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Wetlands: An Overview of Issues

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Summary

Recent Congresses have considered numerous policy topics that involve wetlands. Many reflect issues of long-standing interest, such as applying federal regulations on private lands, wetland loss rates, and restoration and creation accomplishments.

The issue receiving the greatest attention recently has been determining which wetlands should be included and excluded from permit requirements under the Clean Water Act's (CWA) program that regulates waste discharges affecting wetlands, which is administered by the Army Corps of Engineers and the Environmental Protection Agency (EPA). As a result of Supreme Court rulings in 2001 (in the *SWANCC* case) that narrowed federal regulatory jurisdiction over certain isolated wetlands, and in 2006 (in the *Rapanos-Carabell* decision), the jurisdictional reach of the permit program has been narrowed. In response, legislation intended to reverse the Court's rulings in these cases has been introduced regularly since the 107th Congress. In the 111th Congress, for the first time, one such bill was approved by a congressional committee (S. 787, the Clean Water Restoration Act); no further legislative action occurred. The Obama Administration did not endorse any specific legislation, but identified general principles for legislation that would clarify waters protected by the CWA. In 2011 the Administration proposed new interpretive guidance intended to clarify jurisdictional uncertainties resulting from the Court's rulings and to apply protection to additional waters and wetlands, a conclusion that pleased some observers and alarmed others. In September 2013, EPA and the Corps withdrew the 2011 proposed guidance, which had not been finalized, in favor of draft revised regulations, which are being reviewed by the Office of Management and Budget.

Wetland protection efforts continue to engender controversy over issues of science and policy. Controversial topics include the rate and pattern of loss, whether all wetlands should be protected in a single fashion, the effectiveness of the current suite of laws in protecting them, and the fact that 75% of remaining U.S. wetlands are located on private lands.

Many public and private efforts have sought to mitigate damage to wetlands and to protect them through acquisition, restoration, enhancement, and creation, particularly coastal wetlands. While recent data indicate success in some restoration efforts, leading to increases in some types of wetlands, many scientists question if restored or created wetlands provide equivalent replacement for natural wetlands that contribute multiple environmental services and values.

One reason for controversies about wetlands is that they occur in a wide variety of physical forms, and the numerous values they provide, such as wildlife habitat, also vary widely. In addition, the total wetland acreage in the lower 48 states is estimated to have declined from more than 220 million acres three centuries ago to 110.1 million acres in 2009. The national policy goal of no net loss, endorsed by administrations for the past two decades, had been reached by 2004, according to the Fish and Wildlife Service, as the rate of loss had been more than offset by net gains through expanded restoration efforts authorized in multiple laws. However, more recent data show wetlands losses of nearly 14,000 acres per year. Many protection advocates say that gains do not necessarily account for the changes in quality of the remaining wetlands, and many also view federal protection efforts as inadequate or uncoordinated. Others, who advocate the rights of property owners and development interests, characterize these efforts as too intrusive. Numerous state and local wetland programs add to the complexity of the protection effort.

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Introduction

Wetlands, with a variety of physical characteristics, are found throughout the country. They are known in different regions as swamps, marshes, fens, potholes, playa lakes, or bogs. Although these places can differ greatly, they all have distinctive plant and animal assemblages because of the wetness of the soil. Some wetland areas may be continuously inundated by water, while other areas may not be flooded at all. In coastal areas, flooding may occur daily as tides rise and fall.

Prior to the mid-1980s, federal laws and policies to protect wetlands were generally limited to providing habitat for migratory waterfowl, especially ducks and geese. Some laws encouraged destruction of wetland areas, including selected provisions in the federal tax code, public works legislation, and farm programs.

Since the mid-1980s, the values of wetlands have been recognized in different ways in numerous national policies, and federal laws either encourage wetland protection, or prohibit or do not support their destruction. These laws, however, do not add up to a fully consistent or comprehensive national approach. The central federal regulatory program, found in Section 404 of the Clean Water Act, requires permits for the discharge of dredged or fill materials into many but not all wetland areas. However, other activities that may adversely affect wetlands do not require permits, and some places that scientists define as wetlands are exempt from this permit program because of physical characteristics or the type of activity that takes place. One agricultural program, swampbuster, is a disincentive program that indirectly protects wetlands by making farmers who drain wetlands ineligible for federal farm program benefits; those who do not receive these benefits (62% of all farmers received no direct payments from the farm subsidy program in 2007) have no reason to observe the requirements of this program. Numerous other acquisition, protection, and restoration programs complete the current federal effort.

Although numerous wetland protection bills have been introduced in recent Congresses, the most significant new wetlands legislation to be enacted has been in farm bills, in 1996, 2002, and 2008. During this period, Congress also reauthorized several wetlands programs, mostly setting higher appropriations ceilings, without making significant shifts in policy. The George W. Bush Administration endorsed wetland protection in legislation, such as the farm bill and the North American Wetlands Conservation Act reauthorization, and at events, such as Earth Day presentations. The Bush Administration also issued rules on mitigation policies. The Obama Administration has proposed controversial guidance on regulatory program jurisdiction (see discussion below).

Congress has provided a forum in numerous hearings where conflicting interests in wetland issues have been debated. These debates encompass disparate scientific and programmatic questions, and conflicting views of the role of government where private property is involved. Broadly speaking, the conflicts are between:

- Environmental interests and wetland protection advocates who have been pressing for greater wetlands protection as multiple values have been more widely recognized, by improving coordination and consistency among agencies and levels of governments, and strengthened programs; and
- Others, including landowners, farmers, and small businessmen, who counter that protection efforts have gone too far, by aggressively regulating privately owned wet areas that provide few wetland values. They have been especially critical of

the U.S. Army Corps of Engineers (Corps) and the U.S. Environmental Protection Agency (EPA), asserting that they administer the Section 404 program in an overzealous and inflexible manner.

Wetland legislative activity in the 110th Congress centered broadly on two issues. One was on wetlands conservation provisions in the 2008 farm bill, which was enacted in June 2008 (Food, Conservation, and Energy Act of 2008, P.L. 110-246). The new law reauthorized and increased the acreage enrollment cap in the wetlands reserve program, with a goal of enrolling 250,000 acres annually, and extended provisions to enroll up to a million acres of wetlands and buffers in the Conservation Reserve Program. Other agricultural conservation programs, while lacking explicit wetlands protection provisions, are still likely to be beneficial to wetlands.

The second major area of recent legislative interest was proposals to reverse Supreme Court rulings that addressed and narrowed the scope of geographic jurisdiction of wetlands regulations under the Clean Water Act. This interest arises because federal courts have played a key role in interpreting and clarifying the limits of federal jurisdiction to regulate activities that affect "waters of the United States," including wetlands, especially since a 2001 Supreme Court ruling in the so-called *SWANCC* decision and another in 2006 in *Rapanos v. United States*. In the 111th Congress, legislation intended to reverse the *SWANCC* and *Rapanos* rulings was approved by a Senate Committee (S. 787), but no further action occurred. Legislation that instead would narrow the definition of "waters of the United States" also has been introduced, such as S. 890/H.R. 3377 in the 113th Congress.

Wetlands: Science and Information

Scientific questions about wetlands, with answers that can be important to policy makers, include how to define wetlands; how to catalogue the rate and pattern of wetland declines and losses as well as restorations and increases; and how to assess the importance of wetland changes to broader ecosystems. Wetlands science has made considerable strides in developing a fuller and more sophisticated knowledge about many aspects of wetlands in the more than two decades since protecting wetlands became a general policy goal in federal law and program administration.[1]

Two topics where scientific information and wetland protection policies remain inconsistent continue to be: should all regulated wetlands be treated equally; and if all scientifically defined wetlands are not covered by the federal regulatory program, what subset should be covered, and how should such decisions be made? While discussion of either question has major science elements, both are primarily addressed in the section below about the Clean Water Act Section 404 program.

What Is a Wetland?

Scientists generally agree that the presence of a wetland can be determined by a combination of soils, plants, and hydrology. The only definition of wetlands in law, in the swampbuster

[1] Two places to view material on some of the changes in scientific knowledge and understanding are through the products of the Society of State Wetlands Managers http://www.aswm.org and the Society of Wetland Scientists http://www.sws.org.

provisions of farm legislation (P.L. 99-198) and in the Emergency Wetlands Resources Act of 1986 (P.L. 99-645), lists those three components. This definition does not include more specific criteria, such as exactly what conditions must be present and for how long, thus leaving interpretation to scientists and regulators on a case-by-case basis. Controversies are exacerbated when many sites that have those three components and are identified as wetlands by experts, either may have wetland characteristics only some portion of the time, or may not look like what many people visualize as wetlands. Also, many of these sites have been directly or indirectly modified by human activities that diminish their appearance (and their ability to perform wetland functions).

Wetlands currently subject to federal regulation are a large subset of all places that members of the scientific community would call a wetland. These regulated wetlands, under the Section 404 program discussed below, are currently identified using technical criteria in a wetland delineation manual issued by the Corps in 1987. This manual was prepared jointly and is used by all federal agencies to carry out their responsibilities under this program (the Corps, EPA, Fish and Wildlife Service (FWS), and the National Marine Fisheries Service (NMFS)). It provides guidance and field-level consistency for the agencies that have roles in wetland regulatory protection. (A second and slightly different manual, agreed to by the Corps and the Natural Resources Conservation Service (NRCS), is used for delineating wetlands on agricultural lands.) While the agencies try to improve the objectivity and consistency of wetland identification and delineation, judgment continues to play a role and can lead to site-specific controversies. Cases discussed below (see "Section 404 Judicial Proceedings: *SWANCC* and *Rapanos*") center on whether wetlands should be included or exempted from the regulatory program in certain circumstances, such as the physical setting.

What Functional Values Are Provided by Wetlands?

