Chapter 3

The Regulatory Program
Clean Water Act Section 404 Permits

The Corps' regulatory program implements Clean Water Act section 404, which regulates the discharge of dredged or fill material into the nation's waters. Through this program, the Corps is supposed to ensure that construction carried out by private parties and other governmental agencies in wetlands, streams, rivers, and coastal waters complies with the requirements of the Clean Water Act. Corps civil works projects also must comply with the requirements of section 404. This chapter describes this complex program and identifies opportunities for improving Clean Water Act compliance.

I. The Corps' Regulatory Program

The Corps' regulatory program implements § 404 of the Clean Water Act. Section 404 regulates the discharge of dredged or fill material into the nation's waters and establishes requirements that must be met before the Corps can issue permits to private parties and governmental agencies for construction in wetlands, streams, rivers, and other aquatic habitats. The Corps shares responsibility for managing the § 404 program with the U.S. Environmental Protection Agency (EPA).

A. Overview of Clean Water Act Section 404

Section 404 of the Clean Water Act prohibits the discharge of dredged or fill material into waters protected by the Act without a valid permit. Waters protected by the Clean Water Act include wetlands, rivers, streams, lakes, ponds, and coastal waters (collectively, "protected waters"). *See the "Waters Protected By The Clean Water Act" box for a discussion of key issues concerning protected waters.*

Section 404 applies to activities carried out by private parties and governmental agencies, including the Corps. Activities requiring § 404 permits include the filling of protected waters to allow construction of housing developments, residential subdivisions, retail establishments, hotels, marinas, and roads. *More detailed information on the types of activities covered by § 404 can be found at 33 C.F.R. §§ 323.2 and 323.3.* Corps civil works projects also must comply with the substantive and analytical requirements of § 404, although the Corps will not issue itself an actual permit. 40 C.F.R. § 230.2; 33 C.F.R. § 336.1.

The Corps must comply with two sets of Clean Water Act regulations before it can issue a § 404 permit or approve a Corps civil works project — the EPA 404(b)(1) Guidelines and the Corps' own § 404 regulations. In most cases, a § 404 permit also cannot be issued until the proposed activity has been reviewed under the National Environmental Policy Act (NEPA). *See Section III below for a detailed discussion of the Clean Water Act regulations and Chapter 6 for a discussion of the National Environmental Policy Act.*

Other Types of Corps Permits

The Corps issues two additional types of permits that are not addressed in this Chapter. Ocean discharge permits authorize the transportation and disposal of dredged material at designated ocean disposal sites. 33 U.S.C. § 1413. Rivers and Harbors Act § 10 permits authorize the construction of structures in navigable waters such as piers, boat docks, boat ramps, breakwaters, revetment, riprap, jetties, artificial islands, pilings, and aids to navigation. 33 U.S.C. § 403. Ocean dumping and § 10 permitted activities also may require a § 404 permit. If more than one permit is required, the requirements of each permit type must be satisfied. The regulations applicable to § 10 permits are found at 33 C.F.R. Part 322. The regulations applicable to ocean dumping permits are found at 33 C.F.R. Part 324.

Decisions under the regulatory program are also supposed to comply with the "sequencing" and mitigation policies established by EPA and the Corps. The sequencing policy requires applicants to first avoid impacts. Impacts that cannot be avoided are to be minimized. Finally impacts that cannot be avoided or minimized must be mitigated. *See Section IV below for more on mitigation.*

The overall regulatory program is also supposed to comply with the longstanding — but unmet — national goal of "no-net-loss" of the nation's remaining wetland acres and functions. This goal was established in 1989 by the George H.W. Bush administration. The no-net-loss goal is statutorily mandated for the Corps' civil works program. 33 U.S.C. § 2317(a)(1).

B. Management of the Regulatory Program

The Corps and EPA are both responsible for implementing the § 404 program, and they share many responsibilities including enforcement and developing regulatory policy and guidance. The Corps is responsible for the day-to-day management of the program,

Dredging Requires A Permit Unless It Causes Only Incidental Fallback

In addition to requiring a permit for discharging dredged material into protected waters, § 404 requires a permit for the actual dredging, digging up, or clearing of any wetland or other protected water. A permit will be required even if the soil dredged from the protected water will be disposed of on dry land. This is because these types of activities are presumed, as a matter of law, to result in the discharge of dredged material into protected waters. This legal "presumption" can be rebutted, however, if the applicant can show that the dredging, digging, or clearing will cause only "incidental fallback" of the dredged material into the protected water.

Incidental fallback (an issue that was heavily litigated by development interests) is defined as the redeposit of small volumes of dredged material that is incidental to excavation activities. 33 C.F.R. § 323. A project will produce more than incidental fallback if more than a small amount of dredged material will wind up in an area that is not right next to the area being dredged. Mechanized activities will likely result in more than incidental fallback.

Understanding incidental fallback and the incidental fallback presumption is important because if an activity will produce only incidental fallback, a § 404 permit will **not** be required. However, if an activity produces more than incidental fallback, a § 404 permit **will** be required.

The Corps is increasingly using incidental fallback to exempt activities from permit requirements. For example, the Corps has claimed that a gravel mining operation in the Kansas River does not require a § 404 permit because the mining is producing only incidental fallback. However, the Corps has no project specific or other information to show that this is the case. In the absence of this project specific information, the incidental fallback presumption prohibits the gravel mining without a § 404 permit.

If the Corps refuses to require a permit based on incidental fallback, activists should send a Freedom of Information Act request for the evidence that proves that the specific project will cause no more than incidental fallback. Activists can also gather data independently to show that the activity will in fact redeposit far more than small amounts of material into the river or wetland.

Waters Protected by the Clean Water Act

A pair of recent decisions by the U.S. Supreme Court — *Solid Waste Agency of Northern Cook County (SWANCC) v. U.S. Army Corps of Engineers* and *Rapanos v. United States* — have exposed the nation's small streams and wetlands to uncontrolled discharges of pollutants and fill.[1] The risk to the nation's waters has been compounded by ambiguous and complicated federal agency guidance issued by the Corps and EPA to implement these decisions.

The nation's small and intermittent streams — approximately 60% of the nation's stream miles — and some 20 million acres of wetlands are now at risk of losing all Clean Water Act protections. The risks are even greater in some arid regions of the country, where 75% to 90% of stream miles do not flow all year round. The implications are enormous as these waters provide vital wildlife habitat, store flood waters, filter pollutants, and return water to aquifers.[2]

A water that is not covered by the Clean Water Act is not protected by the requirements of § 404 or by any other of the Clean Water Act's many provisions. As a result, such waters can be filled or polluted without any federal limitations or permits.[3]

In its 2001 *SWANCC* decision, the U.S. Supreme Court narrowly ruled that a so-called "isolated" Illinois water body was not covered by the Clean Water Act simply because it was used by migratory birds. In January 2003, the EPA and Corps issued a directive that went far beyond this very narrow Supreme Court ruling. EPA and the Corps directed field staff to stop applying Clean Water Act protections to virtually all so-called "isolated" waters unless they had received prior permission to do so from agency headquarters in Washington, DC[4] This directive effectively removed Clean Water Act protections for non-navigable "isolated" water bodies, including critically important prairie pothole wetlands, playa lakes, and vernal pools.

In its 2006 *Rapanos* decision, the Supreme Court revisited the issue of which waters are covered by the Clean Water Act. However, instead of clarifying the scope of Clean Water Act coverage, the Court added to the confusion by issuing a split decision. Justice Kennedy, who provided the swing vote, would require the agencies to show a physical, biological, or chemical linkage — a "significant nexus" — between a smaller tributary and a traditionally navigable stream before the smaller tributary could be protected under the Clean Water Act.[5] Because of the complicated nature of the split decision, Justice Kennedy's opinion has become the controlling decision.

In June 2007, EPA and the Corps issued guidance on *Rapanos*, which like the *SWANCC* guidance, goes well beyond the Supreme Court's decision. The agencies' guidance puts intermittent and ephemeral streams, and many adjacent wetlands, in danger of losing Clean Water Act protections, even though the Court's decision did not require such a result. The guidance also ignores parts of the *Rapanos* decision that would allow the government to protect water bodies when they collectively are important to water quality. The *Rapanos* guidance instead requires the Corps to determine whether an individual stream segment has a "significant nexus" to the nearest traditionally navigable water (even if that traditionally navigable water is far downstream) through a burdensome case-by-case determination process.

The impacts of the Supreme Court cases and agency guidance have been dramatic. Waters across the country have lost all protection under the Clean Water Act with significant implications for clean water, fish and wildlife habitat, flood protection, and water supply.[6]

While the Obama Administration could improve the situation by withdrawing the *SWANCC* and *Rapanos* guidance, only Congress can fix the problem entirely. The Clean Water Restoration Act would restore the historic scope of Clean Water Act protections to the nation's waters.[7]

You can find out about decisions not to extend Clean Water Act protections to waters in your area by visiting your Corps District's website; the Districts are required to post these decisions online.

while EPA sets standards and is ultimately responsible for ensuring that permits and the permitting program comply with the requirements of the Clean Water Act.

EPA Responsibilities: The Corps must comply with the EPA standards, and EPA is ultimately responsible for ensuring that the permitting program, permits, and Corps projects comply with the requirements of the Clean Water Act. To this end, EPA has two key roles in connection with individual Corps permit decisions. First, EPA reviews and formally comments on individual permit applications and general permits. These comments can compel the Corps to significantly modify or deny a permit. EPAs review to ensure compliance with § 404 takes place at the same time EPA reviews a permit or project for compliance with NEPA.

