits, a simpler method must be adopted and implemented.⁵⁵

The use of compensation ratios is a helpful method to recompense the lack of functional assessment in credit determination. Currently the use of compensation ratios appears to be effective in realizing “no net loss” and also discourages the destruction of wetlands that are of utmost importance. It is likely

⁵⁴ Committee on Watershed Management, National Research Council, et al. *New Strategies for America’s Watersheds*. National Academy Press. Washington, DC. 1999. p. 151.

⁵⁵ Environmental Law Institute, The. *Banks and Fees: The Status of Offsite Wetland Mitigation in the United States*. September 2002. p. 57.

that compensation ratios will continue to play a role in banking practices as a way of improving and supplementing other banking instruments.

Timing of credit withdrawal is a delicate subject because of the time lapse necessary for wetlands to display functional characteristics. Mitigation banking is exalted as a method of third-party mitigation *in advance* of wetland impacts, but the *Federal Guidance* sets no limit on the percentage of credits that can be sold prior to the bank's success. A federal regulatory process should be developed for credit release planning. It is recommended that upon the authorization of the bank, the Corps outline a credit release schedule with milestones explicitly defined. For example, many states mandate that no more than 30% of a bank's credits may be sold before reaching some level of functionality. A phased schedule for the timing of credit release could be setup by the bank sponsor and the Corps at the time of authorization, allowing for input from both parties.

Conclusion

Wetlands policy in America is an evolving, dynamic process that aspires to restore and preserve our nation's precious water resources. At this very moment wetland acres somewhere in the U.S. are being destroyed to build a new strip mall or parking lot. Conversely, a mitigation bank sponsor somewhere in the country is improving the water quality of a wetland and providing a refuge for local wildlife. The mitigation banking process is an innovative tool in the struggle to maintain our aquatic resources.

While mitigation banking is a useful tool being used to curb the losses to wetlands each year, there are ways to improve upon existing policy regulating the process. The overall strategy used to authorize and implement mitigation banking is promising. Banking instruments have been set up in a manner that provides intra-policy redundancy. That is, if one banking instrument should fail, there are others put in place to limit the negative effects of the malfunction so

that the overall mitigation process remains a success. Although this redundancy appears to be effective, improvements to existing policy would better serve the purpose of the program.

Policy recommendations outlined in this report were concluded after evaluating information from a variety of involved parties. The banking instruments themselves were found to be more suggestive than mandatory. Thus, it was the aim of the author to develop banking instruments that could be applied nationwide more effectively, with the intention of becoming mandatory federal statutes. The redundancy of the current policy is appreciated and should remain in tact. However, the recommendations provided were intended to strengthen each banking instrument and contribute to creating third-party mitigation that not only contributes to the goal of “no net loss,” but is considerate of wetland function as well.

Wetlands policy will continue to be debated for years to come. Developers will continue to obtain permits and be responsible for mitigation to any impacts they may inflict. Mitigation banking is now an option that is quickly gaining popularity. It is crucial for the policymakers in the U.S. to monitor the process and make changes necessary to honor the goal of preserving our nation’s cherished wetlands.