Functional values, both ecological and economic, at each wetland depend on its location, size, and relationship to adjacent land and water areas. Many of these values have been recognized only recently. Historically, many federal programs encouraged wetlands to be drained or altered because they were seen as having little value as wetlands (for example, flood protection programs of the Corps and Department of Agriculture have modified or eliminated many floodplain wetlands through alterations of the hydraulic/hydrologic regime). Wetland values can include

- habitat for aquatic birds and other animals and plants, including numerous threatened and endangered species; production of fish and shellfish;
- water storage, including mitigating the effects of floods and droughts;
- water purification;
- recreation;
- timber production;
- food production;
- education and research; and
- open space and aesthetic values.

Usually wetlands provide some combination of these values; single wetlands rarely provide all of these values. The composite value typically declines when wetlands are altered. In addition, the

effects of alteration often extend well beyond the immediate area, because wetlands are usually part of a larger water system. For example, conversion of wetlands to urban uses has increased flood damages; this value has received considerable attention as the costs of natural disaster costs mounted since the 1990s.

How Fast Are Wetlands Disappearing, and How Many Acres Are Left?

A number of reports document changes in wetland acres. The U.S. Fish and Wildlife Service (FWS) periodically surveys national net trends in wetland acreage using the National Wetlands Inventory (NWI). It has estimated that when European settlers first arrived, wetland acreage in the area that would become the 48 states was more than 220 million acres, or about 5% of the total land area. According to its most recent report of national trends, issued in 2011, total wetland acreage in 2009 was estimated to be 110.1 million acres.[2] Until recently, NWI data had shown small annual gains overall in wetland acreage. However, the 2009 total was a slight decline in acreage over the previous five years (62,300 acres), or about 13,800 acres lost per year, reflecting a combination of some losses and some gains in acres and types of wetlands across the country. FWS also has published reports on wetland status and trends in several individual regions and states, such as Florida, Texas, Delaware, South Carolina, and Alaska.[3]

Of particular interest to scientists and natural resource managers are coastal wetlands, which provide important ecosystems services, because they serve as buffers to protect coastal areas from storm damage and sea level rise, while providing habitat for fish, shellfish, and wildlife that are commercially and recreationally important. Coastal watersheds, where these wetlands are located, are affected by population growth more than non-coastal areas, since 52% of the total U.S. population lives in counties that drain to coastal watersheds, although these counties are less than 20% of U.S. land area, excluding Alaska. Coastal wetlands are vulnerable to direct and indirect effects of residential and commercial development, pollutant discharges, and other human activities. A 2013 report by the FWS and National Oceanic and Atmospheric Administration (NOAA) found that in 2009 there were an estimated 41.1 million acres of wetlands in the coastal watersheds of the United States, representing 37.3% of total wetland area in the lower 48 states. The report also found that U.S. coastal wetlands are vanishing at a rate of more than 80,000 acres per year, about six times greater than the estimated rate of wetland loss for the entire United States. The increased loss, measured between 2004 and 2009, was attributed to severe weather in the Gulf of Mexico and urban and rural development in other areas, and the reported loss was 25% greater than the annual loss rate found in a previous report covering the years 1998 to 2004. The largest loss, according to the report, was in the Gulf region, where 257,150 acres of coastal wetlands disappeared due to erosion and/or inundation. Throughout the Gulf region, saltwater wetlands have been adversely affected by the cumulative effect of oil and gas development that increased their vulnerability to intense storms.[4]

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[2] Thomas E. Dahl, *Status and Trends of Wetlands in the Conterminus United States, 2004-2009*, U.S. Department of the Interior, Fish and Wildlife Service, 2011, 108p.

[3] For information, see http://www.fws.gov/wetlands/Status-And-Trends/index.html.

[4] Thomas E. Dahl and Susan-Marie Stedman, *Status and Trends of Wetlands in the Coastal Watersheds of the Conterminous United States 2004-2009*, U.S. Department of the Interior, Fish and Wildlife Service, and National Ocean and Atmospheric Administration, National Marine Fisheries Service, October 2013, 46 p.

A study of national wetland condition by the EPA together with states, tribes, and other federal partners is underway and is expected to provide information on both quality and quantity of wetlands in the United States.[5]

In 2002, the George W. Bush Administration endorsed the concept of "no-net-loss" of wetlands—a goal declared by President George H. W. Bush in 1988 and also embraced by President Clinton to balance wetlands losses and gains in the short term and achieve net gains in the long term. On Earth Day 2004, President Bush announced a new national goal, moving beyond no-net-loss to achieve an overall increase of wetlands. The goal was to create, improve, and protect at least 3 million wetland acres over the next five years in order to increase overall wetland acres and quality. (By comparison, the Clinton Administration in 1998 announced policies intended to achieve overall wetland increases of 200,000 acres per year by 2005.) The Bush strategy also called for better tracking of wetland programs and enhanced local and private sector collaboration.

In April 2008, the Bush Administration issued a report saying that more than 3.6 million acres of wetlands had been restored, protected, or improved as part of the President's program to create, improve and protect wetlands, and that the number was expected to climb to 4.5 million acres by the original date set by that program—Earth Day 2009.[6] The report documents gains, but not offsetting loses. It summarizes accomplishments for each federal wetland conservation program. Environmental groups criticized the report as presenting an incomplete picture, because it fails to mention wetlands lost to agriculture and development.

Numerous shifts in federal policies since 1985 (and changes in economic conditions as well) strongly influence wetland loss patterns, but the composite effects remain unmeasured beyond these raw numbers. There usually is a large time lag between the announcement and implementation of changes in policy, and collection and release of data that measure how these changes affect loss rates. Also, it is often very difficult to distinguish the role that policy changes play from other factors, such as agricultural markets, development pressures, and land markets.

Further, these data only measure acres. This may have been appropriate two or three decades ago when scientists knew less about how to measure the specific functions and values found in wetlands. By providing data limited to number of acres, these data provide few insights into changes in their quality, as measured by the values they provide, which is often determined by factors such as where a wetland is located in a watershed, and what are the surrounding land uses. Scientists caution that there are a number of questions about the qualitative and ecological integrity of existing wetlands. The wetlands trends data reported by FWS in 2011 show increases in certain types of freshwater wetlands since 2004, particularly freshwater ponds constructed to replace lost wetlands. However, FWS noted that there is no clear scientific consensus about the functional equivalency of replacement wetlands.

Wetlands and Climate Change

As described above, coastal wetlands provide critical services such as absorbing energy from coastal storms, preserving shorelines, protecting human populations and infrastructure, absorbing

[5] See http://water.epa.gov/type/wetlands/assessment/survey/index.cfm.

[6] Office of the President, Council on Environmental Quality, *Conserving America's Wetlands 2008: Four Years of Progress Implementing the President's Goal*, April 2008.

pollutants, and serving as critical habitat for migratory species. Many scientists believe that these resources and services will be threatened as sea-level rise associated with a changing climate inundates wetlands. Due in part to their limited capacity for adaptation, wetlands have been considered among the ecosystems most vulnerable to a changing climate. Changes in climatic conditions that affect water conditions (e.g., wetter, drier, more saline) are predicted to have substantial impact on species that use wetlands and on ecosystem services provided by wetlands, or make efforts to reestablish wetlands more challenging.[7]

In 2010, a group of international scientists published results of research modeling efforts to identify conditions under which coastal wetlands could survive rising sea level. Using a rapid sea-level rise scenario, the scientists estimated that most coastal wetlands worldwide will experience inundation that leads to rapid and irreversible conversion of marshland into unvegetated, subtidal surfaces and will disappear near the end of the 21st century. Under moderate and slow sea-level rise scenarios, some coastal wetlands would be vulnerable to inundation, depending on amounts of sediment present: larger amount of sediment would enable the wetland to adapt and modify naturally and thus be more likely to survive sea-level rise.[8]

Coastal wetlands also serve as a "sink" for absorbing carbon dioxide (CO_2), the most common greenhouse gas (GHG) that is associated with climate change. Scientists recognize that tidal wetlands hold large amounts of carbon, some within standing plant biomass, but most within deep organic-bearing soils. Carbon that is stored in soils has been built up over millennia and reflects pools of CO_2 that have been transferred from the atmosphere and sequestered within roots and other organic material.[9] However, the loss of wetland areas, for example through inundation and erosion, eliminates its ongoing sequestration capacity, and draining wetlands for development releases within a few decades carbon that took centuries to accumulate. In 2011, the World Bank released a report which concluded that drainage and degradation of coastal wetlands has become a major cause of carbon dioxide emissions that contribute to climate change, large enough globally that carbon dioxide emissions from drained coastal wetlands should be included in carbon accounting and emission inventories, and in policy frameworks to reduce emissions.[10] Some policymakers concerned with mitigating climate change have begun to consider whether it is possible to halt the release of carbon from converted or eroded wetlands and reverse carbon losses through wetland restoration. Further, some are considering whether the ecosystem benefits of wetlands, from a carbon sequestration standpoint, can be quantified in financial terms to enable use of wetlands restoration and management as potential generators of GHG offsets in the context of climate change policy.[11]

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[7] Dahl, T.E. *Status and Trends of Wetlands in the Conterminus United States, 2004-2009*, U.S. Department of the Interior, Fish and Wildlife Service, 2011, p. 86.

[8] Matthew L. Kirwan, Glenn R. Guntenspergen, and Andrea D'Alpaos et al., "Limits on the adaptability of coastal marshes to rising sea level," *Geophysical Research Letters*, vol. 37, no. L23401 (December 2010).

[9] While tidal wetlands do effectively sequester carbon, some wetlands (especially those with low salinity levels) also are a source of GHGs by emitting methane, which is approximately 21 times more powerful as a GHG than CO_2.

[10] Stephen Crooks, Dorothee Herr, and Jerker Tamelander et al., Mitigating Climate Change through Restoration and Management of Coastal Wetlands and Near-shore Marine Ecosystems, Challenges and Opportunities, The World Bank Environment Department, March 2011, http://siteresources.worldbank.org/ENVIRONMENT/Resources/MtgtnCCthruMgtofCoastalWetlands.pdf.

[11] Stephen Emmett-Mattox, Stephen Crooks, and Jette Findsen, "Wetland Grasses and Gases: Are Tidal Wetlands Ready for the Carbon Markets?," *National Wetlands Newsletter*, November-December 2010, pp. 6-10.