Second, EPA can stop the Corps from issuing a permit and can stop a Corps civil works project if EPA finds that the project "will have an unacceptable adverse effect on municipal water supplies, shellfish beds and fishery areas (including spawning and breeding areas), wildlife, or recreational areas." CWA § 404(c), 33 U.S.C. § 1344(c). However, these Clean Water Act "vetoes" are extremely rare, and there is no way to force EPA to issue one. This is because the veto authority is discretionary with the agency, which means that an individual or organization cannot sue EPA to compel a veto. Significant groundwork must be laid with EPA before it will consider a veto, which is ultimately a very political decision. Only 12 vetoes have ever been issued by EPA.[8] *See Section III below for more on the veto process.*

EPA also (1) sets the standards used to determine which waters are subject to § 404; (2) sets the standards used to evaluate permit applications and projects — these standards are contained in the 404(b)(1) Guidelines and other policy documents; (3) identifies activities that are exempt from permitting requirements; (5) oversees state and tribal actions; and (6) shares enforcement responsibilities with the Corps.

Corps Responsibilities: The Corps develops regulatory and policy guidance in collaboration with EPA, shares enforcement responsibility with EPA, and promulgates general permits. The Corps' regulations cannot conflict with EPA's regulations, and the Corps must comply with both sets of regulations when issuing a § 404 permit.

The Corps also is responsible for the day-to-day management of the § 404 program, where it (1) determines whether particular waters are protected under § 404 by making jurisdictional determinations; (2) determines whether particular activities are covered by the permitting requirements; (3) evaluates applications under general permits; (4) evaluates individual permit applications, works with applicants to eliminate, reduce and mitigate adverse impacts to protected waters, and issues (either with or without conditions) and denies individual permits; and (5) ensures that any conditions imposed by the state are included in Corps permits. Most of the authority for administering the

regulatory program has been delegated to the Corps districts. *The types of permits issued by the Corps, the permit review process, and mitigation for permitted impacts are discussed in Sections II, III, and IV below.*

The Corps has established a one-sided administrative appeals process for permit decisions. This appeals process is available only to permit applicants, owners of the property at issue, or lease, easement, or option holders on the property at issue. The applicant or one of these other parties can file an appeal if an individual permit is denied, if the applicant does not agree with the conditions of the permit, or if the applicant does not agree with a jurisdictional determination (a determination that a wetland or water body is subject to the regulatory requirements of § 404). The appeal results in the decision being reviewed by the next higher level within the Corps, which typically means that the division engineer will review the decision of a district engineer. 33 C.F.R. Part 331.

An administrative appeal cannot be filed by individuals or organizations that oppose issuance of a Corps permit, or that oppose a decision that no permit is required because the water body is not jurisdictional. Instead, any such challenges must be filed in federal court.

State Assumption and Participation: The Clean Water Act also allows states to "assume" or take over all or part of the § 404 program for all but large navigable water bodies in their states. Programs in these states must comply with the same framework as the federal § 404 program, including providing public notice and an opportunity for the public to comment on permit applications. EPA must receive copies of all permit applications, and retains the ability to file objections and veto permits. To date, only New Jersey and Michigan have assumed the § 404 program. However, a number of states have developed state "programmatic general permits" that cover the permitting of activities with wetland impacts of three acres or less. Wetland protection statutes for a number of states can be found at the Association of State Wetland Manager's website at *www.aswm.org/swp/states.htm.*

It is important to know that states and tribes can play a key role in § 404 decisions even if they have not assumed all or part of the § 404 program. Through the Water Quality Certification process established by § 401 of the Clean Water Act, states and tribes can prohibit or put significant conditions on § 404 permits and Corps civil works projects. *See Section III below and Chapters 5 and 6 for a more detailed description of the roles of the states and the requirements of Clean Water Act § 401.*

C. Environmental Impacts of the Regulatory Program

Strict compliance with the laws, regulations, and polices that govern the § 404 program would provide strong protections for the nation's rivers, streams, and wetlands. Regrettably, however, these regulations have not been strictly applied. Instead, the Corps has focused on expediting permit approvals and has fundamentally ignored the § 404 requirements for its own civil works projects. The environmental consequences have been disastrous.

The U.S. Fish and Wildlife Service (FWS) reports that between 1986 and 1997 the United States lost at least 644,000 acres of wetlands.[9] A close analysis of this report reveals an annual loss of 130,480 acres of wetland and estuarine habitat during that ten-year period (the report concludes that 58,500 acres of wetlands and open water habitats were lost each year over that period, but when ponds and lakes — which do not provide the same functions as wetlands — are removed from the report's statistical analysis, the much higher and more accurate wetlands impact number is revealed). Annual wetland losses are actually even far greater, because small ephemeral wetlands (those that dry out during part of the year) were not surveyed by the study. Ephemeral wetlands are frequently targeted for development and agriculture because they are common throughout the country and easily converted.[10]

While not all of these losses are attributable to mismanagement of the § 404 program, the losses from § 404 permitted activities are enormous. For example, according to the Corps, in just the year 2000 the nationwide permit program authorized 19,407 acres of wetland impacts and damage to 5,651,597 linear feet of streams. This is a dramatic increase from the reported wetland impacts permitted under the § 404 program just two years earlier. In 1998, the Corps reported 7,202 acres of wetland impacts from the nationwide permit program and 26,200 acres of wetland impacts from all types of permits.[11] These numbers almost certainly understate the total losses attributable to the § 404 permitting program because the Corps does not have a systematic method for tracking impacts and there has been no tracking at all of many losses allowed under general permits.

The significant losses attributable to the permitting program are perhaps not surprising since the Corps rarely denies a request for a § 404 permit. For example, between 2001 and 2003, the Corps denied fewer than 1% of the permits requested. The Corps contends that it does not need to deny more permits because it ensures that the impacts of permitted activities are minimized to the maximum extent practicable. However, this contention is difficult to reconcile with the known losses to wetlands, streams, and other aquatic habitats since the § 404 program has been in place.

The losses from the Corps' civil works program — which also must comply with the requirements of § 404 — have not been tracked, but are undeniably significant. Just a handful of Corps projects currently under construction or in the planning stages would destroy tens of thousands of acres of wetlands.[12]

EPA also is to blame for the failings of the program, as it has not aggressively used its authority to limit impacts. For example, EPA has used its veto authority under the Clean Water Act only 12 times, protecting a total of 74,780 acres of wetlands (according to the veto documents). Prior to the 2008 veto of the Yazoo Backwater Pumping Plant project, the total number of wetlands protected through the EPA veto process was just 7,780 acres. Only two of the 12 vetoes were for Corps civil works projects (Bayou aux Carpes and Yazoo Backwater Pumping Plant).[13]

II. Types of Section 404 Permits

Two basic types of § 404 permits authorize the disposal of dredged or fill material into protected waters: general permits and individual permits. The Corps will also issue "after-the-fact" permits in some instances including, unfortunately, where landowners or developers chose to proceed without a permit even when they knew that doing so violated the law.

A. General Permits

General permits are an expedited form of permitting for activities that are supposed to have no more than "minimal adverse impacts" both individually and cumulatively. General permits also are to be promulgated only for activities that are similar in nature and that are similar in their impact on water quality and the aquatic environment. A general permit can be issued for only five years. To reissue a general permit, the Corps must go through the entire permit evaluation process and a formal administrative rulemaking process. CWA § 404(e), 33 U.S.C. § 1344(e).

General permits are developed and promulgated by the Corps. General permits developed for the entire country are known as Nationwide Permits. General permits developed for specific regions or states are known as Regional Permits. Regional conditions can also be placed on Nationwide Permits to make sure they properly reflect a region's ecology.

The Corps must provide an opportunity for public notice and comment before proposing, issuing, modifying, extending, or revoking a general permit. It is important to note that this public notice and comment requirement applies only to issuance of the general permit (such as a Nationwide Permit for bank stabilization) and not to each instance where the Nationwide Permit is used.

Like all other permits, general permits must comply with the EPA 404(b)(1) Guidelines and the Corps' own § 404 regulations. They also are supposed to be evaluated under NEPA. Like all permits, general permits also are subject to state and tribal Clean Water Act § 401 Water Quality Certifications and to determinations that the general permit complies with any applicable approved Coastal Zone Management Plan. States and tribes may prohibit or condition the use of any general permit in their state or tribal lands if the general permit does not comply with state or tribal water quality standards. States and tribes also may require a Water Quality Certification for a specific activity that falls under a Nationwide Permit. *See Chapter 6 for a discussion of Clean Water Act § 401.*

If a particular project meets the conditions of an existing general permit (*e.g.*, in terms of type of activity and size of impact), that activity may be approved under the general permit. The Corps typically issues general permits on an expedited basis with little or no project specific review, and no public notice or comment. The Corps can require an

Activist Tip

Careful scrutiny of projects "approved" under nationwide or other general permits can lead to important environmental victories.

In Ohio, a group of citizens became suspicious when a tree nursery began digging a deep channel in a high quality coastal marsh on Lake Erie. Though the project had been approved under Nationwide Permit 27, which authorizes wetland and stream restoration projects, the deep channel was obviously designed to deliver water to the nursery and not to improve conditions in the marsh. When the citizens complained to the Corps' Buffalo District, the general permit was revoked and the nursery was ordered to either restore the site or seek an after-the-fact individual permit.

While the district was prepared to grant an after-the-fact permit, the citizens, now organized as "Friends of Sheldon Marsh," continued to fight state certification of the project. Eventually, after public hearings, letters, and additional site visits, the Ohio Environmental Protection Agency denied certification for the project. The Corps was then forced to order complete restoration of the marsh.

Activist Tip

To understand all of the requirements of a Nationwide Permit, you must look at three components:

(1) The text of the Nationwide Permit applicable to the activity at issue;

(2) The General Conditions applicable to all Nationwide Permits (these are located at the end of the Nationwide Permits); and

(3) Any Regional General Conditions for the Nationwide Permit applicable to the activity at issue.

individual permit for an activity that would otherwise appear to meet the general permit conditions if that activity would result in more than minimal impacts.

Because activities covered under general permits undergo little or no review, it is important that general permits are adequately protective from the start. The public can help improve general permits by submitting comments when the general permits are being developed — the public will have the opportunity to comment on general permits every five years when they are reauthorized. The public can also request that states or tribes further condition the use of general permits or revoke their use in the state or on tribal lands.

Nationwide Permits: Last issued on March 19, 2007, there are currently 50 Nationwide Permits. All of these Nationwide Permits expire on March 19, 2012. Some of the many types of activities covered under the 2007 Nationwide Permits include bank stabilization, minor dredging, maintenance and dredging of existing basins, and maintenance of existing flood control projects. The most frequently used general permits are Nationwide Permits 29 (Residential Developments) and 39 (Commercial and Institutional Developments), which authorize residential, industrial, or institutional development activities with no more than one-half acre of impact or no more than 300 linear feet of impacts to a stream bed, though the district engineer can waive the limits for impacts to intermittent and ephemeral streams.

Eighteen of the 2007 Nationwide Permits (including permits 29 and 39) require the applicant to notify the Corps in advance of construction, regardless of the acreage impacted. The Corps then has 45 days to decide if the project meets the Nationwide Permit conditions. Twenty-two of the Nationwide Permits do not require any pre-construction notification to the Corps.

The full text of each Nationwide Permit and the General Conditions applicable to all Nationwide Permits can be found at *www.usace.army.mil/cecw/pages/nw_permits.aspx*. Regional General Conditions on Nationwide Permits and Regional Permits must be obtained from the Corps district in which the activity will take place.

B. Individual Permits

An individual permit must be obtained for activities that do not qualify for a general permit. For example, an individual permit is required for activities that have larger impacts than those allowed under a general permit, for activities not covered by a general permit, and for waters or geographic areas not covered by a general permit. *See Section III below for a more detailed discussion of the process and standards used for evaluating individual permits.*

Before issuing an individual permit, the Corps must (1) issue a public notice and provide an opportunity for public, federal agency, and state comment on the permit application; (2) conduct a two-tiered Clean Water Act evaluation; (3) apply the avoid and minimize requirements more rigorously than it would for a general permit; (4) conduct the project-specific environmental review required by NEPA; and (5) include any conditions required by state or tribal review of the permit.

C. After-the-Fact Permits

Many development activities occur without the knowledge of the Corps and without required § 404 permits. A developer is not necessarily fined when caught, but must proceed with the process of applying for an "after-the-fact" permit. The developer is required to pay for restoration if the permit is denied. If an after-the-fact permit is granted, the developer is allowed to continue with the activity but must follow all conditions set forth in the permit and mitigate the impacts.

In granting an after-the-fact permit, the Corps must follow the same process and apply the same regulations and policies used for granting individual permits. No after-the-fact permit can be processed if (1) the district engineer determines legal action is appropriate; (2) enforcement litigation has already been initiated by the Corps or other entity, such as concerned citizens; or (3) a required federal, state, or local authorization/certification has already been denied. 33 C.F.R. § 326.3(e).

Applicants who are denied an after-the-fact permit, or who disagree with the conditions of an after-the-fact permit, can appeal the decision to the next higher level within the Corps under the same administrative appeals process discussed above. 33 C.F.R. § 331.11.

D. Activities Exempt From Permitting

The Clean Water Act exempts a number of activities from the § 404 permit requirements. However, even exempted activities will require a § 404 permit under certain circumstances. CWA § 404(f), 33 U.S.C. § 1344(f).

The following activities are designated as exempt and do not require a § 404 permit unless one of the triggers discussed below are met (exempted activities are described in detail at 33 C.F.R. § 323.4):

- Normal farming, silviculture (forestry) or ranching practices that are part of an established, ongoing operation. (Practices that are not considered normal, such as deep ripping[14] are not exempt and require a permit. Activities conducted for new operations also require a permit. For example, a landowner would need a permit to construct a fish farming pond on land that had not previously been used for fish farming[15]);
- Maintenance of structures, such as dikes, dams, levees, breakwaters, causeways, or

Activist Tip

The Corps often is not aware of development activities that affect wetlands. Activists can monitor development activities in their communities, determine if a developer has the proper permit, and report activities that are being conducted without a permit to the Corps and appropriate state regulatory agencies so the Corps and the state can evaluate the developer's work under the permitting process.

bridge abutments (maintenance does not include modifications to the character, scope or size of the original fill design);

- Construction or maintenance of farm or stock ponds or irrigation ditches, or the maintenance (but not construction) of drainage ditches;
- Construction of temporary sedimentation basins on a construction site that does not involve the placement of fill material in protected waters;
- Any activity that has already been approved by a state nonpoint source pollution discharge program that meets specified requirements under § 208(b)(4) of the Clean Water Act; and
- Construction or maintenance of farm or forest roads, or temporary roads for moving mining equipment, as long as such roads comply with best management practices and detailed requirements set forth in the regulations.

These exempted activities will nevertheless require a § 404 permit if the discharge contains a toxic pollutant or if the purpose of the activity is to convert protected waters into a new use where the flow or circulation of water may be impaired or the reach of such waters reduced. The water's flow or circulation is presumed to be impaired if the discharge will cause "significant discernable alterations" to flow circulation. Exempted activities will also require a § 404 permit if they are incidental to the construction of structures designed to drain or otherwise significantly modify wetlands and other protected waters. 33 C.F.R. § 323.4.

III. The Section 404 Permit Review Process

This section provides an overview of the nine step permit review process, followed by a more detailed discussion of Step 5 of that process — the review that determines whether the permit satisfies the requirements of the Clean Water Act.

A. Nine Step Permit Review Process

The following is an outline of the nine steps involved in reviewing, evaluating, and issuing individual § 404 permits. While these steps are discussed sequentially, they often overlap and may require several iterations before being satisfied.

Step 1 — Initial Determinations: Upon receipt of a permit application, the Corps must determine if the water in question is protected under the Clean Water Act, whether the proposed activity requires a permit, and if so, whether an individual permit is required. In addition, the Corps must determine whether the permit application is complete and if it is not, the Corps must request additional information from the applicant. The Corps encourages pre-application conferences to address many of these issues. Since the Supreme Court's decisions in *SWANNC* and *Rapanos*, and the issuance of agency guidance implementing those cases, the process of determining whether a water body is covered by the Clean Water Act has become significantly more complicated and time consuming. *See "Waters Protected by the Clean Water Act" in Section I above.*

Step 2 — Public Notice: Once the Corps determines that the permit is complete, it must issue a public notice within 15 days that describes the permit application, the proposed activity and its location, and the potential environmental impacts. The items that must be included in a public notice are set forth at 33 C.F.R. § 325.3. The notice must invite the public to submit comments within a specified period of time. The notice does not have to be published in the Federal Register. Instead, the notice must be posted in certain public locations and sent to interested parties. Most Corps districts now post their permit notices online. However, it is still advisable to notify the appropriate Corps district (preferably in writing) that you want to be included on the district's public notice mailing list to make sure that you receive all notices.

Generally, a public notice must "include sufficient information to give a clear understanding of the nature and magnitude of the activity to generate meaningful comments." 33 C.F.R. § 325.3(a). The courts have interpreted this to mean that the Corps is required to disclose to the public any pivotal data underlying its proposed action before the close of the notice and comment period.[16] The typical Corps public notice, however, provides only minimal and/or boilerplate information, and does not provide the information needed to generate meaningful public comment. Additional information can usually be obtained by contacting the Corps project manager for the permit or the state water quality certification project manager for the permit. It is strongly recommended that you attempt to obtain additional information before submitting your comments.

Activist Tip

Activists should make the most of opportunities to comment on § 404 permits.

Public comment serves three key purposes. First, it can advise the Corps of the depth of opposition to a particular activity. Second, it can provide detailed project information for the administrative record that might otherwise be ignored. Third, it can give individuals and organizations "standing" to file a legal challenge to the permit if that becomes necessary.

Comments on a § 404 permit should include details on why the permit should be denied and specific information on how the proposed activity could be modified to reduce harm to the environment. Activists should provide as much detail as possible on less damaging locations for the project — including locations not currently owned by the applicant, opportunities for avoiding and minimizing impacts of the project, and necessary mitigation.

Step 3 — Comment Period: Interested federal and state agencies, organizations, and individuals may submit written comments on the permit application during the identified comment period, which is typically 15 to 45 days. Any person or organization can request that the Corps hold a public hearing and/or provide a longer comment period. The Corps often will agree to provide additional time to submit comments. You should confirm any individual extensions of time to submit comments in a letter or at least an email to the person granting the extension and retain a copy of the written confirmation for your records. If you do not submit written comments, the Corps will assume that you have no interest in the outcome of the permitting decision. In most instances, if you or your organization does not submit written comments on a permit you will not have legal "standing" (*i.e.*, the legal right to file a lawsuit) to challenge that permit in court.

Federal agencies including EPA, FWS, NOAA Fisheries, and the Federal Emergency Management Agency (FEMA) are invited to comment on permit applications. These agencies also can have a significant influence over Corps permits and projects through other legal avenues such as ensuring compliance with the Endangered Species Act. Activists should strive to develop good working relationships with agency staff and provide them with as much background material, guidance, and support as possible. *See Chapter 5, and Section I above, for more on the roles of federal agencies.*

The Corps reviews the public and agency comments to help determine whether the permit should be denied, issued, or issued with conditions, and to help determine whether an Environmental Impact Statement (EIS) or just an Environmental Assessment (EA) must be prepared. Since one of the purposes of an EA is to determine whether an EIS is necessary, a decision by the Corps to prepare an EA is not the final word on whether an EIS will ultimately need to be prepared.

Step 4 — Public Hearing: The Corps may hold a public hearing on the permit application if one is requested and if the Corps determines that there is sufficient public interest in a hearing. Citizens cannot force the Corps to hold a hearing because, as a matter of law, that decision is within the sole discretion of the Corps. Hearings on permit applications are somewhat rare, but you should request a hearing if the permit is of particular concern to a noticeable community of interest. As part of its review, a state also may hold a public hearing, and sometimes will hold a joint hearing with the Corps. Prior to requesting a public hearing, you should carefully consider whether you would be able to get a sufficient number of people to attend because a small turnout of people expressing concerns about the permit could undermine your efforts.