Selected Federal Wetlands Programs

Federal program issues include the administration of programs to protect, restore, or mitigate wetland resources (especially the Clean Water Act Section 404 program); relationships between agricultural and regulatory programs; whether all wetlands should be treated the same in federal programs, and which wetlands should be subject to regulation; and whether protecting wetlands by acres is an effective proxy for protecting wetlands based on the functions they perform and the values they provide. In addition, private property questions are raised, because almost three-quarters of the remaining wetlands are located on private lands. Some property owners believe that they should be compensated when federal programs limit how they can use their land, and for decisions that arguably diminish the value of the land.

The Clean Water Act Section 404 Program

The principal federal program that provides regulatory protection for wetlands is found in Section 404 of the Clean Water Act (CWA). Its intent is to protect water and adjacent wetland areas from adverse environmental effects due to discharges of dredged or fill material. Enacted in 1972, Section 404 requires landowners or developers to obtain permits from the Corps of Engineers to carry out activities involving disposal of dredged or fill materials into waters of the United States, including wetlands.

The Corps has long had regulatory jurisdiction over dredging and filling, starting with the River and Harbor Act of 1899. The Corps and EPA share responsibility for administering the Section 404 program. Other federal agencies, including NRCS, FWS, and NMFS, also have roles in this process. In the 1970s, legal decisions in key cases led the Corps to revise this program to incorporate broad jurisdictional definitions in terms of both regulated waters and adjacent wetlands. Section 404 was last amended in 1977.

This judicial/regulatory/administrative evolution of the Section 404 program has generally pleased those who view it as a critical tool in wetland protection, but dismayed others who would prefer more limited Corps jurisdiction or who see the expanded regulatory program as intruding on private land-use decisions and treating wetlands of widely varying value similarly. Underlying this debate is the more general question of whether Section 404 is the best approach to federal wetland protection.

Some wetland protection advocates have proposed that it be replaced or greatly altered. First, they point out that it governs only the discharge of dredged or fill material, while not regulating other acts that drain, flood, or otherwise reduce functional values. Second, because of exemptions provided in 1977 amendments to Section 404, major categories of activities are not required to obtain permits. These include normal, ongoing farming, ranching, and silvicultural (forestry) activities. Further, permits generally are not required for activities which drain wetlands (only for those that fill wetlands), which excludes a large number of actions with potential to alter wetlands. Third, in the view of protection advocates, the multiple values that wetlands can provide (e.g., fish and wildlife habitat, flood control) are not effectively recognized through a statutory approach based principally on water quality, despite the broad objectives of the Clean Water Act.

The Permitting Process

The Corps' regulatory process involves both general permits for actions by private landowners that are similar in nature and will likely have a minor effect on wetlands, and individual permits for more significant actions. According to the Corps, it evaluates more than 85,000 permit requests annually. Of those, more than 90% are authorized under a general permit, which can apply regionally or nationwide, and is essentially a permit by rule, meaning the proposed activity is presumed to have a minor impact, individually and cumulatively. Most general permits do not require pre-notification or prior approval by the Corps. About 9% of all permits are required to go through the more detailed evaluation for a standard individual permit, which may involve complex proposals or sensitive environmental issues and can take 180 days or longer for a decision. Less than 0.3% of permits are denied; most other individual permits are modified or conditioned before issuance. About 5% of applications are withdrawn prior to a permit decision.

Regulatory procedures on individual permits allow for interagency review and comment, a coordination process that can generate delays and an uncertain outcome, especially for environmentally controversial projects. EPA is the only federal agency having veto power over a proposed Corps permit; EPA has used its veto authority 13 times in the 30-plus years since the program began. However, critics have charged that implied threats of delay by the FWS and others practically amount to the same thing. Reforms during the Reagan, George H.W. Bush, and Clinton Administrations streamlined certain of these procedures, with the intent of speeding up and clarifying the Corps' full regulatory program, but concerns continue over both process and program goals.

Controversy also surrounded revised regulations issued by EPA and the Corps in 2002, which redefine two key terms in the 404 program: "fill material" and "discharge of fill material." These definitions are important, because material defined as "fill" is regulated and permitted under Section 404 procedures, while other waste discharges are regulated under more stringent CWA rules and procedures. The agencies said that the revisions were intended to clarify certain confusion in their joint administration of the program due to previous differences in how the two agencies defined those terms. However, environmental groups contended that the changes allow for less restrictive and inadequate regulation of certain disposal activities, including disposal of coal mining waste, which could be harmful to aquatic life in streams. Legislation to reverse the agencies' action by clarifying in the law that fill material cannot be composed of waste has been introduced regularly since the 107th Congress, including H.R. 1837 in the 113th Congress, but no further action has occurred.[12]

As previously described, three criteria—hydrology, soil type, and plants—are used in making wetlands delineations under several environmental laws and programs, including Section 404 permitting. Scientists generally agree that each of the three parameters must be met to identify an area as a wetland. Because growth of plants in wetland areas typically is contingent on the presence of hydric soils and the availability of sufficient water, the vegetation parameter often is determinative of whether an area qualifies as a wetland or not. In May 2012, the Corps revised the National Wetlands Plant List (NWPL), which is used by federal and state agencies for determining whether a particular area contains a prevalence of hydrophytic (i.e., wetland) vegetation. This is the first major revision of the plant list since its publication in 1988 and is

[12] For additional information, see CRS Report RL31411, *Controversies over Redefining "Fill Material" Under the Clean Water Act*, by Claudia Copeland.

intended to improve the accuracy of the overall list. The updated list contains 8,200 plant species, an increase of 1,472 species, or 22%, primarily as a result of new taxonomic interpretations. The Corps said it does not expect major changes to wetland delineations as a result of the updated list, but some commenters contend that the new list is likely to cause more areas to qualify as wetlands.[13]

Section 404 authorizes states to assume many of the Corps' permitting responsibilities. Two states have done this: Michigan (in 1984) and New Jersey (in 1992). Others reasons cited for not joining these two states include the complex process of assumption, the anticipated cost of running a program, and the continued involvement of federal agencies because of statutory limits on waters that states could regulate. Efforts continue to encourage more states to assume program responsibility.

EPA's Veto of Section 404 Permits

In addition to directing EPA to issue the environmental guidelines used by the Corps to evaluate permit applications (CWA Section 404(b)), Section 404 also authorizes EPA to prohibit or otherwise restrict the specification by the Corps of a site for the discharge of dredged or fill material, if the agency determines that the activity will have an unacceptable adverse effect on water supplies, fish, wildlife, or recreational areas. EPA has used this veto authority, under Section 404(c), only 13 times since 1972.

In January 2011, the agency issued the 13th veto when it vetoed a permit for a surface coal mining operation in West Virginia. According to EPA, the Spruce No. 1 mine in Logan County, West Virginia, as proposed, would be one of the largest surface mining operations ever authorized in Appalachia, and waste disposal from the mine would bury over seven miles of streams, directly impact 2,278 acres of forestland, and degrade water quality in streams adjacent to the mine. The Corps issued a permit for the project in 2007, but it was subsequently delayed by litigation and has been operating on a limited scale since then. EPA acknowledged that the project has been modified in order to reduce impacts, but the veto determination was based on the agency's conclusion that the project could result in unacceptable adverse impacts to wildlife and fishery resources.[14]

EPA's veto of the permit has been very controversial, in part because it involves cancelling a permit previously issued by the Corps.[15] Coal industry groups and organizations representing manufacturing and other sectors have been highly critical of EPA's actions, many saying that to revoke an existing permit creates huge uncertainty about whether water quality permits would be rescinded in the future, producing a ripple effect beyond the coal industry. EPA argues that the veto, while highly unusual, is justified because the project involves unacceptable environmental

[13] The updated list of wetland plants is available at http://wetland_plants.usace.army.mil.

[14] U.S. Environmental Protection Agency, "Final Determination of the Assistant Administrator for Water Pursuant to Section 404(c) of the Clean Water Act Concerning the Spruce No. 1 Mine, Logan County, WV; Notice," 76 *Federal Register* 3126-3128, January 19, 2011. The Final Determination and related materials are available at http://water.epa.gov/lawsregs/guidance/cwa/dredgdis/404c_index.cfm.

[15] There is some ambiguity about whether it is the first EPA veto of a previously issued permit. Initially, EPA said that the agency had never done so, but agency officials subsequently have cited the 1980 veto of a project in North Miami Beach, Florida as having involved a previously authorized project. The facts of that case, concerning a veto of a proposed permit amendment for the project, differ from the Spruce No. 1 mine case.

impacts. The agency says that it is not currently reviewing any other previously authorized Appalachian surface coal mining project pursuant to Section 404(c).

The owner of the site, the Mingo Logan Coal Company, challenged EPA's action in federal court, even before the veto was finalized. In March 2012, a federal district court agreed with the industry petitioners and concluded that the CWA does not give EPA the power to render a permit invalid once it has been issued by the Corps. Although the language of 404(c) is "awkwardly written and extremely unclear," the court found EPA's view that it has such authority an unreasonable interpretation of the statute. Thus, it overturned the veto. But in April 2013, a federal appeals court disagreed and reversed the district court's ruling, thus upholding EPA's authority to retroactively veto Section 404 permits.[16] The mining company has petitioned the Supreme Court to review and overturn the appeals court's ruling.

EPA's veto of the Section 404 permit for the West Virginia mine also has drawn congressional attention and criticism. In the 111th and 112th Congresses, legislation was introduced to delete Section 404(c) from the CWA, thus removing EPA's authority to veto permits for projects. In addition, other bills were introduced that were intended to address the veto of the Spruce No. 1 mine project, including proposals to bar EPA from using the 404(c) authority "after the fact," that is, after the Corps has issued a 404 permit; set deadlines for EPA's 404(c) authority; and clarified procedures for elevating 404 permitting decisions to higher level agency and department officials.