Step 5 — Clean Water Act Evaluation: The Corps conducts a two-tiered regulatory analysis to determine whether the proposed activity or Corps project complies with the Clean Water Act and its implementing regulations. Tier one involves determining whether a permit application or civil works project complies with EPA's Clean Water Act § 404(b)(1) Guidelines, and tier two requires the Corps to evaluate the activity under its

own regulations to determine whether the permit or project is in the public interest. *See Subsection B for more on the Clean Water Act evaluation process.*

The Corps is also supposed to evaluate the permit to ensure that it meets the "sequencing" and mitigation policies established by the Corps and EPA. Under sequencing, a party seeking a § 404 permit — and the Corps before approving a civil works project — must take three key steps in a specific order. First, the applicant (or the Corps for civil works projects) must demonstrate that steps have been taken to avoid impacts to protected waters and especially to wetlands or other special aquatic sites where practicable. Second, for those impacts that cannot be avoided, the applicant or the Corps must demonstrate that steps have been taken to minimize impacts to the greatest extent practicable. Finally, the applicant or the Corps must propose compensatory mitigation for harm to waters that cannot be avoided or minimized.

In determining the appropriate amount, and other details, of mitigation, the Corps is supposed to comply with the requirements established by 33 C.F.R. § 320.4(r) and 33 C.F.R. Part 332. Compensatory mitigation generally consists of efforts to restore or replace at least an equivalent amount of aquatic habitat that replaces the lost wetland or other aquatic functions, in most cases of the same type. Unfortunately, compensatory mitigation has not been very successful in replacing lost habitat. *See Section IV below for more on mitigation.*

Step 6 — NEPA Evaluation: The Corps or the applicant must prepare an Environmental Assessment (EA) or an Environmental Impact Statement (EIS) for the proposed activity before the Corps makes a decision on a permit, unless the proposed activity falls within a categorical exclusion that exempts it from NEPA review. 33 C.F.R. § 325.2. The Corps is responsible for ensuring preparation of adequate NEPA documentation even if the EA or EIS is prepared by the applicant or a consultant. As a result, the Corps (and not the applicant) would be sued in a lawsuit challenging an EA or EIS. The NEPA process also provides a second important opportunity for public comment. Unlike the public notice in Step 2, public notice of intent to prepare an EIS must be published in the Federal Register. *See Chapter 6 for a discussion of the requirements of the National Environmental Policy Act.*

Step 7 — State and Tribal Review: States and tribes have a key role in approving, conditioning, or prohibiting Corps permits and projects. The Corps cannot issue a § 404 permit and cannot construct a civil works project until the state or tribal regulatory agency issues, denies, or waives a Water Quality Certification for the activity. 40 C.F.R. § 325.2. If a Water Quality Certification is issued, all conditions placed on that certification (*e.g.*, additional mitigation, partial approval of the project, etc.) must become part of any final Corps permit. If a Water Quality Certification is issued, the Corps can still deny the § 404 permit, but if a Water Quality Certification is denied, the Corps cannot issue the § 404 permit.

Activist Tip

A state's Water Quality Certification review is a critical step in the permitting process, and participating in this review can be one of the most important efforts an activist can take to stop or modify a Corps permit. Through this review, the state or tribe can stop the Corps from issuing a permit or impose significant conditions to reduce the impacts of the activity.

Activists should be sure to give the state all the information on a proposed permit that they have given to the Corps.

The Water Quality Certification process is set forth in § 401 of the Clean Water Act, which authorizes states and tribes to review Corps permits and certain Corps projects within their boundaries to determine whether the activity complies with state water quality standards. This review is not mandatory and some states will elect not to conduct one. Upon completing a review for compliance with state water quality standards, the state or tribe can issue or deny certification. The state Water Quality Certification process also has public notice and comment requirements, and states can also hold hearings. *See Chapter 6 for a more detailed discussion of the Clean Water Act § 401 Water Quality Certification requirements.*

Coastal states with approved Coastal Zone Management Plans can also review Corps permits and project decisions to determine compliance with the Coastal Zone Management Plan. The impact of a state's finding that the project or permit is not consistent with the Coastal Zone Management Plan depends on the type of project and the applicant. These rules are set forth at 33 C.F.R. § 325.2(b)(2). In addition, the Corps must consult with states to determine whether any historic or archeological sites will be impacted by the permitted activity, pursuant to the National Historic Preservation Act. 16 U.S.C. § 470(f); 36 C.F.R. § 800.2(c)(1). *See Chapter 6 for a more detailed discussion of the Coastal Zone Management Act and the National Historic Preservation Act.*

Step 8 — Permit Decision: The Corps' permit decision should be based on the public and agency comments received, the Clean Water Act evaluation, the NEPA evaluation, and any state or tribal review and requirements. Once it reaches a decision, the Corps must issue a Statement of Finding, or where an EIS was prepared a Record of Decision, explaining its decision on the permit application including any permit conditions. These final decision documents, along with the final NEPA documentation (be it an EA or an EIS), must be made available to the public.

The Corps can reevaluate an issued permit if it finds that the decision to grant the permit was based on false, incomplete, or inaccurate information, or if significant new information comes to light that was not considered in reaching the original decision.

Step 9 — EPA Veto: As discussed in Section I above, EPA can veto a § 404 permit or a Corps project if the activity would have unacceptable impacts, but such vetoes are extremely rare. Clean Water Act § 404(c) authorizes EPA to restrict, prohibit, deny, or withdraw the use of an area as a disposal site for dredged or fill material if the discharge "will have an unacceptable adverse effect on municipal water supplies, shellfish beds and fishery areas (including spawning and breeding areas), wildlife, or recreational areas." EPA can issue a veto either before or after the Corps issues a permit or decides to move ahead with a civil works project. The Corps may not issue a permit if the EPA regional administrator has notified the district engineer and the applicant in writing that she/he intends to prohibit, deny, restrict, or withdraw the use of the area as a disposal site under Clean Water Act § 404(c). CWA § 404(c), 33 U.S.C. § 1344(c); 33 C.F.R. § 323.6(b).

In making its veto determination, EPA will consider the effects of both the permitted activity (for example, filling wetlands to build a dam) and the resulting impacts of the project (for example, the impacts of the reservoir created by the dam). Public notice, and public comment and hearings are required before a veto can be issued. Regulations governing the veto process are found at 40 C.F.R Part 231. The regulations and additional information on Clean Water Act 404(c), including 404(c) actions taken by EPA to date, can be accessed at *http://www.epa.gov/owow/wetlands/404c/*.

B. Two-Tiered Clean Water Act Evaluation

As noted in Step 5 above, before issuing a § 404 permit or approving a civil works project, the Corps must evaluate the activity to make sure it complies with the Clean Water Act and its implementing regulations. The Corps does this through a two-tiered analysis that is at the heart of the permit evaluation process.

The Corps must first determine if the activity complies with the EPA 404(b)(1) Guidelines. These Guidelines establish detailed environmental standards that must be met before a permit can be issued or a Corps project can be approved. If the proposed activity violates the Guidelines, the Corps must deny the permit (or not move forward with its own civil works project). If the proposed activity complies with the 404(b)(1) Guidelines, the Corps must undertake a second analysis.

Under its second analysis, the Corps must determine if the proposed activity is in the public interest, as defined by the Corps' own § 404 regulations. If the proposed activity would be contrary to the public interest, the Corps **must deny** the permit (or not move forward with its own civil works project), even if the proposed activity meets the requirements of the 404(b)(1) Guidelines.

Tier One — EPA § 404(b)(1) Guideline Evaluation: Determining whether a permit application or civil works project complies with EPA's Clean Water Act § 404(b)(1) Guidelines is the fist step in the Corps' two-tiered Clean Water Act evaluation. Compliance with the 404(b)(1) Guidelines is mandatory, despite the "guideline" label, and the Corps must deny a permit if the proposed activity does not comply with the 404(b)(1) Guidelines.

The 404(b)(1) Guidelines state that "dredged or fill material should not be discharged into the aquatic ecosystem, unless it can be demonstrated that such a discharge will not have an unacceptable adverse impact either individually or in combination with known and/or probable impacts of other activities affecting the ecosystem of concern." 40 C.F.R. § 230.1(c). The 404(b)(1) Guidelines go on to provide guidance on evaluating the impacts of a proposed activity. The 404(b)(1) Guidelines are found at 40 C.F.R. Part 230 and can be accessed at *http://www.epa.gov/owow/wetlands/40cfr/*.

Activist Tip

Activists can do much to ensure that the protective regulations implementing § 404 are strictly applied. Your active participation in the permitting process can prevent the Corps from succumbing to pressure from the private sector (and Congress) to make quick decisions that favor development over environmental protection.

It is important to build the record for strict compliance by submitting detailed comments and by helping others, including federal and state agencies and independent experts, to do the same.

Activist Tip

Activists should identify practicable alternatives for a proposed activity in written comments on a Corps permit or project. If a practicable alternative is available, the Corps legally may not issue the permit or approve a civil works project. You will make it much harder for the Corps to ignore this requirement if you provide specific details on possible alternative plans and locations.

The 404(b)(1) Guidelines explicitly require the Corps to deny a § 404 permit in four situations (*see the "Key Definitions" box for more on the terms bolded below*):

(1) A permit must be denied if there is a practicable alternative that will cause less harm. A § 404 permit must be denied "if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem." 40 C.F.R. § 230.10(a). "An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." This includes locating the project in an area not currently owned by the applicant. An area that is not presently owned by the applicant may be a practicable alternative if it "could be reasonably obtained, utilized, expanded or managed in order to fulfill the basic purpose of the proposed activity." 40 C.F.R. § 230.10(a)(2).

If an activity is not **water dependent**, the 404(b)(1) Guidelines create a legal presumption that practicable alternatives to the proposed activity are available that do not involve a **special aquatic site.** Special aquatic sites include wetlands, mud flats, and riffle and pool complexes that are deemed to be so ecologically valuable that their degradation or destruction may represent an irreversible loss of valuable aquatic resources. 40 C.F.R. § 230.1(d). Unless the applicant clearly demonstrates that a practicable alternative does not exist, the Corps is supposed to deny a permit that impacts a special aquatic site. This is supposed to place a very strong burden on the applicant to show that there are no practicable alternatives to the proposed activity.

An activity is **water dependent** if it requires access or proximity to a special aquatic site in order to fulfill the activity's basic purpose. 40 C.F.R. § 230.10(a)(3). For example, a housing project is by definition not water dependent, because you can build homes without being near or in the water. A marina, on the other hand, likely will be water dependent. Applicants often attempt to describe a project in such a way that it will be deemed to be water dependent (so that the applicant will have a lighter burden to meet in obtaining a permit). For example, an applicant may claim that the purpose of a project is to build a water front hotel or an upscale housing development with an attached marina. Whether either of these projects is truly water dependent would rest on identifying the appropriate project purpose for the purposes of § 404. Water dependency is a critical but complicated issue. If faced with a questionable case you should seek guidance from someone with expertise in this area.

There is a second legal presumption related to the practicable alternatives analysis. It is presumed that the NEPA documents that must be prepared before a permit can be issued will satisfy the practicable alternatives analysis and demonstrate that no practicable alternatives exist. 40 C.F.R. § 230.10(a)(4). Like all legal presumptions,

however, this one can be rebutted — and in many cases it will need to be rebutted because NEPA documents often will not satisfy the practicable alternatives analysis. Comments on NEPA documents and permit applications should provide as much detail as possible on why the NEPA analysis does not satisfy the practicable alternatives (or other) requirements of the 404(b)(1) Guidelines.

(2) A permit must be denied if the discharge would violate certain laws and standards. A § 404 permit must be denied if the proposed discharge would (a) cause or contribute to violations of any state water quality standard; (b) violate any applicable toxic effluent standard or prohibition under Clean Water Act § 307; (c) jeopardize the existence of endangered or threatened species listed under the Endangered Species Act, or result in a likelihood of the destruction or adverse modification of formally designated critical habitat; or (d) violate any requirement imposed by the Secretary of Commerce to protect any marine sanctuary under the Marine Protection, Research and Sanctuaries Act. 40 C.F.R. § 230.10(b).

(3) A permit must be denied if the discharge would cause or contribute to significant degradation of water quality. A § 404 permit must be denied if the discharge would cause or contribute, either individually or cumulatively, to significant degradation of protected waters. Significant degradation will be measured by significant adverse affects on (a) human health or welfare, including municipal water supplies, plankton, fish, shellfish, wildlife, and special aquatic sites; (b) life stages of aquatic life and other water-dependent wildlife; (c) aquatic ecosystem diversity, productivity, and stability, such as loss of fish and wildlife habitat or loss of the capacity of a wetland to assimilate nutrients, purify water or reduce wave energy; and (d) recreational, aesthetic, and economic values. 40 C.F.R. § 230.10(c).

(4) A permit must be denied unless the applicant has taken steps to minimize harm to protected waters. A § 404 permit must be denied if the permit applicant has not taken "appropriate and practicable" steps to minimize potential adverse impacts on the aquatic ecosystem. 40 C.F.R. § 230.10(d). Potential adverse impacts may be minimized by (a) the selection of the discharge location; (b) treating or limiting the material to be discharged; (c) controlling the material after it has been discharged and the method of dispersion; (d) utilizing technology to reduce impacts; and/or (e) avoiding interference with animals and their habitat. More detail on actions that can be taken to minimize adverse environmental impacts can be found at 40 C.F.R. §§ 230.70 to 230.77.

Tier Two — The Corps' Public Interest Review Evaluation: If the Corps determines that a permit can be granted or a project can be approved under the EPA 404(b)(1) Guidelines, the Corps must conduct the second tier of its Clean Water Act review. Under this second tier, the Corps must evaluate the activity under its own regulations to

Key Definitions

Aquatic environment and aquatic ecosystem mean "waters of the United States, including wetlands, that serve as habitat for interrelated and interacting communities and populations of plants and animals." 40 C.F.R. § 230.3(c).

Practicable alternative means an alternative that is "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." This includes locating the project in an area not currently owned by the applicant if it "could be reasonably obtained, utilized, expanded or managed in order to fulfill the basic purpose of the proposed activity." 40 C.F.R. § 230.10(a)(2).

Special aquatic sites mean wetlands, mud flats, vegetated shallows, riffle and pool complexes, coral reefs, sanctuaries, and refuges. These are "geographic areas, large or small, possessing ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values. These areas are generally recognized as significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region." 40 C.F.R. § 230.3(q-1), and § 230.40 to § 230.45.

Water dependent means the activity requires access or proximity to or siting within a special aquatic site in order to fulfill its basic purpose. 40 C.F.R. § 230.10(a)(3).

Wetlands mean "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances, do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." 40 C.F.R. § 230.3(t).

determine whether the permit or project is in the public interest. The Corps must deny a permit if granting the permit would not be in the public interest as defined by the Corps' regulations. 33 C.F.R. §§ 320.4 and 323.6.

Under its public interest review, the Corps must evaluate the "probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest." 33 C.F.R. § 320.4(a). The benefits that reasonably may be expected to accrue from the project must be weighed against its reasonably foreseeable detriments. The Corps' § 404 regulations are found at 33 C.F.R. Parts 320 to 331, and additional policy guidance can be found at *www.usace.army.mil/CECW/Pages/reg_materials.aspx*.

The Corps' public interest review decision should reflect the national concern for both protecting and utilizing important resources, including protecting wetlands — a value explicitly recognized by the Corps' own regulations, which state that "wetlands constitute a productive and valuable public resource, the unnecessary alteration or destruction of which should be discouraged as contrary to the public interest."[17] 33 C.F.R. § 320.4(b).

The Corps' public interest evaluation also must consider all factors that may be relevant, and the cumulative effects of those factors, including

- Environmental factors such as conservation, wetlands, fish and wildlife values, water quality, floodplain management, water conservation, energy conservation, environmental benefits, and mitigation;
- Cultural and economic factors such as historic, cultural, aesthetics, scenic and recreational values, general environmental concerns, water supply, development, navigation, and economics;
- The relevant extent of the public and private need for the proposed work;
- The practicability of using reasonable alternative locations and methods to accomplish the objective of the proposed work, where there is a conflict as to the resource use; and
- The extent and permanence of the beneficial and/or detrimental effects the proposed work is likely to have on the public and private uses to which the area is suited. 33 C.F.R. § 320.4(a).

Similarly, in recognition of the significant natural values and functions of floodplains, the Corps is supposed to avoid authorizing floodplain development whenever practicable alternatives exist outside the floodplain. 33 C.F.R. § 320.4(l).

Activist Tip

Activists should use the poor record on mitigation to make three key points in written comments on Corps permits (and projects):

(1) The Corps should deny a permit that would result in unacceptable impacts to protected waters because there is a strong likelihood that mitigation would not offset those impacts. If appropriate, comments should explain why mitigation is not likely to offset the impacts and urge the Corps to deny the permit.

(2) The Corps should make every effort possible to ensure that impacts to wetlands and other aquatic habitats are avoided in the first instance, because mitigation is likely to fail. Comments should stress the need to avoid impacts to protected waters and provide details on opportunities to do so.

(3) To improve the likelihood of mitigation success, detailed mitigation requirements developed after careful planning should be included as enforceable conditions of new permits. Comments should provide as much detail as possible on needed mitigation and on elements that should be included in the mitigation plan.

IV. Mitigation for Permitted Activities

As illustrated in Section I, despite the protections provided by § 404 and the no-net-loss of wetlands goal, the nation continues to lose wetlands, streams, and other aquatic habitats at an unacceptable rate. Mitigation is an attempt to offset some of these losses.

This section discusses the current dismal state of mitigation success, the various types of mitigation that can be implemented, federal and state mitigation requirements, and key elements of an effective mitigation plan. It also highlights opportunities for activists to help improve the mitigation process and the likelihood of mitigation success.

A. Mitigation Overview

To satisfy the purposes of the Clean Water Act and the no-net-loss of wetlands goal, compensatory mitigation should replace the lost functions, values, and spatial extent of aquatic habitats damaged or destroyed by activities governed by § 404. However, compensatory mitigation has been only marginally successful and these goals are not being met.

Scientists have concluded that under the § 404 program, the "actual amount of wetland impacts offset is only about 20 percent, meaning that the section 404 permitting program has been fostering an 80 percent net loss of wetlands."[18] The Corps' civil works mitigation record is equally dismal. In May 2002, the Government Accountability Office found that the Corps has not implemented any mitigation at all for almost 70 percent of civil works projects constructed since 1986. *See Chapter 2 for a discussion of mitigation for civil works projects.*

The failure of mitigation is due to a host of reasons including poor mitigation planning, improper implementation, lack of implementation, and lack of mitigation monitoring and follow-up. In addition, the scientific understanding of many types of wetlands is so lacking that scientists cannot even describe the steps necessary to restore them.

Importantly, the National Research Council has noted that there is "a considerable controversy over whether or not wetlands can actually be restored. The arguments are particularly important when wetland restoration is undertaken within the mitigation context, and the promise of full restoration of a degraded site allows a natural wetland to be destroyed."[19]

The lack of successful mitigation for § 404 permits and Corps projects has very real ecological and economic impacts. For example, wetlands filter pollutants from water; absorb and slow the release of storm runoff; recharge aquifers; provide crucial wildlife habitat for millions of migrating waterfowl, shorebirds, and other species; and provide recreation and enjoyment to millions of Americans who visit wetland areas each year.

When wetland losses are not mitigated effectively, water quality decreases, water supplies are strained, flood damages increase, and wildlife suffers.