Following the court of appeals ruling in April that upheld EPA's authority to retroactively veto a 404 permit, similar bills have been introduced in the 113th Congress to prohibit EPA from using the 404(c) authority after the Corps has issued a permit (H.R. 524 and S. 830).

Nationwide Permits

Nationwide permits are a key means by which the Corps minimizes the burden of its regulatory program. A nationwide permit is a form of general permit which authorizes a category of activities throughout the nation and is valid only if the conditions applicable to the permit are met. These general permits authorize activities that are similar in nature and are judged to cause only minimal adverse effect on the environment, individually and cumulatively. General permits authorize landowners to proceed without having to obtain individual permits in advance.[17]

The current program has few strong supporters, for differing reasons. Developers say that it is too complex and burdened with arbitrary restrictions. Environmentalists say that it does not adequately protect aquatic resources. At issue is whether the program has become so complex and expansive that it cannot either protect aquatic resources or provide for a fair regulatory system, which are its dual objectives.

Nationwide permits are issued for periods of no longer than five years and thereafter must be reissued by the Corps. Most recently, the Corps reissued the nationwide permits in February 2012. This action included reissuing 48 of the 49 existing NWPs, two new NWPs, three new

[16] Mingo Logan Coal Co. v. EPA, 714 F.3d 608 (D.C. Cir. 2013).

[17] For information, see CRS Report 97-223, *The Army Corps of Engineers' Nationwide Permits Program: Issues and Regulatory Developments*, by Claudia Copeland.

general conditions, and three new definitions, and some modifications of the existing permits, general conditions, and definitions.[18]

The major focus of the reissued permits was what to do with NWP 21, the nationwide permit authorizing certain discharges associated with surface coal mining activities, which has a long and controversial history. In reissuing the final permit in 2012, the Corps added a ½-acre and 300-linear foot limit for the loss of stream beds when NWP 21 is used. It strictly prohibits use of NWP 21 to authorize discharges of dredged or fill material into U.S. waters to construct valley fills associated with surface coal mining. With these new limitations, the Corps concluded that the permit will ensure that activities covered by the permit will not result in more than minimal adverse effects on the environment.[19]

Section 404 Judicial Proceedings: *SWANCC* and *Rapanos*

The Section 404 program has been the focus of numerous lawsuits, most of which have sought to narrow the geographic scope of the regulatory program.

SWANCC

An issue of long-standing controversy is whether isolated waters are properly within the jurisdiction of Section 404. Isolated waters (those that lack a permanent surface outlet to downstream waters) which are not physically adjacent to navigable surface waters often appear to provide few of the values for which wetlands are protected, even if they meet the technical definition of a wetland. In January 2001, the Supreme Court ruled on the question of whether the CWA provides the Corps and EPA with authority over isolated waters and wetlands. The Court's 5-4 ruling in *Solid Waste Agency of Northern Cook County (SWANCC) v. U.S. Army Corps of Engineers* (531 U.S. 159 (2001)) held that the denial of a Section 404 permit for disposal on isolated wetlands solely on the basis that migratory birds use the site exceeds the authority provided in the CWA. The full extent of retraction of the regulatory program resulting from this decision remains unclear, even more than nine years after the ruling. Environmentalists believe that the Court misinterpreted congressional intent on the matter, while industry and landowner groups welcomed the ruling.[20]

Policy implications of how much the decision restricts federal regulation depend on how broadly or narrowly the opinion is applied, and since the 2001 Court decision, other federal courts have issued a number of rulings that have reached varying conclusions. Some federal courts have interpreted *SWANCC* narrowly, thus limiting its effect on current permit rules, while a few read the decision more broadly. Attorneys for industry and developers say that the courts will remain the primary battleground for CWA jurisdiction questions, so long as neither the Administration nor Congress takes steps to define jurisdiction.

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[18] For the full text, see http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/NationwidePermits.aspx.

[19] For background, see CRS Report RS21421, *Mountaintop Mining: Background on Current Controversies*, by Claudia Copeland.

[20] For additional information, see CRS Report RL30849, *The Supreme Court Addresses Corps of Engineers Jurisdiction Over "Isolated Waters": The SWANCC Decision*, by Robert Meltz.

The government's view on the key question of the scope of CWA jurisdiction in light of *SWANCC* and other court rulings came in a legal memorandum issued jointly by EPA and the Corps in January 2003.[21] It provided a legal interpretation essentially based on a narrow reading of the Court's decision, thus allowing federal regulation of some isolated waters to continue (in cases where factors other than the presence of migratory birds may exist, thus allowing for assertion of federal jurisdiction), but it called for more review by higher levels in the agencies in such cases. Administration press releases said that the guidance demonstrates the government's commitment to "no-net-loss" wetlands policy. However, it was apparent that the issues remained under discussion, because at the same time, the Administration issued an advance notice of proposed rulemaking (ANPRM) seeking comment on how to define waters that are under the regulatory program's jurisdiction. The ANPRM did not actually propose rule changes, but it indicated possible ways that Clean Water Act rules might be modified to further limit federal jurisdiction, building on *SWANCC* and some of the subsequent legal decisions. The government received more than 133,000 comments on the ANPRM, most of them negative, according to EPA and the Corps. Environmentalists and many states opposed changing any rules, saying that the law and previous court rulings call for the broadest possible interpretation of the Clean Water Act (and narrow interpretation of *SWANCC*), but developers sought changes to clarify interpretation of the *SWANCC* ruling.

In December 2003, EPA and the Corps announced that the Administration would not pursue rule changes concerning federal regulatory jurisdiction over isolated wetlands. The EPA Administrator said that the Administration wanted to avoid a contentious and lengthy rulemaking debate over the issue. Nonetheless, interest groups on all sides have been critical of confusion in implementing the 2003 guidance, which constitutes the main tool for interpreting the reach of the *SWANCC* decision. Environmentalists remain concerned about diminished protection resulting from the guidance, while developers said that without a new rule, confusing and contradictory interpretations of wetland rules likely will continue. In that vein, a Government Accountability Office (GAO) report concluded that Corps districts differ in how they interpret and apply federal rules when determining which waters and wetlands are subject to federal jurisdiction, documenting enough differences that the Corps undertook a comprehensive survey of its district office practices to help promote greater consistency.[22] Concerns over inconsistent or confusing regulation of wetlands have also drawn congressional interest.[23]

Rapanos-Carabell

Federal courts continue to have a key role in interpreting and clarifying the *SWANCC* decision. In February 2006, the Supreme Court heard arguments in two cases brought by landowners (*Rapanos v. United States*; *Carabell v. U.S. Army Corps of Engineers*) seeking to narrow the scope of the CWA permit program as it applies to development of wetlands. The issue in both cases had to do with the reach of the CWA to cover "waters" that were not navigable waters, in the traditional sense, but were connected somehow to navigable waters or "adjacent" to those waters. (The act requires a federal permit to discharge dredged or fill materials into "navigable

[21] See http://www.epa.gov/owow/wetlands/pdf/Joint_Memo.pdf.

[22] U.S. Government Accountability Office, *Corps of Engineers Needs to Evaluate Its District Office Practices in Determining Jurisdiction*, GAO-04-297, February 2004, 45 pp.

[23] U.S. Congress, House of Representatives, Committee on Transportation and Infrastructure, Subcommittee on Water Resources and Environment, *Inconsistent Regulation of Wetlands and Other Waters*, Hearing 108-58, 108th Cong., 2nd sess., March 30, 2004.

waters.") Many legal and other observers hoped that the Court's ruling in these cases would bring greater clarity about the scope of federal regulatory jurisdiction.

The Court's ruling was issued on June 19, 2006 (*Rapanos et al., v. United States*, 547 U.S. 715 (2006)). In a 5-4 decision, a plurality of the Court, led by Justice Scalia, held that the lower court had applied an incorrect standard to determine whether the wetlands at issue are covered by the CWA. Justice Kennedy joined this plurality to vacate the lower court decisions and remand the cases for further consideration, but he took different positions on most of the substantive issues raised by the cases, as did four other dissenting justices.[24] Legal observers suggested that the implications of the ruling (both short-term and long-term) are far from clear. Because the several opinions written by the justices did not draw a clear line regarding what wetlands and other waters are subject to federal jurisdiction, one result has been more case-by-case determinations and continuing litigation. The Senate Environment and Public Works Committee held a hearing on issues raised by the Court's ruling in August 2006. Members and a number of witnesses urged EPA and the Corps to issue new guidance to clarify the scope of the ruling.

On June 5, 2007—nearly one year after the *Rapanos* ruling—EPA and the Corps did issue guidance to enable their field staffs to make CWA jurisdictional determinations in light of the decision. According to the nonbinding guidance, the agencies would assert regulatory jurisdiction over certain waters, such as traditional navigable waters and adjacent wetlands. Jurisdiction over others, such as non-navigable tributaries that do not typically flow year-round and wetlands adjacent to such tributaries, would be determined on a case-by-case basis, to determine if the waters in question have a significant nexus with a traditional navigable water. The guidance details how the agencies should evaluate whether there is a significant nexus. The guidance was not intended to increase or decrease CWA jurisdiction, and it did not supersede or nullify the January 2003 guidance memorandum, discussed above, which addressed jurisdiction over isolated wetlands in light of *SWANCC*.

In accompanying documents, the agencies said that the Administration was considering a rulemaking in response to the *Rapanos* decision, but they noted that developing new rules would take more time than issuing the guidance. They also noted that, while the guidance provides more clarity for how jurisdictional determinations will be made concerning non-navigable tributaries and their adjacent wetlands, legal challenges to the scope of CWA jurisdiction are likely to continue. The guidance was effective immediately, but the agencies also solicited public comments and said that further guidance could be issued in the future. Thus, in December 2008, the Corps and EPA issued revised guidance in an effort to clarify the scope of CWA protection, providing more detail on several issues, including how to identify traditional navigable waters and adjacent wetlands. The guidance took the view that waters are jurisdictional if they satisfy *either* the plurality or Kennedy tests in *Rapanos*. The 2008 guidance also updated the 2007 guidance with more detail for determining whether a wetland is adjacent to a traditional navigable water and whether a tributary of a navigable water is subject to the act—key issues raised by the *Rapanos* decision.

In April 2011, the Obama Administration weighed into the CWA jurisdiction debate as EPA and the Corps proposed new joint agency guidance to clarify regulatory jurisdiction over U.S. waters and wetlands and to replace the agencies' 2008 guidance. Like the existing guidance, the

[24] For additional information, see CRS Report RL33263, *The Wetlands Coverage of the Clean Water Act (CWA): Rapanos and Beyond*, by Robert Meltz and Claudia Copeland.

proposed revisions would adopt the Kennedy-test-or-plurality-test view of interpreting Rapanos. However, the agencies believed that a wider evaluation of jurisdiction is possible than the existing guidance suggests, stating, "after careful review of these opinions, the agencies concluded that previous guidance did not make full use of the authority provided by the CWA to include waters within the scope of the Act, as interpreted by the Court."[25]

EPA and the Corps acknowledged that, compared with the existing guidance, the proposed revisions were likely to increase the number of waters identified as protected by the CWA—a conclusion that pleased some observers but alarmed others. Supporters believed that new guidance will improve protection of U.S. waters and wetlands, while critics argue that it represents over-reaching, beyond authority provided by Congress. Others faulted the continued reliance on federal guidance, which is not binding and lacks the force of law, yet can have significant impact on regulated entities. Final guidance was submitted to the White House Office of Management and Budget (OMB) for review in February 2012, but it was not released. Instead, in September 2013, EPA and the Corps withdrew the revised guidance document from OMB and submitted draft regulations to OMB for interagency review. The substance of this proposal, and when it might be proposed, are unknown for now.

SWANCC and *Rapanos* generated confusion beyond what already existed as to the reach of "waters of the United States." The lack of a majority rationale in *Rapanos* has led lower courts to extract different tests from the decision for measuring this reach, and Justice Kennedy's "significant nexus" concept remains amorphous and undefined. The EPA-Corps 2011 draft guidance—now withdrawn—was intended to reduce the confusion, but many observers and stakeholders contend that jurisdictional issues remain in dispute throughout the country, leading to costly project delays and uncertain protection of wetland resources.

While the issue of how regulatory protection of wetlands is affected by the *SWANCC* and *Rapanos* decisions continues to evolve, the remaining responsibility to protect affected wetlands falls on states and localities. Whether states will act to fill in the gap left by removal of some federal jurisdiction is likely to be constrained by budgetary and political pressures, but after *SWANCC* a few states (Wisconsin and Ohio, for example) passed new laws or amended regulations to do so. In comments on the 2003 ANPRM, many states said that they do not have authority or financial resources to protect their wetlands, in the absence of federal involvement.

Congressional Response

Legislation to reverse the *SWANCC* and *Rapanos* decisions was introduced on several occasions since the 107th Congress. In the 111th Congress, the Senate Environment and Public Works Committee approved S. 787—the first such proposal to advance from a congressional committee, but no further legislative action occurred.

As approved by the Senate committee, the bill would have amended the CWA to define "waters of the United States" and to use this term to define the jurisdictional reach of the act. The term would have been defined to mean:

[25] U.S. Environmental Protection Agency and Army Corps of Engineers, "Draft Guidance on Identifying Waters Protected by the Clean Water Act," April 27, 2011, p. 2, on file with author.

> all waters subject to the ebb and flow of the tide, the territorial seas, and all interstate and intrastate waters, including lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, and natural ponds, all tributaries of any of the above waters, and all impoundments of the foregoing.

The bill would have excluded prior converted cropland and certain waste treatment systems from the term "waters of the United States" (terms now covered by regulatory exemptions), and it would have protected, or saved, existing statutory exclusions such as for dredge or fill discharges from normal farming activities. During markup, the committee rejected several amendments that would have struck some of the terms in the new definition (such as mudflats and prairie potholes), but it approved language stating that the CWA's jurisdiction shall be construed consistent with EPA and Corps interpretation as of January 8, 2001, the day before the *SWANCC* ruling, and consistent with Congress' constitutional authority.

Proponents of the Senate committee legislation have argued that Congress must clarify the important issues left unsettled by the Supreme Court's 2001 and 2006 rulings and by the Corps/EPA guidance. Bill supporters argued that the legislation would "reaffirm" what Congress intended when the CWA was enacted in 1972 and what EPA and the Corps have subsequently been practicing until recently, in terms of CWA jurisdiction. It also would have deleted the word "navigable" from the act, replaced by the term "waters of the United States," in order to clarify that Congress intends the purpose of the law as broadly protecting the quality of the nation's waters, not just sustain navigability in the traditional sense. But critics asserted that the legislation would expand federal authority, and thus would have unintended but foreseeable consequences that are likely to increase confusion, rather than settle it. Critics questioned the constitutionality of the bill, arguing that, by broadly including U.S. waters in the jurisdiction of the CWA, it would exceed the limits of Congress's authority under the Constitution. The version approved by the Senate committee included language stating that the bill shall be construed consistently with "the legislative authority of Congress under the Constitution."

Companion House legislation was introduced in the 111th Congress (H.R. 5088).[26] Like S. 787, the House bill was intended to clarify regulatory scope of the CWA and restore jurisdiction as it had been interpreted prior to the *SWANCC* and *Rapanos* rulings. Like the Senate committee bill, H.R. 5088 would have deleted the word "navigable" from the law and would have amended the CWA to define "waters of the United States," which would become the operational term for jurisdiction. Unlike the Senate committee bill described above, the new definition of that term would have been drawn from existing EPA-Corps regulatory definitions, with some modifications. The bill was criticized based on concern that it would increase the scope of federal jurisdiction, not merely re-state what Congress enacted in 1972. There was no further legislative action on the bill.

Officials of the Obama Administration are on record as favoring legislation that would clarify waters protected by the CWA, but they did not develop or endorse any specific proposal. In May 2009, Administration officials sent letters to House and Senate committee leaders outlining principles for such legislation and urging Congress to consider four general principles:

- Broadly protect the nation's waters;

[26] For information on the 111th Congress legislation, see CRS Report R41225, *Legislative Approaches to Defining "Waters of the United States"*, by Claudia Copeland.

- Make the definition of covered waters predictable and manageable;
- Promote consistency between CWA and agricultural wetlands programs; and
- Recognize long-standing practices, such as exemptions now in effect through regulations and guidance.[27]

In light of the widely differing views of proponents and opponents, future prospects for legislation on the geographic scope of CWA jurisdiction are highly uncertain. Critics have questioned the constitutionality of legislation that has been proposed, and have asserted that it would expand federal authority, thus likely increasing confusion, rather than settling it. An additional difficulty of legislating changes to the CWA in order to protect wetlands results from the fact that the complex scientific questions about such areas (see discussion above, "Wetlands: Science and Information") are not easily amenable to precise resolution in law. The debate over revising the act highlights the challenges of using the law to try to do so.

Efforts by EPA and the Corps to develop revised *Rapanos* guidance (which has now been withdrawn) have been controversial in Congress and elsewhere. Legislative provisions to prohibit the agencies from funding activities related to revising the guidance were included in several appropriations bills in the 112th Congress, but none of these provisions was enacted. Interest in similar legislation concerning the guidance has continued with bills in the 113th Congress, such as S. 1006 and H.R. 1829, to prevent the agencies from finalizing the 2011 draft guidance, and S. 890/H.R. 3377, which would amend the CWA with a narrow definition of waters that are subject to the act's jurisdiction.

Should All Wetlands Be Treated Equally?

Under the Section 404 program, there is a perception that all jurisdictional wetlands are treated equally, regardless of size, functions, or values. In reality, this is not the case, because the Corps' general permits do provide accelerated regulatory decisions for many activities that affect wetlands. Further, a number of types of activities are fully exempt from 404 permit requirements as a result of statutory provisions enacted in 1977 (including ongoing farming, ranching, and forestry activities, as specified in Section 404(f)), and regulatory exemptions (including for prior converted croplands, which are wetlands that were drained, dredged, filled, leveled, or otherwise manipulated before December 23, 1985, to make production of an agricultural commodity possible).

However, this perception has led critics to focus on situations where a wetland has little apparent value, but the landowner's proposal is not approved, or the landowner is penalized for altering a wetland without a federal permit. Critics believe that one possible solution may be to have a tiered approach for regulating wetlands. Legislation introduced in past Congresses proposed to establish multiple tiers (typically three)—from highly valuable wetlands that should receive the greatest protection to the least valuable wetlands where alterations might usually be allowed. Some states (New York, for example) use such an approach for state-regulated wetlands.

[27] Nancy Sutley, Chair, Council on Environmental Quality, et al., letter to Senator Barbara Boxer, Chair, Senate Environment and Public Works Committee (and other congressional leaders), May 20, 2009, http://epw.senate.gov/public/index.cfm?FuseAction=Majority.PressReleases&ContentRecord_id=64739ae3-802a-23ad-4c30-36fc58cc1014&Region_id=&Issue_id=.

Three questions arise: (1) What are the implications of implementing a classification program? (2) How clearly can a line separating each wetland category be defined? (3) Are there regions where wetlands should be treated differently? Regarding classification, even many wetland protection advocates acknowledge that there are some situations where a wetland designation with total protection is not appropriate. But they fear that classification for different degrees of protection could be a first step toward a major erosion in overall wetland protection. Also, these advocates would probably like to see almost all wetlands presumed to be in the highest protection category unless experts can prove an area should receive a lesser level of protection, while critics who view protection efforts as excessive would seek the reverse. In response to these concerns, Corps and EPA officials note that existing guidance and regulations already provide substantial flexibility to implement current programs, allowing, for example, less vigorous permit review to small projects with minor environmental impacts. Some types of wetlands are already treated differently—for example, playas and prairie potholes, which have somewhat different definitions under swampbuster (discussed below). However, this differential treatment contributes to questions about federal regulatory consistency on private property.