B. Types of Compensatory Mitigation

As discussed in Section III, compensatory mitigation (the third step of the three step sequencing policy that is to be applied to all § 404 permits) generally consists of efforts to restore or replace at least an equivalent amount of aquatic habitat that replaces the lost functions, in most cases of the same type. There are four general types of compensatory mitigation that differ in their ability to replace lost functions and values:

(1) **Establishment (also known as Creation)** involves building new wetlands or streams in upland areas where wetlands or streams did not previously exist. This type of mitigation frequently fails to create a fully functioning wetland because the correct soils, hydrology, and historic seed bank are not present to support wetland creation. The science shows that this type of mitigation will not create a fully functioning stream.

(2) **Restoration** involves recreating a wetland or stream that has been drained or otherwise damaged. This is the preferred mitigation method because it has the greatest likelihood of being ecologically successful. Restoration provides the best chance of replacing both lost functions and wetland acres or stream miles.

(3) **Enhancement** involves improving the functioning of an existing wetland or stream. Enhancement does not replace lost wetland acreage or stream miles, and it is often difficult to quantify any improvements in function. This type of mitigation should be used only in addition to restoration.

(4) **Preservation** involves protecting an existing high-quality wetland or stream through purchase or other means. This form of mitigation cannot compensate for either lost functions or lost acreage of wetlands or miles of streams destroyed by development. It should only be used in addition to restoration.

These various types of compensatory mitigation can be implemented through project specific efforts, mitigation banks, and in-lieu-fee arrangements.

Project specific mitigation is mitigation carried out to compensate for wetland and other impacts resulting from a specific permitted activity or Corps project. The mitigation will be implemented after the permit is issued or the Corps project is approved. For § 404 permits, the permittee is ultimately responsible for the implementation and success of the mitigation. *See Chapter 2 for a discussion of mitigation for civil works projects.*

Mitigation banks are large-scale wetland mitigation projects that attempt to create, restore, or enhance wetlands so that the bank can sell mitigation credits to others who are developing in wetlands. Mitigation banks are supposed to create wetlands (and wetland functional values) that did not exist at the time the property was acquired. Many are based in part on preservation or enhancement of existing wetlands so any argument that they replace wetlands is weak at best. Credits are supposed to be based on the amount of wetlands or wetland functions restored or created. However, credits are often sold before monitoring shows that the mitigation credits function as promised and/or before restoration or enhancement has taken place — the Corps even allows new banks to sell credits as soon as they obtain a deed to the mitigation bank lands, which can occur long before implementation of any mitigation. In addition, mitigation banks are often a long distance from the project and are based on preservation and enhancement. As a result, mitigation banks are often not the best mitigation option.

In-lieu-fee mitigation involves payment of a fee into a pooled mitigation fund managed by a for-profit business, conservation group, land trust, or government agency. This type of mitigation should be used only in very rare instances. Frequently, this type of mitigation includes few reporting requirements and no monitoring. It also may be years before the funds are used to restore wetlands. Frequently, the funds are simply used to buy existing wetlands that do not sufficiently compensate for functions and acreage of wetlands lost to development.

C. Federal and State Mitigation Requirements

This Subsection discusses federal and state mitigation requirements that are intended to offset the harm caused by § 404 permitted activities and Corps projects. To improve mitigation success, it is vital to ensure the strictest possible compliance with these requirements, even as it is clear that they must be strengthened if we are to have any hope of achieving the no-net-loss of wetlands goal.[20]

While many of the requirements discussed below specifically address wetlands, it is also very important to remember that damage to rivers, streams, and other waters must be mitigated.

Federal Mitigation Requirements: Compensatory mitigation for Corps permits is governed by a relatively new set of regulations found at 33 C.F.R. Part 332, Compensatory Mitigation for Losses of Aquatic Resources. These regulations were promulgated in 2008, and can be accessed at *http://www.usace.army.mil/CECW/Pages/reg_materials.aspx.* Additional information, including training materials for implementing these regulations is available on EPAs website at *http://www.epa.gov/wetlandsmitigation/#regs.*

The draft compensatory mitigation regulations were strongly opposed by many in the environmental and scientific community because they were not based in sound science

(especially with respect to their applicability to stream mitigation), they gave the Corps too much discretion in deciding when and how much mitigation is required, and they created preferences for the use of mitigation banks and in-lieu-fee mitigation without any evidence that those forms of mitigation are ecologically superior. While some improvements were made in response to these objections, the final rule remains flawed. Nevertheless, there are provisions in the Compensatory Mitigation rule that you should be aware of, and provisions that should be strictly implemented.

Amount of Mitigation: The district engineer has the discretion to determine whether compensatory mitigation is required. Where compensatory mitigation is required, the amount of compensatory mitigation must be sufficient to replace lost aquatic resource functions, to the extent practicable. "In cases where appropriate functional or condition assessment methods or other suitable metrics are available, these methods should be used where practicable to determine how much compensatory mitigation is required. If a functional or condition assessment or other suitable metric is not used, a minimum one-to-one acreage or linear foot compensation ratio must be used. . . . The district engineer must require a mitigation ratio greater than one-to-one where necessary to account for the method of compensatory mitigation (e.g., preservation), the likelihood of success, differences between the functions lost at the impact site and the functions expected to be produced by the compensatory mitigation project, temporal losses of aquatic resource functions, the difficulty of restoring or establishing the desired aquatic resource type and functions, and/or the distance between the affected aquatic resource and the compensation site." 33 C.F.R. § 332.3(f).

The district engineer must also require, "to the extent appropriate and practicable, additional compensatory mitigation to offset temporal losses of aquatic functions that will result from the permitted activity." 33 C.F.R. § 332.3(m).

A district engineer can require the establishment of riparian areas and/or buffers around wetland or stream mitigation sites when the buffer is necessary to ensure the long-term viability of those resources. However, when that happens, the Corps also must grant compensatory mitigation credits for that buffer, even though the buffer cannot compensate for the wetland acreage or stream miles lost to development, and does not replace the lost functional values. 33 C.F.R. § 332.2(i).

Mitigation Preferences: The Compensatory Mitigation regulations establish a flexible preference for the use of restoration over establishment, enhancement, and preservation; restoration "should generally be the first option considered because the likelihood of success is greater and the impacts to potentially ecologically important uplands are reduced compared to establishment, and the potential gains in terms of aquatic resource functions are greater, compared to enhancement and preservation." 33 C.F.R. § 332.3(a).

The regulations also establish a hierarchy of preferred methods for implementing mitigation. The applicant is supposed to choose the highest method on the list that is appropriate for the impacts being allowed under the permit:

(1) Use of credits from a mitigation bank (when the impacts will take place within the service area of an approved mitigation bank, and the bank has the appropriate number and resource type of credits available);

(2) Use of credits from an in-lieu-fee program (when impacts are located within the service area of an approved in-lieu-fee program, and the sponsor has the appropriate number and resource type of credits available);

(3) Permittee-responsible compensatory mitigation developed using a loosely defined watershed approach;[21]

(4) On-site/in-kind permittee responsible mitigation; and

(5) Off-site/out-of-kind permittee responsible mitigation.

The creation of a preference for the use of mitigation banks is a fundamental shift in the mitigation program. Unfortunately, that shift is not based on scientific evidence showing that mitigation banks produce more successful mitigation. To the contrary, the Corps and EPA have acknowledged that this shift was "based on administrative criteria, not ecological criteria."[22] Prior to enactment of these regulations, there was a preference for in-kind and on-site mitigation.

Mitigation Timing: Compensatory mitigation must be carried out in advance of or concurrent with the activity causing the authorized impacts, "to the maximum extent practicable." 33 C.F.R. § 332.3(m).

Mitigation Plans: The Compensatory Mitigation regulations require that all compensatory mitigation projects have a mitigation plan. If the mitigation will be carried out by the permittee, the mitigation plan must address each of the 12 elements discussed below, and the plan must be approved by the district engineer prior to approval of the final permit. That plan also must be incorporated into the permit by reference, and through special permit conditions (*see below*).

Mitigation plans for permittees using mitigation banks or in-lieu-fee programs need only include the baseline information (*see below*), the methodology used to establish the amount of credits *(see below)*, and the name of the specific mitigation bank or in-lieu-fee program to be used. Mitigation banks and in-lieu-fee programs must prepare

a mitigation plan for each separate compensatory mitigation project site. 33 C.F.R. § 334.2(c).

Note that the mitigation plans do **not** have to be provided with the public notice for the permit.

Compensatory mitigation plans must address the following (the following descriptions are either adapted from or directly quoted from 33 C.F.R. § 332.4(c); activists should consult the regulations for a comprehensive list of plan requirements):

(1) **Objectives.** A description of the resource type(s) and amount(s) of mitigation that will be provided, the method of compensation (*i.e.*, restoration, establishment, enhancement, and/or preservation), and the manner in which the functions of the compensatory mitigation will address the needs of the region.
(2) **Site selection**. A description of the factors considered during the site selection process.
(3) **Site protection instrument.** A description of the legal arrangements and instrument, including site ownership, that will be used to ensure the long-term protection of the compensatory mitigation project site.
(4) **Baseline information.** A description of the ecological characteristics of the proposed compensatory mitigation project site and the impact site, including plant communities, hydrology, soil conditions, other appropriate site characteristics, and a map or geographic coordinates for the mitigation sites. If a mitigation bank or in-lieu-fee program is going to be used, the mitigation plan only needs to provide baseline information about the impact site, not the mitigation bank or in-lieu-fee project site.
(5) **Determination of credits.** A description of the number of credits to be provided and a brief explanation of the rationale for this determination.
(6) **Mitigation work plan.** Detailed written specifications and work descriptions for the compensatory mitigation project, including, but not limited to, the geographic boundaries of the project; construction methods, timing, and sequence; source(s) of water, including connections to existing waters and uplands; methods for establishing the desired plant community; plans to control invasive plant species; the proposed grading plan, including elevations and slopes of the substrate; soil management; and erosion control measures. Additional details such as channel form, design discharge, etc., may be required for stream mitigation projects.
(7) **Maintenance plan.** A description and schedule of maintenance requirements to ensure the continued viability of the resource once initial construction is completed.
(8) **Performance standards.** Ecologically-based standards that will be used to determine whether the compensatory mitigation project is achieving its objectives. Ecological performance standards are also discussed in 33 C.F.R. § 332.5.

Activist Tip

The Corps typically does not provide a draft mitigation plan for the public to review during the permit and NEPA public comment periods. Activists should formally request copies of mitigation plans prior to submitting comments, but it is important to submit detailed comments on needed mitigation even if a plan is not provided.

Comments submitted on both the permit and NEPA documents should provide detailed information on what should be included in a sound mitigation plan — referring to, and using, the compensatory mitigation regulations as a guide. In addition to improving the chance of mitigation success, pointing out necessary components of a sound mitigation plan can make the mitigation more "real," which should help drive avoidance of impacts in the first place.

(9) **Monitoring requirements.** A description of the parameters that will be monitored to determine if the compensatory mitigation project is on track to meet performance standards and if adaptive management is needed; and a monitoring and reporting schedule.

(10) **Long-term management plan.** A description of how the compensatory mitigation project will be managed after performance standards have been achieved to ensure long-term sustainability. This includes a description of long-term financing mechanisms and the party responsible for long-term management.

(11) **Adaptive management plan.** A management strategy to address unforeseen changes in site conditions or other components of the compensatory mitigation project, including the party or parties responsible for implementing adaptive management measures.

(12) **Financial assurances.** A description of financial assurances that will be provided and how they are sufficient to ensure a high level of confidence that the compensatory mitigation project will be successfully completed, in accordance with its performance standards.

Mitigation Monitoring: Mitigation monitoring must be carried out for a "period that is sufficient to demonstrate that the compensatory mitigation project has met performance standards, but not less than five years. A longer monitoring period must be required for aquatic resources with slow development rates (e.g., forested wetlands, bogs). Following project implementation, the district engineer may reduce or waive the remaining monitoring requirements upon a determination that the compensatory mitigation project has achieved its performance standards. Conversely the district engineer may extend the original monitoring period upon a determination that performance standards have not been met or the compensatory mitigation project is not on track to meet them. The district engineer may also revise monitoring requirements when remediation and/or adaptive management is required." 33 C.F.R. § 332.6.

Permit Conditions: An individual permit that utilizes permittee-responsible mitigation, must include special conditions that: (a) "identify the party responsible for providing the compensatory mitigation;" (b) "incorporate, by reference, the final mitigation plan approved by the district engineer;" (c) "state the objectives, performance standards, and monitoring required for the compensatory mitigation project, unless they are provided in the approved final mitigation plan; and (d) "describe any required financial assurances or long-term management provisions for the compensatory mitigation project, unless they are specified in the approved final mitigation plan." 33 C.F.R. § 332.3(k).

State Mitigation Requirements: As discussed above, the Corps has not set a minimum requirement for the number of acres required to replace wetlands that have been damaged or destroyed by a § 404 permitted activity or Corps project. A number of states, however, do require, or at least recommend, a specific amount of mitigation. States can require use of their mitigation ratios through the § 401 Water Quality Certification process or where they have assumed management of the § 404 process.

Required or recommended mitigation ratios are typically tied to the type of mitigation used (creation, restoration, enhancement, or preservation) and the type of wetlands damaged by the permitted activity or project.

States with specific mitigation requirements typically require more than one acre of mitigation for each wetland acre harmed, with specific ratios tied to the type of mitigation used (creation, restoration, enhancement, or preservation) and the type of wetlands damaged by the permitted activity or project. The following are some examples of state mitigation requirements:

- ***California*** requires greater than one-to-one mitigation, and has a goal "to ensure no overall net loss and a long-term net gain in the quantity, quality, and permanence of wetland acreage and values in California in a manner that fosters creativity, stewardship, and respect for private property."[23] The California Coastal Commission, for example, always requires a mitigation ratio greater than 1:1 and will often require ratios of 4:1 or larger.[24]
- ***Illinois*** requires mitigation ratios of from 1:1 for minimal impacts to 5.5:1 where wetlands are completely destroyed, and has a goal of "no overall net loss of the State's existing wetland acres or their functional value due to State supported activities."[25]
- ***Indiana*** requires mitigation ratios of from 1.5:1 to 4:1 depending on the quality of the wetlands impacted and the distance of the mitigation site from the impacted site — restoration or creation of similar wetlands near the impacted area requires at least 1.5:1; impacts to wetlands dominated by grasses, wildflowers and other herbaceous plants require 1.5:1 to 2:1; impacts to wetlands dominated by shrubs and saplings require 2:1 to 3:1; and impacts to wetlands dominated by trees require 3:1 to 4:1. These ratios can be increased by the regulatory agencies.[26]
- ***Maine*** requires mitigation ratios of from 1:1 to 2:1 for restoration, enhancement, or creation depending on the quality of the wetlands impacted, and a mitigation ratio of 8:1 where preservation is utilized to compensate for impacts to any type of wetland. The state has a goal of achieving no-net-loss of wetland functions and values.[27]
- ***Maryland*** requires mitigation ratios of from 1:1 to 4.5:1 for non-tidal wetlands, and from 1:1 to 6:1 for tidal wetlands, depending on the type of wetland impacted and the type of mitigation utilized. The state has a goal of preserving tidal wetlands and preventing their loss and despoliation and strives for a net resource gain in tidal

wetlands acreage and function. For non-tidal wetlands, Maryland has a goal of no-net-loss of wetland acreage and function.[28]

- ***Michigan*** requires mitigation that will ensure no-net-loss of wetlands. The following ratios are required when wetland mitigation is of a similar ecological type as the impacted wetland — restoration or creation of 5:1 for impacts to wetland types that are rare or imperiled on a statewide basis; restoration or creation of 2:1 for impacts to forested wetland types, coastal wetlands that are not rare or imperiled, and wetlands that border upon inland lakes; restoration or creation of 1.5:1 for impacts on all other wetland types; and mitigation through preservation of existing wetlands requires a ratio of 10:1. These ratios can be increased if the replacement wetland is of a different ecological type than the impacted wetland.[29]
- ***Minnesota*** requires a minimum replacement ratio of 2:1. For wetlands on agricultural land or in counties where 80 percent or more of pre-settlement wetlands exist, the minimum replacement is 1:1.[30]
- ***Missouri*** recommends mitigation ratios of from 1:1 to 4:1 depending on the type of wetland impacted — 1:1 to 1.5:1 for farmed wetlands; 1:1 to 3:1 for emergent wetlands; 1.5:1 to 3:1 for shrub-scrub wetlands; and 2:1 to 4:1 for wooded wetlands. These ratios can be increased, and the state's guidelines stress the importance of completely avoiding impacts in the first instance.[31]
- ***New Hampshire*** requires mitigation ratios of at least 1.5:1 to 15:1 depending on the type of wetland impact and the type of mitigation implemented — 2:1 for bog restoration, 3:1 for tidal wetland creation and 2:1 for tidal wetland restoration; 1.5:1 for creation or restoration of forested wetlands; and 1.5:1 for creation and 1:1 for restoration for all other wetland types. In some instances New Hampshire will allow mitigation through preservation of uplands that buffer a jurisdictional wetland area that meets or exceeds the functional assessment of the wetland to be impacted by the project at ratios of from 3:1 to 15:1.[32]
- ***New Jersey*** requires mitigation at a ratio of 2:1 — two acres of freshwater wetlands or state open waters must be restored for each acre disturbed by a project.[33]
- ***New York*** recommends mitigation at a ratio of at least 1:1 and recognizes that it often will be necessary to implement higher mitigation ratios to fully compensate for lost wetland acreage and functions.[34]
- ***Ohio*** requires mitigation ratios of from 1.5:1 to 3:1 depending on the type of wetland impacted and the type of mitigation utilized.[35]
- ***Oregon*** requires minimum ratios based on the type of compensatory mitigation proposed — restoration 1:1; creation 1.5:1; enhancement 3:1; enhancement of cropped wetlands 2:1.[36]
- ***Pennsylvania*** requires wetlands mitigation "at a minimum area, function, and value ratio of 1:1."[37]

- ***Rhode Island*'s** Coastal Resource Management Council requires wetland mitigation for all alterations to coastal wetlands at a ratio of 2:1.[38]
- ***South Carolina*** requires mitigation for wetland impacts within the state's coastal zone at a ratio of 2:1 wetlands created to wetlands altered for private projects, and 1:1 for wetlands created to wetlands altered for projects deemed to be in the public interest. Enhancement must be coupled with some creation and must clearly be an ecological improvement over the existing system.[39]
- ***Tennessee*** requires that mitigation achieve no-net-loss of water resource values. Mitigation ratios for wetland impacts are based on the type of mitigation carried out — no less than 2:1 for restoration activities; no less than 4:1 for creation and enhancement; and no less than 10:1 for preservation. Applicants also may propose best professional judgment ratios based on the resource value and functions of the affected wetland, resource value of the mitigation, and the likelihood of success of the mitigation.[40]
- ***Vermont*** requires that there be "no-net-loss of the protected functions or acreage of significant wetlands" and strongly promotes complete avoidance over mitigation.[41]
- ***Virginia*** requires minimum ratios for compensation of wetland impacts of 2:1 for forested wetland impacts; 1.5:1 for scrub-shrub wetland impacts; 1:1 for emergent wetland impacts; and 1:1 for stream impacts. Project-specific ratios are determined for other open water impacts.[42]
- ***Washington*** recommends mitigation ratios of from 1.5:1 to 24:1 depending on the type of mitigation utilized.[43]
- ***West Virginia*** requires mitigation ratios of from 1:1 to 3:1 depending on the type of wetland impacted and the timing of the mitigation implementation — 1:1 for open water wetlands, 2:1 for emergent wetlands; and 3:1 for scrub-shrub and forested wetlands. If in-kind compensatory mitigation is completed 12 months prior to the wetland disturbance, mitigation shall be 1:1 for any wetland type impacted. Mitigation carried out through acquisition of existing wetlands requires considerably higher mitigation ratios — 5:1 for open body wetlands; 10:1 for wet meadow wetlands, and 15:1 for scrub-shrub and forested wetlands.[44]
- ***Wisconsin*** requires a standard compensation ratio of 1.5:1, but a ratio of 1:1 might be allowed in some instances where an established mitigation bank is used.[45]