Locating the boundary line of a wetland can be controversial when the line encompasses areas that do not meet the image held by many. Controversy would likely grow if a tiered approach required that lines segment wetland areas. On the other hand, a consistent application of an agreed-on definition might lead to fewer disputes and result in more timely decisions.

Some states have far more wetlands than others. Different treatment has been proposed for Alaska, because about one-third of the state is designated as wetlands, yet a very small portion has been converted. In the past, legislative proposals have been made to exempt that state from the Section 404 program until 1% of its wetlands have been lost.

Agriculture and Wetlands

National surveys more than two decades ago indicated that agricultural activities had been responsible for about 80% of wetland loss in the preceding decades, making this topic a focus for policymakers seeking to protect the remaining wetlands. Congress responded by creating wetland conservation programs in farm legislation starting in 1985.

Conservation programs in the farm bill use both disincentives and incentives to encourage landowners to protect and restore wetlands. Swampbuster and the Wetlands Reserve Program are the two largest efforts, but others such as the Conservation Reserve Program's wetland and buffer acres pilot program and the Conservation Reserve Enhancement Program are also being used to protect wetlands. The 110th Congress reauthorized farm programs through FY2012 (Food, Conservation, and Energy Act of 2008, P.L. 110-246). Wetlands also were a major topic of discussion in debate on this bill, which authorized new programs that could further assist wetlands conservation.

Members of the farm community have expressed a wide range of views about wetland protection, from strong opposition to strong support. These views are frequently framed in the context of two general concerns about wetland protection efforts. First, as a philosophical matter, some object to federal regulation of private lands, regardless of the societal values those lands might provide. Second, many farmers want certainty and predictability about the land they farm to limit their financial risk. Therefore, if wetlands are located on farm property, they want assurances that the boundary line delineating wetlands will remain where located for as long as possible.

Swampbuster

Swampbuster, enacted in 1985, uses disincentives rather than regulations to protect wetlands on agricultural lands. It removes a farmer's eligibility from all government price and income support programs for activities such as draining, dredging, filling, leveling or otherwise altering a wetland. Swampbuster has been controversial with farmers concerned about redefining an appropriate federal role in wetland protection on agricultural lands, and with wetland protection advocates concerned about inadequate enforcement. Since 1995, the NRCS has made wetland determinations only in response to requests because of uncertainty over whether changes in regulation or law would modify boundaries that have already been delineated. NRCS has estimated that more than 2.6 million wetland determinations have been made and that more than 4 million may eventually be required.

Swampbuster amendments in 1996 (P.L. 104-127) granted producers greater flexibility by making changes, such as: exempting swampbuster penalties when wetlands are voluntarily restored; providing that prior converted wetlands are not to be considered "abandoned" if they remain in agricultural use; and granting good-faith exemptions. They also encourage mitigation, established a mitigation banking pilot program, and repealed required consultation with the FWS. Amendments enacted in the 2008 farm bill require an additional layer of review within USDA for compliance with swampbuster.

The 113th Congress is considering legislation to renew the farm bill, including limited modifications to the swampbuster program. In June 2013, the Senate passed S. 954 with a provision that would add the federally funded portion of crop insurance premiums to the list of program benefits that could be lost if a producer is found to convert a wetland to crop production. The House-passed bill (H.R. 2642) includes no comparable provision.[28]

Other Agricultural Wetlands Programs

Several USDA conservation programs provide federal payments to private agricultural landowners for changes in land use or management to achieve environmental benefits, including wetlands protection.[29] Under the Wetland Reserve Program (WRP), enacted in 1990, landowners receive payments for placing easements on farmed wetlands. It provides long-term technical and financial assistance to landowners with the opportunity to protect, restore, and enhance wetlands on their property, and to establish wildlife practices and protection. WRP offers permanent easements that pay 100% of the value of an easement and up to 100% of easement restoration costs, and 30-year easements that pay up to 75% of the value of an easement and up to 75% of easement restoration costs. WRP also offers restoration cost-share agreements to restore wetland functions and values without placing an easement on enrolled acres. Through FY2012, projects totaling nearly 2.6 million acres have been enrolled in the program. Most of the land is enrolled under permanent or 30-year easements, while only about 10% is enrolled under 10-year restoration cost-share agreements, according to NRCS.

[28] For information, see CRS Report R43076, *The 2013 Farm Bill: A Comparison of the Senate-Passed (S. 954) and House-Passed (H.R. 2642, H.R. 3102) Bills with Current Law*, coordinated by Ralph M. Chite.

[29] For additional information, see CRS Report R40763, *Agricultural Conservation: A Guide to Programs*, by Megan Stubbs.

Strong farmer interest led Congress to raise the WRP enrollment ceiling in both the 2002 and 2008 farm bills. The 2008 legislation increased the WRP maximum enrollment cap from 2.275 million acres to 3.014 million acres and expanded eligible lands to include certain types of private and tribal wetlands, croplands, and grasslands, as well as lands that meet the habitat needs of wildlife species. The bill made certain program changes, including specifying criteria for ranking program applications, and requiring USDA to submit a report to Congress on long-term conservation easements under the program. The legislation authorized a new Wetlands Reserve Enhancement Program, allowing USDA to enter into agreements with states in order to leverage federal funds for wetlands protection and enhancement.[30]

The 2002 farm bill expanded the 500,000-acre wetland and buffer acreage pilot program within the Conservation Reserve Program (CRP) to a 1-million-acre program available nationwide. CRP allows producers to enter into 10- to 15-year contracts to install certain conservation practices. The 2008 farm bill amended the pilot program to increase the amount of acreage that states can enroll (up to 100,000 acres, or a national maximum of 1 million acres). Participants must agree to restore wetland hydrology, establish appropriate vegetation, and refrain from commercial use of the land. The wetland and buffer program may be an important to overall protection efforts in the wake of the *SWANCC* decision, discussed above, which limited the reach of the Section 404 permit program to many small wetlands that are isolated from navigable waterways. As of October 2012, 27 million acres were enrolled in this program through more than 698,000 contracts on approximately 390,000 farms.

In 2004, USDA announced a Non-Floodplain Wetland Restoration Initiative to allow enrollment of up to 250,000 acres of large wetland complexes and playa lakes located outside the 100-year floodplain in the CRP. As of April 2012, there were 154,000 acres enrolled. USDA also established a Floodplain Wetland Restoration Initiative to enroll wetlands located in the 100-year floodplain in the CRP. As of April 2012, a total of 213,000 acres were enrolled. Participants receive incentive payments equal to 25% of the cost to help pay for restoring the hydrology of the site, as well as rental payments and cost sharing assistance to install eligible conservation practices.

The 2008 farm bill included amendments affecting several agriculture conservation programs, including the Environmental Quality Incentives Program (EQIP), the Farmland Protection Program (FPP), and the Wildlife Habitat Incentive Program (WHIP), in ways that may have incidental protection benefits for wetlands, because of higher funding levels or because of program changes. For example, EQIP supports the installation or implementation of structural and management practices, and the 2008 farm bill expanded the program to include practices that enhance wetlands. Finally, some programs could less directly help protect wetlands, including the Conservation Security Program (renamed the Conservation Stewardship Program), which provides payments to install and maintain practices on agricultural lands; the new Agricultural Water Enhancement Program (replacing the previous Ground and Surface Water Conservation Program; it is funded through EQIP), which is designed to address water quality and quantity concerns on agricultural land; and several other programs to better manage water resources.[31]

[30] USDA issued regulations to implement these changes to the Wetlands Reserve Program in January 2009. See 74 *Federal Register* 2317 (January 15, 2009).

[31] For more information on these provisions, see CRS Report RL34557, *Conservation Provisions of the 2008 Farm Bill*, by Tadlock Cowan, Renée Johnson, and Megan Stubbs.

Farm bill legislation in the 113th Congress would modify these programs in several respects. Under both S. 954, passed by the Senate in June, and H.R. 2642, passed by the House in July, the WRP and FPP would be repealed and consolidated in a new conservation program, the Agricultural Conservation Easement Program (ACEP). The new program would retain most of the program provisions in the current WRP by establishing an easement program to protect and restore wetlands. Both bills would reauthorize EQIP with a 5% funding carve-out for wildlife habitat practices (similar to WHIP, which would be repealed).[32]

Agricultural Wetlands and the Section 404 Program

The CWA Section 404 program applies to qualified wetlands in all locations, including agricultural lands. But the Corps and EPA exempt "prior converted lands" (wetlands modified for agricultural purposes before 1985) from Section 404 permit requirements under a memorandum of agreement (MOA), and since 1977 the Clean Water Act has exempted "normal farming activities." The Supreme Court's *SWANCC* decision exempts certain isolated wetlands from Corps jurisdiction; NRCS estimated that about 8 million acres in agricultural locations might be exempted by this decision.

While these exemptions and the MOA displease some protection advocates, they probably dampened some of the criticism from farming interests over federal regulation of private lands. On the other hand, the prospect that Congress might enact legislation to reverse the Court's 2001 and 2006 rulings, discussed above, has particularly alarmed farm groups, who fear that changes in law or regulations could negatively affect their activities. Because of differences between the CWA and farm bill on the jurisdictional status of certain wetlands (e.g., isolated wetlands may be regulated differently by federal agencies), in 2005 the Corps and NRCS signed a Memorandum of Understanding and issued joint guidance clarifying circumstances where wetlands delineation made by one agency can be accepted for determining the jurisdiction of the other agency.[33] Some of the wetlands that fall outside Section 404 requirements as a result of judicial decisions can now be protected if landowners decide to enroll them into the revised farmable wetlands program or under other new initiatives.

Other Federal Protection Efforts

Many federal agencies have been active in wetland improvement efforts in recent years. In particular, the Fish and Wildlife Service (FWS) has been promoting the success of its Partners for Fish and Wildlife program, which Congress reauthorized through FY2011 in 2006 (P.L. 109-294). Through voluntary agreements, the Partners program provides technical assistance and cost share incentives directly to landowners for wetland restoration projects on private lands.[34]

FWS also administers the National Coastal Wetlands Conservation Grant Program. Under this program, federal grants, matched by state and local contributions, as well as from private landowners and conservation groups, are used to acquire, restore, or enhance coastal wetlands and adjacent uplands to provide long-term conservation benefits to fish, wildlife, and their habitats.

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[32] For information, see CRS Report R43076, *The 2013 Farm Bill: A Comparison of the Senate-Passed (S. 954) and House-Passed (H.R. 2642, H.R. 3102) Bills with Current Law*, coordinated by Ralph M. Chite.

[33] See http://www.usace.army.mil/CECW/Documents/cecwo/reg/mou/foodsecurity_cleanwateract.pdf.

[34] See http://www.fws.gov/partners/viewPage=partners.

The federal government generally provides 50% of the total costs of a project, but the federal share can be increased to 75% if the state maintains a fund for acquiring coastal wetlands. Since 1992, about $183 million in grants have been awarded to 25 coastal states and one U.S. territory for projects involving 250,000 acres of coastal wetland ecosystems.[35]

Other programs also restore and protect domestic and international wetlands. One of these derives from the North American Wetlands Conservation Act, reauthorized through FY2012 in P.L. 109-322 with an appropriations ceiling of $75 million annually. This act provides grants for wetland conservation projects in Canada, Mexico, and the United States. The FWS has combined funding for this program with several other laws into what it calls the North American Wetlands Conservation Fund. According to the FWS, since the program began in 1991, the United States and its 4,800 domestic and international partners have conserved, restored, or enhanced 27 million acres of wetlands in the three countries, equivalent to an area larger than the state of Tennessee.

Under the Convention on Wetlands of International Importance, more commonly known as the Ramsar Convention, the United States is one of 168 nations that have agreed to slow the rate of wetlands loss by designating wetland sites of international importance. These nations have designated 2,169 sites, totaling 509 million acres, since the convention was adopted in 1971. The United States has designated 35 sites pursuant to the convention, encompassing 4.5 million acres.

Private Property Rights and Landowner Compensation

An estimated 74% of all remaining wetlands in the conterminous states are on private lands. Questions of federal regulation of private property stem from the argument that land owners should be compensated when a "taking" occurs and alternative uses are prohibited or restrictions on use are imposed to protect wetland values. The U.S. Constitution provides that property owners shall be compensated if private property is "taken" by government action. The courts generally have found that compensation is not required unless all reasonable uses are precluded. Many individuals or companies purchase land with the expectation that they can alter it. If that ability is denied, they contend, then the land is greatly reduced in value. Many argue that a taking should be recognized when a site is designated as a wetland. In 2002, the Supreme Court held that a Rhode Island man, who had acquired property after the state enacted wetlands regulation affecting the parcel, is not automatically prevented from bringing an action to recover compensation from the state. Instead, the court ruled that the property retained some economic use after the state's action. *(Palazzolo v. Rhode Island*, 533 U.S. 606 (2002)).

Congress has explored these wetlands property rights issues on several occasions. An example is an October 2001 hearing by the House Transportation and Infrastructure Committee, Subcommittee on Water Resources and the Environment.[36] Recent Congresses considered, but did not enact, property rights protection proposals.

[35] For information, see http://www.fws.gov/coastal/coastalgrants/.

[36] U.S. Congress, House of Representatives, Committee on Transportation and Infrastructure, Subcommittee on Water Resources and Environment, *The Wetland Permitting Process: Is It Working Fairly?* Hearing 107-50, 107th Cong., 1st sess., October 3, 2001.

State Protection Efforts

In addition to federal programs and activities, wetlands in the United States are regulated and protected through a variety of state and local laws and regulations, as well as through initiatives and actions of nongovernmental organizations, schools and universities, and private citizens. The role of states in wetland protection is especially important, as noted in a study by the Environmental Law Institute.

> States have long held the right and the responsibility to provide stewardship over their resources, and state agency staff typically have a well-versed understanding of the "lay of the land," in terms of both topography and state priorities, policies, and practices. Finally, in light of recent uncertainty over federal jurisdiction of wetlands and limited federal resources for wetland protection, the role of states in conserving wetlands may be more important now than ever before.[37]

States use a variety of programs and tools to protect and manage wetlands, including regulation and mitigation, wetland water quality standards, monitoring and assessment, voluntary restoration, tax incentives, coordination among state and federal agencies, and public/private partnerships. Programs vary substantially from state to state and often derive their authorities from more than one statute and/or regulation. As a result, different programs may be administered by different state agencies. In addition, programs may change from year to year.[38]

Every state regulates, to some degree, activities that affect wetlands, but two-thirds of the states lack regulatory programs that *comprehensively* regulate wetlands. Many states rely solely or primarily on authority in CWA Section 401, under which states may review any activity that requires a federal permit or license to determine its effect on the state's water quality standards.[39] Section 401 gives states the authority to approve, condition, or deny the federal permit—including a Section 404 permit—or license based on their review. In areas where there is no Section 404 permit requirement, and therefore no opportunity for review under Section 401, some states also require a state permit for activities that affect aquatic resources: 23 states have authority to issue permits for dredge and fill activities in wetlands and other waters of the state, such as geographically isolated wetlands (although as described previously, only New Jersey and Michigan have been delegated 404 permitting authority).

As is the case with the federal regulatory program under CWA Section 404, an important consideration is how a state determines which waters fall within its regulatory jurisdiction. States' definitions of their waters are typically much broader than the federal definition of "waters of the United States," meaning that states may exert jurisdiction over waters within their boundaries that are not covered by the CWA. State definitions often includes phrases such as "all surface waters." They also may exclude certain waters, such as private lakes or ponds. Groundwater is not included in the federal regulatory definition, but most states include groundwater in their

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[37] Environmental Law Institute, *State Wetland Protection: Status, Trends & Model Approaches*, March 2008, p. 6. Hereinafter, ELI State Wetland Protection.

[38] See Association of State Wetland Managers, "State Wetland Program Summaries," at http://www.aswm.org/state-summaries.

[39] Twenty-two states rely on Section 401 as the sole form of state-level regulation, and 15 additional states rely on Section 401 as the primary form of state-level regulation but also have adopted laws that provide additional protection to certain wetland categories, such as coastal wetlands. ELI State Wetland Protection, p. 13.

regulatory programs.[40] All 50 states include wetlands in either or both their statutory and regulatory definitions of state waters—32 make this inclusion explicit, and 18 define waters more generally, including wetlands implicitly. The inclusion of wetlands in a state's definition of state waters does not give automatic protection to these waters; the state must also have some form of complementary regulatory authority, such as to issue permits.[41]

Other findings of the ELI report include the following.

- The majority of states have adopted legislation, policies, and/or guidelines for mitigating impacts to aquatic resources that are permitted in their states. Mitigation provisions range from general requirements to specific replacement ratios, site preferences, and mitigation options such as purchasing credits from a mitigation bank (also see "Wetland Restoration and Mitigation").
- One-third of states report having a wetland-specific monitoring and/or assessment program or monitoring wetlands as part of a larger state monitoring program.
- Nearly one-half of the states operate a formal program for partnering with private landowners on restoration or conservation, and a majority of states report that they conduct outreach or provide technical assistance to private landowners. Ninety percent of states have one or more agencies that carry out education and outreach activities related to wetlands.

The Louisiana Experience

Much of the attention to reverse wetland loss has focused on Louisiana, where an estimated 80% of the total loss of U.S. coastal wetlands has occurred and where about 40% of U.S. coastal wetlands remaining in the lower 48 states are located (coastal wetlands are about 5% of all U.S. wetlands). Changes to Louisiana's coastal area result from a combination of natural environmental processes (erosion, saltwater intrusion into fresh systems, sea level rise) and human-related activities, according to the U.S. Geological Survey (USGS). Wetland loss has occurred naturally for centuries, but until recently, land losses have been counterbalanced by various natural wetland-building processes.

USGS estimates that, since 1932, coastal Louisiana has experienced a net change in land area of approximately 1,883 square miles—an area the size of Delaware. Land loss rates on the Louisiana coast have slowed from an average of more than 30 square miles per year between 1956 and 1978, to an estimated 11.8 square miles per year from 1985 to 2004. When the hurricanes of 2005 and 2008 are factored in, the trend increased the amount of land loss to 16.6 square miles from 1985 to 2010. According to USGS, if this loss were to occur at a constant rate, it would equal losing more than a football field every hour.[42] As a result of wetlands loss, the natural flow of

[40] See Environmental Council of the States, "The States' Definitions of 'Waters of the State,'" February 2009, at http://www.ecos.org/section/publications.

[41] ELI State Wetland Protection, p. 17.

[42] B.R. Couvillion, J.A. Barras, and G.D. Steyer, et al., *Land Area Change in Coastal Louisiana from 1932 to 2010*, U.S. Georglocal Survey, Pamphlet to accompany U.S. Geological Survey Scientific Investigations Map 3164, June 2011, http://pubs.usgs.gov/sim/3164/downloads/SIM3164_Pamphlet.pdf.

Mississippi River and floodwaters to feed sediment to the marshes has been reduced. Saltwater has invaded the brackish estuaries, destroying vegetation and areas that are needed for fish, shellfish, and wildlife. In response to these losses, Congress authorized a task force, led by the Corps, to prepare a list of coastal wetland restoration projects in the state, and also provided funding to plan and carry out restoration projects in this and other coastal states under the Coastal Wetlands Planning, Protection and Restoration Act of 1990, also known as the Breaux Act.[43] The projects range from reintroduction of freshwater and diversion of sediment to construction of shoreline barriers and planting of vegetation. In total, the estimated total cost to complete all 147 approved projects is $1.78 billion.

In a 2007 report, GAO reported that it is impossible to determine the collective success of restoring coastal wetlands in Louisiana, because of an inadequate approach to monitoring. GAO had reviewed the Breaux Act program to identify the types of projects that have been designed and lessons that have been learned from 74 projects that have been completed so far.[44] Others, including the National Oceanic and Atmospheric Administration, disagreed with GAO's findings, observing that long-term data being provided through ongoing project monitoring are intended to yield insight into qualitative and quantitative project performance.