Endnotes

1. Solid Waste Agency of Northern Cook County (SWANCC) v. U.S. Army Corps of Engineers, 531 U.S. 159 (2001); Rapanos v. United States, 126 S. Ct. 2208 (2006).
2. As of the date of this Citizen's Guide, small and intermittent streams contributed to the drinking water supplies for 110 million Americans. In addition, more than 40% of facilities (14,800) with Clean Water Act NPDES permits currently discharge into small or intermittent streams, and in arid regions of the country this percentage can be much higher. For example, approximately 50 percent of NPDES permitted wastewater discharges in Texas flow directly into intermittent streams. Some wastewater plants that discharge into intermittent waters already are petitioning EPA to allow discharges without any permit requirements at all.
3. A water that is covered by the Clean Water Act is often called a jurisdictional water. A water that is not covered by the Clean Water Act is often called a non-jurisdictional water.
4. The agencies received highly critical comments on this policy and on a related rulemaking effort from a large majority of state agencies, water and wildlife experts, sportsmen, floodplain managers, public health officials, conservation organizations and several EPA regional offices. In 2006, the House of Representatives – in a strong, bipartisan fashion – voted to halt this misguided policy.
5. Four other justices took the radical view that the law protects "only those relatively permanent, standing or continuously flowing bodies of water" and only those wetlands with a "continuous surface connection" to protected waters.
6. Examples of these losses are documented in Courting Disaster: How the Supreme Court Has Broken the Clean Water Act and Why Congress Must Fix It, a publication of Earthjustice, Environment America, Clean Water Action, National Wildlife Federation, Natural Resources Defense Council, Sierra Club, and Southern Environmental Law Center (April 2009) available at http://www.earthjustice.org/library/reports/courting-disaster-final-april-2009.pdf (visited June 29, 2009); and Reckless Abandon: How the Bush Administration is Exposing America's Waters to Harm, a publication of Earthjustice, National Wildlife Federation, Natural Resources Defense Council, and Sierra Club (August 2004) available at http://www.earthjustice.org/library/reports/CWA_Jurisdiction_8-12-04.pdf (visited June 29, 2009).
7. The Clean Water Restoration Act (S.787 in the 111th Congress) has strong support from states, scientist, sportsmen, floodplain managers, and conservation organizations. In June 2009, an amended version of S.787 was reported out of the Senate Environment and Public Works Committee. Members of Congress leading efforts to restore the historic scope of Clean Water Act protections include Senator Russ Feingold (D-WI), Senator Barbara Boxer (D-CA), and Representative James Oberstar (D-MN).
8. EPA 404(c) vetoes: North Miami Landfill, FL (1981); M.A. Norden, Mobile, AL (1984); Bayou aux Carpes, LA (1985); Maybank, Jehossee Island, SC (1985); Attleboro Mall/Sweeden's Swamp, MA (1986); Lake Alma Impoundment, GA (1988); Henry Rem Estate, East Everglades, FL (1988); Russo Development Corp., NJ (1988); Ware Creek Water Supply, VA (1989); Big River Water Supply, RI (1990); Two Forks Water Supply, CO (1990); Yazoo Backwater Pumping Plant, MS (2008). *http://www.epa.gov/owow.wetlands/404c/* (visited June 29, 2009).
9. Dahl, T.E. 2000. Status and trends of wetlands in the conterminous United States 1986 to 1997. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. 82 pp., at *http://wetlands.fws.gov/.*
10. National Wildlife Federation, *Nowhere Near No-Net-Loss*, April 22, 2004.
11. U.S. Army Corps of Engineers, Draft Programmatic Environmental Impact Statement for the Nationwide Permit Program (July 2001) at 5-20 and Appendix F.
12. The following are some examples. According to the Corps, construction of the New Madrid Levee and Pumping Plant in Missouri will destroy 75,000 acres of seasonally flooded wetlands. According to the Corps, its ongoing enlargement of the Mississippi River Mainline Levees will destroy a minimum of 7,328 acres of wetlands. According to the Corps, its plan to dredge over 100 miles of the Big Sunflower River in Mississippi will, among other things, damage 3,631 acres of wetlands.
13. For a list of vetoed projects, see endnote 8 above.
14. "Deep ripping" is a process where bulldozers drag rippers, consisting of 4-foot to 7-foot metal prongs, through the earth. This practice breaks up the soil, and disgorges rock, sand, and biological material behind the ripper. Deep ripping alters the movement of surface and subsurface water and limits or destroys the ability of wetlands to retain water.
15. *Conant v. United States*, 786 F.2d 1008 (11th Cir. 1986).
16. *National Wildlife Federation v. Marsh*, 568 F. Supp. 985, 994-95 (D.D.C. 1983).
17. The Corps' regulations provide specific examples of many wetland functions that are important to the public interest. These include significant biological functions, including food chain production, general habitat, nesting, spawning and rearing areas; drainage, sedimentation and flushing functions; shielding of other areas from wave action; storage areas for storm and flood waters; ground water discharge areas; and water purification functions. 33 C.F.R. § 320.4(b)(2). The Corps' regulations further recognize that the cumulative effects of piecemeal wetland losses can result in a major impairment of wetland resources. 33 C.F.R. § 320.4(b)(3).
18. R. Eugene Turner, et al., "Count It by Acre or Function—Mitigation Adds Up to Net Loss of Wetlands", National Wetlands Newsletter, November-December 2001. A 1996 study published

in Ecological Applications concludes that the: "sober reality [is] that under present mitigation policies and practices 'losses are likely to be uncompensated for and that what we call mitigation has a high chance of failure.'" Margaret S. Race and Mark S. Fonseca, Fixing Compensatory Mitigation: What Will It Take?, in Ecological Applications 6(1):94-101 at 97 (Ecological Society of America, eds., 1996).

19. National Research Council, *Restoration of Aquatic Ecosystems: Science, Technology, and Public Policy* (National Academy Press 1992) at 310-311.
20. In 2001, the National Research Council concluded that "[t]he goal of no-net-loss of wetlands is not being met for wetland functions by the mitigation program, despite progress in the last 20 years." National Research Council, *Compensating for Wetland Losses Under the Clean Water Act*, June 2001, at 2.
21. The term "watershed approach" is defined in the regulations as "an analytical process for making compensatory mitigation decisions that support the sustainability or improvement of aquatic resources in a watershed. It involves consideration of watershed needs, and how locations and types of compensatory mitigation projects address those needs. A landscape perspective is used to identify the types and locations of compensatory mitigation projects that will benefit the watershed and offset losses of aquatic resource functions and services caused by activities authorized by DA permits. The watershed approach may involve consideration of landscape scale, historic and potential aquatic resource conditions, past and projected aquatic resource impacts in the watershed, and terrestrial connections between aquatic resources when determining compensatory mitigation requirements for DA permits." 33 C.F.R. § 332.2.
22. U.S. Army Corps of Engineers and U.S. Environmental Protection Agency, Compensatory Mitigation for Losses of Aquatic Resources, Final Rule, 73 Fed. Reg. 19594, 19605 (Apr. 10, 2008).
23. California Wetlands Conservation Policy (established by Executive Order W-59-93).
24. California Coastal Commission, Procedural Guidance For The Review Of Wetland Projects In California's Coastal Zone, Chapter 2.
25. *http://dnr.state.il.us/wetlands/ch6e.htm*, The Illinois Interagency Wetland Policy Act Of 1989; 17 Illinois Administrative Rules Section 1090.50 Wetland Review Process.
26. *http://www.cbbel-in.com/cbbelwetland/mitigation.htm*.
27. *http://www.maine.gov/sos/cec/rules/06/096/096c310.doc*.
28. Code of Maryland Regulations, Title 26, §§ 26.23.04.03 and 26.24.05.01 accessible from *http://www.mde.state.md.us/Programs/WaterPrograms/Wetlands_Waterways/regulations/regulations.asp*.
29. *http://www.michigan.gov/deq/0,1607,7-135-3313_3687-86447--,00.html*.
30. Minnesota Regulation 8420.0546 at *http://www.bwsr.state.mn.us/wetlands/publications/MNRegulations.pdf*.
31. *http://www.dnr.mo.gov/env/wpp/401/mitigation_guidelines.pdf*.
32. *http://www.des.state.nh.us/Rulemaking/adopted2005/Wt_200-800.pdf*.
33. New Jersey Administrative Code 7:7A-15.8.
34. *http://www.dec.state.ny.us/website/dfwmr/habitat/wetlmit.pdf*.
35. Ohio Administrative Code 3745-1-54(F)(1).
36. *http://www.oregonstatelands.us/fact6.pdf*.
37. *http://www.cicacenter.org/swift2.cfm?st=PA*.
38. *http://www.cicacenter.org/swift2.cfm?st=RI*.
39. *http://www.scdhec.net/ocrm/PUBS/New_CARegs_03*.doc, South Carolina Office Of Ocean And Coastal Resource Management Rules And Regulations For Permitting In The Critical Areas Of The Coastal Zone.
40. *http://tennessee.gov/environment/wpc/publications/2005RuleAmend1200_04_07.pdf*.
41. *http://www.state.vt.us/wtrboard/wet/wetrule2002.pdf*, Vermont Wetland Rules.
42. *http://www.deq.state.va.us/wetlands/mitigate.html*.
43. *http://www.ecy.wa.gov/pubs/0406013a.pd*f.
44. West Virginia Code of State Rules, Title 47, Series 5A (47 CSR 5A) accessible at *http://www.wvsos.com/csr/verify.asp?TitleSeries=47-05A*.
45. *http://www.dnr.state.wi.us/org/es/science/publications/wetland_mitig.pdf*.