In the wake of hurricanes Katrina and Rita in 2005, multiple legislative proposals were introduced to fund additional restoration projects already planned by the U.S. Army Corps of Engineers and to explore other opportunities that would restore and stabilize wetlands in southern Louisiana. Before the hurricanes, Congress was considering legislation that would have provided about $2 billion to the restoration effort. Since the 2005 hurricanes, more expansive options costing up to $14 billion that were proposed in the 1998 report *Coast 2050* have also been considered.[45] The Gulf of Mexico Energy Security Act, legislation that authorizes additional revenues to states adjacent to offshore oil and gas production activities, was passed during the final days of the 109th Congress.[46] One of the purposes for which these revenues can be spent is wetland restoration, and the availability of these funds may affect the amount and scale of wetland restoration activity in the central Gulf Coast.

Concern for Louisiana's coastal wetlands was heightened by the oil spill following the April 2010 explosion of BP's drilling rig, the Deepwater Horizon, in the Gulf of Mexico. Although efforts focused on preventing oil from reaching coastal shorelines, some oil escaped capture and was pushed by wind and tides towards land. The degrees of impacts of oil on wetland vegetation are variable and complex and can be both acute and chronic, ranging from short-term disruption of plant functioning to mortality. The primary acute damage to the marshes is that plants, which hold the soil in place and stabilize shoreline, suffocate and die, especially if multiple coatings of oil occur. Once vegetation dies, the soil collapses. Then the soil becomes flooded, and plants cannot re-grow. If plants cannot re-establish, soil erosion is accelerated, giving rise to even more

[43] For information on this program, see CRS Report RS22467, *Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA): Effects of Hurricanes Katrina and Rita on Implementation*, by Jeffrey A. Zinn.

[44] U.S. Government Accountability Office, *Coastal Wetlands: Lessons Learned from Past Efforts in Louisiana Could Help Future Restoration and Protection*, GAO-08-130, 57 p.

[45] See http://www.coast2050.gov. For a more detailed discussion of the effects of the hurricanes on planning for wetland restoration, see CRS Report RS22276, *Coastal Louisiana Ecosystem Restoration After Hurricanes Katrina and Rita*, by Jeffrey A. Zinn.

[46] S. 3711 was attached to a broad tax relief measure that was enacted in December 2006 (H.R. 6111, P.L. 109-432). For additional information, see CRS Report RL33493, *Outer Continental Shelf: Debate Over Oil and Gas Leasing and Revenue Sharing*, by Marc Humphries.

flooding and further wetland loss. If oil penetrates into the sediments, roots are continuously exposed to oil, with chronic toxicity making production of new shoots problematic. Consequently, plant recovery is diminished, and eventually land loss occurs. In addition to direct impacts on plants, oil that reaches wetlands also affects animals that use wetlands during their life cycle, especially benthic organisms which reside in the sediments and are a foundation of the food chain.[47]

Public and private efforts were taken to protect the wetlands from oil that moved through Gulf waters towards coastal areas, but scientists remained concerned that high tides and wind could push oil into the marshes, and that the grasses and other vegetation that provide habitat for fish and wildlife would likely be destroyed. Wetland plants can be affected both by oil that floats over the surface of the marsh and by oil that has been incorporated into sediment. While oil was still flowing from the Deepwater Horizon site, cleanup of marshes was limited to triage of heavily oiled marshes and wetlands, because experts were concerned that greater harm than good could be done to the sensitive environmental ecosystems. The well was capped and oil stopped flowing from the well site in mid-July 2010. Experts say that spill response efforts succeeded in keeping large amounts of oil from reaching coastal marshes. Nevertheless, oil remains in the Gulf environment, and potential for re-oiling of coastal areas, for example as a result of storms, will remain a concern for some time.[48]

A recent federal report observes that Louisiana's *Coast 2050* is a comprehensive plan to protect and restore the state's coastal wetlands, but that other Gulf of Mexico states are only beginning similar planning processes for restoration of the damage caused by the Deepwater Horizon spill.[49]

Wetland Restoration and Mitigation

Mitigation has become an important cornerstone of the Section 404 program in recent years. A 1990 MOA signed by the agencies with principal regulatory responsibilities (EPA and the Corps) outlines a sequence of three steps leading to mitigation: first, activities in wetlands should be avoided when possible; second, when they cannot be avoided, impacts should be minimized; and third, where minimum impacts are still unacceptable, mitigation is appropriate. Therefore, mitigation may be required as a condition of a Section 404 permit.

Federal wetland policies during the past 30 years have increasingly emphasized restoration of wetland areas. Much of this restoration occurs as part of efforts to mitigate the loss of wetlands at other sites. The mitigation concept has broad appeal, but implementation has left a conflicting record. Examination of this record, presented in a June 2001 report from the National Research Council, found it to be wanting. The NRC report said that mitigation projects called for in permits affecting wetlands were not meeting the federal government's "no net loss" policy goal for

[47] Dennis F. Whigham, Stephen W. Broome, and Curtis J. Richardson, et al., Statement of the Environmental Concerns Committee, Society of Wetland Scientists, "The Deepwater Horizon Disaster and Wetlands," http://www.sws.org/docs/SWS_OilEffectsOnWetlands.pdf.

[48] For additional information, see CRS Report R41311, *The Deepwater Horizon Oil Spill: Coastal Wetland and Wildlife Impacts and Response*, by M. Lynne Corn and Claudia Copeland.

[49] Thomas E. Dahl and Susan-Marie Stedman, *Status and Trends of Wetlands in the Coastal Watersheds of the Conterminous United States 2004-2009*, U.S. Department of the Interior, Fish and Wildlife Service, and National Ocean and Atmospheric Administration, National Marine Fisheries Service, October 2013, p. 37.

wetlands function.[50] Likewise, a 2001 GAO report criticized the ability of the Corps to track the impact of projects under its current mitigation program that allows in-lieu-fee mitigation projects in exchange for issuing permits allowing wetlands development.[51] Both scientists and policymakers debate whether it is possible to restore or create wetlands with ecological and other functions equivalent to or better than those of natural wetlands that have been lost over time. Results so far seem to vary, depending on the type of wetland and the level of commitment to monitoring and maintenance. Congress has repeatedly endorsed mitigation in recent years.

Some wetland protection advocates are critical of mitigation, which they view as justifying destruction of wetlands. They believe that the Section 404 permit program should be an inducement to avoid damaging wetland areas. These critics also contend that adverse impacts on wetland values are often not fully mitigated and that mitigation measures, even if well-designed, are not adequately monitored or maintained. Supporters of current efforts counter that they generally work as envisioned, but little data exist to support this view. Questions about implementation of the 1990 MOA and controversies over the feasibility of compensating for wetland losses further complicate the wetland protection debate.

In response to criticism in the NRC and GAO reports on mitigation, in 2001, the Corps issued new guidance to strengthen the standards on compensating for wetlands lost to development. But the guidance was criticized by environmental groups and some Members of Congress for weakening rather than strengthening mitigation requirements and for the Corps' failure to consult with other federal agencies. In 2002, the Corps and EPA released an action plan including 17 items that both agencies believed would improve the effectiveness of wetlands restoration efforts.[52]

In 2008, the Corps and EPA promulgated a mitigation rule to replace the 1990 MOA with clearer requirements on what will be considered a successful project to compensate for wetlands lost to activities like construction, mining, and agriculture.[53] The rule sets performance standards and criteria for three types of wetlands mitigation: mitigation banks, in-lieu programs, and permittee-responsible compensatory mitigation. It sets standards to mitigate the loss of wetlands and associated aquatic resources and is intended to improve the planning, implementation, and management of compensatory mitigation projects designed to restore aquatic resources that are affected by activities that disturb a half-acre or more of wetlands. It also is designed to help ensure no net loss of wetlands by addressing key recommendations raised in the 2001 NRC report. Under the rule, all compensation projects must have mitigation plans that include 12 fundamental components, such as objectives, site selection criteria, a mitigation work plan, and a maintenance plan.[54]

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[50] National Academy of Sciences, National Research Council, *Compensating for Wetland Losses under the Clean Water Act* (Washington, DC: 2001), 267 pp.

[51] U.S. Government Accountability Office, *Wetlands Protection: Assessments Needed to Determine the Effectiveness of In-Lieu-Fee Mitigation*, GAO-01-325, 75 pp.

[52] U.S. Environmental Protection Agency and U.S. Army Corps of Engineers, "National Wetlands Mitigation Action Plan, December 24, 2002." See http://water.epa.gov/lawsregs/guidance/wetlands/upload/2003_07_10_wetlands_map1226withsign.pdf.

[53] U.S. Army Corps of Engineers and Environmental Protection Agency, "Compensatory Mitigation for Losses of Aquatic Resources, Final Rule," 73 *Federal Register* 19594, April 10, 2008.

[54] Information on compensatory mitigation can be found at http://water.epa.gov/lawsregs/guidance/wetlands/wetlandsmitigation_index.cfm.

The concept of "mitigation banks," in which wetlands are created, restored, or enhanced in advance to serve as "credits" that may be used or acquired by permit applicants when they are required to mitigate impacts of their activities, is widely endorsed and is the preferred option under the 2008 mitigation rule. Numerous public and private banks have been established, but many believe that it is too early to assess their success. In a study of mitigation, the Environmental Law Institute determined that as of 2005, there were 330 active banks, 75 sold out banks, and 169 banks seeking approval to operate.[55] Provisions in several laws, such as the 1996 farm bill and the 1998 Transportation Equity Act (TEA-21), endorse the mitigation banking concept. In 2003, Congress enacted wetlands mitigation provisions as part of the FY2004 Department of Defense (DOD) authorization act (P.L. 108-136). Section 314 of that act directed DOD to make payments to wetland mitigation banking programs in instances where military construction projects would result or could result in destruction of or impacts to wetlands.

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[55] For more information on mitigation generally, and mitigation banks specifically, see Environmental Law Institute, *2005 Status Report on Compensatory Mitigation in the United States*, April 2006, 105 pp.